



# Post-Closure Plan

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Pawnee Station – East CCR Landfill

*Public Service Company of Colorado  
Denver Colorado*

December 28, 2018



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## Table of Abbreviations and Acronyms

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Abbreviation	Definition
CCR	Coal Combustion Residuals
cf	Cubic feet
CFR	Code of Federal Regulation
CDPHE	Colorado Department of Public Health and Environment
EDOP	Engineering Design and Operations Plan
oz/sy	Ounces per square yard
PSCo	Public Service Company of Colorado

# 1.0 General Information

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities; Final Rule (40 CFR 257 and 261) (Federal CCR Rule). The rule defines a set of requirements for the disposal and handling of CCR within CCR units. The requirements include preparation of a Post Closure Plan for all existing and new CCR landfills.

The Pawnee Station Power Plant is located at 14940 Morgan County Road 24, Brush, Colorado approximately 4 miles southwest of Brush, Colorado. Pawnee Station operates two CCR landfills (North and East CCR Landfills) located on the plant property approximately one-half mile south of the main power plant building. This Post Closure Plan is limited to the East CCR Landfill which is subject to the CCR Rule. A separate Post Closure Plan was previously prepared for the North CCR Landfill.

The Morgan County Commissioners approved construction and operation of the east landfill in September 2017 as part of a Special Use Permit. The landfill will start ash disposal in early 2019. The landfill is operated under an Engineering Design and Operations Plan approved by the Colorado Department of Public Health and Environment (CDPHE). The East CCR Landfill encompasses an area of approximately 13 acres. **Figure 1** shows the location of the East CCR Landfill.

In accordance with 40 CFR §257.104(d), Public Service Company of Colorado (PSCo), an Xcel Energy company, 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 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.

