# 2020 Annual Inspection Report

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

## Comanche Station

*2005 Lime Road*
*Pueblo, Colorado 81006*

## January 18, 2021

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# Appendices

# Certification

**Comanche Station CCR Unit 2020 Annual Inspection for Compliance with the Federal Coal Combustion Residuals Rule**

I hereby certify that the Coal Combustion Residuals (CCR) unit (i.e. the landfill) at Comanche Station meets the inspection and operation standards specified in 40 CFR Part 257.84(b) of the Federal CCR Rule. The Comanche 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.


Brent Learch, PE

Colorado PE License 0056841

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."* Comanche Station has one (1) CCR landfill subject to the inspection requirement.

This is the 2020 annual inspection report for the Comanche CCR landfill. This report must be completed and placed into the facility operating record no later than January 18, 2021.

The requirements for 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 Comanche CCR landfill was conducted by an independent Professional Engineer on December 1, 2020. This inspection was performed in advance of the CCR submittal deadline to ensure that the inspection was completed prior to snow covering the ground. The inspection was conducted by Brent Learch, a Colorado Professional Engineer of HDR Engineering Inc. (HDR).

The weather during the site visit was cloudy with temperatures ranging from 40 to 45 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. Engineering Design and Operation Plan (EDOP) (EDOP Revised: January 19, 2018, prepared by Tetra Tech). Xcel continues to operate following this document.

2. Weekly CCR Landfill Inspection Forms (per Section 257.84(a)). Review of the Weekly Inspection Forms did not contain any indications of operational, safety, or structural concerns regarding the CCR landfill.

3. Topographic survey of Cell 2E developed by Boral Plant Services showing grades at the end of December 2020.

# 4 Visual Inspection

Brent Learch of HDR completed a site inspection by walking or driving the entire landfill toe of slope, walking areas of the landfill side slopes, driving the landfill top access road, and driving and walking the top of the active landfill cells. As the CCR Rule pertains only to the CCR landfill itself, this report does not address existing topsoil stockpiles and native earth excavations outside the landfill cell.

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

1. Access roads;

2. Active CCR fill area; and

3. Areas that have soil cover in place, and stormwater conveyance features.

The following are the findings of the site inspection:

- The Cell 1 landfill side slopes range from approximately 80 feet to 100 feet in vertical height from toe to plateau and are a constant grade of approximately 4H:1V without benching.
    - The west side slopes of Cell 1 were exposed with little vegetative cover. The slopes have been tracked and dressed in preparation of filling Cell 2 East adjacent to the Cell 1 west slope. Exposed ash was found on the sideslope of the top lift in the southwest corner of Cell 1, the exposed ash had an approximate 10’ x 10’ footprint. Site operations were notified and additional fill placement was discussed to be placed within the next week as of the site visit.
    - The north side slope of Cell 1 had a uniform grade with topsoil and dense vegetation on the lower half. The upper half of the slope had a uniform grade with

topsoil and fair vegetation. Stabilized conditions were observed on the entire sideslope and no exposed ash was found.
    - The east side slope of Cell 1 had a uniform grade with topsoil and dense vegetation on the lower half. The upper half of the slope had a uniform grade with topsoil and fair vegetation. Stabilized conditions were observed on the entire sideslope and no exposed ash was found.
    - The drainage rundown structure on the southeast corner of Cell 1 was inspected and generally appears to be functioning as designed. Construction of the drainage rundown structure to extend to the top of the landfill slope was completed in April 2020. Washout of stone material found in the previous annual inspections from concentrated flow at the road crossing near the bottom of the slope had been prepared and do not pose any structural concerns. Previous erosion rilling adjacent to the letdown structure near the bottom of the side slope was repaired as well by regrading and seeding the affected areas.
    - The lower portions of the south side slope of Cell 1 are covered with topsoil and a dense stand of vegetation is established. Placement of intermediate cover and seeding of the upper portions of the sideslope had occurred and a fair stand of vegetation was observed. Stabilized conditions were observed on the entire sideslope and no exposed ash was found.
    - CCR placement in Cell 2E continued in 2020 throughout the entire footprint of the cell. At the time of inspection, the top of CCR fill was observed to be approximately 10-feet above surrounding native grade. The top of Cell 2E is graded to drain to the east and all contact water is collected by the leachate collection stand pipes. There were no structural or operational concerns observed on the outside slopes of the CCR sideslopes, and placement and compaction operations were consistent with the EDOP.
- The top of Cell 1 is graded to a flat plateau and had temporary soil cover placed in 2020, including seeding.
- In general, landfill areas recently covered with soil and areas with little vegetation established, showed signs of minor rill erosion. This is expected due to the slope grades and lack of vegetation. Rill erosion in these areas posed no apparent operational or structural concerns. These landfill areas are anticipated to stabilize as vegetation is established.
- The storm water pond, immediately north of Cell 1, appears to be functioning as designed and receives only non-contact water from the landfill area. However, at the time of the inspection, the pond had no standing water due to the area's normal scarce precipitation. The pond showed no signs of stability, functional or operational issues.
- The access road to the top of the landfill showed no signs of operational or structural concern. The sides were vegetated and had minimal rill erosion.
- The perimeter access road at the toe of slope showed no signs of operational or structural concern.
- The leachate collection tank constructed for Cell 2E is reportedly functioning as designed.

