

# 2015 Initial Annual Inspection Report

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

## **Valmont Station**

*1800 North 63<sup>rd</sup> Street  
Boulder, Colorado 80301*

**January 18, 2016**



# Table of Contents

Certification .....	ii
1 Introduction .....	1
2 Site Inspection .....	1
3 Review of Available Information .....	2
4 Visual Inspection.....	2
5 Changes in Geometry.....	4
6 Approximate CCR Volume.....	4
7 Appearance of Structural Weakness .....	4
8 Changes Affecting Stability or Operation.....	4

## Appendices

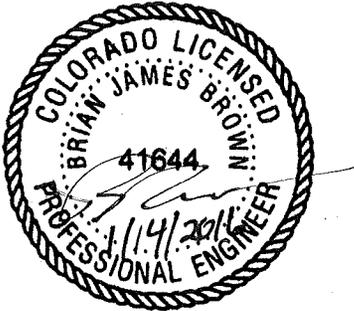
Appendix A: Landfill Site Map

# Certification

## Valmont Station CCR Unit 2015 Initial 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 0041644

License renewal date October 31, 2017

# 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). Valmont Station has one CCR unit: a landfill. 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.”* As this is a new requirement for CCR landfills, the initial inspection report for existing CCR landfills must be completed no later than January 19, 2016. Subsequent inspections and reports must be must filed on an annual basis.

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 unit was conducted by an independent Professional Engineer on November 12, 2015. This site 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 Brian Brown, a professional engineer with HDR; and Jeff Krause and Glen Nishimoto, both Xcel Energy Environmental Analysts. Glen Nishimoto, only attended the initial landfill orientation portion of the site inspection.

The weather during the site visit was sunny with temperatures ranging from 50 to 60 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), Revision January, 2009 by Xcel Energy.
2. Available Weekly CCR Landfill Inspection Forms (per Section 257.84(a)).
3. Completed Ash Disposal Inspection form dated 9/14/2015 by John Pierce of Xcel Energy.
4. Area maps/surveys:
  - a. Topographic Map: PRELIMINARY Valmont Ash Piles, Q-1 and Q-2 Stockpiles, D-1 Soil Stockpile, and D-1 Area Ash Quantities Measured on September 24-26, 2015, performed by Merrick & Company.
  - b. Cell Figure: Valmont SEGS – Common, Ash Disposal Facility Area Map by Xcel Energy, Drawn Date July 27, 2006, Stamp Date January 28, 2009.
  - c. Topographic Map: Valmont SEGS, ADF Facility, Existing Conditions, Ash Site Topography, Plot Stamp September 26, 2008, East and West Sheets, performed by Merrick Engineers & Architects.
  - d. Topographic Map with Soil Boring Locations: Locations of Exploratory Borings on East End of Landfill, Plot Stamp date August 15, 2008, by Kumar & Associates.
5. Estimated Ash Storage Capacity spreadsheet through December 31, 2015, by John Pierce of Xcel Energy, dated November 17, 2007.

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

### 4 Visual Inspection

Brian Brown, accompanied by Jeff Krause, completed an extensive site inspection, walking the entire perimeter of the landfill, the interior access road, and numerous intermediate elevations along the exterior fill embankment.

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

1. landfill side slope toe of slope;
2. landfill side slope benches;
3. contact surface water collection area;

4. riprapped stormwater drainage conveyance channels on southwest side (Areas Q-1 and A-3) of landfill and east end (Area B-1) of landfill; and
5. active CCR fill areas (CCR disposal, spreading, and compaction).

The following are the findings of the site inspection:

The landfill side slopes showed no signs of operational or functional concerns. Areas of erosion are noted below:

- The landfill side slopes along the southwest and west side of Area Q-1 have minimal vegetation cover. Despite the presence of regular benches to slow the stormwater flow, these areas show signs of rill and some gully erosion. These areas require additional monitoring and may require additional topsoil cover and revegetation to minimize future rill erosion.
- The western side slopes of the landfill also had numerous prairie dog burrows. These burrows should continue to be monitored as they can impact local slope stability and become conduits for stormwater flow. If the prairie dog burrows become an issue for stability, operation, or function of the landfill or soil cap, PSCo should engage a wildlife specialist to address the issue.
- The riprap downchute on the southwestern slope (Area Q-1) should continue to be monitored for gully erosion. There is no obvious surface water source for the observed gully erosion but monitoring should continue based on past localized erosion or the area should be graded and revegetated.
- The inactive southeastern and eastern side slopes have a continuous grade that generally ranges from approximately 2 horizontal to 1 vertical (2H:1V) to 3H:1V with some steeper sections, no benches, and a dense stand of vegetation.
  - There is a riprap downchute on the east slope (Area B-1) with no visible erosion or stability concerns.
  - The south slope is an area where sloughing and localized instability is visible about one quarter down from the top plateau (against a degraded line of straw bales). This area is heavily vegetated but should be monitored for future sloughing or movement. The straw bales may be channeling surface water toward the impacted area; further analysis is warranted to determine the cause of the sloughing.
- The interior access road leading to the active landfill fill area has steep soil embankments. The level of erosion observed during the inspection indicates that the access road embankments do not receive enough surface water run-on flow to create excessive rill or gully erosion. The roadway embankments should be monitored for localized or general sloughing, though none was observed.
- The eastern half of the northern side slopes (Area B-3) are graded to a uniform slope. This slope does not have benches but does have a dense cover of vegetation. No erosion or sloughing was noted.
- The active fill area (Area D-1) was observed to have minimal areas of exposed ash. The recently soil covered CCR landfill work areas on the western side of the D-1 Area

appeared to have adequate soil cover. The transition between the soil covered western side of D-1 and the eastern fill area of D-1 had a limited amount of exposed ash. Side slopes for the cell excavation between the two fill areas were steep but showed no signs of instability or erosion.

