COAL ASH IMPOUNDMENT
SITE ASSESSMENT DRAFT REPORT

Duck Creek Power Station
Ameren Energy Generating Company
Canton, Illinois

Prepared by:

KLEINFELDER
Bright People. Right Solutions.

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KLEINFELDER PROJECT NUMBER 112618-5

September 16, 2010

I acknowledge that the management units referenced herein:

- Recycle Pond
- Fly Ash Pond Number 1
- Fly Ash Pond Number 2

Were assessed on August 11, 2010

Signature: _____ Date: _____

Brian T. Havens, P.E.
Lead Geotechnical Engineer

EXECUTIVE SUMMARY

Background information taken from the U. S. Environmental Protection Agency's (EPA's) website:

> "Following the December 22, 2008 dike failure at the TVA/Kingston, Tennessee coal combustion waste (CCW) ash pond dredging cell that resulted in a spill of over 1 billion gallons of coal ash slurry, covered more than 300 acres and impacted residences and infrastructure, the EPA is embarking on an initiative to prevent the catastrophic failure from occurring at other such facilities located at electric utilities in an effort to protect lives and property from the consequences of a impoundment or impoundment failure of the improper release of impounded slurry."

As part of the EPA's effort to protect lives and the environment from a disaster similar to that experienced in 2008, Kleinfelder was contracted to perform a site assessment at the Duck Creek Power Generating Station that is owned and operated by Ameren Energy. This report summarizes the observations and findings of the site assessment that occurred on August 11, 2010.

The coal combustion waste impoundments observed during the site assessment included:

- Recycle Pond – Commissioned in 1985 (not listed in response by Ameren Energy)
- Fly Ash Pond Number 1 – Commissioned in 1976
- Fly Ash Pond Number 2 – Commissioned in 1986

Preliminary observations made during the site assessment are documented on the Site Assessment Checklist presented in Appendix A. A copy of this checklist was transmitted to the EPA following the field walk-through. A more detailed discussion of the observations is presented in Section 4, "Site Observations."

The Fly Ash Pond Number 1 is not regulated by any state agency and therefore does not currently have a designated hazard rating. Fly Ash Pond Number 2 and the Recycle Pond are regulated by the Illinois Department of Natural Resources, and have been assigned a Hazard Classification III, which indicates a low hazard potential. Due to the limited volume of stored water and the distance away from the Illinois River, it is recommended that a hazard potential of "Low" be assigned to all impoundments.

Overall, the site is reasonably well maintained and operated with a few areas of concern as discussed in Section 6, "Recommendations."

On the date of this site assessment, there appeared to be no immediate threat to the safety of the impoundment embankments. No assurance can be made regarding the impoundments

condition after this date. Subsequent adverse weather and other factors may affect the condition.

A brief summary of the Priority 1 and 2 Recommendations is given below. A more detailed discussion is provided in Section 6, "Recommendations."

Priority 1 Recommendations

1. Prepare an EAP for the facility.

2. Perform a hydrologic and hydraulic study for Fly Ash Pond Number 1.

3. Review stability and seismic analyses that are being prepared by Ameren Energy for Fly Ash Pond Number 1 and Fly Ash Pond Number 2.

4. Perform video assessments of culvert piping.

5. Control vegetation on the upstream and downstream slopes.

Priority 2 Recommendations

1. Develop an operations and maintenance manual for the facility and its impoundments.

2. Repair embankment erosion.

3. Maintain a log of maintenance and other activities at the fly ash impoundments and supporting facilities.

Table of Contents

List of Figures

List of Appendices

SECTION 1 – INTRODUCTION

1.1 General

This report has been prepared for the United States Environmental Protection Agency (EPA) to document findings and observations from a site assessment to Duck Creek Power Station on August 11, 2010.

The following sections present a summary of data collection activities, site information, performance history of the facility's impoundment ponds, a summary of site observations, and recommendations resulting from the site investigation.

1.2 Project Location

The Duck Creek Power Generating Station is located on the western bank of the Duck Creek Cooling Pond situated on the western bank of the Illinois River. The Duck Creek facility is approximately 6 miles southeast of the town of Canton, Illinois. Canton and the Duck Creek facility are both located in Fulton County with the Duck Creek facility being located at approximately 40°28'25'' N and 89°59'07'' W. In general, the area surrounding the Duck Creek Power Generating Station is a rural agricultural area.

SECTION 2 – SITE ASSESSMENT

2.1 Attendees

The site assessment was performed on August 11, 2010 by Brian Havens, P.E. (Illinois) and Matt Gardella, E.I.T. of Kleinfelder. Other persons present during the site assessment included:

- Paul Pike – Ameren Energy
- Michael Wagstaff – Ameren Energy
- Michael Long – Ameren Energy
- John Berry – Ameren Energy
- Craig Dufficy – United States Environmental Protection Agency

2.2 Impoundments Inspected

Impoundments and associated structures that were observed during the site assessment included:

- Recycle Pond – Commissioned in 1985 (not listed in response by Ameren Energy)
- Fly Ash Pond Number 1 – Commissioned in 1976
- Fly Ash Pond Number 2 – Commissioned in 1986

Observations from the site assessment are documented on the Site Assessment Evaluation Checklists presented in Appendix A. A summary of observations from the site assessment is presented in Section 4.

2.3 Weather During Assessment

During the assessment of the Duck Creek Power Station impoundments, the weather was sunny and clear with high humidity. Temperatures ranged from 95^{o} to 100^{o} F, and wind ranged from 0 to 5 miles per hour (mph).

SECTION 3 – SITE INFORMATION AND HISTORY

3.1 Site Information and History

The Duck Creek Power Generating Station is a coal-fired facility that has been in operation since 1976. Historically, the facility has sluiced bottom ash and fly ash, by-products of coal fired energy generation, into three impoundments. These impoundments are referred to as Fly Ash Pond Number 1, Fly Ash Pond Number 2, and the Recycle Pond. An aerial image of these impoundments can be seen in Figure 2. Fly Ash Ponds Number 1 and 2 act as settling basins for the bottom and fly ash process water prior to the clarified water being released into the Recycle Pond. From the Recycle Pond, the clarified water is pumped back to the facility for use in power generating operations. Fly ash and bottom ash residuals are disposed of by drying and hauling the materials to offsite landfills.

Fly Ash Pond Number 1 is a diked impoundment. Currently, the pond is not receiving any process water from the Duck Creek Power Station and is in the process of being decommissioned. The primary inflow into the impoundment is precipitation that falls into the impoundment. Any precipitation that accumulates in the pond is transported via channels around the inside perimeter of the pond into two separate smaller internal impoundments. From these impoundments, the stormwater is pumped into Fly Ash Pond Number 2.

Fly Ash Pond Number 2 is a diked impoundment that was added onto the northern end of Fly Ash Pond Number 1 in 1985. Currently, the pond is not receiving any process water from the Duck Creek Power Station as Fly Ash Pond 2 is in the process of being drained and decommissioned. The primary inflow into this impoundment is from stormwater that is pumped from Fly Ash Pond Number 1 and from precipitation that falls into the pond. A key component of Fly Ash Pond Number 2 is the outlet works structure located at the northeast corner of the impoundment. The outlet structure consists of metal pipe risers connected to a 36-inch reinforced concrete pipe, which then outlets into the Recycle Pond. The outlet structure is inaccessible except by boat, and is surrounded by floating buoys that act as a trash rack to prevent clogging of the outlet. Another important feature of Fly Ash Pond Number 2 is the seepage blanket and pump that are installed in the downstream slope at the northeast corner of the embankment. These seepage controls were added to the embankment after disturbance of the outlet works pipe during maintenance operations resulted in seepage being noted in the area. A fly ash settling channel is located at the southern end of Fly Ash Pond Number 2. This channel is composed of diked fly ash that created a serpentine channel to direct process water from the Duck Creek facility. The intent of this settling channel was to allow additional time for suspended solids to drop out of suspension before entering the main body of Fly Ash Pond Number 2, where they were harder to collect and remove for drying. Both the settling channel and main portion of the pond are considered to be components of the larger Fly Ash Pond Number 2.

The Recycle Pond is a combination diked embankment and incised impoundment and is in the process of being drained and decommissioned. In general, the Recycle Pond was used as a final clarification pond before water in the pond was pumped back into the Duck Creek facility for use in power plant operations. The only inflow into the pond is stormwater from Fly Ash Pond Number 1 and Fly Ash Pond Number 2 and precipitation that falls into the impoundment. The outlet of the Recycle Pond is at the southwest corner of the impoundment. This outlet consist of a concrete headwall with piping that leads to a pump station that pumps the impounded water back to the Duck Creek facility. Currently, clearing and grubbing operations are taking place at the Recycle Pond, where the embankment will be altered to recreate the natural channel that was originally impounded.

3.2 Pertinent Data

A. GENERAL

1. Name ..... Duck Creek Power Generating Station
2. State ..... Illinois
3. County ..... Fulton
4. Latitude ..... 40° 28' 08" North
5. Longitude ..... 89° 59' 09" West
6. River used for operations ..... Illinois River
7. Year Constructed 1976
8. Modifications ..... Seepage Blanket and pump added to Fly Ash Pond Number 2
9. Current Hazard Classification ..... None - Fly Ash Pond #1, III - Recycle Pond & Fly Ash Pond #2
10. Proposed Hazard Classification ..... Low
11. Size Classification (See Section 7) ..... Small

B. IMPOUNDMENTS

FLY ASH POND NUMBER 1

1. Type ..... Earthen – Diked Embankment
2. Crest Elevation ..... ±625[1]
3. Crest Length ..... Approx. 6,500 ft
4. Crest Width ..... 20 ft
5. Impoundment Height ..... App. 28 ft
6. Upstream Slope 3H:1V
7. Downstream Slope 3H:1V

FLY ASH POND NUMBER 2

1. Type ..... Earthen – Diked Embankment
2. Crest Elevation ..... ±640[1]
3. Crest Length ..... Approx. 9,000 ft
4. Crest Width ..... 20 ft
5. Impoundment Height ..... App. 30 ft
6. Upstream Slope 3H:1V
7. Downstream Slope 3H:1V

RECYCLE POND

1. Type ..... Earthen – Diked/Incised Combination
2. Crest Elevation ..... ±596[1]
3. Crest Length ..... Approx. 6,300 ft
4. Crest Width ..... 8 ft

5. Impoundment Height ..... App. 5 ft
6. Upstream Slope 3H:1V
7. Downstream Slope 3H:1V

C. DRAINAGE BASIN

1. Area of Drainage Basin ..... Unknown
2. Downstream Description: ..Duck Creek Cooling Pond, but recycle pond water goes back to plant

D. INLETS

FLY ASH POND NUMBER 1

1. Inlet ..... Sluice pipes from the generating station (inactive)

FLY ASH POND NUMBER 2

1. Inlet ..... Sluice pipes from generating station (inactive) & pumping from Fly Ash Pond #1

RECYCLE POND

1. Inlet ..... Gravity fed outlet works piping from Fly Ash Pond #2

E. STORAGE CAPACITY

FLY ASH POND NUMBER 1

1. Storage Capacity ..... Normal storage is 1,300 acre-feet, Currently ~ 20 acre-feet remaining

FLY ASH POND NUMBER 2

1. Storage Capacity ..... Normal storage is 1,000 acre-feet, Currently ~ 20 acre-feet remaining

RECYCLE POND

1. Storage Capacity ..... Normal storage is 350 acre-feet, Currently ~ 75 acre-feet remaining

F. PRIMARY SPILLWAY

FLY ASH POND NUMBER 1

1. Description ..... N/A – No Spillway Present

FLY ASH POND NUMBER 2

1. Description ..... N/A – No Spillway Present

RECYCLE POND

1. Description ..... N/A – No Spillway Present

G. OUTLET WORKS

FLY ASH POND NUMBER 1

1. Description ..... Temporary pumping operations into Fly Ash Pond #2
2. Location ..... Near north embankment of the impoundment
3. Intake Structure ..... Not Applicable
   a. Intake Invert Elevation ..... Not Applicable
4. Discharge Conduit ..... Temporary hose from pump
   a. Length ..... Approx. 150 ft
   b. Diameter ..... Unknown
5. Outlet Structure ..... Not Applicable
   a. Outlet Invert Elevation ..... Not Applicable

b. Energy Dissipation ..... Not Applicable
6. Discharge Channel ~15-foot wide channel that discharges into the main body of Fly Ash Pond #2
7. Discharge Capacity with Water Surface at Top of Impoundment ..... Unknown

