Report of Phase 1 Facility Assessment

Coal Combustion Product Impoundments and Disposal Facilities
Various Locations, Tennessee

Prepared for:
Tennessee Valley Authority
Chattanooga, Tennessee

June 24, 2009

Stantec Consulting Services Inc.
One Team. Infinite Solutions

Stantec

Stantec Consulting Services Inc.
1409 North Forbes Road
Lexington KY 40511-2050
Tel: (859) 422-3000
Fax: (859) 422-3100

June 24, 2009

171468118R03_TN

John C. Kammeyer, Vice President
Coal Combustion Products
Projects & Engineering
Tennessee Valley Authority
1101 Market Street, LP 5D-C
Chattanooga, TN 37402

Re: Report of Phase 1 Facility Assessment
Coal Combustion Product
Impoundments and Disposal Facilities
Various Locations, Tennessee

Dear Mr. Kammeyer:

Stantec Consulting Services Inc. (Stantec) is pleased to provide this report of Phase 1 facility assessments for the Coal Combustion Product (CCP) impoundments and disposal facilities. This report summarizes our Phase 1 activities at TVA's fossil plants in Tennessee. It also includes our recommendations for Phase 2 studies, engineering designs, maintenance and other activities at TVA's CCP disposal facilities.

Stantec appreciates the opportunity to provide TVA with these engineering and dam safety services. We hope the information contained in this report assists you and the Fossil Power Group with future planning and operational decisions. Please call us if you have questions.

Sincerely,

STANTEC CONSULTING SERVICES INC.

John S. Montgomery, PE
Senior Principal

Stephen H. Bickel, PE
Senior Principal

/ddb

Report of Phase 1 Facility Assessment

Coal Combustion Product Impoundments and Disposal Facilities
Various Locations, Tennessee

Prepared for:
Tennessee Valley Authority
Chattanooga, Tennessee

June 24, 2009

Table of Contents

Section **Page No.**

1. Introduction 1
1.1. Purpose of Disposal Facility Assessments 1
1.2. TVA Fossil Plants and Facilities Assessed 1
1.3. Scope of Services and Limitations 3
1.3.1. Phase 1a Tasks 3
1.3.2. Phase 1b Tasks 4
1.3.3. Future Scope Phases 4
1.3.4. Report Organization 5

2. Phase 1 Observations and Findings 5
2.1. Document and Records Review 5
2.2. Field Observations 6
2.3. Notable Findings 7
2.3.1. Limited Record Drawings and Construction Testing/Observation Records 7
2.3.2. Construction of Stacks over Ash Ponds and the Operation of Fly Ash Dredge Cells 7
2.3.3. Tall, Unsupported Weir Structures 8
2.3.4. Conduit and Weir Abandonment Procedures 8
2.3.5. Maintenance 8
2.3.6. Limited Operation and Maintenance Manuals (OM) and Emergency Action Plans (EAP) 8
2.3.7. Limited Geotechnical Instrumentation 8

3. Phase 1 Conclusions and Recommendations 9

4. Phase 2 Scheduling 12

List of Tables

Table **Page No.**

Table 1. Summary of Fossil Plants and Facilities Assessed 2

List of Figures

Figure **Page No.**

Figure 1. TVA Fossil Plants Located in Tennessee 3

List of Appendixes

Appendix

Appendix A Tables A.1 and A.2
Appendix B Allen Fossil Plant
Appendix C Bull Run Fossil Plant
Appendix D Cumberland Fossil Plant
Appendix E Gallatin Fossil Plant
Appendix F John Sevier Fossil Plant
Appendix G Johnsonville Fossil Plant
Appendix H Kingston Fossil Plant
Appendix I Watts Bar Fossil Plant

Report of Phase 1 Facility Assessment

Coal Combustion Product Impoundments and Disposal Facilities Various Locations, Tennessee

1. Introduction

1.1. Purpose of Disposal Facility Assessments

The Tennessee Valley Authority (TVA) has requested that Stantec Consulting Services Inc. (Stantec) perform Phase 1 assessments of coal combustion product (CCP) impoundments and disposal facilities at eleven active fossil plants and at one closed fossil plant. These facilities are located in the states of Kentucky, Tennessee and Alabama.

This report presents the results of the assessments for the eight plants located in Tennessee. The purpose of this first phase is to:

- Identify conditions that may affect the stability and functionality of the facilities reviewed.
- Determine the need for short term corrective actions and further Phase 2 engineering evaluations.
- Prioritize and schedule disposal facilities for future Phase 2 engineering evaluations.

1.2. TVA Fossil Plants and Facilities Assessed

TVA's Fossil Power Group currently operates seven coal-fired electric generating plants that are located in the state of Tennessee. Also located in Tennessee is TVA's only inactive, or closed, coal-fired plant; Watts Bar. The active plants contain a total of 33 separate coal-fired generation units with a combined capacity of approximately 9,600 MW. In the process of burning coal, the seven active plants produce, on an annual basis, approximately 1,375,000 tons of fly ash, 450,000 tons of bottom ash and boiler slag, and 1,100,000 tons of gypsum.

Although some of these CCP's are recycled for a variety of beneficial uses, the plants must operate various types of impoundments and disposal facilities in order to properly handle, manage, and dispose of CCP's. These facilities generally include: ash ponds, dredge cells, dry ash or gypsum stacks, and wet gypsum stacks. While the majority of the disposal facilities are actively receiving CCP's, some are closed or inactive. Table 1 includes a summary of the plants and the associated disposal facilities that were assessed in this Phase 1 study. Following Table 1, is a map that depicts the locations of TVA's coal-fired plants in Tennessee.

Table 1. Summary of Fossil Plants and Facilities Assessed

Fossil Plant	City, State	Year Construction Began	Observed Facilities
Allen (ALF)	Memphis, TN	1956	East Ash Pond and Dredge Cell East Ash Stilling Pond West Ash Pond
Bull Run (BRF)	Clinton, TN	1962	Bottom Ash Disposal Area 1 Gypsum Disposal Area 2A Fly Ash Pond/Stilling Pond Area 2 East/West Dredge Cell Dry Fly Ash Stack Dry Fly Ash Stack Sediment Pond
Cumberland (CUF)	Cumberland City, TN	1968	Gypsum Storage Area Ash Pond Dry Ash Stack
Gallatin (GAF)	Gallatin, TN	1953	Bottom Ash Pond A Fly Ash Pond E Stilling Ponds B,C and D Closed Disposal Area
John Sevier (JSF)	Rogersville, TN	1952	Dry Fly Ash Disposal Area Sediment Pond West (Former Stilling Pond) Bottom Ash Disposal Area 2 Ash Disposal Area J Sediment Pond East
Johnsonville (JOF)	New Johnsonville, TN	1949	Active Ash Disposal Areas 2 & 3 South Railroad Loop Ash Disposal Area 4 Ash Dredge Pond East of Gas Turbines Area 5 North Abandoned Ash Disposal Area 1
Kingston (KIF)	Kingston, TN	1951	Ash Pond Stilling Pond Peninsula Gypsum Pond
Watts Bar (WBF) (Closed Plant)	Spring City, TN	1940	Slag Disposal Area Ash Pond / Stilling Pond

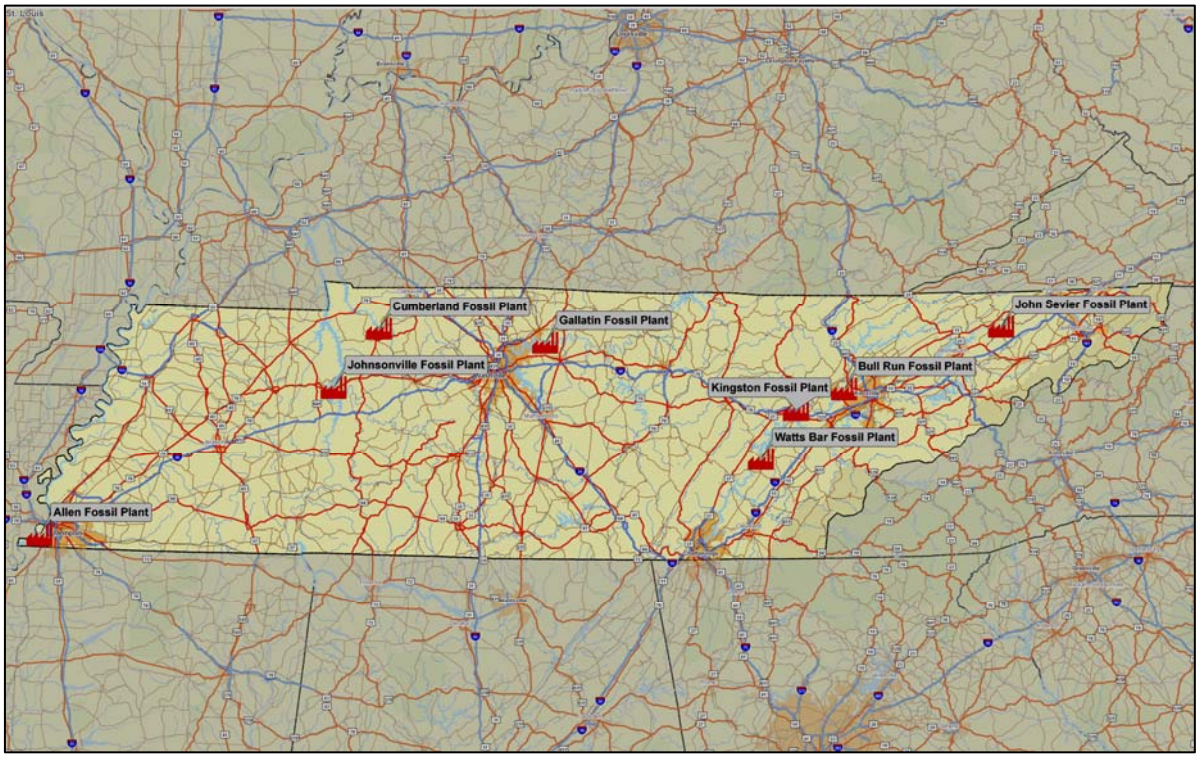


Figure 1. TVA Fossil Plants Located in Tennessee

1.3. Scope of Services and Limitations

Stantec's scope of services for the Phase 1 assessment was divided into two sub-phases; Phase 1a and Phase 1b. This report presents the results of both phases. It is important to understand that Phase 1 is judgment-based, non-invasive, and limited to features and concerns that have been observed in the field or discovered in reviews of historical documents. Phase 1 does not constitute a complete engineering evaluation of the facilities reviewed. The following paragraphs describe the specific tasks performed for each phase.

1.3.1. Phase 1a Tasks

Tasks performed for Phase 1a included:

- Review of most recent TVA Dike Stability Inspection Report for each plant.
- Visits to fossil plants by Stantec assessment teams to interview plant personnel and to perform initial walk-over of disposal facilities and ponds. Photographs and field notes were taken. The assessment teams consisted of two engineers; one of which was a licensed professional engineer (PE) with experience in dam design and dam safety.

The Phase 1a work was completed in one week and the results used to identify those facilities that potentially represented the most risk from a structural perspective. These observations were also used to provide TVA with preliminary recommendations for initiating

geotechnical explorations and short term improvements at those facilities, prior to completion of the Phase 1 scope. The information gathered during Phase 1a was presented to TVA during a meeting held in their Chattanooga office on January 20, 2009.

1.3.2. Phase 1b Tasks

Tasks performed for Phase 1b included:

- Review of documents and records provided by TVA. TVA provided Stantec with electronic copies of reports, drawings, data, memorandums, etc., pertinent to the characterization, design, construction, operation, and maintenance of its CCP disposal facilities and other ponds. Stantec engineers also visited TVA's Chattanooga office to review documents compiled by TVA and to assist TVA with prioritizing the copying/scanning process.

- Further site reconnaissance of disposal facilities and ponds by Stantec assessment teams including measurement of embankment slopes and crest widths, freeboard, extent of observed seepage, and slope instabilities. The teams again interviewed plant personnel to gain additional information, and recorded observations/measurements using a dam safety inspection checklist customized for the types of CCP management units encountered. Additional follow-up visits were also made to some plants, as conditions warranted.

- At the completion of field efforts and document review, the Stantec teams prepared facility assessment forms, assembled photographs, and prepared aerial photograph exhibits to present the results. These assessment forms also contain recommendations for Phase 2 engineering activities and for maintenance items. This information is included in the appendices of this report, with a separate appendix for each plant.

- Based on the field observations and records review, Stantec assisted TVA with prioritizing the disposal facilities for Phase 2 explorations and analyses.

- Communications with TVA throughout the Phase 1 efforts included submittal of weekly status reports and attendance at bi-weekly progress meetings in Chattanooga.

1.3.3. Future Scope Phases

Future phases for continuation of facility assessments, repairs, and CCP management will include the following:

Phase 2 – As a result of Phase 1 assessments, Phase 2 engineering work scopes will be developed and executed. Phase 2 engineering evaluations will include initial recommendations/designs for temporary corrective measures, geotechnical explorations, hydraulic and hydrologic evaluations, conceptual designs for improvements, and general engineering support. Rather than delay action until the completion of Phase 1 activities, TVA proactively initiated Phase 2 work for selected structures that have been identified as having primary concerns. These include: Johnsonville Ash Disposal Areas 2 and 3 (Active Ash Disposal Area West of Harbor) - due to inadequate freeboard, observed seepage, steep slopes, and tall, unsupported weir spillways with history of sinkholes; Cumberland Dry Ash

Stack and Gypsum Disposal Area - due to these facilities being active stacks operated over an ash pond; John Sevier Ash Disposal Area and Pond 2 - due to previously reported stability issues and it being an active stack operated over an ash pond; and Bull Run - due to an active stack operated over an ash pond.

Phase 3 – Phase 3 work will include a variety of engineering tasks including planning assistance for short and long term CCP management, final design of conceptual repairs as identified in Phase 2, preparation of construction plans/specifications, cost opinions, and permitting assistance. No scopes have been developed for Phase 3 work at this time.

Phase 4 – This phase will involve assisting TVA with improving its dam safety program within the fossil power group, dam safety training for appropriate TVA CCP staff, and annual facility inspections. This work has been initiated in parallel with Phase 1.

1.3.4. Report Organization

The remainder of this report is organized as follows: Section 2 describes the observations and findings of the document review and site reconnaissance tasks; Section 3 presents the conclusions and recommendations; and Section 4 discusses Phase 2 scheduling and prioritization.

The report includes one appendix for each fossil plant located in the state of Tennessee. Each plant's appendix contains the following:

- Phase 1 CCP Disposal Facility Summary Form for each individual facility reviewed. This form contains pertinent information relative to the Phase 1 assessments, lists noted observations, and offers recommendations for both maintenance and Phase 2 evaluations.
- Photographs and photo log for each facility reviewed.
- Aerial photographs illustrating the plant and facility general layout.
- Log of reviewed TVA documents.

2. Phase 1 Observations and Findings

2.1. Document and Records Review

TVA provided Stantec with electronic copies of reports, drawings, data, and correspondence, etc.; pertinent to the history, characterization, design, construction, operation, maintenance, and closure of its CCP disposal facilities at the Tennessee fossil plants included in this work scope. Stantec engineers also visited TVA's Chattanooga office to review documents compiled by TVA and to assist them with prioritizing the copying/scanning process. Review of this information helped Stantec understand the history, construction methods, design, operation, and maintenance practices of the CCP facilities and ponds. Over 8,000 documents were provided by TVA. The following sections describe in general terms, the available information and highlight a few notable findings and trends.

With construction of TVA's fossil plants in Tennessee having begun in the 1940's, the CCP impoundments and disposal facilities have undergone a continual process of new construction, expansion, rehabilitation, repair, modification, and closure (for the older or initial disposal facilities). The TVA-provided documentation of these efforts varies in terms of quantity and detail. Original construction documents for the older facilities are sparse or often were not located during this effort. For newer facilities, the trend of documentation seemed to become more common with increasing detail.

The following list summarizes the general types of documentation provided by TVA. It is not intended to be a comprehensive list, but rather to convey the general categories of the various types of documents that TVA provided.

- Annual inspection reports on dike stability and seepage inspection.
- Quarterly inspection reports of ash pond dikes and toe areas for seepage.
- Geotechnical reports, geologic reports, geophysical reports, geotechnical data, laboratory testing data, and stability analyses.
- Design and construction drawings.
- Design, feasibility, CCP management reports.
- Permit documents.
- Design calculations.
- Aerial photography.
- Various other correspondence and documentation (sketches, e-mails, letters, contractor work orders, meeting notes, etc.).
- Water quality testing data.

A complete list of documents provided by TVA is presented within each plant's appendix.

In addition to document review, Stantec assessment teams also conducted interviews with plant personnel during site visits and in subsequent meetings/phone discussions to gain additional historical information regarding plants and CCP disposal facilities.

2.2. Field Observations

For Phase 1 field observations, Stantec assembled six assessment teams. Teams consisted of at least two engineers; one of which was a licensed professional engineer with experience in dam design, dam safety, and geotechnical engineering. The licensed engineer assumed the role as team lead. Teams often provided field and/or office assistance to one another, depending on work loads, schedules and project needs.

As described previously, Phase 1a field observations consisted of on-site interviews with TVA plant personnel followed by initial facility walk-over's. Photographs and field notes were taken. The intent of the initial facility walk-over was specifically to look for visible or obvious

signs of distress or concerns that may require short term corrective action and to prioritize initial Phase 2 activities. Items of primary concern included: active seepage areas and their appearance and flow conditions, evidence of slope instability (cracking, sloughing, hummocky ground surface), sinkholes and depressions, insufficient freeboard, steepness and height of dike slopes, and condition/adequacy of spillways and pipes through dikes. If time permitted during initial walk-over's, items considered to be of a maintenance nature were also noted, such as erosion, sparse or lack of vegetation, trees on dike slopes, animal burrows, and standing water/poor drainage. Phase 1a field assessments were performed the week of January 12 - 16, 2009.

