DRAFT REPORT

Dam Safety Assessment of CCW Impoundments

Plant Jack Watson

United States Environmental Protection Agency
Washington, DC

July 30, 2010

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13498/46122

Dam Safety Assessment of CCW Impoundments

Plant Jack Watson

Prepared for:
US Environmental Protection Agency
Washington, DC

ROBERT R. BOWERS, P.E. – VICE PRESIDENT
O'BRIEN & GERE ENGINEERS, INC.

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O'BRIEN & GERE ENGINEERS, INC.

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1. INTRODUCTION

1.1. GENERAL

In response to the coal combustion waste (CCW) impoundment failure at the TVA/Kingston coal-fired electric generating station in December of 2008, the U. S. Environmental Protection Agency has initiated a nationwide program of structural integrity and safety assessments of coal combustion waste impoundments or "management units". A CCW management unit is defined as a surface impoundment or similar diked or bermed management unit or management units designated as landfills that receive liquid-borne material and are 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. Management units also include inactive impoundments that have not been formally closed in compliance with applicable federal or state closure/reclamation regulations. The USEPA has authorized O'Brien & Gere to provide actual site specific impoundment assessments at selected facilities. This project is being conducted in accordance with the terms of BPA# EP10W000673, Order No. EP-CALL-0001, dated June 14, 2010.

1.2. PROJECT PURPOSE AND SCOPE

The purpose of this work is to provide Dam Safety Assessment of CCW management units, including the following:

- Identify conditions that may adversely affect the structural stability and functionality of a management unit and its appurtenant structures
- Note the extent of deterioration, status of maintenance, and/or need for immediate repair
- Evaluate conformity with current design and construction practices
- Determine the hazard potential classification for units not currently classified by the management unit owner or by state or federal agencies

O'Brien & Gere's scope of services for this project includes performing a site specific dam safety assessment of all CCW management units at the subject facility. Specifically, the scope includes the following tasks:

- Perform a review of pertinent records (prior inspections, engineering reports, drawings, etc.) made available at the time of the site visit to review previously documented conditions and safety issues and gain an understanding of the original design and modifications of the facility.
- Perform a site visit and visual inspection of each CCW management unit and complete the visual inspection checklist to document conditions observed.
- Perform an evaluation of the adequacy of the outlet works, structural stability, quality and adequacy of the management unit's inspection, maintenance, and operations procedures.
- Identify critical infrastructure within 5 miles down gradient of management units.
- Evaluate the risks and effects of potential overtopping and evaluate effects of flood loading on the management units.
- Immediate notification of conditions requiring emergency or urgent corrective action.
- Identify all environmental permits issued for the management units
- Identify all leaks, spills, or releases of any kind from the management units within the last 5 years.
- Prepare a report summarizing the findings of the assessment, conclusions regarding the safety and structural integrity, recommendations for maintenance and corrective action, and other action items as appropriate.

This report addresses the above issues for the Ash Pond at Plant Jack Watson, Gulfport, Mississippi. The

impoundment is owned and operated by Mississippi Power Company. In the course of this assessment, we obtained information from representatives of Mississippi Power, Southern Company and Balch & Bingham LLP, counsel to Mississippi Power.

2. PROJECT/FACILITY DESCRIPTION

Plant Jack Watson is located at the junction of Lorraine Boulevard and Interstate 10 in Gulfport, Mississippi. A Site Location Map is included as Figure 1. The coal-fired power station has a capacity of 1,000 MW, commercial operation began in 1968. Coal combustion waste that is produced during power generation is managed on-site with a single CCW impoundment and a 20-acre on-site dry landfill. None of the units are equipped with flue-gas desulphurization (FGD) scrubbers.

The facility utilizes a single impoundment known as the Ash Pond for CCW management. This safety assessment report summarizes the June 2010 inspection of this management unit at Plant Jack Watson.

2.1. MANAGEMENT UNIT IDENTIFICATION

The location of the CCW impoundment inspected during this safety assessment is identified on Figure 2 – Facility Layout Plan.

The Ash Pond is located on the south side of the power plant. The Mississippi Department of Environmental Quality (MDEQ) regulates the impoundment under its solid waste management and dam safety programs, but does not inventory this site under its dam safety regulations. The Ash Pond carries the following permit identification numbers:

- MDEQ solid waste identification number SW0240040507
- NPDES Permit MS0002925

The Ash Pond was built in 1955 with several vertical expansions since. The most recent expansion occurred in two phases to its present configuration in 1995 and 1997. Coal combustion waste stored in the pond consists of fly ash, bottom ash, boiler slag, segregated pyrites and other low-volume wastes. Bottom ash is sluiced to the pond using water from Big Lake. Water that is routed through the pond is discharged through an outlet structure and conduit back to Big Lake.

2.2. HAZARD POTENTIAL CLASSIFICATION

The Mississippi Department of Environmental Quality (MDEQ) classifies dams or embankments in accordance with MDEQ regulation LW4. The regulations are administrated by MDEQ, Surface Water Division, Dam Safety Branch. Regulation LW4 defines a dam as any artificial barrier, including appurtenant works, constructed to impound or divert water, waste-water, liquid borne materials, or solids that may flow if saturated (LW I.G).

Dam hazard classifications are established by LW4 which provides definitions for Low, Significant and High hazard structures, LW I.O, I.V and I.M, respectively.

