Location Restriction Criteria - Certification Report

Public Service Company of Colorado – Valmont Station

CCR Landfill

Boulder County, Colorado

October 2018

Prepared For:

Public Service Company of Colorado

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List of Figures

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LIST OF ABBREVIATIONS AND ACRONYMS

CCR Coal Combustion Residuals
CDPHE Colorado Department of Public Health and Environment
CFR Code of Federal Regulations
EDOP Engineering Design and Operating Plan
EPA U.S. Environmental Protection Agency
PSCo Public Service Company of Colorado
RCRA Resource Conservation and Recovery Act

Qualified Professional Engineer Certification

I hereby certify, as a Professional Engineer in the State of Colorado, that the information in this document was assembled under my direct supervisory control. This report is not intended or represented to be suitable for reuse by PSCo or others without specific verification or adaptation by the Engineer.

I hereby certify, as a Professional Engineer in the State of Colorado, that the information contained in this report has been prepared in accordance with the requirements of 40 CFR §257. I further certify that a satisfactory demonstration of the requirements of 40 CFR Section §257.64 have been made.

SIGNATURE:

Matthew M Rohr, PE
Colorado Licensed Professional Engineer No. 0053467
My license renewal date is October 31, 2019

1 Introduction

This Location Restriction Certification report has been prepared for the existing CCR landfill located at the Public Service Company of Colorado (PSCo) - Valmont Station (the Site). This report conforms to 40 Code of Federal Regulations (CFR) Part 257. This report was prepared to address the federal coal combustion residual (CCR) regulations for disposal of ash under subtitle D of the Resource Conservation and Recovery Act (RCRA). The final rule was published in the Federal Register, Volume 80 Number 74 on April 17, 2015, and became effective on October 19, 2015.

1.1 General Information

Figure 1, Facility Location shows the Valmont Station at 1800 North 63rd Street Boulder, Colorado, approximately 4 miles east of downtown Boulder. Valmont Station ceased operations of the coal-fired steam generation unit in 2017, and has completed removal of all CCR and affected areas from the CCR impoundments. Closure of the CCR landfill has not begun, as it will continue to be used for disposal of non-CCR wastes from the station.

1.2 Type of Facility

The existing CCR landfill is used to dispose of CCR and other approved wastes generated by the Site. It is operated under an Engineering Design and Operations Plan (EDOP) developed pursuant to Colorado Department of Public Health and Environment (CDPHE) Solid Waste Regulations. The landfill consists of two areas subject to 40 CFR 257.64, areas D-1 and E-1, encompassing approximately 14.6 acres. A vertical expansion of Cell D-1 was approved by CDPHE and will be constructed with side slopes of 4 horizontal to 1 vertical with a top deck sloped at approximately 3%. The maximum elevation of the top deck will occur at approximately 5308 ft in the northwest corner of Cell D-1. The top deck will be sloped to allow runoff to drain southeast off the landfill and into constructed storm water runoff channels. Similarly the closure of the existing filled area E-1 will incorporate final grades of 2% to generate positive drainage off this area that is beneath the existing overhead transmission lines.

2 Location Restrictions

40 CFR §257.60-64 applies to new CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units. Cells D-1 and E-1 are defined as existing CCR landfills, which only require demonstration of compliance with 40 CFR §257.64, Unstable Areas.

2.1 Unstable Areas 40 CFR §257.64

The 40 CFR §257.64 places restrictions on locating CCR landfills and surface impoundments in unstable areas. It states the following:

"An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted. The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable (1) on-site or local soil conditions that may result in significant differential settling; (2) On-site or local geological or geomorphologic features; and (3) On-site or local human-made features or events (both surface and subsurface)."

Based on the geotechnical investigations and stability analyses results of proposed final grades at the D-1 and E-1 landfill cells, these cells are not located in an unstable area.

Most of the anticipated settlement beneath the landfill is expected to occur during the placement of CCR materials. The underlying subsurface soils will experience negligible settlements in comparison to the consolidation within the CCR materials. Some settlement of the newly placed and compacted CCR materials should be expected during placement of the material, but most of this settlement will occur during or shortly after placement.

Slope stability analyses were performed at critical cross-sections of the D-1 and E-1 cells with proposed final grades and slope configurations. The analyses were performed using Slope/W 2018 software utilizing Spencer's method which satisfies both force and moment equilibrium to compute the critical factor of safety. Conservative soil parameters were selected for the stability analysis based on experience with similar materials and the results of historical subsurface explorations on-site. Slope stability analyses resulted in factors of safety greater than the required minimum values for long term drained loading conditions in Table 2-4 in Section 2.7.3 of the EPA Technical Manual for Solid Waste Disposal Facility Criteria, 40 CFR Part 258, dated November 1993 (EPA530-R-93-017).

3 Summary

The Valmont Station CCR Landfill Cells D-1 and E-1 meet and/or exceed location restriction requirements required for existing landfills detailed in 40 CFR Part 257. The specific rule evaluated for the CCR Landfill Cells D-1 and E-1 from 40 CFR Part 257 is given below:

40 CFR §257.64 – Unstable Areas

As noted above, evaluation of location criteria under 40 CFR §257.60-63 is not required for Cells D-1 and E-1 since they meet the definition of existing landfills under 40 CFR §257.

4 References

1) Valmont Station Landfill Cell D and E Design and Modification and Closure Plan, Boulder County, Colorado, HDR March 2018
2) Geotechnical Report – Slope stability and Settlement Analyses, Valmont Station Area D-1 CCR landfill Closure, Boulder County, Colorado, HDR December 2017.
3) Supporting Calculations for Slope Stability of Cell E-1, Valmont Station CCR Landfill, HDR, October 2018.

Figures

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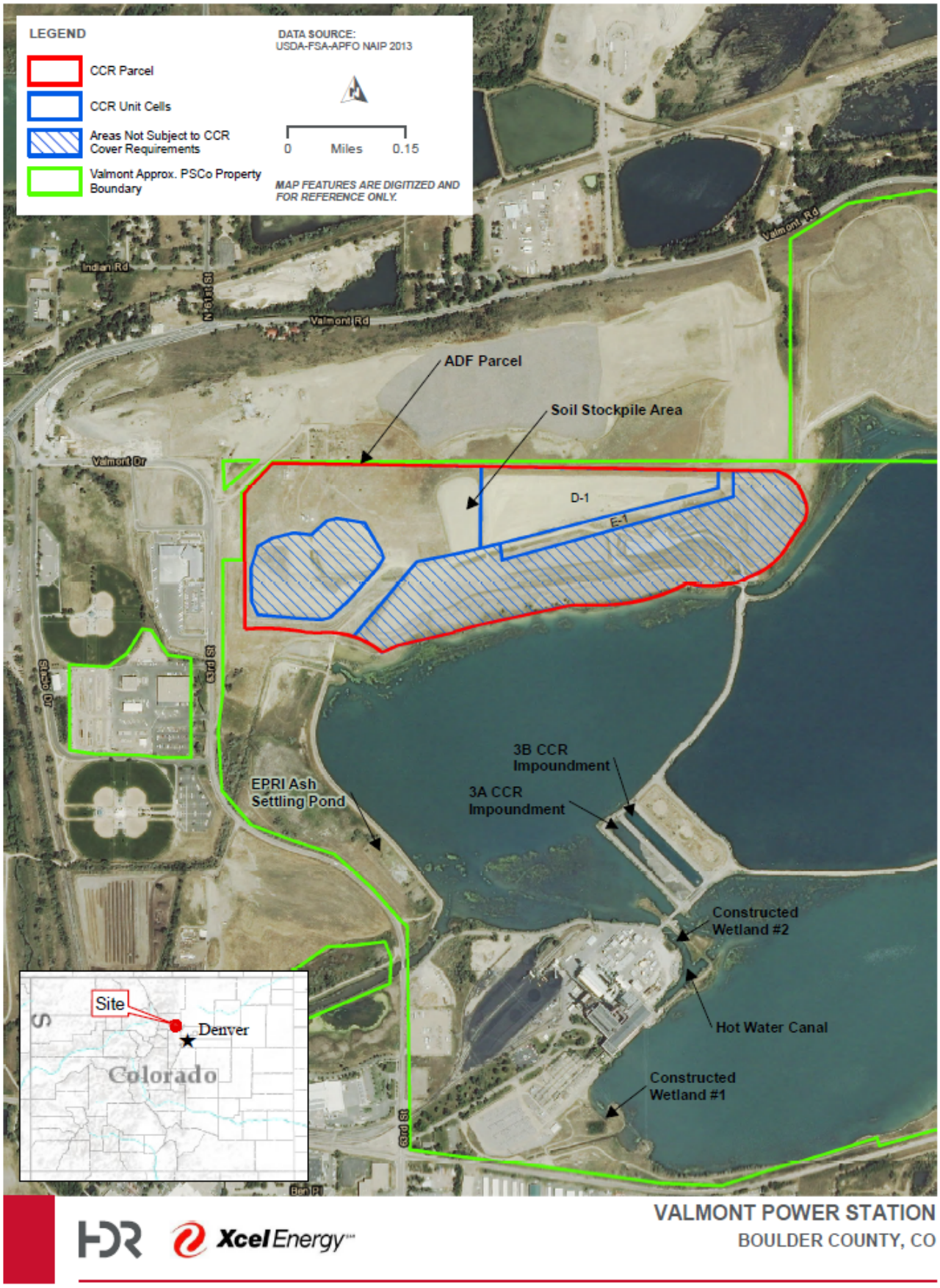

FIGURE 1: Valmont Station Location and Layout Map