-----Original Message-----

From: Killeen, Deborah A [mailto:deborah.a.killeen@lmco.com]

Sent: Tuesday, July 14, 2009 9:17 AM

To: Strauss, Jerome

Cc: Miller, Dennis A; Hoffman.Stephen@epamail.epa.gov

Subject: FW: EPA's comments on DD's Draft Assessment Report (Revision 1, July 7, 2009) for: Dynergy Wood River Power Station

Jerry,

Here are EPA's comments on DD's Draft Assessment Report (Revision 1, July 7, 2009) for: Dynergy Wood River Power Station:

1) Page 2-1 indicates that the West Ash Pond System is rated "low hazard" in the NID. However, the checklist in Appendix C indicates a "high" rating.

Deborah A Killeen

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PRIVILEGED & CONFIDENTIAL

August 6, 2009

DYNEGY

Office of Resource Conservation and Recovery (Mail Code 5304P)
United States Environmental Protection Agency
1200 Pennsylvania Avenue NW Washington, D.C. 20460

Attn: Mr. Stephen Hoffman
RCRA Program Manager

Draft Coal Combustion Waste Impoundment Dam Assessment Report
Dynegy Midwest Generation, Inc. Wood River Power Station; Alton, IL
By Dewberry & Davis, LLC
Project # 0-381
June 2009

DMG Comments

Mr. Hoffman:

Dynegy Midwest Generation, Inc. (DMG) appreciates the opportunity to review and comment upon the June 2009 draft dam assessment report of the Wood River Station ash pond systems written by Dewberry & Davis, LLC. ***We are enclosing a marked-up copy of the draft report which includes all of our comments.*** Most of the comments are easily understood but several deserve additional explanation as presented below.

Section 2.2, Page 2-1, 3rd Paragraph

DMG has not requested that Cells 1 and 2W of the west ash pond system be officially closed. DMG has an Illinois EPA-approved Closure Work Plan in place for these cells which describe the measures being taken that may eventually lead to closure. DMG does not anticipate requesting formal "closure" of these cells from Illinois EPA in the near future.

Section 2.3, Page 2-2, 3rd Paragraph

Cells 1 and 2W are not wetlands and should not be informally described as "essentially a wetland". While offsite land not owned by DMG located west of Cell 2W may be a wetland, Cells 1 and 2W are not wetlands as they do not contain wetland vegetation, or wetland soils, and are not listed on any wetland maps. The majority of the area does not contain water.

Section 2.4.1, Page 2-3

Additional detail is provided regarding the liner and leachate collection systems for Cells 2E and 3 of the west ash pond system. Cell 2E has a 12-inch clay/HDPE composite liner. Cell 3 has 12-inch and a 24-inch clay layers, and an HDPE liner above the lower 24-inch clay layer. Both cells have leachate collection systems.

Section 3.2, Page 3-1

The Illinois Department of Natural Resources, Office of Water Resources, Dam Safety Section has also issued a dam safety permit for the west ash pond system. That permit no. is DS2003215.

Section 4.2.3, Page 4-2, 3rd Bullet

As noted previously, DMG has an Illinois EPA-approved Closure Work Plan for Cells 1 and 2W of the west ash pond system

Please feel free to contact me if you have questions regarding our comments on this draft report.

Sincerely,

Rick Diericx – Sr. Director
Operations Environmental Compliance
Tel. No. 618-206-5912
e-mail: rick.diericx@dynegy.com

Enclosure

DRAFT

Coal Combustion Waste Impoundment

Dam Assessment Report

Wood River Power Station
Dynegy Midwest Generation, Inc.
Alton, Illinois

Project # 0-381

Assessment of Dam Safety
Coal Combustion Surface Impoundments
for the REAC Program

Prepared for:

Lockheed Martin Services, Inc.
Edison, New Jersey
for
United States Environmental Protection Agency
Cincinnati, Ohio

Prepared by:

Dewberry & Davis LLC
Management & Consulting Services Division
Mount Laurel, New Jersey

Under Contract Number: EP-C-04-032: REAC

June 2009

DRAFT

INTRODUCTION

The release of over 5 million cubic yards of coal ash from the Tennessee Valley Authority's Kingston, Tennessee, facility in December 2008 serves as an important reminder of the need for our continued diligence on disposal units where coal combustion wastes are managed. The coal ash from the facility flooded more than 300 acres of land, damaging homes and property. It is critical that we all work to the best of our abilities to prevent a similar catastrophic failure and resultant environmental damage. One of the first steps in this effort is to assess the stability of the impoundments and similar units that contain coal combustion residuals and by-products to determine if and where corrective measures may be needed and then to carry out those measures as expeditiously as possible.

This report for the Wood River Power Plant facility assesses the stability of the following management units. This evaluation is based on a site assessment conducted on (add date) by (add name of contractor and subcontractor for USEPA) ?

PURPOSE AND SCOPE

The U.S. Environmental Protection Agency (EPA) is embarking on an initiative to investigate the potential for catastrophic failure of Coal Combustion Surface Impoundments (i.e., management unit) from occurring at electric utilities in an effort to protect lives and property from the consequences of a dam failure or the improper release of impounded slurry. The EPA initiative is intended to identify conditions that may adversely affect the structural stability and functionality of a management unit and its appurtenant structures (if present); to note the extent of deterioration (if present), status of maintenance and/or a need for immediate repair; to evaluate conformity with current design and construction practices; and to determine the hazard potential classification for units not currently classified by the management unit owner or by a state or federal agency. The initiative will address management units that are classified as having a Less-than-Low, Low, Significant or High Hazard Potential ranking.

In February 2009, the EPA sent letters to coal-fired electric utilities seeking information on the safety of surface impoundments and similar facilities that receive liquid-borne material that store or dispose of coal combustion residue. This letter was issued under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e), to assist the Agency in assessing the structural stability of such management units, including which facilities should be visited to perform a safety assessment of the berms, dikes, and dams used in the construction of these impoundments.

EPA requested that utility companies identify all management units including surface impoundments or similar diked or bermed management units or management units designated as landfills that receive liquid-borne material 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. Utility companies provided information on the size, design, age and the amount of material placed in the units. The EPA used the information received from the utilities to determine preliminarily which management units had or potentially could have High Hazard Potential ranking.

The purpose of this report is to evaluate the condition and potential of waste release from the selected High Hazard Potential management units. This evaluation included a site visit. Prior to conducting the site visit, a two-person team reviewed the information submitted to EPA, reviewed any relevant publicly available information from state or federal

agencies regarding the unit hazard potential classification (if any) and accepted information provided via telephone communication with the management unit owner.

did they? prior to the site visit

2 days ?

EPA sent two engineers from Dewberry, one of whom was a professional engineer (PE), for a one-day site visit. The two-person team met with the owner of the management unit to discuss the engineering characteristics of the unit as part of the site visit. During the site visit, the team collected additional information about the management unit to be used in determining the hazard potential classification of the management unit(s).

unclear! all active cells are already rated by IDNR

Factors considered in determining the hazard potential classification of the management units(s) included the age and size of the impoundment, the quantity of coal combustion residuals or by-products that were stored or disposed of in these impoundments, its past operating history, and its geographic location relative to down gradient population centers and/or sensitive environmental systems.

This report presents the opinion of the assessment team as to the potential of catastrophic failure and reports on the condition of the management unit(s). The team considered criteria in evaluating dams under the National Inventory of Dams, in making these determinations.

LIMITATIONS

The assessment of dam safety reported herein is based on field observations and review of readily available information provided by the owner/operator of the subject coal combustion waste management unit(s). Qualified Dewberry engineering personnel performed the field observations and review and made the assessment in conformance with the required scope of work and in accordance with reasonable and acceptable engineering practices. No other warranty, either written or implied, is made with regard to our assessment of dam safety.

DRAFT

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1.0 CONCLUSIONS AND RECOMMENDATIONS

1.1 CONCLUSIONS

The conclusions below were reached as a result of a visual investigation performed on Thursday and Friday, May 28 and 29, 2009, as well as a review of existing documentation acquired from various sources including information provided by Dynegy Midwest Generation, Inc, (Dynegy), the current owner and operator of the Wood River Power Station.

