



CCR Surface Impoundment – Periodic Hazard Potential Classification

40 CFR § 257.73



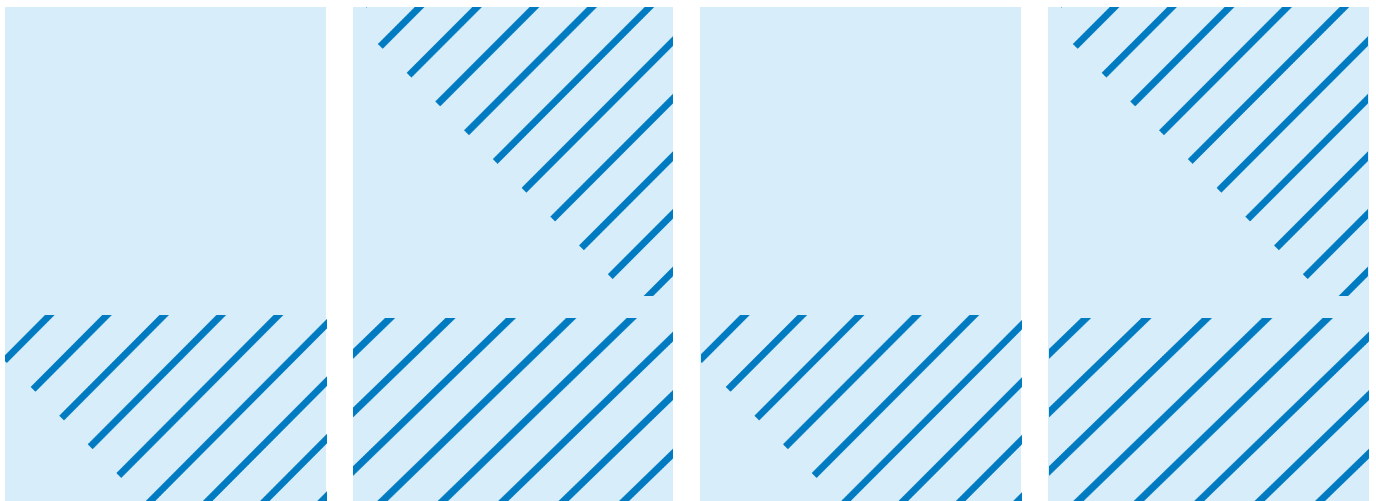
Prepared for
Basin Electric Power Cooperative
Leland Olds Station Ash Pond 2 and Pond 3

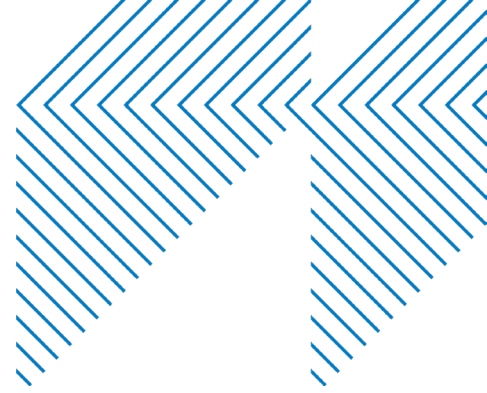
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Figure 1 Site Location

Abbreviations

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
LOS	Leland Olds Station
MW	Megawatt
NDDEQ	North Dakota Department of Environmental Quality
QPE	Qualified Professional Engineer
RCRA	Resource Conservation and Recovery Act

1 Background and Purpose

Leland Olds Station (LOS) is a lignite coal-fired power plant consisting of two units that generate about 669 megawatts (MW) combined. The power plant, owned and operated by Basin Electric Power Cooperative (Basin Electric), is located approximately four miles southeast of Stanton in Mercer County, North Dakota. Closed LOS surface impoundments (Ash Pond 2 and Pond 3) are regulated under the Coal Combustion Residual (CCR) Rule and are the subject of this certification. Ash Pond 2 and Pond 3 (pond complex) are located immediately south of Missouri River and east of Former Ash Pond 1 in the northeast portion of the LOS property. The general location of the LOS surface impoundments is shown on Figure 1 Site Location Map.

The surface impoundments are situated in the valley of the Missouri River. The valley floor is relatively flat, with two relatively poorly defined terraces ranging from 1,670 feet above mean sea level (ft amsl) to a maximum elevation of 1,715 ft amsl near the southern property boundary. Accordingly, the CCR surface impoundments are located with the Missouri River watershed which has an area of approximately 529,000 square miles.