FLY ASH POND NUMBER 2

1. Description ..... Metal pipe risers connected to a 36-inch reinforced concrete pipe
2. Location ..... Near northeast embankment, approximately. 75 feet into the center of the pond
3. Intake Structure ..... Removable metal pipe risers 36-inches in diameter
   a. Intake Invert Elevation ..... Adjustable
4. Discharge Conduit ..... Reinforced Concrete Pipe
   a. Length ..... 3,500 ft
   b. Diameter ..... 36 inches
5. Outlet Structure ..... None
   a. Outlet Invert Elevation ..... Not applicable
   b. Energy Dissipation ..... Not applicable
6. Discharge Channel ..... None
7. Discharge Capacity with Water Surface at Top of Impoundment ..... Unknown

RECYCLE POND

1. Description ..... Temporary pumping operations to dewater pond
2. Location ..... Near eastern embankment of the impoundment
3. Intake Structure ..... Not Applicable
   a. Intake Invert Elevation ..... Not Applicable
4. Discharge Conduit ..... Temporary Hose
   a. Length ..... Adjustable
   b. Diameter ..... Approximately 12 inches
5. Outlet Structure ..... None
   a. Outlet Invert Elevation ..... Not Applicable
   b. Energy Dissipation ..... Not Applicable
6. Discharge Channel ..... None
7. Discharge Capacity with Water Surface at Top of Impoundment ..... Unknown

H. MANAGEMENT

1. Owner ..... Ameren Energy
2. Purpose ..... Coal Fired Energy Generation

Notes:
1. All elevations in feet based on original construction drawings by Commonwealth Engineering

3.3 Regional Geology and Seismicity

The plant site is situated northwest of the Illinois River Valley in an area that was historically used for strip mining. As such, the subsurface conditions are expected to include a combination of Quaternary loess deposits, glacial deposits, and mine spoils overlying sedimentary bedrock. Based on our review of historical soil borings and information from the Web Soil Survey, it appears that the upper loess, glacial deposits, and mine spoils at the site include combinations of silty clay, clayey silt, and gravelly silty clay with a component of fractured shale at depth. Based on our review of the historical soil borings and data published by the United States Geological Survey (USGS), shale is the uppermost sedimentary rock formation at this site beneath the soil deposits.

The plant site is situated in a Seismic Zone 1 area. We have noted that the New Madrid Fault has a documented history of seismic activity, but is located more than 200 miles south of the plant site.

3.4 Hydrology and Hydraulics

Both Fly Ash Pond Number 1 and Fly Ash Pond Number 2 appear to be designed and situated in such a manner that the watershed drainage contributing to the stored volume of the ponds is limited to precipitation that falls within the impoundments themselves.

The Recycle Pond appears to be designed and situated in such a manner that the watershed drainage contributing to the stored volume of the ponds is limited mostly to inflow from Fly Ash Pond Number 2 and precipitation that falls within the limited drainage basin. The exact extents of the watershed cannot be determined without a current topographic survey of the surrounding area and of the impoundment.

Limited hydraulic and hydrologic information was available for review during this assessment. This information included a calculation demonstrating that the outlet structure and freeboard for Fly Ash Pond Number 2 were adequate for a 100-year, 24-hour rainfall, as well as a calculation demonstrating that the freeboard for the Recycle Pond is adequate for a 100-year, 24-hour rainfall event. Both of these calculations follow standard engineering procedures and appear to show the adequacy of the impoundments for their intended functions at the time that the calculations were made. Other documents such as hydrologic studies, additional hydraulic design calculations and assumptions, and impoundment break analyses were not available for our review.

Fly Ash Pond Number 1 is somewhat unique at this site because the fly ash is generally stacked to a higher elevation within the impoundment compared to the embankment crest elevation at the perimeter. Relatively narrow drainage channels are located between the crest and the stacked flyash on the interior. If a significant precipitation event occurs, there is some uncertainty whether the runoff from the stacked ash can be accommodated in the perimeter channels without overtopping the impoundment.

3.5 Geotechnical Considerations

Kleinfelder reviewed a report dated January 1985 by Gilbert/Commonwealth Incorporated, which was completed as part of the design for Fly Ash Pond Number 2. The study included stability analyses for a steady seepage condition with seismic loading in the pseudo-static analyses. We understand that embankment stability analyses are currently being completed for both fly ash impoundments by another consultant retained by Ameren Energy.

Kleinfelder understands that a seepage blanket and pump were installed in the downstream slope at the northeast corner of the embankment of Fly Ash Pond

Number 2. These seepage controls were added to the embankment after disturbance of the outlet works pipe during maintenance operations resulted in seepage being noted in the area.

3.6 Structural Considerations

Recycle Pond and Fly Ash Pond Number 1

We understand that the structural components of the outlet works at the recycle pond and Fly Ash Pond Number 1 have been removed as part of the decommissioning process.

Fly Ash Pond Number 2

The structural components of the outlet works for Fly Ash Pond Number 2 have been removed and a temporary system of stacked metal pipe risers is presently being used for dewatering of the pond. This temporary inlet structure is located in the northeast corner of Fly Ash Pond Number 2 at an elevation of approximately 612 feet. This inlet structure then connects to the 36-inch reinforced concrete pipe (RCP) at an invert elevation of approximately 600 feet, which is approximately 124 feet from centerline of eastern embankment on Fly Ash Pond Number 2. The RCP then travels west to east through the east levee embankment. For the portion of the RCP that passes through the east embankment, seepage cutoff rings are present. At approximately 244 feet east from the inlet drop structure, the RCP turns and continues south for approximately 2/3 miles. Based on provided as-built drawings, the RCP ranges in depth from 3 to 10 ½ feet below grade for its entire length. No calculations were available to review for pipe flexibility, settlement, or strength design. Unless the pipe is filled and decommissioned soon, further structural analysis should be made, including RCP strength design, flexibility design, and a settlement analysis based on a seismic event. During our site visit, it was not possible to see the condition of this RCP. Video surveillance methods should be investigated to determine, if the concrete condition of the RCP is adequate.

3.7 Performance Evaluations

There have been no previous federal or state assessments of the Duck Creek Power Generating Station's Recycle Pond or Fly Ash Ponds. Based on observations by Ameren Energy in their annual assessments, weekly assessments, and other documents and accounts, there have been no major incidents involving the Recycle Pond, Fly Ash Pond Number 1, or Fly Ash Pond Number 2. Currently, Ameren Energy's local plant personnel perform weekly assessments of the impoundments and their associated structures. Ameren Energy also performs annual assessments of the Duck Creek impoundments, similar to this assessment, via their Dam Safety and Environmental personnel. In addition, Ameren Energy retained Hanson Professional Services, Inc. to make a site assessment and provide recommendations in August 2007.

3.8 Hazard Classification

The Duck Creek Power Generating Station's Fly Ash Pond Number 1 is not regulated by any state agency and therefore does not currently have a designated hazard rating. Fly Ash Pond Number 2 and the Recycle Pond are regulated by the Illinois Department of Natural Resources (IDNR) and were assigned a Hazard Classification III, which is comparable to a "Low" hazard rating. Internally, Ameren Energy has assigned a "Significant" hazard rating to Fly Ash Pond Number 1, and "Low" hazard ratings to Fly Ash Pond Number 2 and the Recycle Pond. Due to the limited potential environmental and economic impacts that a failure at either of these impoundments would present because the ponds are reasonably far away from the Illinois River, it is recommended that a hazard rating of "Low" be assigned to all impoundments. A "Significant" or "High" hazard rating was not assigned to the impoundments, as it is not expected that a loss of life situation would be likely in the event of a failure, and any environmental or economic impacts would be mostly limited to Ameren Energy's property. A loss of life situation is not expected because there are no homes, recreational facilities, businesses, or other structures immediately downstream of the impoundments that would likely be affected.

3.9 Site Access

In order to access the Duck Creek Power Generating Station, it was first required to seek permission from Ameren Energy to gain access to the plant site. We were escorted around the facility by Ameren Energy personnel. Impoundments can be accessed by standard car during normal weather conditions via gravel-surfaced roadways on the Duck Creek Power Generating Station property.

SECTION 4 – SITE OBSERVATIONS

The impoundment embankments, toes, and outlet works of the Recycle Pond and both Fly Ash Pond impoundments were observed during the August 11, 2010 site assessment. General observations of these features are presented below; more specific observations of the site and facilities are documented in the Site Assessment Evaluation Checklist provided in Appendix A.

4.1 Recycle Pond

4.1.1 Upstream Slope

Overall, the upstream slope of the impoundment was in good condition. Photos 1 and 4 in Appendix B show the conditions of the upstream slope. Specific observations include:

- The upstream slope was laid back at approximately 3H:1V, based on visual observations.
- Minor erosion, less than 6 inches, was noted on some of the upstream slopes.
- Grasses and woody bushes were observed on the upstream slope for the majority of the impoundment.
- The upstream embankment was typically covered with riprap.

4.1.2 Crest

Overall, the crest of the impoundment was in good condition. Photos 5 and 6 show the condition of the crest. Specific observations include:

- The impoundment crest is a gravel road.
- Sparse grasses and bushes were observed on the crest.
- No major depressions or ruts were noted on the impoundment crest.
- Minor erosion was noted on the crest in limited locations. This erosion was typically less than six inches in depth and typically appeared on the edges of the crest where grade breaks occurred when transitioning to embankment slopes.

4.1.3 Downstream Slope

Overall, the downstream slope was in fair condition. Photo 5 shows the conditions of the downstream slope. Specific observations include:

- Grasses, woody bushes and large mature trees were observed on the downstream slope and at the toe of the embankment for the majority of the impoundment.

- As part of the decommissioning process for the Recycle Pond, clearing and grubbing operations had begun and had removed vegetation in some locations.

4.1.4 Downstream Toe Areas

The toe areas of the embankment were in fair condition. See Photo 5 for the condition of these areas. Key features and observations of these areas include:

- The toe area had sparse grasses, some bushes, and multiple large mature trees.
- As part of the decommissioning process for the Recycle Pond, clearing and grubbing operations had begun and had removed vegetation in some locations.

4.1.5 Outlet Works

The outlet works of the Recycle Pond were well above the current pool elevation and had been essentially decommissioned. As a result, a detailed inspection of the outlet works was not conducted. Any outflow from the Recycle Pond is by temporary pumping operations to remove stormwater so that the pond can be modified and taken out of service.

4.1.6 Impoundment Inlet

Inflow into the Recycle Pond is from pipes on the northern embankment of the impoundment, as well as stormwater runoff that flows naturally into the pond. The inlet pipe can be seen in Photo 1 of Appendix B. The inlet pipe appears to be in satisfactory condition.

4.2 Fly Ash Pond Number 1

4.2.1 Upstream Slope

Overall, the upstream slope of the impoundment was in good condition. Specific observations include:

- The upstream slope was laid back at approximately 3H:1V.
- Minor erosion, less than 6 inches was noted on the majority of the upstream slope.

4.2.2 Crest

Overall, the crest of the impoundment was in good condition. Photos 32 and 34 in Appendix B show the condition of the crest. Specific observations include:

- The impoundment crest is a gravel road.

- Minor depressions or rutting, less than a few inches, were noted on the impoundment crest.
- Minor erosion was noted on crest in multiple locations. This erosion was typically less than six inches in depth and typically appeared on the edges of the crest where grade breaks occurred when transitioning to embankment slopes.

4.2.3 Downstream Slope

Overall, the downstream slope was in fair condition. Photos 36, 39, 40, 41, and 42 in Appendix B show the conditions of the downstream slope. Specific observations include:

- Grasses, woody bushes, and large mature trees were observed on the downstream slope and at the toe of the embankment for the majority of the southern embankment.
- Typically the embankment was well maintained with what appears to be regular mowing operations.
- An erosion feature was noted at the southwest corner of the impoundment that was approximately 3 feet in depth.

4.2.4 Toe Areas

The toe areas of the embankment were in fair condition. See Photos 31, 35, 36, and 37 for the condition of these areas. Key features and observations of these areas include:

- Grasses, woody bushes, and large mature trees were observed on the downstream slope and at the toe of the embankment for the majority of the southern embankment.
- Some ponded water due to recent storm events was noted on the western embankment at the toe.

4.2.5 Outlet Works

The outlet works of Fly Ash Pond Number 1 consist of temporary pumping operations at the northern end of the impoundment. These pumping operations transfer stormwater from Fly Ash Pond Number 1 into Fly Ash Pond Number 2 in preparation for decommissioning the impoundment. At this time, the outlet pumping operations at the site appear to be operating as intended.

4.2.6 Impoundment Inlet

Inflow into Fly Ash Pond Number 1 is via multiple inlet pipes from the Duck Creek Facility. These inlet pipes are no longer in operation and the only inflow into the impoundment is precipitation that naturally falls into the bounds of the impoundment.

