



Written Post-Closure Plan

Comanche 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
amsl	above mean sea level
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
PSCo	Public Service Company of Colorado

1.0 General Information

Comanche Station is a 1,450-megawatt coal-fired steam turbine power plant owned and operated by Public Service Company of Colorado (PSCo), an Xcel Energy company. The Station is located at 2005 Lime Road, Pueblo, Colorado, approximately 3 miles south of Colorado Highway 50 in Pueblo County, Colorado.

The station's Ash Disposal Facility (ADF) is located on the southwest corner of the Comanche property (see **Figure 1**). The land surface elevations range from approximately 4,830 feet above mean sea level (amsl) in the southwest and northwest corners of the Site to approximately 4,800 feet amsl in the southeast corner of the Site.

The ADF is an active, coal combustion residuals (CCR) disposal unit that began construction and operation in 1987 and has remained in continuous operation since that time. The ADF is operated under an Engineering Design and Operations Plan developed pursuant to Colorado Department of Health and Environment Solid Waste Regulations.

The ADF is an approximately 280-acre engineered ash monofill consisting of eight permitted disposal cells. Approximately 38.7 acres of the ADF will be used for surface water control structures, access roads, and borrow area. The wastes accepted at the ADF consist primarily of coal ash (fly ash and bottom ash), with smaller quantities of water treatment sludge, process water pond sediment, coal impurities, and excavation soils. Cell 1 is the current active disposal area.

In accordance with 40 Code of Federal Regulations (CFR) §257 Disposal of Coal Combustion Residuals From Electrical Utilities (CCR Rule) 40 CFR §257.104(d), PSCo is required to publish a written post closure plan that describes the maintenance and monitoring for the landfill throughout the 30-year post closure care period.

This plan fulfills the requirements of 40 CFR §257.104(d) that requires:

- (i) A description of the required monitoring and maintenance activities and the frequency at which activities will be performed;
- (ii) The name address, telephone number and e-mail address of the person or office to contact about the facility during the post-closure care period; and
- (iii) A description of the planned uses of the property during the post-closure period.

2.0 Monitoring and Maintenance §257.104(d)(1)

The ADF will be monitored and maintained as a single CCR unit. The post-closure care will be conducted for a minimum of 30 years after the closure of the last cell to receive CCR waste. During the post-closure period, semi-annual facility inspections will be conducted. The inspections will include observations for cover integrity (e.g., erosion or problems with vegetative quality), surface-water drainage, and site security features. Deficiencies identified during the inspections will be corrected as soon as practical.



Figure 1. Comanche Power Station

2.1 Integrity of Final Cover §257.104(b)(1)

The final cover will be reviewed during the semi-annual inspections. Looking for evidence of the following items:

- Settlement and subsidence;
- Surface erosion;
- Vegetative damage;
- Cracks or desiccation; and
- Biotic intrusion of the cap (burrowing rodents or animals).

Visual inspections for subsidence can include walking the cover after a major rainstorm or the beginning of snowmelt and thaw and looking for puddles or ponding.

Repair of the capping system in damaged areas should include:

- Replacing soils by type;
- Replacing cover soil; and
- Reestablishing vegetation.

Visual inspection of the storm water/drainage system should include the following areas:

- Culverts
- Ditches
- Monitoring/discharge structures
- Other drainage control structures

Inspection will identify any accelerated erosion in a particular area and differential settling of drainage control structures. Inspections will also look for sedimentation, clogs or obstructions, deterioration, and vegetative intrusion.

Damaged drainage control structures will be repaired, replaced, or restored to original conditions. When drainage structures become plugged or silt filled, they will be cleaned by water jetting or similar means. Silt-filled drainage channels will be cleaned, re-graded and vegetated, as necessary to maintain drainage capacity.

Annual maintenance requirements may be affected by weather, the maturity of vegetation and other variables. The level of maintenance should decrease with time and the stability of the waste and vegetative support system.