1.1.1 Conclusions Regarding the Structural Soundness of the Management Unit(s) – The embankments viewed in the field appeared to be well designed and constructed and well-maintained. There were no visible signs of seepage or sloughing, nor were there any large diameter trees on the embankment.

1.1.2 Conclusions Regarding the Hydrologic/Hydraulic Safety of the Management Unit(s) – The embankments appear to be safe from overtopping and resulting failure. The management units do not drain any appreciable areas other than the surface area of the ponds.

1.1.3 Conclusions Regarding the Adequacy of Supporting Technical Documentation – The supporting technical documents appear to be adequate. The original design calculations and drawings are included as Document 5 in Appendix A.

1.1.4 Conclusions Regarding the Description of the Management Unit(s) – The description of the management units provided by Dynegy was an accurate representation of what was observed in the field.

1.1.5 Conclusions Regarding the Field Observations – Dynegy staff provided access requested to make the field observations. There was sufficient time and weather conditions to complete all Field observations. The conclusions provided in this section reflect the engineering team's field observations. The team observed no conditions requiring immediate remedial action.

1.1.6 Conclusions Regarding the Adequacy of Maintenance and Methods of Operation – The current maintenance practices appear to be adequate.

1.1.7 Conclusions Regarding the Adequacy of the Surveillance and Monitoring Program –The surveillance and inspection procedures outlined in the Operations and Maintenance Plan appear to be adequate. There is currently no instrumentation monitoring plan for the embankments.

1.1.8 Conclusions Regarding Suitability for Continued Safe and Reliable Operation – The field observations and review of documents lead the Dewberry team to conclude that the condition of the Coal Combustion Waste management units appear to be adequate for continued safe and reliable operation. Furthermore, this unit can be classified as SATISFACTORY based upon the guidance issued in the Scope of Work, in which SATISFACTORY is defined as, "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."

1.2 RECOMMENDATIONS

Based on the above conclusions as well as the sum of information found within this report, the recommendations presented below are proposed.

1.2.1 Recommendations Regarding the Structural Stability – None appear warranted at this time.

1.2.2 Recommendations Regarding the Hydrologic/Hydraulic Safety – None appear warranted at this time.

1.2.3 Recommendations Regarding the Supporting Technical Documentation – None appear warranted at this time.

1.2.4 Recommendations Regarding the Description of the Management Unit(s) – None appear warranted at this time.

1.2.5 Recommendations Regarding the Field Observations – None appear warranted at this time.

1.2.6 Recommendations Regarding the Maintenance and Methods of Operation – None appear warranted at this time.

1.2.7 Recommendations Regarding the Surveillance and Monitoring Program – None appear warranted at this time.

1.2.8 Recommendations Regarding Continued Safe and Reliable Operation – None appear warranted at this time.

1.3 PARTICIPANTS AND ACKNOWLEDGEMENT

1.3.1 List of Participants
(Full list of Site meeting attendees can be found in Appendix D)

Cleighton Smith, Dewberry
Lauren Ohotzke, Dewberry
Rick Diericx, Dynegy
Tom Davis, Dynegy
Bob Crowe, Dynegy
Don Grahlherr, URS
Joe Kimlinger , URS
Don Crove, Dynegy
Susan McVety, Dynegy
Kenneth E. Smith, IEPA
Ted Dragovich , IEPA
Chris Liebmann, IEPA

1.3.2 Acknowledgement and Signature

We acknowledge that the management units referenced herein have been assessed on May 28 and May 29, 2009.

Cleighton Smith, PE (IL # 062.040606)

_____

Lauren Ohotzke, Civil Engineer

_____

2.0 DESCRIPTION OF THE COAL COMBUSTION WASTE MANAGEMENT UNIT(S)

2.1 LOCATION

at river mile 199.6 left descending

The Wood River Power Station is located in the town of Alton, in southwestern Illinois on the ~~eastern~~ bank of the Mississippi River, approximately 17 miles northeast of St. Louis (Latitude 38° 51' 44.15" and Longitude 90° 08' 0.634"). There are two CCW management units at the Wood River Power Station: the two-cell East Ash Pond System (EAPS), and the four-cell West Ash Pond System (WAPS), (See Figure 1).

As shown on Figure 1, the two-cell EAPS is located on the eastern side of Chessen Lane, just north of the Mississippi River. The Wood River Creek runs along the eastern edge of this system, just beyond an earthen dike. This system consists of a primary and a secondary cell. The primary cell is referred to in the site visit photos found in Appendix B as EAPSP, or East Ash Pond System, Primary cell. Similarly, the secondary cell in this system is referenced as EAPSS, or East Ash Pond System, Secondary cell, in Appendix B. The primary cell is closest to the actual plant. The secondary cell is essentially in the northeast corner of the primary cell.

The four-cell WAPS is located to the north west of the EAPS on the western side of Chessen Lane (see Figure 1). The four cells within this system include Cell 1, Cell 2E, Cell 2W, and Cell 3. Cell 1 is directly west of the EAPS. Cell 3 is directly above (north of) the eastern side of Cell 1. Cell 2E is to the west of Cell 3, above the western side of Cell 1. The eastern border of Cell 2W shares a berm with both Cell 2E, to the north, and Cell 1, to the south. Cell 2W then stretches out westward to the edge of the property.

2.2 SIZE AND HAZARD CLASSIFICATION

The EAPS is not listed within the National Inventory of Dams (NID)database. However, the Illinois Department of Natural Resources Office of Water Resources, IDNR OWR, has classified the EAPS as a Class I small dam, similar to that of the U.S. Army Corp of Engineers' high hazard potential category.

The EAPS, as a whole, has a surface area of 39 acres. The approximate maximum height of the EAPS is 33 feet.

Not at Wood River

Cells 1 and 2W, of the WAPS have been inactive for an extended period of time. Both are dry. ~~Official closure requests have been made, and are awaiting approval verification. As such,~~ These two cells have not been assigned an official hazard classification by the IDNR. The Closure Work Plan is included as Appendix A, Document II.

Cells 2E and 3 of the WAPS have a combined surface area of 19 acres. Cell 2E has an approximate maximum dam height of 20 feet. Cell 3 also has an approximate maximum dam height of 20 feet.

Cell 2E and Cell 3 of the WAPS have been rated as low in the NID and have been labeled as Class III small dams by the IDNR OWR. The rank of Class III is similar to that of the U.S. Army Corp of Engineers' low hazard potential category.

2.3 AMOUNT AND TYPE OF RESIDUALS CURRENTLY CONTAINED IN THE UNIT(S) AND MAXIMUM CAPACITY

The EAPS has been designed to permanently contain the following materials:

- Fly ash
- Bottom ash
- Boiler slag

Coal pyrite sluice water
Ash hopper overflow
Demineralizer regenerant wastes
Water treatment clarifier sludge
Water treatment filter backwash
Units 1-5 turbine rooms and boiler rooms drains
Coal pile runoff
Coal conveyor drain line
Non-chemical metal cleaning wastes
Area runoff
Dredge spoils
Demineralizer brine

our 104(e) response also identified "boiler blowdown", which is not explicitly listed here

Similarly, Cells 2E and 3 of the WAPS have been designed to permanently contain the following materials:

Fly ash
Bottom ash
Boiler slag
Coal pyrites sluice water
Ash hopper overflow
Boiler blowdown
Demineralizer regenerant wastes
Water treatment clarifier sludge
Water treatment filter backwash
Units 1-5 turbine rooms and boiler room drains
Coal pile runoff
Coal conveyor drain line
Non-chemical metal cleaning wastes
Area runoff
Dredge spoils
Demineralizer brine

The EAPS currently contains the materials listed above to permanently exist within the EAPS. The estimated design storage volume/capacity is 435 ac-ft. Dynegy reports the system to be currently operating at a capacity of 58 ac-ft.

