



Written Closure Plan

Valmont Station - Active CCR Landfill

*Public Service Company of Colorado
Denver, Colorado*

October 17, 2016





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Table of Abbreviations and Acronyms

Abbreviation	Definition
ADF	Ash Disposal Facility
CCR	Coal Combustion Residuals
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
cm/sec	Centimeters per Second
EDOP	Engineering Design and Operations Plan
MW	Megawatt

1.0 General Information

Valmont Station is located at 1800 North 63rd Street Boulder, Colorado, approximately 4 miles east of downtown Boulder. The Ash Disposal Facility (ADF) is located on the Valmont Station Power Plant site approximately one-half mile north of the power plant on the northern side of Leggett Reservoir. Valmont Station currently operates one coal-fired steam generation unit. The 184-megawatt (MW) generator was installed in 1964 and is scheduled to be retired in 2017. Fly ash is collected in bag-houses, temporarily stored in a silo, and transported to the on-site ADF for disposal. During silo unloading, fly ash is conditioned in a pug mill to about 15 percent moisture content for dust control and to aid in compaction.

See the attached figure (**Figure 1**) for a map of the Valmont Power Station.

The ADF has been in use since 1993. The total ADF area encompasses approximately 60 acres; the total filled area is approximately 53 acres. The majority of waste disposed at the facility is coal combustion residuals (CCR; bottom ash and fly ash) generated at the Valmont Station Power Plant. Scrubber solids from air emissions control equipment are commingled with the fly ash.

Valmont Station is expected to close in 2017, and closure of the ADF will be completed within the timeframes described in this plan.

In accordance with 40 Code of Federal Regulations (CFR) 257 Disposal of Coal Combustion Residuals From Electrical Utilities (CCR Rule) §102(b), owners of CCR disposal units are required to publish a written closure plan that “...describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices.”

This closure plan fulfills the requirements of 40 CFR 257.102(b).

2.0 Description of Closure Plan – §257.102(b)(1)(i-iii)

The Valmont Station ADF is an active, unlined CCR disposal unit that began construction and operation in 1993 and has remained in continuous operation since that time. The ADF is operated under an Engineering Design and Operations Plan (EDOP) developed pursuant to Colorado Department of Public Health and Environment (CDPHE) Solid Waste Regulations.

Closure of the ADF is implemented in phases as individual areas reach their final capacity. According to Public Service Company of Colorado (PSCo), Areas A-1, A-2, A-3, B-1, and C-1 and the sideslopes of Q-1 and Q-2 (up to approximate elevation of 5,290 feet) were closed prior to April 17, 2015, with final cover in accordance with the EDOP. According to the EDOP, once an area reaches its final permitted capacity, the area is closed with an 18-inch soil infiltration layer, followed by a 6-inch soil rooting layer. Areas that were closed prior to April 17, 2015, are not subject to 40 CFR 257.



Figure 1. Valmont Power Station

ADF Area D-1 is currently active, Area E-1 has interim cover, and Areas Q-1 and Q-2 (above elevation 5,290 feet) were closed after April 17, 2015. These areas are subject to 40 CFR 257. As such, these areas will be closed in accordance with 40 CFR 257.102(d). According to 40 CFR 257.102(d) - Closure performance standard when leaving CCR in place – *“the final cover system designed to have a permeability less than or equal to any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec.”*

According to the EDOP, the permeability of the natural subsoils beneath the ADF was estimated to be 3.0×10^{-7} centimeters per second (cm/sec). Therefore, to meet the requirements of 40 CFR 257.102, Areas D-1, E-1, and the upper portions of Q-1 and Q-2 will require a final cover with a maximum permeability of 3.0×10^{-7} cm/sec. The impermeable cover layer may be constructed of 18 inches of on-site soils amended with bentonite, 18 inches of soils imported from off-site, a geosynthetic membrane liner, or an alternative cover system that meets the requirements of 40 CFR 257.102(d)(3)(ii). Regardless of the type of impermeable layer installed, the final layer of the cover system will consist of a soil rooting layer with a minimum depth of 6 inches that will be seeded with native grasses commonly used in the semi-arid western mountain states at elevations less than 5,500 feet.

Upon completion of closure activities, a notification of completion of closure will be completed, per 40 CFR 257.102(h) and 257.105(i)(8). The notification will document that all requirements and conditions of the Closure Plan were achieved. The report will be signed and sealed by a Colorado registered Professional Engineer.

3.0 Inventory Estimate – §257.102(b)(1)(iv)

In accordance with 257.102(b)(1)(iv) an estimate of the maximum inventory of CCR ever on-site over the active life of the CCR Landfill must be provided.

Historically the ADF has accepted approximately 60,000 tons of fly ash, 35,000 tons of bottom ash, and 15,000 tons of Scrubber Solid wastes annually (~110,000 cubic yards/year). The ADF has been in operation since 1993. Over the 23-years of operation the ADF has accumulated approximately 2,530,000 cubic yards of CCR material.

When the ADF is closed in 2017, the estimated final volume of CCR will be approximately 2,750,000 cubic yards.

4.0 Area Requiring Final Cover – §102(b)1(v)

In accordance with 40 CFR 257.102(b)(1)(v), an estimate of the largest area of the CCR unit ever requiring a final cover must be provided.

The facility is located on a slope approximately one-half mile north of the Valmont Station. The total ADF disposal area parcel encompasses approximately 60 acres.

Approximately 53 acres received landfilled CCR. According to PSCo, approximately 31 acres (Areas A-1, A-2, A-3, B-1, and C-1 and the sideslopes of Q-1 and Q-2) were closed and covered prior to April 17, 2015, and are not subject to 40 CFR 257. Approximately 22 acres (Areas D-1 and E-1, and the top of Areas Q-1 and Q-2) require a final cover in accordance with 40 CFR 257.102(d).



5.0 Schedule of Closure Activities – §257.102(b)1(vi)

Table 1. Schedule of Closure Activities		
Task	Start Date	Finish Date
Written Closure Plan	n/a	October 17, 2016
Written Post-Closure Plan	n/a	October 17, 2016
Last Receipt of CCR	Ongoing	April 30, 2022
Notification of Two Year Extension	n/a	April 30, 2019
Notification of Two Year Extension	n/a	April 30, 2021
Landfill Closure	May 31, 2022	November 30, 2022
Annual Inspections	Year 2015	Annually until 2022
Fugitive Dust Plan Updates	Year 2015	Annually until 2022
Post-Closure Maintenance	Year 2022	Year 2052 (minimum)

Note: CCR from closures of on-site CCR surface impoundments will be disposed of at the ADF. The CCR surface impoundment closure must be completed no later than April 2022. If necessary to accommodate receipt of ash from the impoundment closure, notification of two year extension(s) for closure of the landfill will be made pursuant 257.102(e)(2)(ii) and 257.102(e)(2)(iii),

6.0 Qualified Professional Engineer Certification §257.102(b)(4) and §257.102(d)(3)

According to 40 CFR 257.102(b)(4), the owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written closure plan meets the requirements of this section.

According to 40 CFR 257.102(d)(3), the owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of this section.

I, Christopher M. Koehler, being a registered Professional Engineer, in accordance with the Colorado State Board of Licensure for Architects, Professional Engineers, and Professional Land Surveyors, do hereby certify to the best of my knowledge, information, and belief, that the information contained in this written Closure Plan dated October 17, 2016, was conducted in accordance with the requirements of 40 CFR. 257.102(b) and (d), is true and correct, and was prepared in accordance with recognized and generally accepted good engineering practices.

SIGNATURE:



Colorado PE 0051359

DATE:

October 14, 2016