2019 Annual Inspection Report

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 18, 2020
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Certification

Pawnee Station - CCR Unit 2019 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.

Matthew Rohr, PE
Colorado PE License 0053467
License renewal date October 31, 2021
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 fifth 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 18, 2020.

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 December 5, 2019. The inspection was conducted by Matthew Rohr, a Colorado Professional Engineer of HDR Engineering Inc. and Richard Ferguson, an Xcel Energy Environmental Analyst at the Pawnee Station. Review of the associated paper work and inspection reports was conducted by Matthew Rohr 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 cloudy with some light precipitation and temperatures ranging from 35 to 40 degrees Fahrenheit. The site was free of snow cover.

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, was reviewed as well as the Colorado Department of Public Health and Environment acceptance letter, dated July 3, 2018 from Jace Driver, was reviewed. This revision approval letter specifically accepts, among other measures, steeper side slopes, the Closure Turf system, and the closure and post-closure cost estimates.

2. Available Weekly CCR Landfill Inspection Forms (per Section 257.84(a)).

3. As-Built topographic survey with an issue date of October 9, 2018, by Edward-James Surveying, Inc. This topographic survey only covered the northern portion of the site within the perimeter road and does not include the contact water pond to the south of the CCR landfill area. However, the contact water pond is shown on the 2016 survey with aerial topography.

4. Reportedly, there were no CDPHE inspections of the landfill in 2019.

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

4 Visual Inspection

Matthew Rohr, 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 topsoil 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:

- There is a perimeter landfill access road that is incised into the native soil side slopes or is a ridge road on a constructed embankment, depending on location. 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.
- The area of rill erosion mentioned in the 2017 and 2018 reports on the interior slopes above the landfill has been covered by CCR placement as the landfill now is above existing grade.
- The minor areas of rill erosion in the CCR landfill showed no signs of operational or functional concern.
- Wind-blown CCR was not observed during dumping operations.
- 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 has not changed since the last inspection. The landfill height has increased roughly 10-15 feet since the last inspection and the side slopes have been constructed and maintained per the approved EDOP. The maximum elevation at the time of the inspection was approximately 4,386 feet in the northwest corner of the landfill with 1% grades to the southeast. The contact water pond geometry remains unchanged from the 2016 survey.

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, PSCo estimates that the total combined volume of CCR on-site as of November 2018 to be 1,802,950 CY. The additional CCR deposited in the North CCR Landfill from December 2018 to November 2019 is estimated to be 76,930 CY, assuming one cubic yard of CCR material equates to one ton. The total CCR volume in the North CCR Landfill as of November 2019 is estimated to be 1,879,880 CY.
7 Appearance of Structural Weakness

Based on the site inspection, no apparent or potential structural weaknesses were observed. Continued monitoring and minor repairs should be completed to address rill and gully erosion as it occurs.

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 severe rill or gully 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