



HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

WEC Temporary Ash Disposal Area

Hastings Utilities / City of Hastings, Nebraska and
Public Power Generation Agency



November 2020

Hazard Potential Classification Assessment, 40 CFR §257.73(a)(2)

WEC Temporary Ash Disposal Area

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1. Introduction and Purpose

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) issued the final rule for the regulation and management of coal combustion residuals (CCR) under Subtitle D of the Resource Conservation and Recovery Act (RCRA) [40 CFR Part 257, Subpart D]. The rule – effective on October 19, 2015 – and as amended, applies to the WEC Ash Disposal Area which is considered an existing CCR surface impoundment.

CCR Rule 40 CFR §257.73(a)(2) requires that owners or operators 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. The owner or operator must also document the basis for each hazard potential classification. This Hazard Potential Classification Assessment Report presented herein addresses the specific requirements of 40 CFR §257.73(a)(2).

2. Facility Description

The Whelan Energy Center located near Hastings, Nebraska, has two coal fired electric generating units. WEC Units 1 and 2 have net capacity ratings of 77 megawatts and 220 megawatts, respectively. Figure 1 provides the location of WEC relative to City of Hastings, Nebraska. Hastings Utilities / City of Hastings, NE (Hastings) is the owner and operator of WEC Unit 1 (WEC1) and the operating agent of WEC Unit 2 (WEC2) for Public Power Generation Agency (PPGA). The WEC Temporary Ash Disposal Area, located at WEC, is permitted under the Nebraska Department of Environmental Quality (NDEQ) [now referred to as the Nebraska Department of Environment and Energy (NDEE)] Title 132 – Integrated Solid Waste Management Regulations. Original Title 132 permitting efforts began in 1999 pursuant to NDEQ requirements. The federal CCR rule – effective on October 19, 2015 – and as subsequently amended, applies to the WEC Ash Disposal Area which is considered an existing CCR surface impoundment.

The WEC Temporary Ash Disposal Area is an unlined CCR surface impoundment of approximately 23.2 acres that has historically received CCR in sluiced and dry form for storage prior to removal for beneficial uses. Fossil fuel ash sluicing and disposal at this site began in 1981, the same year that WEC1 began commercial operation. The disposal area was constructed as an ash pond to provide storage for ash, sluice water, and other process waters with option to recycle water back to the WEC. Due to ash pond size and evaporation, recycling water back to the plant did not occur. Over time, other process waters such as cooling tower blowdown was redirected away from the WEC Temporary Ash Disposal Area. With start-up of WEC2, commercial operations on May 1, 2011, scrubber ash was sluiced to the East Area and fly ash was periodically sluiced to the West Area. Sluicing of scrubber ash ended in 2013 after a pug mill was installed to load trucks with moistened scrubber ash for hauling and placement within the East Area of the WEC Temporary Ash Disposal Area. Figure 2 shows the locations of the plant, supporting facilities, WEC Temporary Ash Disposal Area, and groundwater monitoring wells.

2.1. Site Location

The legal description of the Whelan Energy Center site is as follows: “The North Half of Section 14, Township 7 North, Range 9 West in Adams County, Nebraska, containing 320 acres more or less.” The Site is approximately 2 miles east of Hastings, Nebraska, on Highway 6.

The site includes the WEC generating station, electric substation, WEC Temporary Ash Disposal Area, farming operations, and a train car repair facility. The current disposal area footprint of the WEC Temporary Ash Disposal Area is approximately 23.2 acres located along the west property boundary.

2.2. Site Description

The regional and site-specific topography is generally level. On the WEC site, moderately sloping elevations vary up to about 15 feet. The WEC Temporary Ash Disposal Area has a base elevation within in-situ lean clay material of Peoria loess with permeability of approximately 10^{-4} to 10^{-8} cm/sec (HDR 2006). Three sides of the WEC Temporary Ash Disposal Area are cut slopes to the CCR. The only embankment that extends above the natural ground is the south embankment.

The south embankment has a top perimeter road design elevation of 1898 feet above mean sea level (1927 NGVD), sloping at approximate 4:1 horizontal to vertical to natural ground elevation of 1890 feet. Immediately south is the Leachate Pond and Surge Pond as shown on Figure 2.

3. Hazard Potential Classification

The EPA defines the hazard potential classifications as follows:

- High hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.
- Significant hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.
- Low hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment's owner's property.