Cell 2E of the WAPS currently contains the above materials specified to permanently exist within the WAPS. Cell 2E has a maximum design volume/capacity of 120 ac-ft; Dynegy reports the ~~system to be currently operating at a capacity of 119 ac-ft of materials~~. volume of ash currently deposited in Cell 2E to be approximately

Cells 1 and 2W of the WAPS are no longer in use, but have not yet been officially closed. ~~Cell 2W is full of wildlife and vegetation and is essentially a wetland, although it does not have that official classification.~~ Both cells are dry overgrown with

Cell 3 of the WAPS currently contains the above materials listed to permanently exist within the WAPS. Cell 3 is active has a maximum design volume/capacity of 90 ac-ft; Dynegy reports the system to be currently operating at a capacity of 9 ac-ft.

2.4 PRINCIPAL PROJECT STRUCTURES

2.4.1 Earth Embankment Dam - Based on (exterior) Dynegy design files, the East Ash Pond System is comprised of earth embankments with downstream side slopes of 3:1 (horizontal:vertical) and upstream (interior) side slopes of 3.5:1. There is a 1 foot clay blanket under a geo-membrane liner on the upstream side. The West Ash Pond System is comprised of earth embankments with downstream side slopes of 3:1 and upstream side slopes of 3:1. ~~There is 3 foot of clay on the upstream side.~~

Cells 2E and 3 of Cell 2E has a 12-inch clay/HDPE composite liner; Cell 3 has 12-inch and 24-inch double clay layers and an HDPE liner above the lower 24-inch clay layer. Both cells have leachate collection systems.

2.4.2 Outlet Structures - The outlet structures of both the East Ash Pond System and the West Ash Pond System are similar overflow type V-notched concrete spillways that each discharge into a culvert that drains to an existing culvert that drains into Wood River.

Creek?

2.5 CRITICAL INFRASTRUCTURE WITHIN FIVE MILES DOWN GRADIENT

The inundation map prepared by Dynegy for their Emergency Action Plan (see Appendix A Document 10) indicates that the failure floodwave would dissipate before five miles down gradient. Nonetheless there is a sewage treatment plant within one mile of the East Ash Pond System embankment.

3.0 SUMMARY OF RELEVANT REPORTS, PERMITS AND INCIDENTS

3.1 SUMMARY OF REPORTS ON THE SAFETY OF THE MANAGEMENT UNIT(S) – No previous reports on safety were provided.

3.2 SUMMARY OF LOCAL, STATE AND FEDERAL ENVIRONMENTAL PERMITS - The State of Illinois Department of Natural Resources Dam Safety Office has regulatory oversight over the embankments comprising the East Ash Pond System (permit number is DS2005052). and Cells 2E and 3 of the West Ash Pond System (DS 2003215).

3.3 SUMMARY OF SPILL/RELEASE INCIDENTS (IF ANY)

As stated by Dynegy, to the best of their knowledge, neither the East Ash Pond System nor the West Ash Pond System has had any spills or unpermitted releases of coal combustion residues or byproducts to surface water or land.

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4.0 SUMMARY OF HISTORY OF CONSTRUCTION AND OPERATION

4.1 SUMMARY OF CONSTRUCTION HISTORY

4.1.1 Original Construction

Both the Primary and Secondary cells of the EAPS, as well as Cells 2E and 3 of the WAPS were designed and constructed under the supervision of a registered Professional Engineer. This individual was employed by Dynegy or the previous owner of the Wood River Power Station. Construction was performed in stages, from approximately 1996 through 2006. of the WAPS and EAPS

4.1.2 Significant Changes/Modifications in Design since Original Construction

There have been no significant changes/modification in design since the original construction of the CCW units at the Wood River Power Station.

4.1.3 Significant Repairs/Rehabilitation since Original Construction

There have been no significant repairs/rehabilitation since the original construction of the CCW units at the Wood River Power Station.

4.2 SUMMARY OF OPERATIONAL HISTORY

4.2.1 Original Operational Procedures

The EAPS was commissioned (began receiving ash) in 2006, and has since not been expanded.

Cells 2E and 3 of the WAPS were commissioned (began receiving ash) in 1997.

There are no records regarding the time of commission for Cells 1 and 2W of the WAPS. Both cells were probably first placed into service with mid-1970s

4.2.2 Significant Changes in Operational Procedures since Original Startup

EAPS or WAPS of the ~~[illegible]~~ of the CCW units

There have not been any significant changes in operational procedures since the original startup at the Wood River Power Station. The current operating procedures have been reviewed and approved by the IDNR, Office of Water Resources, Dam Safety Section

4.2.3 Current Operational Procedures

The current operational procedures are:

- Fly ash is either sold to the local market or discharged to the EAPS Primary Cell; bottom ~~boiler~~ ash is discharged to EAPS Primary Cell. Decant is discharged into the Secondary cell, where it is discharged via the outfall structure into Wood River. NPDES Permit No. IL0000701, Outfall 005

Creek ?

DRAFT

- Coal Pile Runoff is pumped to WAPS Cell 2E, the decant is discharged into Cell 3, where it is discharged via the outfall structure into Wood River Creek. NPDES Permit No IL0000701, Outfall 002
- Coal combustion waste previously stored in Cells 1 and 2E W are occasionally mined and sold to local buyers.
- As previously stated, Dynegy has ~~a~~ an approved ~~draft~~ closure plan in place for Cells 1 and 2W (see Appendix A, Document II).

4.2.4 Other Notable Events since Original Startup

There have been no other notable events reported by Dynegy since original startup.

5.0 FIELD OBSERVATIONS

5.1 PROJECT OVERVIEW AND SIGNIFICANT FINDINGS

The EAPS at the Wood River Power Station was visually observed on Thursday, May 28, 2009. The WAPS was similarly observed on Friday, May 29, 2009. A series of photographs taken during this investigation can be found in Appendix B of this report. In addition, a field checklist is included as Appendix C.

Based upon the field observations, the following findings are reported:

- The embankments at the East Ash Pond System and the West Ash Pond System have been designed by a professional engineer and appear to be well constructed and structurally sound. There is regulatory oversight under the State of Illinois Dam Safety Program.

5.2 EARTH EMBANKMENT DAMS

5.2.1 Crests– appear to be structurally sound.

5.2.2 Upstream Slopes– appear to be structurally sound.

5.2.3 Downstream Slopes and Toes– appear to be structurally sound; a few ponding areas at the toe were noted but deemed to be from recent rains.

5.2.4 Abutments and Groin Areas– not applicable.

5.3 OUTLET STRUCTURES

5.3.1 Overflow Structure – appears to be structurally sound.

5.3.2 Outlet Conduit– not visible.

5.2.3 Emergency Spillway (If Present) - not applicable.

6.0 HYDROLOGIC/HYDRAULIC SAFETY

6.1 SUPPORTING TECHNICAL DOCUMENTATION (Provided by Dynegy, see Appendix A, Document 5)

6.1.1 Floods of Record – Not recorded by Dynegy.

6.1.2 Inflow Design Flood –Probable Maximum Flood, appropriate based on Illinois Dam Safety criteria

6.1.3 Spillway Rating – (Provided by Dynegy, see Appendix A, Document 5)

6.1.4 Downstream Flood Analysis – Dynegy has prepared an inundation map (see Appendix A, Document 5).

6.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION – Appears to be adequate.

6.3 ASSESSMENT OF HYDROLOGIC/HYDRAULIC SAFETY – Appears to be adequate.

7.0 STRUCTURAL STABILITY

7.1 SUPPORTING TECHNICAL DOCUMENTATION

7.1.1 Stability Analyses and Load Cases Analyzed – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.1.2 Design Properties and Parameters of Materials – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.1.3 Uplift and/or Phreatic Surface Assumptions – not considered in design of embankment, due to upstream liner.

7.1.4 Factors of Safety and Base Stresses – Provided by Dynegy (Appendix A, Document 5), factors of safety greater than 1.8 for all cases analyzed.

7.1.5 Liquefaction Potential – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.1.6 Critical Geological Conditions – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION – Appears to be adequate.

7.3 ASSESSMENT OF STRUCTURAL STABILITY

Based on review of the information provided by Dynegy and visual observation on May 28 and 29, 2009, the embankments at the EAPS and WAPS appear to be structurally stable.

