Initial Hazard Potential Classification Assessment – Bottom Ash Pond

Comanche Station - Active CCR Surface Impoundment

Public Service Company of Colorado
Denver, Colorado

September 9, 2019
This page intentionally left blank.
Contents

LIST OF ABBREVIATIONS AND ACRONYMS

Qualified Professional Engineer Certification

1.0 Introduction
  1.1 General Information
  1.2 Type of Facility

2.0 Hazard Potential Classification Assessment – 257.73 (a)(2)

3.0 References

List of Figures

Figure 1 – Comanche Station Location Map
Figure 2 – Comanche Station Layout Map
Figure 3 – Civil Grading Plan (Stearns-Roger Corporation, issued 5/14/76)
Figure 4 – Civil Miscellaneous Sections (Stearns-Roger Corporation, issued 5/14/76)
LIST OF ABBREVIATIONS AND ACRONYMS

ADF Ash Disposal Facility
CCR Coal Combustion Residuals
CFR Code of Federal Regulations
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 §257.73 paragraph (a)(2) has been made.

Michael Batten, PE
Colorado Licensed Professional Engineer No. 0054961

September 9, 2019
1.0 Introduction

This Initial Hazard Potential Classification Assessment report has been prepared for the existing CCR impoundment (referred to herein as the Bottom Ash Pond) located at the Public Service Company of Colorado (PSCo) Comanche Station (the Site).

On April 17, 2016 the Environmental Protection Agency (EPA) issued the final version of the federal Coal Combustion Residual (CCR) Rule to regulate the disposal of CCR materials generated at coal-fired units. The rule is administered as part of the Resources Conversation and Recovery Act (RCRA, 42 United States Code (U.S.C.) Section 6901 et seq.), using the Subtitle D approach.

Comanche Station is subject to the CCR Rule and as such must develop a Hazard Potential Classification Assessment for existing CCR impoundments per 40 Code of Federal Regulations (CFR) Section 257.73(a)(2). This report provides and verifies the Hazard Assessment Certification for the Bottom Ash Pond at the Comanche Station. Section 257.73(a)(2) requires that this document accomplish the following:

- Document the hazard potential classification of each CCR unit as either a high hazard potential CCR surface impoundment, a significant hazard potential CCR surface impoundment, or a low hazard potential CCR surface impoundment.
- Document the basis for each hazard potential classification.

1.1 General Information

The Comanche Station is located west of Lime Road approximately three miles south of Colorado Highway 50 in Pueblo County, Colorado (Figure 1). The Site is located in the west half of Section 20, Township 21 South, Range 64 West of the 6th Principal Meridian, Pueblo, Colorado. The facility is in an area zoned I-3 (Industrial) by the City of Pueblo Zoning Department. The Bottom Ash Pond is located approximately 1,400 feet southeast of the main power plant building. Figure 2 shows the various facilities and infrastructure located at Comanche Station.

Comanche Station is a coal-fired plant that consists of three units (Units 1, 2 and 3) that burn Powder River Basin coal. Unit 1 was built in 1973 and is rated at 350 megawatts (MW), Unit 2 was built in 1975 and is rated at 350 MW, and Unit 3 was built in 2010 and is rated at 750 MW.

1.2 Type of Facility

The CCR impoundment is located in the southeastern area of the Site (Figure 2). The impoundment was constructed in 1972 and has a surface area of approximately 1.6 acres. Historic documents at the Site indicate that this impoundment was built with a 3-foot thick soil base liner; however, the soil base liner does not meet the requirements of 40 CFR §257.71. The impoundment is approximately 505 feet long by 140 feet wide and 20 feet deep. The primary influent to this impoundment is bottom ash sluiced from Units 1 and 2.
The primary purpose of this impoundment is to settle out bottom ash from the influent water. The bottom ash is sluiced to a concrete bunker located at the south end of the impoundment. The bunker collects the larger bottom ash solids, and water and fines are passed through to the impoundment. Dewatered bottom ash is removed from the bunker on a regular basis for off-site encapsulated beneficial use, or disposal in the on-site CCR landfill approximately 1,700 feet west of the impoundment. Additional smaller volume non-CCR influent sources include the continuous deionization softeners waste, brine and rinse, and activated carbon filter backwash and rinse. Effluent from the CCR impoundment discharges to the immediately adjacent Polishing Pond prior to being discharged to the St. Charles River under the Site’s Clean Water Act discharge permit.

2.0 Hazard Potential Classification Assessment – 257.73 (a)(2)

The Bottom Ash Pond at Comanche Station is a partially incised impoundment, with an earthen berm on the west side that retains CCR. The earthen berm is composed of compacted clay fill and claystone fill, according to the Stearns-Roger Corporation drawings issued for construction on May 14, 1976 (Figures 3 and 4). The top of the berm is surfaced as a roadway, and is being used for vehicular access around the impoundments. The berm height is approximately 17 feet, with a top width of approximately 47 feet and side slopes of 2.5:1 (exterior) and 3:1 (interior) according to the aforementioned drawings. The berm divides the Bottom Ash Pond from the coal stockpile area, which is an unlined, incised area of the site where coal is temporarily stockpiled. A review of the surrounding topography shows the coal stockpile area is located within a depression with sufficient volume to contain a release from the Bottom Ash Pond.

Per the Comanche Station No Aquifer Determination Memorandum (HDR, January 2018), the perched water in the colluvium under the site does not meet the definition of an aquifer. The uppermost aquifer beneath the site is the Dakota Sandstone at a depth of over 1,450 feet. The estimated travel time for water from the impoundments to migrate through the underlying Pierre Shale deposits to reach the Dakota Sandstone Aquifer is approximately 13,000 years. With regard to horizontal flow of perched water, the distance from the surface impoundment to the St. Charles River, the nearest receptor for the colluvium, is approximately 4,000 feet and the potential for lateral migration of perched water in the colluvium is less than 10 feet per year.

Since the only area downstream of the Bottom Ash Pond is the coal stockpile area, there is no probable loss of human life and low economic and environmental losses in the event of failure or mis-operation of the impoundment. Any release from the Bottom Ash Pond would be contained on the Comanche Station property and clean-up would be implemented per facility spill response procedures.

Given that there is no probable loss of human life and low economic and environmental losses in the event of failure or mis-operation of the impoundment, the Bottom Ash Pond is classified as a low hazard potential CCR surface impoundment. This determination is based on the criteria...

3.0 References

1) Comanche Unit 3 Generating Station, Comanche Station, Pueblo, Colorado, URS 2005.


6) Comanche Station No Aquifer Determination Memorandum, HDR January 2018.
Figures
FIGURE 1: COMANCHE STATION LOCATION MAP
FIGURE 2: COMANCHE STATION LAYOUT MAP
FIGURE 3: Civil Grading Plan
(Stearns-Roger Corporation,
Issued 5/14/76)