The WEC Temporary Ash Disposal Area only one side that is an embankment above adjacent natural ground – the south embankment. The south embankment borders the Leachate Pond and site's Surge Pond. The Leachate Pond was constructed in 2007 to comply with NDEE requirements to remove liquids (leachate) from the WEC Temporary Ash Disposal Area in order to maintain no more than one-foot depth of leachate on the base. Ash sluice is directed to flow southward for settlement of ash sediment while the free liquids generally flow along the surface to the south embankment. Free liquids are pumped directly into the Leachate Pond with a portable pump, float and piping. As a result, accumulation of liquids in the WEC Temporary Ash Disposal Area is limited by NDEE, the Title 132 permit, and operations. Furthermore, the East Area of the WEC Temporary Ash Disposal Area has been receiving moisture-conditioned scrubber ash from dump trucks since 2013 and operates like a CCR landfill. Thus, impounded liquids have been significantly reduced. A summary of the WEC Temporary Ash Disposal Area storage volumes are presented in Table 1.

Table 1. WEC Temporary Ash Disposal Area Summary

CCR Surface Impoundment	Bottom of Pond Elevation (feet MSL)	Top of Embankment Elevation (feet MSL)	Scenario	Water Surface Elevation (feet MSL)	Storage Volume (acre-feet)
WEC Temporary Ash Disposal Area – West Area	1888	1898	Risers Design	1889.2	14
			Normal	1892 Top of Water	45
			Maximum Storage	1895 Top of Water	79
WEC Temporary Ash Disposal Area – East Area	1888	1898	Risers Design	1889.2	14
			Normal	1888	0
			Maximum Storage	NA	NA
Note: 1) Elevations are referenced to National Geodetic Vertical Datum of 1927 (NGVD27). 2) East Area of WEC Temporary Ash Disposal Area receives dry scrubber and bottom ash. 3) East Area is approximately 11.9 acres and West Area is approximately 11.3 acres to the disposal area boundary limits at top of embankment elevation.					

If the south embankment of the WEC Temporary Ash Disposal Area fails, the liquids from the CCR surface impoundment will discharge into either 1) the Leachate Pond or 2) the Surge Pond. The Leachate Pond and Surge Pond are both on the WEC property. Table 2 provides the normal and maximum water pool elevations of the Leachate Pond and Surge Pond. The Leachate Pond and Surge Pond are currently dry.

Table 2. Leachate Pond & Surge Pond Summary

Impoundment	Bottom of Pond Elevation (feet MSL)	Top of Embankment Elevation (feet MSL)	Scenario	Water Surface Elevation (feet MSL)	Storage Volume (acre-feet)
Leachate Pond	1880	1894	Normal	1884.30	13
			Maximum Storage	1893	49
Surge Pond	Varies, Average 1890	1894	Normal	1890.40	7
			Maximum Storage	1892.5	45
Notes: 1) Elevations are referenced to 1927 NAVD. 2) Leachate Pond is not CCR surface impoundment. Storage volume based on average number of acres between bottom of pond and water surface elevation. Total area at top of embankment is approximately 5.2 acres. 3) Surge Pond is stormwater drainage area for the site. Existing culvert near southwest has invert elevation of 1890.4. Barrier prior to culvert has elevation of 1892.5. Surge pond area for storage is approximately 18 acres.					

No probably loss of human life, low economic/environmental damage, and no disruption of lifeline facilities are expected during this scenario. Losses from this scenario would be limited to City of Hastings property. Therefore, the WEC Temporary Ash Disposal Area has been determined to have a low hazard potential classification.

4. Certification

Based on the information in City of Hastings facility records, information available in the NDEE Title 132 permit application, and Hastings visual observations and analyses, this Hazard Potential Classification Assessment was conducted in accordance with the requirements of the USEPA 40 CFR Part 257-Criteria for Classification of Solid Waste Disposal Facilities and Practices; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, April 17, 2015 (CCR Rule). Based on the information currently available, I certify to the best of my knowledge, information and belief that this Hazard Potential Classification Assessment meets the requirements of CCR Rule §257.73(a)(2) in accordance with professional standards of care for similar work. I am a duly licensed Professional Engineer under the laws of the State of Nebraska.

Print Name: Marty Stange

Signature:



Date: December 1, 2020

License #:

E-6129



My license renewal date is December 31, 2020.

5. References

Federal Register, 2015. 40 CFR Parts 257 and 261 Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities. Vol. 80, No. 74, Pages 21302 – 21501. April 17, 2015.

Hastings, 2020. Data on water surface elevations and storage volumes.

HDR, Inc., 2006. Supplemental Hydrogeologic Characterization for Whelan Energy Center Fossil Fuel Combustion Ash Temporary Ash Disposal Area. Prepared for Hastings Utilities. Original December 2001.

HDR, Inc., 2016. Title 132 Permit Renewal Application, WEC Temporary Ash Disposal Area. Whelan Energy Center. Prepared for Public Power Generation Agency and Hastings Utilities. October 6, 2016.