

# 2022 Annual Inspection Report

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

## **Hayden Station**

*13125 U.S. Highway 40  
Hayden, Colorado 81638*

**January 15, 2023**



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# Certification

## Hayden 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 Hayden 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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License renewal date October 31, 2024

# 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.”* Hayden Station has one CCR landfill subject to the inspection requirement.

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

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 Hayden CCR landfill was conducted by an independent Professional Engineer on November 28, 2022. The visual site inspection was conducted by Jeffrey C. (Chad) Hearn, a Colorado Professional Engineer of HDR Engineering, Inc., who was accompanied by Mark Stewart, an Xcel Energy Environmental Analyst at the Hayden Station. Review of the associated paperwork and inspection reports was conducted by Chad Hearn and Mark Stewart.

Weather during the site visit was cloudy and approximately 40-45 degrees Fahrenheit. The site was partially covered with snow, primarily on the north facing slopes of the landfill and within the landfill footprint. The southern and western slopes of the landfill had traces of snow cover on the drainage benches. The presence of snow did not impede inspection of the entire landfill.

### 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) (Final EDOP dated July 29, 2019, prepared by Burns & McDonnell Engineering Company, Inc. with CDPHE conditional approval letter dated August 29, 2019). Document included all applicable documentation required by CDPHE including but not limited to Design Drawings, Groundwater Monitoring Plan, CQA Plan, and a Final Closure Plan. Xcel Energy Environmental Analyst reported operating under this document.
2. CDPHE reportedly did not conduct a site visit to the landfill in 2022. The last site inspection conducted by CDPHE occurred in August of 2019.
3. Weekly CCR Landfill Inspection Forms (per Section 257.84(a)).
4. November 2022 As-Built Topographic Survey conveying work performed for the 2022 construction season, as of November 9, 2022, performed by Four Points Surveying and Engineering.
5. Records of annual ash tonnage delivered to the CCR landfill from the generation facility from November 2021 through October 2022.

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

### 4 Visual Inspection

Chad Hearn, escorted by Mark Stewart, completed a site inspection observing the entire landfill 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 (e.g., native earth excavations are located east of the landfill and are not included as part of this CCR landfill inspection).

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

1. Landfill side slopes and toe of slope;
2. Landfill side slope benches;
3. Lined contact storm water pond;
4. Upper water quality pond (northwest pond);
5. Stormwater drainage conveyance channels (southern, western, northwestern, and eastern);

6. Lower storm water ponds (toe of landfill – northwest and southwest);
7. Access roads;
8. Active CCR fill areas (CCR disposal, spreading, and compaction); and
9. Temporarily soil covered CCR landfilled areas.

The following are the findings of the site inspection:

- Landfill side slopes have grades of approximately 4 horizontal to 1 vertical (4H:1V); well established vegetation; and show little to no signs of erosion and no signs of operational or functional concerns. The side slopes are constructed with approximately 10-foot wide erosion control benches at regular intervals. In areas of more recent filling, benches were developed with a back slope to create a swale that directs stormwater runoff to a downchute channel. In older portions of the landfill, benches simply create a flat area to slow stormwater flow. The older portions of the benches have substantial vegetation cover and limited areas of minor rill erosion. The benches showed no signs of operational or functional concern.
- Areas on side slopes where a topsoil layer was placed and seeded during spring of 2022 were functioning as intended. There were no signs of rill erosion on the side slopes with new topsoil and seeding in 2022 that pose potential operational or structural concerns.
- Areas on side slopes where a topsoil layer was not placed or seeded yet showed 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. The site representative indicated these areas will have topsoil placed and will be seeded to establish vegetation in the upcoming spring/growing season. Once vegetation is established, the sloped surfaces are anticipated to be stabilized.
- All four site stormwater management ponds (three non-contact ponds and one contact pond) appear to be functioning as intended with no operational or structural concerns. The conveyance channels into the three perimeter non-contact stormwater ponds appear adequately armored with articulated concrete block or erosion control blankets to minimize concentrated conveyance erosion in the conveyance channels. The conveyance routes to these three perimeter stormwater ponds and the ponds themselves were not observed to have functional or operational concerns. The Contact Stormwater Pond has a perimeter fence sufficient to prevent access by wildlife and the pond is lined to minimize stormwater infiltration into the CCR landfill.
- The access roads to the top of the landfill showed no signs of operational or structural concern. The road side slopes were vegetated and had minimal rill erosion. The plateau road showed no signs of operational or structural concern.
- CCR was being placed in the landfill during the site inspection and operations were consistent with the EDOP. Additionally, the site representative reported on-site equipment and operational procedures have not changed since the prior annual inspection.
- Wind-blown CCR was not observed during the site inspection.