8.0 MAINTENANCE AND METHODS OF OPERATION

8.1 OPERATIONAL PROCEDURES – Provided by Dynegy (Appendix A, Document 9)

8.2 MAINTENANCE OF THE DAM AND PROJECT FACILITIES – Provided by Dynegy (Appendix A, Document 9)

8.3 ASSESSMENT OF MAINTENANCE AND METHODS OF OPERATION

8.3.1 Adequacy of Operational Procedures– Appears to be adequate

8.3.2 Adequacy of Maintenance– Appears to be adequate

9.0 SURVEILLANCE AND MONITORING PROGRAM

9.1 SURVEILLANCE PROCEDURES

Daily, weekly, semi-annual and annual inspections, or surveillance operations, are performed at the Wood River Power Station. The daily, weekly and semi-annual surveillance operations are conducted by Dynegy Station operations personnel, whereas the annual inspections are performed by a civil engineer, specifically a registered PE with experience in similar operations.

For more information, see the Operations and Maintenance Plan provided by Dynegy, located in Appendix A, Document 9).

9.2 INSTRUMENTATION MONITORING

9.2.1 Instrumentation Plan - None

9.2.2 Instrumentation Monitoring Results - None

9.2.3 Evaluation – A plan of instrumentation and monitoring does not appear to be warranted for these lined embankments at this time.

9.3 ASSESSMENT OF SURVEILLANCE AND MONITORING PROGRAM

9.3.1 Adequacy of Inspection Program – Appears to be adequate.

9.3.2 Adequacy Instrumentation Monitoring Program – There is no instrumentation monitoring program and none appears warranted at this time for the lined embankments. In view of the observed sound condition of the embankments, the daily, weekly, semi-annual, and annual inspections of the impoundment structures together with the emergency action plan that is in place, there appear to be sufficient safeguards at this time.

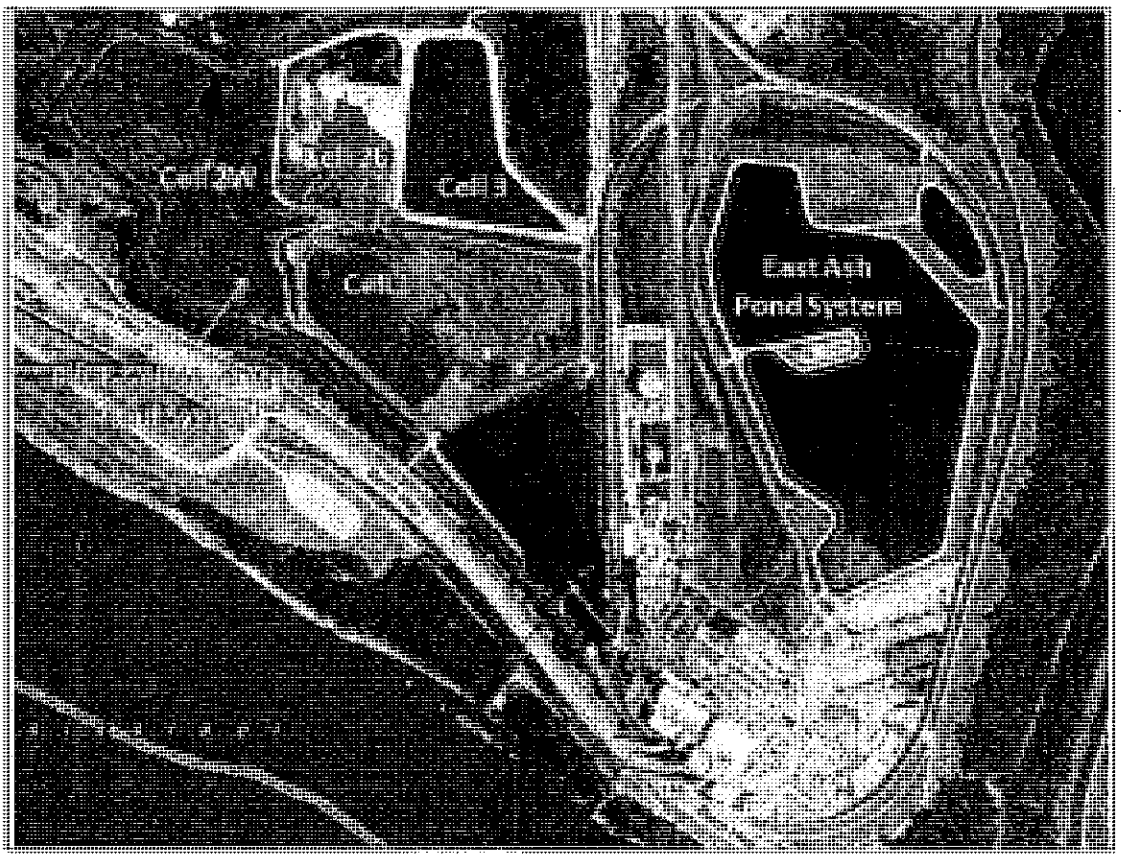

Figure 1: Wood River Power Station Aerial Map

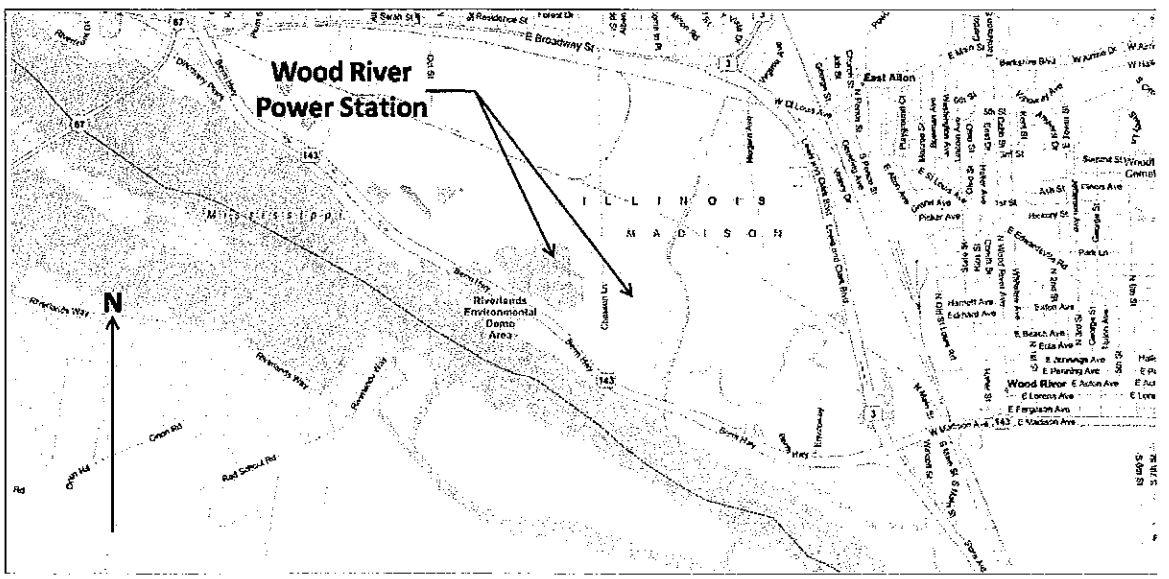

Figure 2: Wood River Power Station Vicinity Map

Dynegy Midwest Region Operations
A Division of Dynegy Inc.
604 Pierce Boulevard
O'Fallon, IL 62269

PRIVILEGED & CONFIDENTIAL

August 6, 2009

DYNEGY

Office of Resource Conservation and Recovery (Mail Code 5304P)
United States Environmental Protection Agency
1200 Pennsylvania Avenue NW Washington, D.C. 20460

Attn: Mr. Stephen Hoffman
RCRA Program Manager

Draft Coal Combustion Waste Impoundment Dam Assessment Report
Dynegy Midwest Generation, Inc. Wood River Power Station; Alton, IL
By Dewberry & Davis, LLC
Project # 0-381
June 2009

DMG Comments

Mr. Hoffman:

Dynegy Midwest Generation, Inc. (DMG) appreciates the opportunity to review and comment upon the June 2009 draft dam assessment report of the Wood River Station ash pond systems written by Dewberry & Davis, LLC. ***We are enclosing a marked-up copy of the draft report which includes all of our comments.*** Most of the comments are easily understood but several deserve additional explanation as presented below.