4.3 Fly Ash Pond Number 2

4.3.1 Upstream Slope

Overall, the upstream slope of the impoundment was in satisfactory condition. Photos 16, 18, 19, 20, 21, and 24 in Appendix B shows the conditions of the upstream slope. Specific observations include:

- The upstream slope was laid back at approximately 3H:1V, where visible. In locations were fly ash had accumulated on the slope, it appeared to be laid back at approximately 1.5H:1V.
- Grasses and woody bushes were observed on the upstream slope.
- Some possible wave erosion was evident in some locations.

4.3.2 Crest

Overall, the crest of the impoundment was in good condition. Photos 16, 20, 22, 25, and 28 show the condition of the crest. Specific observations include:

- The impoundment crest is a gravel road.
- Minor depressions or rutting, less than a few inches, were noted on the impoundment crest.
- Minor erosion was noted on crest in multiple locations. This erosion was typically less than six inches in depth and typically appeared on the edges of the crest where grade breaks occurred when transitioning to embankment slopes.

4.3.3 Downstream Slope

Overall, the downstream slope was in fair condition. Photos 9, 10, 11, and 12 show the conditions of the downstream slope. Specific observations include:

- Substantial grass cover was observed on the downstream slope and at the toe of the embankment for a large portion of the impoundment.
- Typically the embankment was well maintained with what appeared to be regular mowing operations.
- One possible area of seepage was noted on the eastern embankment.
- Slight rutting from mowing operations was noted in a few areas on the eastern embankment near the outlet works location.

4.3.4 Toe Areas

The toe areas of the embankment were in fair condition. See Photos 11 and 13 for the condition of these areas. Key features and observations of these areas include:

- The toe area had a few locations where vegetation had not been mowed.
- Ponding of stormwater was noted against the downstream toe on the eastern embankment. This appeared to be due to poor grading of a drainage channel.
- Typically, the embankment toe was well maintained with what appeared to be regular mowing operations.

4.3.5 Outlet Works

The outlet works of Fly Ash Pond Number 2 is an inlet structure composed of metal pipe risers that can be added or removed to control the pool elevation. These pipe riser sections are attached to a 36-inch reinforced concrete pipe that outlets into the Recycle Pond. The inlet of the outlet works is surrounded by floating booms that prevent debris from clogging the pipe risers. The outlet works of Fly Ash Pond Number 2 are inaccessible except by boat. Specific observations include:

- Condition of pipe risers could not be observed as no boat was available to inspect the outlet works. However, sections of pipe riser that had recently been removed were available for inspection and appeared to be in good working order.
- No video monitoring of the reinforced concrete discharge pipe was available at the time of assessment
- Overall, the outlet works system appears to be functioning as intended at this time.

4.3.6 Impoundment Inlet

Inflow into Fly Ash Pond Number 2 is via temporary pumping operations from Fly Ash Pond Number 1 on the southern end of the impoundment, as well as precipitation runoff that flows naturally into the pond. From this inlet location, the stormwater then flows through a series of channels and into the main area of the impoundment. The temporary inlet pipe appears to be in functional condition.

4.3.7 Other

Internal dikes of the Fly Ash Ponds appear to be laid back at approximately a 2H:1V slope. Surface erosion up to 12 inches in depth can be seen along the crest and slope of the majority of the internal dikes. Sparse vegetation can be observed on the slopes of the dikes, but provides little or no protection against surface erosion.

It was inquired if Ameren Energy had developed an Emergency Action Plan (EAP) related to a potential failure of the impoundments. Currently, an EAP has not been developed for the site.

It was also inquired if Ameren Energy had developed an Operation and Maintenance (O&M) Manual for the Duck Creek Power Generating Station. Currently, there is not an O&M manual for the Duck Creek facility.

SECTION 5 – OVERALL CONDITION OF THE FACILITY IMPOUNDMENTS

5.1 Analysis and Conclusions

Our analysis is summarized in three general considerations that are presented as follows:

Safety of the Impoundments Including Maintenance and Methods of Operation

Kleinfelder understands that the impoundments have a history of safe performance. However, the future performance of these impoundments will depend on a variety of factors that may change over time, including surface water hydrology, changes in groundwater levels, changes in embankment integrity, etc. Kleinfelder has noted several items, as follows, that present some concern in this regard:

- Large mature trees and other vegetation exist on the toe and slopes of a portion of Fly Ash Pond Number 1.
- An Emergency Action Plan (EAP) is not currently in place at the site to mitigate damage in the event of an emergency related to failure of the impoundment(s).
- Analyses of the slope stability for the embankment and groundwater conditions are not currently available for our review. However, we understand that these analyses are in the process of being developed.
- Documentation of the impoundment capacity at Fly Ash Pond Number 1 under potential hydrologic and hydraulic loading is not currently available for review.
- We understand that an Operation and Maintenance (O&M) Manual is not currently in place for the site. Developing an O&M manual, which includes a section that discusses the safety inspection and monitoring program, would be recommended to standardize safety inspection and monitoring practice.

Changes in Design or Operation of the Impoundments Following Initial Construction

As noted previously, removal of all, or a portion, of the original outlet works from each impoundment has occurred during the decommissioning process. In addition, we understand that a seepage blanket and pump were installed in the downstream slope at the northeast corner of the embankment of Fly Ash Pond Number 2. These seepage controls were added to the embankment after disturbance of the outlet works pipe during maintenance operations resulted in seepage being noted in the area.

Adequacy of Program for Monitoring Performance of the Impoundments

The present monitoring program primarily involves visual inspections by plant personnel and by the Ameren Energy Dam Safety Group. These visual inspections seem to be adequate to address issues such as surface erosion and general condition of the impoundments. However, a more detailed monitoring program is recommended to be established to quantify various important factors associated with embankment stability. Those factors include, but are not limited to, seepage

quantities through the embankment, the amount of sediments carried by the seepage water, and the fluctuation of ground water levels.

5.2 Summary Statement

I acknowledge that the management unit(s) referenced herein was personally inspected by me and found to be in the following condition:

FAIR

Signature: _____ Date: _____

Brian T. Havens, P.E.
Lead Geotechnical Engineer

SECTION 6 – RECOMMENDATIONS

6.1 Definitions

Priority 1 Recommendation: Priority 1 Recommendations involve the correction of severe deficiencies where action is required to ensure the structural safety and operational integrity of a facility and that may threaten the safety of the impoundment.

Priority 2 Recommendation: Priority 2 Recommendations occur when action is needed or required to prevent or reduce further impoundment or impair operation and/or improve or enhance the O&M of the facility, that do not appear to threaten the safety of the impoundment.

Based on observations during the site assessment, it is recommended that the following actions be taken at the Duck Creek Power Generating Station.

6.2 Priority 1 Recommendations

1. **Prepare an emergency action plan (EAP) for the facility.** An EAP should be prepared for the Fly Ash Pond Number 1 and Fly Ash Pond Number 2 as well as any other pertinent features related to the impoundments.
2. **Perform a hydrologic and hydraulic study for Fly Ash Pond Number 1.** This study should be performed to determine if the pond is capable of impounding the appropriate precipitation event since the drainage channels inside the impoundment perimeter cover a relatively small area compared to the potential runoff area within the impoundment. An impoundment break analysis should also be completed to determine the possible effects on the safety of people and the environment downstream of the facility.
3. **Review stability and seismic analyses that are being prepared by Ameren Energy for Fly Ash Pond Number 1 and Fly Ash Pond Number 2.** Due to the lack of documented stability analyses under current conditions, new stability analyses of both impoundments should be performed. The analyses should incorporate current groundwater data and include an evaluation of the embankments and the outlet pipe for Fly Ash Pond Number 2 under seismic loading scenarios. According to Ameren, we understand that this task is currently being completed by another consultant retained by Ameren Energy. The results of this evaluation should be reviewed by Kleinfelder.
4. **Perform video assessments of culvert piping**. Culvert piping used for the outlet from Fly Ash Pond Number 2 is reinforced concrete pipe. A video assessment should be performed of this pipe to determine its effectiveness and if remedial actions are necessary.
5. **Control vegetation on the upstream and downstream slopes. Remove the trees from the embankment, including the large tree at the overflow outlet discharge point.** Refer to FEMA Manual 534 – Impact of Plants on Earthen

Impoundments for guidance on vegetation removal. This manual is available on the FEMA website.

6.3 Priority 2 Recommendations

1. **Repair erosion of embankments.** Minor surface erosion was noted at both the Fly Ash Pond Number 1 and Fly Ash Pond Number 2. Areas where erosion has occurred should be filled in and re-dressed with appropriate fill to prevent erosion from cutting further into the embankments.
2. **Maintain a log of maintenance and other activities at the fly ash impoundments and supporting facilities.** We believe that this log will provide continuity during periods of staff change.
3. **Develop an Operation and Maintenance (O&M) manual for the impoundments and the facility.** The O&M manual should include at least the following three key elements:
   - Procedures needed for operation and maintenance of the impoundments during typical operating conditions
   - Procedures for monitoring performance of the impoundments, including visible changes such as surface erosion, settlement and sloughing; internal embankment changes (such as erosion) due to uncontrolled seepage; and fluctuations in groundwater level
   - The EAP

SECTION 7 – GLOSSARY OF TERMS

For the EPA Ash Pond Assessment program, the following glossary of terms shall be used for classification unless otherwise noted.

Hazard Potential Rating

"Hazard Potential" means the possible adverse incremental consequences that result from the release of water or stored contents due to the failure of the impoundment or reservoir or the misoperation of the impoundment, reservoir, or appurtenances. The hazard potential classification of an impoundment or reservoir shall not reflect in any way on the current condition of the impoundment or reservoir and its appurtenant works, including the impoundment's or reservoir's safety, structural integrity, or flood routing capacity. These classifications are as described below:

1. **Low Hazard Potential**

   "Low Hazard" means an impoundment's or reservoir's failure will result in no probable loss of human life and low economic loss or environmental loss, or both. Economic losses are principally limited to the owner's property.

2. **Significant Hazard Potential**

   "Significant Hazard" means a impoundment's or reservoir's failure will result in no probable loss of human life but can cause major economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Significant Hazard classification impoundments or reservoirs are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

3. **High Hazard Potential**

   "High Hazard" means an impoundment's or reservoir's failure will result in probable loss of human life.

Size Classification

In accordance with the Illinois Department of Natural Resources (IDNR) Administrative Code for Impoundment Safety, "Part 3702 - Construction and Maintenance of Impoundments" dated January 13, 1987, an impoundment system is classified by size based on its height and potential storage capacity. Size classification is determined by which category (storage or height) is greatest (produces the larger size classification).

Category	Storage (acre-feet)	Height (feet)
Small	<1,000	<40
Intermediate	≥ 1,000 to <50,000	≥ 40 to <100
Large	≥ 50,000	≥ 100

Overall Classification of Impoundment

In a system similar to the U.S. Department of Interior, Safety Evaluation of Existing Impoundments (SEED 1995), when the following terms are capitalized they denote and shall be used to describe the overall classification of the impoundment as follows:

SATISFACTORY - No existing or potential impoundment safety deficiencies are recognized. Acceptable performance is expected under all applicable loading conditions (static, hydrologic, seismic) in accordance with the applicable criteria. Minor maintenance items may be required.

FAIR – Acceptable performance is expected under all required loading conditions (static, hydrologic, seismic) in accordance with the applicable safety regulatory criteria. Minor deficiencies may exist that require remedial action and/or secondary studies or investigations.

POOR - A management unit safety deficiency is recognized for any required loading condition (static, hydrologic, seismic) in accordance with the applicable impoundment safety regulatory criteria. Remedial action is necessary. POOR also applies when further critical studies or investigations are needed to identify any potential impoundment safety deficiencies.

UNSATISFACTORY – Considered unsafe. An impoundment safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution. Reservoir restrictions may be necessary.

Condition Rating Criteria

In a system similar to the U.S. Department of Interior, Safety Evaluation of Existing Impoundments (SEED 1995), the terms satisfactory, fair, poor, and unsatisfactory are used in a general sense when describing the structural condition and the operational adequacy of the equipment for an impoundment or reservoir and its appurtenant works during the visual assessment. In addition, the term unknown may be utilized as applicable.

Satisfactory – Expected to fulfill intended function.

Fair – Expected to fulfill intended function, but maintenance or other actions are recommended.

Poor – May not fulfill intended function; maintenance, repairs, or other actions are necessary.

Unsatisfactory – Is not expected to fulfill intended function; repair, replacement, or modification is necessary.

Unknown – Not visible, not accessible, not inspected, or unable to determine the condition rating based on the observation taken.

Recommendation Listing

Recommendations shall be written concisely and identify the specific actions to be taken. The first word in the recommendation should be an action word (i.e. "Prepare", "Perform", or "Submit"). The recommendations shall be prioritized and numbered to provide easy reference. Impoundment Safety recommendations shall be grouped, listed, or categorized similar to the U.S. Department of Interior, Reclamation Manual - Directives and Standards - Review/Examination Program for High- and Significant-Hazard Impoundments (July, 1998 FAC 01-07) as follows:

Priority 1 Recommendations: Priority 1 Recommendations involve the correction of severe deficiencies where action is required to ensure the structural safety and operational integrity of a facility and that may threaten the safety of the impoundment.

