

2022 Annual Inspection Report

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

Comanche Station

*2005 Lime Road
Pueblo, Colorado 81006*

January 15, 2023



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Certification

Comanche Station – CCR Unit 2022 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.

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



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"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Quinn V. Kilty

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Date: 2023.01.13 13:10:14 -07'00'

Quinn V. Kilty

Manager, Environmental Services

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 CCR landfill subject to the inspection requirement.

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

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, 2022. The visual inspection was conducted by Jeffrey C. (Chad) Hearn, a Colorado Professional Engineer of HDR Engineering, Inc., who was accompanied by Renee Bodry, an Xcel Energy Environmental Analyst at the Comanche Station.

Weather during the site visit was sunny with temperatures ranging from 45 to 50 degrees Fahrenheit. The site was free of snow cover except for trace snow cover on a portion of the north slope of the landfill and the perimeter access road.

3 Review of Available Information

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.

4 Visual Inspection

Chad Hearn of HDR, escorted by Renee Bodry, 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 CCR fill area. 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 landfill features:

1. Access roads;
2. Active CCR fill area;
3. Areas that have soil cover in place; and
4. 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 slope of Cell 1 had little vegetative cover on the upper third of the slope. The remaining portion of the west side slope was tracked and grubbed due to the Cell 2 tie-in construction. The west side slope of Cell 1 abuts the east side slope of Cell 2 as part of the Cell 2 tie-in. Phase 1 (the bottom third of the side slope) of the Cell 2 tie-in was completed in 2021 and Phase 2 (the middle third of the side slope) was completed in 2022. Phase 3 (the upper third of the side slope) is anticipated to be completed in subsequent years.
 - The north side slope of Cell 1 had a uniform grade with topsoil and dense vegetation with the exception of minor rill erosion on the western extent of the north slope (no exposed ash was found). The rill erosion was caused by runoff from Phase 2 of the Cell 2 tie-in and was repaired the week following the

- inspection. The weekly inspection report documenting the repair was reviewed and it was evident stabilized conditions were established for the north side slope.
- The east side slope of Cell 1 had a uniform grade with topsoil and dense vegetation. Stabilized conditions were observed on the entire side slope and no exposed ash was found.
 - The drainage downchute structure on the southeast corner of Cell 1 was inspected and generally appears to be functioning as designed. Extension of this drainage downchute structure to the top of the landfill slope was completed in April 2020. Localized rill erosion at the top of the downchute was observed during the inspection and repair of the area is scheduled for Spring of 2023 when vegetation can be established.
 - The south side slope of Cell 1 had a uniform grade with topsoil and dense vegetation. Stabilized conditions were observed on the entire side slope, including the drainage downchute structure.
- The top of Cell 1 is graded to a plateau and with intermediate cover placed on the top crown of the cell, which is EDOP compliant as long as wind erosion is not an issue. A fair stand of vegetation was observed on the crown of the landfill, water is reportedly used when necessary for dust control, and no wind erosion was observed during the inspection.
 - CCR placement in Cell 2E continued in 2022 throughout the entire footprint of the cell. At the time of inspection, the top of CCR fill was observed to be approximately 45 to 50 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 system. There were no structural or operational concerns observed on outside slopes of Cell 2E or the working fill slope within Cell 2E. Placement and compaction operations were consistent with the EDOP.
 - In general, landfill areas recently covered with soil, primarily the perimeter of Cell 2, 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, reportedly functions as designed and receives only non-contact water from the landfill area. At the time of the inspection, the pond had no standing water, which is typical due to lack of precipitation at the site. The pond showed no signs of stability, functional or operational concern.
 - The access road to the top of the landfill showed no signs of operational or structural concern. The sides were vegetated and did not show signs of 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 in 2022 increased the height of the Cell 2E by approximately 15 to 20 feet. The top deck elevation could not be verified at the time of this report due to a delay in the annual topographic survey of the landfill. The side slopes of Cell 2E continue to be maintained at approximately a 4H:1V slope, which is consistent with the EDOP. Cell 2E has an approximate depth of 50 to 55 feet as of November 2022.

6 Approximate CCR Volume

As reported by Xcel Energy, CCR from the Comanche Station was disposed off-site prior to 1987. From 1987 to 2007, CCR was predominately utilized off-site for beneficial use. Since 2007, CCR has been deposited within the on-site CCR landfill. Through December 2021, the total combined volume of CCR deposited within the on-site landfill was estimated to be 4,272,415 cubic yards (CY). The reported volume of CCR (fly ash and bottom ash) deposited in the landfill from January 2022 through November 2022 is approximately 153,381 CY, assuming one CY of CCR material equates to one ton. The total CCR volume in the landfill through November 2022 is estimated to be 4,428,796 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 severe 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.