Section 2.2, Page 2-1, 3rd Paragraph

DMG has not requested that Cells 1 and 2W of the west ash pond system be officially closed. DMG has an Illinois EPA-approved Closure Work Plan in place for these cells which describe the measures being taken that may eventually lead to closure. DMG does not anticipate requesting formal "closure" of these cells from Illinois EPA in the near future.

Section 2.3, Page 2-2, 3rd Paragraph

Cells 1 and 2W are not wetlands and should not be informally described as "essentially a wetland". While offsite land not owned by DMG located west of Cell 2W may be a wetland, Cells 1 and 2W are not wetlands as they do not contain wetland vegetation, or wetland soils, and are not listed on any wetland maps. The majority of the area does not contain water.

Section 2.4.1, Page 2-3

Additional detail is provided regarding the liner and leachate collection systems for Cells 2E and 3 of the west ash pond system. Cell 2E has a 12-inch clay/HDPE composite liner. Cell 3 has 12-inch and a 24-inch clay layers, and an HDPE liner above the lower 24-inch clay layer. Both cells have leachate collection systems.

Section 3.2, Page 3-1

The Illinois Department of Natural Resources, Office of Water Resources, Dam Safety Section has also issued a dam safety permit for the west ash pond system. That permit no. is DS2003215.

Section 4.2.3, Page 4-2, 3rd Bullet

As noted previously, DMG has an Illinois EPA-approved Closure Work Plan for Cells 1 and 2W of the west ash pond system

Please feel free to contact me if you have questions regarding our comments on this draft report.

Sincerely,

Rick Diericx – Sr. Director
Operations Environmental Compliance
Tel. No. 618-206-5912
e-mail: rick.diericx@dynegy.com

Enclosure

DRAFT

Coal Combustion Waste Impoundment

Dam Assessment Report

Wood River Power Station
Dynegy Midwest Generation, Inc.
Alton, Illinois

Project # 0-381

Assessment of Dam Safety
Coal Combustion Surface Impoundments
for the REAC Program

Prepared for:

Lockheed Martin Services, Inc.
Edison, New Jersey
for
United States Environmental Protection Agency
Cincinnati, Ohio

Prepared by:

Dewberry & Davis LLC
Management & Consulting Services Division
Mount Laurel, New Jersey

Under Contract Number: EP-C-04-032: REAC

June 2009

DRAFT

INTRODUCTION

The release of over 5 million cubic yards of coal ash from the Tennessee Valley Authority's Kingston, Tennessee, facility in December 2008 serves as an important reminder of the need for our continued diligence on disposal units where coal combustion wastes are managed. The coal ash from the facility flooded more than 300 acres of land, damaging homes and property. It is critical that we all work to the best of our abilities to prevent a similar catastrophic failure and resultant environmental damage. One of the first steps in this effort is to assess the stability of the impoundments and similar units that contain coal combustion residuals and by-products to determine if and where corrective measures may be needed and then to carry out those measures as expeditiously as possible.

This report for the Wood River Power Plant facility assesses the stability of the following management units. This evaluation is based on a site assessment conducted on (add date) by (add name of contractor and subcontractor for USEPA) ?

PURPOSE AND SCOPE

The U.S. Environmental Protection Agency (EPA) is embarking on an initiative to investigate the potential for catastrophic failure of Coal Combustion Surface Impoundments (i.e., management unit) from occurring at electric utilities in an effort to protect lives and property from the consequences of a dam failure or the improper release of impounded slurry. The EPA initiative is intended to identify conditions that may adversely affect the structural stability and functionality of a management unit and its appurtenant structures (if present); to note the extent of deterioration (if present), status of maintenance and/or a need for immediate repair; to evaluate conformity with current design and construction practices; and to determine the hazard potential classification for units not currently classified by the management unit owner or by a state or federal agency. The initiative will address management units that are classified as having a Less-than-Low, Low, Significant or High Hazard Potential ranking.

In February 2009, the EPA sent letters to coal-fired electric utilities seeking information on the safety of surface impoundments and similar facilities that receive liquid-borne material that store or dispose of coal combustion residue. This letter was issued under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e), to assist the Agency in assessing the structural stability of such management units, including which facilities should be visited to perform a safety assessment of the berms, dikes, and dams used in the construction of these impoundments.

EPA requested that utility companies identify all management units including surface impoundments or similar diked or bermed management units or management units designated as landfills that receive liquid-borne material 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. Utility companies provided information on the size, design, age and the amount of material placed in the units. The EPA used the information received from the utilities to determine preliminarily which management units had or potentially could have High Hazard Potential ranking.

The purpose of this report is to evaluate the condition and potential of waste release from the selected High Hazard Potential management units. This evaluation included a site visit. Prior to conducting the site visit, a two-person team reviewed the information submitted to EPA, reviewed any relevant publicly available information from state or federal

agencies regarding the unit hazard potential classification (if any) and accepted information provided via telephone communication with the management unit owner.

did they? prior to the site visit

2 days ?

EPA sent two engineers from Dewberry, one of whom was a professional engineer (PE), for a one-day site visit. The two-person team met with the owner of the management unit to discuss the engineering characteristics of the unit as part of the site visit. During the site visit, the team collected additional information about the management unit to be used in determining the hazard potential classification of the management unit(s).

unclear! all active cells are already rated by IDNR

Factors considered in determining the hazard potential classification of the management units(s) included the age and size of the impoundment, the quantity of coal combustion residuals or by-products that were stored or disposed of in these impoundments, its past operating history, and its geographic location relative to down gradient population centers and/or sensitive environmental systems.

This report presents the opinion of the assessment team as to the potential of catastrophic failure and reports on the condition of the management unit(s). The team considered criteria in evaluating dams under the National Inventory of Dams, in making these determinations.

LIMITATIONS

The assessment of dam safety reported herein is based on field observations and review of readily available information provided by the owner/operator of the subject coal combustion waste management unit(s). Qualified Dewberry engineering personnel performed the field observations and review and made the assessment in conformance with the required scope of work and in accordance with reasonable and acceptable engineering practices. No other warranty, either written or implied, is made with regard to our assessment of dam safety.

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INTRODUCTION ii

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1.0 CONCLUSIONS AND RECOMMENDATIONS

1.1 CONCLUSIONS

The conclusions below were reached as a result of a visual investigation performed on Thursday and Friday, May 28 and 29, 2009, as well as a review of existing documentation acquired from various sources including information provided by Dynegy Midwest Generation, Inc, (Dynegy), the current owner and operator of the Wood River Power Station.

1.1.1 Conclusions Regarding the Structural Soundness of the Management Unit(s) – The embankments viewed in the field appeared to be well designed and constructed and well-maintained. There were no visible signs of seepage or sloughing, nor were there any large diameter trees on the embankment.

1.1.2 Conclusions Regarding the Hydrologic/Hydraulic Safety of the Management Unit(s) – The embankments appear to be safe from overtopping and resulting failure. The management units do not drain any appreciable areas other than the surface area of the ponds.

1.1.3 Conclusions Regarding the Adequacy of Supporting Technical Documentation – The supporting technical documents appear to be adequate. The original design calculations and drawings are included as Document 5 in Appendix A.

1.1.4 Conclusions Regarding the Description of the Management Unit(s) – The description of the management units provided by Dynegy was an accurate representation of what was observed in the field.

1.1.5 Conclusions Regarding the Field Observations – Dynegy staff provided access requested to make the field observations. There was sufficient time and weather conditions to complete all Field observations. The conclusions provided in this section reflect the engineering team's field observations. The team observed no conditions requiring immediate remedial action.

1.1.6 Conclusions Regarding the Adequacy of Maintenance and Methods of Operation – The current maintenance practices appear to be adequate.

1.1.7 Conclusions Regarding the Adequacy of the Surveillance and Monitoring Program –The surveillance and inspection procedures outlined in the Operations and Maintenance Plan appear to be adequate. There is currently no instrumentation monitoring plan for the embankments.