Priority 2 Recommendations: Priority 2 Recommendations occur when action is needed or required to prevent or reduce further damage or impair operation and/or improve or enhance the O&M of the facility, that do not appear to threaten the safety of the impoundment.

SECTION 8 – REFERENCES

- US Department of Agriculture (USDA)/ Natural Resources Conservation Service (NRCS) Web Soil Survey - online

- Illinois Department of Natural Resources (IDNR), Administrative Code for Impoundment Safety, "Part 3702 – Construction and Maintenance of Impoundments", January 13, 1987.

- US Department of the Interior, Safety and Evaluation of Existing Impoundments (SEED), 1995.

- New Jersey Department of Environmental Protection, Impoundment Safety Guidelines for the Inspection of Existing Impoundments, January 2008.

- US Department of Interior, Reclamation Manual – Directives and Standards – Review/Examination Program for High and Significant Hazard Impoundments, July 1998.

AERIAL IMAGE

NTS

IMAGE SOURCE: GOOGLE EARTH PRO - IMAGE DATE 08/27/10

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PROJECT NO.	112618
DATE:	08/27/10
DRAWN BY:	MAG
CHECKED BY:	BDH
FILE NAME:	

DUCK CREEK POWER STATION
VICINITY MAP

DUCK CREEK POWER GENERATING STATION
17751 NORTH CILCO ROAD
CANTON, IL 61520

FIGURE
1

01 Sep 2010, 1:22pm, MGardella

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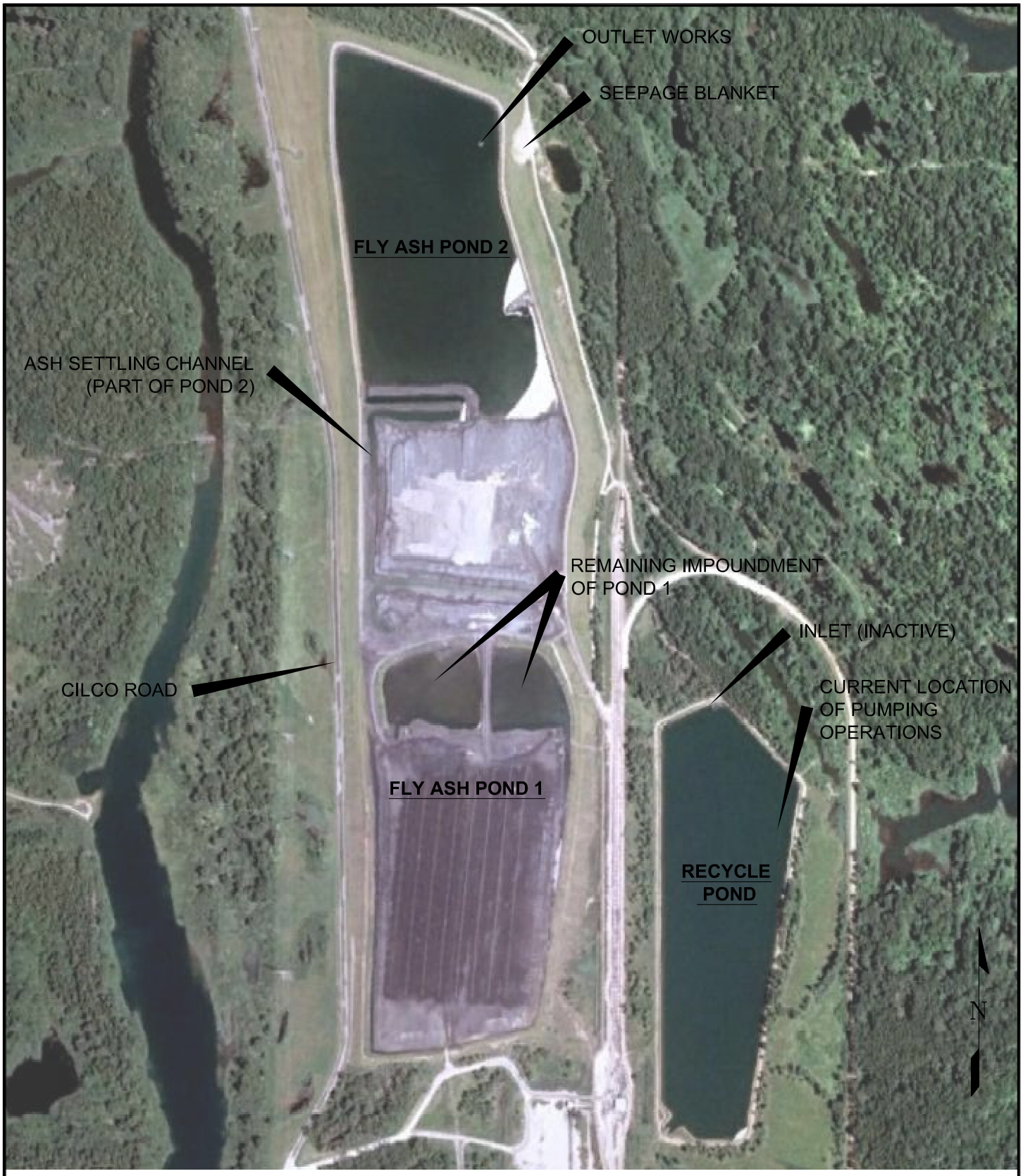

AERIAL IMAGE

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IMAGE SOURCE: GOOGLE EARTH PRO - IMAGE DATE 08/27/10

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CHECKED BY:	BDH
FILE NAME:	

DUCK CREEK POWER STATION
AERIAL LOCATION MAP

DUCK CREEK POWER GENERATING STATION
17751 NORTH CILCO ROAD
CANTON, IL 61520

FIGURE
2

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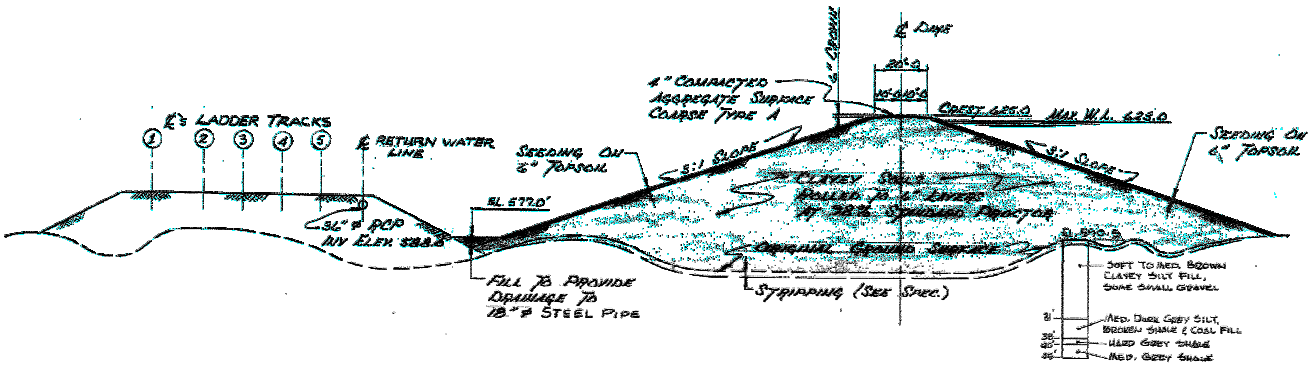

TYPICAL EMBANKMENT SECTION - FLY ASH POND 1

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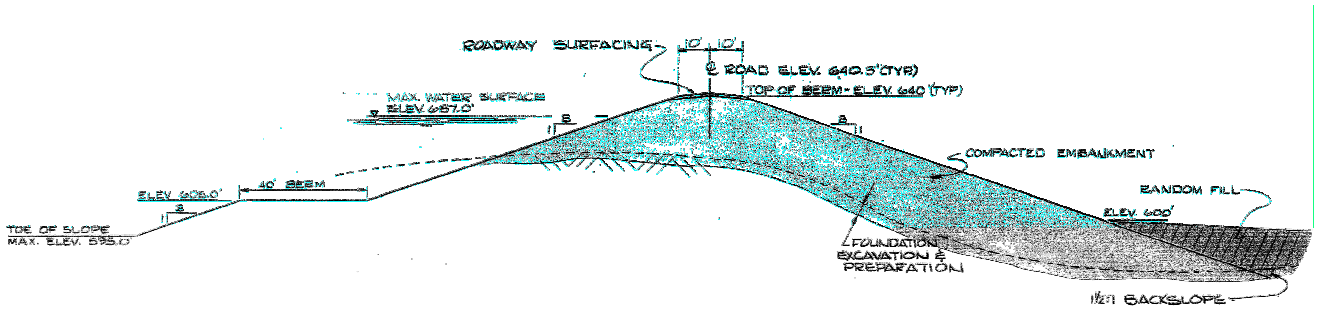
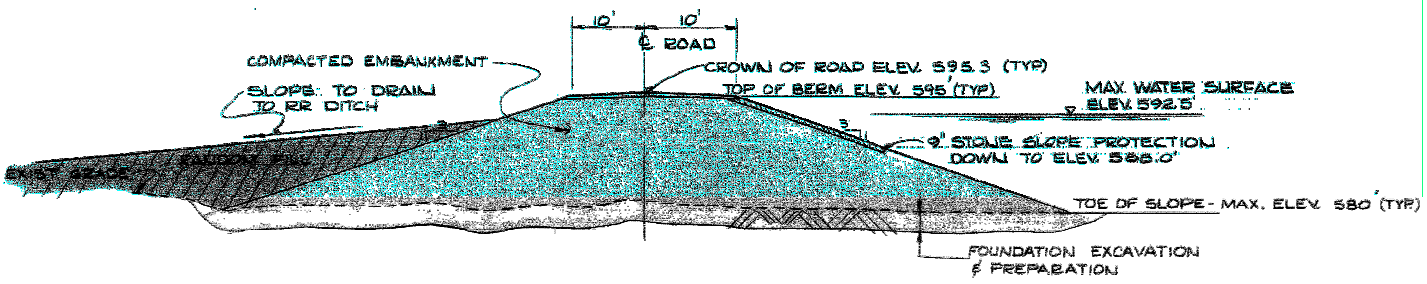


TYPICAL EMBANKMENT SECTION - FLY ASH POND 2



TYPICAL EMBANKMENT SECTION - RECYCLE POND

NTS

IMAGE SOURCES:
COMMONWEALTH ASSOCIATES INC. - WASTE DISPOSAL SYSTEM DIKE SECTIONS AND DETAILS - SHEET 7 - 05/03/82
COMMONWEALTH ASSOCIATES INC. - WASTE STORAGE SYSTEM PLAN AND DETAILS OF DIKE EMBANKMENT - SHEET 3 - 03/08/74

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DATE:	08/27/10
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CHECKED BY:	BDH
FILE NAME:	

TYPICAL CROSS SECTION FLY ASH & RECYCLE PONDS

DUCK CREEK POWER GENERATING STATION
17751 NORTH CILCO ROAD
CANTON, IL 61520

FIGURE
3

03 Sep 2010, 4:47pm, MGardella

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ATTACHED XREFS:
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CAD FILE: U:\MGardella\ASH PONDS\Reports\Duck Creek Report\ LAYOUT: General (2)

FIGURE
5
1 of 1 sheets

SCALE: NTS
DATE: 08/27/10
CHECKED BY: B. HAVENS
DRAWN BY: M. GARDELLA
DESIGNED BY: N/A

PHOTO PLAN OF INSPECTION POINTS - FLY ASH POND 1

DUCK CREEK POWER GENERATING STATION
17751 NORTH CILCO ROAD
CANTON, IL 61520

KLEINFELDER
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611 Corporate Circle, Suite C
Golden, Colorado 80401
PH. 303-237-6601 FAX. 303-237-6602
www.kleinfelder.com

PRO... NO.: 112618
ACAD FILE: Duck Creek Figure 5.dwg

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CAD FILE: U:\MGardella\ASH PONDS\Reports\Duck Creek Report\ LAYOUT: General (2)

PHOTO PLAN OF INSPECTION POINTS - FLY ASH POND 2

DUCK CREEK POWER GENERATING STATION
17751 NORTH CILCO ROAD
CANTON, IL 61520

FIGURE 6
1 of 1 sheets

SCALE: NTS
DATE: 08/27/10
CHECKED BY: B. HAVENS
DRAWN BY: M. GARDELLA
DESIGNED BY: N/A

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PROJ. NO. 112618
ACAD FILE: Duck Creek Figure 6.dwg