The geology underlying the Multiunit is generally comprised of a minimum of 50 feet of alluvial silt, silty sand, and gravel deposits. The upper terrace level appears to be underlain by at least 25 more feet of alluvial deposits than is found adjacent to the Multiunit. The alluvial deposits are underlain by the Sentinel Butte Formation, which is described as 1,000 feet or more of continental deposits consisting of dense clay, weakly cemented sandstone, and mudstone interlaced with occasional lignite beds that typically range from 5 to 10 feet in thickness.

1.1 Purpose

The owner or operator of a CCR surface impoundment must conduct initial and periodic hazard potential classification assessments of each CCR unit. A hazard potential classification provides an indication of the potential for danger to life, development, or the environment in the event of a release of CCR from a surface impoundment. The owner or operator must 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. The initial hazard potential classification assessment, completed April 13, 2018, indicated Ash Pond 2 and Pond 3 were both significant hazard surface impoundments.

The date of completing the initial assessment establishes the deadline to complete subsequent assessments. The LOS surface impoundments, however, were closed before the subsequent five-year periodic assessment date. The purpose of this document is to provide a basis for the initial hazard classification and to provide updated classification for the closed pond complex, in accordance with 40 CFR § 257.73(a)(2) (Periodic hazard potential classification assessments) for CCR surface impoundments.

1.2 History

The LOS surface impoundments are owned and operated by Basin Electric, 1717 East Intestate Avenue, Bismarck, ND 58503. The LOS CCR units were first regulated by the North Dakota Department of Health solid waste management rules in 1982 as Permit SU-038 (later designated as SP-038 and more recently as 0038). Ash Pond 2 was partially closed in 2017. Approximately 23 acres in the south and southwest

areas of the pond were closed in accordance with the design standards specified in 40 CFR § 257.102 and North Dakota Department of Environmental Quality (NDDEQ) permit requirements. The remaining areas of Ash Pond 2 and Pond 3 were closed during the 2019 and 2020 construction seasons.

Following closure of a CCR unit and in accordance with 40 CFR § 257.102(i), the owner or operator must record a notation on the deed to the property, or some other instrument that is normally examined during title search. The notation on the deed must in perpetuity notify any potential purchaser of the property that the land has been used as a CCR unit and the land's use is restricted under the post-closure care requirements for the CCR unit. The deed notation was recorded by the Mercer County Recorder's Office on December 3, 2020.

2 Definitions from the CCR Rule and NDAC

Guidance for the hazard potential classification is provided in 40 CFR § 257.53 stating "Hazard potential classification means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of the diked CCR surface impoundment or mis-operation of the diked CCR surface impoundment or its appurtenances." Both the federal CCR rules and North Dakota rules require conducting initial and periodic hazard potential classification assessments with certification by a qualified professional engineer to document the hazard potential classification of CCR surface impoundments and the basis for the classifications.

Hazard classifications for CCR surface impoundments are defined in 40 CFR 257.73(a)(2) and North Dakota Administrative Code (NDAC) Section 33.1-20-08-04.3.a.2 as follows:

1) High hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.

2) Low hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

3) 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.

3 Initial Hazard Potential Classification

As part of this certification process, a review of the previous hazard potential classification analysis was performed. The east, west and south sides of the pond complex are in essence incised, surrounded by closed solid waste facilities or other infrastructure situated at higher elevations than the existing ponds. The land areas to the north, east, and south of the pond complex are uninhabited. Inhabited LOS structures to the west of the pond complex are at higher elevation and further isolated from the pond complex by closed Ash Pond 1. Failure of pond complex via Pond 3, if it were to occur, would likely occur via a breach of the embankment on the north side.

Failure or mis-operation of the LOS CCR surface impoundments is not likely to cause loss of human life, as there are no inhabited structures to the north of the pond complex. However, some economic loss (e.g., clean-up costs), environmental damage (e.g., potential impacts on local surface water resources), or other impacts could occur in the event of a breach of the pond complex north embankment. On this basis, the LOS CCR surface impoundment complex was classified as a significant hazard potential CCR surface impoundment.

4 Current Hazard Potential Classification

As documented in the Closure plan (publicly available at: [SHDQLAN0118042210100](#)) Ash Pond 2 and Pond 3 were dewatered and existing CCRs were stabilized by air drying and/or mixing with imported soils. The perimeter dike on the north side of the pond complex was removed to preclude the possibility of the future impoundment of liquids. Existing soils were graded to the required subgrade elevations to allow for positive drainage as well as installation of the final cover system. Closed areas were then seeded with shallow-rooted native vegetation.

