



# **Coal Combustion Residuals Landfill**

## **Post-Closure Care Plan**

### ***Antelope Valley Station Landfill***

Prepared for  
Basin Electric Power Cooperative

March 2022

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## Certifications

I hereby certify that I have or my agent has examined the facility and, being familiar with the provisions of 40 CFR 257 Subpart D, attest that this Coal Combustion Residuals landfill post-closure care plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR § 257.104. I certify that the plan is adequate for this facility and that procedures for recordkeeping and reporting have been established.



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Seth W. Hueckman  
Barr Engineering Co.  
ND Registration Number PE-10057

Dated this 17th day of March 2022

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# 1 Introduction

Antelope Valley Station (AVS) is a lignite coal-fired power plant consisting of two units that generate about 900 megawatts (MW) combined. The power plant, owned and operated by Basin Electric Power Cooperative (Basin Electric), is located approximately eight miles northwest of Beulah in Mercer County, North Dakota. Coal ash from AVS is disposed at the Section 7 Landfill, regulated as a coal combustion residual (CCR) landfill under Permit No. 0160 issued by the North Dakota Department of Environmental Quality (NDDEQ). CCR management is subject to Federal Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments per 40 CFR 257 Subpart D.

The existing landfill was first permitted by the North Dakota Department of Health, now NDDEQ, for solid waste disposal in 1995. The existing landfill currently consists of four cells, Cells 1-4. The landfill was permitted with a clay liner system. The first phase of liner construction was completed in 1996 with ash placement beginning the same year. The fourth and final phase of the existing landfill liner construction was completed in 2015. Partial sequential closure has been conducted on areas of the existing landfill that had been filled to final grade, with closure construction occurring in 2003, 2011, 2014, and 2016. Approximately 52 acres of the existing landfill is currently active; including Cell 4 and portions of Cell 1, Cell 2, and Cell 3. Approximately 51 acres of the 103-acre CCR landfill footprint for Cells 1-4 have been closed using an engineered earthen cover system approved by the NDDEQ.

Construction of a lateral expansion is scheduled for 2022. The lateral expansion will include a composite liner constructed with a compacted clay liner overlain by a 60-mil high density polyethylene (HDPE) geomembrane liner. The lateral expansion will consist of four additional landfill cells, Cells 5-8, totaling approximately 128 acres. The existing landfill and lateral expansion are considered to be one CCR unit (Cells 1-8). This post-closure care plan has been developed to satisfy the requirements of 40 CFR § 257.104(d), written post-closure care plan for CCR landfills.

## 2 Monitoring and Maintenance Activities

Basin Electric will be responsible for the post-closure care of the site in accordance with the NDDEQ-issued state permit and 40 CFR § 257.104. The post-closure care period begins on the date of final closure certification and continues for a period of 30 years from the date of final closure of the entire CCR unit. The following subsections describe the monitoring and maintenance activities required during the post-closure care period.

### 2.1 Inspection and Maintenance

Routine inspection of the landfill and adjoining land area will occur at least two times a year. These inspections will include observations of the cover integrity (for example, settlement or vegetation quality), erosion and surface water drainage, the leachate management system, monitoring systems, and site security features. Inspection may also be performed after a severe weather event.

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If the site inspection reveals any problems or potential problems, appropriate corrective measures will be performed. Routine post-closure maintenance activities will be completed as needed. These routine activities include, but are not limited to, mowing, noxious weed control, maintaining access control, and maintaining drainageway flow capacity. All features including, but not limited to, monitoring wells, security system, leachate collection systems, and surface water control structures will be properly maintained.

Inspection and maintenance practices for specific components of the landfill are described below.

### **2.1.1 Surface Water Run-off Control Facilities**

Drainage ditches, berms, swales, and any other run-off control features will be inspected two times per year and after severe weather events. Required maintenance will be performed as soon after inspection as practicable, weather permitting.

### **2.1.2 Final Cover Surface**

The landfill surface will be inspected two times per year and after severe weather events. Supplemental cover soil will be placed to repair the effects of erosion or settlement as soon as practicable. Seeding, fertilizing, and mulching of bare soil will be performed as required. These areas will be inspected periodically to ensure that vegetative growth has been re-established.

In addition to routine cover inspection and repair, the landfill cover vegetation will be evaluated for overall health and effectiveness. If there are any areas where the cover vegetation is poorly established or otherwise stressed, reseeding and/or growth and development measures will be instituted and an adequate sod established. Damage to vegetation will be prevented by maintaining drainage channels for maximum flow capacity. Vegetation will also require routine surface care maintenance to prevent shrub growth.

### **2.1.3 Leachate Management System**

Leachate will be collected and managed throughout the post-closure period for the facility. The collection system piping will be cleaned every two years, or on a lesser frequency if conditions warrant as may be approved by the NDDEQ.

## **2.2 Groundwater Monitoring**

Routine groundwater monitoring will be performed during the post-closure care period in accordance with the most current groundwater monitoring program required in the NDDEQ-issued permit and the requirements of 40 CFR § 257.90 through 40 CFR § 257.98.

These programs will be followed throughout the post-closure period. However, the groundwater monitoring plan will be reviewed annually, and if conditions change or results indicate that it should be amended, the program may be modified by request of Basin Electric and approval of the NDDEQ if in compliance with 40 CFR 257 Subpart D. Monitoring program modifications may include items such as

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addition or removal of groundwater monitoring wells, and modification of the analysis parameter list and sampling frequency (increases or reductions as conditions warrant).

### 3 Contact Information

The CCR unit is owned and operated by Basin Electric Power Cooperative. The facility contact during the post-closure care period is:

Environmental Director  
Basin Electric Power Cooperative  
1717 East Interstate Avenue  
Bismarck, ND 58503  
Phone number: 701.223.0441

### 4 Planned Use of Property

The CCR unit will be closed with relatively gentle slopes (maximum slope as shown on the permit drawings) and seeded with shallow-rooted native vegetation, two important factors that help minimize the need for future maintenance. The closed landfill will not be used for cultivated crops, heavy grazing or any other use which might disturb the protective vegetative and soil cover. In addition, post-closure property use will not include activities or developments that could be detrimental to surface water management features, groundwater monitoring systems, or other facility infrastructure.

### 5 Recordkeeping & Reporting

Basin Electric will maintain a copy of the most recent version of the post-closure care plan in the facility's operating record in accordance with 40 CFR § 257.105, Recordkeeping Requirements, and the plan will be made publicly available on the Basin Electric CCR web site in compliance with 40 CFR § 257.107, Publicly Accessible Internet Site Requirements.

The findings of the post-closure care inspections described in Section 2.0 will be included in the facility's annual report provided to the NDDEQ. The report will summarize the conditions observed, corrective actions taken, maintenance activities, and monitoring activities performed during the post-closure care period.

No later than 60 days following the completion of the post-closure care period, Basin Electric will prepare a notification verifying that post-closure care has been completed in accordance with 40 CFR § 257.104(e). The notification will include certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the post-closure care plan.

Notifications for availability of the amended post-closure care plan and completion of post-closure care period will be sent to State Director ([solidwaste@nd.gov](mailto:solidwaste@nd.gov)) in compliance with 40 CFR § 257.106, Notification Requirements.