The MDEQ has assigned the Plant Jack Watson Ash Pond a *low* hazard classification, defined as follows:

> *"I.O A class of dam in which failure would at the most result in damage to agricultural land, farm buildings (excluding residences), or minor roads."*

The definitions for the four hazard potentials (Less than Low, Low, Significant and High) to be used in this assessment are included in the EPA CCW checklist found in Appendix A. Based on the checklist definitions and as a result of this assessment, the hazard potential rating recommended for the Plant Jack Watson Ash Pond is **SIGNIFICANT.** This rating is higher than that assigned by the State of Mississippi primarily because of the

environmental damage potential**.** A failure of embankments impounding the Plant Jack Watson Ash Pond could cause significant environmental damage if the CCW was released into the surrounding bayou and Big Lake, thereby damaging the surrounding area, wildlife and habitats. The power station is located in a rural area; therefore, damage to critical infrastructure or lifeline facilities in the event of a dam failure would likely be limited to the power plant facilities.

2.3. IMPOUNDING STRUCTURE DETAILS

The following sections summarize the structural components and basic operations of the Plant Jack Watson Ash Pond. The location of the impoundment on the plant grounds is shown on Figure 2. A site plan of the Ash Pond is provided as Figure 3. It should be noted that the site plan shown on Figure 3 is adapted from design drawings dating to 1995 prior to raising to the existing configuration and do not depict all current features. Additionally, photos taken during the visual inspection are incorporated in a Photographic Log provided as Appendix B.

2.3.1. Embankment Configuration

The Ash Pond is a two-mile long diked earth embankment that impounds an area of approximately 102 acres. The crest is at approximately elevation (EL) 33 feet above mean sea level. The facility dates to 1955 and has undergone several expansions since. The pond bottom (as designed) is at EL 3. The lower dike slopes were designed at an inclination of 2H:1V with the upper slopes at about 1H:1V. The 1999 embankment raising included installation of geogrids on the 1H:1V upper slopes. An approximately 20-foot wide, 3-5 foot high bench extends beyond the outboard dike toe to sea level. The embankment contains a cement-bentonite-flyash slurry wall extending to approximately El. -35.

2.3.2. Type of Materials Impounded

Influent into the Plant Jack Watson Ash Pond currently includes water with solids consisting of fly ash, bottom ash, boiler slag, segregated pyrites, other low-volume wastes, and surface runoff silt.

2.3.3. Outlet Works

The Ash Pond is a diked offstream impoundment that has been designed to receive sluice flows, plant runoff from specific areas, and direct precipitation. The ash pond outlet structure, located near the northwestern corner of the pond within the southern dike section, consists of a three-sided concrete weir equipped with stop logs to govern the water level in the pond (See Appendix B – Photo 5). A timber baffle serves to exclude floating debris and cenospheres from the discharge. The effluent discharges into a buried 36-inch steel pipe that extends below grade toward the west to outfall at an impact stilling basin which flows into the western discharge canal, and ultimately to Big Lake. The pond discharge is permitted under MPDES permit # MS0002925.

3. RECORDS REVIEW

A review of the available records related to design, construction, operation and inspection of the Ash Pond was performed as part of this assessment. The documents provided by Mississippi Power Company are listed below:

Table 3.1 *Summary of Plant Jackson Ash Pond Documents Reviewed*

Document	Dates	By	Description
Ash Pond Dike Stability and Upgrade	1994	Southern Company	Evaluation of existing embankment stability and the raised embankment with a pool at El. 22. Includes profiles, boring logs, field and lab test results, and piezometer logs from the 1993 geotechnical investigations.
Design of Reinforced Dike Slopes	1995	Tensar Environmental Systems, Inc.	Analysis and design of a geogrid system to allow raising of the dike to El. 32.5 using 1H:1V side slopes.
Final Project Report	1995	Inquip Associates, Inc.	Slurry wall contractor's report of installation including profiles of slurry wall penetration and unconfined compression test results.
Drawings – Ash Pond Discharge Structure	1995	Southern Company	Plans, sections and details.
Memorandum – Damage to the East Dike Due to Hurricane Katrina, Recommendations for Repair	2005	Southern Company	Topographic survey, cross-sections, damage photographs and recommendations for embankment repair.
Water Pollution Control Permit	2008	MDEQ	Permit No. M0002925
Report of Annual Safety Inspection for the Plant Jack Watson Ash Pond Dike	2009	Southern Company	Report containing observations, conclusions, recommendations and photographs.
Slope Repair Recommendations	2009	Southern Company	Recommendations for re-constructing failed post-Katrina repairs of the northeast corner of the outboard dike slope.
Report of Annual Safety Inspection for the Plant Jack Watson Ash Pond Dike	2010	Southern Company	Report containing observations, conclusions, recommendations and photographs.
Ash Pond Storm Event Hydraulic Capacity	2010	Southern Company	Hydraulic calculations for the 0.5PMP.
17 Misc. Drawings	Undated	Mississippi Power	Geologic profiles, topographic maps, embankment sections.

3.1. ENGINEERING DOCUMENTS

Review of the design drawings revealed information on the design details, construction chronology, and modifications of the Plant Jack Watson Ash Pond, which are summarized below.

Plant Jack Watson Ash Pond

- The ash pond was originally constructed in 1955 with the northern and southern dikes constructed of

dredge spoil from excavation of the intake and discharge canals connected to Big Lake. Subsequent fills were placed on this base material which forms a 3-5 foot high, approximately 20-foot wide external bench above sea level.