# 5 Changes in Geometry

The Federal CCR Rules require that site geometry changes be identified since the last inspection. The site geometry changed since the prior inspection due to continued CCR disposal and soil cover placement. Normal CCR disposal operations have increased the height of Cell 2E by approximately 10 feet to a top deck elevation of 4830 feet. The landfill sides slopes continue to be maintained at approximately a 4H:1V slope for Cell 2E. Cell 2E has an approximate depth of 15 feet.

# 6 Approximate CCR Volume

As reported by Xcel Energy, prior to 1987 the CCR for the Comanche Station was disposed of off-site. From 1987 to 2007, the CCR was predominately utilized off-site for beneficial use. Since 2007, the CCR has been disposed of within the on-site CCR landfill. From 2007 through December of 2020, Xcel estimates the total combined volume of CCR on-site to be 4,046,152 cubic yards (CY). In addition, fly ash and bottom ash disposed in the CCR landfill from December 2019 through December 2020 is estimated to be 139,692 CY. The CCR volume placed in 2020 was significantly less than previous years due to the long term outage of generating Unit 3.

# 7 Appearance of Structural Weakness

Based on the site inspection and review of available materials, the site showed no signs of operational and structural concern. Continued monitoring and minor repairs or surface vegetation should be completed to address rill and gully erosion before it becomes worse.

# 8 Changes Affecting Stability or Operation

There were no observed or reported operation changes that are anticipated to negatively impact the site’s near-term or long-term stability.

# Appendix A – Cell 2E Topographic Survey

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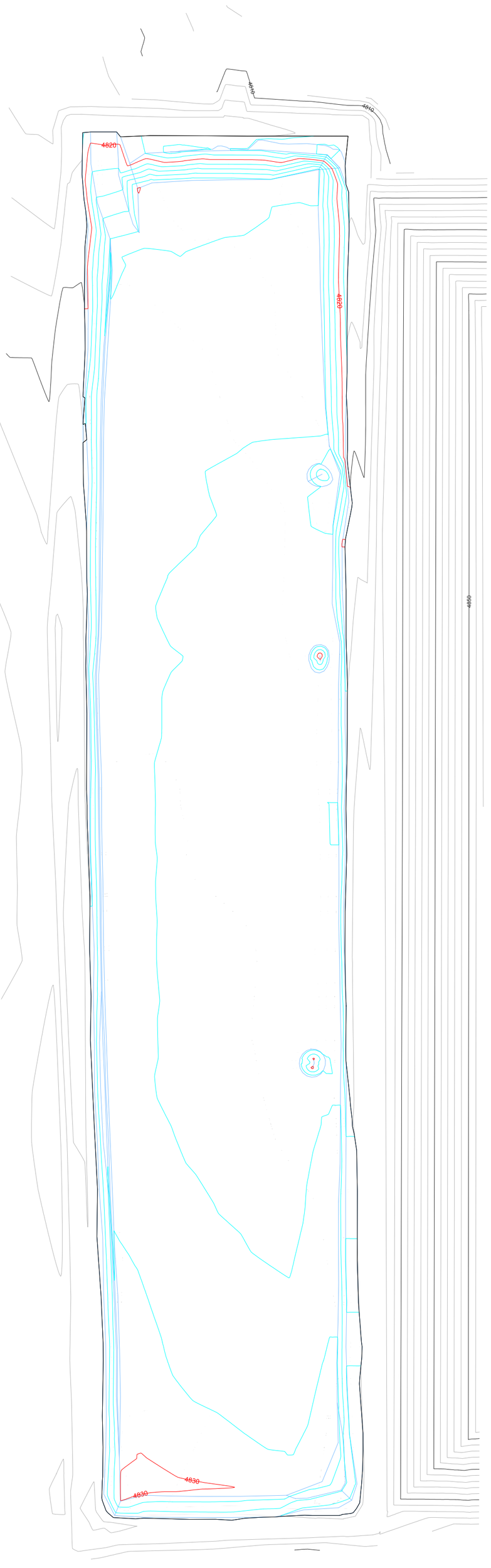
# Volume Placed Cell 2 Dec. 2019 - Dec. 2020 - 139,692 CU. YDS.




Prepared by:
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Not to Scale

Comanche Station
Coal Ash Landfill
Remaining Volume