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IMAGE SOURCE: GOOGLE EARTH PRO – IMAGE DATE 08/27/10

PHOTO PLAN OF INSPECTION POINTS - RECYCLE POND

DUCK CREEK POWER GENERATING STATION
17751 NORTH CILCO ROAD
CANTON, IL 61520

FIGURE 4
1 of 1 sheets

SCALE: NTS
DATE: 08/27/10
CHECKED BY: B. HAVENS
DRAWN BY: M. GARDELLA
DESIGNED BY: N/A

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PROJ. NO. 112618
ACAD FILE: Duck Creek Figure 4.dwg

NO.	REVISION	BY	DATE
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Appendix A

Site Assessment Evaluation Checklists

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: DUCK CREEK POWER STATION Date: 08/11/10

Unit Name: RECYCLE POND Operator's Name: AMEREN ENERGY

Unit I.D.: Hazard Potential Classification: High Significant (Low)

Inspector's Name: BRIAN HAVENS + MATT GARDELLA

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	WEEKLY W/ ANNUAL REV.		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	592.5'		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	N/A		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	N/A		Is water entering inlet, but not exiting outlet?		X
5. Lowest dam crest elevation (operator records)?	595'		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	N/A		Is water exiting outlet flowing clear?	X	
7. Is the embankment currently under construction?	X		21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?		X
9. Trees growing on embankment? (If so, indicate largest diameter below)	X		At isolated points on embankment slopes?		X
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?		X	From downstream foundation area?		X
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?		X
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue #	Comments
7	POND IS BEING TAKEN OUT OF SERVICE, AND IS IN FINAL DRAWDOWN STAGES. CLEARING AND GRUBBING OPERATIONS HAVE BEGUN WHERE MODIFICATIONS WILL BE MADE TO SHUT THE POND DOWN.
9	SMALL DIAMETER TREES AND BRUSH PRESENT W/ LARGEST DIAMETER ~6".
2 & 3	MAX POOL ELEV., POND BEING TAKEN OUT OF SERVICE & DEWATERED CURRENT ELEVATION MUCH LOWER W/ MINIMAL IMPOUNDMENT. WATER CURRENTLY BELOW DECANT INLET ELEV.

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # IL0055620 INSPECTOR BRIAN HAVENS & MATT GARDELLA

Date 08/11/10

Impoundment Name RECYCLE POND

Impoundment Company AMEREN ENERGY

EPA Region V

State Agency (Field Office) Addresss 5415 N. UNIVERSITY

PEORIA, IL 61614

Name of Impoundment RECYCLE POND

(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New X Update _____

	Yes	No
Is impoundment currently under construction?	X	
Is water or ccw currently being pumped into the impoundment?		X

IMPOUNDMENT FUNCTION: FINAL CLARIFICATION POND PRIOR TO SENDING WATER BACK INTO USE AT THE PLANT.

Nearest Downstream Town : Name HAVANA

Distance from the impoundment ~12 MILES

Impoundment Location: Longitude W 89 Degrees 58 Minutes 55 Seconds

Latitude N 40 Degrees 28 Minutes 40 Seconds

State ILLINOIS County FULTON

Does a state agency regulate this impoundment? YES X NO _____

If So Which State Agency? ILLINOIS ~~DEPART~~ ENVIRONMENTAL PROTECTION AGENCY

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

__X__ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

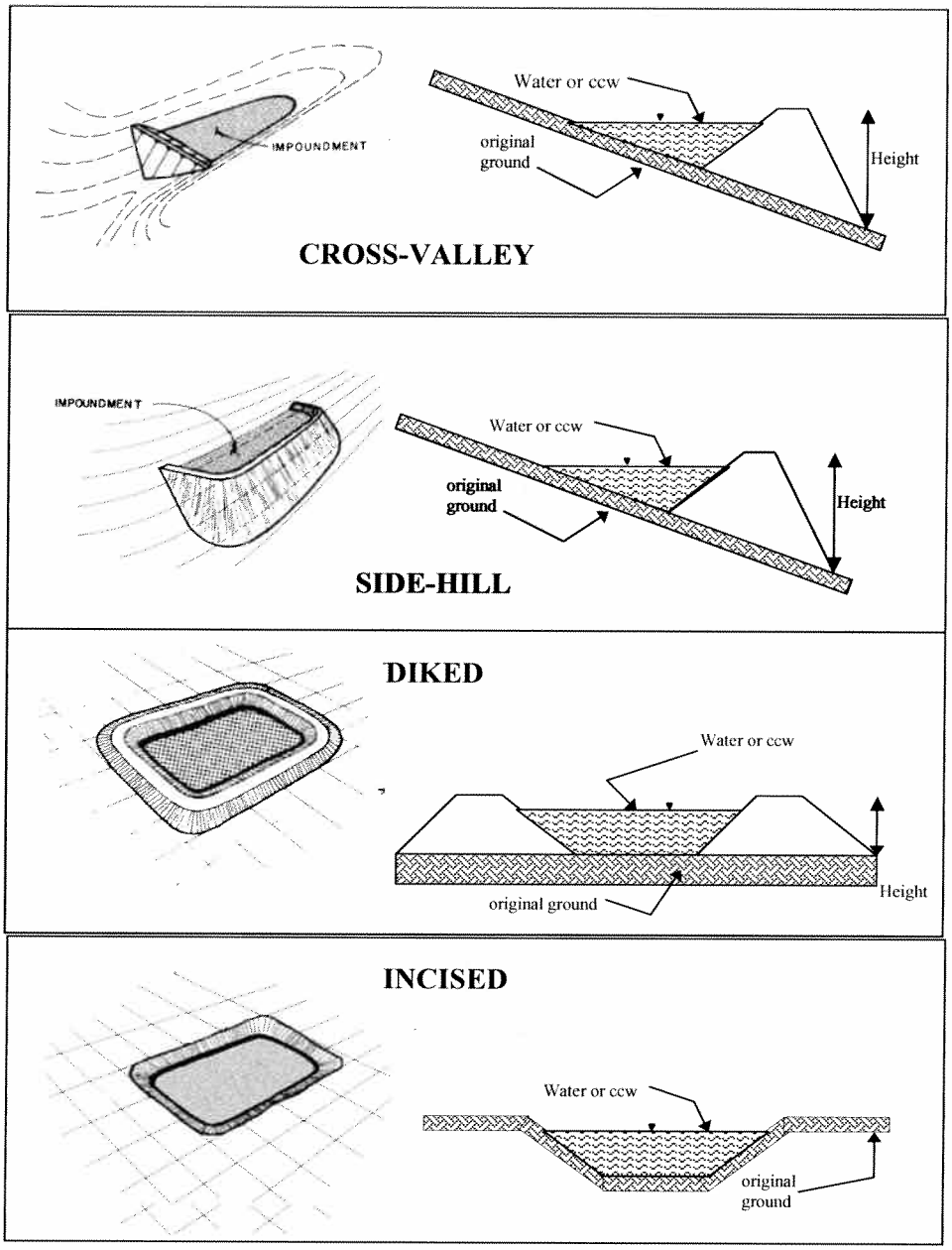
_____ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

POND IS BEING TAKEN OUT OF SERVICE AND IS IMPOUNDING A VERY MINIMAL AMOUNT OF WATER. CURRENTLY ALL WATER IS BEING PUMPED TO THE ASH PONDS IN DEWATERING ACTIONS THAT WILL LEAD TO CLOSURE OPERATIONS OF THE POND IN THE VERY NEAR FUTURE.

CONFIGURATION:

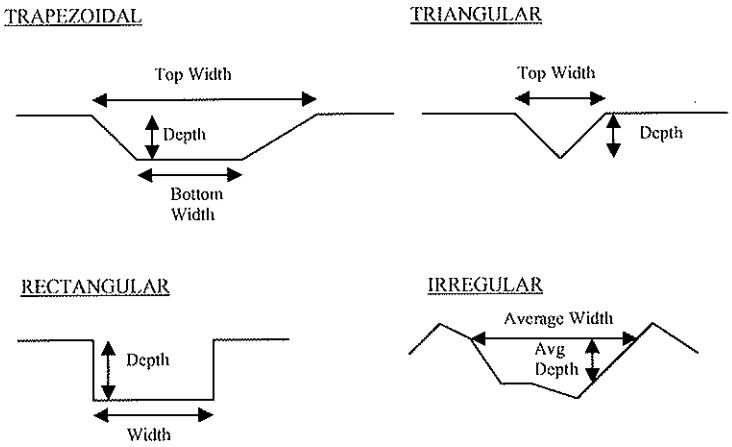


_____ Cross-Valley
_____ Side-Hill
_____ Diked
_____ Incised (form completion optional)
__x__ Combination Incised/Diked

Embankment Height __ 5' MAX feet
Pool Area NORMAL - 45 WORST - 2 acres
Current Freeboard AT LEAST 15 feet
Embankment Material COMPACTED EARTH & RIP RAP.
Liner CLAY LINER
Liner Permeability UNKNOWN

TYPE OF OUTLET (Mark all that apply)

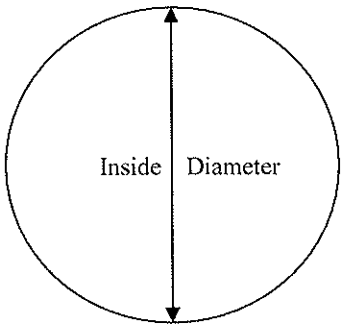
_____ **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Rectangular
_____ Irregular



_____ depth
_____ bottom (or average) width
_____ top width

_____ **Outlet**

_____ inside diameter



Material
_____ corrugated metal
_____ welded steel
_____ concrete
_____ plastic (hdpe, pvc, etc.)
_____ other (specify) _____

Is water flowing through the outlet? YES ___X___ NO _____

_____ **No Outlet**

___X___ **Other Type of Outlet** (specify) PUMPING OPERATIONS CURRENTLY IN PLACE TO DEWATER + DECOMMISSION POND

The Impoundment was Designed By COMMONWEALTH ASSOCIATES INC.

Has there ever been a failure at this site? YES _____ NO X

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES _____ NO ✓

If So When? _____

IF So Please Describe: _____

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____ NO __X__

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: DUCK CREEK POWER STATION Date: 08/11/10

Unit Name: POND 1 - ASH POND Operator's Name: AMEREN ENERGY

Unit I.D.: Hazard Potential Classification: High Significant (Low)

Inspector's Name: BRIAN HAVENS & MATT GARDELLA

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	WEEKLY W/ ANNUAL REVIEW		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	623'		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	N/A		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	N/A		Is water entering inlet, but not exiting outlet?		X
5. Lowest dam crest elevation (operator records)?	625'		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	N/A		Is water exiting outlet flowing clear?	X	
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?		X
9. Trees growing on embankment? (If so, indicate largest diameter below)	X		At isolated points on embankment slopes?		X
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?		X	From downstream foundation area?		X
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?		X
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue #	Comments
19.	ONE SIGNIFICANT EROSION FEATURE NOTED AT THE SW CORNER OF THE POND ON THE DOWNSTREAM SLOPE. (~3' DEEP, 10' LONG.) HOWEVER THIS FEATURE APPEARED TO BE AN ISOLATED CASE AND EASILY REPAIRED.
9	HEAVY TREES AND BRUSH IS PRESENT ON SOUTH AND SOUTH-EAST EMBANKMENT. LARGEST DIAMETER IS ~ 6"
3	WATER BEING PUMPED TO ASH POND 2 AS ASH POND 1 IS DECOMISSIONED
2	MAX POOL ELEV. CURRENT LEVEL IS MUCH LOWER & DROPPING. CURRENTLY MINIMAL IMPOUNDMENT

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # IL0055620 INSPECTOR BRIAN HAVENS & MATT GARDELLA

Date 08/11/10

Impoundment Name POND 1 - ASH POND

Impoundment Company AMEREN ENERGY

EPA Region V

State Agency (Field Office) Addresss 5415 N. UNIVERSITY
PEORIA, IL 61614

Name of Impoundment POND 1 - ASH POND

(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New Y Update _____

	Yes	No
Is impoundment currently under construction?	_____	X
Is water or ccw currently being pumped into the impoundment?	_____	X

IMPOUNDMENT FUNCTION: SETTLING POND FOR ASH SLURRY

Nearest Downstream Town : Name HAVANA, IL

Distance from the impoundment ~12 MILES

Impoundment Location: Longitude W 89 Degrees 59 Minutes 14 Seconds
Latitude N 40 Degrees 28 Minutes 45 Seconds
State ILLINOIS County FULTON

