2020 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, 2021

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Appendices

Certification

Pawnee Station - CCR Unit 2020 Annual Inspection for Compliance with the Federal Coal Combustion Residuals Rule

I hereby certify that the East 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 2020 annual inspection report for the Pawnee East CCR Landfill. This report must be completed and placed into the facility operating record no later than January 18, 2021.

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 November 23, 2020. 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 paperwork and inspection reports were conducted by Matthew Rohr and Richard Ferguson.

The East CCR Landfill 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 sludge from the raw water treatment process. Lime sludge may be placed in the landfill directly or may be blended with fly ash prior to placement.

The weather during the site visit was sunny with temperatures ranging from 60 to 65 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. The EDOP was not reviewed in 2020 as there were no changes in this year.
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 2020.

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:

- An initial placement of 18 inches of fly ash protective layer on the side slopes could still be visually verified on the upper portions of the side slopes. This layer serves as a protective cover for the liner system. The protective layer appears to have set up well on the side slopes with no need for additional placement of fly ash at the time of the inspection.
- Similar to 2019, minor areas of shallow rilling were noted on the side slopes. The rilling did not pose structural or operational concerns and has been actively corrected on an as required basis at Xcel Energy's direction through tracking operations on the side slopes.
- The CCR and the fly ash-lime sludge 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. The fly ash-lime mixture was observed in the field with and appears to be acceptably stable. As anticipated, the moisture within the lime sludge sets up with the fly ash to increase the strength of the mixture. This should continue to be monitored as the fill operations begin to rise above the surrounding grades but currently there does not appear to be indications that the material will exhibit stability concerns.
- 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.
- Although outside the footprint of the East CCR Landfill, the Southeast Stormwater Pond does collect non-contact stormwater run-off from the landfill. The pond has had recurring issues of soil erosion along its interior western side-slope. Stormwater run-off from an adjacent road enters the pond south of the existing rip rap channel which has caused erosion rills that require repairs and maintenance. Xcel Energy noted that a plan is in place to widen the rip rap channel to collect the run-off from the area of the road that is causing the erosion. As the East CCR Landfill begins to gain elevation above surrounding grades, stormwater run-off flow into the Pond will increase and the rip rap dissipation pad at the bottom of the inlet channel should be monitored to verify the adequacy of its size.

5 Changes in Geometry

The Federal CCR Rule requires that site geometry changes be identified since the last inspection. At the time of last year's inspection, the first lift was approximately 80% complete

with the southern-most segment remaining. Grades within the landfill have steadily increased in elevation over the past year. Along the northern segment of Cell 1, the grades are within a few feet of reaching the elevation of the perimeter road. The grades gradually decrease from north to south and are approximately 10-feet below the elevation of the perimeter road on the southern edge.

6 Approximate CCR Volume

PSCo began placing CCR in the East CCR Landfill in July of 2019. During 2020 , an estimated 192,000 CY of material has been placed in the landfill, which includes a total of 147,100 CY of CCR , for a total in place waste volume of approximately 269,100 CY.

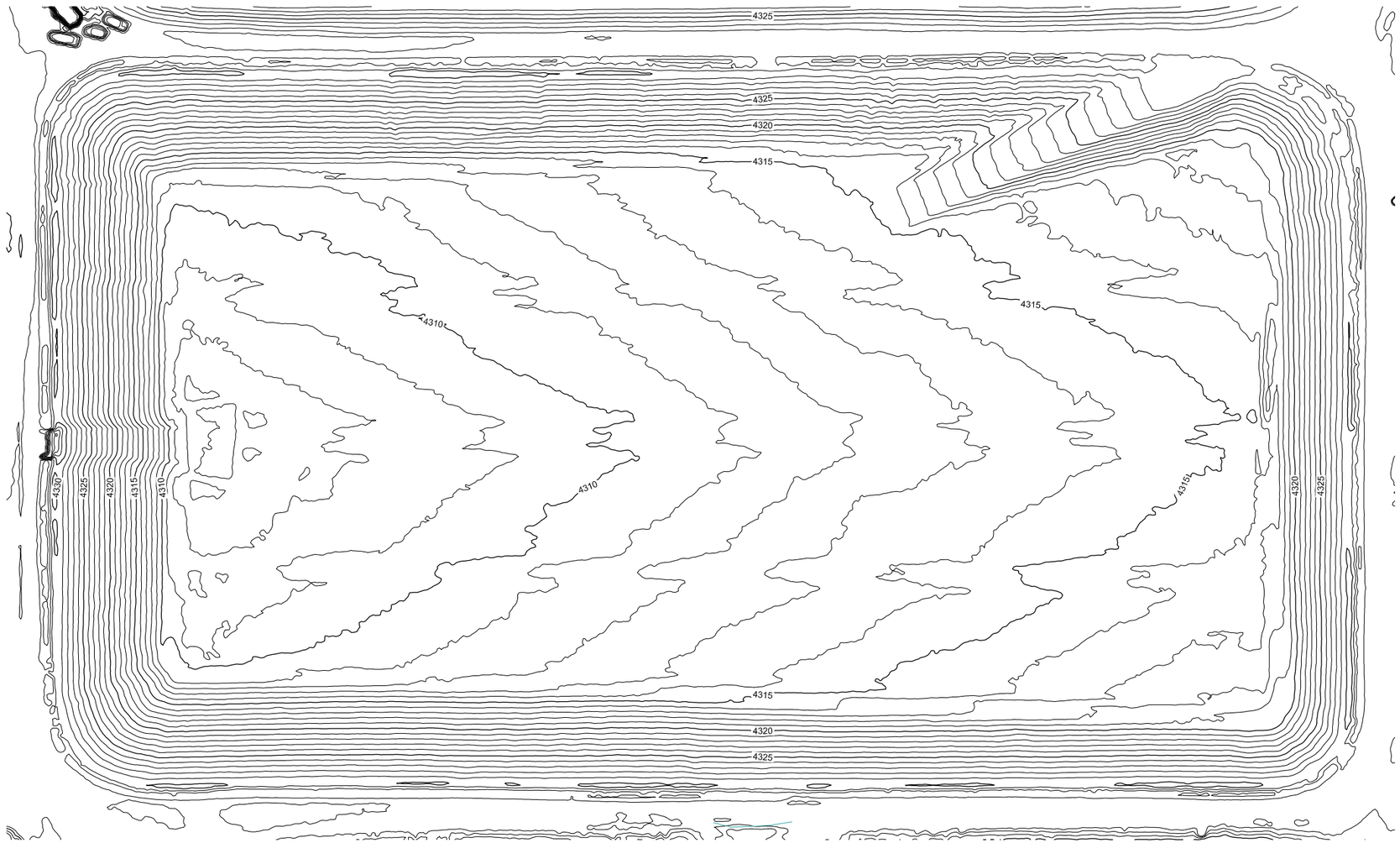
7 Appearance of Structural Weakness

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



PAWNEE EAST LANDFILL
ASH PROTECTIVE COVER

DATE
1/15/2020

FIGURE
1