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17 October, 2016

Kansas City Board of Public Utilities
540 Minnesota Avenue
Kansas City, KS 66101

Attention: Ingrid Setzler, Director of Environmental Services

Subject: Bottom Ash Surface Impoundment Initial Structural Stability and Safety Factor Assessments

INITIAL STRUCTURAL STABILITY ASSESSMENT

In accordance with the CCR Rule §257.73(d), initial and periodic structural stability assessments are required for Coal Combustion Residuals (CCR) impoundments. Review of the impoundment design indicates that the exterior dikes of the impoundment slopes are vegetated (with less than 6 inches height) with the exception of the northern portion which is covered with rip rap. The interior dike slopes are covered with rip rap. The 2016 Annual Inspection Report indicated that an area near the sealed discharge pipe lacked continuous rip rap with exposed bare soil and minor unravelling of the riprap edges. This area of the impoundment was repaired in 2016. Both the interior and exterior slopes have adequate slope protection against erosion. Based on geotechnical investigation of the impoundment dikes, the dikes consist of compacted material appropriate for its intended use and are stable. The impoundment operates as part of a closed loop system and does not have a spillway. Due to the adjacent Missouri River, the impoundment was evaluated and found to be sufficient for stability during inundation/sudden drawdown of an adjacent water body.

The initial structural stability assessment was conducted in accordance with CCR Rule §257.73(d).

INITIAL SAFETY FACTOR ASSESSMENT

In accordance with the CCR Rule §257.73(e), initial and periodic safety factor assessments are required for CCR impoundments. The load cases identified in Table 1 were evaluated for the critical cross section of the impoundment.

TABLE 1

CCR RULE SAFETY FACTOR REQUIREMENTS

LOADING CONDITION	MINIMUM FACTOR OF SAFETY[1]
Long-term-maximum storage pool	1.50
Maximum surcharge[2]	1.40
Seismic loading	1.00
Soil Liquefaction[3]	1.20

Notes:

(1) CCR Rule §257.73(e)(1)(i), through (iv)

(2) Includes sudden drawdown of adjacent water body-CCR Rule §257.73(d)(vii)

(3) Soil liquefaction case is only required if soils are identified as having potential for liquefaction under seismic loading.

The initial assessment showed that the Bottom Ash Impoundment meets the requirements of the CCR Rule §257.73(e).

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10/17/2016

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