

2021 Annual Inspection Report

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

Valmont Station

*1800 North 63rd Street
Boulder, Colorado 80301*

January 15, 2022



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Certification

Valmont Station CCR Unit 2021 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 Valmont Station meets the inspection and operation standards specified in 40 CFR Part 257.84(b) of the Federal CCR Rule. The Valmont 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.



Brian Brown, PE

Colorado PE License 41644

License renewal date October 31, 2023

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.”* Valmont Station has one (1) CCR landfill subject to the inspection requirements.

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

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 Valmont CCR Landfill was conducted by an independent Professional Engineer on November 10, 2021. The inspection was conducted by Brian Brown of HDR Engineering Inc. (HDR) and Chris Acton of PSCo. This site inspection was performed well in advance of the CCR submittal deadline to ensure that the inspection was completed prior to snow covering the ground.

The weather during the site visit was sunny with temperatures around 55 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 Report for the Expansion of Cells D and E in 2019.
2. Two-Year Extension for Initiation of Closure (dated September 23, 2020)
3. Available Weekly CCR Landfill Inspection Forms (per Section 257.84(a)). Outstanding items of note in the weekly inspection forms have been identified in this report.
4. Topographic Map based on multiple sources. See Figure 1 for sourcing and dates.

4 Visual Inspection

The site inspection included walking or driving the entire perimeter of the landfill, the interior access road, select intermediate elevations along the exterior fill embankment, and select areas on the top of the landfill.

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

1. Landfill side slope toe of slope;
2. Landfill side slope benches;
3. Riprapped stormwater drainage conveyance channels on southwest side (Areas Q1 and A-3) of landfill and east end (Area B1) of landfill; and
4. Most recent landfill active area in Area D1 in 2021.

The following are the findings of the site inspection. See Figure 1, attached, for spatial location.

1. The landfill side slopes along the south and west side of Area Q1 have minimal vegetation cover. It was noted during the 2020 annual inspection that despite the presence of regular benches to slow the stormwater flow, this area showed signs of minor rill erosion of varying depth. This rill erosion remains but has not become noticeably more pronounced in either depth or area of impact. This should continue to be monitored for worsening condition.
2. The western and southern side slopes of landfill areas Q1 and A3 have numerous active prairie dog burrows. The prairie dogs have continued to dig in Cell Q and have migrated toward A1. These burrows should continue to be monitored as they can impact local slope stability and become conduits for stormwater flow. Additionally, the prairie dogs have begun to dig up ash, creating small ash piles at the entrances to the burrows. These are no structural concerns but the burrowed ash does create containment

concerns. Some of the holes were managed previously by placing concrete over the holes, but prairie dogs re-dug holes adjacent many of the concrete plugs. PSCo reported that it is working with adjoining landowners to address the issue since prairie dog mitigation cannot be effectively addressed solely with on-site mitigation.

3. The southern slopes of Area A-2 show very small (less than 1-inch separation) tension cracks approximately 1-2 ft back from the top of the slope. The run of tension cracks is about 15' in total length comprised of multiple minor separate parallel cracks. This area requires continued monitoring for movement. There were no signs or new or expanded tension cracks since prior inspection.
4. Wildlife has created large burrow holes on the landfill side slope of Area A-2. No ash has been uncovered or is visible; however, there is bare soil on the south/downward facing side of A-2 located all around the east and west side of on-site riprap. This area will continue to be monitored and reseeding should be considered if the burrows are abandoned.
5. Minor sloughing observed on Area A-2 near burrows on the downward slope towards the reservoir. This area should be monitored for further deterioration.
6. Erosion was observed along the interior access road in cell C-1, specifically the west and south face of the steep cut face. This erosion is minimal due to the lack of sheet or concentrated flow over the cut face but the area should continue to be monitored. No ash was exposed and there are no signs of local slope instability.
7. Isolated areas of exposed ash were noted on the northern side of cell C-1 in the prior annual report. An Xcel contractor placed cover over and reseeded these areas as of 6/23/2021.
8. Northeast of the 'Emergency Ash Holding Area' in cell C-1, there is approximately an 8 ft by 10 ft area of exposed ash. The cause or source of this ash exposure is undetermined but no structural or erosion concerns were apparent. Additional cover should be placed to cover exposed ash and then seeded.
9. It was observed in 2020 that PSCo installed hay bales to reduce concentrated flow on south slope of Area A-2. The down-gradient runout of this area was apparently seeded and mulched. Vegetation germination was not apparent. This area appears to have remained stable since remediation.
10. It was noted during the 2020 inspection that the riprap down chute on south side of Area A-1 had become undermined by erosion and the weekly inspection reports in early 2021 noted that ash had become exposed in this location. Xcel resolved this issue as of 4/28/2021 by adding soil cover and seed after rebuilding and extending the riprap rundown further down slope.
11. There was no standing water observed in the ash cells.