- The eastern dike section was built of controlled fill in the mid-1970's to enclose the pond. It was raised in 1980, and again in 1987 to El. 26.0 .
- Engineering studies were undertaken in 1994 and 1995 for raising the entire dike to El. 33. Those studies included geotechnical investigations and stability analyses.
- Longitudinal dike profiles shown on Drwg. E191304 were developed from the 1995 geotechnical investigations. The profiles indicate that the dikes generally consist of a lower zone of highly organic, soft silts and clays (which are likely dredge spoil), and upper zones of silty clayey sand placed during multiple dike raisings. None of the dike fills were reportedly placed under gradation or density control. All of the dike sections were placed upon highly organic silts and clays underlain by silty sands.
- The dike was raised to El. 33 in three phases between 1995 and 2000. The raising included installation of a cement-bentonite-flyash slurry wall through the center of the embankment around the entire perimeter to control seepage into the underlying aquifer. These phases also included construction of a new concrete outlet structure.
- The eastern outboard slope suffered wave erosion damage within 5 feet of its crest from Hurricane Katrina. The slope was subsequently repaired.
- The 2010 hydraulic capacity report indicates that the freeboard during the Probable Maximum Precipitation is 3.65 feet with the outlet discharging at maximum capacity.
- No indication or mention of ash, coal slimes, or other CCW by-products within the dikes or dike foundations was noted in our review of the engineering records listed above.
- No indication of former spills or releases of impounded materials from the Ash Pond was noted in the records reviewed or from interviews with plant personnel.

3.1.1. Stormwater Inflows

Stormwater inflows to the Plant Jack Watson Ash Pond are minimal. The impounding structure is comprised of diked embankments on all sides which direct storm water away from the impoundment and limits runoff to precipitation which falls directly on the water surface, inboard slope and crest of the dike.

3.1.2. Stability Analyses

Stability analyses of the dikes was undertaken in 1995 using field and laboratory data from in-situ dilatometer and laboratory unconfined compressive strength and triaxial strength testing. The loading conditions and results of that analyses (slope stability safety factors) were not contained within the version of the Ash Pond Dike Stability and Upgrade report provided by Mississippi Power. However, the 1995 Tensar geogrid design report indicated that global stability safety factors were about 1.2 which is believed to represent the minimum predicted global dike stability at maximum flood pool (≈ El. 33). Note that MDEQ dam design reference documents suggest minimum factors of safety of 1.5 for normal pool and 1.3 for maximum pool. The design of the 1995-2000 raising included installation of geogrids on the 1H:1V upper inboard and outboard slopes to meet a minimum factor of safety of 1.2.

The ash pond was originally constructed in 1955 with the northern and southern dikes constructed of dredge spoil from excavation of the intake and discharge canals connected to Big Lake. Subsequent fills were placed on this base material which forms a 3-5 foot high, approximately 20-foot wide external bench above sea level.

The eastern dike section was built of controlled fill in the mid-1970's to enclose the pond. It was raised in 1980, and again in 1987 to El. 26.0. All of the dike sections were raised to El. 33 and equipped with a cement-bentonite-flyash slurry wall between 1995 and 2000. The modifications also included installation of a new rectangular concrete outlet structure and 36-inch outlet conduit.

3.1.4. Instrumentation

Four piezometers were observed at the outboard toe and within the outboard dike slope during the visual inspection. Mississippi Power indicated that there was no program of data collection therefrom.

3.2. PREVIOUS INSPECTIONS

Ash Pond

MDEQ conducted an inspection of the Plant Jack Watson Ash Pond in February 2009. A copy of the 2009 inspection report was provided with the other documentation. That report did not list any deficiencies and noted the absence of seepage through the dike.

Engineers from Southern Company's Hydro Services- Dam Safety and Earth Science and Environmental groups inspected the Ash Pond in April 2009 and May 2010. Their recommendations are presented in the following table:

Date of State Inspection	Observations/Recommendations
April 2009	Continue mowing slopes; small seeps on the southeastern slope should be monitored, the inspection team should be contacted if a change is observed; animal borrows should be backfilled; the surface slide at the northeast corner of the dike should be repaired; minor sloughs should also be repaired.
May 2010	Seeps should continue to be monitored; areas of sparse vegetation should be re-vegetated; a small slide on the inboard slope should be repaired; rutting should also be repaired.

3.3. OPERATOR INTERVIEWS

Numerous plant and corporate personnel took part in the inspection proceedings. The following is a list of participants for the inspection of the Plant Jack Watson Ash Pond:

Table 4 *List of Participants*

Name	Affiliation	Title
Valerie S. Wade	Mississippi Power	Plant Manager
Mike Davis	Mississippi Power	Compliance Team Leader
Jim Pegues	Southern Company	Principal Engineer
Terri Hartsfield	Southern Company	Senior Engineer
Flinda Hil	Mississippi Power	Sr. Environmental Specialist
Bradley Ennis	Balch and Bingham	Corporate Counsel
Steven H. Snider	O'Brien & Gere	Project Manager
James A. Cory III	O'Brien & Gere	Sr. Project Engineer

Facility personnel provided a good working knowledge of the Plant Jack Watson Ash Pond, provided general plant operation background and provided requested historical documentation. In addition to the facility personnel, the plant's legal counsel and Southern Company's Chief Geotechnical Engineer were present. These personnel also accompanied O'Brien & Gere throughout the visual inspections to answer questions and to provide additional information as needed in the field. Mississippi Power provided the inspection team with a compact disk of the above-listed background data at the time of inspection and its legal counsel subsequently e-mailed two separate documents requested by the inspection team.