Return visits to the plants were made at various times during the remainder of January and through February, 2009 for Phase 1b field observations. These site visits were made after Stantec had reviewed historical documents provided by TVA, which allowed the teams to become more familiar with facility history and TVA practices prior to returning. The Phase 1b field activities consisted of further discussions with plant personnel to gain additional information relative to the history, maintenance, operations, and issues of each facility. Further site reconnaissance of disposal facilities and ponds was then conducted, which included limited measurements of embankment slopes, crest widths and freeboard; and further noted the extent of seepage, slope instability, erosion, sparse vegetation, trees, animal burrows, poor surface drainage, and other relevant features. Measurements and observations were then recorded using dam safety checklists customized for CCP impoundments and disposal facilities.

2.3. Notable Findings

Certain findings and trends were directly useful in helping Stantec to understand TVA's system-wide historical CCP disposal philosophies and practices. Some notable system-wide concerns gleaned from Stantec's historical research and document review are described below:

2.3.1. Limited Record Drawings and Construction Testing/Observation Records

Stantec found relatively few as-built construction records or construction testing records for the disposal facilities. These records are important to illustrate how facilities were actually constructed, compliance with project plans and specifications, and to show adjustments that may have been necessary to deal with changes or unexpected conditions that may differ from the original plans.

2.3.2. Construction of Stacks over Ash Ponds and the Operation of Fly Ash Dredge Cells

Hydraulically-placed fly ash in ponds and dredge cells is generally very soft in terms of consistency and loose in terms of density, porosity and void ratio. This condition can sometimes result in significant and sudden loss of shear strength within the sluiced ash at low strains due to embankment loading. TVA has several active facilities that have been constructed over ash ponds. These include the gypsum stacks at the Cumberland and Bull Run plants and dry ash stacks at Cumberland, John Sevier and Bull Run. Operating CCP disposal facilities on top of ash that has been sluiced into ponds, is a common practice in the industry. While this practice represents greater risk than constructing over natural earth materials, the risk is typically managed by ensuring appropriate geotechnical analyses have been completed to support design and operation, and that operation includes instrumentation

to monitor pore pressures, settlement and slope movement. Load rates must also be controlled to minimize the build-up of excess pore pressures.

There were no active permanent ash dredge cells observed at any of the plants. Ash dredging and temporary stockpiling is occurring within the ponds at the Johnsonville and Allen plants. However, once dewatered, the stockpiles are excavated and materials transported off-site for permanent disposal in landfills.

2.3.3. Tall, Unsupported Weir Structures

A number of the facilities have weir structures that are tall and unsupported. System-wide, weir structures are typically vertical, push-together, reinforced concrete pipe or manhole sections. This type of weir system presents a concern from the standpoint of developing leaking joints and leaning. In addition, outlet pipes from the weir structures are constructed of reinforced concrete culvert pipe. This type of pipe does not employ a restrained joint system and is also susceptible to developing leaking joints. Some past inspection reports have documented these problems.

2.3.4. Conduit and Weir Abandonment Procedures

As various disposal facilities have been raised in the past to increase CCP storage capacity, process water conduits and weirs have been abandoned in place. Apparently, the abandonment procedures have varied from site to site over the years and are not documented. Improper abandonment can lead to internal piping and loss of materials through joint separation in the conduits.

2.3.5. Maintenance

Annual dike inspection reports appear to be adequate in identifying items for maintenance, but there is a trend of not executing all of the maintenance recommendations provided in these reports. In many instances, the same maintenance recommendations were made repeatedly in the annual reports from year to year. Tree and other vegetation removal from dikes and surface drainage ditches is an example of one of the typical recurring items.

2.3.6. Limited Operation and Maintenance Manuals (OM) and Emergency Action Plans (EAP)

During the historical research/document review phase, Stantec found a general lack of Emergency Action Plans (EAP) for the disposal facilities. These items are important for the safe operation of a dam/impoundment, and for the protection of downstream communities, as well as plant personnel.

2.3.7. Limited Geotechnical Instrumentation

Dam safety management of significant impoundments should include an instrumentation program to monitor performance and condition changes during operation of the facility. In general, instrumentation may consist of piezometers to monitor pore pressures within embankments and foundations, slope inclinometers and surface monuments to monitor movement, and plates for monitoring settlement. The type of instrumentation installed will depend on the type and function of the facility and design/operation concerns. Limited

geotechnical instrumentation was observed at a majority of the facilities during Phase 1 reviews and the presence of a program to routinely obtain measurements was not witnessed.

Facility specific findings are presented in each appendix.

3. Phase 1 Conclusions and Recommendations

3.1 Due to limited record drawings and construction QA/QC documentation at any of the facilities, Stantec is unable to render opinions relative to overall structural integrity. Therefore, Stantec recommends that all significant impounding facilities be subjected to a Phase 2 engineering evaluation. For the purposes of this recommendation, the term “significant impoundment” is defined as a surface impoundment having been created by a dike or dam having a height of 25 feet or taller, or an impounding capacity of 50 acre-feet or greater. The facilities meeting these conditions are identified in Table A.1 of Appendix A. These facilities generally include all ash ponds, wet stacks, and gypsum stacks. In some instances, additional surveys will have to be performed to confirm the size of the facility relative to the criteria stated herein.

The Phase 2 evaluations should include a geotechnical exploration and hydrologic/hydraulic assessment. The geotechnical exploration scope should include field explorations, laboratory testing, and engineering analysis. Field explorations should include drilling soil borings to characterize subsurface conditions and obtain samples for laboratory testing. Both conventional and cone penetration methods may be needed depending on the data required and subsurface conditions anticipated. Field CCP and soil sampling should consist of standard penetration testing (ASTM D 1586), thin-walled Shelby tube (ASTM D 1587) sampling and grab bulk samples. Drilling should be supervised by a geotechnical engineer or geologist.

Cone penetration testing may be useful at some sites. Data collected will include tip resistance, skin resistance and pore pressure dissipation.

Instrumentation should be installed as needed to characterize subsurface conditions and measure performance. Piezometers should be installed to record phreatic conditions and pore pressure conditions. Piezometers should generally be installed using conventional drilling methods and will consist of slotted PVC screens and tubing, 1-inch diameter or greater. Zones selected for monitoring should be based on field conditions encountered. Slope inclinometer casing should be installed using conventional drilling methods where current ground movement is suspected, loading is increasing over hydraulically placed fly ash, or where it is desirable to monitor conditions in the future.

Laboratory testing should be performed in accordance with ASTM standards. Testing should include engineering classification (ASTM D 422, D 4318 and D 854), natural moisture content (ASTM D 2216), triaxial compression (ASTM D 2850 and D 4767), permeability (ASTM D 5084), unit weight determination, moisture/density relationship (ASTM D 698), and unconfined compression (ASTM D 2166) tests.

Geotechnical engineering analysis should include slope stability and seepage calculations. The calculations should be performed using recognized industry methods and software packages such as Geo-Slope, Slope-W and Seep W. For facilities that will be raised in the future, the engineering analysis should include a time rate of construction and pore pressure dissipation analysis.

Hydraulic and hydrologic analysis should include characterization of process flow rates, hydrographic surveys and storm routings to evaluate freeboard. Criteria used to evaluate freeboard should generally follow federal dam safety guidelines as appropriate.

3.2 During Phase 2, it is recommended that TVA review and update the dam safety hazard classification of each impoundment. Hazard classifications should be assigned in accordance with appropriate state and federal dam safety guidelines and should consider the size, design characteristics and consequences of failure. Further, based upon updated hazard classification, appropriate design criteria for proposed modifications and improvements should be determined.

3.3 Hydraulically placed fly ash represents significantly increased operational hazards due to the erodibility and liquefaction potential of saturated ash. In general, fly ash would be characterized as a low-strength, erodible silt and easily susceptible to piping, erosion, and liquefaction. Therefore, Stantec recommends that all dry and wet stacks operating on top of ash ponds be subjected to Phase 2 geotechnical explorations as described in Paragraph 3.1. Facilities meeting this are identified in Table A.1 of Appendix A.

3.4 In general, the outlet weir structures serving CCP impoundments are constructed of stacked concrete manhole or pipe sections. These tall, unsupported weir structures represent a risk from the standpoint of unplanned joint separation, resulting in uncontrolled releases and potential loss of pool. During routine management of the pond, such as making pool adjustments or ash dredging, it is possible to inadvertently dislodge the weir structure below the pool level. Therefore, Stantec recommends that these weir structures and outlet pipes be retrofitted or prioritized, inspected, and replaced as necessary, with a more reliable structure for pool level regulation.

3.5 Stantec recommends that TVA assemble the “best available” record drawings for each facility. This may require field surveys to confirm location, size and orientation of structures, and ancillary features. In addition, it is recommended that TVA implement a program to ensure record drawings are maintained for each facility. Modifications, expansions and improvements should be properly noted and identified with dates. Record drawings should reflect field conformance surveys of all constructed items including excavations, embankments and structures.

Further, TVA should require and retain construction quality assurance/quality control (QA/QC) plans, specifications, and documentation for all significant improvement or modification projects. QA/QC plans should address material specifications, construction execution, and QA/QC documentation.

3.6 As various disposal facilities have been raised or operated in the past, process water conduits and weirs have been abandoned in place. Based on Stantec’s

observations and review, abandonment procedures have varied over the years and also from site to site. Stantec understands that at times, these procedures have been inadequate and have led to uncontrolled releases. Therefore, Stantec recommends that Phase 2 explorations include an inventory of existing and abandoned conduits, and assessments of the abandonment procedures employed. This review should result in action plans to properly remediate these features. In general, abandoned conduits should be grouted full or removed.

3.7 Based on observations during the Phase 1 reconnaissance, Stantec developed recommendations for short term improvements at various facilities. These improvements include installing seepage collection systems; regrading slopes; abandoning conduits/spillways; installing stability buttresses and berms; and lowering pool elevations. At the time of this report, TVA is aggressively addressing these recommendations and many of the proposed improvements are complete. Table A.2 of Appendix A summarizes these recommendations and current status/schedule for implementation. By implementing these recommendations, TVA has improved the integrity of its facilities.

3.8 TVA performs annual inspections of its CCP impoundments and disposal facilities. However, based on Stantec observations, there does not appear to be a system in place that tracks recommendations and ensures issues are addressed in a timely manner. In addition, there are inconsistency in inspections and reporting depending on staff assigned and level of understanding of dam safety operations.

Therefore, Stantec recommends TVA review its current dam safety program and include the appropriate elements within its CCP facility management program. The program should address all organizational elements responsible for planning, design, construction, operation, maintenance and regulation of facility impoundments. The program should address on-going training of staff in appropriate dam safety inspection and management procedures.

3.9 Currently, TVA maintains operations manuals for CCP's at each of its plants. In general, these plans address: key dates, CCP handling contracts, construction planning, design drawings, permit requirements, survey data, management procedures, emergency contacts lists, work packages, capital projects and marketing. At the conclusion of future phases of work, as appropriate, it is recommended that these operation manuals be reviewed and updated to address dam safety and maintenance aspects. Additional topics or sections to be added may include dam safety inspection requirements, instrumentation monitoring, management of QA/QC documentation and record drawings, routine maintenance activities, TVA staff responsibilities, and reporting.

3.10 It is recommended that TVA develop Emergency Action Plans for all impoundments determined to be "High Hazard from a dam safety perspective." Emergency Action Plans should consider the following elements: Notification Flowchart; Responsibilities; Preparedness; and where applicable, Inundation Maps. Emergency Action Plans should be patterned after the "Federal Guidelines for Dam Safety," as appropriate.

3.11 Stantec observed woody vegetation and trees growing on embankment slopes at many of TVA's CCP impoundments. Tree roots can penetrate embankments,

creating preferential flow paths. Excessive vegetation can prevent visual observation and review of dike surfaces and provide cover and habitat for burrowing animals. In some cases, vegetation inhibited review of field conditions during Phase 1. It is recommended that all trees and excessive vegetation be removed from embankments slopes and crests. Roots larger than 2-inches in diameter should be removed and the resulting rootwad cavity be backfilled with cohesive soil and compacted. Depending on the size of tree removed, benching may be needed to achieve proper backfill and compaction. It is further recommended that removal of rootwads and subsequent treatment be performed under the direction of a geotechnical engineer. Debris should be removed and disposed of away from dam embankments.

Areas previously inaccessible due to vegetation cover should be reviewed following tree and brush removal and the Phase 1 recommendations modified as appropriate.

Further, it is recommended that TVA increase the frequency of mowing and other vegetation removal activities at the CCP facilities so that dikes, slopes, ponds, shorelines, and drainage channels are kept clear of vegetation and trees. This will improve the ability of plant personnel and others to visually assess the conditions of disposal and impounding facilities.

3.12 Stantec observed conditions requiring further maintenance. These observations generally consisted of surface erosion, animal burrows, and absence of wave wash revetment. Specific instances are identified in the appendices as appropriate for each facility reviewed. Stantec recommends that TVA implement a maintenance program to address and improve these conditions. Maintenance activities that involve excavations with embankments should be performed under the direction of a geotechnical engineer.

4. Phase 2 Scheduling

Phase 2 engineering evaluations have been underway since February 2009. The goal is to complete these evaluations for the active CCP disposal impoundments and active CCP by mid-2010. The schedule for these activities is reflected in Table A.1 of Appendix A. The order in which the evaluations are being performed reflect Stantec's opinion of relative risk based on its observations of active seepage/slope stability concerns determined during Phase 1 and by issues reported to Stantec by TVA. However, depending on future findings or observations, adjustments to the order and schedules may be made.

Appendix A

Tables A.1 and A.2

Table A.1 Phase 1 Recommendation Summary
Coal Combustion Product Impoundments and Disposal Facilities
Various Locations, Tennessee

		Facility Data							Phase 2 Engineering Evaluation				
PLANT	FACILITY	(1)Facility Type	Active/Inactive Status	(2) Embankment Height (ft)	(2)Maximum Water Storage (ac. ft.)	(2)Surface Area (acres)	Operated Over Ash Pond	Stacked Weir Outlet Structure	Evaluation Recommended	(3)Status	(4)Estimated Start Date	(4)Estimated Completion Date	Comments
Allen Fossil Plant	East Ash Pond and Dredge Cell	AP	Active	20	140	70	N	N	X	Future	Aug-09	Feb-10	Anticipate Completing Drilling October 2009
	East Ash Stilling Pond	AP	Active	20	200	10	N	Y	X	Future	Aug-09	Feb-10	Anticipate Completing Drilling October 2009
	West Ash Pond	AP	Inactive	28	N/A	23	N	N	-	-	-	-	See Note 5; See Note 6
Bull Run Fossil Plant	Bottom Ash Disposal Area 1	AP/ST	Active	52	NA	40	Y	N	X	Active	Jun-09	Feb-10	Anticipate Completing Drilling September 2009
	East/West Dredge Cell	DC	Inactive	70	NA	23	N	N	-	-	-	-	See Note 5
	Dry Fly Ash Stack & Sediment Pond	ST/OT	Active	56	NA	50	N	N	-	-	-	-	See Note 5
	Fly Ash Pond/Stilling Pond Area 2	AP	Active	18	800	41	N	Y	X	Active	Jun-09	Feb-10	Anticipate Completing Drilling September 2009
	Gypsum Disposal Area 2A	GS	Active	45	NA	35	Y	N	X	Active	Jun-09	Feb-10	Anticipate Completing Drilling September 2009
Cumberland Fossil Plant	Ash Pond	AP	Active	36	1800	50	N	Y	X	Active	May-09	Oct-09	Anticipate Completing Drilling July 2009
	Dry Ash Stack	ST	Active	35	N/A	110	Y	N	X	Active	May-09	Oct-09	Anticipate Completing Drilling July 2009
	Gypsum Storage Area	GS	Active	50	N/A	170	Y	N	X	Active	May-09	Oct-09	Anticipate Completing Drilling July 2009
Gallatin Fossil Plant	Closed Disposal Area	AP	Inactive	25	N/A	68	N	N	-	-	-	-	See Note 5
	Fly Ash Pond E	AP	Active	25-30	3800	157	N	Y	X	Future	Aug-09	Mar-10	Anticipate Completing Drilling October 2009
	Stilling Ponds B, C, & D	AP	Active	8-10	550	55	N	Y	X	Future	Aug-09	Mar-10	Anticipate Completing Drilling October 2009
	Bottom Ash Pond A	AP	Active	20-25	1400	269	N	Y	X	Future	Aug-09	Mar-10	Anticipate Completing Drilling October 2009
John Sevier Fossil Plant	Bottom Ash Disposal Area 2	AP	Active	37	1500	41	N	Y	X	Active	Apr-09	Sep-09	Drilling Completed June 2009
	Dry Fly Ash Disposal Area & Sediment Ponds	ST	Active	120	N/A	90	Y	N	X	Active	Apr-09	Sep-09	Drilling Completed June 2009
	Ash Disposal Area J	DC	Inactive	50	N/A	22	N	N	-	-	-	-	See Note 5
Johnsonville Fossil Plant	Active Ash Disposal Areas 2 & 3	AP	Ative	36	3100	87	N	Y	X	Active	Feb-09	Jun-09	Drilling Completed April 2009
	South Railroad Loop Ash Disposal Area 4	DC	Inactive	70	N/A	95	N	N	-	-	-	-	See Note 5
	Ash Dredge Pond East of Gas Turbines Area 5	DC	Inactive	36	N/A	35	N	N	-	-	-	-	See Note 5
	North Abandoned Ash Disposal Area 1	AP	Inactive	25-30	N/A	158	N	N	-	-	-	-	See Note 5
Kingston Fossil Plant	Peninsula Gypsum Pond	GS	Inactive	28	N/A	51	N	N	X	Complete			Phase 2 limited to review of karst features. Design recently completed by others. No futher evaluations are proposed at this time.
	Ash Pond	AP	Active	24	2100	86	N	Y	X	Active	Jan-09	Jul-09	Drilling Completed May 2009
	Stilling Pond	AP	Active	na	N/A	27	N	Y	X	Active	Jan-09	Jul-09	Drilling Completed May 2009
Watts Bar Fossil Plant	Ash Pond/Stlling Pond	AP	N	30	N/A	14.3	N	Y	-	-	-	-	See Note 5; See Note 6
	Slag Disposal Area	AP	N	na	N/A	24.5	N	N	-	-	-	-	-

Notes:

1. Facility Types: AP - Ash Pond ST - Dry Stack DC - Ash Dredge Cell GS - Gypsum Stack OT - Other
2. Embankment height, maximum water storage and surface area data were obtained through cursory field and office measurements, and information reviewed during Phase 1. The data are approximations only and not intended to supersede previously reported values for design or regulatory purposes. The data presented are solely for determining a facilities eligibility for Phase 2 evaluations as part of this study. Prior to initiating Phase 2 efforts, data will be reviewed and additional measurements made, if necessary. Any facility deemed as not meeting the criteria for Further Phase 2 work will be removed from the schedule and further work halted.
3. Status of Phase 2 engineering evaluations are as of June 15, 2009.
4. Estimated start and completion dates may be adjusted based on further observations and findings.
5. Recommendations for additional engineering analysis of inactive facilities are generally limited to development of Record Drawings and updating the Operations & Maintenance Manual, unless otherwise noted.
6. Recommendations for additional engineering analysis of this inactive facility, include evaluation of stormwater runoff conveyance.

