Documentation of Initial Hazard Potential Classification Assessment

East Ash Pond
Hennepin Power Station
Hennepin, Illinois

Stantec Consulting Services Inc.
Design with community in mind
www.stantec.com

Prepared for:
Dynegy

October 12, 2016

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Executive Summary

This report documents the hazard potential classification assessment for the East Ash Pont at the Hennepin Power Station as required per the Coal Combustion Residuals (CCR) Rule in 40 C.F.R. § 257.73(a)(2). The applicable hazard potential classifications are defined in 40 C.F.R. § 257.53 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) 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) 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.

Based on these definitions and the analysis herein, the East Ash Pond is classified as a Significant hazard potential CCR surface impoundment.

This report contains supporting documentation for the hazard potential classification assessment. The hazard potential classification for this CCR unit was determined by a visual assessment conducted by Stantec in August, 2016.

1. Introduction

1.1. Background

The CCR Rule was published in the Federal Register on April 17, 2015. The Rule requires that a hazard potential classification assessment be performed for existing CCR surface impoundments that are not incised. A previously completed assessment may be used in lieu of the initial assessment provided the previous hazard assessment was completed no earlier than April 17, 2013. The applicable hazard potential classifications are defined in the CCR Rule 40 C.F.R. § 257.53 as follows:

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.

Dynegy has contracted Stantec Consulting Services Inc. (Stantec) to prepare hazard potential classification assessments for selected impoundments[1].

It was determined that there was no existing available hazard potential classification assessment documentation for the East Ash Pond.

1.2. Location

Hennepin Power Station is located in Hennepin, Illinois along the east bank of the Illinois River in Putnam County approximately 100 miles southwest of Chicago. East Ash Pond is located to the east of the power station. A site overview figure is included in Appendix A.

2. Source Data

The following information was used to perform the hazard assessment of East Ash Pond:

[1] Dynegy Administrative Services Company (Dynegy) contracted Stantec on behalf of the Hennepin Power Station owner, Dynegy Midwest Generation, LLC. Thus, Dynegy is referenced in this report.

- Aerial Imagery (dated August 17, 2015)
- Topographic and Bathymetric Survey Information (from Weaver Consultants Group dated September 22, 2016)
- Digital Surface Model (from Illinois State Geological Survey dated December, 2011)

3. Potential Failure Scenarios

3.1. Unit Description

East Ash Pond has a 3.5 acre surface area, and according to available topographic and bathymetric information, the impoundment measures approximately 18 feet from the bottom to the overflow elevation. East Ash Pond discharges to East Polishing Pond through a 36-inch diameter culvert and to Leachate Pond through a 18-inch diameter culvert. East Ash Pond could also overtop east into East Polishing Pond. East Ash Pond has an overtopping elevation of approximately 494 feet.

3.2. Failure Scenarios

East Ash Pond is adjacent to a landfill to the north and an off-site area to the south. Due to these areas being higher ground, a breach in these directions was not evaluated. The west half of East Ash Pond is 3 to 4 feet higher than the overtopping length of the pond; therefore, a breach in this direction was also not evaluated. The impoundment could potentially fail towards Leachate Pond to the northeast and East Polishing Pond to the east. Two failure scenarios were evaluated as summarized below.

3.2.1. East

A failure of the impoundment to the east would discharge flow over an access road into East Polishing Pond. The access road is typically intermittently used by Hennepin Power Station personnel and the at-risk populations are considered transient. In accordance with Federal guidelines, loss of life is not considered probable for scenarios where persons are only temporarily in the potential inundation area (Reference 2). This receiving pond is on-site and would discharge to the Illinois River if overtopped. Given the relative size of the river in comparison to East Polishing Pond, overtopping in this direction would likely be contained to the river and not impact adjacent land.

3.2.2. Northeast

A failure of the impoundment to the northeast would discharge into Leachate Pond. This receiving pond is on-site and flow could potentially overtop into the Illinois River. Given the relative size of the river, overtopping in this direction would likely be contained to the river and not impact adjacent land.

4. Hazard Classification

Due to the limited potential impacts to Dynegy property and/or transient nature of potential at-risk populations, it is Stantec's opinion that a breach of East Ash Pond does not represent a probable threat to human life. However, a breach failure of the containment dike could result in the release of the stored CCR materials into the Illinois River, which can cause environmental damage. Therefore, the impoundment fits the definition for a Significant hazard potential CCR surface impoundment (as defined in the CCR Rule §257.53).