4. VISUAL INSPECTION

The following sections summarize the inspection of the Plant Jack Watson Ash Pond which occurred on June 30. 2010. At the time of the inspection, O'Brien & Gere completed an EPA inspection checklist for the site, which was submitted electronically to EPA on July 9, 2010. A copy of the completed inspection checklist is included as Appendix A.

4.1. GENERAL

The weather at the time of inspection was partly cloudy and approximately 85 degrees. The visual inspection consisted of a thorough site walk along the perimeter of the pond. O'Brien & Gere team members made observations along the toe, outboard slope, and crest of the embankments, and along exposed portions of the inboard slopes. We also observed the outlet structure and influent pipelines.

Photos of relevant features and conditions observed during the inspection were taken by O'Brien & Gere are provided in Appendix B. A Site Plan of the Plant Jack Watson Ash Pond is presented as Figure 3, which provides photograph locations and directions.

4.2. SUMMARY OF FINDINGS

The following observations were made during the inspection:

- Sluiced CCW by-product enters the pond near the northwest corner and is routed to the south end of the pond through a shallow ditch that has been excavated into the accumulated bottom ash deposits.
- The CCW has accumulated above the normal pool level over an estimated 60 percent of the pond area. Water in the pond is isolated to primarily the southern half of the pond.
- The outboard slope is covered with well-maintained grass with a few areas of rutting from the mowing equipment. A few bare areas had been seeded and covered with straw mulch (Appendix B – Photo 3). A few minor surface sloughs in the upper 1H;1V outboard slope were evident as noted by Southern Company's inspectors earlier in the year.
- Growth of portions of the crest turf has been retarded, probably due to vehicular traffic (Appendix B – Photo 5).
- Minor seepage was evident at sporadic locations along the toe of the outboard southwestern and southeastern slopes at the bench (≈ El. 5). The seepage rate was very low with no discernible flow A combination of seepage and poor drainage has resulted in areas of soft, wet soils along the toe of the outboard slope and on the bench. The mowing tractor has created occasional ruts in these organic clays.
- Four piezometers were noted at the toe and within the outboard dike slope.
- Small trees and brush cover most of the bench's short outboard slope which meets the bayou (Appendix B – Photo 2). Intermittent forays into this area did not reveal evidence of seepage or instability.
- No animal burrows were observed as seen by previous inspectors.
- The Plant has stockpiled materials for emergency use near the northwest corner of the impoundment (Appendix B- Photo 7).
- The outlet structure appeared to be in good condition and functioning normally (Appendix B – Photo 6).

5. CONCLUSIONS

Based on the ratings defined in the BPA Task Order Performance Work Statement (Satisfactory, Fair, Poor and Unsatisfactory), the information reviewed and the visual inspection, the overall condition of the Plant Jack Watson Ash Pond is considered to be **FAIR**. Acceptable performance is expected under all loading conditions although the computed slope stability safety factor for the maximum pool loading condition is slightly below MDEQ guidelines. Some minor deficiencies exist that require repair and/or additional studies or investigations. The deficiencies include the following:

- The shallow surface sloughs on the outboard slope may be a combination of the 1H:1V outboard slope inclination combined with sliding on the underlying geotextile after precipitation.
- The intermittent seeps may be due to drainage of recent precipitation. Southern Company engineers noted that their previous two inspections, which noted similar conditions, were also after rains.
- Rutting is occurring along the toe of the outboard slopes due to mower traffic over soft, wet areas described above.
- Trees and brush are growing on the slope of the outboard bench.

Other than the conditions cited above, the owner has implemented regular inspections and maintenance which enable the impoundment to be kept in good working order. We understand through our on-site conversations with the utility representatives that the rutting is problematic because of frequent precipitation during the growing season. In addition to the physical deficiencies, we also noted that the slope stability analyses records do not report the calculated safety factors. A companion report for design of the geogrid system for the most recent crest raising reported that the global slope stability factor of safety was calculated to be 1.2 for the maximum pool loading condition. MDEQ design guidelines suggest a factor of safety of 1.3 for this loading condition. Finally, the Plant does not record measurements within the four piezometers noted during the inspection.

Our interviews with plant engineering personnel responsible for the operation of the impoundment indicate that a regular operations plan is in use at the Plant Jack Watson facility. The regular operating procedures of the facility do not appear to be impacting the structural integrity of the impounding embankments.

The plant engineering staff maintains all design documents and inspection reports in a well organized manner. The plant participates in, and cooperates with, regular state inspections and those by its independent affiliate, Southern Company. The plant operations personnel have received training in dam safety inspections and will implement monthly internal inspections, supported by periodic inspections by Southern Company. Based on these findings, we are of the opinion that the operations and maintenance procedures being practiced at the Plant Jack Watson Ash Pond are adequate, although we recommend additional maintenance/improvement actions be implemented to correct some of the conditions observed.

6. RECOMMENDATIONS

Based on the findings of our visual inspection and review of the available records for the Plant Jack Watson Ash Pond, O'Brien & Gere recommends that additional maintenance of the embankments be performed to correct the overgrowth and other miscellaneous deficiencies cited above.

6.1. URGENT ACTION ITEMS

None of the recommendations are considered to be urgent, since the issues noted above do not appear to threaten the structural integrity of the dam in the near term.

