

## **Closure Plan**

### **Blue Pit Ash Disposal Facility**

### **Coyote Station**

#### **Introduction**

This Closure Plan has been written for the Blue Pit (landfill) at Coyote Station near Beulah, North Dakota. This Closure Plan has been written to satisfy §257.102(b)(3) of the Coal Combustion Residual Rule and is an amendment to the previous Closure Plan dated September 24, 2020.

Disposal of Coyote Station's coal combustion residuals (CCR) in the landfill has been regulated by the North Dakota Department of Environmental Quality (DEQ) since 1997. CCR generated prior to 1997 was disposed of in landfills that are now closed.

Early landfill progression occurred along the east side. Fill progression continued from north to south until 2020. During 2020, approval was granted for a vertical expansion of the landfill that changed the progression from the south to the north. Ultimately, there are 12 sequences planned for the Blue Pit. At this time, 8 sequences have been constructed; 5 of those have reached final grades and have been closed. Final closure on the remaining sequences will occur as areas reach final grades. Closure is planned to occur as areas reach final waste grades, with each sequence consisting of multiple closure projects.

#### **Closure Procedures §257.102(b)(1)(i)-(ii)**

Closure of the landfill will be in-place. Fill progression of the landfill occurs from south to north for Vertical Expansions 1-4. The active portion of the landfill is kept as small as practicable to reduce the generation of leachate and control fugitive dust. Sequences 9 through 12 will be filled from north to south.

Closure will initiate as sufficient areas of final grades are achieved. CCR will be brought to grade and compacted to provide a smooth finish capable of supporting the final cover system.

Details on schedule, final cover design, notification timelines, and certification can be found below.

**Quantity of CCR §257.102(b)(1)(iv)-(v)**

No temporary storage of ash will take place at this facility. Approximately 10,104,336 cubic yards of CCR is estimated to be ultimately disposed of in the permitted landfill. The largest area of the CCR unit requiring final cover is approximately 33 acres.

**Closure Schedule §257.102(b)(1)(vi)**

Closure is dependent on the quantity of CCR produced. The design of the facility is such that the final grades will be achieved in individual phases as quickly as possible, allowing final cover to be placed sequentially. Closure will commence as final grades are achieved, and as sufficient area is available to place final cover. The owner or operator of a CCR unit will commence closure activities no later than 30 days after the last known receipt of waste or removing the last amount of CCR from the unit for beneficial use in accordance with §257.102(e)(1)(i).

Final closure is estimated to occur in 2050. Closure of the landfill will be completed within 180 days of commencing closure for that phase in accordance with §257.102(f)(i). Please see Figure 1 and Table 1 for more details.

**Table 1 Closure  
 Schedule**

**Estimated Date of Sequence Construction Closure Commencement**

Vertical Expansion Closure	July 15, 2025
Vertical Expansion Closure	July 15, 2027
Sequence 8 Final Closure	July 15, 2030
Sequence 9 Closure	July 15, 2034
Sequence 10 Partial Closure 1	July 15, 2037
Sequence 10 Partial Closure 2	July 15, 2040
Sequence 10 Final Closure	July 15, 2043
Sequence 11 Partial Closure	July 15, 2046
Sequence 11 Final Closure	July 15, 2048
Sequence 12 Final Closure	July 15, 2050

**Closure Performance Standard §257.102(d)**

Post closure infiltration will be minimized or eliminated by constructing a landfill final cover system in accordance with DEQ rules. The final cover profile from bottom to top will consist of:

- Clay rich soil, 45 inches thick
- Subsoil, 9 inches thick
- Topsoil, 6 inches thick

All final cover phases will be designed and constructed to capture and convey stormwater off the landfill, down to stormwater drainages. Run-off from the active fill area will be handled in accordance with §257.81, and will collect and contain the run-off from a 25-year, 24-hour storm event.

Performance of the proposed final cover system was evaluated using a water balance model simulation software (GeoStudio Seep/W 2024.1.0) to determine time-dependent pore pressure changes and their effect on soil water storage<sup>1</sup>. The results of the simulation indicate the seepage rate through the base liner exceeds the percolation rate through the final cover system with and without a capillary break between the waste and final cover system.