Table A.2 Short Term Improvement Recommendations and Status
Coal Combustion Product Impoundments and Disposal Facilities
Various Locations, Tennessee

Facility	Work Plan	Observation	Short Term Improvement Recommendation	Actual/Anticipated Submittal Date to TVA	Construction Status	Anticipated/Actual Construction Completion Date
Allen Fossil Plant (ALF)	Work Plan No. 1	Slough on inside face of the East Fly Ash Pond northern perimeter dike	Installation of geotextile fabric with anchor trench and backfill area with crushed stone and rip rap	April 15, 2009	Complete	March 2009
Bull Run Fossil Plant (BRF)	Work Plan No. 1	Surface Depressions on the South Slope of the Gypsum Disposal Area	Excavation, stabilization of soft/saturated bottom materials with crushed stone, backfill with geotextile wrapped crushed stone, and capping with clay and restoring Curlex erosion blanket	February 25, 2009	Complete	April 2009
	Work Plan No. 2	Small scarp along about 250 ft length of the inside shoulder of the west Ash Pond perimeter dike; near vertical, eroded slope on the ash pond side of the divider dike; animal burrow in the top of the divider dike	Repair of scarp - place 6" to 12" size riprap toe to crest along affected area; divider dike erosion - protect slope from further erosion by placing riprap along Ash Pond side of dike; hand excavate or use small equipment to investigate animal burrow and backfill with compacted like material	May 21, 2009	Active	July 2009
	Work Plan No. 3	Near vertical eroded slopes along the west side of the Sluice Ditch below the Gypsum Disposal Area	Reconstruction of the 2H:1V slope with bottom ash, capped with geotextile fabric for separation and a riprap cover layer for erosion protection.	May 21, 2009	Active	August 2009
Cumberland Fossil Plant (CUF)	Work Plan No. 1	Coal Yard Drainage Basin fines were placed in the Dry Ash Stack area	Slope stability analysis was recommended to verify that fines would not be detrimental to long term slope stability	February 9, 2009	Complete	February 2009
	Work Plan No. 2	Seepage through dike at SW corner Gypsum Disposal Area and elevated piezometer readings	Evaluate existing pump system and install piping to divert gypsum slurry from top of Gypsum Disposal Area	March 23, 2009	Complete	April 2009
	Work Plan No. 3	Poor drainage, standing water and steep, unstable side slopes, as well as heavy vegetation growth within the perimeter dike drainage ditches below the gypsum disposal and dry ash stack areas	Remove vegetation, perform topographic surveying and design; and construct drainage improvements along the entire perimeter dike drainage ditch to eliminate standing water, establish stable side slopes, and reduce maintenance activities associated with vegetation removal	August 21, 2009	Active	May 2010
John Sevier Fossil Plant (JSF)	Work Plan No. 1	Wave-action erosion in Bottom Ash Stilling Pond, woody vegetation growth on different slopes and animal borrows	Re-grade or line eroded areas with crushed stone, remove woody vegetation as per suggested guidelines and treat animal burrows	May 7, 2009	Active	July 2009
	Work Plan No. 2	Irregular and overly vegetated internal slopes and pipe inlets/outlets of Coal Yard Runoff Ponds and access road	Remove vegetation, line interior slopes with filter fabric and crushed stone and pave access road surface with crushed stone	May 27, 2009	Active	June 2009
	Work Plan No. 3	Red water seep along lower access road of North Ash Disposal Stack Slope, where road grade conditions do not provide positive drainage	Continue to monitor area for changes in seepage conditions	June 5, 2009	Active	December 2009
Johnsonville Fossil Plant (JOF)	Work Plan No. 1	Seepage on the southeast dike of the Active Ash Disposal Area	Installation of seepage collection system to provide facility for monitoring seepage	February 2, 2009	Complete	February 2009
	Work Plan No. 2	Steep dike slopes and hummocky, uneven ground surface observed on Active Ash Disposal Area Dike; depressions on NW Dike	Geotechnical exploration and analyses to determine existing stability condition	June 30, 2009	Active	June 2009
	Work Plan No. 3	Existing tall, unsupported weir spillways that surge and inadequate freeboard	Install siphons to lower stilling pond and construct new spillways to operate pool at lower level	May 15, 2009	Active	September 2009
	Work Plan No. 4	Existing abandoned weir spillways	Investigate spillways, design and implement permanent closure	August 21, 2009	Planned	November 2009

Notes:

1. Short term improvement recommendations are based on Stantec's observations as of June 15, 2009. Significant effort has been made by TVA to date to implement these recommendations and improve site conditions.
2. Table A.2 does not include system wide efforts by TVA to improve vegetation management, mitigate animal burrows/erosion, and install stone surfacing. Each of these activities improves site conditions and permits further inspection of sloped areas.

Appendix B

Allen Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
Allen Fossil Plant (ALF)

Location:	Allen Fossil Plant (ALF) 2574 Plant Road Memphis, Shelby County, TN 38109 Latitude: 35.074 N Longitude: 90.149 W
Plant Contact:	Frank Dominioni System Engineer – Fossil Power Group Phone: (901) 789-8400 Email: FEDominioni@TVA.gov
Facts and Figures:	The Allen Fossil Plant has three coal-fired generating units and 20 combustion turbines. The plant construction began in 1956 and was completed in 1959. The plant consumes approximately 7,200 tons of coal per day and generates approximately 4.9-billion kilowatt-hours of electricity annually. The winter net dependable generating capacity is about 753 megawatts. It is located about 10 miles southwest of downtown Memphis, Tennessee just south of Lake McKellar which is directly connected to the Mississippi River.
Coal Combustion Byproduct Disposal:	Approximately 85,000 dry tons of fly ash is wet-sluiced to the East Ash Pond every year. The fly ash is then dredged, dewatered and transported to an off-site structural fill project. Approximately 110,000 dry tons of boiler slag is wet-sluiced to the East Ash Pond every year. Approximately 90% of the boiler slag is reclaimed and marketed to outside companies.

Geology and Seismicity: The Allen Fossil Plant is located in the extreme southwestern corner of Tennessee just west of the city of Memphis. The plant is situated on the south shore of Lake McKellar and the eastern bank of the Mississippi River. Geologic mapping shows the site to be underlain by artificial fills and Quaternary age alluvial deposits. The fill is noted to generally consist of alluvium dredged from the flood plain (or loess in select locations) and range in thickness from a few feet beneath residential areas to tens of feet beneath industrial areas in the floodplain of the river. The alluvial materials are described as consisting of irregular lenses of fine sand, silt, and clay in the upper part, and of coarse sands, gravelly sands, and sandy gravels in the lower part. The alluvium varies from about 45 to 90 feet in thickness adjacent to the loess bluffs along the eastern edge of the quadrangle to as much as 175 feet well out in the flood plain. The mapping indicates the alluvium is underlain by the series of highly consolidated clays and dense sands comprising the Claiborne Group.

Evaluations of seismic hazards affecting western Tennessee, and thus the plant site, are dominated by events emanating from the New Madrid Seismic Zone (NMSZ) of the central Mississippi Valley. The NMSZ is the most active seismic zone east of the Rocky Mountains and the continuing seismicity of the zone is thought to be associated with the reactivation of faults within the Reelfoot Rift System. Although the majority of the events emanating from this zone are too small to be felt at the surface, this zone produced a series of four earthquakes between December 1811 and early February 1812 each exhibiting estimated magnitudes on the order of 7.0 to 8.0. The “Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5” developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 3.

Facilities Reviewed:

East Ash Pond and Dredge Cell
East Ash Stilling Pond
West Ash Pond

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Allen Fossil Plant (ALF)
East Ash Pond and Dredge Cell (EAP and EDC)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN15801
Surface Area (inside dikes)	70 Acres	Maximum Height (toe to top of dike):	20 feet
Free Water Volume:	Unknown	Maximum Water Storage:	140 Acre-feet
Estimated CCB Storage:	Varies	Dike Length:	1000 feet
Plant Discharge to Facility:	9.8 MGD	Current Pool Elevation:	231 feet

2. Site Visit Information

Stantec Assessment Team:	Rob Kirkbride, PE
TVA Staff Present:	Frank Dominioni
Field Assessment Dates:	February 17, 2009
Weather/Site Conditions:	40 degrees F, cloudy, drizzle, moist ground

3. History/Description of Usage

History and Operation:	This facility was originally commissioned in 1967 and expanded in 1978. Approximately 85,000 dry tons of fly ash is wet sluiced to the East Ash Pond annually. The fly ash is dredged, dewatered and transported to an off-site structural fill project. Approximately 110,000 dry tons of boiler slag is wet sluiced to the pond annually. Approximately 90% of the boiler slag is reclaimed and marketed to outside companies. Decant water is transferred into the Ash Stilling Pond through the concrete spillway structure in the southeast corner of the pond.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	TVA maintains a By Products Operation Manual for the Allen Fossil Plant.
TVA Maintenance:	Exterior slopes are mowed as necessary to keep vegetation minimized.
TVA Inspections:	TVA Engineering performs dike inspections and prepares reports annually. Plant personnel make observations throughout the year on a random basis.
Problems Previously Identified During Past TVA Inspections:	Some erosion problems at the discharge end of the primary spillway structures that discharge into McKellar Lake.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10N226 R2, 10W208-1 R0,10W208-2 R0, 10W208-3 R0, 10W214-3 R0, 10W225 R6, 10W234-1 R0,10W234-2 R0.
TVA As-Built Drawings:	No drawings identified as As-Built.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA annual inspection reports from 1967 to 2008.
Geotechnical Data:	Limited data includes lab results, but difficult to tell specific locations of soil boring. (File: ALF MEMO TO GLBUCHANAN FROM GENE FARMER ON ALF ASH DISPOSAL AREA DIKES - SOIL INVESTIGATION.pdf)

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	North - Dense phragmites. East - Dense phragmites. West - Dense phragmites. South - Dense phragmites; Portion where dredging operations have removed all vegetation.
Trees:	None observed.
Wave Wash Protection:	None observed.
Erosion:	Difficult to observe. Numerous minor erosion channels.
Instabilities:	Difficult to observe.
Animal Burrows:	Difficult to observe.
Freeboard:	**Measured:** 6 feet **Design:** Unknown
Encroachments:	East dredge cell in west portion.
Slope:	**Measured:** 2H:1V to 3H:1V **Design:** 2H:1V to 3H:1V

6.2. Crest

Crest Cover and Slope:	North - Gravel. Relatively level. South - Paved road and grass covered. Relatively level. East (divider dike) - Boiler slag with some vegetation. Relatively level. West - Boiler slag with some vegetation. Relatively level.
Erosion:	Minor erosion observed.
Alignment:	Appears uniform.
Settlement/Cracking:	Very little. Some minor (less than 2 inch) low spots.

Bare Spots/Rutting:	North - Some minor rutting in gravel. South - Paved road and grass covered with some rutting. East (divider dike) - Mostly bare with rutting. West - Mostly bare.	
Width:	**Measured:**	North - 30 to 40 feet South - 100 feet + East (divider dike) - 22 to 25 feet West - 50 feet +
	Design:	North - Unknown (USCOE Levee) South - Unknown (USCOE Levee) East (divider dike) - 16 feet West - Unknown

6.3. Exterior Slopes

Vegetation:	North - Good grass cover South - Good grass cover East (divider dike) - Mostly phragmites West - Mostly phragmites
Trees:	North - Trees at the toe South - None East (divider dike) - None West - None
Erosion:	No significant erosion observed.
Instabilities:	None observed.
Uniform Appearance:	Yes.
Seepage:	None observed.
Benches:	None.
Foundations, Drains, Relief Wells, Instrumentation:	None observed
Animal Burrows:	None observed.

Slope:	**Measured:**	North - 4H:1V South - 4H:1V East (divider dike) - 2H:1V West - varies due to dredge cell
	Design:	North - Unknown (USACE Levee) South - Unknown (USACE Levee) East (divider dike) - 2H:1V West - Unknown
Height:	**Measured:**	North - 20 feet South - 20 feet East (divider dike) - Could not be observed. West - varies due to dredge cell
	Design:	North - Unknown (USACE Levee) South - Unknown (USACE Levee) East (divider dike) - Unknown West - Unknown

6.4. Spillway Weirs/Riser Inlets

Number:	1
Size, Type and Material:	Concrete outlet structure that transfers flow from the ash pond to the stilling pond. Flow is controlled using stop logs. The pool level was approximately 2 to 3 feet below the top of the stop logs.
Height of Riser Inlets:	Unknown.
Access:	Accessible from divider berm.
Joints:	Concrete joints have some deterioration. Could not evaluate stop logs because pool levels on both sides were equal.
Mis-Alignment:	None observed
Closed/Abandoned Conduits:	None known.

6.5. Outlet Pipes

Number:	N/A - Concrete spillway structure, see info above.
Size, Type and Material:	N/A
Headwall:	N/A
Joint Separations:	N/A
Mis-Alignment:	N/A
Closed/Abandoned Conduits:	N/A

7. Notable Observations and Concerns

- There is an active 30-inch public ductile iron sanitary sewer force main pipeline that connects into a 42-inch RCP sanitary sewer that runs north and south across the Ash Pond and Dredge Cell. The approximate top of the 30-inch pipe is at elevation 217.5 and the high point of the 42-inch pipe is at elevation 218.5. TVA drawing 10W208-1 R0 is a plan view showing the pipe locations. Drawing 10W208-3 R0 shows details of the manhole at the connection of the 30-inch pipe to the 42-inch pipe. TVA has an agreement with the City of Memphis to restrict the maximum elevation height of the East Dredge Cell southern dike to 239 feet. Drawing 10W208-3 R0 shows a low dredging elevation of 226 in the area of the pipes, which is approximately 7.5 to 8.5 feet from the top of the pipes.
- There is an inactive 60-inch public sanitary sewer pipeline that runs east and west across the Ash Pond and Dredge Cell. Two of the manholes are located within the Ash Pond. The approximate top of the pipe is at elevation 221 based on drawing 10W208-1 R0. Top elevation of the fly ash is highly variable so the actual depth of material over the pipe is unknown. Notes on the drawings require no dredging be performed within a 50 foot radius of the manholes.
- There are two 161KV electric transmission towers within the Ash Pond and one adjacent to the Ash Pond. Drawing 10W208-1 R0 shows the locations. Notes on the drawings require no dredging be performed within 100 feet of the tower base.
- Erosion is occurring on the interior slope along the south dike. This is considered a secondary issue since the crest width at this location is greater than 100 feet.
- The east slope (divider berm) has steep (approximately 2H:1V) slopes with some erosion.

- There is a seep near the fuel unloader on the bank of McKellar Lake below the USACE Mississippi River Levee and approximately 300 feet from the NW corner of the East Ash Pond. The source of the seep is unknown but suspected to be process water.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Evaluate the active and inactive sanitary sewer force mains and determine if rerouting or other measures are feasible or warranted.
- Evaluate current operating procedures for working around the existing electric transmission lines including factor of safety for stability.
- Based on the limited as-built drawings available, it is recommended that a program be established to develop current conditions / as-built drawings to record future modifications to this facility. Construction records should also be included as part of this program to record and quantify construction means, methods and results.
- Due to the limited construction monuments at this facility, it is recommended that additional surveyed construction monuments be established at selected locations. These monuments should be surveyed annually as a minimum.
- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O & M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.

