

2019 Annual Inspection Report

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

Pawnee Station – East 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 East CCR Landfill; the North CCR Landfill inspection is documented in a separate report.

This is the first 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 East 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 East CCR Landfill is a new landfill that was constructed in 2018 and began taking receipt of CCR in July of 2019. The landfill’s liner and leachate collection systems were designed to be compliant with the CCR Rule. The landfill was constructed in the footprint of a former incised surface impoundment that had been previously closed by removal of all waste and liner

material. The base grade of the East Landfill is at the bottom of the former impoundment which is approximately 20 feet below surrounding grades. The landfill is permitted to take receipt of CCR and lime slurry from the raw water treatment process.

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, dated December, 2017 and developed by HDR.
2. Available Weekly CCR Landfill Inspection Forms (per Section 257.84(a)).
3. As-Built topographic survey with an issue date of September 18, 2018, by Edward-James Surveying, Inc. This topographic survey provides the as-built conditions of the East CCR Landfill.
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 East 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 internal landfill cut slopes and the leachate collection equipment. 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. Access roads;
3. North and Southeast Stormwater Ponds;
4. Active CCR fill area (CCR disposal, spreading, compaction), and;
5. Leachate Collection System.

The following are the findings of the site inspection:

- Operations began in July 2019 with a placement of 18 inches of fly ash on both the bottom and side slopes. This layer serves as a protective cover for the liner system. Following completion of the protective cover layer, CCR was mixed at a 1:1 ratio (approximate) with lime solids and placed in an 18 inch compacted lift across the bottom of the landfill. At the time of the inspection, approximately 80% of the first lift had been completed.
- The fly ash protective cover layer was confirmed via survey to be a minimum of 18 inches of depth. Minor areas of shallow rilling were noted on the side slopes, primarily on the eastern side slope of the landfill. The rilling did not pose structural or operational concerns and can be easily corrected by tracking of those areas.
- The lime-ash mixture is placed as 18 inch lifts on the bottom of the landfill. After placement and initial compaction, the lifts are proof-rolled using a fully loaded articulating dump truck. Soft areas that are identified during the proof-roll are supplemented with additional fly ash to achieve a more favorable moisture content, and then the proof-roll is repeated. This process was observed during the inspection and appeared to achieve adequate compaction and stability.
- There is a landfill access road that showed no signs of operational or structural concern.
- The perimeter roads showed no signs of operational or structural concern.
- The components of the leachate collection system that could be visually inspected showed no signs of degradation and the system has reportedly been functioning properly.
- Wind-blown CCR was not observed during dumping operations.

5 Changes in Geometry

The Federal CCR Rule requires that site geometry changes be identified since the last inspection. Since the final construction survey, a protective layer of fly ash (18 inches) has been placed across the bottom and side slopes of the landfill. Additionally, a single 18 inch lift of ash-lime mix has been placed on the bottom of the landfill. This lift was approximately 80% complete at the time of the inspection with the southern-most segment remaining.

6 Approximate CCR Volume

PSCo began placing CCR in the East CCR Landfill in July of 2019. Since operations began, an estimated 77,100 CY of CCR has been placed in the landfill, including the protective cover layer.

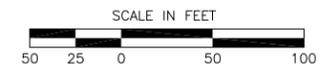
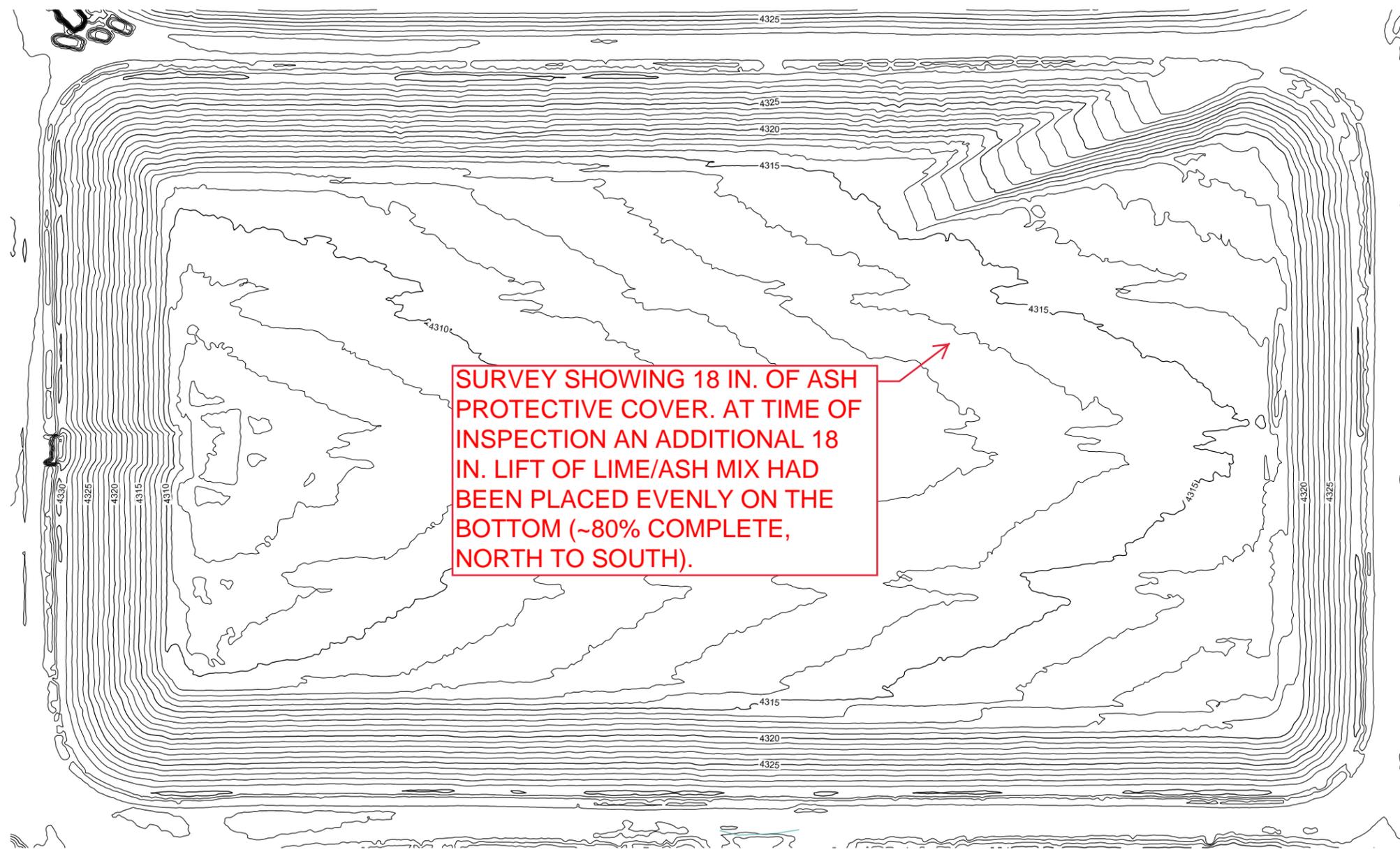
7 Appearance of Structural Weakness

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



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**PAWNEE EAST LANDFILL
ASH PROTECTIVE COVER**

DATE
1/15/2020

FIGURE
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