- No ash disposal or compaction was observed during the site visit.
- Standing water was observed in the eastern end of the active ash fill area. Based on the EDOP, this standing water will infiltrate or evaporate, there is no outlet.

## 5 Changes in Geometry

The Federal CCR Rules require that site geometry changes be identified since the last inspection. Since this is the initial annual inspection, the geometry changes will be addressed in subsequent annual inspections. The site geometry was noted during this initial annual inspection and will be used as a basis for subsequent inspections.

## 6 Approximate CCR Volume

The CCR within the disposal area was determined by Xcel based on engineered stamped estimates for portions of the landfill volumes, volume estimates utilizing topographic survey comparisons, disposal records, and ash generation volumes along with extrapolation for years without generation volumes. Xcel estimates that the total combined volume of CCR on-site at the time of this inspection to be 1.3 million cubic yards.

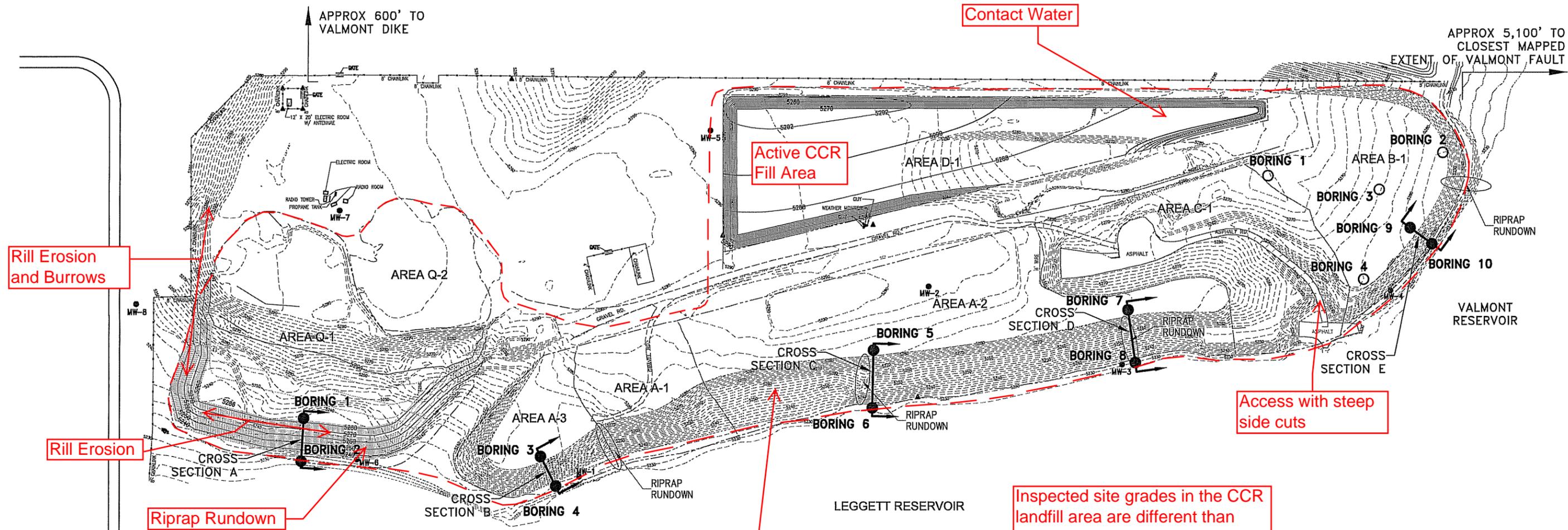
## 7 Appearance of Structural Weakness

Based on the site inspection, no apparent or potential structural weaknesses were observed. Per Section 4 above, continued monitoring and minor repairs should be completed to address rill and gully erosion before it becomes a potential structural landfill weakness. Much of the site's exterior rill erosion will be addressed as the recent lifts are covered in topsoil, seeded, and vegetation is established. Further erosion impacted areas may require additional mitigation measures.

## 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 this is the initial annual inspection, no comparison can be made to previous conditions. Observations made in this initial annual inspection will be used as a basis for comparison to conditions observed in subsequent inspections.

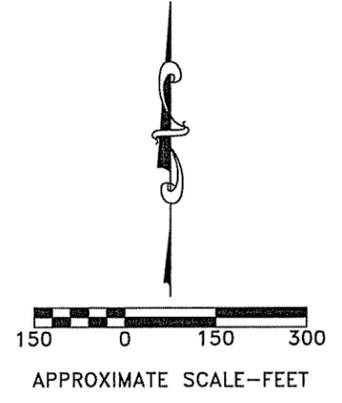
## Appendix A – Landfill Site Map



- LEGEND:**
- MW-1 MONITORING WELL INSTALLED BY OTHERS. NOT PART OF THIS PROJECT.
  - BORING 1 EXPLORATORY BORING DRILLED FOR OUR PREVIOUS PROJECT NO. 08-1-357, DATED AUGUST 15, 2008.
  - BORING 4 EXPLORATORY BORING DRILLED FOR THIS PROJECT.

— General Landfill Boundary

Notes in red added by HDR Engineering for CCR Annual Inspection Report, January 2016



December 20, 2011 - 09:27am V:\Projects\2011\11-1-331\Drafting\111331-01.dwg