8.2. Maintenance Recommendations

- Cut and maintain heavy/tall vegetation on interior slopes.
- Repair erosion areas where noted and provide rip-rap as necessary.
- Repair / regrade animal paths and burrows and provide seeding and mulching to establish a vegetative cover. Continue to monitor on a regular basis.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Allen Fossil Plant (ALF)
East Ash Stilling Pond (EASP)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN15801
Surface Area (inside dikes)	10 Acres	Maximum Height (toe to top of dike):	20 feet
Free Water Volume:	150 Acre-feet	Maximum Water Storage:	200 Acre-feet
Estimated CCB Storage:	Unknown	Dike Length:	200 feet
Plant Discharge to Facility:	9.8 MGD	Current Pool Elevation:	231 feet

2. Site Visit Information

Stantec Assessment Team:	Rob Kirkbride, PE
TVA Staff Present:	Frank Dominioni
Field Assessment Dates:	February 17, 2009
Weather/Site Conditions:	40 degrees F, cloudy, drizzle, moist ground

3. History/Description of Usage

History and Operation:	This facility was part of the Ash Pond expansion in 1978. Decant water is transferred from the Ash Pond into the Stilling Pond through the concrete spillway structure in the southwest corner of the pond. There are two primary outlet spillways presumably made of RCP risers and outlet pipes discharge flow into McKellar Lake. Two emergency outlet spillways also presumably consisting of RCP risers and outlet pipes discharge flow through the east dike and eventually into Horn Lake. The emergency spillways are only used when the pool level in McKellar Lake is too high to discharge.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	TVA maintains a By Products Operation Manual for the Allen Fossil Plant.
TVA Maintenance:	Exterior slopes are mowed as necessary to keep vegetation minimized.
TVA Inspections:	TVA Engineering performs dike inspections and prepares reports annually. Plant personnel make observations throughout the year on a random basis.
Problems Previously Identified During Past TVA Inspections:	Concerns of damaging the existing sanitary sewer line (abandoned) that is below the pond, erosion, rutting and debris blocking the emergency spillway outlets.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10N226 R2, 10N227 R1, 10N228 R1, 10N229-1 R0, 10N229-2 R0, 10W208-1 R0, 10W208-7 R0, 10W211 R0, 10W225 R6, 10W234-1 R0, 10W234-2 R0.
TVA As-Built Drawings:	No drawings identified as As-Built.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA annual inspection reports from 1967 to 2008.
Geotechnical Data:	Limited data includes lab results, but difficult to tell specific locations of soil borings. (File: ALF MEMO TO GLBUCHANAN FROM GENE FARMER ON ALF ASH DISPOSAL AREA DIKES - SOIL INVESTIGATION.pdf)

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	All slopes have dense phragmites at lower portion of slope. North, south and east slopes have adequate grass ground cover that has been mowed. The west slope (divider berm) is primarily bare boiler slag.	
Trees:	None.	
Wave Wash Protection:	None.	
Erosion:	Some wave erosion occurring on all slopes. Most is minor, but east slope is more significant with scarp heights of 1 to 2 feet.	
Instabilities:	Only wave erosion observed.	
Animal Burrows:	No burrows, but did observe animal path from the crest to the water surface (15 feet long and 1 foot wide). This path matches the path along crest and down the exterior slope.	
Freeboard:	**Measured:**	6 feet
	Design:	Unknown
Encroachments:	None	
Slope:	**Measured:**	North - 4H:1V East - 3H:1V West (divider berm) - 2H:1V to 3H:1V South - 3H:1V
	Design:	3H:1V

6.2. Crest

Crest Cover and Slope:	North, South and East - Grass covered with no slope. West - Mostly bare boiler slag with no slope.

Erosion:	Primary erosion is on the access ramp located in the southeast corner of the pond. The erosion is 12 to 16 inches wide and approximately 30 feet long. The water drains down the ramp and into an adjacent swale which has also eroded.
Alignment:	Appears uniform.
Settlement/Cracking:	No significant settlement/cracking observed.
Bare Spots/Rutting:	The majority of the west (divider dike) and the access ramp is bare. Minor rutting on all dikes.
Width:	**Measured:** North - 30 to 35 feet East - 12 to 15 feet West (divider berm) - 22 to 25 feet South - 20 feet + **Design:** North - Unknown (USCOE Levee) South - Unknown (USCOE Levee) East - 16 feet West (divider dike) - Unknown

6.3. Exterior Slopes

Vegetation:	North - Good grass cover South - Good grass cover East - Good grass cover. Some phragmites at the toe and 5 to 10 feet up the slope. West (divider dike) - Mostly phragmites
Trees:	None.
Erosion:	No significant erosion observed.
Instabilities:	None observed.
Uniform Appearance:	Yes.
Seepage:	None observed. The toe of the east dike was not observable due to ponding water.
Benches:	None.
Foundations, Drains, Relief Wells, Instrumentation:	None.

Animal Burrows:	Numerous small (less than 2 inches) animal burrows throughout the east dike.	
Slope:	**Measured:**	North - 4H:1V South - 4H:1V East - 3H:1V West (divider dike) - 2H:1V
	Design:	North - Unknown (USACE Levee) South - Unknown (USACE Levee) East - 3H:1V West (divider dike) - 2H:1V
Height:	**Measured:**	North - 20 feet South - 20 feet East - 20 to 25 feet West (divider dike) - Unknown
	Design:	North - Unknown (USACE Levee) South - Unknown (USACE Levee) East - 20 to 25 feet West (divider dike) - Unknown

6.4. Spillway Weirs/Riser Inlets

Number:	4
Size, Type and Material:	The four decant structures are constructed using stacked 48 inch diameter RCP risers. The two primary structures outlet into McKellar Lake via a 36 inch diameter RCP pipe and the secondary (emergency) structures have the same design and outlet downstream of the east dike and flow to the south in a stream channel which outlets into Horn Lake. The base/foundation is designed to be concrete.
Height of Riser Inlets:	Approximately 20 feet.
Access:	There is no direct access to the spillways, but there is an adjacent catwalk that provides a partial view.
Joints:	Could not be observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None.

6.5. Outlet Pipes

Number:	4
Size, Type and Material:	The four outlet pipes are 36 inch diameter RCP.
Headwall:	The two primary outlets have a headwall with sluice gate controlled openings to prevent backflow of water during flood events. The two emergency outlets discharge into a drainage channel and do not have headwalls.
Joint Separations:	Could not be observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None.

7. Notable Observations and Concerns

- The Outlet Structure that transfers flow from the Ash Pond into the Stilling Pond includes stop logs to control pool level. The top of the stop logs are approximately 2 to 3 feet below the crest of the divider berm. The pool levels at the time of the site visit were at nearly the same elevation even though the stop logs were well above the pool level. It is likely that flow is seeping through the divider berm keeping the pool levels at a similar elevation. This structure should be evaluated to determine if there are potential overtopping concerns. See Photo EASP-2.
- The four decant structures are possibly constructed using stacked RCP risers. The two primary structures outlet into McKellar Lake and the secondary (emergency) structures outlet downstream of the east dike and flow to the south in a stream channel which outlets into Horn Lake. The two secondary outlets at the toe of the east dike are partially submerged (see Photo EASP-6). Erosion has occurred at the primary decant structure outlet where the concrete channel flows into McKellar Lake (see Photos EASP-7 and EASP-8).
- There is an inactive 60-inch public sanitary sewer pipeline that runs east and west across the Ash Pond and Dredge Cell. Two of the manholes are located within the Ash Pond. The approximate top of the pipe is at elevation 221 based on drawing 10W208-1 R0. Top elevation of the fly ash is highly variable so the actual depth of material over the pipe is unknown. Notes on the drawings require no dredging be performed within a 50 foot radius of the manholes.
- Water is ponding at the toe of the exterior slope of the east dike making it difficult to evaluate if there is any seepage occurring (see Photo EASP-5).

- Tall vegetation has grown up along the lower portion of the exterior slope of the east dike (see Photo EASP-5).
- Animal paths and small (12 inch) animal burrows were present on the exterior slope of the east dike (see Photo EASP-4).
- The west slope (divider berm) has steep slopes (approximately 2H:1V) with some erosion.
- Wave erosion has occurred along the internal slope of the east dike. The height of the erosion varies from 6 inches up to 2 feet.
- Erosion has occurred on the crest ramp in the southeast corner of the pond (see Photo EASP-3).

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Evaluate existing topography and drainage conditions at the toe of the east dike at the East Ash Stilling Pond. A hydraulic and hydrologic analysis should be performed to determine if positive drainage is being provided away from the east dike.
- Evaluate the active and inactive sanitary sewer force mains and determine if rerouting and/or abandonment is necessary.
- Evaluate the Inlet / Outlet Structure (within the divider berm) that transfers flow from the East Ash Pond to the East Ash Stilling Pond. A hydraulic and hydrologic analysis should be performed to determine suitability and operation procedures.
- Evaluate the decant structures at the East Ash Stilling Pond for suitability and condition.
- Evaluate current operating procedures for working around the existing electric transmission lines including factor of safety for stability.
- Based on the limited as-built drawings available, it is recommended that a program be established to develop current conditions / as-built drawings to record future modifications to this facility. Construction records should also be included as part of this program to record and quantify construction means, methods and results.
- Due to the limited construction monuments at this facility, it is recommended that additional surveyed construction monuments be established at selected locations. These monuments should be surveyed annually as a minimum.

- Based on observations made during the site visits and review of the documents provided, it is recommended that a hydraulic and hydrologic analysis be performed for this facility. This facility has significant flow concentrations and is critical to operation of the plant.
- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.

8.2. Maintenance Recommendations

- Cut and maintain heavy/tall vegetation on interior slopes.
- Remove trees and brush from the exterior slope of the east dike.
- Repair erosion areas where noted and provide rip-rap as necessary.
- Repair / regrade animal paths and burrows and provide seeding and mulching to establish a vegetative cover. Continue to monitor on a regular basis.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Allen Fossil Plant (ALF)
West Ash Pond (WAP)

1. General Facility Information

Facility Status:	Inactive	NID Identification:	Not Available
Surface Area (inside dikes)	23 Acres	Maximum Height (toe to top of dike):	28 feet
Free Water Volume:	0	Maximum Water Storage:	600 Acre-feet
Estimated CCB Storage:	0	Dike Length:	1200 feet
Plant Discharge to Facility:	0	Current Pool Elevation:	n/a - Empty

2. Site Visit Information

Stantec Assessment Team:	Rob Kirkbride, PE
TVA Staff Present:	Frank Dominioni
Field Assessment Dates:	February 17, 2009
Weather/Site Conditions:	40 degrees F, cloudy, drizzle, moist ground

3. History/Description of Usage

History and Operation:	This area was the original location of the fly ash pond. Sluiced fly ash was discontinued in 1978 until May 1991 when it was reactivated. Prior to resuming sluicing to this area, approximately 173,000 cubic yards of ash was hauled from it and used for fill material in the Corp of Engineers levee. Sluicing was again discontinued in October 1992 and the pond water was pumped out. The area has been inactive since.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	No Operations Manual has been prepared for this facility.
TVA Maintenance:	Exterior slopes are mowed as necessary to keep vegetation minimized.
TVA Inspections:	TVA Engineering performs dike inspections and prepares reports annually. Plant personnel make observations throughout the year on a random basis.
Problems Previously Identified During Past TVA Inspections:	Prior to inactivating this area in 1992, seepage problems with the spillway structure were noted. Additional concerns included trees and dense brush cover on most of the exterior slopes.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10N223 R2, 10N224 R1
TVA As-Built Drawings:	No drawings identified as As-Built.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA annual inspection reports from 1967 to 2008.
Geotechnical Data:	Limited data includes lab results, but difficult to tell specific locations of soil borings. (File: ALF MEMO TO GLBUCHANAN FROM GENE FARMER ON ALF ASH DISPOSAL AREA DIKES - SOIL INVESTIGATION.pdf)

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Dense vegetation at the toe of all slopes.
Trees:	Dense trees at the toe of all slopes.
Wave Wash Protection:	None.
Erosion:	No significant erosion observed.
Instabilities:	None observed.
Animal Burrows:	None observed.
Freeboard:	**Measured:** N/A - pond is empty **Design:** Unknown
Encroachments:	The Chemical Pond was constructed inside the northeast corner of the pond. Approximately 25% of the pond was filled in to create a staging area for Reed Minerals.
Slope:	**Measured:** North, East and West - 3H:1V South - 4H:1V (USACE Levee) **Design:** North, East and West - 3H:1V South - Unknown (USACE Levee)

6.2. Crest

Crest Cover and Slope:	North - Grass cover with no slope. South - Gravel road with no slope. East - Gravel with no slope. West - Grass cover with no slope.
Erosion:	Minor erosion on all crests.
Alignment:	North and East are somewhat irregular. South and West appear uniform.
Settlement/Cracking:	No significant settlement or cracking observed.
Bare Spots/Rutting:	Several minor bare spots on all dikes. Consistent rutting along the crest (up to 6 inches deep).

Width:	**Measured:**	North - 18 to 20 feet South - 50 feet + (USACE Levee) East - 30 feet + West - 18 to 20 feet
	Design:	North - 16 feet South - Unknown (USACE Levee) East - Unknown West - 16 feet

6.3. Exterior Slopes

Vegetation:	North - Dense brush and vegetation. South - N/A East - N/A West - Dense brush and vegetation.
Trees:	North - Very dense trees covering entire slope. South - N/A East - N/A West - Some trees near the toe and sporadically on slope.
Erosion:	North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. None noted.
Instabilities:	North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. None noted.
Uniform Appearance:	North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. None noted.
Seepage:	North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. None noted.

Benches:		North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. None noted.
Foundations, Drains, Relief Wells, Instrumentation:		North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. None noted.
Animal Burrows:		North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. None noted.
Slope:	**Measured:**	North - Not visible to observe. South - N/A East - N/A West - Difficult to observe. Estimate 3H:1V.
	Design:	North - Unknown South - N/A East - N/A West - 3H:1V
Height:	**Measured:**	North - Not visible to observe. South - N/A East - N/A West - 10 to 15 feet
	Design:	North - Unknown South - N/A East - N/A West - 10 to 15 feet

6.4. Spillway Weirs/Riser Inlets

Number:	1 (abandoned)
Size, Type and Material:	The decant structure is constructed using stacked 48 inch diameter RCP risers that outlet through the west dike into McKellar Lake via a 36 inch diameter RCP pipe and channel. The base/foundation is designed to be concrete.
Height of Riser Inlets:	Approximately 15 feet.

Access:	The pond is empty so access to the spillway is difficult due to the dense vegetation.
Joints:	Could not be observed.
Mis-Alignment:	No significant mis-alignment was observed on the exposed portion of the spillway.
Closed/Abandoned Conduits:	Unknown, however design drawing 10N223 R2 shows two pipes that were to be removed prior to construction of the west dike. Their status is unknown.

6.5. Outlet Pipes

Number:	1
Size, Type and Material:	Unable to access outlet.
Headwall:	Unknown.
Joint Separations:	Unknown.
Mis-Alignment:	Unknown.
Closed/Abandoned Conduits:	Unknown.

7. Notable Observations and Concerns

- This structure is inactive and appears to be empty. See Photo WAP-1.
- Original Decant Structure should be evaluated to determine if operation of the pond relies on this structure for storm water hydraulic and hydrologic capacity. No ponding water was observed within the pond during the site visit so the drainage may be adequate. See Photo WAP-1.
- Trees and dense vegetation are growing on the pond interior which is approximately 10 feet below the crest of the dikes (See Photo WAP-2).
- Trees and dense vegetation are growing on the exterior slope of the north dike (See Photo WAP-3).

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Based on the limited as-built drawings available, it is recommended that a program be established to develop current conditions / as-built drawings to record future modifications to this facility. Construction records should also be included as part of this program to record and quantify construction means, methods and results.
- Although this facility is inactive, based on observations made during the site visits and review of the documents provided, it is recommended that a hydraulic and hydrologic analysis be performed for this facility to evaluate the storm water inflow and determine the suitability of the outlet structure to pass the design storm.
- It is recommended that a facility specific Operations & Maintenance Plan be developed to provide means and methods of operating this facility efficiently and identifying the maintenance necessary to allow for proper evaluations.

8.2. Maintenance Recommendations

- Cut and maintain heavy/tall vegetation on interior and exterior slopes to allow better observation.
- Remove trees and brush from the interior and exterior slopes.

Drawing Mark EAP-1 Erosion is occurring on the interior slope along the south dike looking west.

Drawing Mark EAP-2 Outlet Structure operated using stop logs.

Drawing Mark EAP-3 Fly Ash influent pipes at northwest corner.

Drawing Mark EAP-4 Dredge Cell interior drainage looking south.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
EAP-1	Erosion is occurring on the interior slope along the south dike looking west.	IMG_1373
EAP-2	Outlet structure operated using stop logs.	IMG_1327
EAP-3	Fly ash influent pipes at northwest corner.	IMG_1383
EAP-4	Dredge Cell interior drainage looking south.	IMG_1391

Drawing Mark EASP-1 Overview of pond showing railroad to the south.

Drawing Mark EASP-2 Concrete inlet structure with stop logs.

Drawing Mark EASP-3

Access ramp to crest on southeast corner of pond. Note the erosion on the ramp.

Drawing Mark EASP-4

Eastern embankment has animal paths extending from toe of exterior slope to water surface of interior slope.

Drawing Mark EASP-5

Eastern embankment showing ponding water and thick vegetation at the toe. Portions of the slope had small (1 to 2 inch diameter) animal burrow holes.

Drawing Mark EASP-6

Decant structure outlets to Horn Lake. Note partially submerged outlet pipes.

Drawing Mark EASP-7 Decant structure outlet into McKellar Lake has erosion occurring.

Drawing Mark EASP-8 Decant structure outlets to McKellar Lake.