6.2. LONG TERM IMPROVEMENT

The deficient conditions observed during the inspection do not require immediate attention, but should be implemented in the near future as part of a regular maintenance plan. The recommended maintenance/improvement actions and additional studies are as follows:

- The brush and trees growing on the outboard slope of the outboard bench should be cut and the slope surface turfed. This action will assist in detection of seepage during future inspections and high pool elevations.
- Periodic water level measurements within the four piezometers should be instituted on a regular basis. Plotting of this data against pool elevations should demonstrate the overall effectiveness of the slurry wall and help to establish the source of the minor seeps.
- Seepage observations should be recorded together with recent precipitation to demonstrate whether near-surface drainage is the source of the seeps. Establishing the precise seepage locations by survey or GPS should be considered.
- Additional studies – the utility should undertake a more formal evaluation of the noted seepage as described above; and it should also re-visit its slope stability calculations and compare same to MDEQ criteria for normal pool with steady state seepage, maximum surcharge pool, and seismic loading conditions.

6.3. MONITORING AND FUTURE INSPECTION

O'Brien & Gere recommends continued participation in state inspections and annual inspections by Southern Company. Consideration should be given to development of an O&M Plan that would establish a firm schedule for operations, maintenance, and inspection activities.

6.4. TIME FRAME FOR COMPLETION OF REPAIRS/IMPROVEMENTS

The majority of the identified deficiencies were noted in the previous impoundment inspections by Southern Company. Based on our conversations with representatives of Mississippi Power and Southern Company engineering recommendations for items such as erosion repairs have been developed and are on-going.. We recommend that the owner continue this schedule as planned. We recommend that the other improvements, and the stability analyses evaluation recommended above be completed prior to the next scheduled inspection by MDEQ, or by the end of 2010.

6.5. CERTIFICATION STATEMENT

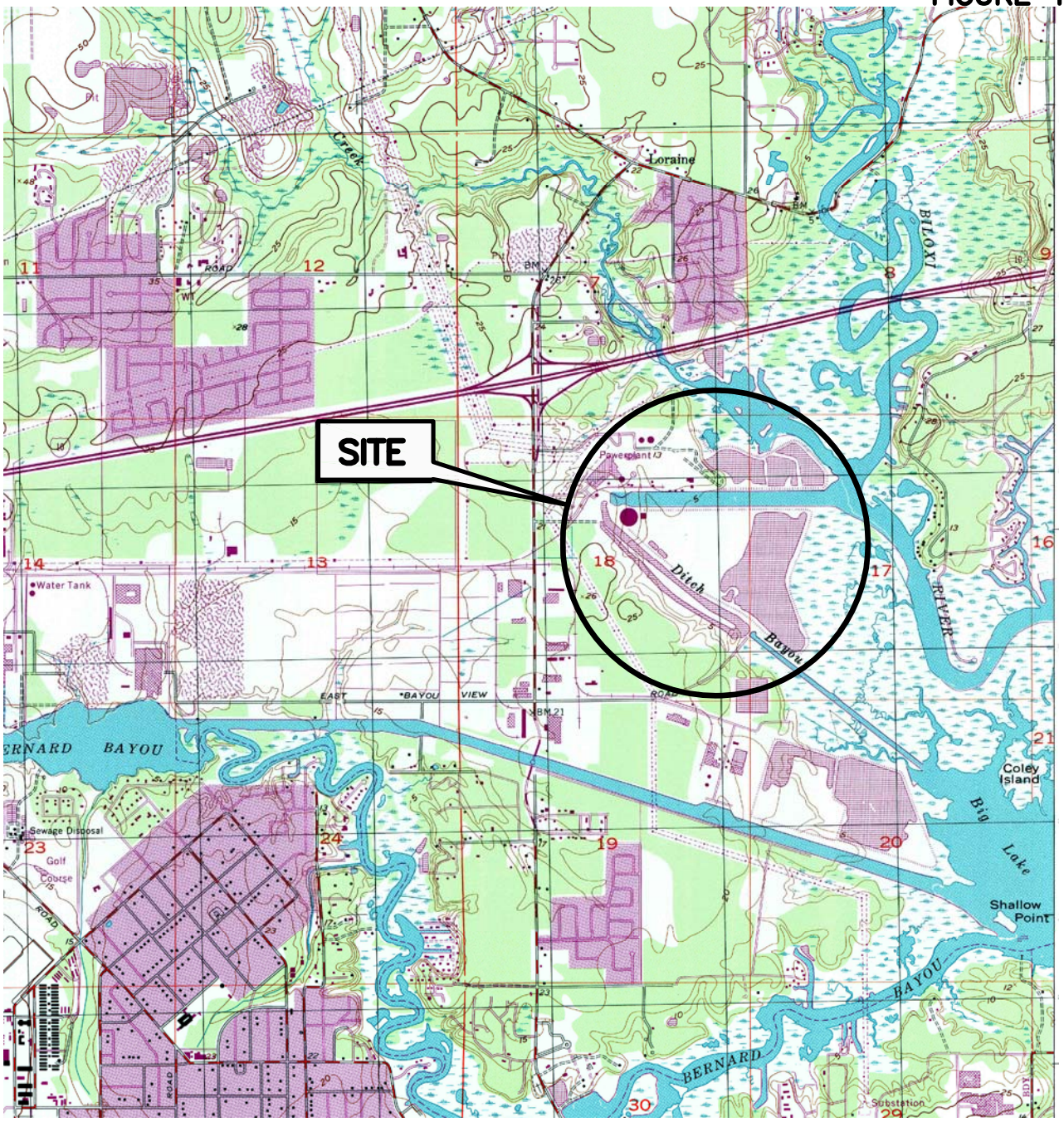
I acknowledge that the Plant Jack Watson Ash Pond and CCW management units referenced herein were personally inspected by me on June 30, 2010 and were found to be in the following condition:

~~SATISFACTORY~~
FAIR
~~POOR~~
~~UNSATISFACTORY~~

Signature: _____ Date: _____

James A. Cory, III PE
MS PE # 11669

FIGURE 1



ADAPTED FROM: GULFPORT NORTH QUADRANGLE, MISSISSIPPI U.S.G.S. 7.5 MIN. QUAD 1994

QUADRANGLE LOCATION

US EPA
DAM SAFETY ASSESSMENT OF CCW IMPOUNDMENTS
PLANT JACK WATSON
GULFPORT, MISSISSIPPI
SITE LOCATION MAP

3000 0 3000

1"=3000'

46122-GOLFPORT-F01

JULY 2010

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NOTES
Aerial imagery provided by National Agriculture Imagery Program (USDA), 2009.

MISSISSIPPI POWER
PLANT JACK WATSON
GULFPORT, MISSISSIPPI

FIGURE 2
FACILITY LAYOUT

0 400 800 1,600
Feet

JULY 2010
13498/46122

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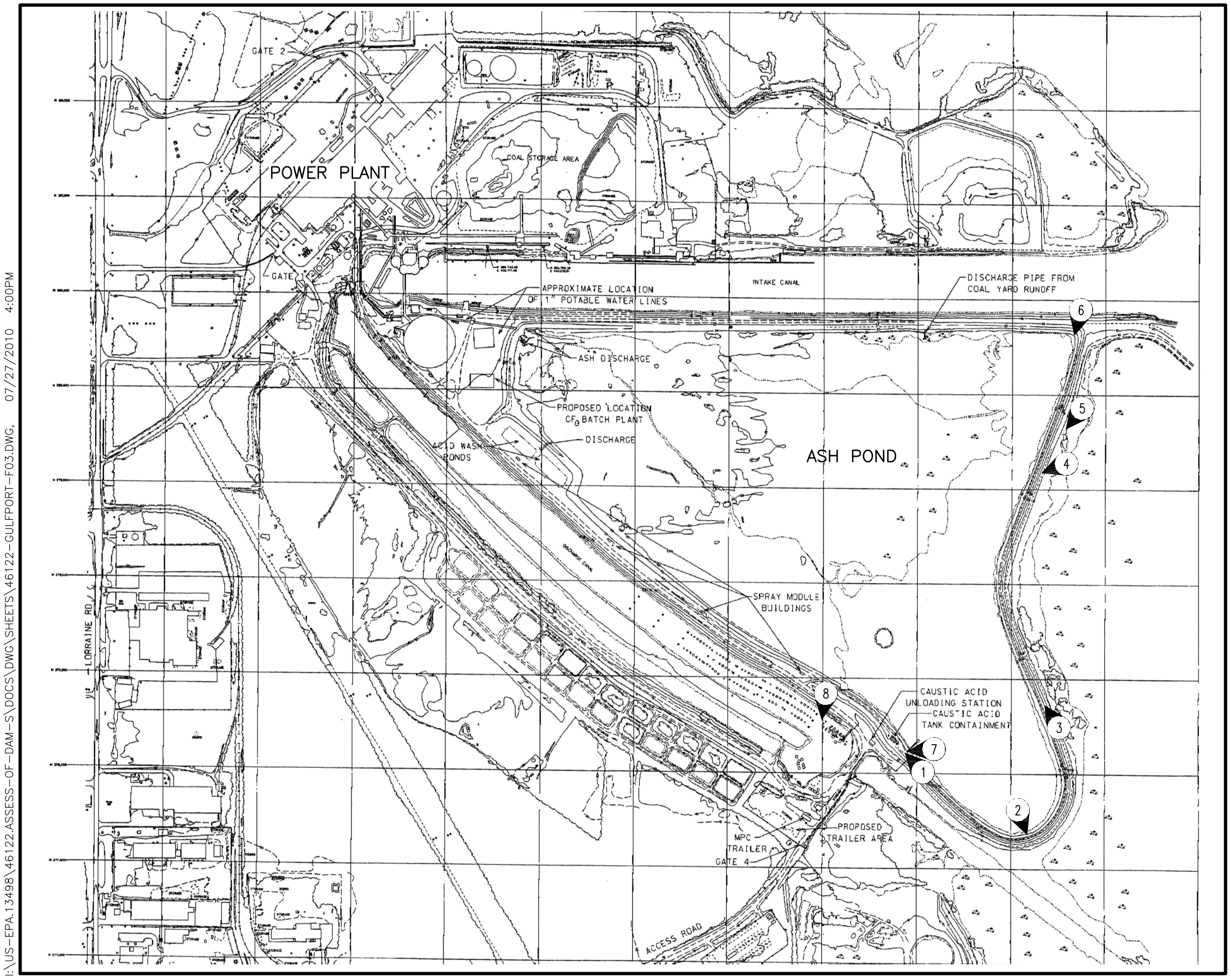
FIGURE 3



LEGEND:

(1) PHOTOGRAPH NUMBERS, LOCATION AND DIRECTION OF VIEW

US EPA
DAM SAFETY ASSESSMENT
OF CCW IMPOUNDMENTS

PLANT JACK WATSON
GULFPORT,
MISSISSIPPI

PHOTOGRAPH LOCATIONS

1"=500' 500 0 500

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JULY 2010

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APPENDIX A

Visual Inspection Checklist

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: Plant Jack Watson	Date: June 30, 2010
Unit Name: Ash Pond	Operator's Name: Mississippi Power Co.
Unit I.D.:	Hazard Potential Classification: High (Significant) Low
Inspector's Name: James Cory, P.E.	

