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Westar Energy, Inc.
818 South Kansas Avenue
Topeka, Kansas 66612

Attention: Mr. Jared Morrison
Manager, Water and Waste Programs

Subject: Initial Hazard Potential Classification Assessment
Bottom Ash Area 1 Impoundment
Jeffrey Energy Center
St. Marys, Kansas

Mr. Morrison:

This document presents the results of our Initial Hazard Potential Classification Assessment for the Westar Energy, Inc. (Westar) Bottom Ash Area 1 coal combustion residuals (CCR) surface impoundment located at the Jeffrey Energy Center (JEC) in St. Marys, Kansas.

Haley & Aldrich, Inc. (Haley & Aldrich) was contracted by Westar to perform this Initial Hazard Potential Classification Assessment for the Bottom Ash Area 1 impoundment. This work was completed in accordance with the US Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR Part 257, specifically §257.73(a)(2).

1.1 DESCRIPTION OF BOTTOM ASH AREA 1 IMPOUNDMENT

The Bottom Ash Area 1 impoundment is located at the JEC, approximately 7 miles northwest of the commercial and residential center of St. Marys.

On the south and east sides of the Bottom Ash Area 1 impoundment, the topography slopes upward from the edge of the impoundment, thus there are no berms on these sides of the impoundment. Berms exist along the west and north sides of the impoundment with a maximum height of approximately 42 ft. According to records, the berms were constructed using a mixture of fly ash and bottom ash. We understand the impoundment has minimal information related to the original design and construction.

Documentation on a recent vertical expansion of the impoundment in 2012 is limited, however, we understand that approximately 1,500 LF of the 40-ft wide berm was raised by 4 ft (from El. 1239 to

typically 1243) using a mixture of fly ash and bottom ash placed and compacted in 8-in. lifts. The 24-in. diameter vertical riser pipe was raised vertically during this construction.

The Bottom Ash Area 1 Impoundment and Landfill has an approximate design total capacity of approximately 1.59 million cubic yards (987.5 ac-ft) (the impoundment has approximately 355 ac-ft of impounded CCR volume) with an approximate footprint of 52.5 acres.

Based on observations during our site visit and our review of available site plans, the Bottom Ash Area 1 impoundment receives water from the following sources: 1) discharge of water/bottom ash slurry from the JEC plant, 2) discharge from the emergency Flue Gas Desulfurization dewatering bags, 3) limited runoff entering the impoundment during rain events and snow melt, and 4) direct precipitation falling into the impoundment.

Bottom ash and boiler slag from the plant are mixed with plant process water and sluiced from the plant to the Bottom Ash Area 1 impoundment where the CCR settles out. Decant water is drained from the impoundment area via a 24-in. diameter CMP vertical riser pipe. The normal pool elevation is maintained by the fixed level of the riser pipe opening. Flow from the riser pipe is directed to a horizontal outlet pipe that penetrates the west berm and discharges at the downstream toe of the berm. The end of the outlet pipe is visible and appears to consist of a 36-in. diameter steel pipe. Water from the outlet pipe flows via an open channel to the Bottom Ash Pond which then discharges to the Tower Hill Lake.

1.2 HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

1.2.1 General

The Hazard Potential Classification of a surface impoundment is based on the potential for loss of human life, economic losses, environmental damage, and/or disruption to lifelines caused by failure of mis-operation of the surface impoundment.

EPA's Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, §257.73(a)(2) requires the owner or operator of a CCR surface impoundment to determine which of the following three hazard potential classifications characterizes their CCR unit:

- High Hazard Potential Classification – A diked surface impoundment where failure or mis-operation will probably cause loss of human life.
- Significant Hazard Potential Classification – 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 Classification – 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.

1.2.2 Hazard Potential Classification

Based on observations during our site visit and our review of available information, Haley & Aldrich has judged the Bottom Ash Area 1 Impoundment as having **Low** Hazard Potential Classification in accordance with §257.73(a)(2). The **Low** Hazard Potential Classification is due to no probable loss of life in the event of a failure, and minimized on-site environmental impacts, disruption of lifeline facilities, and economic impacts that would result from a failure of the impoundment. In addition, potential impacts due a failure would be limited to the owner's property.

1.3 CERTIFICATION

§257.73(a)(2)(ii): The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial hazard potential classification and each subsequent periodic classification specified in paragraph (a)(2)(i) of this section was conducted in accordance with the requirements of this section.

I certify that this initial hazard potential classification for the Bottom Ash Area 1 CCR surface impoundment at the Westar Jeffrey Energy Center was conducted in accordance with §257.73(a)(2) of the CCR Rule.

Signed: 
Certifying Engineer

Print Name: Steven F. Putrich
Kansas License No.: PE24363
Title: Vice President
Company: Haley & Aldrich, Inc.

Professional Engineer's Seal:

