COAL ASH IMPOUNDMENT
SITE ASSESSMENT DRAFT REPORT

Marion Power Station
Southern Illinois Power Cooperative
Marion, Illinois

Prepared by:

KLEINFELDER
Bright People. Right Solutions.

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Golden, CO 80401

KLEINFELDER PROJECT NUMBER 118953-5

March 20, 2012

I acknowledge that the management units referenced herein:

- Pond 1 (Bottom Ash Impoundment)
- Pond 2 (Bottom Ash Impoundment)
- Pond 4 (Bottom Ash Impoundment)

Were assessed on May 25, 2011

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 Marion Power Generating Station that is owned and operated by the Southern Illinois Power Cooperative. This report summarizes the observations and findings of the site assessment that occurred on May 25, 2011.

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

- Pond 1 (Bottom Ash Impoundment)
- Pond 2 (Bottom Ash Impoundment)
- Pond 4 (Bottom Ash Impoundment)

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 ash pond impoundments are not regulated by any state agency and therefore do not currently have a designated hazard rating. Due to the potential environmental and economic impacts that a failure at any of these impoundments would present, it is recommended a hazard classification of "Low" be assigned to all the impoundments that were assessed.

Overall, the site is reasonably well maintained and operated with very 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 impoundments. 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 Emergency Action Plan (EAP) for the impoundments.

2. Perform video assessments of culvert piping.

3. Perform repairs to the eroded soil and riprap under the catwalk foundation at the Little Saline Creek outfall.

Priority 2 Recommendations

1. Develop an Operation and Maintenance (O&M) manual for the impoundments.

2. Maintain a log of maintenance and other activities at the impoundments and supporting facilities.

3. Control vegetation on the upstream slopes as well as in the ponds.

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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 at the Marion Power Station on May 25, 2011.

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 Marion Power Generating Station is located on the northwestern bank of the Lake of Egypt approximately eight miles south of Marion, Illinois as shown in Figure 1. The Marion Power Generating station is located in Williamson County at approximately 37°37'11" N and 88°57'11" W. In general, the area surrounding the Marion Generating Station is a rural agricultural community with the nearest downstream town being Creal Springs with a population hovering around 1,000 people.

1.3 Site Documentation

Southern Illinois Power Cooperative provided the following documents during the time of this assessment to aid in the review of the impoundments:

- Burns and McDonnell, As Built Drawings Sheet 30, 1962
- Southern Illinois Power Cooperative, North Pond Disposal Area Site Plan Underground Utilities Drawing, March 17, 2003

2.1 Attendees

The site assessment was performed on May 25, 2011 by Brian Havens, P.E. and Matt Gardella, E.I.T. of Kleinfelder. Other persons present during the site assessment included:

- Leonard Hopkins, P.E. – Southern Illinois Power Cooperative
- James Webb, P.E. – Southern Illinois Power Cooperative
- Jason McLaurin – Southern Illinois Power Cooperative

2.2 Impoundments Assessed

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

- Pond 1 (Bottom Ash Impoundment) – Commissioned in 1963
- Pond 2 (Bottom Ash Impoundment) – Commissioned in 1963
- Pond 4 (Bottom Ash Impoundment) – Commissioned in 1963

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.

Several additional impoundments exist at the site as shown on Figure 2. These ponds hold residuals from flue gas emission controls (no coal combustion wastes) and, as a result, were not evaluated as part of this assessement. The ponds are listed below:

- South Fly Ash Pond
- Fly Ash Disposal Pond B-3
- Pond A-1
- Pond S-1
- Pond 3A
- Pond 3
- Pond S-6
- Pond S-2
- Pond S-3

2.3 Weather During Assessment

During the assessment of the Marion Power Station impoundments, the weather was cloudy with intermittent rain. Temperatures ranged from 75^{o} to 80^{o} Fahrenheit, and wind ranged from 0 to 5 miles per hour (mph).

3.1 Site Information and History

The Marion Power Generating Station is a coal fired facility that has been in operation since 1963. The facility currently sluices Bottom Ash, a by-product of coal fired energy generation, into one of two impoundments. These impoundments are referred to as “Pond 1” and “Pond 2”. An aerial image of these impoundments can be seen in Figure 2. These ponds act as a primary settling basin for bottom ash prior to the water being transferred into “Pond 4”, which acts as a final clarification pond, and then being released into Little Saline Creek. Currently the bottom ash residual produced at the facility is removed from Ponds 1 and 2, and then sold to various organizations for beneficial use such as the topping of roadways.

It should be noted that fly ash produced at the Marion Power Generating Station is handled dry and is never settled out in a manner similar to the bottom ash. Also, gypsum is produced at this facility and is sold for beneficial use to various commercial entities for various purposes. Gypsum is sluiced only in overflow and emergency situations into nearby ponds and is immediately cleaned out of the ponds as soon as practical.

Ponds 1 and 2 are incised impoundments, originally constructed with an earthen embankment that has been filled against to incise the ponds. Figure 3 displays cross sections of Ponds 1 and 2 taken from the supplied as-built drawings. Steel sluice pipes transporting bottom ash from power generating operations outlet at the southeastern corner of both Pond 1 and Pond 2. Once this sluiced material is deposited into either Pond 1 or Pond 2 it is transferred via outlet pipe culverts into Pond 4. The outlet pipes for Pond 1 are located close to the northwest corner of the impoundment with varying inlet elevations. These culverts were noted as being plastic pipes, one 12-inch and one 18-inch pipe, with the 18-inch plastic pipe having a lower intake elevation. The outlet pipe for Pond 2 is located close to the southwest corner of the impoundment. This culvert was noted as being a steel pipe 12-inches in diameter.

The intention of Ponds 1 and 2 is to allow additional time for suspended solids to drop out of suspension before entering Pond 4 where they are harder to collect and remove for drying. Two impoundments (Ponds 1 and 2) were implemented so that one could be used for processing sluiced material, while the other impoundment is drained and cleaned of its impounded solids. This process can be alternated as necessary to ensure continuous operation.

Pond 4 is located to the west of Ponds 1 and 2 and is an incised impoundment. Inflow into Pond 4 is limited to the outlet pipes from Ponds 1, 2 and any natural rainfall runoff that may occur. Pond 4 acts as a final clarification pond allowing any additional suspended solids in the impounded water to drop out of suspension before discharging to the Little Saline Creek. One key component of Pond 4 is the pond’s

outlet. The outlet of the Pond 4 is located near the northwestern corner of the pond, and consists of a vertical pipe at a set elevation. Surrounding this vertical pipe is a large amount of riprap intended as an additional measure to protect water quality before being discharged from Pond 4. The size and type of the vertical outlet pipe is unknown as it was inundated at the time of assessment and record drawings provided for review did not describe it. After entering the outlet pipe water travels approximately 950 feet to the outfall location for the ponds which is a small concrete and steel structure. This structure is approximately 4-feet by 8-feet and contains a sluice gate and water quality monitoring equipment. After passing through this structure, water flows over riprap and into Little Saline Creek.

None of the impoundments discussed herein has an emergency spillway in place.

In reviewing the response letter to the EPA's section 104(e) request for information, shown in Appendix C, it was noted that there has not previously been a release of impounded water at the Marion Power Generating Station.

3.2 Pertinent Data

A. GENERAL

1. Name ..... Marion Power Generating Station
2. State ..... Illinois
3. County ..... Williamson
4. Latitude ..... 37° 37' 11'' North
5. Longitude ..... 88° 57' 11'' West
6. Lake used for operations ..... Lake of Egypt
7. Year Constructed 1962
8. Modifications ..... None to current impoundments
9. Current Hazard Classification ..... None
10. Proposed Hazard Classification ..... Low
11. Size ..... Unregulated Currently – Small Impoundment[2]

B. IMPOUNDMENTS

POND 1 (BOTTOM ASH IMPOUNDMENT)

1. Type ..... Incised, small[2]
2. Crest Elevation ..... ±509.5[1]
3. Crest Length ..... Approx. 1,300 ft perimeter
4. Crest Width ..... 12 ft between ponds
5. Impoundment Height ..... 0 ft, incised
6. Upstream Slope 2H:1V-2.5H:1V
7. Downstream Slope ..... N/A
8. Volume of Stored Ash ..... Unknown, ~9 acre feet capacity

POND 2 (BOTTOM ASH IMPOUNDMENT)

1. Type ..... Incised, small[2]
2. Crest Elevation ..... ±509.5[1]
3. Crest Length ..... Approx. 1,300 ft perimeter
4. Crest Width ..... 12' between Ponds
5. Impoundment Height ..... 0 ft, incised
6. Upstream Slope 2H:1V-2.5H:1V

7. Downstream Slope ..... N/A
8. Volume of Stored Ash……Unknown, ~15 acre feet capacity

POND 4 (BOTTOM ASH IMPOUNDMENT)

1. Type ..... Incised, small[2]
2. Crest Elevation ..... ±509.5[1]
3. Crest Length ..... Approx. 1,900 ft perimeter
4. Crest Width ..... 12' ft between ponds
5. Impoundment Height ..... 0 ft, incised
6. Upstream Slope 2.5H:1V
7. Downstream Slope ..... N/A
8. Volume of Stored Ash……Unknown, ~55 acre feet capacity

C. DRAINAGE BASIN

1. Area of Drainage Basin..... Minimal/Unknown
2. Downstream Description: ..... Discharges directly into Little Saline Creek

D. RESERVOIR INLET

POND 1 (BOTTOM ASH IMPOUNDMENT)

1. Reservoir Inlet ..... Inlet sluice pipe from the generating station

POND 2 (BOTTOM ASH IMPOUNDMENT)

1. Reservoir Inlet ..... Inlet sluice pipe from the generating station

POND 4 (BOTTOM ASH IMPOUNDMENT)

1. Reservoir Inlet ..... Multiple inlet pipes from Ponds 1 and 2

E. RESERVOIR

POND 1 (BOTTOM ASH IMPOUNDMENT)

1. Reservoir Capacity..... Storage capacity is approximately 9 acre-feet

POND 2 (BOTTOM ASH IMPOUNDMENT)

1. Reservoir Capacity..... Storage capacity is approximately 15 acre-feet

POND 4 (BOTTOM ASH IMPOUNDMENT)

1. Reservoir Capacity..... Storage capacity is approximately 55 acre-feet

F. PRIMARY SPILLWAY

POND 1 (BOTTOM ASH IMPOUNDMENT)

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

POND 2 (BOTTOM ASH IMPOUNDMENT)

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

POND 4 (BOTTOM ASH IMPOUNDMENT)

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

G. OUTLET WORKS

POND 1 (BOTTOM ASH IMPOUNDMENT)

1. Description.....2 Outlet pipes in the same location at different elevations

2. Location ..... Western embankment near the northwest corner of the pond
3. Intake Structure ..... None
   a. Intake Invert Elevation ..... Unknown
4. Discharge Conduit ..... Plastic
   a. Length ..... ~50 ft
   b. Diameter ..... 12 inches (upper), 18 inches (lower)
5. Outlet Structure ..... None
   a. Outlet Invert Elevation ..... Unknown
   b. Energy Dissipation ..... Riprap placed at pipe outlet
6. Discharge Channel ..... None
7. Discharge Capacity with Water Surface at Top of Impoundment ..... Unknown

POND 2 (BOTTOM ASH IMPOUNDMENT)

1. Description ..... Single Steel Outlet Pipe
2. Location ..... Western embankment near the southwest corner of the Pond
3. Intake Structure ..... None
   a. Intake Invert Elevation ..... Unknown
4. Discharge Conduit ..... Steel
   a. Length ..... ~50 ft
   b. Diameter ..... 12 inches
5. Outlet Structure ..... None
   a. Outlet Invert Elevation ..... Unknown
   b. Energy Dissipation ..... Riprap placed at pipe outlet
6. Discharge Channel ..... None
7. Discharge Capacity with Water Surface at Top of Impoundment ..... Unknown

POND 4 (BOTTOM ASH IMPOUNDMENT)

1. Description ..... Vertical Outlet Pipe[3]
2. Location ..... Northwest corner of pond
3. Intake Structure ..... None, vertical pipe without trash rack
   a. Intake Invert Elevation ..... Unknown
4. Discharge Conduit ..... Unknown, suspected steel[3]
   a. Length ..... ~950 ft
   b. Diameter ..... ~18 inches
5. Outlet Structure ..... Sluice Gate at concrete outlet structure
   a. Outlet Invert Elevation ..... Unknown
   b. Energy Dissipation ..... Concrete slab with surrounding riprap
6. Discharge Channel ..... ~10' riprap lined channel that discharges into the Little Saline Creek
7. Discharge Capacity with Water Surface at Top of Impoundment ..... Unknown

H. MANAGEMENT

1. Owner ..... Southern Illinois Power Cooperative
2. Purpose ..... Coal Fired Energy Generation

Notes:
1. All elevations in feet based on as built construction drawings by Burns and McDonnell
2. Impoundment is unregulated; size is based on Illinois Department of Natural Resources Administrative Code for Impoundment Safety
3. Structure was inundated during the time of assessment and was not able to be assessed

3.3 Regional Geology and Seismicity

The plant site is situated in the Central Mississippi River Valley between the New Madrid and Wabash Valley seismic zones. As such, the subsurface conditions are expected to include Quaternary alluvial, colluvial, and eolian deposits overlying sedimentary bedrock, including coal deposits.

Based on our review of historical soil borings and information from the Web Soil Survey, it appears that the upper alluvial, colluvial, and eolian deposits at the site include combinations of silty clay, clayey silt, silty sand and clayey sand. Based on our review of data published by the United States Geological Survey (USGS), the sedimentary rock formations in Williamson County include shale, sandstone and limestone.

The plant site is situated in a Seismic Zone 2A area, which is not associated with a particular fault. However, we have noted that the New Madrid seismic zone has a documented history of seismic activity, with the northern edge located about 80 miles south of the plant site.

3.4 Hydrology and Hydraulics

It is our understanding that the bottom ash ponds are the only ponds that retain any significant amount of coal-ash residue. Since the bottom ash ponds are incised, hydrologic studies, hydraulic design calculations and assumptions, and impoundment failure analyses do not appear to be warranted for these ponds. Hydrologic and hydraulic studies were not provided for any of the impoundments.

3.5 Geotechnical Considerations

It is our understanding that the bottom ash ponds are the only ponds that retain any significant amount of coal-ash residue. Since the bottom ash ponds are incised, stability of the embankment slopes, including factors of safety, is not a significant consideration in the ability of the ponds to contain coal combustion waste. Similarly, seepage is not a significant consideration since there is no embankment condition to contain the waste. Based on our discussions with SIPCO, we believe that the impoundments were not built over wet ash, slag or other unsuitable materials like TVA.

3.6 Structural Considerations

Structural elements involved with the operation of the ponds include pipe supports for steel intake pipes for Ponds 1 and 2 as well as the outlet structure located near the Little Saline Creek outfall. Ponds 1 and 2 inlet pipes appear to be supported on metal stands that appeared to be weathered, although not to the point of structural failure. The 8 foot by 4 foot concrete and steel structure near the Little Saline Creek outfall appears to be in fair condition. A sluice gate within the structure controls flow out of Pond 4, but was inundated at the time of assessment and could not be observed. Erosion under the catwalk foundation used to access the structure is noticeable, but does not appear to pose an immediate risk to the structure.

3.7 Performance Evaluations

There have been no previous federal or state assessments of the Marion Power Generating Station's Bottom Ash impoundments. Based on observations by Southern Illinois Power Cooperative in their daily visual assessments, and other documents and accounts, there have been no major incidents involving any of the assessed impoundments. Currently Southern Illinois Power Cooperative's local plant personnel perform daily informal assessments of the impoundments and their associated structures while observing plant observations.

3.8 Hazard Classification

The Marion Power Generating Station's bottom ash impoundments are not regulated by any state agency and therefore do not currently have a designated hazard rating. However, due to the potential environmental and economic impacts that a failure at any of these impoundments would present, it is recommended that a hazard classification of "low" be assigned to all of the assessed impoundments. A "Significant Hazard" or "High Hazard" rating was not assigned to the impoundments, as it is not expected that a loss of life situation would not be likely in the event of a failure, as the ponds sit immediately adjacent to Little Saline Creek without any homes, recreational facilities, businesses, roads or other structures immediately downstream of the impoundments. Figure 1 displays critical infrastructure downstream of the impoundments in relation to the Marion Power Generating Station.

As these ponds are incised and impound a relatively small amount of bottom ash, it is expected that any environmental or economic impacts would be minor and most likely restricted to the owner's facility in the event of failure or mis-operation. However, a hazard analysis is needed to determine the hazard classification of the impoundments.

3.9 Site Access

Prior to the Marion Generating Station assessment, permission from the Southern Illinois Power Cooperative to inspect the facility was requested and granted. After arriving at the site, passing through a security checkpoint and meeting with representatives of the Southern Illinois Power Cooperative, we were escorted by facility personnel to assess the impoundments. The impoundments can be accessed by standard car during normal weather conditions via gravel-surfaced roadways on the Marion Power Generating Station property.

The impoundment upstream slopes, crest and outlet works of Ponds 1, 2, and 4 were observed during the May 25, 2011 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 Pond 1 (Bottom Ash Impoundment)

4.1.1 Upstream Slope

Overall, the upstream slope of the impoundment was in fair condition. Photos 11, 12, 14 and 15 in Appendix B show the conditions of the upstream slope. Figure 4 displays the location of where these photographs were taken during the assessment. Specific observations include:

- The upstream slope was laid back at approximately 2H:1V to 2.5H:1V based on visual observations. These observations are consistent with the design drawings that were provided by Southern Illinois Power Cooperative.
- Bottom ash cleanout operations had created bottom ash stockpiles against the upstream slope of the pond in some locations. However, these cleanout operations did not appear to have disturbed the original slopes of the impoundment.
- Vegetated riprap was present in various locations, but did not appear around the entire perimeter of the pond.
- Minor erosion rills, less than 6 inches deep, were noted on some of the upstream slopes.
- Grasses, woody bushes and reeds were observed on the upstream slope for the majority of the impoundment.

4.1.2 Crest

Overall, the crest of the impoundment was in satisfactory condition. Photos 12 and 15 show the condition of the crest. Specific observations include:

- Sparse grasses and bushes were observed on the crest.
- Well established sod was properly maintained on the southern and western portions of the pond.
- No major depressions or rutting was noted on the impoundment crest.

4.1.3 Outlet Works

The outlet works of Pond 1 consist of two pipe penetrations through the western portion of the pond that outlet into Pond 4. These pipes are located in the same location but at different elevations. The elevations of these pipes could not be confirmed as there was no recent survey information available at the time of assessment. In addition, the as built drawings did not reference a specific vertical

datum, or show a second discharge pipe into Pond 4. These pipes are not controlled by valves or gates and do not utilize trash racks. Photo 16 shows the condition of the outlet pipes. Specific observations include:

- The intake location of the lower outlet pipe was not able to be observed as it was inundated at the time of assessment.
- No video monitoring of the pipe was available at the time of assessment.
- Overall, the outlet works system appears to be functioning as intended at this time.

4.1.4 Impoundment Inlet

Inflow into the Pond 1 is via metal piping on the southeastern corner of the impoundment, as well as storm water runoff that flows naturally into the pond. The inlet pipe can be seen in photo 14 of Appendix B. The inlet pipe appears to be in satisfactory condition.

4.2 Pond 2 (Bottom Ash Impoundment)

4.2.1 Upstream Slope

Overall, the upstream slope of the impoundment was in fair condition. Photos 7-10 in Appendix B show the condition of the upstream slope. Specific observations include:

- The upstream slope was laid back at approximately 2H:1V to 2.5H:1V based on visual observations. These observations are consistent with the design drawings that were provided by Southern Illinois Power Cooperative.
- Bottom ash cleanout operations had created bottom ash stockpiles against the upstream slope of the pond in some locations. However, these cleanout operations did not appear to have disturbed the original slopes of the impoundment.
- Vegetated riprap was present in various locations, but did not appear around the entire perimeter of the pond.
- Minor erosion rills, less than 6 inches deep, were noted on some of the upstream slopes.
- Grasses, woody bushes and reeds were observed on the upstream slope for the majority of the impoundment.

4.2.2 Crest

Overall, the crest of the impoundment was in satisfactory condition. Photos 7 and 8 show the condition of the crest. Specific observations include:

- The impoundment crest is an access road.
- Sparse grasses and bushes were observed on the crest.

- No major depressions or rutting was noted on the impoundment crest.

4.2.3 Outlet Works

The outlet works of Pond 2 consist of a single pipe penetration through the western portion of the pond that outlets into Pond 4. This pipe is located near the southwestern corner of the pond. The elevation of this pipe could not be confirmed as there was no recent survey information available at the time of assessment. In addition, the as built drawings did not reference a specific vertical datum. This pipe is not controlled and does not utilize a trash rack. Photo 13 shows the condition of the outlet pipe. Specific observations include:

- During the assessment, the outlet pipe was well above the water surface elevation of the pond and therefore was not flowing.
- No video monitoring of the steel pipe was available at the time of assessment.
- Overall, the outlet pipe appears that it would function as intended if the water surface of the impoundment was at or above its intake elevation.

4.2.4 Impoundment Inlet

Inflow into the Pond 2 is via metal piping on the southeastern corner of the impoundment, as well as storm water runoff that flows naturally into the pond. The inlet pipe can be seen in photos 9 and 10 of Appendix B. The inlet pipe appears to be in satisfactory condition.

4.3 Pond 4 (Bottom Ash Impoundment)

4.3.1 Upstream Slope

Overall, the upstream slope of the impoundment was in satisfactory condition. Photos 21 and 22 in Appendix B show the conditions of the upstream slope. Specific observations include:

- The upstream slope was laid back at approximately 2.5H:1V.
- Mowing had not been completed on the majority of the upstream slope.
- Grasses, bushes and woody debris were observed on the slope.

4.3.2 Crest

Overall, the crest of the impoundment was in satisfactory condition. Photos 17, 18 and 22 show the condition of the crest. Specific observations include:

- The impoundment crest is an access road.
- Well established grasses were observed on the crest.
- No major depressions or rutting was noted on the impoundment crest.

- Mowing operations had taken place around the majority of the crest.

4.3.3 Outlet Works

The outlet works consist of a vertical intake pipe that is located near the northwestern corner of the impoundment, approximately 25 feet toward the center of the pond. At the time of assessment, the intake pipe was inundated, and its size and type could not be confirmed. Photos 22 and 23 show the condition of the outlet pipe. Specific observations include:

- The discharge location of the outlet pipe was not able to be observed as it was inundated at the time of assessment.
- No video monitoring of the pipe was available at the time of assessment.
- Overall, the outlet works system appeared to be functioning as intended at the time of assessment.

4.3.4 Impoundment Inlet

Inflow into Pond 4 is via multiple inlet pipes on the east side of the pond from Ponds 1 and 2, as well as inlet pipes on the west side of the pond from Pond S-6. In addition, storm water runoff flows naturally into the pond from a relatively small drainage basin. Pipes that inlet into Pond 4 are surrounded by riprap to prevent erosion from their discharge. The inlet pipes appeared to be in functional condition. Photos 20 and 21 show the condition of the inlet pipes.

4.4 Other

The outlet structure at the outfall location is comprised of concrete and steel in addition to a sluice gate used to control flow. This structure then discharges water into a riprap lined channel that outlets into the Little Saline Creek. The concrete that is part of this structure is free from major spalling or cracking, and the steel portions of the structure are weathered but in fair condition. Material has eroded from under the concrete access path for this structure, but it appears that access to the structure has not been affected by the erosion. Overall, the structure appeared to be functioning as intended. Photos 24 through 28 show the condition of the structure and its associated components.

It was inquired if any monitoring equipment or assessment records were available for review in relation to the bottom ash impoundments. We understand that monitoring equipment is not in place for the impoundments except for water quality testing purposes. Assessment records related to impoundment safety do not exist for the impoundments.

It was inquired if Southern Illinois Power Cooperative had developed an Emergency Action Plan (EAP) related to a potential failure of the impoundments. We understand that an EAP has not been developed for the site.

It was also inquired if Southern Illinois Power Cooperative had developed an Operation and Maintenance (O&M) Manual for the Marion Power Generating Station impoundments. We understand that an O&M Manual has also not been developed for the site. The above referenced EAP should be part of this O&M Manual, but should be capable of being a stand-alone document.

Photo 1 – Ponds 3A and 3B General Conditions Photograph
May 25, 2011 IL50160

Photo 2 – Pond S-1 General Conditions Photograph
May 25, 2011 IL50160

Photo 3 – Pond S-1 General Conditions Photograph
May 25, 2011 IL50160

Photo 4 – Pond S-2 General Conditions Photograph
May 25, 2011 IL50160

Photo 5 – Pond S-2 General Conditions Photograph
May 25, 2011 IL50160

Photo 6 – Pond S-3 General Conditions Photograph
May 25, 2011 IL50160

Photo 7 – Ash Pond 2 General Conditions Photograph
May 25, 2011 IL50160

Photo 8 – Ash Pond 2 General Conditions Photograph
May 25, 2011 IL50160

Photo 9 – Ash Pond 2 Inlet Sluice Pipe
May 25, 2011 IL50160

Photo 10 – Ash Pond 2 Inlet Sluice Pipe
May 25, 2011 IL50160

Photo 11 – Ash Pond 1 General Conditions Photograph
May 25, 2011 IL50160

Photo 12 – Ash Pond 1 General Conditions Photograph
May 25, 2011 IL50160

Photo 13 – Ash Pond 2 Discharge Pipe into Ash Pond 4
May 25, 2011 IL50160

Photo 14 – Ash Pond 1 General Conditions Photograph (Note Inlet Sluice Pipe)
May 25, 2011 IL50160

Photo 15 – Ash Pond 1 General Conditions Photograph
May 25, 2011 IL50160

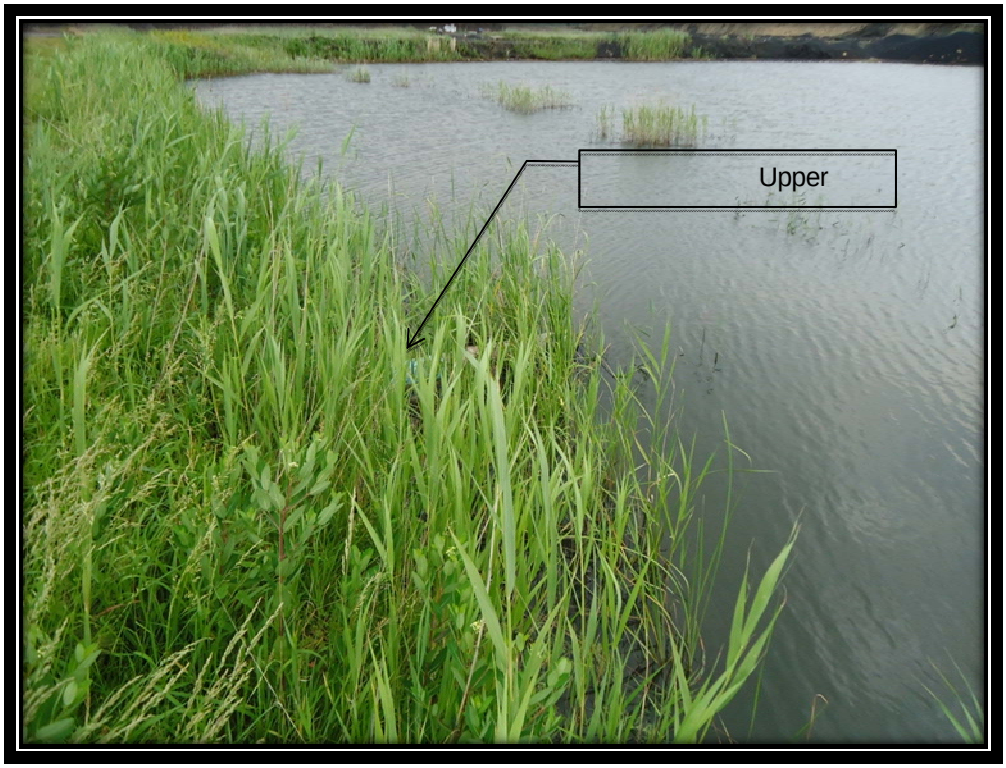

Photo 16 – Ash Pond 1 Upper Discharge Pipe into Pond 4
May 25, 2011 IL50160

Photo 17 – Pond 4 General Conditions Photograph
May 25, 2011 IL50160

Photo 18 – Pond 4 General Conditions Photograph
May 25, 2011 IL50160

Photo 19 – Pond 4 General Conditions Photograph
May 25, 2011 IL50160

Photo 20 – Discharge Pipe from Ash Pond 1 into Pond 4
May 25, 2011 IL50160

Photo 21 – Discharge Pipe from Ash Pond 2 into Pond 4
May 25, 2011 IL50160

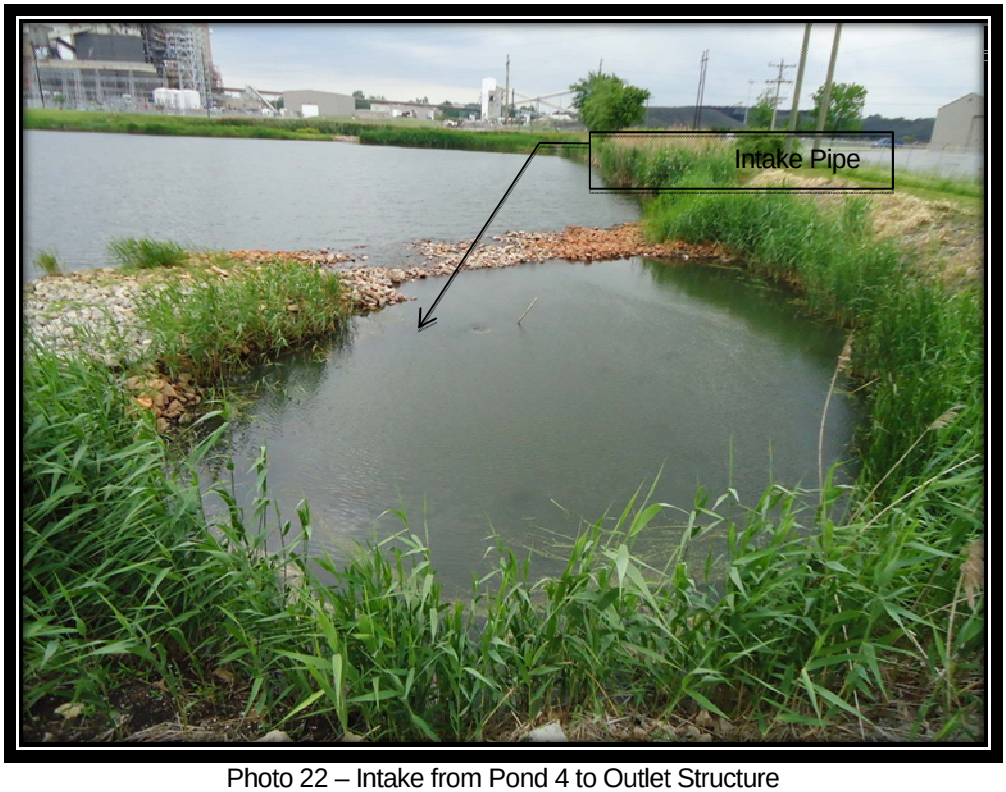

Photo 22 – Intake from Pond 4 to Outlet Structure
May 25, 2011 IL50160

Photo 23 – Intake from Pond 4 to Outlet Structure (note submerged pipe)
May 25, 2011 IL50160

Photo 24 – Outlet Structure from Ash Pond 4
May 25, 2011 IL50160

Photo 25 – Outlet Structure from Ash Pond 4
May 25, 2011 IL50160

Photo 26 – Outlet Structure from Ash Pond 4
May 25, 2011 IL50160

Photo 27 – Corrugated Metal Pipe under Access Road Leading to Outfall Downstream of Pond 4
May 25, 2011 IL50160

Photo 28 – Corrugated Metal Pipe Outfall from Ash Ponds to the South Fork of Little Saline Creek
May 25, 2011 IL50160

5.1 Analysis and Conclusions

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

Safety of the Impoundments including Maintenance and Methods of Operation

We understand 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. In light of this situation, we have noted items as follows that present some concern in this regard:

- 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)
- We understand that an Operation and Maintenance (O&M) Manual is not currently in place for the impoundments. Developing an O&M manual which includes a section that discusses the safety assessment and monitoring program would be recommended to standardize safety assessment and monitoring practice.

Changes in Design or Operation of the Impoundments following Initial Construction

We are not aware of significant changes in the design or operation of the impoundments that have been implemented.

Structural Stability of the Impoundments

The structural stability of the management units was evaluated. Since the units are incised with no embankments, structural stability appears to be adequate.

Adequacy of Program for Monitoring Performance of the Impoundments

The present monitoring program primarily involves daily visual assessments by plant personnel on an informal basis. These visual assessments seem to be adequate to address issues such as surface erosion and general condition of the impoundments.

5.2 Summary Statement

I acknowledge that the management unit(s) referenced herein:

- Pond 1 (Bottom Ash Impoundment)
- Pond 2 (Bottom Ash Impoundment)
- Pond 4 (Bottom Ash Impoundment)

were personally assessed by me and found to be in the following condition:

SATISFACTORY

Signature: _____ Date: _____

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

6.1 Priority 1 Recommendations

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

1. **Prepare an emergency action plan (EAP) for the impoundments by 6/1/2012.** An EAP should be prepared for Ponds 1, 2 and 4 as well as any other pertinent features related to the impoundments.

2. **Perform video assessments of culvert piping by 6/1/2012.** Culvert piping used to transfer water between the various ash ponds as well as the discharge pipe from Ash Pond 4 to the unnamed creek outfall location consist of a variety of materials. These materials include, among others, corrugated metal pipe and iron pipe. Visible portions of these pipes show signs of extensive corrosion and damage. As these pipe are either past or nearing the end of their life expectancy, a video assessment should be performed of all culvert pipes to determine their effectiveness and if remedial actions are necessary.

3. **Perform repairs to the eroded soil and riprap under the catwalk foundation at the Little Saline Creek outfall by 6/1/2012 (see Photo 24).**

6.2 Priority 2 Recommendations

1. **Develop an Operation and Maintenance (O&M) manual for the impoundments by 6/1/2012.** 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, outlet pipe degradation and surface water elevation monitoring.
   - The EAP
2. **Maintain a log of maintenance and other activities at Ponds 1, 2 and 4 and supporting facilities by 6/1/2012.** This log should provide continuity during periods of staff change.
3. **Control vegetation on the upstream slopes as well as in the ponds by 6/1/2012.** 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 Definitions

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

Priority 2 Recommendation: Priority 2 Recommendations where action is needed or required to prevent or reduce further impound 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 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 a 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 a 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 impoundmentage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential 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 a 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, a 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 New Jersey Department of Environmental Protection Impoundment Safety Guidelines for the Assessment of Existing Impoundments (January 2008), 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 management unit 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 dam safety regulatory criteria. Remedial action is necessary. POOR also applies when further critical studies or investigations are needed to identify any potential dam safety deficiencies.

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

*the term expected is to be defined as likely

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, operational integrity of a facility, and that may threaten the safety of the impoundment.

Priority 2 Recommendations: Priority 2 Recommendations where action is needed or required to prevent or reduce further impoundment 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.

- Burns and McDonnell Engineering Company, Ponds 1 & 2 Bottom Ash Plan & Elevation, March 22, 1962

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

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

- Southern Illinois Power Cooperative, North Pond Disposal Area Site Plan Underground Utilities Drawing, March 17, 2003

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

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

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

SECTION 9 – LIMITATIONS

The scope of this work is for a preliminary screening for the EPA and plant owner/operator of the visible performance and apparent stability of the impoundment embankments based only on the observable surface features and information provided by the owner/operator. Other features below the ground surface may exist or may be obscured by vegetation, water, debris, or other features that could not be identified and reported. This site assessment and report were performed without the benefit of any soil drilling, sampling, or testing of the subsurface materials, calculations of capacities, quantities, or stability, or any other engineering analyses. The purpose of this assessment is to provide information to the EPA and the plant owner/operator about recommended actions and/or studies that need to be performed to document the stability and safety of the impoundments.

This work was performed by qualified personnel in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession, practicing in the same locality, under similar conditions, and at the date the services are provided. Kleinfelder's conclusions, opinions, and recommendations are based on a limited number of observations. It is possible that conditions could vary between or beyond the observations made. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided. Kleinfelder makes no warranty or guaranty of future embankment stability or safety.

This report may be used only by the client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance but in no event later than one (1) year from the date of the report.

The information, included on graphic representations in this report, has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, expressed or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. These documents are not intended for use as a land survey product nor are they designed or intended as a construction design document. The use or misuse of the information contained on these graphic representations is at the sole risk of the party using or misusing the information.

Recommendations contained in this report are based on preliminary field observations without the benefit of subsurface explorations, laboratory tests, or detailed knowledge of the existing construction. If the scope of the proposed recommendations changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed and the conclusions of this report are modified or approved in writing by Kleinfelder. Kleinfelder cannot be responsible for interpretation by others of this report or the conditions encountered in the field.

AERIAL IMAGE

NTS

IMAGE SOURCE: GOOGLE EARTH PRO - IMAGE DATE 06/28/2009

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www.kleinfelder.com

PROJECT NO.	118953
DATE:	06/24/2011
DRAWN BY:	MAG
CHECKED BY:	BDH
FILE NAME:	

MARION POWER STATION
VICINITY MAP

MARION POWER GENERATING STATION
11543 LAKE OF EGYPT ROAD
MARION, IL 62959

FIGURE

1

16 Jun 2011, 1:32pm, MGardella

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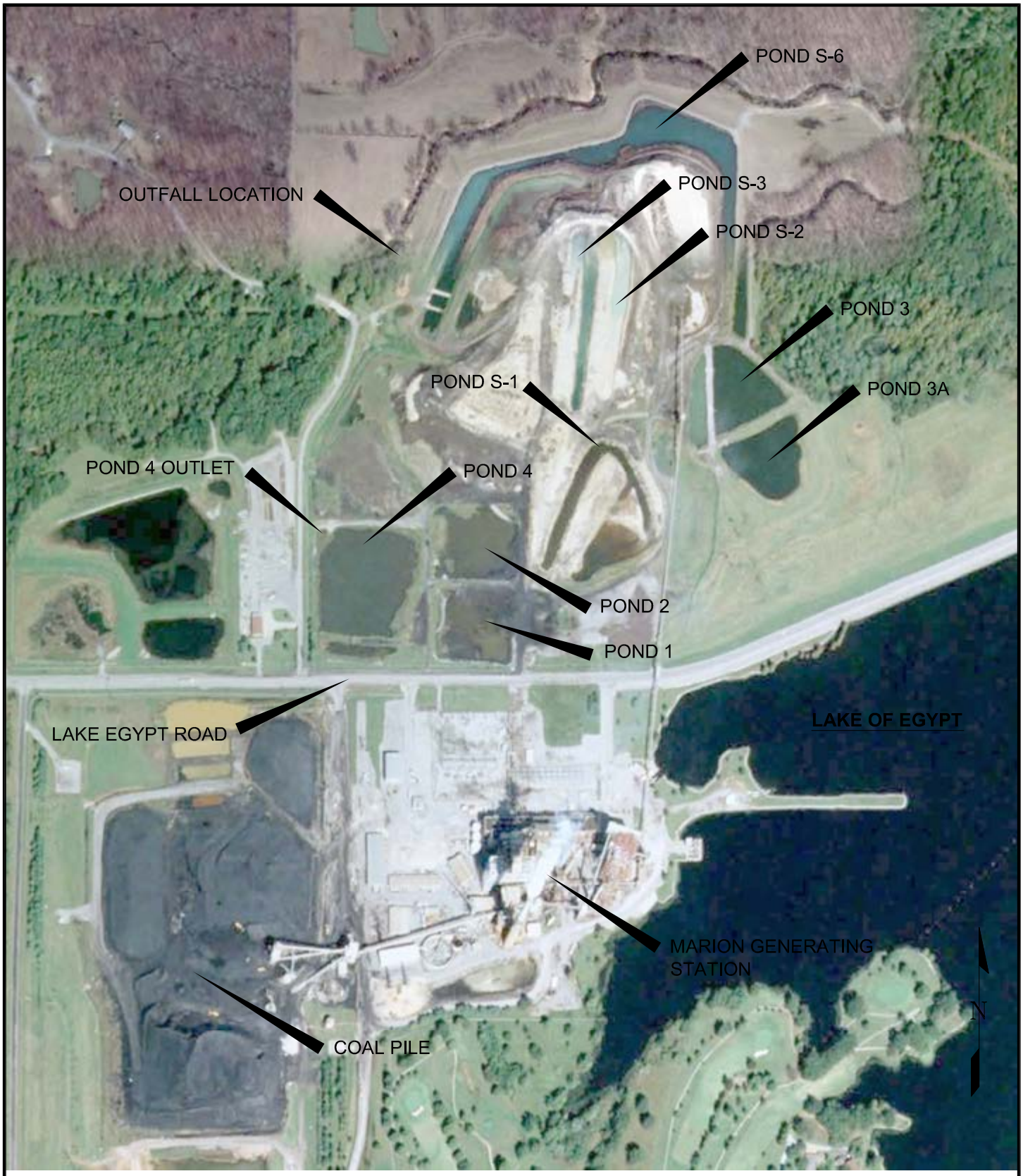

AERIAL IMAGE

NTS

IMAGE SOURCE: GOOGLE EARTH PRO - IMAGE DATE 06/28/2009

KLEINFELDER
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PROJECT NO.	118953
DATE:	06/24/2011
DRAWN BY:	MAG
CHECKED BY:	BDH
FILE NAME:	

MARION POWER STATION
AERIAL LOCATION MAP

MARION POWER GENERATING STATION
11543 LAKE OF EGYPT ROAD
MARION, IL 62959

FIGURE
2

16 Jun 2011, 1:31pm, MGardella

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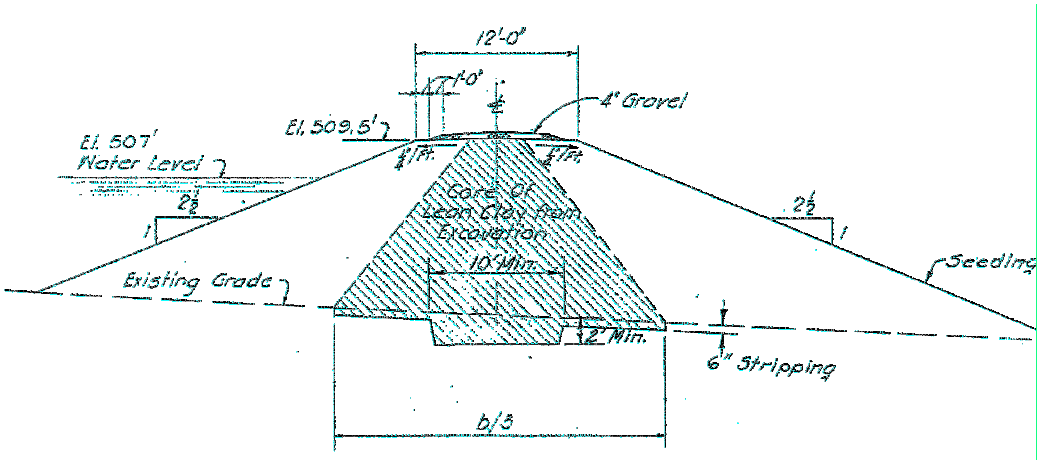
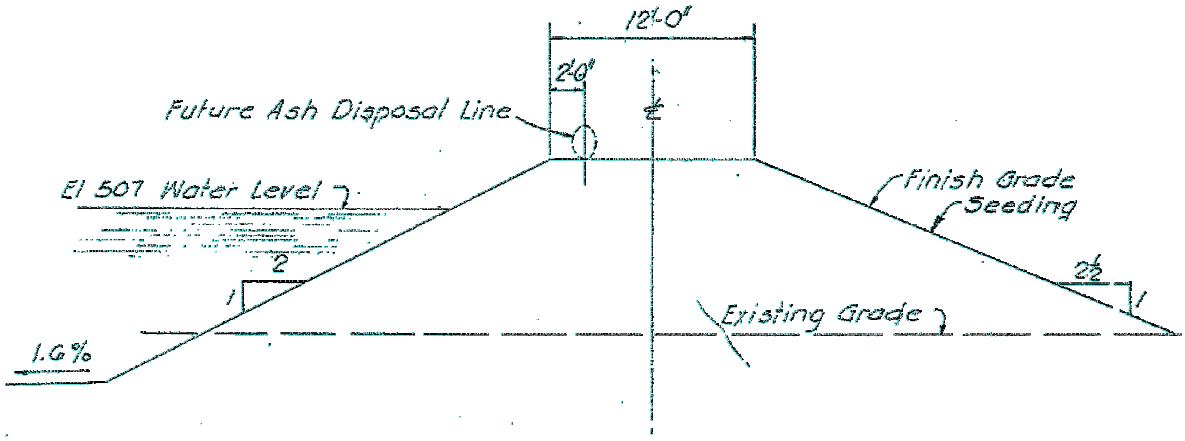


TYPICAL EMBANKMENT SECTION - EMBANKMENT SEPARATING ASH POND 1 AND 2



TYPICAL EMBANKMENT SECTION - OUTER EMBANKMENT ASH POND 1 AND 2

NTS

IMAGE SOURCES:
BURNS AND McDONNELL ENGINEERING CO. - PONDS 1 & 2 BOTTOM ASH PLAN & ELEVATION- SHEET 30 - 07/05/62

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DATE:	06/24/2011
DRAWN BY:	MAG
CHECKED BY:	BDH
FILE NAME:	

TYPICAL CROSS SECTION ASH PONDS

MARION POWER GENERATING STATION
11543 LAKE OF EGYPT ROAD
MARION, IL 62959

FIGURE
3

16 Jun 2011, 1:30pm, MGardella

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ATTACHED IMAGES: Images: General Landfill Area.jpg
ATTACHED XREFS:
Den-L:\2008\95399 CAD FILE: S:\118953 EPA Ash Ponds Round 10\Marion\Figures\ LAYOUT: General (2)

IMAGE SOURCE: GOOGLE EARTH PRO – IMAGE DATE 06/28/2009

FIGURE 4
1 of 1 sheets

SCALE: NTS
DATE: 06/24/2011
CHECKED BY: B. HAVENS
DRAWN BY: M. GARDELLA
DESIGNED BY: N/A

PHOTO PLAN OF INSPECTION POINTS - GENERAL FACILITY

MARION POWER GENERATING STATION
11543 LAKE OF EGYPT ROAD
MARION, IL 62959

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

PROJ. NO. 118953
ACAD FILE: Marion Figure 4.dwg

NO.	REVISION	BY	DATE
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0	-	–	–
0	-	–	–
0	-	–	–

PLOTTED: 16 Jun 2011, 1:29pm, MGardella

Appendix A

Site assessment Evaluation Checklists

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: MARION GENERATING STATION Date: 05/25/2011

Unit Name: ASH POND 1 Operator's Name: SOUTHERN ILLINOIS POWER COOP

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

Inspector's Name: BRIAN HAVENS AND 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?	DAILY BUT UNDOCUMENTED		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	504.2'		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	505.5'		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)?	~509.5'		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	N/A	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?	N/A	N/A	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?	N/A	N/A	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?	N/A	N/A INCISED
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
2, 3, 5	POOL ELEVATION TAKEN FROM PLANT SURVEY DRAWINGS AND WAS NOT POSSIBLE TO MEASURE AT TIME TIME OF INSPECTION.
9	SMALL TREES 1"-2" DIAMETER PRESENT ON INTERAL SLOPES.

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # IL 0004316 INSPECTOR BRIAN HAVENS
MATT GARDELLA

Date 05/25/2011

Impoundment Name ASH POND 1

Impoundment Company SOUTHERN ILLINOIS POWER CO-OP

EPA Region 5

State Agency (Field Office) Addresss 2309 WEST MAIN STREET
MARION, IL 62959

Name of Impoundment ASH POND 1
(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: SETTLING POND FOR BOTTOM ASH

Nearest Downstream Town : Name CRETAL SPRINGS, IL

Distance from the impoundment ~6 MILES

Impoundment Location: Longitude 88 Degrees 57 Minutes 14 Seconds
Latitude 37 Degrees 37 Minutes 21 Seconds
State ILLINOIS County WILLIAMSON

Does a state agency regulate this impoundment? YES _____ NO x (DAM SAFETY NOT MONITORED, ONLY DISCHARGE)

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.

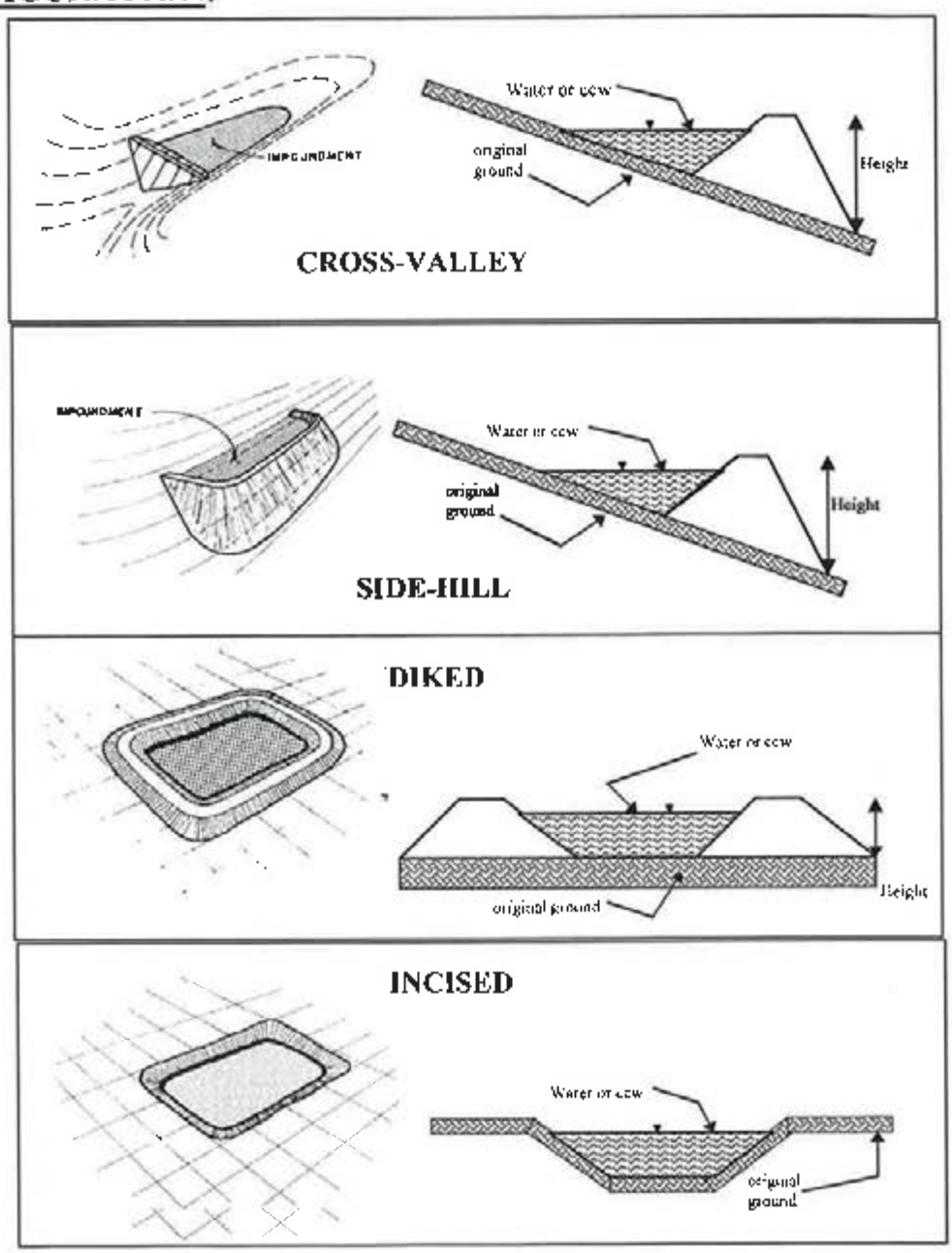
_____ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. 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:

POND IS INUSED AND FAILURE IS NOT A LIKELY PROBABILITY. MISOPERATION) COULD OVERFILL PONDS 1 & 2 WITH SLURRY. THIS WOULD LIKELY RESULT IN PONDS 1 & 2 OVERTOPPING INTO POND 4 WHICH WOULD THEN HAVE TO FILL AND OVERTOP BEFORE ENVIRONMENTAL OR ECONOMIC IMPACTS WOULD BE SEEN. THERE ARE NO FACILITIES LOCATED ADJACENT TO THE IMPOUNDMENTS THAT WOULD LIKELY POSE A LOSS OF LIFE CIRCUMSTANCE IN THE EVENT OF MISOPERATION/FAILURE. DAMAGE IN THE CASE OF MISOPERATION/ FAILURE WOULD LIKELY BE CONTAINED TO JUST THE OWNERS PROPERTY. IT IS OUR UNDERSTANDING THAT THE IMPOUNDMENTS WERE NOT CONSTRUCTED OVER WET ASH, SLAG, OR OTHER UNSUITABLE MATERIALS SIMILAR TO THE KINGSTON THE SITE.

CONFIGURATION:



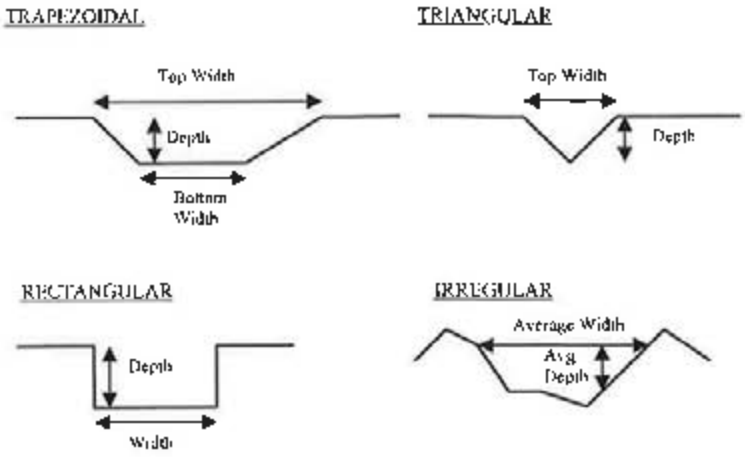
_____ Cross-Valley
_____ Side-Hill
_____ Diked
__X__ Incised (form completion optional)
_____ Combination Incised/Diked

Embankment Height N/A feet
Pool Area ~1.75 acres
Current Freeboard 5 feet
Embankment Material _____
Liner UNKNOWN
Liner Permeability UNKNOWN

TYPE OF OUTLET (Mark all that apply)

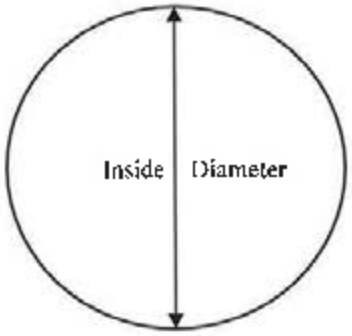
N/A **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Rectangular
_____ Irregular

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



K **Outlet**

~18" inside diameter



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

_____

Is water flowing through the outlet? YES X NO _____

N/A **No Outlet**

_____

X **Other Type of Outlet** (specify) ~12" PLASTIC PIPE USED AS SECOND OUTLET ABOVE LOWER 18" PIPE

The Impoundment was Designed By BURNS & MCDONNELL ENGINEERING

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: MARION GENERATING STATION Date: 05/25/2011

Unit Name: ASH POND 2 Operator's Name: SOUTHERN ILLINOIS POWER CO-OP

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?	DAILY BUT UNDOCUMENTED		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	502.0'		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	505.5		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)?	509.5		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	N/A	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?	N/A	N/A	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, grain or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?	N/A	N/A	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?	N/A	N/A INCISED
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
2, 3, 5	POOL ELEV. TAKEN FROM PLANT SURVEY DRAWINGS AND WAS NOT POSSIBLE TO MEASURE AT THE TIME OF INSPECTION
9	SMALL TREES/BRUSH PRESENT 1"-2" DIAMETER ON INTERNAL SLOPES

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # IL 0004316 INSPECTOR BRIAN HANDS
MATT GARDECKA

Date 05/25/2011

Impoundment Name ASH POND 2

Impoundment Company SOUTHERN ILLINOIS POWER CO-OP

EPA Region 5

State Agency (Field Office) Address 2309 WEST MAIN STREET
MARION, IL 62959

Name of Impoundment ASH POND 2

(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: SETTLING POND FOR BOTTOM ASH

Nearest Downstream Town : Name CRAIG SPRINGS, IL

Distance from the impoundment ~6 MILES

Impoundment Location:
Longitude 88 Degrees 57 Minutes 14 Seconds
Latitude 37 Degrees 37 Minutes 24 Seconds
State ILLINOIS County WILLIAMSON

Does a state agency regulate this impoundment? YES _____ NO X (DAM SAFETY NOT MONITORED, ONLY DISCHARGE)

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.

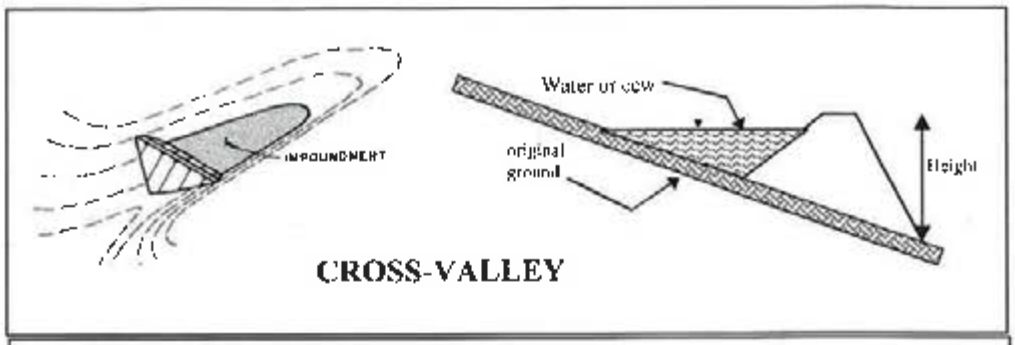
_____ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. 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.

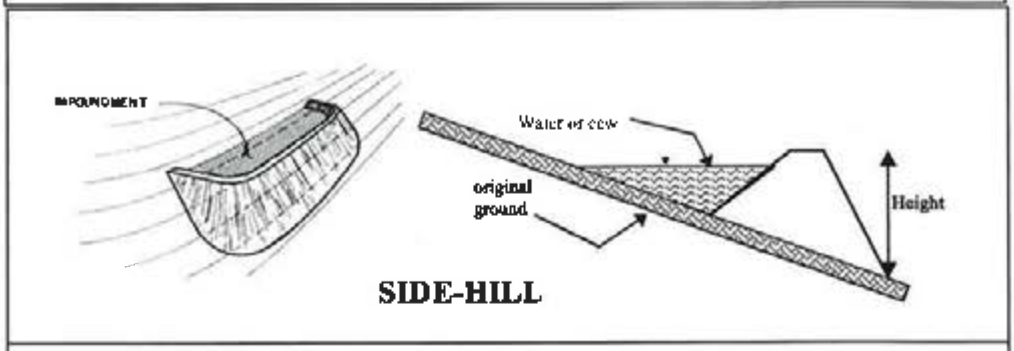
_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

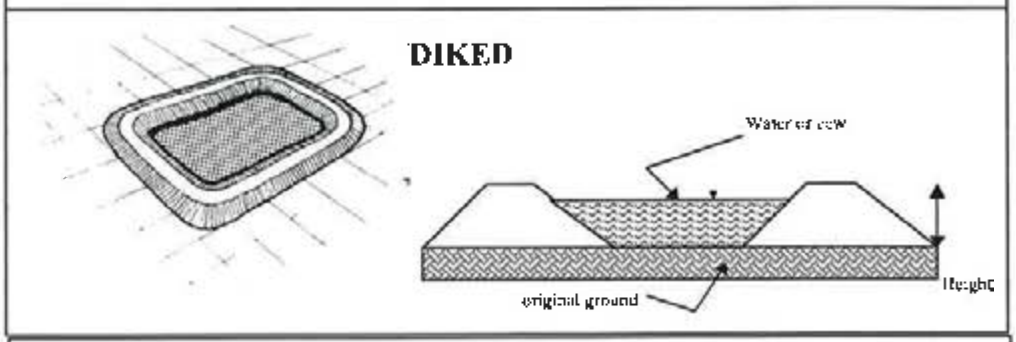
DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

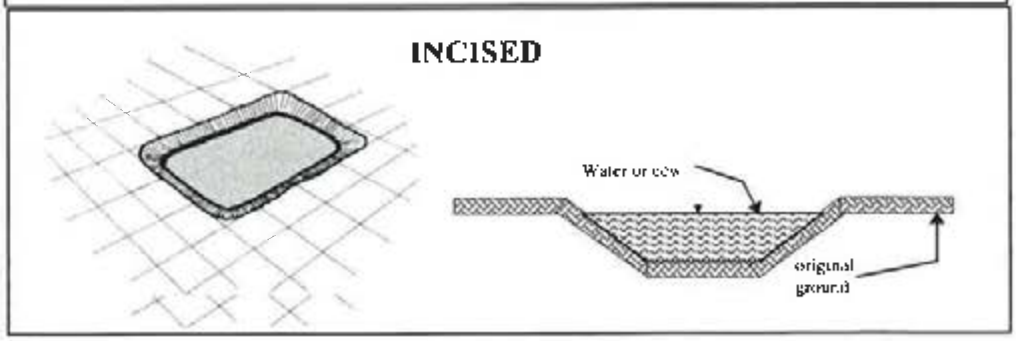
POND IS INCISED AND FAILURE IS NOT A LIKELY PROBABILITY. MISOPERATION WOULD OVERFILL PONDS 1&2 WITH SLURRY. THIS WOULD LIKELY RESULT IN PONDS 1&2 OVERTOPPING INTO POND 4 WHICH WOULD THEN HAVE TO FILL AND OVERTOP BEFORE ENVIRONMENTAL OR ECONOMIC IMPACTS WOULD BE SEEN. THERE ARE NO FACILITIES LOCATED ADJACENT THE THE IMPOUNDMENTS THAT WOULD LIKELY POSE A LOSS OF LIFE CIRCUMSTANCE IN THE EVENT OF MISOPERATION/FAILURE. DAMAGE IN THE CASE OF MISOPERATION/FAILURE WOULD LIKELY BE CONTAINED TO THE OWNERS PROPERTY. IT IS OUR UNDERSTANDING THAT THE IMPOUNDMENTS WERE NOT CONSTRUCTED OVER WET ASH, SLAG, OR OTHER UNSUITABLE MATERIALS SIMILAR TO THE KINGSTON TVA SITE.

CONFIGURATION:









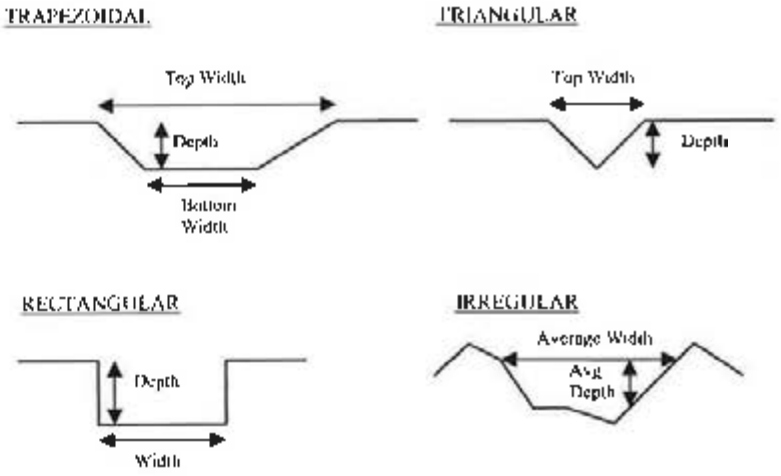
_____ Cross-Valley
_____ Side-Hill
_____ Diked
__X__ Incised (form completion optional)
_____ Combination Incised/Diked

Embankment Height N/A feet Embankment Material _____
Pool Area ~ 2 acres Liner UNKNOWN
Current Freeboard 5 feet Liner Permeability UNKNOWN

TYPE OF OUTLET (Mark all that apply)

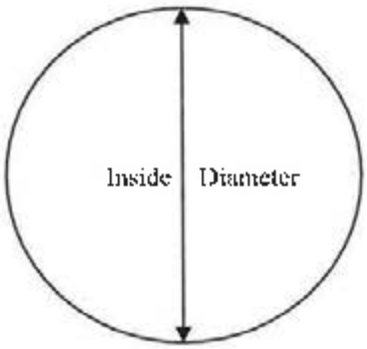
N/A **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Rectangular
_____ Irregular

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



X **Outlet**

~12" inside diameter



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

_____

Is water flowing through the outlet? YES _____ NO X

N/A **No Outlet**

_____

N/A **Other Type of Outlet** (specify) _____

The Impoundment was Designed By BURNS & MACDONNELL ENGINEERING

_____

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 ✓

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: MARION GENERATING STATION Date: 05/25/2011

Unit Name: POND 4 Operator's Name: SOUTHERN ILLINOIS POWER CO-OP

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

Inspector's Name: BRIAN HAVENS + MATT GARDECA

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?	DAILY BUT UNDOCUMENTED		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	502		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	UNKNOWN		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)?	504.8		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	N/A	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)?	UNKNOWN		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?	N/A	N/A	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?	N/A	N/A	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?	N/A	N/A INCISED
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
2, 3, 5	POOL ELEV. TAKEN FROM PLANT SURVEY DRAWINGS AND WAS NOT POSSIBLE TO MEASURE AT TIME OF INSPECTION

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # IL 0004316 INSPECTOR BRIAN HAVENS
MATT GARDELLA

Date 05/25/2011

Impoundment Name POND A

Impoundment Company SOUTHERN ILLINOIS POWER CO-OP

EPA Region 5

State Agency (Field Office) Addresss 2309 WEST MAIN STREET
MARION, IL 62959

Name of Impoundment POND A
(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: CLARIFICATION POND FOR ASH PONDS 1 & 2 PRIOR TO DISCHARGE

Nearest Downstream Town : Name CRAB ORCHARD, IL

Distance from the impoundment APPROXIMATELY 6 MILES

Impoundment Location: Longitude 88 Degrees 57 Minutes 19 Seconds
Latitude 37 Degrees 37 Minutes 22 Seconds
State ILLINOIS County WILLIAMSON

Does a state agency regulate this impoundment? YES _____ NO X (DAM SAFETY NOT MONITORED, ONLY DISCHARGE)

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.

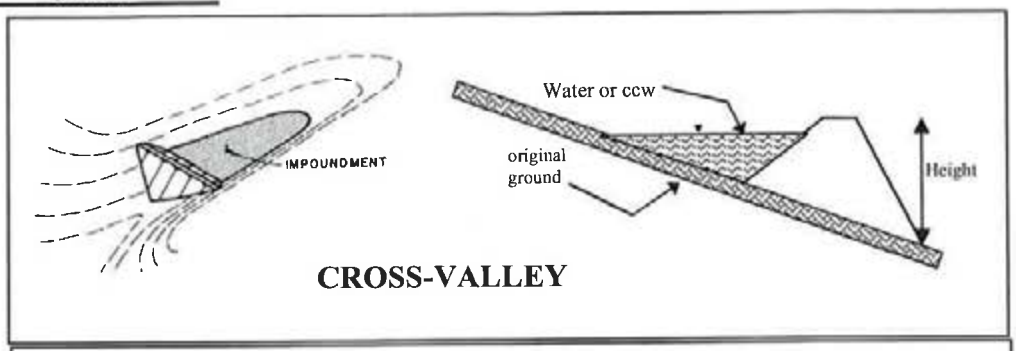
_____ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. 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.

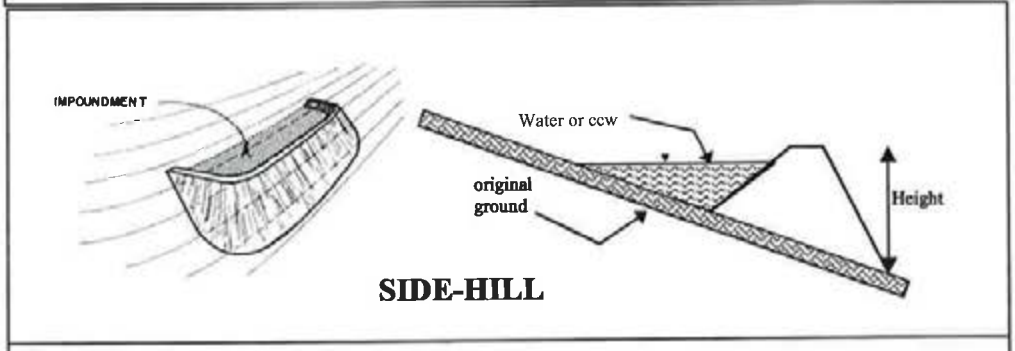
DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

POND IS INCISED AND FAILURE IS NOT A LIKELY PROBABILITY. MISOPERATION COULD OVERFILL PONDS 1 & 2 WITH SLURRY. THIS WOULD LIKELY RESULT IN PONDS 1 & 2 OVERTOPPING INTO POND 4 WHICH WOULD THEN HAVE TO FILL AND OVERTOP BEFORE ENVIRONMENTAL OR ECONOMIC IMPACTS WOULD BE SEEN. THERE ARE NO FACILITIES LOCATED ADJACENT TO THE IMPOUNDMENTS THAT WOULD LIKELY POSE A LOSS OF LIFE CIRCUMSTANCE IN THE EVENT OF MISOPERATION/FAILURE. DAMAGE IN THE CASE OF MISOPERATION/FAILURE WOULD LIKELY BE CONTAINED ON THE OWNERS PROPERTY. IT IS OUR UNDERSTANDING THAT THE IMPOUNDMENTS WERE NOT CONSTRUCTED OVER WET ASH, SLAG OR OTHER UNSUITABLE MATERIALS SIMILAR TO THE KINGSTON TVA SITE.

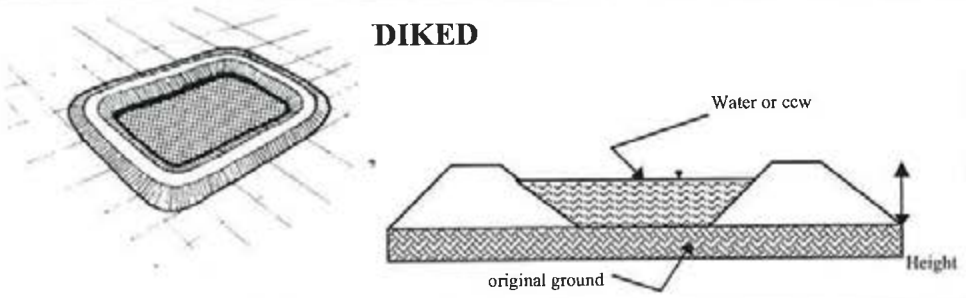
CONFIGURATION:



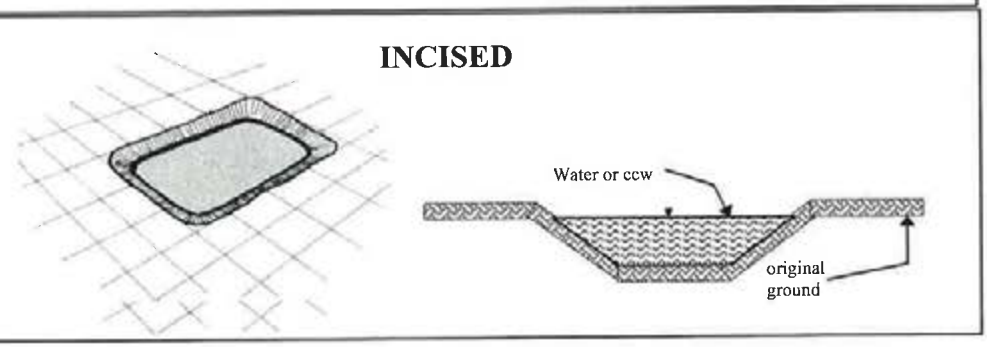
CROSS-VALLEY



SIDE-HILL



DIKED



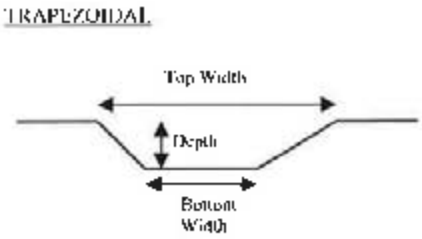
INCISED

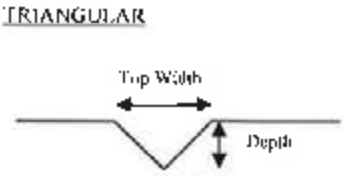
_____ Cross-Valley
_____ Side-Hill
_____ Diked
__X__ Incised (form completion optional)
_____ Combination Incised/Diked

Embankment Height N/A feet
Pool Area ~ 4.2 acres
Current Freeboard ~ 5 feet
Embankment Material _____
Liner unknown
Liner Permeability unknown

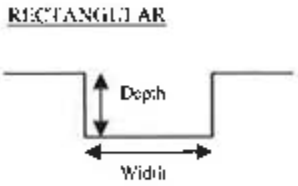
TYPE OF OUTLET (Mark all that apply)

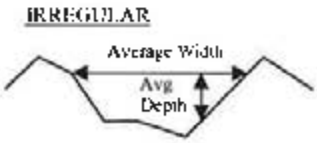
N/A **Open Channel Spillway**
___ Trapezoidal
___ Triangular
___ Rectangular
___ Irregular





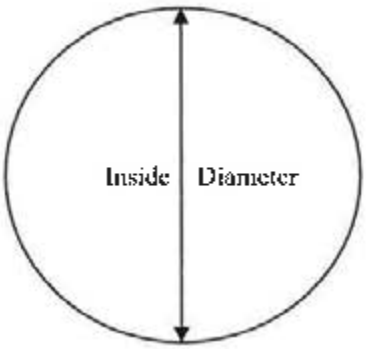
___ depth
___ bottom (or average) width
___ top width





X **Outlet**

-24" inside diameter



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

Is water flowing through the outlet? YES X NO ___

N/A **No Outlet**

N/A **Other Type of Outlet** (specify) _____

The Impoundment was Designed By unknown

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 : _____

Appendix B

Response Letter to the EPA's Request for Information

Southern Illinois Power Cooperative

11543 Lake of Egypt Road
Marion, IL 62959
(618) 964-1448 Fax (618) 964-1867

January 5, 2011

Mr. Craig Dufficy

US Environmental Protection Agency

Two Potomac Yard

Washington, DC 20460

RE: Information Request Regarding Surface Impoundments at the Marion Plant

Dear Mr. Dufficy,

Enclosed you will find the information requested by USEPA pertaining to surface impoundments at the Marion Plant. Should you have any questions regarding the enclosed material or if more information is needed, please feel free to contact me.

Sincerely,

Jason A. McLaurin

Jason McLaurin

Environmental Coordinator

618-964-2446

SOUTHERN ILLINOIS POWER COOPERATIVE IMPOUNDMENT INFORMATION

SOUTH FLY ASH POND DAM

1. Rated as a Class III damn. (Low Hazard Potential)
2. Built in 1979
3. Receives residuals from flue gas emission controls.
4. Designed by Burns & McDonnell.
5. Class III dams are required to inspected every 5 years by a professional engineer. Licensed engineers from Clarida & Ziegler Engineering Company in Marion, IL perform the required inspections on this damn.
6. NO State or Federal safety inspections have been performed on this damn. All necessary operation and safety inspections have been performed by Clarida & Ziegler Engineering Company.
7. See answer #6.
8. This impoundment is roughly 10 acres in size and has a holding capacity of 103 Acre feet or roughly 34,000,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

FLY ASH DISPOSAL POND B-3 DAM

1. Rated as a Class III damn. (Low Hazard Potential)
2. Built in 1979
3. Receives residuals from flue gas emission controls
4. Designed by Burns & McDonnell
5. Class III dams are required to be inspected every 5 years by a professional engineer. Licensed engineers from Clarida & Ziegler Engineering Company in Marion, IL perform the required inspections on this damn.
6. NO State or Federal safety inspections have been performed on this damn. All necessary operation and safety inspections have been performed by Clarida & Ziegler Engineering Company.
7. See answer #6.
8. This impoundment has a holding capacity of 45 Acre feet or roughly 14,550,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND A-1

1. No hazard rating.
2. Built in 1979
3. Receives residuals from flue gas emission controls.
4. Designed by Burns & McDonnell.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 32 Acre feet or roughly 10,500,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND 4

1. No hazard rating.
2. Built in 1979
3. Receives residuals from flue gas emission controls and over flow water from bottom ash (boiler slag) holding ponds.
4. Designed by Burns & McDonnell.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 55 Acre feet or roughly 18,100,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND 1

1. No hazard rating.
2. Built in 1979
3. Receives bottom ash (boiler slag) slurry water.

4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 9 Acre feet or roughly 3,000,000 gallons. Bottom Ash (Boiler Slag) is temporally stored in pond before being removed for beneficial use.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND 2

1. No hazard rating.
2. Built in 1979
3. Receives bottom ash (boiler slag) slurry water.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 15 Acre feet or roughly 5,000,000 gallons. Bottom Ash (Boiler Slag) is temporally stored in pond before being removed for beneficial use.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND S -1

1. No hazard rating.
2. Built in 1996
3. Receives residuals from flue gas emission controls.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 71 Acre feet or roughly 23,000,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND 3

1. No hazard rating.
2. Built in 1979
3. Receives residuals from flue gas emission controls.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 20 Acre feet or roughly 6,600,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND 3A

1. No hazard rating.
2. Built in 1992
3. Receives residuals from flue gas emission controls.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 20 Acre feet or roughly 6,600,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND 3

1. No hazard rating.
2. Built in 1979
3. Receives residuals from flue gas emission controls.
4. Designed by Burns & McDonnell.
5. N/A.
6. N/A.
7. See answer #6.

8. This impoundment has a holding capacity of roughly 20 Acre feet or roughly 6,600,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND S - 6

1. No hazard rating.
2. Built in 1988.
3. Receives residuals from flue gas emission controls.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 16 Acre feet or roughly 5,300,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND S - 2

1. No hazard rating.
2. Built in 1996
3. Receives residuals from flue gas emission controls.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 25 Acre feet or roughly 8,200,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

POND S-3

1. No hazard rating.
2. Built in 1996
3. Receives residuals from flue gas emission controls.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 20 Acre feet or roughly 6,600,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

COAL HANDLING PONDS

1. No hazard rating.
2. Built in 1979
3. Receives residuals from flue gas emission controls.
4. N/A.
5. N/A.
6. N/A.
7. See answer #6.
8. This impoundment has a holding capacity of roughly 7 Acre feet or roughly 2,300,000 gallons. The impoundment is part of SIPC's permitted NPDES settling pond system and no material permanently stored in it.
9. No spills or unpermitted releases have occurred in the pond within the last ten years.
10. Southern Illinois Power Cooperative owns and operates this impoundment.

Southern Illinois Power Cooerative Pond Information
Jason McLaurin
to:
Jana Englander
03/02/2011 11:13 AM
Show Details

Ms. Englander,

Below you should find the information you were requesting. Should you have any additional questions, please let me know.

Pond Name and Height of the Management Unit.
South Fly Ash Pond = 23' (Feet)
Fly Ash Disposal Pond B-3 = 38'
Pond A-1 = 25'
Pond 4 = 0
Pond 1 = 0
Pond 2 = 0
Pond S-1 = 0
Pond 3 = 24'
Pond 3A = 0
Pond S – 6 = 10'
Pond S-2 = 0
Pond S-3 = 0 Feet
Coal Handling Ponds = 0

Please let me know you received this e-mail. (For some reason I have been getting an automated return)

Sincerely,

Jason McLaurin
Southern Illinois Power Cooperative

GB

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 22 2010

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

Approved OMB 2020-0003
Approval Expires 12/31/2010

Via CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Mr. Greg Bain
Manager, Plant Operations
Southern Illionois Power Cooperative Power
11543 Lake of Egypt Road
Marion, Illionois 62959-8500

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

Dear Mr. Greg Bain,

The United States Environmental Protection Agency is requesting 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.

EPA is requesting this information pursuant to the authority granted to it under Section 104 (e) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. 9604(e) which provides in relevant part that whenever the Agency has reason to believe that there may be a release or a threat of a release of a pollutant or contaminant, they may require any person who has or may have information to furnish information or documents relating to the matter, including the identification, nature, and quantity of materials which have been or are generated, treated, stored or disposed at the facility and the nature or extent of a release or a threatened release. EPA believes that the information requested is essential to an evaluation of the threat of releases of pollutants or contaminants from these units.

EPA hereby requires that you furnish to EPA, within ten (10) business days of receipt of this letter a response to each request for information set forth in Enclosure A, including all documents responsive to such request.

Please provide a full and complete response to each request for information set forth in Enclosure A. The provisions of Section 104 of CERCLA authorize EPA to pursue penalties for failure to comply with or respond adequately to an information request under Section 104(e). In addition, providing false, fictitious or fraudulent statements or representations may subject you to criminal penalties under 18 U.S.C. 1001.

Your response must include the following certification signed and dated by an authorized representative of Southern Illionois Power Cooperative Power.

> 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.
>
> Signature: [signature]
> Name: LEONARD F. HOPKINS, P.E.
> Title: FUEL & COMPLIANCE MANAGER

This request has been reviewed and approved by the Office of Management and Budget pursuant to the Paperwork Reduction Act, 44 U.S.C., 3501-3520.

Please send your reply to:

Mr. Craig Dufficy
US Environmental Protection Agency (5304P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

If you are using overnight or hand delivery mail, please use the following address:

Mr. Craig Dufficy
US Environmental Protection Agency
Two Potomac Yard

Appendix C

Documents Provided for Review -
Ponds 1 & 2 Bottom Ash Plan & Elevation - March 1962

INSPECTION REPORT

FOR THE

SOUTH FLY ASH POND DAM

IDNR-OWR PERMIT NO. 19403
DAM I.D. NO. IL50100

DECEMBER, 2008

LOCATED IN

SECTION 26
T10S, R2E
WILLIAMSON COUNTY, ILLINOIS

PREPARED FOR

SOUTHERN ILLINOIS POWER CO-OP
11543 LAKE OF EGYPT ROAD
MARION, ILLINOIS 62959

PREPARED BY

CLARIDA ENGINEERING CO.
308 SOUTH COURT STREET
MARION, ILLINOIS 62959

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES

DAM INSPECTION REPORT

NAME OF DAM: South Fly Ash Pond — COUNTY: Williamson

LOCATION: Section 26, Township 10S, Range 2E

OWNER: Southern Illinois Power Co-op (NAME) — 618-964-1448, 618-964-1701 (Emerg.) (TELEPHONE)

11543 Lake of Egypt Road (STREET)

Marion (CITY) — 62959 (ZIP)

PERMIT NO.: 19403 — CLASS OF DAM: III

TYPE OF DAM: Earthfill

TYPE OF SPILLWAY: Drop Inlet

DATE (S) INSPECTED: 12/3/2008

WEATHER WHEN INSPECTED: Cloudy

TEMPERATURE WHEN INSPECTED: 55°

POOL ELEVATION WHEN INSPECTED: ~ 541

TAILWATER ELEVATION WHEN INSPECTED: –

INSPECTION PERSONNEL:

NAME	TITLE
W. Brian Ziegler 12/10/08 W. Brian Ziegler Clarida & Ziegler Engineering Co.	President

PROFESSIONAL ENGINEER'S SEAL

Exp 11/30/09

CONDITION CODES

N.E.	-	No evidence of problem
G.C.	-	Good Condition
M.M.	-	Item needing minor repairs within the year. Safety integrity not yet imperiled
I.M.	-	Item needing immediate maintenance to restore or insure present safety integrity
E.C.	-	Emergency condition which if not immediately repaired or other appropriate measures taken could lead to breach of dam
O.B.	-	Condition requires regular observation to insure condition does not become worse
N.A.	-	Not applicable to this dam
N.I.	-	Not inspected/list reason for non-inspection under deficiencies

EARTH EMBANKMENT

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Surface Cracks	N.E.		
Vertical & Horizontal Alignment of Crest	G.C.		
Unusual Movement or Cracking At or Beyond Toe	N.E.		
Sloughing or Erosion of Embankment and Abutment Slopes	N.E.		
Upstream Face Slope Protection	G.C.	Reeds are established along waterline of north embankment.	Condition has not worsened in the last year. Will continue to monitor.
Seepage	G.C.	Seepage area along downstream toe at southwest corner of levee.	Corrected in 2004. Removed buried rip-rap in dam.
Filter & Filter Drains	N.A.		