- The capped CCR landfill areas appeared to have adequate soil cover, had established vegetation, and showed no signs of operational or structural concern.

## 5 Changes in Geometry

The Federal CCR Rules require that site geometry changes be identified since the last inspection. Between November 2021 and November 2022, the site geometry changed due to continued CCR disposal, top landfill grading modifications, and construction of additional perimeter soil embankment. Specific geometry changes are listed below:

1. The top plateau of the main landfill area (middle cell) continued to accept CCR throughout the footprint of the plateau area and will continue until it reaches intermediate design grades. Fill grades on the top plateau of the main landfill area increased in the range of approximately 6 to 10-feet since November 2021. CCR and operational soil cover are placed in lifts after constructing side slope perimeter berms using water balance cover material per the EDOP. Benches are also constructed on the outside slopes at specified intervals for slope stabilization and water runoff control.
2. The temporary stormwater pond in the northwest portion of the landfill was filled in with CCR and intermediate soil cover. Additional CCR and intermediate soil cover was placed in this area up to the north access road and graded prior to November 2022 to accommodate continuing CCR placement in the northwest area of the landfill in 2023 (following winter 2023).

No structural or safety concerns were observed due to changes in site geometry.

## 6 Approximate CCR Volume

The approximate CCR volume is based on the tonnage of CCR delivered to the landfill from the power plant. From 1984 to December 1999, the CCR volume was estimated based on the power plant operation and electric load type. From January 2000 to the present, Xcel Energy has recorded monthly CCR volumes. The total combined volume of CCR deposited within the landfill through October 2021 was estimated to be 8,989,123 cubic yards (CY). The reported volume of CCR deposited in the landfill from November 2021 through October 2022 is approximately 226,490 CY, assuming one CY of CCR material equates to one ton. The total CCR volume in the landfill as of the end of October 2021 is estimated to be 9,215,613 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

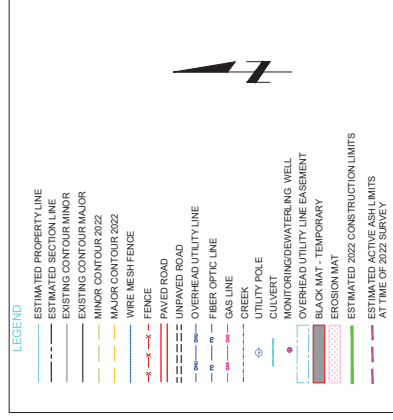
There were no observed or reported operation changes that are anticipated to impact the site's near-term or long-term stability. No areas of severe erosion were observed that had the potential to lead to long term stability concerns. There were no new stability concerns observed or reported at the time of inspection.

## Appendix A – Landfill Site Map

LOCATED IN THE SOUTHEAST QUARTER OF SECTION 17 AND THE SOUTHWEST QUARTER OF  
SECTION 16, TOWNSHIP 6 NORTH , RANGE 87 WEST OF THE 6TH P.M.,  
COUNTY OF ROUTT , STATE OF COLORADO  
SHEET 1 OF 1

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**SURVEYOR'S CERTIFICATE**

I, WALTER N. MAGILL, BEING A DUALLY REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY (I) WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; (II) HAS BEEN PREPARED IN ACCORDANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO AT THE TIME OF THIS SURVEY; AND (III) CONTAINS TO THE BEST OF MY KNOWLEDGE AND BELIEF ALL INFORMATION REQUIRED BY THE COLORADO DEPARTMENT OF REVENUE. REGISTRATION NO. 38-51-103 AND C.R.S. 38-51-103, 38-51-104, 38-51-105 AND 38-51-106.

WALTER N. GILL, REGISTERED PROFESSIONAL SURVEYOR, PLS 38024