Does a state agency regulate this impoundment? YES X NO _____

If So Which State Agency? ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

__X__ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

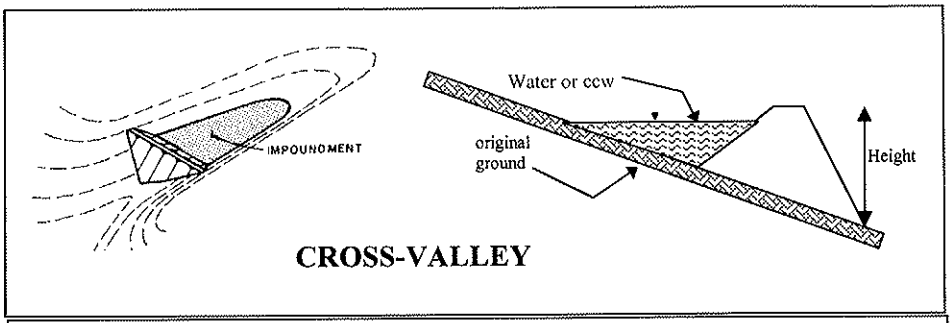
_____ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

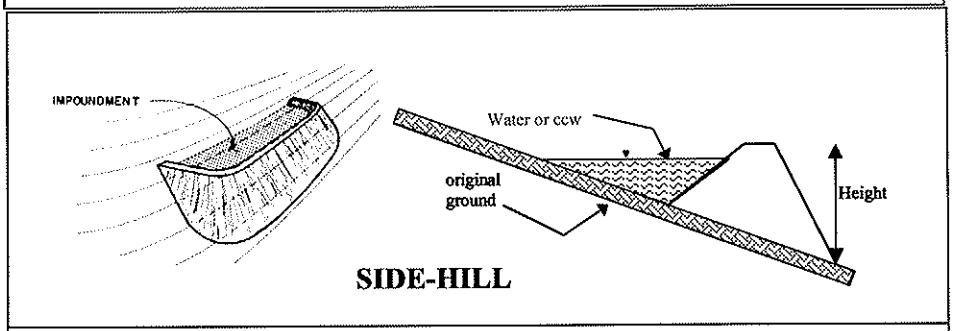
_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

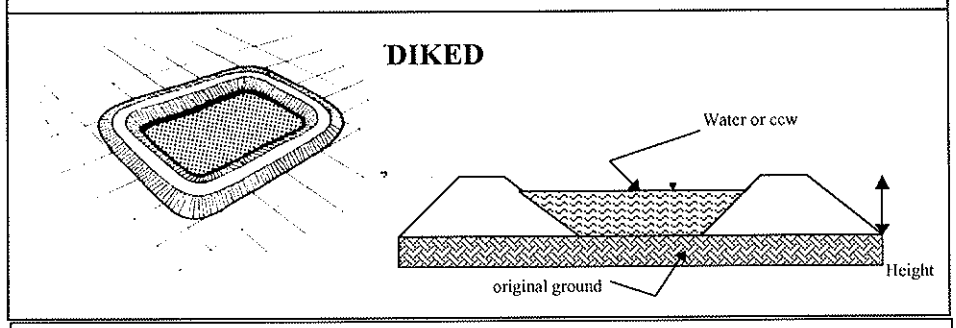
DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

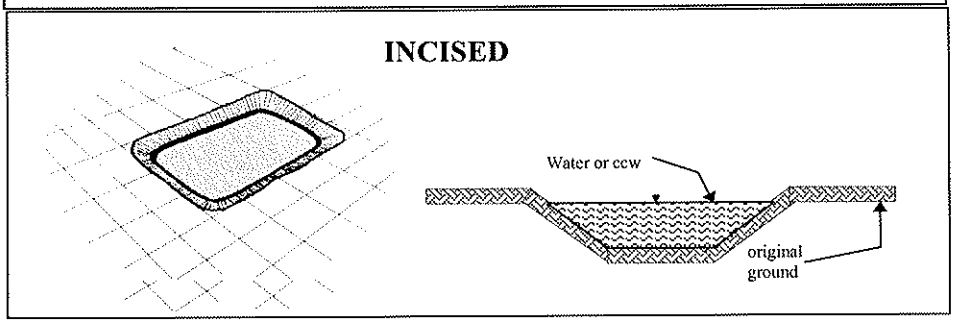
ASH POND 1 IS IN THE FINAL STAGES OF BEING DECOMISSIONED AND CAPPED. ALL REMAINING WATER IS BEING TRANSFERED TO ASH POND 2. CURRENTLY THERE IS VERY MINIMAL WATER IMPOUNDED AT THE SITE, AND THIS IS ONLY STORM WATER RUNOFF, NOT NEWLY IMPOUNDED FLY ASH SLURRY

CONFIGURATION:









_____ Cross-Valley
_____ Side-Hill
__X__ Diked
_____ Incised (form completion optional)
_____ Combination Incised/Diked

Embankment Height ≈ 28 feet
Pool Area NORMAL-5B CURRENTLY 2 acres
Current Freeboard AT LEAST 8' feet

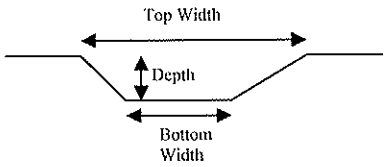
Embankment Material CLAYEY SOILS
Liner NONE
Liner Permeability N/A

TYPE OF OUTLET (Mark all that apply)

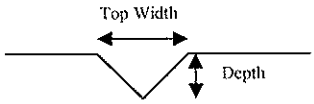
_____ **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Rectangular
_____ Irregular

_____ depth
_____ bottom (or average) width
_____ top width

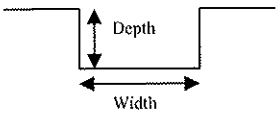
TRAPEZOIDAL



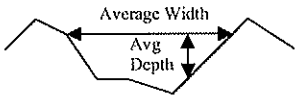
TRIANGULAR



RECTANGULAR

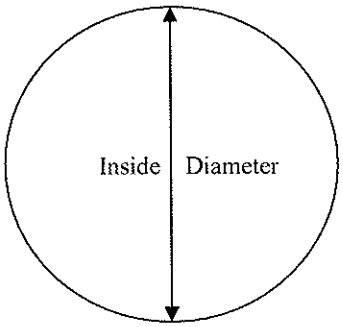


IRREGULAR



_____ **Outlet**

18" inside diameter



Material
X corrugated metal
_____ welded steel
_____ concrete
_____ plastic (hdpe, pvc, etc.)
_____ other (specify) _____

Is water flowing through the outlet? YES _____ NO X

_____ **No Outlet**

X **Other Type of Outlet** (specify) WATER BELOW 18" CMP PIPES, BEING PUMPED INTO ASH POND 2 UNTIL POND 1 IS EMPTY

The Impoundment was Designed By COMMONWEALTH ASSOCIATES INC.

Has there ever been a failure at this site? YES _____ NO __X__

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES _____ NO X

If So When? _____

IF So Please Describe: _____

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____ NO X

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: DUCK CREEK POWER STATION Date: 08/11/10

Unit Name: POND 2 - ASH POND Operator's Name: AMEREN ENERGY

Unit I.D.: Hazard Potential Classification: High Significant (Low)

Inspector's Name: BRIAN HAVENS & MATT GARDECKA

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	WEEKLY W/ ANNUAL REVIEW		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	637.0		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	600'		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	N/A		Is water entering inlet, but not exiting outlet?		X
5. Lowest dam crest elevation (operator records)?	~~640~~ 640'		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	N/A		Is water exiting outlet flowing clear?	X	
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?		X
9. Trees growing on embankment? (If so, indicate largest diameter below)		X	At isolated points on embankment slopes?	X	
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?		X	From downstream foundation area?		X
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?	X	
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue #	Comments
21	SMALL AREAS OF POSSIBLE SEEPAGE ON EASTERN EMBANKMENT. COULD POSSIBLY BE ATTRIBUTED TO STORM WATER PONDING.
23	WATER IS PONDED AT DITCH AT EASTERN EMBANKMENT TOE IN ISOLATED AREAS
3	ELEVATION IS ADJUSTABLE BY ADDING (OR REMOVING) PIPE RISERS
2	MAX POOL ELEV. CURRENTLY MUCH LOWER & DROPPING DUE TO DEWATERING ELEVATION

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # IL0055620 INSPECTOR BRIAN HAVENS & MATT GARDECKA

Date 08/11/10

Impoundment Name POND 2 - ASH POND

Impoundment Company AMEREN ENERGY

EPA Region V

State Agency (Field Office) Addresss 5415 N. UNIVERSITY
PEORIA, IL 61614

Name of Impoundment POND 2 - ASH POND

(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New ✓ Update _____

	Yes	No
Is impoundment currently under construction?	_____	X
Is water or ccw currently being pumped into the impoundment?	X	_____

IMPOUNDMENT FUNCTION: SETTLING POND FOR FLY ASH SLURRY

Nearest Downstream Town : Name HAVANA, IL

Distance from the impoundment ~12 MILES

Impoundment Location: Longitude W 89 Degrees 59 Minutes 15 Seconds
Latitude N 40 Degrees 29 Minutes 20 Seconds
State ILLINOIS County FULTON

Does a state agency regulate this impoundment? YES X NO _____

If So Which State Agency? ILLINOIS ENVIRONMENTAL DEPARTMENT AGENCY

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

__X__ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

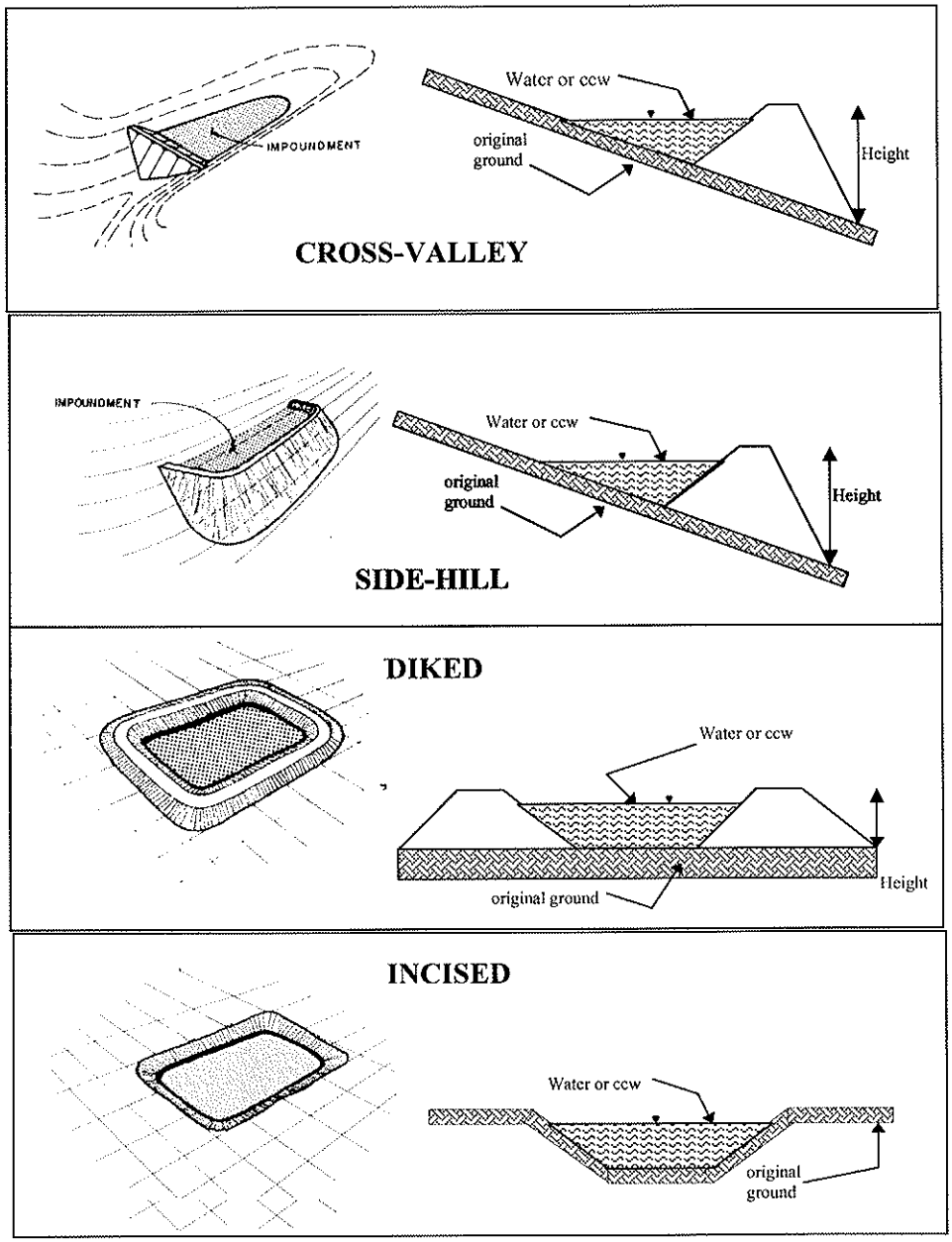
_____ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

POND 2 - ASH POND IS IN THE PROCESS OF BEING DECOMMISIONED AND CAPPED. CURRENTLY THERE IS MINIMAL WATER BEING IMPOUNDED & THE LEVEL IS CONTINUOUSLY TO DROP AS DEWATERING OPERATIONS CONTINUE. CURRENTLY THE ONLY WATER INFLOWING INTO POND 2 IS THE REMNANTS OF POND 1.