EARTH EMBANKMENT
(Continued)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Animal Damage	N.E.		
Embankment Drainage Ditches	M.M.	Downstream drainage ditch standing water	Investigate the cause. Re-grade ditch to get to drain. Re-inspect to ensure there is no seepage.
Vegetative Cover	G.C.		
Other (Name)			
Other			
Other			

CONCRETE OR MASONRY DAMS

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Seepage	N.A.		
Structure to Abutment/ Embankment Junctions	N.A.		
Water Passages	N.A.		
Foundation	N.A.		
Surface Cracks in Concrete Surfaces	N.A.		
Structural Cracking	N.A.		

CONCRETE OR MASONRY DAMS
(Continued)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Vertical and Horizontal Alignment	N.A.		
Monolith Joints	N.A.		
Construction Joints	N.A.		
Spalling of Concrete	N.A.		
Filters, Drains, etc.	N.A.		
Riprap	N.A.		
Other (Name)			

IF DAM IS GATED - Fill out portion of Principal Spillway Form related to Gated Spillways

PRINCIPAL SPILLWAY
APPROACH CHANNEL

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Debris	N.A.		
Side Slope Stability	N.A.		
Slope Protection	N.A.		
Other (Name)			
Other			
Other			
Other			

PRINCIPAL SPILLWAY

[X] Drop Inlet Structure [ ] Overflow Spillway Structure [ ] Gated

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	N.A.		
Structure to Embankment Junction	G.C.		
Drains	N.A.		
Seepage Around or Into Structure	N.E.		
Surface Cracks	N.E.		
Structural Cracks	N.E.		

IF SPILLWAY IS GATED FILL OUT GATES SECTION

PRINCIPAL SPILLWAY
(Continued)

[X] Drop Inlet Structure [ ] Overflow Spillway Structure [ ] Gated

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Alignment of Abutment Walls	N.A.		
Construction Joints	N.A.		
Filter and Filter Drains	N.A.		
Trash Racks	N.A.		
Bridge & Piers	N.A.		
Differential Settlement	N.A.		
Other (Name)			

IF SPILLWAY IS GATED FILL OUT GATES SECTION

PRINCIPAL SPILLWAY
(Continued)

[X] Conduit [ ] Gated

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	N.A.		
Joint Separation	N.E.		
Seepage Around or Into Conduit	N.E.		
Surface Cracks	N.E.		
Structural Cracks	N.E.		
Trash Racks	N.A.		
Differential Settlement	N.E.		
Alignment	G.C.		
Other (Name)			

IF SPILLWAY IS GATED FILL OUT GATES SECTION

PRINCIPAL SPILLWAY
(Continued)

☐ Chute

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Cavitation, Spalling	N.A.		
Structure to Embankment Junction	N.A.		
Construction Joints	N.A.		
Expansion & Contraction Joints	N.A.		
Differential Settlement	N.A.		
Surface Cracks	N.A.		
Structural Cracks	N.A.		
Wall Alignment	N.A.		
Other (Name)			

IF SPILLWAY IS GATED FILL OUT GATES SECTION

GATES

☐ Principal Spillway ☐ Dewatering ☐ Other:

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Gate Sill	N.A.		
Gate Seals	N.A.		
Gate and Frame	N.A.		
Operating Machineery	N.A.		
Emergency Operating Machinery	N.A.		
Other (Name)			
Other			

OUTLET WORKS
(IF SEPARATE FROM PRINCIPAL SPILLWAY STRUCTURE)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	N.A.		
Joint Separation	N.A.		
Seepage Around or Into Conduit	N.A.		
Intake Structure	N.A.		
Outlet Structure	N.A.		
Outlet Channel	N.A.		

OUTLET WORKS
(Continued)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Riprap	N.A.		
Other (Name)			
Other			
Other			

ENERGY DISSIPATOR

[X] Principal Spillway [ ] Outlet Works

Type: **Reinforced concrete impact-type**

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	G.C.		
Structure to Embankment Junction	G.C.		
Construction Joints	G.C.		
Surface Cracks	N.E.		
Structural Cracks	N.E.		
Differential Settlement	N.E.		
Expansion & Contraction Joints	G.C.		

ENERGY DISSIPATOR
(Continued)

[X] Principal Spillway [ ] Outlet Works

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Riprap	N.E.		
Outlet Channel	G.C.		
Debris	N.E.		
Other (Name)			

EMERGENCY SPILLWAY

☐ Earth ☐ Other: Name _____

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion	N.A.		
Weeds, Logs, Other Obstructions	N.A.		
Side Slope Sloughing	N.A.		
Vegetation	N.A.		
Sedimentation	N.A.		
Riprap	N.A.		
Settlement of Crest	N.A.		
Downstream Channel	N.A.		
Other (Name)			

SUMMARY OF MAINTENANCE DONE AND/OR

REPAIRS MADE SINCE LAST INSPECTION

DATE OF PRESENT INSPECTION **December 3, 2008**

DATE OF LAST INSPECTION **December 19, 2007**

1. EARTH EMBANKMENT

   None

2. CONCRETE MASONRY DAMS

   N.A.

3. PRINCIPAL SPILLWAY

   None

4. OUTLET WORKS

   None

5. EMERGENCY SPILLWAY

   None

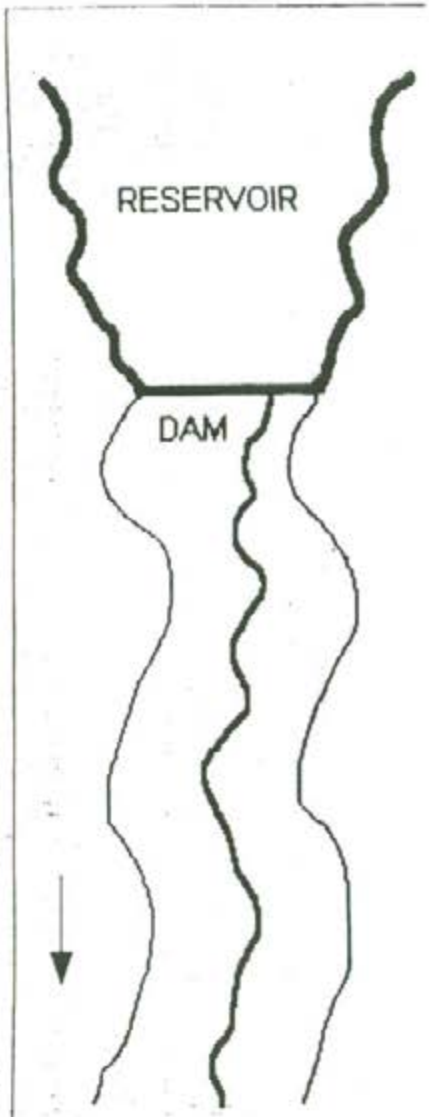
DOWNSTREAM DEVELOPMENT

APPROXIMATE WIDTH OF AFFECTED FLOODPLAIN 0.05 MILES

MILES DOWNSTREAM FROM DAM	DOWNSTREAM DEVELOPMENT												Loss of Life Potential			Economic Loss Potential		
	OCCUPIED HOMES	UNOCCUPIED HOMES	AGRICULTURAL BUILDINGS	INDUSTRIAL BUILDINGS	COMMERCIAL BUILDINGS	SCHOOLS	HOSPITALS	ROADS & BRIDGES	DAMS	OVERHEAD UTILITIES	OTHER DEVELOPMENT (Name)	OTHER DEVELOPMENT (Name)	NONE	1 TO 10	OVER 10	MINIMAL EXPECTED	APPRECIABLE EXPECTED	EXCESSIVE EXPECTED
0 to 1/4								X					X			X		
1/4 to 1/2													X			X		
1/2 to 3/4													X			X		
3/4 to 1													X			X		
1 to 1-1/4													X			X		
1-1/4 to 1-1/2													X			X		
1-1/2 to 1-3/4													X			X		
1-3/4 to 2													X			X		
OVER 2													X			X		

The number of homes, buildings, or other items in the floodplain downstream of the dam should be placed in the appropriate row and column to designate their location.

SKETCH IN DEVELOPMENTS DOWNSTREAM OF THE DAM



PROJECT NAME: SIPC South Fly Ash Pond	PROJECT NO.: 08156	DATE: 12/03/08	TIME: 2:30 pm	PHOTOS BY: WBZ

PHOTO DESCRIPTION

Looking at area needing grading.

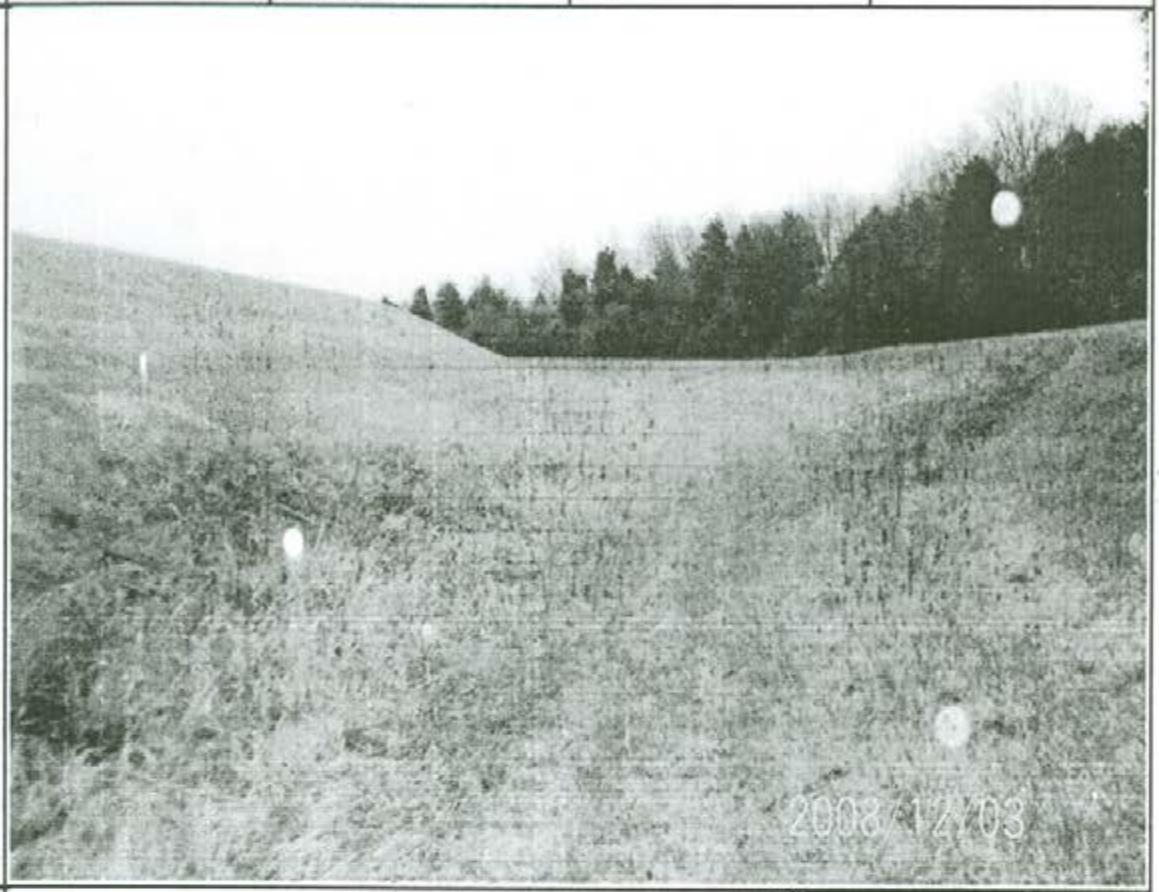


PHOTO DESCRIPTION

Looking East along dam

PROJECT NAME: SIPC South Fly Ash Pond	PROJECT NO.: 08156	DATE: 12/03/08	TIME: 2:30 pm	PHOTOS BY: WBZ

PHOTO DESCRIPTION

Looking west at area needing grading

PHOTO DESCRIPTION

Looking at North-West side

INSPECTION REPORT

FOR THE

FLY ASH DISPOSAL POND
B-3 DAM

IDNR-OWR PERMIT NO. 18629
DAM I.D. NO. IL50160

DECEMBER, 2008

LOCATED IN

SECTION 26
T10S, R2E
WILLIAMSON COUNTY, ILLINOIS

PREPARED FOR

SOUTHERN ILLINOIS POWER CO-OP
11543 LAKE OF EGYPT ROAD
MARION, ILLINOIS 62959

PREPARED BY

CLARIDA ENGINEERING CO.
308 SOUTH COURT STREET
MARION, ILLINOIS 62959

ILLINOIS DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES

DAM INSPECTION REPORT

NAME OF DAM: Fly Ash Disposal Pond B-3 Dam

COUNTY: Williamson

LOCATION: Section 26, Township 10S, Range 2E

OWNER: Southern Illinois Power Co-op (NAME)

618-964-1448, 618-964-1701 (Emerg.) (TELEPHONE)

11543 Lake of Egypt Road (STREET)

Marion (CITY) 62959 (ZIP)

PERMIT NO.: 18629

CLASS OF DAM: III

TYPE OF DAM: Earthfill

TYPE OF SPILLWAY: Drop Inlet

DATE (S) INSPECTED: 12/3/2008

WEATHER WHEN INSPECTED: Cloudy

TEMPERATURE WHEN INSPECTED: 55°

POOL ELEVATION WHEN INSPECTED: ~ 499

TAILWATER ELEVATION WHEN INSPECTED: --

INSPECTION PERSONNEL:

NAME	TITLE
W. Brian Ziegler Clarida Engineering Co.	President

12/10/08

W. BRIAN ZIEGLER
062-053681
LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

PROFESSIONAL ENGINEER'S SEAL

Exp. 11/30/09

CONDITION CODES

N.E.	-	No evidence of problem
G.C.	-	Good Condition
M.M.	-	Item needing minor repairs within the year. Safety integrity not yet imperiled
I.M.	-	Item needing immediate maintenance to restore or insure present safety integrity
E.C.	-	Emergency condition which if not immediately repaired or other appropriate measures taken could lead to breach of dam
O.B.	-	Condition requires regular observation to insure condition does not become worse
N.A.	-	Not applicable to this dam
N.I.	-	Not inspected/list reason for non-inspection under deficiencies

EARTH EMBANKMENT

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Surface Cracks	N.E.		
Vertical & Horizontal Alignment of Crest	G.C.		
Unusual Movement or Cracking At or Beyond Toe	N.E.		
Sloughing or Erosion of Embankment and Abutment Slopes	G.C.		
Upstream Face Slope Protection	G.C.		
Seepage	N.E.		
Filter & Filter Drains	G.C.		

EARTH EMBANKMENT
(Continued)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Animal Damage	N.E.		
Embankment Drainage Ditches	G.C.		
Vegetative Cover	G.C.		
Other (Name)			
Other			
Other			

CONCRETE OR MASONRY DAMS

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Seepage	N.A.		
Structure to Abutment/ Embankment Junctions	N.A.		
Water Passages	N.A.		
Foundation	N.A.		
Surface Cracks in Concrete Surfaces	N.A.		
Structural Cracking	N.A.		

CONCRETE OR MASONRY DAMS
(Continued)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Vertical and Horizontal Alignment	N.A.		
Monolith Joints	N.A.		
Construction Joints	N.A.		
Spalling of Concrete	N.A.		
Filters, Drains, etc.	N.A.		
Riprap	N.A.		
Other (Name)			

IF DAM IS GATED - Fill out portion of Principal Spillway Form related to Gated Spillways

PRINCIPAL SPILLWAY
APPROACH CHANNEL

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Debris	N.A.		
Side Slope Stability	N.A.		
Slope Protection	N.A.		
Other (Name)			
Other			
Other			
Other			

PRINCIPAL SPILLWAY

[X] Drop Inlet Structure [ ] Overflow Spillway Structure [ ] Gated

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	N.E.		
Structure to Embankment Junction	G.C.		
Drains	G.C.		
Seepage Around or Into Structure	N.E.		
Surface Cracks	N.E.		
Structural Cracks	N.E.		

IF SPILLWAY IS GATED FILL OUT GATES SECTION

PRINCIPAL SPILLWAY
(Continued)

[X] Drop Inlet Structure [ ] Overflow Spillway Structure [ ] Gated

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Alignment of Abutment Walls	N.A.		
Construction Joints	N.A.		
Filter and Filter Drains	N.A.		
Trash Racks	G.C.		
Bridge & Piers	N.A.		
Differential Settlement	N.A.		
Other (Name)			

IF SPILLWAY IS GATED FILL OUT GATES SECTION

PRINCIPAL SPILLWAY
(Continued)

[X] Conduit [ ] Gated

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	N.A.		
Joint Separation	N.E.		
Seepage Around or Into Conduit	N.E.		
Surface Cracks	N.E.		
Structural Cracks	N.E.		
Trash Racks	N.A.		
Differential Settlement	N.E.		
Alignment	G.C.		
Other (Name)			

IF SPILLWAY IS GATED FILL OUT GATES SECTION

PRINCIPAL SPILLWAY
(Continued)

☐ Chute

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Cavitation, Spalling	N.A.		
Structure to Embankment Junction	N.A.		
Construction Joints	N.A.		
Expansion & Contraction Joints	N.A.		
Differential Settlement	N.A.		
Surface Cracks	N.A.		
Structural Cracks	N.A.		
Wall Alignment	N.A.		
Other (Name)			

IF SPILLWAY IS GATED FILL OUT GATES SECTION

GATES

☐ Principal Spillway ☐ Dewatering ☐ Other:

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Gate Sill	N.A.		
Gate Seals	N.A.		
Gate and Frame	N.A.		
Operating Machineery	N.A.		
Emergency Operating Machinery	N.A.		
Other (Name)			
Other			

OUTLET WORKS
(IF SEPARATE FROM PRINCIPAL SPILLWAY STRUCTURE)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	N.A.		
Joint Separation	N.A.		
Seepage Around or Into Conduit	N.A.		
Intake Structure	N.A.		
Outlet Structure	N.A.		
Outlet Channel	N.A.		

OUTLET WORKS
(Continued)

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Riprap	N.A.		
Other (Name)			
Other			
Other			

ENERGY DISSIPATOR

[X] Principal Spillway [ ] Outlet Works

Type: **Riprap**

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion, Spalling, Cavitation	**N.A.**		
Structure to Embankment Junction	**N.A.**		
Construction Joints	**N.A.**		
Surface Cracks	**N.A.**		
Structural Cracks	**N.A.**		
Differential Settlement	**N.A.**		
Expansion & Contraction Joints	**N.A.**		

ENERGY DISSIPATOR

(Continued)

[X] Principal Spillway [ ] Outlet Works

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Riprap	G.C.		
Outlet Channel	G.C.		
Debris	N.E.		
Other (Name)			

EMERGENCY SPILLWAY

[X] Earth [ ] Other: Name _____

ITEM	CONDITION	DEFICIENCIES	RECOMMENDED REMEDIAL MEASURES AND IMPLEMENTATION SCHEDULE
Erosion	N.E.		
Weeds, Logs, Other Obstructions	N.E.		
Side Slope Sloughing	N.E.		
Vegetation	N.A.		
Sedimentation	N.E.		
Riprap	G.C.		
Settlement of Crest	N.E.		
Downstream Channel	G.C.		
Other (Name)			

SUMMARY OF MAINTENANCE DONE AND/OR

REPAIRS MADE SINCE LAST INSPECTION

DATE OF PRESENT INSPECTION **December 3, 2008**

DATE OF LAST INSPECTION **December 19, 2007**

1. EARTH EMBANKMENT

   None

2. CONCRETE MASONRY DAMS

   N.A.

3. PRINCIPAL SPILLWAY

   None

4. OUTLET WORKS

   None

5. EMERGENCY SPILLWAY

   None

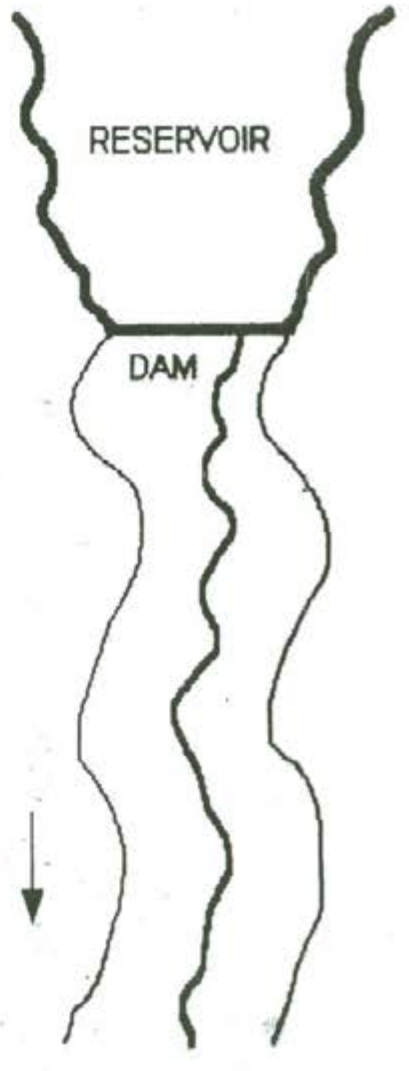
DOWNSTREAM DEVELOPMENT

APPROXIMATE WIDTH OF AFFECTED FLOODPLAIN 0.05 MILES

MILES DOWNSTREAM FROM DAM	DOWNSTREAM DEVELOPMENT												Loss of Life Potential			Economic Loss Potential		
	OCCUPIED HOMES	UNOCCUPIED HOMES	AGRICULTURAL BUILDINGS	INDUSTRIAL BUILDINGS	COMMERCIAL BUILDINGS	SCHOOLS	HOSPITALS	ROADS & BRIDGES	DAMS	OVERHEAD UTILITIES	OTHER DEVELOPMENT (Name)	OTHER DEVELOPMENT (Name)	NONE	1 TO 10	OVER 10	MINIMAL EXPECTED	APPRECIABLE EXPECTED	EXCESSIVE EXPECTED
0 to 1/4													X			X		
1/4 to 1/2													X			X		
1/2 to 3/4													X			X		
3/4 to 1													X			X		
1 to 1-1/4													X			X		
1-1/4 to 1-1/2													X			X		
1-1/2 to 1-3/4													X			X		
1-3/4 to 2													X			X		
OVER 2													X			X		

The number of homes, buildings, or other items in the floodplain downstream of the dam should be placed in the appropriate row and column to designate their location.

SKETCH IN DEVELOPMENTS DOWNSTREAM OF THE DAM



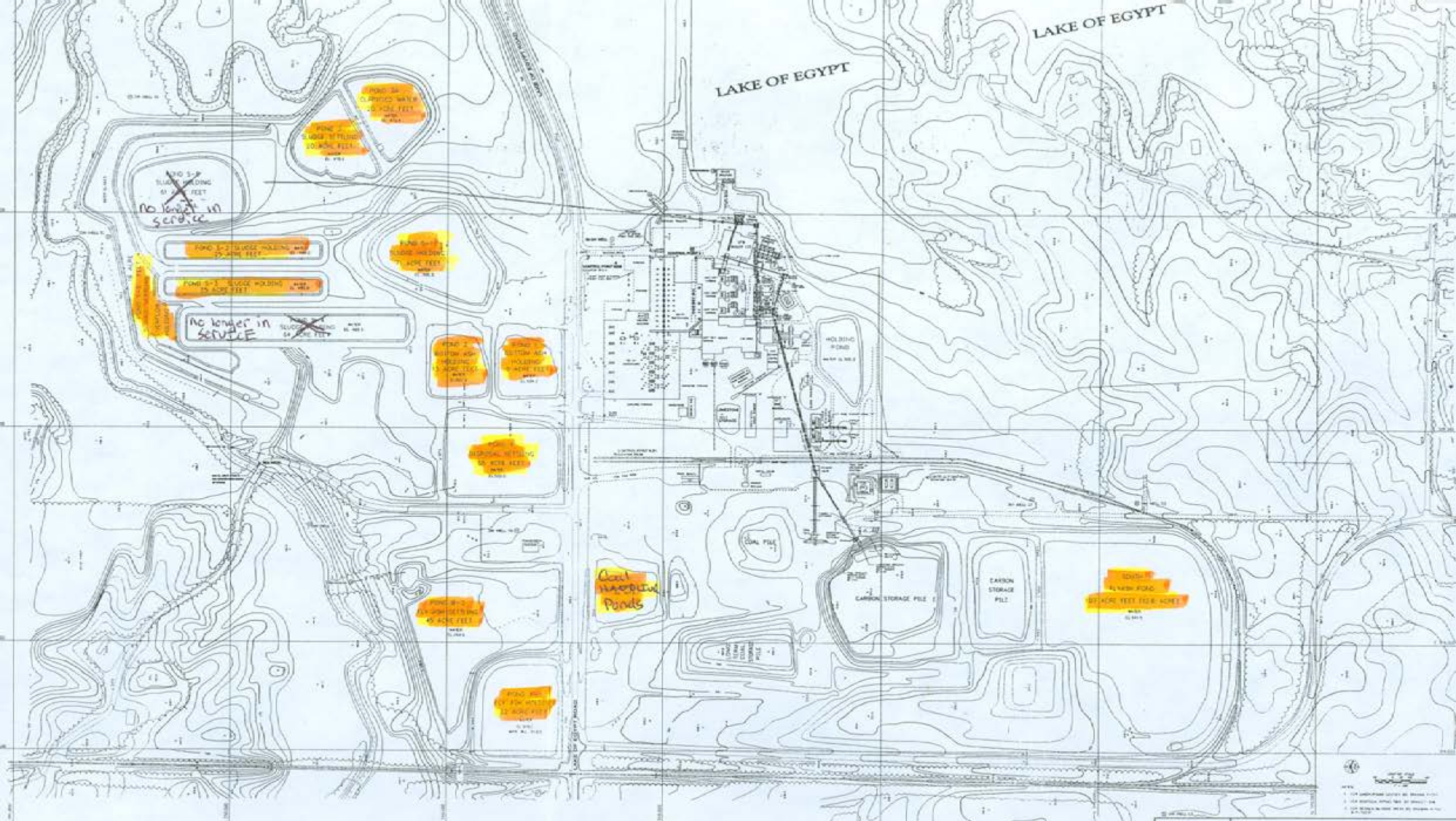
PROJECT NAME: SIPC B-3 Dam	PROJECT NO.: 08156	DATE: 12/03/08	TIME: 2:30 pm	PHOTOS BY: WBZ

PHOTO DESCRIPTION

Looking East

PHOTO DESCRIPTION

Looking West along North levee



Southern Illinois Power Cooperative
MARION, ILLINOIS

MARION POWER PLANT / DISPOSAL PONDS & HOLDING PONDS SITE PLAN AND GROUND WATER MONITORING / DISCHARGE AND CONTROL POINT DATA

SCALE 1" = 200'	N.T.S.	REVISION DATE 05-25-07	
DRAWN BBB	PEI	SHEET 1 OF 1	
APPROVED S.P.H.	ADDED CONTROL POINTS, GROUND WATER WELLS AND DISCHARGES	A	E-187
REV. DATE 05-24-10			