Therefore, the performance of the final cover design exceeds that of the base liner and meets §257.102(d)(3)(A), which states:

*The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than  $1 \times 10^{-5}$  cm/sec, whichever is less.*

This design also conforms with the requirements of NDAC 33.1-20-08-07.3.d(3)(a)[1] which states that the final cover system must be designed and constructed to meet the following criteria:

*The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of eighteen inches [45.7 centimeters] of earthen material. The saturated hydraulic conductivity of the infiltration layer must be no greater than  $1 \times 10^{-7}$  centimeters per second.*

Maintenance requirements for the final cover system will be minimized by establishing and supporting vegetation. Erosion control products appropriate for the slope and expected stormwater run-off velocity will be implemented to assist vegetative growth. Once vegetation is established, mowing will occur to prevent the growth of woody vegetation.

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<sup>1</sup> Evapotranspiration Final Cover Water Balance Modeling Report – Blue Pit, Carlson McCain, May 2024

**Notification of Closure §257.102(g)**

A notification of intent (NOI) to close will be submitted to the DEQ Commissioner 90 days prior to final closure of the landfill. A NOI will be placed in the facility's operating record and CCR website. The NOI will include a certification by a qualified professional engineer that the design of the final cover system meets the requirements of §257.102(d)(iii). The estimated dates for closure of the phases are presented in Table 1 and Figure 1, but are subject to change.

**Certification of Final Phase of Closure §257.102(h)**

Upon completion of closure activities at the landfill, a closure documentation report will be submitted to the DEQ. This will be signed by an authorized officer of Otter Tail Power Company and a professional engineer licensed in North Dakota. The report will state that the landfill has been closed in accordance with DEQ-approved plans and specifications and in accordance with this closure plan (§257.102(d)(3)(iii)) and §257.107(i).

Testing of the various components of the cover will be conducted and documented in accordance with the Construction Quality Assurance/Quality Control Plan in effect at the time of final closure, and in accordance with applicable rules. The closure and construction documentation will be submitted to the DEQ, placed in the facility's operating record, and posted on the CCR website within 30 days of completion of closure. The report will contain record drawings, testing data and a description of the construction process with photographs.

In addition, upon final closure of the entire facility, a detailed description, including plat, will be recorded with the Mercer County Recorder. The description will include types and location of wastes, depth of fill and other information that may be of interest to future landowners. A copy of the Record Drawings will be submitted to the Mercer County Recorder and the DEQ.

Following final closure of the landfill, the facility will then be subject to the post-closure care as required by the DEQ and federal regulations. Please see "Blue Pit Post-Closure Plan" for more details. The Otter Tail Power Company contact after the landfill receives its final closure will be:

Manager, Environmental Services  
Otter Tail Power Company  
215 South Cascade Street  
PO Box 496  
Fergus Falls, MN 56538-0496  
Phone:218.739.8526

**Deed Notation** §257.102(i)

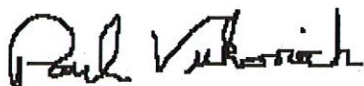
A notation will be made on the deed or other instrument normally examined during a title search. In accordance with §257.102(i)(2) the notation will include record drawings and in perpetuity notify potential purchasers that: a) the land has been used as CCR unit, and b) its use is restricted under the post-closure care requirements as provided by §257.104(d)(1)(iii). A copy of the notation carrying the Mercer County Recorder's seal will be included with the certification.

**Amendment of Closure Plan** §257.102(b)(3)

If any event or change affects this plan, an amended Closure Plan will be prepared, placed in the facility's operating record, and posted on the CCR website. This applies to any change in the Operations and Maintenance Plan, facility design, or estimated year of closure. At a minimum, the Closure Plan will be reviewed and updated, if necessary, every two years in accordance with §257.102(b)(3)(ii).

**Certification:**

I hereby certify under penalty of law that this report was 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 upon 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 there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Paul M. Vukonich  
License No. PE-27050

June 5, 2024

Date

FIGURE 1 – BLUE PIT CLOSURE TIMELINE OVERVIEW

