



Closure Plan

Ash Disposal Facility

Otter Tail Power Company – Coyote Station (Blue Pit)

Introduction

This report presents the Closure Plan 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 October 10, 2017.

Disposal of Coyote Station's 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 so filling now occurs from the south to the north. Ultimately, there are 10 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 biennially, with each sequence consisting of multiple closure projects.

Closure Procedures §257.102(b)(1)(i)

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 and 10 will be filled from east to west.

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 million 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 24 acres.

Closure Schedule §257.102(b)(1)(vi)

Closure phases of the landfill are 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 planned to occur in 2045. Closure of the landfill will be completed within 180 days commencing closure for that phase (§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 1	July 15, 2022
Vertical Expansion Closure 2	July 15, 2024
Vertical Expansion Closure 3	July 15, 2026
Vertical Expansion Closure 4	July 15, 2028
Sequence 7 Final Closure & Sequence 8 Partial Closure	July 15, 2030
Sequence 8 Final Closure	July 15, 2032
Sequence 9 Partial Closure 1	July 15, 2034
Sequence 9 Partial Closure 2	July 15, 2036
Sequence 9 Final Closure	July 15, 2038
Sequence 10 Partial Closure 1	July 15, 2040
Sequence 10 Partial Closure 2	July 15, 2042
Sequence 10 Partial Closure 3	July 15, 2044
Sequence 10 Final Closure	July 15, 2045

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 the HELP model (Hydrologic Evaluation of Landfill Performance, Version 3, U.S. Army Corps of Engineers Waterways Experiment Station, 1994) to determine the average long-term percolation rate. The results of the simulation indicate essentially zero percolation through the final cover. This design conforms with the requirements of NDAC 33-20-07.1-02. DEQ has approved this design for other sites with similar soil and climatic conditions and the average long-term percolation rate is 0.191 inches year, less than the required 0.2 inch per year.

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.

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 the plan, an amended Closure Plan will be prepared and submitted to the DEQ, 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 beginning with this version of the Closure Plan §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

September 24, 2020
Date

FIGURE 1 – BLUE PIT CLOSURE TIMELINE OVERVIEW