Drawing Mark EASP-9 Decant structure inlets with skimmers.

Drawing Mark EASP-10 Interior slope wave erosion.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
EASP-1	Overview of pond showing railroad to the south.	IMG_1321
EASP-2	Concrete inlet structure with stop logs.	IMG_1327
EASP-3	Access ramp to crest on southeast corner of pond. Note the erosion on the ramp.	IMG_1329
EASP-4	Eastern embankment has animal paths extending from toe of exterior slope to water surface of interior slope.	IMG_1334
EASP-5	Eastern embankment showing ponding water and thick vegetation at the toe. Portions of the slope had small (1 to 2 inch diameter) animal burrow	IMG_1335
EASP-6	Decant structure outlets to Horn Lake. Note partially submerged outlet pipes.	IMG_1338
EASP-7	Decant structure outlet into McKellar Lake has erosion occurring.	IMG_1346
EASP-8	Decant structure outlets to McKellar Lake	IMG_1347
EASP-9	Decant structure inlets with skimmers.	IMG_1348
EASP-10	Interior slope wave erosion.	IMG_1358

Drawing Mark WAP-1 Interior of Ash Pond mainly empty and covered with trees and dense vegetation.

Drawing Mark WAP-2 Dense trees and vegetation are growing on the interior of the pond.

Drawing Mark WAP-3 Dense trees and vegetation are growing on the exterior slope of the north dike.

Drawing Mark WAP-4 Abandoned decant structure on west end of pond. Deteriorated and surrounded by heavy vegetation.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
WAP-1	Interior of Ash Pond mainly empty and covered with trees and dense vegetation.	IMG_1401
WAP-2	Dense trees and vegetation are growing on the interior of the pond.	IMG_1399
WAP-3	Dense trees and vegetation are growing on the exterior slope of the north dike.	IMG_1408
WAP-4	Abandoned decant structure on west end of pond. Deteriorated and surrounded by heavy vegetation.	IMG_1404

STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 1 - ALF

Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMS
CHECKED BY	RJK
CHECKED BY	DAG
SCALE	AS SHOWN
REVISED	
1	
2	
3	
4	
5	
6	
7	
8	

SHEET

1 OF 2

STANTEC
CONSULTING
SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 2 - ALF

Tennessee Valley Authority
Allen Fossil Plant
Memphis, Shelby County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMG
CHECKED BY	RJK
CHECKED BY	DAG
SCALE	AS SHOWN
REVISED	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

SHEET

2 OF 2

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Allen Fossil Plant (ALF)

Date Reviewed	Reviewed by	File Name	File Type
3/10/2009	RJK	Aerial View From Book ALF East Ash Pond Temorary Dredge Cell.pdf	PDF
3/10/2009	RJK	ALF - Aerial Photo Of East Portion Of Facility.pdf	PDF
3/10/2009	RJK	ALF - Ash Pond Drawings (From Cal).pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2000.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2001.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2002.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2003.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2004.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2005.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2006.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy2007.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy67.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy68.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy69.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy70.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy71.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy72.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy73.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy74.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy75.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy76.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy77.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy78.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy79.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy80.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy81.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy82.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy83.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy84.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy85.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy86.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy87.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy88.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy89.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy93.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy94.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy95.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy96.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/10/2009	RJK	ALF Ash Pond Insp Fy97.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy98.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Insp Fy99.pdf	PDF
3/10/2009	RJK	ALF Ash Pond Red Water Seep Inspections 2006 - 2008.pdf	PDF
3/10/2009	RJK	ALF Civil Design Gbuide Dg C5.2 Earth Design Slope Stability Analysis.pdf	PDF
3/10/2009	RJK	ALF Memo Ash Disposal Areas Dikes - Soil Investigation Dated May 2 1973 (Duplicate With Notes).pdf	PDF
3/10/2009	RJK	ALF Memo O Fplacy From Jcmccraw On ALF Ash Disposl Area Dike Borrow Source.pdf	PDF
3/10/2009	RJK	ALF Memo To Fplacy From Jcmcgraw ALF Ash Disposal Area Dike - Borrow Exploration.pdf	PDF
3/10/2009	RJK	ALF Memo To Gene Farmer From Glbuchanan On ALF Ash Disposal Areas Kikes Raising - Construction Information.pdf	PDF
3/10/2009	RJK	ALF Memo To Glbuchanan From Gene Farmer On ALF Ash Disposal Areas Kikes - Soil Investigation.pdf	PDF
3/10/2009	RJK	ALF Proposed West Ash Pond Extension Figure 4.pdf	PDF
3/10/2009	RJK	ALF Report Of Additional Geotechnical Exploration Potential Ash Disposal Area Belz Property July 1 2005.pdf	PDF
3/10/2009	RJK	ALF Report Of Geotechnical Exploration East And West Ash Disposal Areas Aug 18 2004 Mactec Project.pdf	PDF
3/10/2009	RJK	ALF Report Of Geotechnical Exploration Potential Ash Disposal Area Belz Property Oct 19 2004.pdf	PDF
3/10/2009	RJK	ALF Table 1 ALF Ccw Drawing List.pdf	PDF
3/24/2009	RJK	ALF.pdf	PDF
3/10/2009	RJK	ALF_Ashpondinsp_Fy09_Draft.pdf	PDF
3/10/2009	RJK	ALF-10N223-Sht -Rev 2 Main Plant - Ash Disposal Areas Ash Disposal Area (cal).pdf	PDF
3/10/2009	RJK	ALF-10N223-Sht -Rev 2 Main Plant - Ash Disposal Areas Ash Disposal Area West Of Powerhouse Sheet 1.cal	CAL
3/10/2009	RJK	ALF-10N224-Sht -Rev 1 Main Plant - Ash Disposal Areas Ash Disposal Area (cal).pdf	PDF
3/10/2009	RJK	ALF-10N224-Sht -Rev 1 Main Plant - Ash Disposal Areas Ash Disposal Area West Of Powerhouse Sheet 2.cal	CAL
3/10/2009	RJK	ALF-10N226-Sht -Rev 2 Main Plant - Ash Disposal Areas Ash Disposal Area (cal).pdf	PDF
3/10/2009	RJK	ALF-10N226-Sht -Rev 2 Main Plant - Ash Disposal Areas Ash Disposal Area East Of Powerhouse Sheet 2.cal	CAL
3/10/2009	RJK	ALF-10N226-Sht -Rev 2.cal	CAL
3/10/2009	RJK	ALF-10N227-Sht -Rev 1 Main Plant - Ash Disposal Areas Ash Disposal Area (cal).pdf	PDF
3/10/2009	RJK	ALF-10N227-Sht -Rev 1 Main Plant - Ash Disposal Areas Ash Disposal Area East Of Powerhouse Sheet 3.cal	CAL
3/10/2009	RJK	ALF-10N227-Sht -Rev 1.cal	CAL
3/10/2009	RJK	ALF-10N228-Sht -Rev 1 Main Plant - Ash Disposal Areas Ash Disposal Area (cal).pdf	PDF
3/10/2009	RJK	ALF-10N228-Sht -Rev 1 Main Plant - Ash Disposal Areas Ash Disposal Area East Of Powerhouse Sheet 4.cal	CAL
3/10/2009	RJK	ALF-10N228-Sht -Rev 1.cal	CAL
3/10/2009	RJK	ALF-10N229-1-Sht -Rev 0 Standard Drawing Weir For Ash Disposal Spillway (cal).pdf	PDF
3/10/2009	RJK	ALF-10N229-1-Sht -Rev 0 Standard Drawing Weir For Ash Disposal Spillway.cal	CAL
3/10/2009	RJK	ALF-10N229-1-Sht -Rev 0.cal	CAL
3/10/2009	RJK	ALF-10N229-2-Sht -Rev 0 Standard Drawing Ash Disposal Spillway (cal).pdf	PDF
3/10/2009	RJK	ALF-10N229-2-Sht -Rev 0 Standard Drawing Ash Disposal Spillway.B00	B00
3/10/2009	RJK	ALF-10N229-2-Sht -Rev 0 Standard Drawing Ash Disposal Spillway.cal	CAL
3/10/2009	RJK	ALF-10N229-2-Sht -Rev 0.cal	CAL
3/10/2009	RJK	ALF-10W200-1-Sht -Rev 4.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
3/10/2009	RJK	ALF-10W201-1-Sht -Rev 7.cal	CAL
3/10/2009	RJK	ALF-10W202-2-Sht -Rev 1.cal	CAL
3/10/2009	RJK	ALF-10W208-1-Sht -Rev 0 Yard East Ash Pond Dredge Cell Plan (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-1-Sht -Rev 0 Yard East Ash Pond Dredge Cell Plan.cal	CAL
3/10/2009	RJK	ALF-10W208-2-Sht -Rev 0 Yard East Ash Pond Dredge Cell Sections & Detai (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-2-Sht -Rev 0 Yard East Ash Pond Dredge Cell Sections & Details.B00	B00
3/10/2009	RJK	ALF-10W208-2-Sht -Rev 0 Yard East Ash Pond Dredge Cell Sections & Details.cal	CAL
3/10/2009	RJK	ALF-10W208-3-Sht -Rev 0 Yard East Ash Pond Dredge Cell - Manhole Detail (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-3-Sht -Rev 0 Yard East Ash Pond Dredge Cell - Manhole Details & Sections.cal	CAL
3/10/2009	RJK	ALF-10W208-4-Sht -Rev 0 Tva Ash Pond Crossing Plan Intersection Of Plt (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-4-Sht -Rev 0 Tva Ash Pond Crossing Plan Intersection Of Plt & Riverport Road Sheet 1.cal	CAL
3/10/2009	RJK	ALF-10W208-5-Sht -Rev 0 Tva Ash Pond Crossing Intersection Of Plt & Riv (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-5-Sht -Rev 0 Tva Ash Pond Crossing Intersection Of Plt & Riverport Road Sheet 2.cal	CAL
3/10/2009	RJK	ALF-10W208-6-Sht -Rev 0 Tva Ash Pond Crossing Intersection Plt & Riverp (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-6-Sht -Rev 0 Tva Ash Pond Crossing Intersection Plt & Riverport Road Sheet 3.cal	CAL
3/10/2009	RJK	ALF-10W208-7-Sht -Rev 0 Yard East Ash Pond Dredge Cell Spillway Structu (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-7-Sht -Rev 0 Yard East Ash Pond Dredge Cell Spillway Structure.cal	CAL
3/10/2009	RJK	ALF-10W208-8-Sht -Rev 0 Tva Ash Pond Crossing Intersection Plt & Riverp (cal).pdf	PDF
3/10/2009	RJK	ALF-10W208-8-Sht -Rev 0 Tva Ash Pond Crossing Intersection Plt & Riverport Road Sheet 4.cal	CAL
3/10/2009	RJK	ALF-10W210-1-Sht -Rev 0 Crushing Facility Plan & Sections Crusher Build (cal).pdf	PDF
3/10/2009	RJK	ALF-10W210-1-Sht -Rev 0 Crushing Facility Plan & Sections Crusher Building Wash Down Sump.cal	CAL
3/10/2009	RJK	ALF-10W210-3-Sht -Rev 0 Crushing Facility Washdown Sump Concrete And Re (cal).pdf	PDF
3/10/2009	RJK	ALF-10W210-3-Sht -Rev 0 Crushing Facility Washdown Sump Concrete And Reinforcing Plan, Sections, And Details.cal	CAL
3/10/2009	RJK	ALF-10W211-Sht -Rev 0 Main Plant - East Ash Disposal Area Catwalk To Wa (cal).pdf	PDF
3/10/2009	RJK	ALF-10W211-Sht -Rev 0 Main Plant - East Ash Disposal Area Catwalk To Water Level Monitoring Station.cal	CAL
3/10/2009	RJK	ALF-10W214-3-Sht -Rev 0 Civil Coal Yard Runoff And Drainage Ditch Improv (cal).pdf	PDF
3/10/2009	RJK	ALF-10W214-3-Sht -Rev 0 Civil Coal Yard Runoff And Drainage Ditch Improvements 2006 Retention Pond Plan View.cal	CAL
3/10/2009	RJK	ALF-10W215-Sht -Rev 0 Yard Concrete Retaining Wall At Ash Sluice Pipe T (cal).pdf	PDF
3/10/2009	RJK	ALF-10W215-Sht -Rev 0 Yard Concrete Retaining Wall At Ash Sluice Pipe Trench Near Bc 3A & 3B.cal	CAL
3/10/2009	RJK	ALF-10W225-Sht -Rev 5 Main Plant Ash Disposal Areas Ash Disposal Area E (cal).pdf	PDF
3/10/2009	RJK	ALF-10W225-Sht -Rev 5 Main Plant Ash Disposal Areas Ash Disposal Area East Of Powerhouse Sheet 1.cal	CAL
3/10/2009	RJK	ALF-10W225-Sht -Rev 6 Main Plant Ash Disposal Areas Ash Disposal Area Ea (cal).pdf	PDF
3/10/2009	RJK	ALF-10W225-Sht -Rev 6 Main Plant Ash Disposal Areas Ash Disposal Area East Of Powerhouse Sheet 1.cal	CAL
3/10/2009	RJK	ALF-10W234-1-Sht -Rev 0 Yard Ash Pond Discharge Discharge Flume Repairs (cal).pdf	PDF
3/10/2009	RJK	ALF-10W234-1-Sht -Rev 0 Yard Ash Pond Discharge Discharge Flume Repairs.cal	CAL
3/10/2009	RJK	ALF-10W234-2-Sht -Rev 0 Yard Ash Pond Discharge Partial Plan Sections & (cal).pdf	PDF
3/10/2009	RJK	ALF-10W234-2-Sht -Rev 0 Yard Ash Pond Discharge Partial Plan Sections & Details.cal	CAL
3/10/2009	RJK	ALF-10W235-Sht -Rev 18.cal	CAL

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Allen Fossil Plant (ALF)

Date Reviewed	Reviewed by	File Name	File Type
3/10/2009	RJK	ALF-10W260-Sht -Rev 0 Yard Units 1-3 Concrete & Misc Steel Ash Disposal (cal).pdf	PDF
3/10/2009	RJK	ALF-10W260-Sht -Rev 0 Yard Units 1-3 Concrete & Misc Steel Ash Disposal Pipe Trench Outline & Reinf (Nldf).cal	CAL
3/10/2009	RJK	ALF-10W402-1-Sht -Rev 1 Yard Units 1 - 3 Concrete And Misc Steel Ash Tre (cal).pdf	PDF
3/10/2009	RJK	ALF-10W402-1-Sht -Rev 1 Yard Units 1 - 3 Concrete And Misc Steel Ash Trench Modifications Outline And Reinforcement.cal	CAL
3/10/2009	RJK	ALF-10W402-2-Sht -Rev 1 Yard Units 1 - 3 Concrete And Misc Steel Ash Tre (cal).pdf	PDF
3/10/2009	RJK	ALF-10W402-2-Sht -Rev 1 Yard Units 1 - 3 Concrete And Misc Steel Ash Trench Modifications Outline And Reinforcement.cal	CAL
3/10/2009	RJK	ALF-10W402-3-Sht -Rev 0 Yard Units 1 - 3 Concrete And Misc Steel Ash Tre (cal).pdf	PDF
3/10/2009	RJK	ALF-10W402-3-Sht -Rev 0 Yard Units 1 - 3 Concrete And Misc Steel Ash Trench Modifications Outline And Reinforcement.cal	CAL
3/10/2009	RJK	ALF-10W402-4-Sht -Rev 0 Yard Units 1 - 3 Concrete And Misc Steel Ash Tre (cal).pdf	PDF
3/10/2009	RJK	ALF-10W402-4-Sht -Rev 0 Yard Units 1 - 3 Concrete And Misc Steel Ash Trench Modifications Outline And Reinforcement.cal	CAL
3/10/2009	RJK	ALF-17W500-4-Sht -Rev 3.cal	CAL
3/10/2009	RJK	ALF-Facility-Wide Drawings (From cal).pdf	PDF
3/10/2009	RJK	Allen Fossil Plant - Aerial Photo Scan With Structure Labels.pdf	PDF
3/10/2009	RJK	Allen Fossil Plant - Aerial Photo.pdf	PDF
3/10/2009	RJK	FY2008_ALF_Summary.pdf	PDF

Appendix C

Bull Run Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
Bull Run Fossil Plant (BRF)

Location:	Bull Run Fossil Plant (BRF) 1265 Edgemoor Road Clinton, Anderson County, TN 37716 Latitude: 36.006 N Longitude: 84.157 W
Plant Contact:	Jamey Dotson Program Manager Phone: 423-290-7269 Email: vjdotson@tva.gov
Facts and Figures:	The Bull Run Fossil Plant has a single coal-fired generating unit and generates six billion kilowatt-hours of electricity each year. Construction began in 1962 and was completed in 1966. The plant consumes approximately 7,300 tons of coal per day. It is located on Melton Reservoir on the Clinch River, in Clinton, Tennessee.
Coal Combustion Byproduct Disposal:	Approximately 240,000 tons of dry fly ash is collected in a silo each year and hauled to an onsite permitted dry stack disposal area (Dry Fly Ash Disposal Area). Approximately 25,000 tons per year of bottom ash is wet-sluiced to the main fly ash pond (Area 2). Approximately 240,000 dry tons of scrubber gypsum will be produced each year and will be wet sluiced to the permitted gypsum stacking area (Gypsum Disposal Area 2A). Approximately 50,000 tons of the scrubber gypsum will be marketed offsite to the cement industry.
Geology and Seismicity:	The Bull Run Fossil Plant is located in east-central Tennessee along the east shore of the Clinch River, just north (upstream) of the confluence of the river and Bull Run Creek. As such, the portions of the plant along the river and adjacent to Bull Run Creek, including the ash disposal areas, are underlain by alluvium consisting of silts and clays with varying amounts of sand. The remaining portions of the plant are primarily underlain by residual soils resulting from the in-place weathering of the parent Ordovician and Cambrian age limestone and calcareous shale bedrock formations. The topography and geology within the vicinity of the plant are typical of the Valley and Ridge Physiographic Province, characterized by parallel ridges trending northeast to southwest and underlain by more erosion resistant

siltstones, sandstones, and dolomites, and valleys underlain by the less erosion resistant shales and limestones. The area has been subjected to several organic events that have caused folding, fracturing and faulting of the bedrock throughout the region. A succession of thrust faults within the area has resulted in several bedrock units being present beneath the plant footprint. The plant straddles Bull Run Ridge, which is underlain by the Rome Formation consisting of erinaceous shale and sandstone beds. The valley south of Bull Run Ridge is underlain by the interbedded argillaceous shales and siltstones of the Conassauga Group while the valley north of the ridge is underlain by several sub-units of the Chickamauga Formation consisting of limestone, shaley limestone, calcareous shale, and calcareous siltstones. The Chickamauga formation dips about 40º to the southeast, is moderately to highly jointed and faulted, and is moderately solutioned along the joints and bedding planes. These solution features produce near vertical “slots” filled with soft clay which can extend to significant depths.