CONFIGURATION:



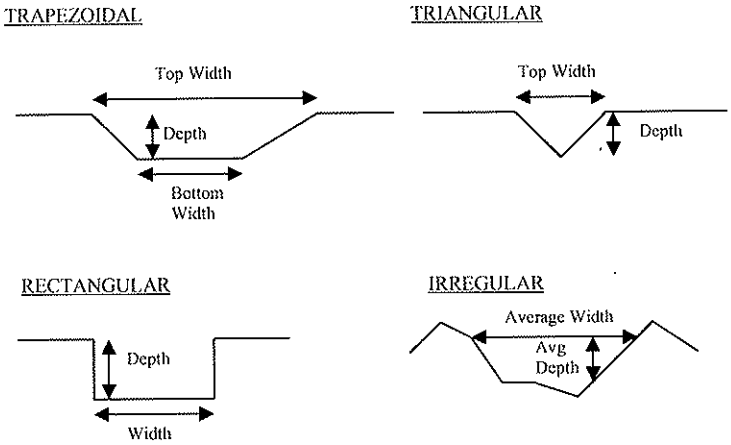
_____ Cross-Valley
_____ Side-Hill
__X__ Diked
_____ Incised (form completion optional)
_____ Combination Incised/Diked

Embankment Height ~~8~~ ~30 feet
Embankment Material COMPACTED EARTHEN EMB.
Pool Area NORMAL-85 CURRENT ~15 acres
Liner NONE
Current Freeboard AT LEAST 10 feet
Liner Permeability N/A

TYPE OF OUTLET (Mark all that apply)

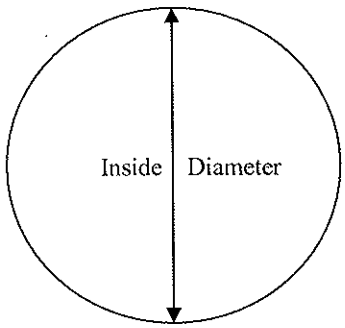
N/A **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Rectangular
_____ Irregular

_____ depth
_____ bottom (or average) width
_____ top width



X **Outlet**

36" inside diameter



Material
_____ corrugated metal
_____ welded steel
X concrete
_____ plastic (hdpe, pvc, etc.)
_____ other (specify) _____

Is water flowing through the outlet? YES X NO _____

_____ **No Outlet**

X **Other Type of Outlet** (specify) METAL PIPE RISERS CONNECTED TO 36" PIPE

The Impoundment was Designed By COMMONWEALTH ASSOCIATES INC.

Has there ever been a failure at this site? YES _____ NO ___X___

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES X NO _____

If So When? 2005

IF So Please Describe: SEEPAGE COLLARS OF OUTLET WORKS PIPE WERE DISTURBED DURING EXCAVATION OPERATIONS. SEEPAGE WAS THEN NOTED IN THE AREA. HANSON ENGINEERS INVESTIGATED AND ADDED SEEPAGE TRENCH DRAIN DESIGN, AND PUMP.

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____ NO X

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Appendix B

Site Assessment Photographs

Photo 1 – Recycle Pond Inlet Pipe

Photo 2 – Typical Condition of Recycle Pond in the Process of Being Decommissioned Looking South

Photo 3 – Typical Condition of Recycle Pond (Note Pumping Operations in Background)

Photo 4 – Recycle Pond Looking Northwest (Note Inlet Pipe in Background)

Photo 5 – Clearing Operations in Preparation of Recycle Pond Decommissioning

Photo 6 – Typical Crest Condition of Recycle Pond

Photo 7 – Pumping Operations to Remove Remaining Water from Recycle Pond

Photo 8 – Pumping Operations to Remove Remaining Water from Recycle Pond

Photo 9 – Eastern Embankment Pond 2 (Note Drainage Blanket and Benched Section in Background)

Photo 10 – Possible Slight Seepage Area near Eastern Embankment Toe (Note Rutting)

Photo 11 – Ponding of Storm Water at Toe of Eastern Embankment between Road and Ash Pond 2

Photo 12 – Surface Erosion near Toe of Eastern Embankment of Ash Pond 2

Photo 13 – Pump Station at Seepage Blanket

Photo 14 – Outlet Works of Pond 2 and Remaining Impoundment Level

Photo 15 – Outlet Works of Pond 2 with Outlet Pipe Risers in Foreground

Photo 16 – Pond 2 Crest Looking South with Outlet Pipe Risers in Foreground

Photo 17 – Electric Control Penetration in Crest near Pond 2 Outlet Works and Seepage Blanket

Photo 18 – Northeast Corner of Ash Pond 2 (Note Draw Down and Current Freeboard)

Photo 19 – Typical Upstream Slope of Northern Embankment of Pond 2 Looking West

Photo 20 – Northern Embankment of Pond 2 Looking West Showing the Typical Crest Condition

Photo 21 – Ash Pond 2 Looking South along the Western Upstream Embankment

Photo 22 – Slight Rutting and Ponding of Storm Water on Western Crest of Pond 2

Photo 23 – Ash Pond 2 in the Process of being Drained and Decommissioned

Photo 24 – Ash Pond 2 in the Process of being Drained and Decommissioned

Photo 25 – Slight Rutting and Ponding of Storm Water on Western Embankment Crest (Typical)

Photo 26 – Junction of Ash Ponds 1 and 2 Looking Southeast

Photo 27 – Junction of Ash Ponds 1 and 2 Looking East

Photo 28 – Buried Water Line Marker at Junction of Ponds 1 and 2 at Toe of Western Embankment

Photo 29 – Ash Pond 1 Settling Channel

Photo 30 – Ash Pond 1 Settling Channel

Photo 31 – Western Embankment Crest of Ponds 1 and 2 (Typical)

Photo 32 – Ash Pond 1 Crest and Settling Channel from Western Embankment Crest Looking North

Photo 33 – Ash Pond 1 Settling Channel from Western Embankment Crest Looking East

Photo 34 – Ash Pond 1 Crest and Settling Channel from Western Embankment Crest Looking South

Photo 35 – Monitoring Well at the Downstream Toe of the Western Embankment of Pond 1

Photo 36 – Typical Western Embankment of Ponds 1 & 2 Looking South

Photo 37 – Typical Western Embankment of Ponds 1 & 2 Looking North

Photo38 – Surface Erosion Approximately 2’ deep by 3’ Wide on the Southwestern Corner of Pond 1

Photo 39 – Vegetation Greater than 1” in Diameter on the Southern Embankment of Pond 1 (Typical)

Photo 40 – Woody Vegetation on Eastern Slope of Pond 1 Embankment (Note Lack of Mowing)

Photo 41 – Tall Grass and Similar Vegetation on Eastern Slope of Pond 1 Embankment (Note Debris)

Photo 42 –Vegetation on Eastern Slope of Pond 1 Embankment (Note Lack of Mowing)

Appendix C

Response Letter to the EPA's Section 104(e) Request for Information

Ameren Services

Environmental Services
314.554.2388 (Phone)
314.554.4182 (Facsimile)
ppike@ameren.com

One Ameren Plaza
1901 Chouteau Avenue
PO Box 66149
St. Louis, MO 63166-6149

March 26, 2009

Mr. Richard Kinch
US Environmental Protection Agency (53306P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Request for Information under Section 104 (e) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9604(e)

Dear Mr. Kinch:

This letter and attachments are AmerenEnergy Generating and AmerenEnergy Resources Companies' response to the United States Environmental Protection Agency's request for information relating to the surface impoundments or similar diked or bermed management unit(s) or management units designated as landfills which receive liquid-borne material from a surface impoundment used for the storage or disposal of residuals or by-products from the combustion of coal, including, but not limited to, fly ash, bottom ash, boiler slag, or flue gas emission control residuals.

AmerenEnergy Generating and AmerenEnergy Resources Companies have received requests for information about their five coal-fired power stations in Illinois. Although most of our surface impoundments are not considered to be dams by State or Federal regulations, we are subject to State and Federal NPDES regulations and have had Agency personnel inspect these units. We are providing a full and complete response to each separate request for information set forth in your Enclosure A (attached) with responses corresponding to numbering in your questions. If you have any further questions please feel free to contact Paul Pike at (314) 554-2388.

I certify that the information contained in this response to EPA's request for information and the accompanying documents is true, accurate, and complete. As to the identified portions of this response for which I cannot personally verify their accuracy, I certify under penalty of law that this response and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, those persons directly responsible for gathering the information, the information submitted is, to the best of my

knowledge, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sincerely,

Michael L. Menne
Vice President – Environmental Services

Enclosure A

Please provide the information requested below for each surface impoundment or similar diked or bermed management unit(s) or management units designated as landfills which receive liquid-borne material for the storage or disposal of residuals or by-products from the combustion of coal, including, but not limited to, fly ash, bottom ash, boiler slag, or flue gas emission control residuals. This includes units that no longer receive coal combustion residues or by-products, but still contain free liquids. .

1. Relative to the National Inventory of Dams criteria for High, Significant, Low, or Less-than-Low, please provide the potential hazard rating for each management unit and indicate who established the rating, what the basis of the rating is, and what federal or state agency regulates the unit(s). If the unit(s) does not have a rating, please note that fact.

2. What year was each management unit commissioned and expanded? ;

3. What materials are temporarily or permanently contained in the unit? Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other. If the management unit contains more than one type of material, please identify all that apply. Also, if you identify "other," please specify the other types of materials that are temporarily or permanently contained in the unit(s).

4. Was the management unit(s) designed by a Professional Engineer? Is or was the construction of the waste management unit(s) under the supervision of a Professional Engineer? Is inspection and monitoring of the safety of the waste-management unit(s) under the supervision of a Professional Engineer?

5. When did the company last assess or evaluate the safety (i.e., structural integrity) of the management unit(s)? Briefly describe the credentials of those conducting the structural integrity assessments/evaluations. Identify actions taken or planned by facility personnel as a result of these assessments or evaluations. If corrective actions were taken, briefly describe the credentials of those performing the corrective actions, whether they were company employees or contractors. If the company plans an assessment or evaluation in the future, when is it expected to occur?

6. When did a State or a Federal regulatory official last inspect or evaluate the safety (structural integrity) of the management unit(s)? If you are aware of a planned state or federal inspection or evaluation in the future, when is it expected to occur? Please identify the Federal or State regulatory agency or department which conducted or is planning the inspection or evaluation. Please provide a copy of the most recent official inspection report or evaluation.

7. Have assessments or evaluations, or inspections conducted by State or Federal regulatory officials conducted within the past year uncovered a safety issue(s) with the management unit(s), and, if so, describe the actions that have been or are being taken to deal with the issue or issues. Please provide any documentation that you have for these actions.

8. What is the surface area (acres) and total storage capacity of each of the management units? What is the volume of materials currently stored in each of the management unit(s)? Please provide the date that the volume measurement(s) was taken. Please provide the maximum height of the management unit(s). The basis for determining maximum height is explained later in this. Enclosure.

9. Please provide a brief history of known spills or unpermitted releases from the unit within the last ten years, whether or not these were reported to State or federal regulatory agencies. For purposes of this question, please include only releases to surface water or to the land (do not include releases to groundwater).

10. Please identify all current legal owner(s) and operator(s) at the facility.

AmerenEnergy Generating Company Response

Meredosia Power Station
800 W. Washington
Meredosia, Illinois 62665

1. Coal-combustion by-product surface impoundments at this Station are not classified as dams by State or Federal regulatory agencies so they have not been rated.

2. See table below.

Management Unit	Year Commissioned or Expanded
Fly Ash Pond	1968
Bottom Ash Pond	1972

3. See table below.

Management Unit	Materials Contained in Unit*
Fly Ash Pond	1
Bottom Ash Pond	2

*Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other.

Other types of materials that are temporarily or permanently contained in the unit(s) include, but are not limited to residual wastes remaining following treatment of wastewater from these systems: primary water treatment; boiler water make-up treatment; laboratory and sampling streams; boiler blowdown; floor drains; coal pile run off; house service water systems; and pyrites.

4. The management units at this facility were designed by a Professional Engineer. The construction of the management units were done under the supervision of a Professional Engineer. And, inspection and monitoring of the safety of the waste management units is under the supervision of a Professional Engineer.