1.1.8 Conclusions Regarding Suitability for Continued Safe and Reliable Operation – The field observations and review of documents lead the Dewberry team to conclude that the condition of the Coal Combustion Waste management units appear to be adequate for continued safe and reliable operation. Furthermore, this unit can be classified as SATISFACTORY based upon the guidance issued in the Scope of Work, in which SATISFACTORY is defined as, "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."

1.2 RECOMMENDATIONS

Based on the above conclusions as well as the sum of information found within this report, the recommendations presented below are proposed.

1.2.1 Recommendations Regarding the Structural Stability – None appear warranted at this time.

1.2.2 Recommendations Regarding the Hydrologic/Hydraulic Safety – None appear warranted at this time.

1.2.3 Recommendations Regarding the Supporting Technical Documentation – None appear warranted at this time.

1.2.4 Recommendations Regarding the Description of the Management Unit(s) – None appear warranted at this time.

1.2.5 Recommendations Regarding the Field Observations – None appear warranted at this time.

1.2.6 Recommendations Regarding the Maintenance and Methods of Operation – None appear warranted at this time.

1.2.7 Recommendations Regarding the Surveillance and Monitoring Program – None appear warranted at this time.

1.2.8 Recommendations Regarding Continued Safe and Reliable Operation – None appear warranted at this time.

1.3 PARTICIPANTS AND ACKNOWLEDGEMENT

1.3.1 List of Participants
(Full list of Site meeting attendees can be found in Appendix D)

Cleighton Smith, Dewberry
Lauren Ohotzke, Dewberry
Rick Diericx, Dynegy
Tom Davis, Dynegy
Bob Crowe, Dynegy
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Susan McVety, Dynegy
Kenneth E. Smith, IEPA
Ted Dragovich , IEPA
Chris Liebmann, IEPA

1.3.2 Acknowledgement and Signature

We acknowledge that the management units referenced herein have been assessed on May 28 and May 29, 2009.

Cleighton Smith, PE (IL # 062.040606)

_____

Lauren Ohotzke, Civil Engineer

_____

2.0 DESCRIPTION OF THE COAL COMBUSTION WASTE MANAGEMENT UNIT(S)

2.1 LOCATION

at river mile 199.6 left descending

The Wood River Power Station is located in the town of Alton, in southwestern Illinois on the ~~eastern~~ bank of the Mississippi River, approximately 17 miles northeast of St. Louis (Latitude 38° 51' 44.15" and Longitude 90° 08' 0.634"). There are two CCW management units at the Wood River Power Station: the two-cell East Ash Pond System (EAPS), and the four-cell West Ash Pond System (WAPS), (See Figure 1).

As shown on Figure 1, the two-cell EAPS is located on the eastern side of Chessen Lane, just north of the Mississippi River. The Wood River Creek runs along the eastern edge of this system, just beyond an earthen dike. This system consists of a primary and a secondary cell. The primary cell is referred to in the site visit photos found in Appendix B as EAPSP, or East Ash Pond System, Primary cell. Similarly, the secondary cell in this system is referenced as EAPSS, or East Ash Pond System, Secondary cell, in Appendix B. The primary cell is closest to the actual plant. The secondary cell is essentially in the northeast corner of the primary cell.

The four-cell WAPS is located to the north west of the EAPS on the western side of Chessen Lane (see Figure 1). The four cells within this system include Cell 1, Cell 2E, Cell 2W, and Cell 3. Cell 1 is directly west of the EAPS. Cell 3 is directly above (north of) the eastern side of Cell 1. Cell 2E is to the west of Cell 3, above the western side of Cell 1. The eastern border of Cell 2W shares a berm with both Cell 2E, to the north, and Cell 1, to the south. Cell 2W then stretches out westward to the edge of the property.

2.2 SIZE AND HAZARD CLASSIFICATION

The EAPS is not listed within the National Inventory of Dams (NID)database. However, the Illinois Department of Natural Resources Office of Water Resources, IDNR OWR, has classified the EAPS as a Class I small dam, similar to that of the U.S. Army Corp of Engineers' high hazard potential category.

The EAPS, as a whole, has a surface area of 39 acres. The approximate maximum height of the EAPS is 33 feet.

Not at Wood River

Cells 1 and 2W, of the WAPS have been inactive for an extended period of time. Both are dry. ~~Official closure requests have been made, and are awaiting approval verification. As such,~~ These two cells have not been assigned an official hazard classification by the IDNR. The Closure Work Plan is included as Appendix A, Document II.

Cells 2E and 3 of the WAPS have a combined surface area of 19 acres. Cell 2E has an approximate maximum dam height of 20 feet. Cell 3 also has an approximate maximum dam height of 20 feet.

Cell 2E and Cell 3 of the WAPS have been rated as low in the NID and have been labeled as Class III small dams by the IDNR OWR. The rank of Class III is similar to that of the U.S. Army Corp of Engineers' low hazard potential category.

2.3 AMOUNT AND TYPE OF RESIDUALS CURRENTLY CONTAINED IN THE UNIT(S) AND MAXIMUM CAPACITY

The EAPS has been designed to permanently contain the following materials:

- Fly ash
- Bottom ash
- Boiler slag

Coal pyrite sluice water
Ash hopper overflow
Demineralizer regenerant wastes
Water treatment clarifier sludge
Water treatment filter backwash
Units 1-5 turbine rooms and boiler rooms drains
Coal pile runoff
Coal conveyor drain line
Non-chemical metal cleaning wastes
Area runoff
Dredge spoils
Demineralizer brine

our 104(e) response also identified "boiler blowdown", which is not explicitly listed here

Similarly, Cells 2E and 3 of the WAPS have been designed to permanently contain the following materials:

Fly ash
Bottom ash
Boiler slag
Coal pyrites sluice water
Ash hopper overflow
Boiler blowdown
Demineralizer regenerant wastes
Water treatment clarifier sludge
Water treatment filter backwash
Units 1-5 turbine rooms and boiler room drains
Coal pile runoff
Coal conveyor drain line
Non-chemical metal cleaning wastes
Area runoff
Dredge spoils
Demineralizer brine

The EAPS currently contains the materials listed above to permanently exist within the EAPS. The estimated design storage volume/capacity is 435 ac-ft. Dynegy reports the system to be currently operating at a capacity of 58 ac-ft.

Cell 2E of the WAPS currently contains the above materials specified to permanently exist within the WAPS. Cell 2E has a maximum design volume/capacity of 120 ac-ft; Dynegy reports the ~~system to be currently operating at a capacity of 119 ac-ft of materials~~. volume of ash currently deposited in Cell 2E to be approximately

Cells 1 and 2W of the WAPS are no longer in use, but have not yet been officially closed. ~~Cell 2W is full of wildlife and vegetation and is essentially a wetland, although it does not have that official classification.~~ Both cells are dry overgrown with

Cell 3 of the WAPS currently contains the above materials listed to permanently exist within the WAPS. Cell 3 is active has a maximum design volume/capacity of 90 ac-ft; Dynegy reports the system to be currently operating at a capacity of 9 ac-ft.

2.4 PRINCIPAL PROJECT STRUCTURES

2.4.1 Earth Embankment Dam - Based on (exterior) Dynegy design files, the East Ash Pond System is comprised of earth embankments with downstream side slopes of 3:1 (horizontal:vertical) and upstream (interior) side slopes of 3.5:1. There is a 1 foot clay blanket under a geo-membrane liner on the upstream side. The West Ash Pond System is comprised of earth embankments with downstream side slopes of 3:1 and upstream side slopes of 3:1. ~~There is 3 foot of clay on the upstream side.~~

Cells 2E and 3 of Cell 2E has a 12-inch clay/HDPE composite liner; Cell 3 has 12-inch and 24-inch double clay layers and an HDPE liner above the lower 24-inch clay layer. Both cells have leachate collection systems.

2.4.2 Outlet Structures - The outlet structures of both the East Ash Pond System and the West Ash Pond System are similar overflow type V-notched concrete spillways that each discharge into a culvert that drains to an existing culvert that drains into Wood River.