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?	Annual		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	+28.0		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	+30.0		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	+28.0		Is water entering inlet, but not exiting outlet?		X
5. Lowest dam crest elevation (operator records)?	+33.02		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?		X	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)?	N/A		From underdrain?	N/A	
9. Trees growing on embankment? (If so, indicate largest diameter below)		X	At isolated points on embankment slopes?	X	
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?	X		From downstream foundation area?		X
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?	X	
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

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

Inspection Issue # Comments

9. Tree Diameter – 6 inches. Trees and brush only on outboard slope of lowest 5-ft. high bench.

21. Wet soil surfaces @ outboard slope's contact with bottom bench scattered along southwestern & southeastern perimeter. May be runoff from recent precipitation seeping from underneath turf, no evidence of fine-grained soil accumulation; seeps noted during previous two annual inspections which were also after rains.

23. Embankment resides in a tidal wetland (bayou); northern and southwestern perimeters of embankment border canals; western perimeter borders an abandoned aeration pond.

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # ___MS0002925__ INSPECTOR__James Cory, P.E.
Date _____6/30/10_____ Steven H. Snider, P.E.

Impoundment Name _____Plant Jack Watson Ash Pond_____
Impoundment Company _____Mississippi Power Company
EPA Region _____4_____
State Agency (Field Office) Address MDEQ
PO Box 2309
Jackson MS 39225_____

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

New ___X___ Update _____

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

IMPOUNDMENT FUNCTION: ___CCW Storage_____

Nearest Downstream Town : Name _ Gulfport MS_____
Distance from the impoundment _____1.5 mi_____
Impoundment
Location: Longitude __89_ Degrees __01_ Minutes ___07__ Seconds
Latitude __30__ Degrees __26 _ Minutes ___04_ Seconds
State ____MS___ County _____Harrison_____

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

If So Which State Agency?__MS Department of Environmental Quality _____

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.

_____ **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.

__X___ **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:

The impoundment discharges into the bayou surrounding Big Lake, which is inland from, and connected to, Biloxi Bay. The City of Gulfport is located on a peninsula between Big Lake and the Gulf of Mexico. The impact of a breach would likely be limited to environmental damage in the bayou and surrounding waters.

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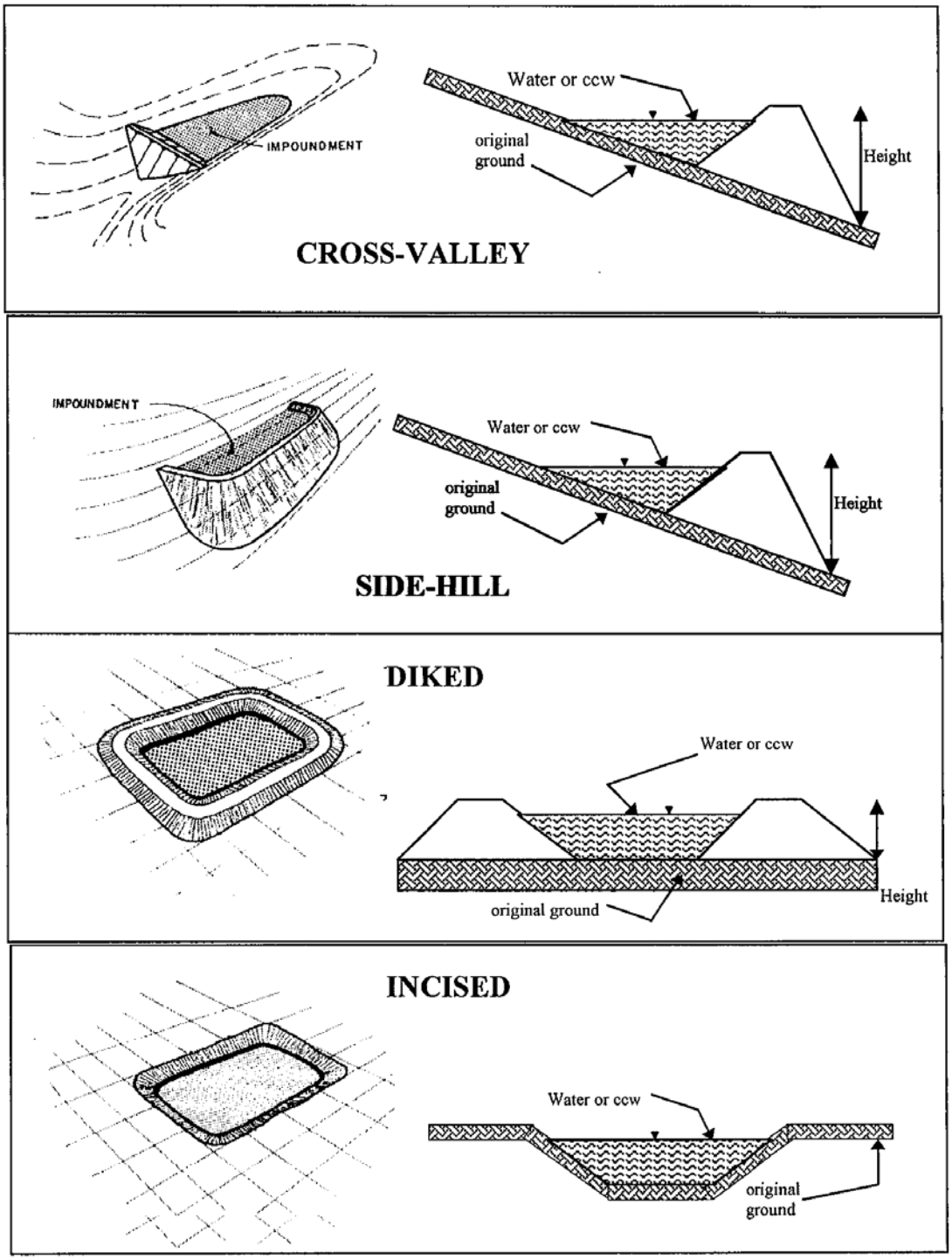
CONFIGURATION:



_____ Cross-Valley
_____ Side-Hill
__X__ Diked

_____ Incised (form completion optional) _____ Combination Incised/Diked
Embankment Height ____30____ feet Embankment Material_Clayey Sand & Sandy Clay
Pool Area _____102_____ acres Liner __None (slurry wall emb. core)__
Current Freeboard _____5_____ feet Liner Permeability _____N/A_____

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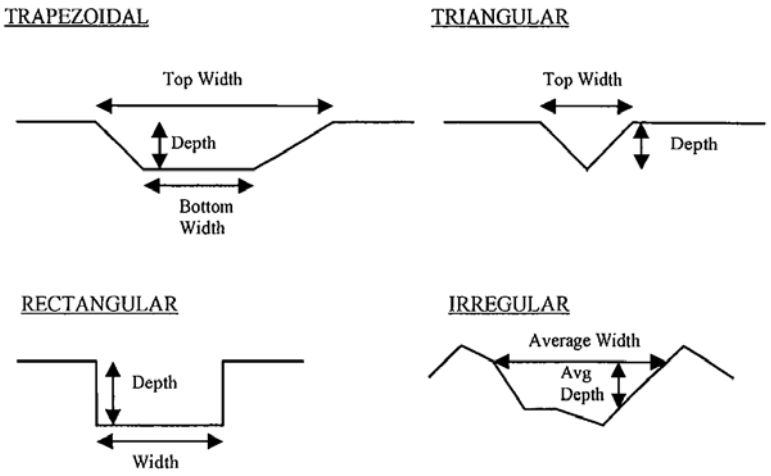
TYPE OF OUTLET (Mark all that apply)

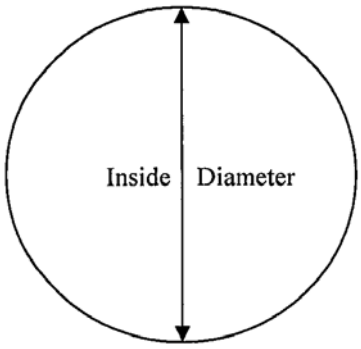
__X__ **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
__X _ Rectangular
_____ Irregular



__5__ depth
__16_ bottom (or average) width
__16_ top width

__X_ **Outlet**

__36_ inside diameter



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

Is water flowing through the outlet? YES ___X__ NO _____

_____ **No Outlet**

_____ **Other Type of Outlet** (specify) _____

The Impoundment was Designed By _____Southern Company_____

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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/lowerPhreatic watert able 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

Photographs-Plant Jack Watson Ash Pond

O'BRIEN & GERE

PHOTOGRAPHIC LOG

Client: US EPA	Project Number: 46122
Site Name: Plant Jack Watson	Location: Gulfport MS

Orientation: North

Description:

Overview of northwest section of embankment from outlet structure showing typical condition of crest & inboard slope.

Date: 6/6/10

Photo Number: 1

Photographer: SH Snider

Orientation: South

Description:

Typical condition of outboard slope. Note vegetation on lower berm slope.

Date: 6/6/10

Photo Number: 2

Photographer: SH Snider

O'BRIEN & GERE

PHOTOGRAPHIC LOG

Client: US EPA | Project Number: 46122

Site Name: Plant Jack Watson | Location: Gulfport MS

Orientation: Northeast Description: Outboard slope re-vegetation repairs. Date: 6/6/10 Photo Number: 3 Photographer: SH Snider	
Orientation: North Description: Outboard slope & lower berm. Note small trees & brush on berm slope. Also minor rutting from mowing machines. Date: 6/6/10 Photo Number: 4 Photographer: SH Snider	

O'BRIEN & GERE

PHOTOGRAPHIC LOG

Client: US EPA	Project Number: 46122
Site Name: Plant Jack Watson	Location: Gulfport MS

Orientation: Northwest

Description:

Embankment crest & CCW accumulation

Date: 6/6/10

Photo Number: 5

Photographer: SH Snider

Orientation: N/A

Description:

Outlet weir & conduit sluice gate.

Date: 6/6/10

Photo Number: 6

Photographer: SH Snider

O'BRIEN & GERE

PHOTOGRAPHIC LOG

Client: US EPA | Project Number: 46122

Site Name: Plant Jack Watson | Location: Gulfport MS

Orientation: South Description: Downstream hazard area from embankment crest. Bayou in foreground and Gulfport MS on horizon. Date: 6/6/10 Photo Number: 7 Photographer: SH Snider	
Orientation: Southwest Description: Stockpiled emergency fill materials. Date: 6/6/10 Photo Number: 8 Photographer: SH Snider