

FINAL

# ANNUAL INSPECTION REPORT

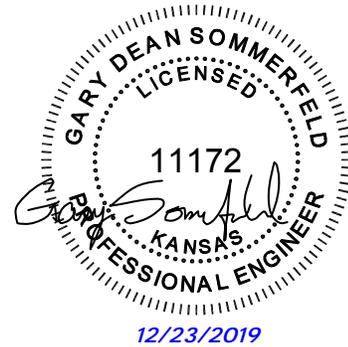
## NEARMAN CREEK BOTTOM ASH IMPOUNDMENT

Kansas City, Kansas

B&V PROJECT NO. 190719

B&V FILE NO. 41.0403

PREPARED FOR



Kansas City Board of Public Utilities

23 DECEMBER 2019

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## 1.0 Executive Summary

This report presents a summary of the annual inspection for the Kansas City Kansas Board of Public Utilities (KCBPU) Nearman Bottom Ash Impoundment in Kansas City, Kansas. The annual inspection was completed by Black & Veatch on December 9, 2019. The annual inspection was completed in compliance with 40 CFR § 257.83 and included review of available information regarding the impoundment as well as a visual inspection of the impoundment and appurtenant structures.

### 1.1 SUMMARY OF FINDINGS

The impoundment has been drained of all free water and nearly all of the bottom ash has been removed. The embankments are not impounding water or ash. Inspection of the embankments and pond subgrade did not identify any signs of structural weakness or conditions that would disrupt or affect the safety of the impoundment. There were no concerns with existing conditions or the existing maintenance.

### 1.2 RECOMMENDATIONS

Based on the results of the inspection, Black & Veatch has no recommendations for improvements of the existing conditions or the maintenance program.

## 2.0 Inspection Team and Date of Inspection

### 2.1 INSPECTION TEAM

The inspection team consisted of one KCBPU Staff Scientist and one Black & Veatch geotechnical engineer. The inspection team members included:

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### 2.2 DATE OF INSPECTION

The inspection team began their work at 9:00 a.m. on Monday, December 9, 2010 and completed their work at 9:30 a.m.

### 2.3 WEATHER DURING INSPECTION

The weather on the day of the inspection was cloudy with an ambient temperature about 38° Fahrenheit with mild wind. There had been no significant precipitation within the previous week, but the surrounding conditions were damp.

## 3.0 Description of Surface Impoundment

### 3.1 LOCATION AND GENERAL DESCRIPTION

The KCBPU Nearman Creek Power Station Surface Impoundment is located in Kansas City, Kansas, within Wyandotte County, in northeastern Kansas. The surface impoundment had been designed as a bottom ash settling pond and a clear water pond separated by an internal dike. Descriptions within this report may identify the facility as the surface impoundment, bottom ash pond, or ash pond.

The impoundment was designed by Lutz, Daily & Brain of Shawnee Mission, Kansas. Construction was completed May 30, 1980 and was permitted by the Kansas Department of Health and Environment (KDHE) on February 11, 1982. The impoundment was constructed by building a perimeter dike consisting of on-site clay and clayey silt materials on the existing soils. Both ponds were designed with a 3-foot thick layer of impervious fill as a base.

At the time of this inspection, bottom ash was nearing the completion of being completely excavated from the impoundment and hauled offsite for beneficial use. The KCBPU received approval from KDHE on March 16, 2018 for a low-volume wastewater discharge of the surface impoundment via KDHE permit No. I-MO25-B001. The dry condition of the impoundment allowed a single backhoe and multiple dump trucks to excavate and remove the bottom ash. (See Figure 1).



**Figure 1 – Dry Bottom Ash Impoundment – Removal by Backhoe and Dump Trucks**

The pipes used to sluice the bottom ash to the pond had been removed as part of the plant conversion from a wet bottom ash system to a dry system. The pipes have been removed more than a year.

The bottom ash pond was originally designed with a discharge structure that consisted of a 30-inch diameter RCP. The original purpose of the pipe was to permit emergency inflow into the pond in case of exterior flooding to help stabilize the embankments and to allow emergency discharge of impounded water. The pipe had previously been closed by mechanical means and was later sealed with concrete. Currently, the bottom ash pond and settling pond do not impound water for bottom ash. Only intermittent precipitation is collected within the impoundment. (See Figure 2).



**Figure 2 - Intermittent Precipitation Collects in the Settling Pond**

### **3.2 POND DIMENSIONS AND CAPACITIES**

Based on the original construction drawings, the impoundment's exterior and internal dikes have a nominal crest elevation of 763 feet. The side slopes of the dikes, both interior and external are designed with 3 horizontal to 1 vertical slopes. The exterior slopes are covered with riprap on the northern portion only and grass vegetation cover on all other external slopes. The interior slopes were originally designed without riprap cover; however, due to erosion issues, riprap was later placed on all interior slope surfaces. The interior rip rap has been removed as part of the bottom ash hauling for beneficial use. Rip rap was removed from the interior sections of the bottom ash

impoundment and the clear water pond. (See Figure 3). Grass has grown over the inside of the ponds. Rip rap remains on the exterior of the bottom ash impoundment dike. (See Figure 4).

The impoundment covers approximately 21.5 acres and has a design storage capacity of 294,870 cubic yards. The bottom ash pond is not in service and nearly all of the bottom ash has been removed from the impoundment. The bottom ash is being removed for beneficial use. Subsequent operation of the power plant will not store bottom ash at this location.



**Figure 3 - Interior Slope of Clear Water Pond without Rip Rap.**



**Figure 4 – Rip Rap on Exterior North Dike of Bottom Ash Impoundment**

### **3.3 POND OPERATING AND INSPECTION PROCEDURES**

In accordance with the Operations Plan updated by Burn and McDonald Engineering (February 26, 2016) and approved by KDHE on June 14, 2016, the impoundment is inspected on a weekly, monthly and an annual basis by plant personnel. Weekly and monthly inspections were initiated on October 19, 2015. The weekly and monthly reports have been completed during the past year.

## **4.0 Inspection Findings**

Black & Veatch completed the annual inspection based on the requirements of §257.83 of the CCR rules. The inspection was completed as a visual inspection with the main goals of identifying signs of distress or malfunction of the impoundment, appurtenant, and hydraulic structures.

The embankments do not impound water or ash. Bottom ash and settling water have nearly been removed from the impoundment and the pond will not be in service for storing future ash production. There are no concerns for damage, distress, or potential for unregulated release.

## 5.0 Conclusions and Recommendations

Based on the condition of the dry bottom ash impoundment and clear water pond, as observed during the inspection on December 9, 2019, the impoundment is considered sufficient to function as intended. There were no signs of distress or instability problems associated with the impoundment.

There are no recommendations for the future of the impoundment area or the related structures.