As a result of the closure activities described above, the Ash Pond 2 and Pond 3 are not a “diked surface impoundment.” Ash Pond 2 and Pond 3 do not (and cannot) impound liquids and no longer function as surface impoundments. On this basis, the closed LOS surface impoundment complex does not meet criteria for hazard classification and therefore should not be classified.

5 Certification

Qualified Professional Engineer Certification

I hereby certify that this CCR Surface Impoundment Hazard Potential Classification was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota.



Kevin L. Solie
North Dakota PE-9488

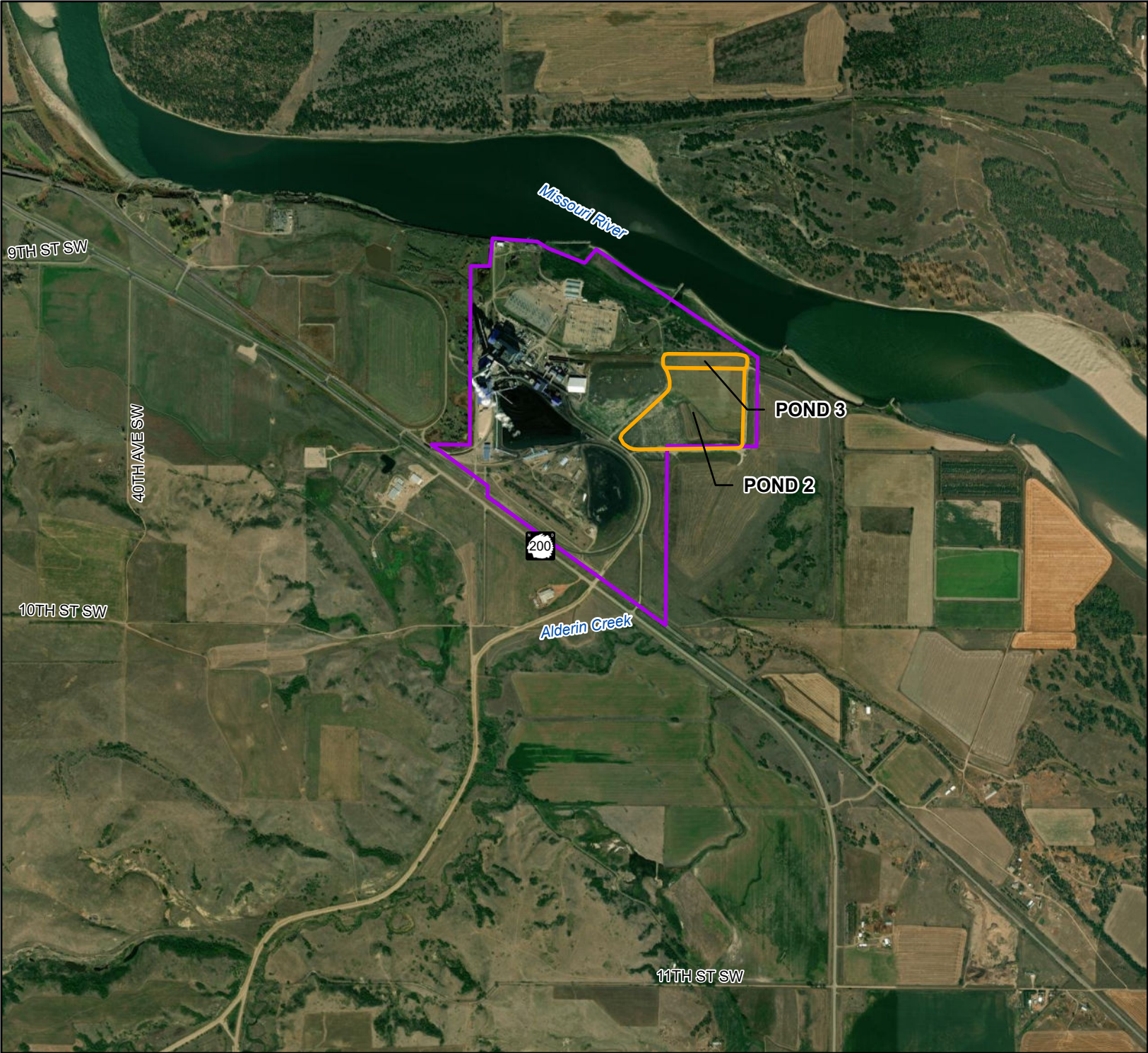
October 27, 2025

Date





Figures



-  Leland Olds Power Plant
-  Ponds



0 1,000 2,000
Feet

Imagery: ESRI 2024

Site Location
Leland Olds Station CCR
Surface Impoundments
Basin Electric Power Cooperative
Stanton, North Dakota

FIGURE 1