

# 2022 Annual Inspection Report

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for Compliance with the Coal  
Combustion Residuals Rule  
(40 CFR Part 257)

## **Pawnee Station - North Landfill**

*14940 Morgan County Road 24  
Brush, Colorado 80723*

***January 15, 2023***



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# Certification

## **Pawnee Station - CCR Unit 2022 Annual Inspection for Compliance with the Federal Coal Combustion Residuals Rule**

I hereby certify that the North Landfill, a Coal Combustion Residuals (CCR) unit at Pawnee Station meets the inspection and operation standards specified in 40 CFR Part 257.84(b) of the Federal CCR Rule. The Pawnee Station is owned by the Public Service Company of Colorado (PSCo), an Xcel Energy Company.

I am duly licensed Professional Engineer under the laws of the State of Colorado.



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# 1 Introduction

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published regulations under Subtitle D of the Resources Conservation and Control Act (RCRA) meant to control the safe disposal of coal combustion residuals (CCR) generated by coal fired electric utilities. The rule defines a set of requirements for the disposal and handling of CCR within CCR units (defined as either landfills or surface impoundments). As specified in 40 CFR 257.84(b), *“Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards.”* Pawnee Station has two CCR landfills subject to the inspection requirements: the North CCR Landfill and the East CCR Landfill. The scope of this report covers only the North CCR Landfill; the East CCR Landfill inspection is documented in a separate report.

This is the 2022 annual inspection report for the Pawnee North CCR Landfill. This report must be completed and placed into the facility operating record no later than January 15, 2023.

The requirements of the annual inspection include:

- A review of available information regarding the status and condition of the CCR unit - §257.84 (B)(1)(i),
- A visual inspection of the CCR unit to identify signs of distress or malfunction - §257.84 (B)(1)(ii),
- An inspection report that includes the following:
  - Changes in geometry since the last inspection - §257.84 (B)(2)(i)
  - Approximate volume of CCR in unit at time of inspection - §257.84 (B)(2)(ii)
  - Appearance of actual or potential structural weakness of the CCR unit - §257.84 (B)(2)(iii)
  - Any other changes which may have affected the stability or operation of the CCR unit since the last inspection - §257.84 (B)(2)(iv)

## 2 Site Inspection

In accordance with §257.84(b)(ii) a site inspection of the Pawnee North CCR Landfill was conducted on November 22, 2022. The inspection was conducted by Jeffrey C. (Chad) Hearn, a Colorado Professional Engineer of HDR Engineering Inc., and Richard Ferguson, an Xcel Energy Environmental Analyst at the Pawnee Station. Review of the associated paperwork and inspection reports was conducted by Chad Hearn and Richard Ferguson.

The landfill CCR placement started as an incised CCR unit below existing grade but has become a fill above existing grade. Through historical site operational review, PSCo has determined that only the northern portion of the overall landfill footprint, including the contact water pond, is defined as the North CCR landfill, and is subject to the CCR Rule. The area

historically used for lime disposal located to the south of the North CCR landfill is not part of the CCR Annual Inspection.

The weather during the site visit was mostly sunny with temperatures ranging from 45 to 55 degrees Fahrenheit. The site was free of snow cover except for trace snow cover on a portion of the north slope of the landfill.

### 3 Review of Available Information

Numerous documents pertaining to the site operation and structural integrity were reviewed including:

1. The Engineering Design and Operation Plan (EDOP) document, Revision 3 dated January, 2018 and developed by HDR. The EDOP was not modified during 2022.
2. Available Weekly CCR Landfill Inspection Forms (per Section 257.84(a)).
3. Topographic survey performed on August 1, 2022 by Ecomaterial Technologies. This topographic survey covered the North Landfill only, bounded by the toe of the north and south side slopes and the west and east perimeter roads. The contact water pond to the south of the North Landfill was not included in the survey boundary.

Review of the above documents did not contain any indications of operation, safety, or structural concerns regarding the North CCR landfill.

### 4 Visual Inspection

Chad Hearn, escorted by Richard Ferguson, completed a site inspection, driving and walking the perimeter of the landfill and observing all landfill slopes. As the CCR Rule pertains only to the CCR landfill itself, this report does not address existing soil stockpiles or earthwork outside of the landfill area.

The site inspection included an evaluation of the following CCR landfill features:

1. Interior landfill and exterior landfill perimeter road-side slopes;
2. Contact water pond;
3. Access roads;
4. Active CCR fill area (CCR disposal, spreading, compaction), and;
5. Temporarily soil covered CCR landfill areas.

The following are the findings of the site inspection:

- The perimeter landfill access road is constructed on native soil and a ridge road located on a constructed embankment. The native soil section is on the north side of the landfill. The ridge road embankment sections are on the east and west side of the landfill. Both the western and eastern ridge road embankments showed no substantial signs of rill erosion, and no signs of operational or functional concern.
- Minor areas of rill erosion on the south slope of the CCR landfill showed no signs of operational or functional concern. Based on review of the weekly inspection reports, it is apparent slopes are routinely maintained.
- Wind-blown CCR was not observed.
- The capped North CCR Landfill areas appeared to have adequate soil cover and showed no signs of operational and structural concern.

## 5 Changes in Geometry

The Federal CCR Rule requires that site geometry changes be identified since the last inspection. The landfill footprint and configuration has not changed since the last inspection. Fill operations have been consistent with the approved EDOP. There has been limited placement of CCR in the North CCR Landfill relative to previous years due to operations transitioning to the East CCR Landfill.

## 6 Approximate CCR Volume

PSCo reviewed known and extrapolated ash generation rates, reviewed known beneficial ash usage between 1996 and 2014, and calculated landfill volumes based on a prior EDOP dated February 2011, Rev. 2.0. After analyzing the calculated volumes and incorporating recent annual estimates of CCR placement, PSCo estimates that the total combined volume of CCR in the North CCR Landfill as of November 2021 to be 1,935,720 CY. Approximately 3,400 CY of additional CCR was deposited in the North CCR Landfill from December 2021 through November 2022, assuming one cubic yard of CCR material equates to one ton. Additionally, approximately 3,600 CY of lime sludge was deposited via a thin spread method in the North CCR Landfill. The total CCR volume in the North CCR Landfill as of November 2022 is estimated to be 1,942,720 CY.

## 7 Appearance of Structural Weakness

Based on the site inspection, no apparent or potential structural weaknesses were observed. Monitoring for erosion and potential structural weakness should continue, repairs should be completed as needed.

## 8 Changes Affecting Stability or Operation

There were no observed or reported operation changes that are anticipated to impact the site's near-term or long-term stability. No areas of erosion were observed that had the potential to lead to long term stability concerns. There were no new stability concerns observed or reported at the time of inspection.

## Appendix A – Landfill Site Map



**NOTES:**  
1. AS-BUILT SURVEY PERFORMED ON 08/01/2022



Sheet 2 of 2  
Scale 1" = 50'

2022 Survey North Landfill  
Pawnee Solid Waste Management Facility  
Morgan County, Colorado

**Xcel Energy  
Brush, Colorado**

**Eco Material Technologies**  
1115 N. Cameron St.  
Brush, CO 80723