5 Changes in Geometry

The Federal CCR Rules require that site geometry changes be identified since the last inspection. From December 2018 to January 2021 there was no landfill activity. In January of 2021, residual coal was removed as part of closure of the former coal pile area south of the landfill and Leggett Reservoir and deposited in Area D-1. There was a 16 ft increase at the

center of the new coal area resulting in a maximum height of 5303'. An intermediate cover of 18" of soil was placed on top of the cell. The fill was constructed with a top deck sloped at approximately 3% and 4:1 side slopes.

6 Approximate CCR Volume

The CCR within the disposal area as of November 2015 was estimated by PSCo based on volume estimates that utilized topographic surveys, disposal records, ash generation volumes, and extrapolation of generation volumes. The total combined volume of CCR deposited within the landfill through November 2018 is estimated to be 1,509,960 CY cubic yards, assuming one cubic yard of CCR/coal material equates to one ton. No CCR was deposited in the landfill between December, 2018 and January, 2021. Between January and April 2021, approximately 103,793 cubic yards of residual coal were deposited in the landfill, resulting in a total landfill volume of 1,613,753 cubic yards.

7 Appearance of Structural Weakness

Based on the site inspection, the landfill has no apparent structural weaknesses. Per Section 4 above, continued monitoring and minor repairs should be implemented as needed to address exposed ash, tension cracks, rill erosion, burrows, and apparent localized sloughing to prevent development of areas of structural weakness.


8 Changes Affecting Stability or Operation

The Federal CCR Rule requires that changes that affect site stability or operation be identified since the last inspection. Since the last annual inspection, there were no observed nor reported operational changes or site conditions that indicate issues of stability or safety, except as noted above.