Seismic events affecting eastern Tennessee, and thus the plant site, primarily emanate from three zones of earthquake activity – the New Madrid Seismic Zone (NMSZ), Southern Appalachia Seismic Zone (SASZ), and the South Carolina Seismic Zone (SCSZ). The most active zone of the SASZ, the East Tennessee Seismic Zone (ETSZ), extends from northwestern Georgia through east Tennessee and is situated in close proximity to the plant. However, most earthquakes emanating from this zone are relatively low in magnitude, with the largest known event in the ETSZ registering a magnitude of 4.6, suggesting a moderate risk of damage from a seismic event. In contrast, if a large earthquake were to occur within the New Madrid zone to the west, damage to East Tennessee would be possible. The “Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5” developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 2.

Facilities Reviewed:	Bottom Ash Disposal Area 1 Gypsum Disposal Area 2A Fly Ash Pond/Stilling Pond Area 2 East/West Dredge Cell Dry Fly Ash Stack Dry Fly Ash Stack Sediment Pond

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Bull Run Fossil Plant (BRF)
Bottom Ash Disposal Area 1 (BAD-1)

1. General Facility Information

Facility Status:	Active		
Surface Area:	40 acres	Maximum Height (toe to top of stack):	52 feet (estimated top of stack to river)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Travis Markum
Field Assessment Dates:	January 14, 2009 and February 13, 2009
Weather/Site Conditions:	mid 30 degrees F, partly sunny (January 14, 2009); mid 40 degrees F, sunny (February 13, 2009).

3. History/Description of Usage

History, Operation and Stacking Plan:

The Bottom Ash Disposal Area 1 was originally known as just Area 1. Area 1 was part of the original plant layout when the plant went online in 1966. Area 1 was originally a fly ash pond and had a spillway discharging into the Clinch River in the southwest corner. Starting in 1980, a major portion of Area 1 was diked to receive dredged material from Area 2 (fly ash). However, with the East/West Dredge Cell going online in 1981, this area was used as a fly ash settlement pond and discharged into the ash channel. The northwest corner of the Area 1 received sluiced bottom ash and a channel conveyed this to Area 2 (current operations). In 1985, the settlement pond in Area 1 ceased receiving sluiced ash and was filled with bottom ash. Bottom ash was stacked according to the 1986 stacking plan until 1988. From 1988 to 2004, bottom ash was temporarily stacked in this area prior to going to Area 2A for disposal. From 2004 to present bottom ash not sold is stacked in Bottom Ash Disposal Area 1. Currently 25,000 tons of bottom ash is sluiced into the ash channel in the northwest corner of the Bottom Ash Disposal Area 1. Bottom ash that is not sold offsite is stacked in Area 1.

Stacking over Dredge Cells or CCB Ponds:	Yes
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

TVA Maintenance:	An Operations Manual is present for Bull Run Fossil Plant Area 1 and 2A, Ash and Gypsum Disposal Operations Plan (TVA,2004). The following items are noted for Maintenance. Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year. The drainage ditches are cleaned out and roads regraded once or twice a year. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	Seepage along west dike (1973 - 1976). Seepage along north dike with discoloration (1979). Slippage/settlement along south dike (1981). Standing water between earth dike and ash stack (1983). Standing water in ditch on west side (1994-current). Several slides on raised dike (1998). Erosion from stack drainage pipe on east side of ash channel (2008).

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10N208, 10N209, 10N213, 10N214, 10N280, 10N281, 10N410 through 10N412, and 10W288.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual	TVA Annual Inspection Reports 1967-2008.

Inspection Reports:	
Geotechnical Data:	None available.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Exterior Slopes and Benches

Vegetation:	Mostly grass and light brush. Some brush and trees near river bank on south side (Section 5).
Trees:	Some trees near river on west side. Also isolated trees on south side near standing water near access road, below access road along channel between Area 1 and Area 2A (Gypsum Disposal).
Erosion:	None observed.
Instabilities:	Northeast slope excavated to make room for ash piles. Exposed bottom ash with small void between ash/soil interface.
Uniform Appearance	Good.
Benches:	Four benches noted at measured section 2. They were located 23 feet below top of stack (31 feet wide), 33 feet below top of stack (29 feet wide), 36 feet below top of stack (10 feet wide) and 44 feet below top of stack (8 feet wide).
Slope:	3.5H:1V Top of stack to intermediate bench, Section 2 2H:1V and steeper, intermediate bench to river, Section 2.
Height:	Approximately 50 feet (estimated Section 2).
Other:	Two animal burrows were noted in south slope above standing water near access road. Tire ruts were noticed on the southwest side on the bench above the access road.

6.2. Perimeter Drainage Ditches and Down-Drains

Vegetation:	Mostly grass, some brush.
Rip-Rap Channel Lining:	None observed.
Erosion:	None observed.
Siltation in Ditches:	Some ash siltation was observed in the drainage ditch on the south side bench above the access road. Also, major ash deposited at confluence of drainage ditch and ash channel on southeast side of stack.
Standing Water in Ditches or on Benches:	Standing water was observed in the drainage ditch along the access road on the west and south side of the stack. Water was stagnant and varied in width between 4 feet on the northwest corner, to exceeding 8 feet in the south east corner. This has been noted in previous inspection reports starting in 1983.
Silted/Impeded Drainage Pipes:	None observed.
Other:	Two animal burrows were noted in south slope above standing water near access road. Tire ruts were noticed on the southwest corner of the bench above the access road. Standing water was observed in them.

7. Notable Observations and Concerns

- Standing water in the drainage ditch along the road of the west and south side of the Bottom Ash Stack is a concern. This drainage ditch begins upstream of the Chemical Pond and flows into the Ash Channel on the southeast corner of the Bottom Ash Stack. There appears to be very little gradient in this channel and the water is stagnant. This has been noted in past inspection reports as early as 1983. Past inspection reports have recommended cleaning and regrading of this area.
- Reddish discoloration was observed in the standing water on the west side of the Bottom Ash Stack. No movement was observed and it is unclear when or where this standing water originated.

- A red water seep was noted on the lower southern slope of the Bottom Ash Stack, along the channel between Area 1 and 2A. The seep is located on the slope and just west of the confluence of the drainage channel and the ash channel. The bank was observed as soggy and some standing water was observed for a significant area. Redness was observed in the channel below. Heavy vegetation was present in the area of the seep. This seep has been noted in the previous inspection report (2008).
- Inlet and outlet pipes for the lower channel between Area 1 and 2A were not located during the field assessment.
- Tire ruts are observed with ponding water on the southwest side of the Bottom Ash Stack on the bench above the road.
- Trees are located on south exterior slope, and at a few other isolated locations on the west dike.
- Two animal burrows were observed in the south exterior slope above the standing water in the drainage ditch.
- The Bottom Ash Stack eastern slope has been excavated to make room for stockpiling ash. This is located near the inlets to the Bottom Ash Pond. A void was also observed at the interface between the soil and exposed ash in the slope.
- Slopes 2H:1V and steeper were noted on lower slopes.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- The Bottom Ash Disposal Area 1 is built over former ash ponds and dredge cells. A Phase 2 geotechnical exploration should be performed to evaluate stability. This would include a subsurface exploration and slope stability analysis. In addition, a monitoring program should be implemented including installation of piezometers and inclinometers.
- Based on the limited as-built drawings available, it is recommended that a program be established to develop current conditions / as-built drawings to record future modifications to this facility. Construction records should also be included as part of this program to record and quantify construction means, methods and results.
- It is recommended that Bottom Ash Disposal Area 1 undergo further engineering study to evaluate alternatives to alleviate the persistent standing water in the drainage channels. This may include detailed surveying of the discharge ditch and evaluation of alternatives to provide positive drainage.

- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.

8.2. Maintenance Recommendations

- Repair tire ruts where noted.
- Repair animal burrows where noted.
- Remove trees from south side of Bottom Ash Stack on upslope from access road.
- Locate and maintain inlet and outlet structures to the lower channel between the Bottom Ash Stack Area 1 and the Gypsum Disposal Area 2A. Area should drain to Clinch River.
- Continue to monitor areas of noted seeps and wet areas on a consistent basis.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Bull Run Fossil Plant (BRF)
Gypsum Disposal Area 2A (GDA-2A)

1. General Facility Information

Facility Status:	Active	NID Identification:	Not known
Surface Area (inside dikes)	35 acres	Maximum Height (toe to top of dike):	45 feet
Free Water Volume:	Unknown	Maximum Water Storage:	Unknown
Estimated CCB Storage:	40,000 tons	Dike Length:	4900 feet (estimated)
Plant Discharge to Facility:	Unknown	Current Pool Elevation:	825 (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Travis Markum
Field Assessment Dates:	January 14, 2009, February 13, 2009 and February 14, 2009.
Weather/Site Conditions:	Mid 30 degree F, partly sunny (January 14, 2009); mid 40 degree F, sunny (February 13, 2009 and February 14, 2009). Some moisture from overnight rain on February 14, 2009.

3. History/Description of Usage

History and Operation: Gypsum Disposal Area 2A was originally just called Area 2A. In 1981, a new interior dike was constructed within Area 2 to form Area 2A. Fly ash was sluiced to this area once construction was complete. In 1989, this area was used to dry stack bottom ash from Area 1. In 2004, this area became inactive. Construction began in 2006 to develop Area 2A for gypsum disposal. The Gypsum Disposal Area 2A went online in late 2008. Approximately 240,000 dry tons of scrubber gypsum will be produced each year and will be wet sluiced to the

	permitted gypsum stacking area (Gypsum Pond Area 2A). It is estimated that approximately 50,000 tons of the scrubber gypsum will be sold.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	Yes, Bull Run Fossil Plant - Area 1 and 2A Ash and Gypsum Disposal Operations Plan (TVA, 2004).
TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year. The drainage ditches are cleaned out and roads regraded once or twice a year. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	Erosion gullies on lower south slope (2008). Bank slides on east side along ash channel (2009).

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10W294 (Rev 0 and 1), 10W294-12, 10W297-1 through 10W297-40, 10W298-1 through 10W298-42.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.

Geotechnical Data:	No boring information found but the Operation Manual (TVA, 2004) includes a stability analysis in Appendix G.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	None observed, bare ash and clay.	
Trees:	None observed.	
Wave Wash Protection:	None observed.	
Erosion:	Numerous erosion gullies along interior slope in ash. None were large enough to compromise stability at this time.	
Instabilities:	Minor sloughing in corners.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	Varies. 6 feet (Section 5) 11 feet (Sections 6,7 and 8)
	Design:	Varies, pond/stacking plan
Encroachments:	None were observed.	
Slope:	**Measured:**	3.5H:1V on all sides
	Design:	3H:1V (10W297-33)

6.2. Crest

Crest Cover and Slope:	Clay soil, no vegetation.	
Erosion:	None observed.	
Alignment:	Good.	
Settlement/Cracking:	None observed.	
Bare Spots/Rutting:	Minor tire ruts were observed along length of crest.	
Width:	**Measured:**	30 feet (Section 5)

	10 feet (Section 6, 7 and 8)
Design:	15 feet (10W297-32)

6.3. Exterior Slopes

Vegetation:	Sparse grass and brush on all but north side. North side has adequate grass on slopes. Trees and brush on slope to lower channel between Area 1and 2A. West side had adequate grass on lower slopes.
Trees:	None except in lower slope on north end near drainage channel between area 1 and 2A and along river on west side.
Erosion:	Two erosion gullies noted on south lower slope. Some erosion seen along banks of ash channel on east side. (see observations)
Instabilities:	Two depressions located on south lower slope. One of which is large (approximately 9 foot diameter) and located in line with outlet pipe from gypsum pond.
Uniform Appearance:	Additional vegetation is needed to maintain a uniform slope.
Seepage:	Wet areas were observed on the east portion of the lower south slope toe along ash pond.
Benches:	Section 5 - three benches (28 feet wide (below crest), 12 feet wide, and 18 feet wide (access road). Section 6 - one bench (access road) 25 feet wide Section 7 - one bench (access road) 28 feet wide Section 8 - three benches (83 feet wide (below crest), 56 feet wide (access road, standing water) and 10 feet wide (above river bank).
Foundations, Drains, Relief Wells, Instrumentation:	Internal drainage network for dewatering pond/stack. Lateral outlet pipes on east and west end at 250 feet c.c. (located). Some pipes on east end were silted or had separated joints (see observations). Lateral outlet pipes on south side were not located according to drawings and were silted or missing.
Animal Burrows:	None observed.

Slope:	**Measured:**	3.5H:1V (top of dam to road, Section 6, 7, and 8) 2.6H:1V (top of dam to road, Section 5)
	Design:	3H:1V top of dam to access road (10W297-26) 2H:1V access road to river (10W297-26)
Height:	**Measured:**	34 feet (ash channel to crest, section 6) 29 feet (ash pond to crest, section 7) 48 feet (river to crest, section 8)
	Design:	45 feet (10W297)

6.4. Spillway Weirs/Riser Inlets

Number:	Two (2) - located in south portion of gypsum pond.
Size, Type and Material:	30 inch bituminous coated corrugated metal standpipe.
Height of Riser Inlets:	Unable to measure.
Access:	No access.
Joints:	Unable to observe.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

6.5. Outlet Pipes

Number:	Two (2) - discharging into Active Ash Pond Area 2.
Size, Type and Material:	24 inch PE pipe encased by 30 inch CMP with concrete sleeve.
Headwall:	None observed.
Joint Separations:	None observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- Area 2A was previously a dredged ash cell before being converted recently to a Gypsum Pond (sluicing operations began December 2008). According to drawings, the pond is constructed on top of dredged fly ash with a compacted bottom ash drainage layer, with the embankments constructed out of fly ash with a clay cover. Ultimately, the Gypsum Pond will be a Gypsum Stack with height exceeding 100 feet (drawings 10W297 and 10W298 and 2004 Operations Manual). An elaborate underdrain system exists in the gypsum pond to collect internal drainage. However, slope instabilities are being observed on the east bank along the ash channel and on the south side on the slope to the ash pond. Construction of embankments and stacking over hydraulically placed ash is a potential slope stability issue and requires engineering analysis and geotechnical exploration.
- Several depressions were noted on the lower south slope into the ash pond. One of these depressions is large in size (approx. 8.5 feet by 13 feet by 1 foot deep) and appears to be in line with the western most discharge pipe from the gypsum pond.
- Two erosion areas were noted on lower south slope to ash pond. First area is next to west most rip rap channel measuring 5 feet wide, 2 feet deep starting at top of slope at access road and continuing down slope. Worst portion is within 20 feet of access road. Second erosion area is located 15 feet west of east most rip rap channel measuring 2 feet wide by 6 inches deep by 6 feet long (down the slope).
- Several lateral outlet drainage pipes on the east side, discharging to the ash channel, are not maintained. The southern most pipe is not long enough to reach the ash channel and is 1/2 filled with silt. Third pipe north of most southern pipe has separated joint at outlet.
- Several lateral outlet drainage pipes on the south side along the access road are missing and not maintained. Plans indicate that the lateral outlet pipes are to be spaced 120 feet on center on the south side. The lateral pipes were not located east of the western most rock channel on the downslope. The located lateral outlet pipes had separated joints, were 1/3 to 1/2 silted up, and had ponding water below them. In addition, several lateral outlet pipes at toe of lower southern slope discharging into the ash pond are silted or clogged.
- Wetness was observed at the toe of the vegetated mat on the south slope into the ash pond. The wet areas extended 6 to 10 feet upslope and were mainly noticed on the eastern third of the slope.
- Vegetative cover is sparse along slopes of gypsum pond.

