Introduction

On June 24, 2022, the North Dakota Department of Environmental Quality (Department) received a permit application for a modification for Basin Electric Power Cooperative – Leland Olds Station (Basin Electric) closed coal combustion residuals (CCR) surface impoundments (Ponds 2 and 3).

Basin Electric currently owns and operates closed CCR surface impoundments regulated under Permit 0038 on approximately 50.99 acres located in Section 22, Township 144 North, Range 84 West in Mercer County, ND. Basin Electric is proposing to modify their permit to comply with the updated North Dakota Administrative Code (NDAC) requirements for CCR units. The facility was first permitted in the 1982.

Operation

On December 2, 1982, the Department issued the first permit to the facility for the disposal of residue including fly ash, bottom ash, and flue-gas desulfurization (FGD) sludge. The facility had been in use for approximately 16 years since about 1966, when fly ash and bottom ash were disposed of prior to state and federal regulations. Between the 1960s and the mid-1990s, both fly ash and bottom ash were sluiced via four gravity pipelines to the pond complex (Ponds 1 through 4). With the completion of a fly ash handling system in 1994, only bottom ash was then disposed of in the ponds. Pond 1 and Pond 4 (new permit) were alternately used as the primary settling pond for the sluiced ash. When one of the ponds reached capacity, the discharge was then diverted to the other pond. The ash was allowed to settle, and the standing water was evaporated or pumped to the water return pond, Pond 2. The settled and dewatered
ash from the out of service pond was then dredged or hauled by scraper to Pond 5, also known as the Special Use Disposal Area or SUDA (new permit).

The majority of the pond complex was permanently closed between 1992 and 2011. Pond 2 and Pond 3 remained operational and were used for bottom ash management at the facility until both ponds were inactivated in October 2015 and closed in 2020. Ponds 1 and 4 (new permit) were excavated of wastes, and then closed, with final cover work completed in former Pond 4 (new permit) in the fall of 1997. Pond 1 (new permit) was decommissioned with final cover in 2011. After 2011, Pond 2 (new permit), which was constructed in the early 1970s, was the only active settling pond for bottom ash at the facility. Pond 3 received the decanted water from Pond 2. Both Ponds 2 and 3 were closed in place with final cover completed in October of 2020.

**Closure**

With the start of the Environmental Protection Agency’s CCR regulatory deadline of October 19, 2015, Ponds 2 and 3 were classified as ‘inactive’ surface impoundments that met the federal timeline. Final closure construction of both ponds was conducted in two phases and was completed in October 2020, with Department approval of the closure construction documentation report in December 2020. It involved dewatering and final grading of the pond contents, and placement of an engineered cap and a stormwater management system.

Final construction and closure of Ponds 2 and 3 and the post-closure plan includes three to fifteen percent cover grades to ensure all run-on and runoff is adequately controlled; minimizing erosion utilizing straw waddles/logs as needed; final cover included six inches of SPGM; installing repairs of the final cover to correct any effects of settlement/subsidence; monitoring and maintaining of the groundwater monitoring system with annual sampling/analysis as required; utilizing vector and weed controls as necessary; reseeding of final cover bare SPGM areas as needed, and providing the name, address, and telephone number of the designated contact person or office.

**Compliance History**

The facility has not had any compliance issues and no formal notices of violations have been issued to the facility.

**Solid Waste Management Rules (NDAC Article 33.1-20)**

**NDAC Section 33.1-20-02.1-04. Record of notice.**

Basin Electric submitted a record of notice affidavit, dated December 14, 1994, to the Department as part of a renewal permit application at that time. A certified record of notice for the final closure of Ponds 2 and 3 was submitted by Basin Electric to the Department on December 3, 2020. It included a drawing of Ponds 2 and 3.

**NDAC Section 33.1-20-02.1-05. Property rights.**

The Department received four certified property rights warranty deeds copies from the dates when Basin Electric purchased Section 22, Township 114 North, Range 84 West in Mercer County from three private landowners on December 29, 1962, March 28, 1963 and May 7, 1963, respectively.
NDAC Section 33.1-20-03.1-01. Preapplication procedures.

The construction of the site in the 1960s predates the Department’s location standards and site characterization requirements including preapplication procedures.

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

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

A permit application, including supporting documents were submitted to the Department. The digital copy and the hard copy were received by the Department on June 24, 2022. An application processing fee of $3,000 was received by the Department on June 24, 2022.

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

A public notice by the facility is not required for a permit renewal and no major modifications are being proposed.

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 to dispose of coal processing wastes in a mining permit area.

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 permit application, including supporting documents were submitted to the Department. The digital copy and the hard copy were received by the Department on June 24, 2022. An application processing fee of $3,000 was received by the Department on June 24, 2022.