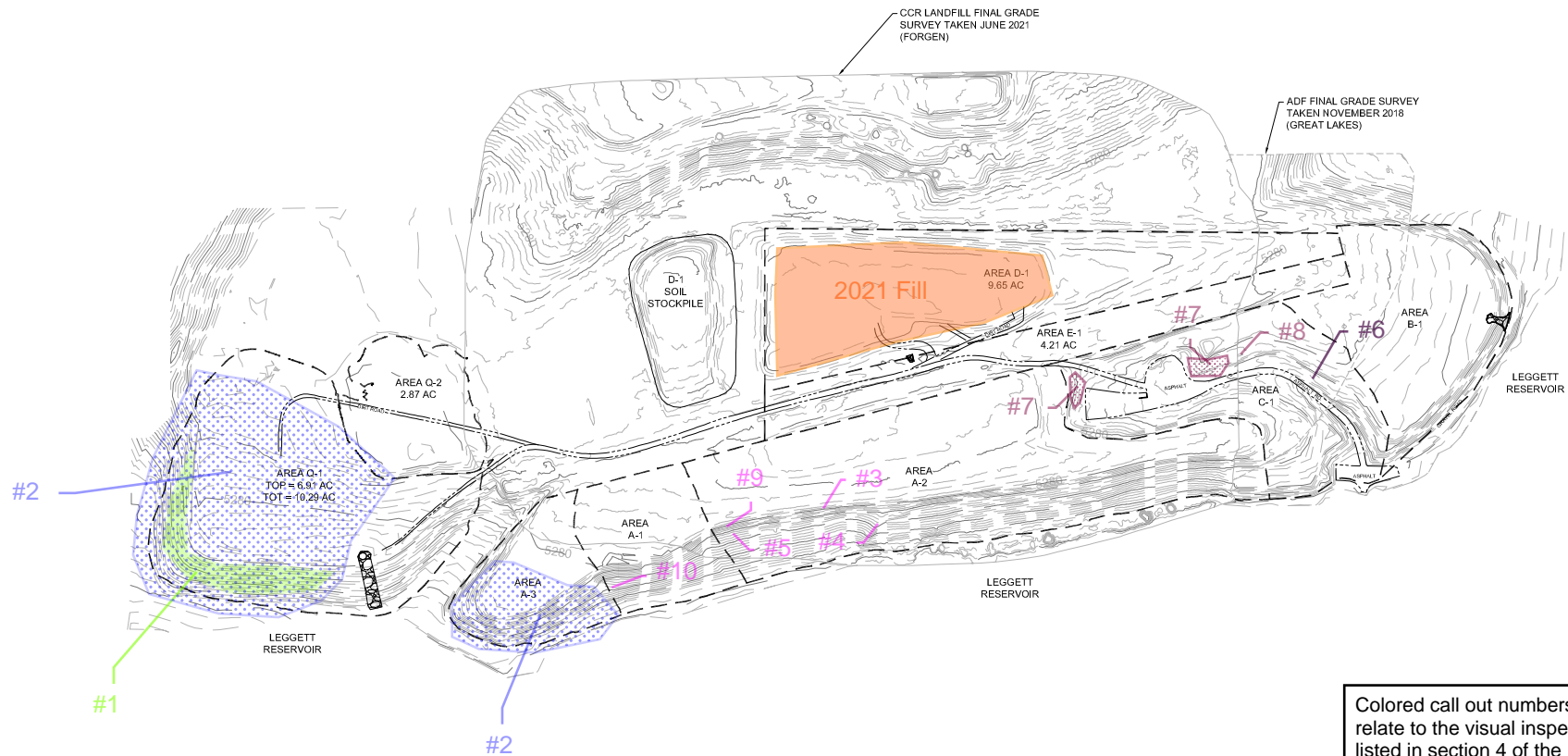
Appendix A – Landfill Site Maps

Attachments:

CCR Jan 2021 Annual Report Fig 1

- LEGEND:
- MINOR CONTOURS (2')
 - MAJOR CONTOURS (10')
 - - - 2018 SURVEY BOUNDARY
 - 2021 SURVEY BOUNDARY
 - CELL BOUNDARY
 - EDGE OF ROAD
 -  RIPRAP RUNDOWN
 - SOIL STOCKPILE BOUNDARY

CCR Jan 2021 Annual Inspection Landfill Site Map - Figure 1.



Colored call out numbers and shaded areas relate to the visual inspection findings numbers listed in section 4 of the HDR Engineering for CCR Annual Inspection Report, January 2022.

Figure developed by HDR.

- NOTES:
1. BASE FILE TOPOGRAPHY SURVEYED OCTOBER 2017.
 2. PROJECT COORDINATES ARE MODIFIED COLORADO STATE PLANE NORTH 0501 ZONE NAVD29 US SURVEY FEET (GROUND) COORDINATES. THE COMBINED FACTOR USED TO MODIFY THE COORDINATES FROM STATE PLANE TO PROJECT COORDINATES IS 0.999713726 APPLIED AT 0.0 ORIGIN.