2.2 Integrity of Leachate Collection and Removal System §257.104(b)(2)

The leachate-collection system will be operated to allow the system to function as designed. The leachate collection system should be visually inspected for the following:

- Blockage of pipes and clean-outs;
- Carriage to leachate pumping facilities; and,
- Leaks or cracks in collection/retention structures.

Leachate collection pipes will be inspected for blockages and damages. Clogged leachate collection piping should be cleaned by water jetting or similar means. Damaged leachate collection system components will be repaired and/or replaced, as required or as accessible.



2.3 Integrity of Groundwater Monitoring System §257.104(b)(3)

The groundwater monitoring wells should be visually inspected for the following at each post-closure sampling event:

- Erosion or biotic intrusion around the base;
- Damage to locking well caps;
- Integrity of well seals; and
- Integrity of any well markers or protective structures.

Areas of erosion at groundwater monitoring wells will be filled with compatible soil materials graded to drain and covered with vegetative growth. Damaged well caps, concrete pads, and well seals should be repaired and/or replaced. Wells damaged below grade levels may need to be evaluated further and possibly replaced.

At the conclusion of the post-closure monitoring period, all monitoring wells will be properly abandoned in accordance with the applicable regulatory requirements.

2.4 Post-Closure Groundwater Monitoring §257.104(b)(3)

Consistent with the requirements of 40 CFR §257.90 through 257.98, PSCo has prepared a site specific groundwater monitoring system and plan. The groundwater monitoring system, sampling, analytical analysis, and reporting procedures are described in the Groundwater Monitoring System Certification as posted to the facility Operating Record.

All sampling, packaging, shipping, testing, and reporting during the post-closure care period will be in accordance with the facilities Groundwater Monitoring System Certification prepared pursuant to 40 CFR §257.91(f).

3.0 Post-Closure Site Contact 257.104(d)(1)(ii)

Comanche Station ADF is owned and operated by PSCo, 1800 Larimer Street, Denver, Colorado 80202. **Table 1** lists personnel associated with this site with the responsibility for post-closure care monitoring and maintenance.

Table 1. Current Personnel Responsibilities			
Name	Telephone	Department	E-mail
Jennifer McCarter	303-294-2228	Environmental Services	Jennifer.McCarter@xcelenergy.com



4.0 Post-Closure Use §257.104(d)(1)(iii)

In accordance with 40 CFR §257.104(d)(iii) the post-closure plan must provide a description of the planned uses of the property during the post-closure period.

There is no current post-closure use planned for the Comanche ADF. The stabilized capped landfill will be open range for wildlife and other passive uses. The ADF is located entirely on the fenced and secured property owned by PSCo.

5.0 Schedule of Closure Activities

Closure will be conducted in a phased manner that follows the phased construction and operation of the cells (see **Table 2**).

Table 2. Schedule of Closure Activities		
Task	Cell Start Date	Cell Finish Date (Initiation of Closure)
Written Closure Plan	October 17, 2016	October 17, 2016
Written Post-Closure Plan	October 17, 2016	October 17, 2016
Cell 1	1987	2019
Cell 2	2017	2024
Cell 3	Year 2024	Year 2033
Cell 4	Year 2033	Year 2038
Cell 5	Year 2038	Year 2044
Cell 6	Year 2044	Year 2055
Cell 7	Year 2055	Year 2073
Cell 8	Year 2073	Year 2092
Annual Inspections	Annually	Annually
Fugitive Dust Plan Updates	Annually	Annually
Post Closure Maintenance	Year 2092	Year 2122 (minimum)

6.0 Qualified Professional Engineer Certification §257.104(d)(4)

In accordance with 40 CFR §257.104(d)(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 post closure plan meets the requirements of this section.

I, Douglas T. DeCesare, hereby certify that this Written Plan of Post Closure meets the requirements of 40 CFR §257.104(d)(4) and that I am a duly registered Professional Engineer under the laws of the State of Colorado.

SIGNATURE:



Colorado PE 0051341

DATE:

October 14, 2016