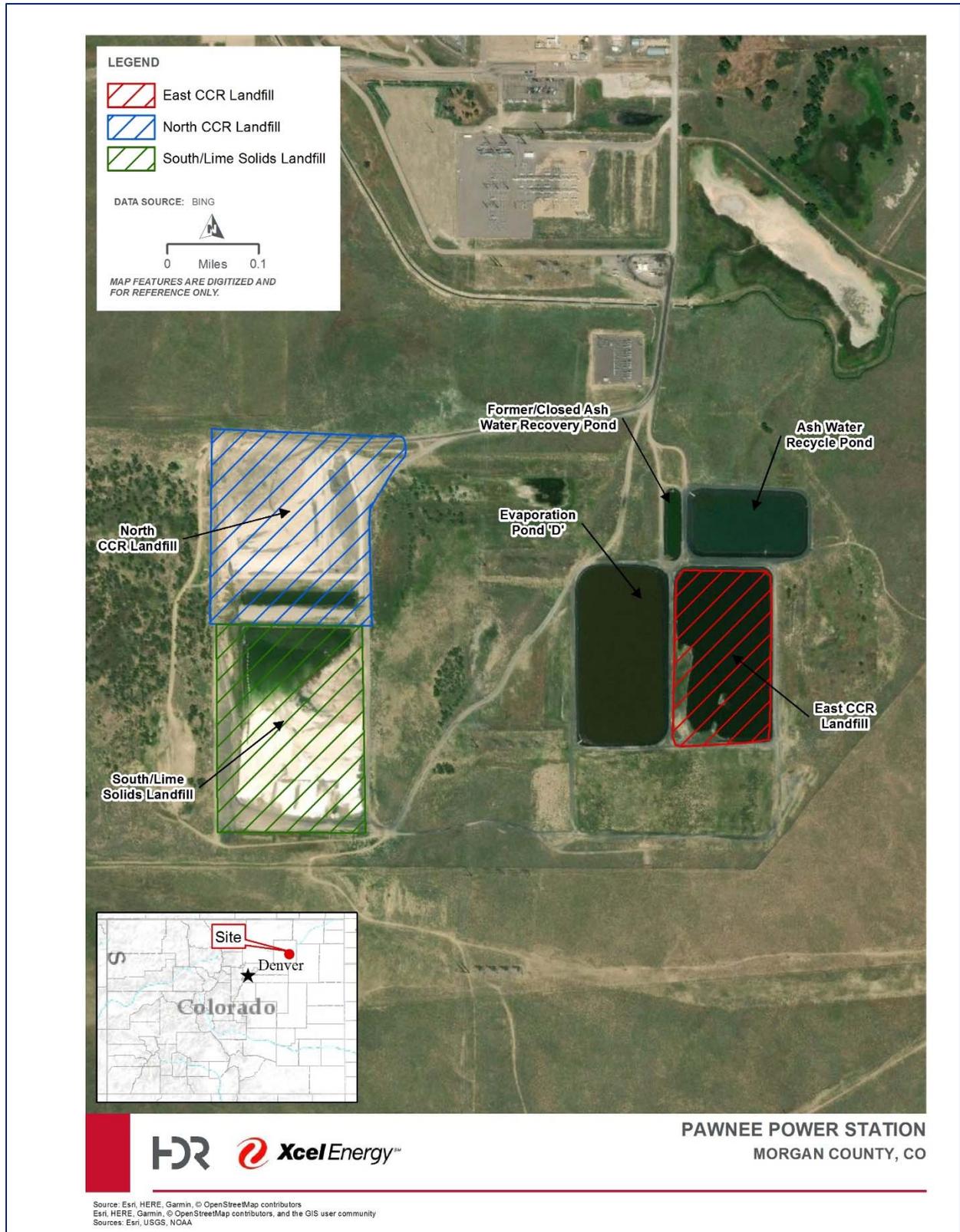


Figure 1. Pawnee Power Station CCR Landfill Location Map

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

The East CCR Landfill will be monitored and maintained as a single unit. The post-closure monitoring and maintenance will be conducted for a minimum of 30 years after the closure of the landfill. During the post-closure period, semi-annual facility inspections will be conducted. The inspections will include observations for cover integrity (e.g., synthetic turf integrity, erosion of sand ballast, etc.), surface-water drainage, and site security features. Deficiencies identified during the inspections will be corrected as soon as practical.

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

An inspection of the landfill will be made semi-annually during the first five years of the post-closure care period. Thereafter, an inspection will be conducted annually, up to the full 30-year post-closure period. The inspections shall include review of the following:

- Subsidence or settlement in areas;
- Inspection and repair, as necessary, of areas of concentrated flow (drainage benches, perimeter drainage swales, downchutes) where sand infill, polymer enhanced or cementitious infill materials can erode;
- Integrity of seams of synthetic turf panels;
- Areas accessed by vehicles or equipment for maintenance or inspections;
- Anchor trenches for pull-out or erosion of cover soils;
- Visual inspection of cover surface for loss of sand infill to where less than 0.5" may be present, confirm sand depth, and replace infill as necessary;
- In locations of sand infill that have re-occurrence of loss, consider applying polymer to sand surface to hold in place, in accordance with the manufacturer's recommendations;
- Integrity of any boots for penetration of the cover system, as applicable;
- Erosion or sedimentation within drainage swales and retention ponds outside the cover system, and remove excess accumulation that inhibits flow or function of the ponds, as designed;
- Function of stormwater features for managing and containing stormwater run-off;
- Visually inspect synthetic turf for evidence of accelerated degradation as evidenced by non-uniform color loss, chalking, or loose turf fibers, and repair or replace, as necessary in order to maintain effectiveness and integrity of the cover system;
- Station security features.

If any of these components are not intact and functioning as designed, then repairs will be made restoring proper functionality. Results of inspections and any corrective actions taken will be included in the annual post-closure inspection reports.

## 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:

- Leachate or contact water collection system operations;
- Blockage of pipes and clean-outs;
- Carriage to leachate pumping facilities; and
- Leaks or cracks in collection/retention

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 necessary.

## 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, or hard scape to prevent erosion. 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, 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)

Pawnee Station is owned and operated by PSCo, located at 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 Pawnee East CCR Landfill. The stabilized capped landfill will be open range for wildlife and other passive uses. The landfill 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	Start Date	Finish Date
Written Closure Plan	October 17, 2018	December 28, 2018
Written Post-Closure Plan	October 17, 2018	December 28, 2018
East CCR Landfill Operation	Year 2019	Year 2022 (Initiation of Closure)
Annual Inspections	Annually	Annually until 2022
Fugitive Dust Plan Updates	Annually	Annually until 2022
Post Closure Inspections and Maintenance	Year 2022	Year 2052 (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, Matthew M. Rohr, 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:

December 28, 2018