- Interior slopes of pond have numerous erosion gullies and exposed ash slopes.
- Standing water is observed on the north side of the gypsum pond along the access road. This drainage channel is supposed to drain to the ash channel.
- Standing water was observed at the toe of the slope and the road on the west slope. This area drains to the stilling pond but has been overgrown with vegetation. The main area of standing water is along the southwest portion of the dike and the water extends from the road to the toe.
- Access road along the north side of gypsum pond is a dirt road. Three separate areas of wheel ruts with ponding water was observed along the road.
- Wheel ruts are observed on the crest of the pond. These ruts are shallow and not holding water but the crest is comprised of clay soil and should not be driven on.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that Gypsum Disposal Area 2A undergo further engineering study to evaluate the cause of the depressions and erosion on the south side and slope stability to evaluate the proposed stacking configuration.
- Due to the Gypsum Disposal Area 2A being constructed over former dredge ponds and the ultimate stacking exceeding 100 feet, it is recommended that the Gypsum Disposal Area 2A undergo a geotechnical exploration to evaluate the stability and feasibility of the area to adequately handle the future configuration. It is also recommended to install a monitoring program for this facility including the installation of piezometers and inclinometers. Based on the results, further evaluation and analysis could be needed.
- The drainage channels on the north and west side need to be maintained and evaluated to provide positive drainage and reduce the standing water. If adequate information is not available for regrading, a detailed survey should be done to determine the gradient and slope.
- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.

8.2. Maintenance Recommendations

- Repair tire ruts where noted and encourage TVA employees to only drive on areas that have gravel roads or better.
- Repair animal burrows where noted.
- Repair erosion and sloughed areas where noted on interior slopes of ponds. Line interior pond slopes with rip-rap to help reduce future erosion.
- Clean siltation and repair separated joints from lateral drainage pipes on south and east side of Gypsum Disposal Area 2A.
- Repair tire ruts on access road on north side of Gypsum Disposal Area and replace dirt road with gravel consistent with access road on south side of Bottom Ash Stack.
- Remove excess vegetation, brush and deposited ash that has accumulated in runoff drainage channels along the north side of the Gypsum Disposal Area 2A. Regrade the channel to drain to the ash channel in the northeast corner.
- Continue to monitor areas of noted seeps and wet areas on a consistent basis.
- Establish more vegetative cover along the exterior slopes of the Gypsum Disposal Area 2A. This may include placement of vegetative mats and reseeding to provide vegetation.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Bull Run Fossil Plant (BRF)
Fly Ash Pond Area 2 (FAP2)

1. General Facility Information

Facility Status:	Active	NID Identification:	Not known
Surface Area (inside dikes)	41 acres	Maximum Height (toe to top of dike):	18 feet (crest to river, section 13)
Free Water Volume:	Unknown	Maximum Water Storage:	Unknown
Estimated CCB Storage:	4,320,000 tons	Dike Length:	4700 feet (estimated three sides)
Plant Discharge to Facility:	22.3 MGD	Current Pool Elevation:	806.5 feet

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Travis Markum
Field Assessment Dates:	January 14, 2009 and February 14, 2009
Weather/Site Conditions:	mid 30 degrees F, partly sunny (January 14, 2009); low to mid 50 degrees F, sunny (February 14, 2009). Some moisture from overnight rain on February 14, 2009.

3. History/Description of Usage

History and Operation: The Fly Ash Pond Area 2 was one of the original facilities constructed when the plant went online in 1966-1967. No ash was sluiced to the pond until 1971 when a channel was constructed that linked Area 1 (current Bottom Ash Disposal Area 1) to the current Fly Ash Pond Area 2. The original spillway was located in the south end of the pond and discharged into Bull Run Creek. In 1976, an internal dike was constructed to form the stilling pond in the west portion of the pond. With the construction of the stilling pond was three concrete riser spillway structures which discharge into Melton Hill Reservoir (Clinch River). Water would enter the stilling pond through a rock weir in the middle of the internal dike. The spillway in the south portion of the pond was abandoned. In 1981, a portion of

	Area 2 was diked off to form what is now Area 2A (Gypsum Disposal Area). This area in 1981 was used as a secondary fly ash settlement pond. Currently, the pond receives sluiced fly ash (and some bottom ash) from the ash channel which originates on the east side of the Bottom Ash Disposal Area 1. The pond also receives discharges from the Gypsum Disposal Area 2A, Coal Yard Runoff Pond and Chemical Treatment Pond. Approximately 25,000 tons per year of bottom ash is wet sluiced to the ash channel in the Bottom Ash Disposal Area. Some fly ash is also sluiced but the quantity is unknown. It is also unknown the exact amount of bottom ash that does not settle out prior to the ash channel reaching Fly Ash Pond Area 2.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	An Operations Manual is present for Bull Run Fossil Plant Area 1 and 2A, Ash and Gypsum Disposal Operations Plan (TVA,2004).
TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year. The drainage ditches are cleaned out and roads regraded once or twice a year. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	Seepage along west dike (1976-1979). Standing water along toe ditch (1993 - 1995). Erosion on inside dike of stilling pond (1993-2000). Wet, soft area on toe of south dike (1995). Water discharging out of abandoned concrete pipe in south side, debris in pipe (1995). Cracks in outlet pipes in joints (1996-2005). Bank erosion along Bull Creek Run (south side) (2007-2009).

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10E285, 10N213, 10N214, 10N280 through 10N284, 10N292.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	None available.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Grass.
Trees:	None observed.
Wave Wash Protection:	Sporadic rip rap in places of past instabilities.
Erosion:	Wave erosion can be seen throughout interior slopes and internal dike between fly ash pond and stilling pond.
Instabilities:	Due to steepness of slope and erosion, numerous slumps and slides have occurred in the past. Some slumps were observed during the field assessment.
Animal Burrows:	None observed.
Freeboard:	**Measured:** 3.5 feet (all sections) **Design:** 4 feet (10N284)

Encroachments:	None observed	
Slope:	**Measured:**	1H:1V (Section 9, 10, 11 and 13) 2.5H:1V (Section 12)
	Design:	2H:1V (10N214 and 10N284).

6.2. Crest

Crest Cover and Slope:	Gravel road with grass shoulders.	
Erosion:	None.	
Alignment:	Good.	
Settlement/Cracking:	None observed.	
Bare Spots/Rutting:	None observed.	
Width:	**Measured:**	20 feet (Sections 9, 10, 12 and 13) 12 feet (Section 11, divider dike)
	Design:	16 feet (10N214)

6.3. Exterior Slopes

Vegetation:	Grass.
Trees:	Trees along river bank.
Erosion:	None observed.
Instabilities:	Certain slope areas are too steep and may be only marginally stable.
Uniform Appearance:	Slopes are not uniform but are well vegetated. Tire ruts are noted on toe and slopes.
Seepage:	Wet areas were observed along the toe and in tire ruts along south and west slopes. Main wet areas were in southwest corner near barge ties. Could not tell if this was local runoff or seepage.
Benches:	1 bench from toe of slope to slope of river bank. Width ranged from 12 feet to 24 feet.
Foundations, Drains, Relief Wells, Instrumentation:	None observed.

Animal Burrows:	Two animal burrows were observed in southwest corner.	
Slope:	**Measured:**	1.7H to 1.5H:1V crest to bench. 2H:1V to 3H:1V bench to river
	Design:	2.H:1V (10N284)
Height:	**Measured:**	9 feet to 14 feet (crest to toe)
	Design:	20 feet (crest to toe, 10N284)

6.4. Spillway Weirs/Riser Inlets

Number:	3 located in Stilling Pond in west side of Area 2.
Size, Type and Material:	36" Concrete.
Height of Riser Inlets:	12.5 feet (riser to invert of outlet).
Access:	Floating walkway.
Joints:	Water was flowing over spillway, could not review.
Mis-Alignment:	Water was flowing over spillway, could not review.
Closed/Abandoned Conduits:	None found.

6.5. Outlet Pipes

Number:	Three (3) located in west side of Stilling Pond, discharging into Melton Reservoir/Clinch River.
Size, Type and Material:	36 inches Concrete.
Headwall:	None.
Joint Separations:	Past joint separations have been repaired.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	Abandoned conduit located in south dike along Bull Run Creek. This might be former spillway abandoned in 1976. Unknown how it was abandoned and plugged.

7. Notable Observations and Concerns

- Outlet from stilling pond is through three concrete riser structures discharging into the Clinch River. RCP push-together riser structure spillways are a concern. Some minor surging was noted during the field assessment.
- A significant amount of fly ash was accumulating in the pond during the field assessment. Ash could be seen in the water. At some places, only a foot of water was seen over the ash surface.
- Steep slopes were seen on the interior and exterior slopes of the ash pond. Several areas were observed on the interior slope where banks have slid towards the pond and are now protected with rock. These slopes were observed at steeper than 2H:1V in numerous places.
- Tire ruts were noticed on the exterior bench, toe and slope. These tire ruts are ponding water on the toe of the exterior slope. This was observed along the entire length of the exterior slope.
- Wet areas were noticed at the exterior slope toe in numerous places. Many wet areas were noted in tire ruts and may be localized ponding.
- Steep slopes, erosion and sloughs were noted on the divider dike between the ash pond and the stilling pond.
- Two animal burrows were noted on the exterior slope near the SW corner of the stilling pond.
- A small slough was noted on the west interior slope of the stilling pond above the rip rap. This occurred south of the riser structure spillways.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that a geotechnical evaluation be done for the Active Fly Ash Pond/Stilling Pond Area 2 based on slope stability concerns. This evaluation could include implementation of a monitoring program including installation of piezometers and inclinometers. Based the results of this evaluation, further analysis might be needed.
- Due to the field observations of the quantity of ash being deposited in the pond as well as the lack of adequate freeboard, it is recommended that a hydrologic and hydraulic analysis be done to accurately determine the current maximum storage capacity within the pond.

- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.
- Evaluate the origin of the 24 inch concrete pipe in the south bank of Bull Run Creek. If this pipe is inactive, evaluate the adequacy of the abandonment and any leakage from the pipe. If needed, develop and implement a pipe abandonment plant.

8.2. Maintenance Recommendations

- Monitor the area near the current spillway outlets for increased flow due to leakage through riser joints. Also monitor for leakage through the ground surface coming from potential abandoned spillways that could be caused by improper abandonment procedures.
- Repair animal burrows where noted.
- Active Fly Ash Pond/Stilling Pond Area 2 may need to be dredged of deposited ash to increase capacity.
- Repair erosion and sloughed areas where noted on interior slopes of ponds. Line interior pond slopes with rip-rap to help reduce future erosion.
- Continue mowing program on slopes but avoid leaving deep ruts from mowing on side slopes. This was especially evident on the exterior slopes of the Fly Ash Pond Area 2. Also, cut back brush on slopes.
- Continue to monitor areas of noted seeps and wet areas on a consistent basis.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Bull Run Fossil Plant (BRF)
East/West Dredge Cell (EWDC)

1. General Facility Information

Facility Status:	Inactive		
Surface Area:	23 acres (estimated)	Maximum Height (toe to top of stack):	70 feet (measured)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Travis Markum
Field Assessment Dates:	January 15, 2009 and February 14, 2009
Weather/Site Conditions:	lower 20 degrees F, partly sunny (January 15, 2009); low to mid 50 degrees F, sunny (February 14, 2009). Some moisture from overnight rain on February 14, 2009.

3. History/Description of Usage

History, Operation and Stacking Plan:	The East/West Dredge Cell (originally called Ash Disposal Area Inside Railroad Loop) went online in 1981 to receive dredged fly ash from the Active Fly Ash Pond Area 2. Dredged ash was piped to the east and west pond area at the foot of the hill and bounded by the railroad embankment for disposal. Each pond had a concrete riser structure which discharged into Melton Reservoir. Due to instabilities with the railroad embankment, ash was removed from the ponds and placed on the adjacent hillside in 1986. Ash was periodically dredged from Area 2 and placed in the east and west ponds starting again in 1990 until 1995 when it was officially closed. Currently, this area is inactive.
Stacking over Dredge Cells or CCB Ponds:	No. Stacking was done on the hillside adjacent to ponds. Ponds have been filled and closed.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year. The drainage ditches are cleaned out and roads regraded once or twice a year. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	Red water seep and standing water on eastern toe (2007-current).

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing number 10W294-1 through 10 W294-11, 10W289-1 through 10W289-7.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	None available.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Exterior Slopes and Benches

Vegetation:	Grass.
Trees:	None observed
Erosion:	Minor erosion along east rip rap channel.

Instabilities:	None observed.
Uniform Appearance	Good.
Benches:	Three (3) main benches, each 20 feet wide.
Slope:	All slopes measured as 2H:1V except bottom most slope which was 4H:1V (Section 14).
Height:	Approx. 70 feet (Section 14).
Other:	Animal burrow noted near 12 inch drainage pipe in drainage ditch along west side toe.

6.2. Perimeter Drainage Ditches and Down-Drains

Vegetation:	Grass, dense at times. Vegetation appears to be affecting grade and encouraging standing water in drainage ditches along toe and in ditch to spillways.
Rip-Rap Channel Lining:	None present in ditches. Rip rap present around spillway.
Erosion:	None observed.
Siltation in Ditches:	None observed.
Standing Water in Ditches or on Benches:	Standing water observed on all three benches. 1st bench downslope from top of stack had standing water on west side. Next two benches had standing water on east side. Bottom bench was largest and in area of red water seep noted in previous inspections.
Silted/Impeded Drainage Pipes:	CMP culvert on top of stack in west rip rap channel has been driven over and appears to be draining the wrong way (see observations).
Other:	None.

7. Notable Observations and Concerns

- Standing water is noticed at the toe of the dredge cell on the east side. This area extends over 200 feet from the rip rap channel along the toe. Some reddish discoloration is noticed in the water as well as oil sheen. This area has been noted in past inspection reports for a red water seep. No movement was noticed in the water.
- Standing water is observed around the outlet riser pipes near the railroad. The standing water extends both east and west along the perimeter with the railroad track and to the rip rap channels on the dredge cell.
- Truck ruts are noted on the top of the dredge cell. Truck ruts near the west corner have standing water in them.
- Drainage channels along the bottom of the dredge cell to the outlet structure contained brush and heavy vegetation. A fallen tree had also dammed up a portion of the drainage channel on the west side.
- Culvert is seen on the top of the dredge cell in the west rip rap channel. The culvert pipe is not covered and has been driven over. Culvert pipe is also above the grade of the rip rap and appears to be angled the wrong way.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that a current Operations and Maintenance Plan be developed for this facility.

8.2. Maintenance Recommendations

- Repair tire ruts where noted and encourage TVA employees to only drive on areas that have gravel roads or better.
- Repair animal burrows where noted.
- Remove excess vegetation, brush and trees that have accumulated in runoff drainage channels
- Continue to monitor areas of noted seeps and wet areas on a consistent basis.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Bull Run Fossil Plant (BRF)
Dry Fly Ash Stack (DS1)

1. General Facility Information

Facility Status:	Active (Phase II)		
Surface Area:	50 acres (Phase I and II)	Maximum Height (toe to top of stack):	56 feet (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Travis Markum
Field Assessment Dates:	January 15, 2009 and February 15, 2009
Weather/Site Conditions:	Lower 20 degrees F, partly sunny (January 15, 2009) and mid 40 degrees F, sunny (February 15, 2009).

3. History/Description of Usage

History, Operation and Stacking Plan:	The Dry Fly Ash Stack is located north of the coal stack and went online in 1982 to receive dry fly ash. The stack is divided into two phases, I and II. Phase I is located on the north portion of the stack and was completed and covered in 1993. Phase II is located on the south portion of the Dry Fly Ash Stack and came online in the early 1990's and is still in operation. Currently approximately 240,000 tons of dry fly ash is collected in a silo each year and hauled to an onsite permitted dry stack disposal area (Dry Fly Ash Stack).
Stacking over Dredge Cells or CCB Ponds:	None.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year. The drainage ditches are cleaned out and roads regraded once or twice a year. Other maintenance work is done on an as-needed basis.

TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	Slump in south side perimeter dike (1994). Large seep with sloughing on western dike of Phase I (1998-2001). Seep found in north side of Phase I (2004-2005). Seep found east of existing seep in north side Phase I (2005-2006). Slope failure on west face of Phase I (2006).

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing Numbers 10W293-1 through 10W293-6.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	None available.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Exterior Slopes and Benches

Vegetation:	Grass, good.
Trees:	None observed.
Erosion:	Minor erosion gullies were noted at the interface between Phase I and Phase II on the south side.
Instabilities:	None observed.

Uniform Appearance	Good.
Benches:	2 benches with 10 foot widths (Section 19).
Slope:	3H:1V and flatter.
Height:	Approximately 56 feet above access road (Section 19).
Other:	Possible seeps noted on northeast side (see observations).

6.2. Perimeter Drainage Ditches and Down-Drains

Vegetation:	Grass, dense at places.
Rip-Rap Channel Lining:	Rip rap channel located on top of stack on Phase I, draining from north end of stack into drainage channel. Drainage channels are not rip rapped.
Erosion:	Erosion pool was observed in the drainage ditch below a 10 inch HDPE drainage pipe from the top of the stack.
Siltation in Ditches:	None observed.
Standing Water in Ditches or on Benches:	Numerous wet area were observed in the drainage ditches and benches in Phase I (see observations).
Silted/Impeded Drainage Pipes:	Concrete drainage pipe on the slope near interface of Phase I and Phase II on the south side was half full of silt.
Other:	

7. Notable Observations and Concerns

- Erosion pool located under 10 inch HDPE drainage pipe from top of stack to drainage channel on north side of Phase II.
- Two 10 inch HDPE drainage pipes were located on south side of Phase II and carried runoff from top of stack to sediment pond. On the east most pipe, one of the joints had been separated and tied together with rope. Ponding water was noticed below this joint. The west most pipe did not reach the pond and was discharging onto the ground.