Creek?

2.5 CRITICAL INFRASTRUCTURE WITHIN FIVE MILES DOWN GRADIENT

The inundation map prepared by Dynegy for their Emergency Action Plan (see Appendix A Document 10) indicates that the failure floodwave would dissipate before five miles down gradient. Nonetheless there is a sewage treatment plant within one mile of the East Ash Pond System embankment.

3.0 SUMMARY OF RELEVANT REPORTS, PERMITS AND INCIDENTS

3.1 SUMMARY OF REPORTS ON THE SAFETY OF THE MANAGEMENT UNIT(S) – No previous reports on safety were provided.

3.2 SUMMARY OF LOCAL, STATE AND FEDERAL ENVIRONMENTAL PERMITS - The State of Illinois Department of Natural Resources Dam Safety Office has regulatory oversight over the embankments comprising the East Ash Pond System (permit number is DS2005052). and Cells 2E and 3 of the West Ash Pond System (DS 2003215).

3.3 SUMMARY OF SPILL/RELEASE INCIDENTS (IF ANY)

As stated by Dynegy, to the best of their knowledge, neither the East Ash Pond System nor the West Ash Pond System has had any spills or unpermitted releases of coal combustion residues or byproducts to surface water or land.

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4.0 SUMMARY OF HISTORY OF CONSTRUCTION AND OPERATION

4.1 SUMMARY OF CONSTRUCTION HISTORY

4.1.1 Original Construction

Both the Primary and Secondary cells of the EAPS, as well as Cells 2E and 3 of the WAPS were designed and constructed under the supervision of a registered Professional Engineer. This individual was employed by Dynegy or the previous owner of the Wood River Power Station. Construction was performed in stages, from approximately 1996 through 2006. of the WAPS and EAPS

4.1.2 Significant Changes/Modifications in Design since Original Construction

There have been no significant changes/modification in design since the original construction of the CCW units at the Wood River Power Station.

4.1.3 Significant Repairs/Rehabilitation since Original Construction

There have been no significant repairs/rehabilitation since the original construction of the CCW units at the Wood River Power Station.

4.2 SUMMARY OF OPERATIONAL HISTORY

4.2.1 Original Operational Procedures

The EAPS was commissioned (began receiving ash) in 2006, and has since not been expanded.

Cells 2E and 3 of the WAPS were commissioned (began receiving ash) in 1997.

There are no records regarding the time of commission for Cells 1 and 2W of the WAPS. Both cells were probably first placed into service with mid-1970s

4.2.2 Significant Changes in Operational Procedures since Original Startup

EAPS or WAPS of the ~~[illegible]~~ of the CCW units

There have not been any significant changes in operational procedures since the original startup at the Wood River Power Station. The current operating procedures have been reviewed and approved by the IDNR, Office of Water Resources, Dam Safety Section

4.2.3 Current Operational Procedures

The current operational procedures are:

- Fly ash is either sold to the local market or discharged to the EAPS Primary Cell; bottom ~~boiler~~ ash is discharged to EAPS Primary Cell. Decant is discharged into the Secondary cell, where it is discharged via the outfall structure into Wood River. NPDES Permit No. IL0000701, Outfall 005

Creek ?

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- Coal Pile Runoff is pumped to WAPS Cell 2E, the decant is discharged into Cell 3, where it is discharged via the outfall structure into Wood River Creek. NPDES Permit No IL0000701, Outfall 002
- Coal combustion waste previously stored in Cells 1 and 2E W are occasionally mined and sold to local buyers.
- As previously stated, Dynegy has ~~a~~ an approved ~~draft~~ closure plan in place for Cells 1 and 2W (see Appendix A, Document II).

4.2.4 Other Notable Events since Original Startup

There have been no other notable events reported by Dynegy since original startup.

5.0 FIELD OBSERVATIONS

5.1 PROJECT OVERVIEW AND SIGNIFICANT FINDINGS

The EAPS at the Wood River Power Station was visually observed on Thursday, May 28, 2009. The WAPS was similarly observed on Friday, May 29, 2009. A series of photographs taken during this investigation can be found in Appendix B of this report. In addition, a field checklist is included as Appendix C.

Based upon the field observations, the following findings are reported:

- The embankments at the East Ash Pond System and the West Ash Pond System have been designed by a professional engineer and appear to be well constructed and structurally sound. There is regulatory oversight under the State of Illinois Dam Safety Program.

5.2 EARTH EMBANKMENT DAMS

5.2.1 Crests– appear to be structurally sound.

5.2.2 Upstream Slopes– appear to be structurally sound.

5.2.3 Downstream Slopes and Toes– appear to be structurally sound; a few ponding areas at the toe were noted but deemed to be from recent rains.

5.2.4 Abutments and Groin Areas– not applicable.

5.3 OUTLET STRUCTURES

5.3.1 Overflow Structure – appears to be structurally sound.

5.3.2 Outlet Conduit– not visible.

5.2.3 Emergency Spillway (If Present) - not applicable.

6.0 HYDROLOGIC/HYDRAULIC SAFETY

6.1 SUPPORTING TECHNICAL DOCUMENTATION (Provided by Dynegy, see Appendix A, Document 5)

6.1.1 Floods of Record – Not recorded by Dynegy.

6.1.2 Inflow Design Flood –Probable Maximum Flood, appropriate based on Illinois Dam Safety criteria

6.1.3 Spillway Rating – (Provided by Dynegy, see Appendix A, Document 5)

6.1.4 Downstream Flood Analysis – Dynegy has prepared an inundation map (see Appendix A, Document 5).

6.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION – Appears to be adequate.

6.3 ASSESSMENT OF HYDROLOGIC/HYDRAULIC SAFETY – Appears to be adequate.

7.0 STRUCTURAL STABILITY

7.1 SUPPORTING TECHNICAL DOCUMENTATION

7.1.1 Stability Analyses and Load Cases Analyzed – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.1.2 Design Properties and Parameters of Materials – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.1.3 Uplift and/or Phreatic Surface Assumptions – not considered in design of embankment, due to upstream liner.

7.1.4 Factors of Safety and Base Stresses – Provided by Dynegy (Appendix A, Document 5), factors of safety greater than 1.8 for all cases analyzed.

7.1.5 Liquefaction Potential – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.1.6 Critical Geological Conditions – Provided by Dynegy (Appendix A, Document 5), appears to be appropriate.

7.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION – Appears to be adequate.

7.3 ASSESSMENT OF STRUCTURAL STABILITY

Based on review of the information provided by Dynegy and visual observation on May 28 and 29, 2009, the embankments at the EAPS and WAPS appear to be structurally stable.

8.0 MAINTENANCE AND METHODS OF OPERATION

8.1 OPERATIONAL PROCEDURES – Provided by Dynegy (Appendix A, Document 9)

8.2 MAINTENANCE OF THE DAM AND PROJECT FACILITIES – Provided by Dynegy (Appendix A, Document 9)

8.3 ASSESSMENT OF MAINTENANCE AND METHODS OF OPERATION

8.3.1 Adequacy of Operational Procedures– Appears to be adequate

8.3.2 Adequacy of Maintenance– Appears to be adequate

9.0 SURVEILLANCE AND MONITORING PROGRAM

9.1 SURVEILLANCE PROCEDURES

Daily, weekly, semi-annual and annual inspections, or surveillance operations, are performed at the Wood River Power Station. The daily, weekly and semi-annual surveillance operations are conducted by Dynegy Station operations personnel, whereas the annual inspections are performed by a civil engineer, specifically a registered PE with experience in similar operations.

For more information, see the Operations and Maintenance Plan provided by Dynegy, located in Appendix A, Document 9).

9.2 INSTRUMENTATION MONITORING

9.2.1 Instrumentation Plan - None

9.2.2 Instrumentation Monitoring Results - None

9.2.3 Evaluation – A plan of instrumentation and monitoring does not appear to be warranted for these lined embankments at this time.