5. The most recent annual internal professional engineering inspection of the management units occurred in 2009. Since these management units are not classified by regulation as dams the evaluation only included a visual inspection of the units. AmerenEnergy Resources Company has formed a Dam Safety Group consisting of civil engineers who oversee the

implementation of the company Dam Safety Program and this Group is supervised by a licensed Professional Engineer. The Dam Safety Program requires routine, annual and special inspection of the ash ponds and employees performing these inspections receive dam safety training. If maintenance issues are identified in these visual inspections, then corrective actions are taken by either plant employees or contractors to remedy the issue and final acceptance of the work is reviewed and evaluated by Dam Safety Group personnel.

6. No State, or Federal regulatory official has inspected or evaluated the safety (structural integrity) of the management unit(s), and we are not aware of a planned state or federal inspection or evaluation in the future.

7. Not applicable, see response to Question 6.

8. See table below.

Management Unit	**Surface Area (Acres)**	**Total Storage Capacity (Acre-ft)**	**Volume of Stored Ash (Acre-ft)**	**Maximum Height of Unit (ft.)**
Fly Ash Pond	186	700	650	24
Bottom Ash Pond	34	186	139	24

The volume measurement includes area excavated below natural surface level and was determined in 2007.

9. Assuming that brief history means incident(s) which could have occurred in the last ten (10) years, we are only aware of one instance when there was a release from our surface impoundments to the land. The incident occurred in late December, 2006, when we released a small amount of water (less than 500 gallons) from the fly ash pond to the land. In response, we modified the pond and developed internal procedures to prevent a recurrence of the situation. We are not aware of any other spills or unpermitted releases of coal-combustion by-products from our surface impoundments to surface water or to the land.

10. The current legal owner and operator at the facility is AmerenEnergy Generating Company.

AmerenEnergy Generating Company Response

Hutsonville Power Station
15142 East 1900 Avenue
Hutsonville, Illinois 62433

1. One of the coal-combustion by-product surface impoundments at this Station is classified as a dam by State or Federal regulatory agencies. The unit that we refer to as Ash Pond A is classified under Illinois regulations as a Class III dam which is considered to be a low risk unit. The potential hazard rating was established by company employees, and the basis of the rating was the size of the pond and that in case of a failure, it has a low probability for causing loss of life, where there are no permanent structures for human habitation, or minimal economic loss in excess of that which would naturally occur downstream of the dam if the dam had not failed.. The Illinois Department of Natural Resources is the agency that regulates the unit. All the remaining coal-combustion by-product surface impoundments at this Station are not classified as dams by State or Federal regulatory agencies so they have not been rated.

2. See table below.

Management Unit	Year Commissioned or Expanded
Ash Pond A	1986
Ash Pond B	2000
Ash Pond C	2000
Bottom Ash Pond	1940

3. See table below.

Management Unit	Materials Contained in Unit*
Ash Pond A	1
Ash Pond B	1, 2
Ash Pond C	1, 2, 5
Bottom Ash Pond	2

*Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other.

Other types of materials that are temporarily or permanently contained in the unit(s) include, but are not limited to residual wastes remaining following treatment of wastewater from these systems: primary water treatment; boiler water make-up treatment; sanitary wastewater treatment; laboratory and sampling streams; boiler blowdown; floor drains; coal pile run off; house service water systems; and pyrites.

4. The management units at this facility were designed by a Professional Engineer. The construction of the management units were done under the supervision of a Professional Engineer. And, inspection and monitoring of the safety of the management units is under the supervision of a Professional Engineer.

5. The most recent annual internal professional engineering inspection of the management units occurred in 2009. AmerenEnergy Resources Company has formed a Dam Safety Group consisting of civil engineers who oversee the implementation of the company Dam Safety Program and this Group are supervised by a licensed Professional Engineer. The Dam Safety Program requires routine, annual and special inspection of the ash ponds and employees performing these inspections receive dam safety training. If maintenance issues are identified in these visual inspections, then corrective actions are taken by either plant employees or contractors to remedy the issue and final acceptance of the work is reviewed and evaluated by Dam Safety Group personnel.

   Ash Pond A was evaluated for its structural integrity during its design in March, 1984. The individual who conducted the structural integrity assessments/evaluations was a geotechnical engineer who is licensed by the State of Illinois as a professional engineer. The evaluation was used to guide construction of the facility and no corrective actions other than possible design changes of the proposed unit were required based on the evaluation.

6. No State, or Federal regulatory official has inspected or evaluated the safety (structural integrity) of the management unit(s), and we are not aware of a planned state or federal inspection or evaluation in the future.

7. Not applicable, see response to Question 6.

8. See table below.

Management Unit	**Surface Area (Acres)**	**Total Storage Capacity (Acre-ft)**	**Volume of Stored Ash (Acre-ft)**	**Maximum Height of Unit (ft.)**
Ash Pond A	14	250	50	22
Ash Pond B	4.4	70	10	17
Ash Pond C	2	20	5	12

Bottom Ash Pond	1.2	6	3	15

The volume measurement includes area excavated below natural surface level and was determined in 2007.

9. Assuming that brief history means incident(s) which could have occurred in the last ten (10) years, we are not aware of any spills or unpermitted releases of coal-combustion by-products from our surface impoundments to surface water or to the land.

10. The current legal owner and operator at the facility is AmerenEnergy Generating Company.

AmerenEnergy Generating Company Response

Newton Power Station
6725 North 500th Street
Newton, Illinois 62448

1. Coal-combustion by-product surface impoundments at this Station are not classified as dams by State or Federal regulatory agencies so they have not been rated.

2. See table below.

Management Unit	Year Commissioned or Expanded
Primary Ash Pond	1977
Secondary Ash Pond	1977

3. See table below.

Management Unit	Materials Contained in Unit*
Primary Ash Pond	1, 2, 5
Secondary Ash Pond	1, 2, 5

*Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other.

Other types of materials that are temporarily or permanently contained in the unit(s) include, but are not limited to residual wastes remaining following treatment of wastewater from these systems: primary water treatment; boiler water make-up treatment; laboratory and sampling streams; boiler blowdown; floor drains; coal pile run off; house service water systems; and pyrites.

4. The management units at this facility were designed by a Professional Engineer. The construction of the management units were done under the supervision of a Professional Engineer. And, inspection and monitoring of the safety of the waste management units is under the supervision of a Professional Engineer.

5. The most recent annual internal professional engineering inspection of the management units occurred in 2009. Since these management units are not classified by regulation as dams the evaluation only included a visual inspection of the units. AmerenEnergy Resources Company has formed a Dam Safety Group consisting of civil engineers who oversee the implementation of the company Dam Safety Program and this Group is supervised by a

licensed Professional Engineer. The Dam Safety Program requires routine, annual and special inspection of the ash ponds and employees performing these inspections receive dam safety training. If maintenance issues are identified in these visual inspections, then corrective actions are taken by either plant employees or contractors to remedy the issue and final acceptance of the work is reviewed and evaluated by Dam Safety Group personnel.

6. No State, or Federal regulatory official has inspected or evaluated the safety (structural integrity) of the management unit(s), and we are not aware of a planned state or federal inspection or evaluation in the future.

7. Not applicable, see response to Question 6.

8. See table below.

Management Unit	**Surface Area (Acres)**	**Total Storage Capacity (Acre-ft)**	**Volume of Stored Ash (Acre-ft)**	**Maximum Height of Unit (ft.)**
Primary Ash Pond	400	9250	2000	47
Bottom Ash Pond	9.3	83	minimal	29

The volume measurement includes area excavated below natural surface level and was determined in 2007.

9. Assuming that brief history means incident(s) which could have occurred in the last ten (10) years, we are not aware of any spills or unpermitted releases of coal-combustion by-products from our surface impoundments to surface water or to the land.

10. The current legal owner and operator at the facility is AmerenEnergy Generating Company.

AmerenEnergy Resources Generating Company Response

Duck Creek Power Station
17751 N. Cilco Road
Canton, Illinois 61520

1. Coal-combustion by-product surface impoundments at this Station are not classified as dams by State or Federal regulatory agencies so they have not been rated.

2. See table below.

Management Unit	Year Commissioned or Expanded
Ash Pond 1	1976
Ash Pond 2	1986

3. See table below.

Management Unit	Materials Contained in Unit*
Ash Pond 1	1, 2, 4
Ash Pond 2	1, 2, 4

*Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other.

Other types of materials that are temporarily or permanently contained in the unit(s) include, but are not limited to residual wastes remaining following treatment of wastewater from these systems: primary water treatment; boiler water make-up treatment; sanitary wastewater treatment; laboratory and sampling streams; boiler blowdown; floor drains; coal pile run off; house service water systems; and pyrites.

4. The management units at this facility were designed by a Professional Engineer. The construction of the management units were done under the supervision of a Professional Engineer. And, inspection and monitoring of the safety of the waste management units is under the supervision of a Professional Engineer.

5. The most recent annual internal professional engineering inspection of the management units occurred in 2009. Since these management units are not classified by regulation as dams the evaluation only included a visual inspection of the units. AmerenEnergy Resources Company has formed a Dam Safety Group consisting of civil engineers who oversee the implementation of the company Dam Safety Program and this Group is supervised by a

licensed Professional Engineer. The Dam Safety Program requires routine, annual and special inspection of the ash ponds and employees performing these inspections receive dam safety training. If maintenance issues are identified in these visual inspections, then corrective actions are taken by either plant employees or contractors to remedy the issue and final acceptance of the work is reviewed and evaluated by Dam Safety Group personnel.

6. No State, or Federal regulatory official has inspected or evaluated the safety (structural integrity) of the management unit(s), and we are not aware of a planned state or federal inspection or evaluation in the future.

7. Not applicable, see response to Question 6.

8. See table below.

Management Unit	**Surface Area (Acres)**	**Total Storage Capacity (Acre-ft)**	**Volume of Stored Ash (Acre-ft)**	**Maximum Height of Unit (ft.)**
Ash Pond 1	58	1300	1900	50
Ash Pond 2	85	1000	800	45

The volume measurement includes area excavated below natural surface level and was determined in 2007.

9. Assuming that brief history means incident(s) which could have occurred in the last ten (10) years, we are not aware of any spills or unpermitted releases of coal-combustion by-products from our surface impoundments to surface water or to the land.

10. The current legal owner and operator at the facility is AmerenEnergy Resources Generating Company.

AmerenEnergy Resources Generating Company Response

E. D. Edwards Power Station
7800 South Cilco Lane
Bartonville, Illinois 61607

1. Coal-combustion by-product surface impoundments at this Station are not classified as dams by State or Federal regulatory agencies so they have not been rated.

2. See table below.

Management Unit	Year Commissioned or Expanded
Ash Pond	1960

3. See table below.

Management Unit	Materials Contained in Unit*
Fly Ash Pond	1, 2, 5

*Use the following categories to respond to this question: (1) fly ash; (2) bottom ash: (3) boiler slag; (4) flue gas emission control residuals; (5) other.

Other types of materials that are temporarily or permanently contained in the unit(s) include, but are not limited to residual wastes remaining following treatment of wastewater from these systems: primary water treatment; boiler water make-up treatment; laboratory and sampling streams; boiler blowdown; floor drains; coal pile run off; house service water systems; and pyrites.

4. The management units at this facility were designed by a Professional Engineer. The construction of the management units were done under the supervision of a Professional Engineer. And, inspection and monitoring of the safety of the waste management units is under the supervision of a Professional Engineer.

5. The most recent annual internal professional engineering inspection of the management units occurred in 2009. Since these management units are not classified by regulation as dams the evaluation only included a visual inspection of the units. AmerenEnergy Resources Company has formed a Dam Safety Group consisting of civil engineers who oversee the implementation of the company Dam Safety Program and this Group is supervised by a licensed Professional Engineer. The Dam Safety Program requires routine, annual and special inspection of the ash ponds and employees performing these inspections receive dam safety training. If maintenance issues are identified in these visual inspections, then

corrective actions are taken by either plant employees or contractors to remedy the issue and final acceptance of the work is reviewed and evaluated by Dam Safety Group personnel.

6. No State, or Federal regulatory official has inspected or evaluated the safety (structural integrity) of the management unit(s), and we are not aware of a planned state or federal inspection or evaluation in the future.

7. Not applicable, see response to Question 6.

8. See table below.

Management Unit	**Surface Area (Acres)**	**Total Storage Capacity (Acre-ft)**	**Volume of Stored Ash (Acre-ft)**	**Maximum Height of Unit (ft.)**
Fly Ash Pond	89	1,800	1,000	32

The volume measurement includes area excavated below natural surface level and was determined in 2007.

9. Assuming that brief history means incident(s) which could have occurred in the last ten (10) years, we are not aware of any spills or unpermitted releases of coal-combustion by-products from our surface impoundments to surface water or to the land.

10. The current legal owner and operator at the facility is AmerenEnergy Resources Generating Company.