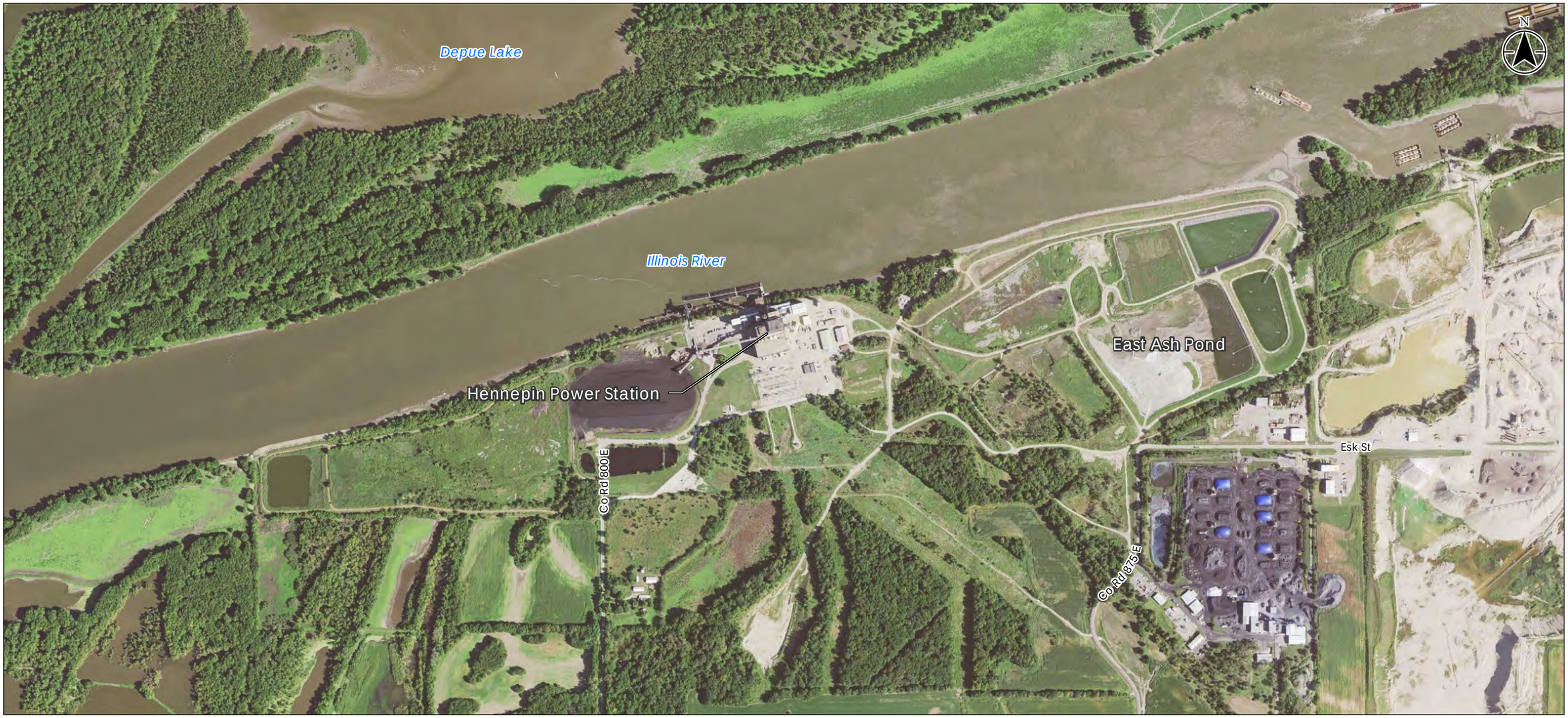
5. References

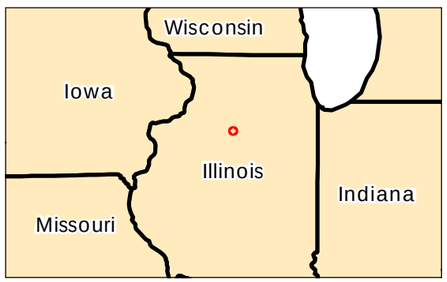
1. EPA Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR § 257 and § 261 (effective April 17, 2015).

2. Federal Emergency Management Agency (FEMA). (2004). Hazard Potential Classification System for Dams.

Appendix A

Site Overview Figure





Notes
1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Aerial Source: 2015 NAIP Imagery
3. Impoundment Boundaries Provided by Client (Dated 9/9/2015)

0 1,000 Feet

1:12,000 (At original document size of 11x17)

Stantec DYNEGY

Project Location
Latitude: 41.302975
Longitude: -89.315035
Putnam County, Illinois

175605019
Prepared by WSW on 2016-10-05
Technical Review by NS on 2016-10-05
Independent Review by MH on 2016-10-05

Client/Project
Dynegy
Hennepin Power Station
Hazard Potential Classification Assessment

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Title
Site Overview Figure
East Ash Pond
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