9.3 ASSESSMENT OF SURVEILLANCE AND MONITORING PROGRAM

9.3.1 Adequacy of Inspection Program – Appears to be adequate.

9.3.2 Adequacy Instrumentation Monitoring Program – There is no instrumentation monitoring program and none appears warranted at this time for the lined embankments. In view of the observed sound condition of the embankments, the daily, weekly, semi-annual, and annual inspections of the impoundment structures together with the emergency action plan that is in place, there appear to be sufficient safeguards at this time.

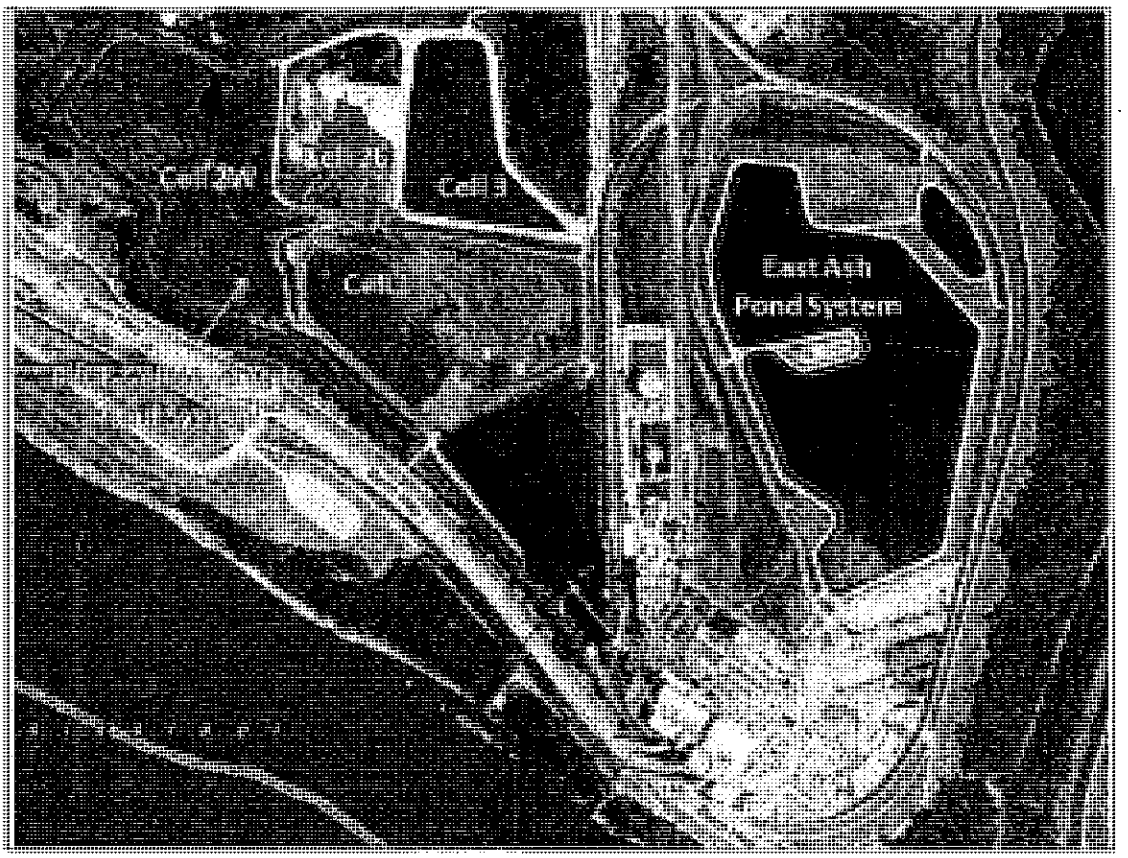

Figure 1: Wood River Power Station Aerial Map

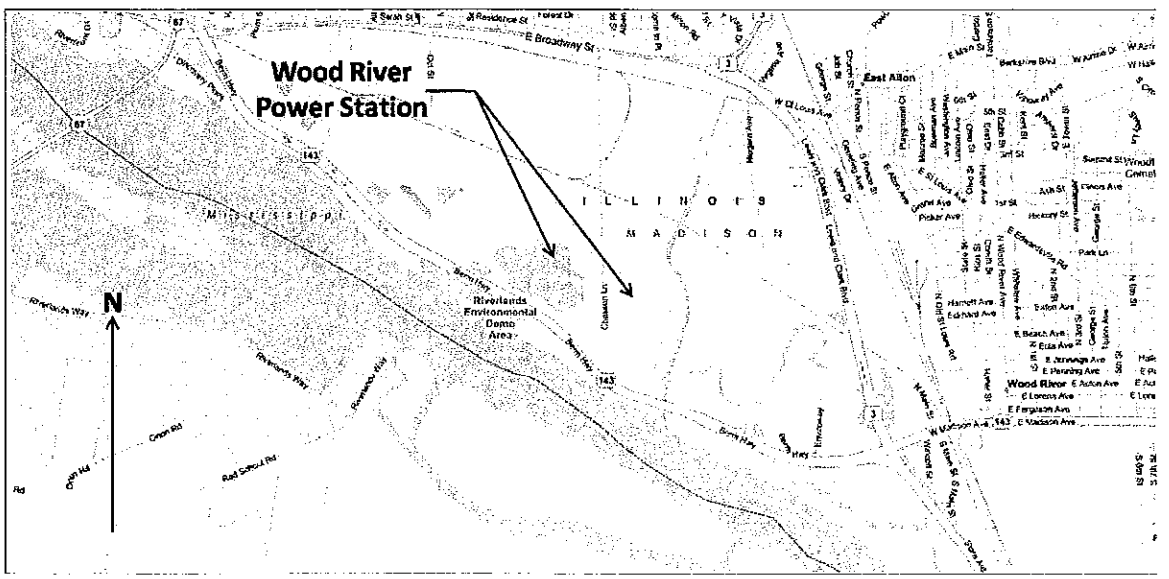

Figure 2: Wood River Power Station Vicinity Map

Table 2.3 displays the amount of residuals and maximum capacity of the EAPS as well as Cells 2E and 3 of the WAPS.

Table 2.3 Amount of Residuals and Maximum Capacity of Unit			
	EAPS	Cell 2E of WAPS	Cells 3 of WAPS
Surface Area (acre)	39	19	19
Current Storage Capacity (acre-feet)	58	119	9
Total Storage Capacity (acre-feet)	435	120	90

2.4 PRINCIPAL PROJECT STRUCTURES

2.4.1 Earth Embankment Dam - Based on Dynegy design files, the East Ash Pond System is comprised of earth embankments with downstream exterior side slopes of 3:1 (horizontal:vertical) and upstream interior side slopes of 3.5:1. There is a 1 foot clay blanket under a geo-membrane liner on the upstream side. The West Ash Pond System is comprised of earth embankments with downstream side slopes of 3:1 and upstream side slopes of 3:1. There is 3 foot of clay on the upstream side. Cell~~s~~ 3 within the West Ash Pond System ~~have~~ has a leachate collection system~~s~~. Additionally, Cell 2E has a 12-inch clay/HDPE composite liner. Cell 3 has 12-inch and 24-inch clay layers, as well as an HDPE liner above the lower 24-inch clay layer.

Table 2.4.1 displays a summary of the dimensions and size specifications of the EAPS and Cells 2E and 3 of the WAPS.

Table 2.4.1 Summary of Dam Dimensions and Size			
	EAPS	Cell 2E of WAPS	Cell 3 of WAPS
Dam Height	33	20	20
Side Slopes (upstream)	3.5:1	3:1	3:1
Side Slopes (downstream)	3:1	3:1	3:1
Hazard Classification	Class I-High	N/A	N/A

2.4.2 Outlet Structures - The outlet structures of both the East Ash Pond System and the West Ash Pond System are similar overflow type V-notched concrete spillways that each discharge into a culvert that drains to an existing culvert that drains into Wood River Creek.

2.5 CRITICAL INFRASTRUCTURE WITHIN FIVE MILES DOWN GRADIENT

The inundation map prepared by Dynegy for their Emergency Action Plan (see Appendix A, Document 10) indicates that the failure floodwave would dissipate before five miles down gradient. Nonetheless there is a sewage treatment plant within one mile of the East Ash Pond System embankment.