TECHNICAL MEMORANDUM

JACOBS

Initial Hazard Potential Classification Assessment, Ponds B1, B2, and B3, Reid Gardner Generating Station

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This technical memorandum presents the initial hazard potential classification assessment for Ponds B1, B2, and B3 at the Reid Gardner Generating Station (Station), as required by §257.100(e)(3)(v) and §257.73(a)(2) of the U.S. Environmental Protection Agency's Coal Combustion Residuals (CCR) Rule.

The initial hazard potential classification assessment must be completed and placed in the Station's operating record by April 17, 2018, per §257.100(e)(3)(v), §257.73(f)(1) and §257.105(f)(5). Within 30 days of placement, the State Director must be notified as required by §257.106(d) and §257.106(f)(4). Also within 30 days of placement, the assessment must be placed on a publicly accessible Internet site per §257.107(d) and §257.107(f)(4). Periodic hazard potential classification assessments are required every 5 years based on the date that the initial assessment was placed into the operating record (§257.73(f)(3)). The initial and periodic hazard potential classification assessments must be certified by a qualified professional engineer (§257.73(a)(2)(ii)).

1.0 Regulatory Background

Ponds B1, B2, and B3 are inactive CCR surface impoundments that no longer contain CCR, liquid, or lining systems and are currently being closed. Notifications of intent to initiate closure were placed in the Station's operating record by December 17, 2015, and posted to the publicly accessible internet site by January 16, 2016 (CH2M, 2015a, 2015b, and 2015c). These notifications were prepared to satisfy the early-closure provisions in §257.100 of the CCR Rule. However, on June 14, 2016, the United States District Court of Appeals for the District of Columbia Circuit vacated, or removed, the early-closure provisions in §257.100. On August 5, 2016, the USEPA proposed revisions to §257.100 which required inactive CCR surface impoundments to comply with all requirements applicable to existing CCR surface impoundments, including the requirement to conduct a hazard potential classification assessment.

Ponds B1, B2, and B3 were designed, permitted, and constructed prior to the publication of the CCR Rule and in conformance with applicable State regulations. The applicable regulations included water pollution control regulations (Nevada Administrative Code [NAC] 445A), dam safety regulations (NAC 535), and the Nevada Division of Environmental Protection (NDEP), Bureau of Water Pollution Control's (BWPC) technical guidance documents. Ponds B1, B2, and B3 are regulated as dams by the Nevada Division of Water Resource's Dam Safety Program (the State Engineer) under the dam permits J-613, J-614, and J-615, respectively.

2.0 Operational Background

According to record drawings, Ponds B1, B2, and B3 were originally constructed with lined earthen embankments (Jacobs, 2018). The liner system consisted of two layers of high-density polyethylene geomembrane and interstitial leak detection and collection systems. The ponds stopped receiving CCR and non-CCR waste on October 14, 2015. Because the ponds contained CCR and liquids after October 14, 2015, they met the definition of inactive CCR surface impoundments per §257.53 of the CCR Rule.

Field closure operations for Ponds B1, B2, and B3 began in September of 2016. Based on personal visual observations and record surveys, CCR, liquid, and liner systems were removed from the ponds by the end of 2017. The Station is no longer operational and, as a result, can no longer create wastewater. Additionally, the ponds have been rendered incapable of receiving wastewater because the inlet pipe to Ponds B1, B2, and B3 has been disabled in three locations. The ends of the inlet pipes have been buried, the upstream valves nearest the ponds have been closed, and farther upstream an airgap has been installed in the conveyance pipeline.

3.0 Hazard Potential Classifications

The CCR Rule defines a hazard potential classification as "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" (§257.53). The different hazard potential classifications listed in Section 257.73(a)(2)(i) are defined in §257.53 and listed below:

- "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 human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property."

NV Energy submitted a request to the State Engineer to lower the dam classification of Ponds B1, B2, and B3 on October 5, 2017. The State Engineer lowered the hazard rating from significant to low in a letter dated October 24, 2017, and revoked the authorization to impound water. The definition of low hazard under the CCR Rule differs from the definition in the NAC 535.140: a dam will be classified as a "low hazard if failure of the dam carries a: (1) Very low probability of causing a loss of human life; or (2) Reasonable probability of causing little, if any, economic loss or disruption in a lifeline."

4.0 Analysis and Conclusions

Because there is no source of process wastewater, the only source of water to Ponds B1, B2, and B3 is direct precipitation. The estimated precipitation from a 100-year, 24-hour storm event is 2.55 inches. This volume of precipitation is practically insignificant when compared to the storage available, or the height of the remaining embankments (CH2M, 2016). Therefore, the probability of impoundment failure is very low.

If failure were to occur, the amount of water released would be very small (2.55 inches from the 100-year 24-hour storm event). The nearest downstream residence is approximately 1.76 miles from the nearest pond (0.69 miles through NV Energy property and 1.07 miles through irrigated pastures). There are overhead power transmission lines and underground utilities in the irrigated pastures (and in the regulatory floodplain), and they appeared to be unaffected by two 100+ year flood events that hit this

reach of the Muddy River in a 60-day period in 2014. Therefore, as implied by the State-level hazard classification, the probability of disrupting a lifeline appears to be low.

5.0 Classifications and Recommendations

This section documents the basis for the hazard potential classification as required by §257.73(a)(2)(i). The evaluation of the appropriate hazard potential classification included a stepwise consideration of each hazard classification. The classifications are shown below along with a discussion of their relevance to Ponds B1, B2, and B3.

- Because Ponds B1, B2, and B3 could only impound a small amount of water, and the nearest residence is approximately 1.76 miles away, failure or mis-operation of the ponds will probably not cause loss of human life. As a result, a high hazard potential classification is not appropriate for Ponds B1, B2, and B3.
- Because Ponds B1, B2, and B3 could only impound direct precipitation, and the fact that the downstream land is predominantly agricultural, a small release of that water will probably not cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. As a result, a significant hazard potential classification is not appropriate for Ponds B1, B2, and B3.
- Because Ponds B1, B2, and B3 could only impound a small amount of water there is no reasonable probability for causing loss of life. And because the released water would be precipitation, and the downstream land is predominantly agricultural, the economic or environmental losses would probably be low. As a result, a low hazard potential classification is appropriate for Ponds B1, B2, and B3.

Because the Ponds B1, B2, and B3 are classified as low hazard potential CCR surface impoundments, there is no requirement to develop an emergency action plan (§257.73(a)(3)(i)). Furthermore, the Inflow Design Flood Control Plan should be designed for the 100-year flood (§257.82(a)(3)(iii)).

6.0 Certification

This section of the assessment contains the certification by a qualified professional engineer as required by Section 257.73(a)(2)(ii) of the CCR Rule.

This initial hazard potential classification was conducted in accordance with the requirements of Section 257.73 of the CCR Rule.

7.0 Reference

CH2M. 2016. *Ponds BE Solids Removal Design Report.* Application for Decommission, Breach, or Removal of a Dam. June 9.

Jacobs. 2018. *Construction History, Ponds B1, B2, and B3, Reid Gardner Generating Station.* April 11.