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;

Fly ash and bottom ash were sluiced to the pond complex (Ponds 1 through 5) east of the plant. Pond 1 and Pond 4 (new permit) were alternately used as the primary settling pond for the sluiced ash. When ones of the ponds reached capacity, the discharge was then diverted to the other pond. The ash was allowed to settle, and the standing water was evaporated or pumped to the water return pond, Pond 2. The settled and dewatered ash from the out of service pond was then dredged or hauled by scraper to Pond 5, also known as the Special Use Disposal Area or SUDA (new permit). The ponds are now closed and no longer accept any waste.
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 construction of the site in the 1960s predates the Department’s location standards and site characterization requirements including preapplication procedures. However, site hydrology and geology was characterized in a 1982 report by Water Supply, Inc and it was further characterized in a 1990 Hydrologic and Geotechnical report prepared by Braun.

The facility is underlain by an upper clay unit with a thickness of 0 to 26 feet, with an average of 8 feet; a silt and sand unit ranging in thickness from 2 to 25 feet (averaging about eight feet thick); and a lower sand and gravel unit containing detrital lignite. The second unit, the silt and sand unit, appears to be the uppermost aquifer and has hydraulic conductivity values ranging from $3.8 \times 10^{-6}$ cm/sec to $1.5 \times 10^{-4}$ cm/sec. Groundwater flow direction is generally northeast, toward the Missouri River.

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

The construction of the site in the 1960s predates the Department’s soil survey and soil segregation requirements. However, Ponds 2 and 3 have been capped and closed since 2020 and in accordance with the Department’s rules and the permit.

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

Basin Electric staff receive periodic instructional and refresher training from the facility and the Department regarding facility permitting; post-closure plan reviews and periodic final cover inspection requirements; weed and erosional controls, litter cleanups. The site maintains signs listing the facility name, permit number, contact information and prohibitions on dumping and trespassing.

Ponds 2 and 3 have been capped and closed since 2020. The site is no longer operational. Routine inspection and monitoring, including contingency planning, has been addressed through the post-closure plan. The post-closure plan addresses the requirements of this section.

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.
   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 requirements of this section are not applicable as the facility is not proposing any disposal activities.

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 as the facility is not proposing a special waste landfill.

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

Ponds 2 and 3 have been capped and closed since 2020. The site is no longer operational. The requirements of this section are not applicable with the exception of post-closure.

Final construction and closure of Ponds 2 and 3 and the post-closure plan includes three to fifteen percent cover grades to ensure all run-on and runoff is adequately controlled; minimizing erosion utilizing straw waddles/logs as needed; final cover included six inches of SPGM; installing repairs of the final cover to correct any effects of settlement/subsidence; monitoring and maintaining of the groundwater monitoring system with annual sampling/analysis as required; utilizing vector and weed controls as necessary; reseeding of final cover bare SPGM areas as needed, and providing the name, address, and telephone number of the designated contact person or office. The facility will monitor the site for the 30-year post-closure care period.

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;

Ponds 2 and 3 have been capped and closed since 2020. The site is no longer operational. Routine inspection and monitoring, including contingency planning, has been addressed through the post-closure plan. The post-closure plan addresses the requirements of this section.

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 Basin Electric Power Cooperative’s Bismarck Office.
j. **Demonstration of capability to fulfill the groundwater monitoring, section 33.1-20-13-02;**

Basin Electric included a groundwater monitoring plan that covers these units. There is a network of eight groundwater monitoring wells which target the uppermost aquifer, and they were installed in 2017 to comply with the CCR groundwater monitoring requirements. An additional two groundwater monitoring wells were installed in 2020 to further characterize the range of upgradient/background groundwater quality. All of the CCR monitoring wells that were installed in 2017 were required to be sampled eight times by April 17, 2019 to establish a baseline of the background and downgradient concentrations. After April 2019, groundwater monitoring transitioned to semi-annual detection monitoring. The facility will submit an annual groundwater monitoring and corrective action report to the Department by March 1st of each year.

k. **Construction quality assurance and quality control;**

Ponds 2 and 3 have been capped and closed since 2020. The site is no longer operational. The requirements of this section are not applicable as no additional construction will occur.

l. **Demonstrations of capability to fulfill the closure standards, section 33.1-20-1-04.1-05 and otherwise provided by this article;**

Ponds 2 and 3 have been capped and closed since 2020. The site is no longer operational. The requirements of this section are not applicable as no additional closure will occur.

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

Final construction and closure of Ponds 2 and 3 and the post-closure plan includes three to fifteen percent cover grades to ensure all run-on and runoff is adequately controlled; minimizing erosion utilizing straw waddles/logs as needed; final cover included six inches of SPGM; installing repairs of the final cover to correct any effects of settlement/subsidence; monitoring and maintaining of the groundwater monitoring system with annual sampling/analysis as required; utilizing vector and weed controls as necessary; reseeding of final cover bare SPGM areas as needed, and providing the name, address, and telephone number of the designated contact person or office. The facility will monitor the site for the 30-year post-closure care period.

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 on June 21, 2022.
Conclusion

Based on the submitted application and items discussed above, Basin Electric Power Cooperative has shown that the modification meets the requirements of the North Dakota Solid Waste Management Rules. It is proposed that the Department grant Basin Electric Power Cooperative a permit with the conditions listed in Permit 0038. The proposed permit length is for a period of 4 years because the current permit is set to expire on June 28, 2027, and this permit addresses new requirements for CCR facilities.

CRH:DAT:KDJ
Attachment