- At the 24 inch culvert noted on north end of Phase II, the upstream flange was separated and the pipe had some deterioration.
- Standing water was noticed on toe near road on northeast side of Phase I. Several possible seeps observed but no flowing water. This area had been noted for seeps in past inspection reports.
- Wetness was observed on the southeast corner upslope from the drainage channel near the road.
- Concrete pipe and headwall observed on south side of Phase II near the interface with Phase I. Pipe was full of silt and there was noticeable wetness below the pipe on the slope.
- Drainage channels (especially in Phase I) have dense grass vegetation which is impeding the drainage of runoff and causing localized wet areas.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Review of documents and drawings for this facility have shown that the latest drawing for this area was done in 1982 (10W293 series) and does not accurately depict current conditions. It is recommended that a current drawing set be prepared for this area to accurately depict current conditions.

- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.

8.2. Maintenance Recommendations

- Continue to monitor areas of noted seeps and wet areas on a consistent basis.
- Repair animal burrows where noted.
- Continue mowing program and keep drainage channels clear of excess vegetation. The drainage channels should be cleared on a more frequent basis than the mowing program to provide positive drainage and reduce a wet condition along current toe of the stack.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Bull Run Fossil Plant (BRF)
Dry Fly Ash Stack Sediment Pond (DSP)

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes)	3 acres	Maximum Height (toe to top of dike):	N/A
Free Water Volume:	Unknown	Maximum Water Storage:	Unknown
Estimated CCB Storage:	N/A	Dike Length:	N/A
Plant Discharge to Facility:	N/A	Current Pool Elevation:	815 (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Travis Markum
Field Assessment Dates:	January 15, 2009 and February 15, 2009
Weather/Site Conditions:	lower 20 degrees F, partly sunny (January 15, 2009) and mid 40 degrees F, sunny (February 15, 2009)

3. History/Description of Usage

History and Operation:	The Dry Fly Ash Stack Sediment Pond came online with Phase I of the Dry Fly Ash Stack and was originally a 90 feet x 130 feet pond to take runoff from Phase I (drawing 10W293-1). The pond was expanded with Phase II in the early 1990's and discharges to the Coal Yard Drainage Pond through a 60 inch concrete culvert. The current spillway is a concrete box riser structure with 3 sets of 2 inch diameter holes spaced approximately 1 foot off center to allow low flow to pass. The pond is a depression with no actual embankments.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	An Operations Manual is present for Bull Run Fossil Plant Area 1 and 2A, Ash and Gypsum Disposal Operations Plan (TVA,2004).
TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year. The drainage ditches are cleaned out and roads regraded once or twice a year. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	None reported.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing Numbers 10W293-1 through 10W293-6.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	None available.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	No vegetation on south and west side, grass, small brush on north and east side.	
Trees:	None observed.	
Wave Wash Protection:	None observed.	
Erosion:	Erosion was noted on the southeast side of the pond measuring 4 feet wide by 1.5 feet deep along interior slope.	
Instabilities:	None observed.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	5 feet (Section 15) 8 feet (Section 16)
	Design:	Approximately 5 feet (10W293-4)
Encroachments:	None observed.	
Slope:	**Measured:**	1.6H:1V (Section 15) 2H:1V (Section 16)
	Design:	Not known.

6.2. Crest

Crest Cover and Slope:	Pond is depression, no crest.	
Erosion:	N/A	
Alignment:	N/A	
Settlement/Cracking:	N/A	
Bare Spots/Rutting:	N/A	
Width:	**Measured:**	N/A
	Design:	N/A

6.3. Exterior Slopes

Vegetation:	N/A	
Trees:	N/A	
Erosion:	N/A	
Instabilities:	N/A	
Uniform Appearance:	N/A	
Seepage:	N/A	
Benches:	N/A	
Foundations, Drains, Relief Wells, Instrumentation:	N/A	
Animal Burrows:	N/A	
Slope:	**Measured:**	N/A
	Design:	N/A
Height:	**Measured:**	N/A
	Design:	N/A

6.4. Spillway Weirs/Riser Inlets

Number:	One (1) - 3 foot by 7 foot box riser.
Size, Type and Material:	Spillway is a concrete box riser with three columns of two inch diameter seep holes on side. Outlet from riser structure is 60 inch concrete culvert flowing into the Coal Yard Drainage Pond.
Height of Riser Inlets:	Unknown.
Access:	On west bank of pond.
Joints:	Box riser.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

6.5. Outlet Pipes

Number:	One (1)
Size, Type and Material:	60 inch concrete culvert.
Headwall:	Yes
Joint Separations:	No
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- Pond works in conjunction with the Dry Fly Ash Stack and controls runoff from area.
- Pond is a depression and does not have any measurable crest or embankments.
- A 24 inch and a 16 inch pipe were observed at the southeast corner of the pond. The origin of these pipes is unknown. Minor erosion was observed below the outlets.
- Minor erosion was observed along the west and south interior banks. These banks had little vegetation. This pond is a depression so this is not a stability issue.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Review of documents and drawings for this facility have shown that the latest drawing for this area was done in 1982 (10W293 series) and does not accurately depict current conditions. It is recommended that a current drawing set be prepared for this area to accurately depict current conditions.
- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.

8.2. Maintenance Recommendations

- Repair erosion and sloughed areas where noted on interior slopes of ponds. Line interior pond slopes with rip-rap to help reduce future erosion.
- Establish vegetation on interior slopes on south and west side to reduce erosion.
- The 24 inch and 16 inch pipes in the southeast corner of the pond needs to be evaluated to determine origin and current status. If it is determined the pipe are out of service or not properly abandoned, an abandonment plan need to be formulated and implemented.

Drawing Mark BAD-1-1

Typical side slope on west side of bottom ash stack showing standing water in drainage ditch.

Drawing Mark BAD-1-2

Tire ruts on slope and lower bench on west side of bottom ash disposal area.

Drawing Mark BAD-1-3

View of side slope and standing water in drainage ditch on south side of bottom ash disposal area.

Drawing Mark BAD-1-4 — Possible animal burrow on south side slope near drainage ditch.

Drawing Mark BAD-1-5 — Red water seep area on the lower south slope along channel between the Bottom Ash Disposal Area 1 and Gypsum Disposal Area 2A.

Drawing Mark BAD-1-6

Confluence of ash channel and drainage ditch on south side of the bottom ash disposal area showing settlement of fly ash in channel.

Drawing Mark BAD-1-7

Disjointed discharge pipes from top of bottom ash disposal area.

Drawing Mark BAD-1-8 Erosion gully near north end of ash pond with loose concrete slab covering edge of gully on east side of bottom ash disposal area.

Drawing Mark BAD-1-9 Cut in stack for stockpile area showing void between soil layer and ash.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
BAD-1-1	Typical side slope on west side of bottom ash stack showing standing water in diversion ditch.	BRP1B1364
BAD-1-2	Tire ruts on slope and lower bench on west side of bottom ash disposal area.	BRP1B1374
BAD-1-3	View of side slope and standing water in drainage ditch on south side of bottom ash disposal area.	BRP1B1401
BAD-1-4	Possible animal burrow on south side slope near drainage ditch.	BRP1B1405
BAD-1-5	Red water seep area on the lower south slope along channel between the Bottom Ash Disposal Area 1 and Gypsum Disposal Area 2A.	BRP1B1411
BAD-1-6	Confluence of ash channel and drainage ditch on south side of the bottom ash disposal area showing settlement of fly ash in channel.	BRP1B1397
BAD-1-7	Disjointed discharge pipes from top of Bottom Ash Disposal Area.	BRP1B1429
BAD-1-8	Erosion gully near north end of ash pond with loose concrete slab covering edge of gully on east side of bottom ash disposal area.	BRP1B1418
BAD-1-9	Cut in stack for stockpile area showing void between soil layer and ash.	BRP1B1423

Drawing Mark GDA-2A-1

Standing water in roadside drainage ditch on north side of Gypsum Disposal Area 2A.

Drawing Mark GDA-2A-2

Stagnate water in drainage channel on north end of west side of gypsum disposal area.

Drawing Mark GDA-2A-3 Ponding water in drainage channel on west side of gypsum disposal area.

Drawing Mark GDA-2A-4 Interior slope erosion (typical) within the gypsum disposal area.

Drawing Mark GDA-2A-5 Depression on south end of gypsum disposal area.

Drawing Mark GDA-2A-6 Erosion gully on south end of gypsum disposal area

Drawing Mark GDA-2A-7 Partially soil filled lateral outlet pipe on south side intermediate bench.

Drawing Mark GDA-2A-8 Damaged lateral outlet pipe on south side intermediate bench.

Drawing Mark GDA-2A-9

Covered lateral outlet pipe at base of south side of gypsum disposal area entering fly ash pond.

Drawing Mark GDA-2A-10

Separated and partially soil covered lateral outlet pipe on east side of gypsum disposal area.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
GDA-2A-1	Standing water in roadside drainage ditch on north side of Gypsum Disposal Area 2A.	BRP1B1410
GDA-2A-2	Stagnate water in drainage channel on north end of west side of gypsum disposal area.	BRP1B1491
GDA-2A-3	Ponding water in drainage channel on west side of gypsum disposal area.	BRP1B1485
GDA-2A-4	Interior slope erosion (typical) within the gypsum disposal area.	BRP1A623
GDA-2A-5	Depression on south end of gypsum disposal area.	BRP1B1479
GDA-2A-6	Erosion gully on south end of gypsum disposal area.	BRP1B1480
GDA-2A-7	Partially soil filed lateral outlet pipe on south side intermediate bench.	BRP1B1467
GDA-2A-8	Damaged lateral outlet pipe on south side intermediate bench.	BRP1B1469
GDA-2A-9	Covered lateral outlet pipe at base of south side of gypsum disposal area entering fly ash pond.	BRP1B1474
GDA-2A-10	Separated and partially soil covered lateral outlet pipe on east side of gypsum disposal area.	BRP1B1459

Drawing Mark FAP-2-1 Tire ruts and wet area on south side, east corner of fly ash pond.

Drawing Mark FAP-2-2 Steep exterior slope on south side fly ash pond.

Drawing Mark FAP-2-3

Possible beaver burrow on south side of fly ash pond near outlet of concrete pipe along creek.

Drawing Mark FAP-2-4

Separated concrete pipe of unknown origin entering creek.

Drawing Mark FAP-2-5 Weir area at southeast portion of pond..-

Drawing Mark FAP-2-6 Steep, irregular slopes and overall conditions of inner levee between fly ash pond and stilling pond.

Drawing Mark FAP-2-7

Three spillway structures on northwest side of pond.

Drawing Mark FAP-2-8

Steep slopes with tire ruts and possible slumping on west side of stilling pond.

Drawing Mark FAP-2-9

Slump on interior cresting of stilling pond along west side dike.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
FAP-2-1	Tire ruts and wet area on south side, east corner of fly ash pond.	BRP1B1526
FAP-2-2	Steep exterior slope on south side fly ash pond.	BRP1B1509
FAP-2-3	Separated concrete pipe of unknown origin entering creek.	BRP1B1517
FAP-2-4	Possible beaver burrow on south side of fly ash pond near outlet of concrete pipe along creek.	BRP1B1523
FAP-2-5	Weir area at southeast portion of pond.	BRP1A736
FAP-2-6	Steep, irregular slopes and overall conditions of inner levee between fly ash pond and stilling pond.	BRP1B1528
FAP-2-7	Three spillway structures on northwest side of pond.	BRP1A782
FAP-2-8	Steep slopes with tire ruts and possible slumping on west side of stilling pond.	BRP1A762
FAP-2-9	Slump on interior crest of stilling pond along west side dike.	BRP1B1550

Drawing Mark EWDC-1-1 Overall view of the East and West Dredge Cells.

Drawing Mark EWDC-1-2 View of east side lower slope and bottom area showing standing water and reddish soils.

Drawing Mark EWDC-1-3 Red water seep and standing water at bottom of slope on east side of dredge cell.

Drawing Mark EWDC-1-4 Tire ruts creating a depression and wet area on top of dredge cell.

Drawing Mark EWDC-1-5

CMP culvert on top of stack that is partially covered, dented, and appeared to drain the wrong direction.

Drawing Mark EWDC-1-6

Standing water around outlets on the southeast side of the East and West Dredge Cells.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
EWDC-1-1	Overall view of the East and West Dredge Cells.	BRP1B1556
EWDC-1-2	View of east side lower slope and bottom area showing standing water and reddish soils.	BRP1B1591
EWDC-1-3	Red water seep and standing water at bottom of slope on east side of dredge cell.	BRP1B1608
EWDC-1-4	Tire ruts creating a depression and wet area on top of dredge cell.	BRP1B1600
EWDC-1-5	CMP culvert that is partially covered, dented, and appeared to drain the wrong direction.	BRP1B1601
EWDC-1-6	Standing water around outlets on southeast side of the East and West Dredge Cells.	BRP1B1566

Drawing Mark DSP-1-1 Overall view of Dry Fly Ash Stack Drainage Pond.

Drawing Mark DSP-1-2 View of outlet facility and side slopes for ash stack sediment pond.

Drawing Mark DSP-1-3

Bare slopes near outlet to ash stack sediment pond.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
DSP-1-1	Overall view of Dry Fly Ash Stack Drainage Pond.	BRP1B1632
DSP-1-2	View of outlet facility and side slopes for ash stack sediment pond.	BRP1A820
DSP-1-3	Bare slopes near outlet to ash stack sediment pond.	BRP1A813

Drawing Mark DS-1-1

Inlet pipes down embankment slope to sediment pond diversion, shifted on slope from past storm event.

Drawing Mark DS-1-2

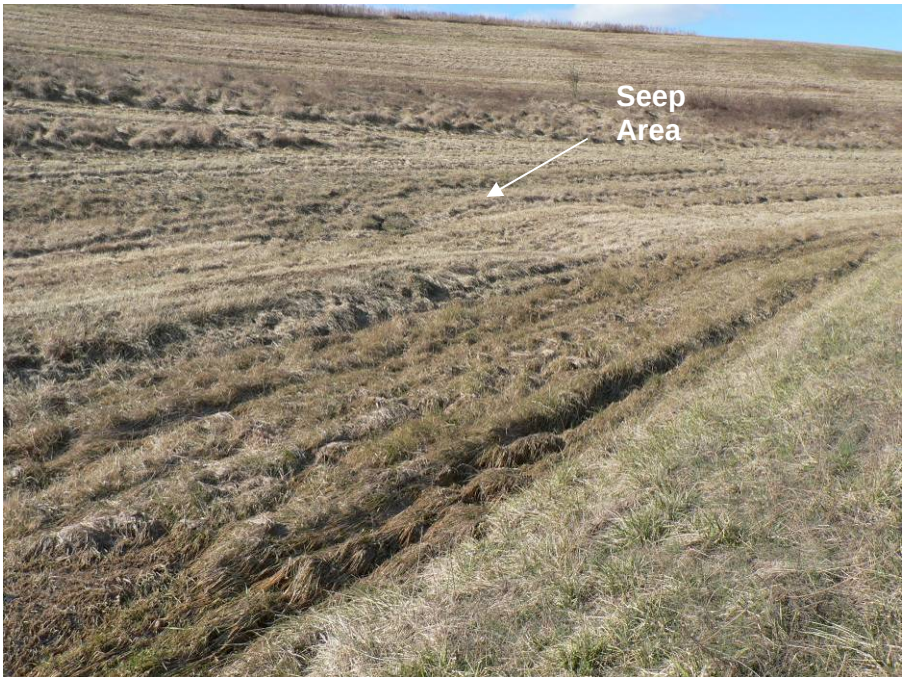
Tied discharge pipes at separation on bench on the southern side of Dry Fly Ash Stack.

Drawing Mark DS-1-3

Erosion at outlet end of ash drainage discharge pipe at diversion ditch to sediment pond.

Drawing Mark DS-1-4

Silted concrete pipe and headwall on southern portion of Dry Fly Ash Stack. Note water below outlet.



Drawing Mark DS-1-5 Typical slopes near seepage area on northeast portion of lower slope of Dry Fly Ash Stack.

Drawing Mark DS-1-6 Closeup of standing water in seep area on northeast portion of Dry Fly Ash Stack.

Drawing Mark DS-7

Erosion pool below outlet pipe on the east side of Phase I area of dry stack.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
DS-1-1	Inlet pipes down embankment slope to sediment pond diversion, shifted on slope from past storm event.	BRP1B1693
DS-1-2	Tied discharge pipes at separation on bench on the southern side of Dry Fly Ash Stack.	BRP1B1640
DS-1-3	Erosion at outlet end of ash drainage discharge pipe at diversion ditch to sediment pond.	BRP1B1641
DS-1-4	Silted concrete pipe and headwall on southern portion of Dry Fly Ash Stack. Note water below outlet.	BRP1B1692
DS-1-5	Typical slopes near seepage area on northeast portion of lower slope of Dry Fly Ash Stack.	BRP1A858
DS-1-6	Closeup of standing water in seep area on northeast portion of Dry Fly Ash Stack.	BRP1B1689
DS-1-7	Erosion pond below outlet on the east side of Phase 1 area of dry stack.	BRP1B1670

STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 1- BRF

Tennessee Valley Authority
Bull Run Fossil Plant
Clinton, Anderson County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMG
CHECKED BY	DAG
CHECKED BY	
SCALE	AS SHOWN
REVISED	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

SHEET

1 OF 2

STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 2 - BRF

Tennessee Valley Authority
Bull Run Fossil Plant
Clinton, Anderson County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMG
CHECKED BY	DAG
CHECKED BY	
SCALE	AS SHOWN
REVISED	
1	
2	
3	
4	
5	
6	
7	
8	

SHEET

2 OF 2

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Bull Run Fossil Plant (BRF)

Date Reviewed	Reviewed by	File Name	File Type
3/30/2009	RAD	1963-03_BRF-10N230-Sht -Rev 9.cal	CAL
3/30/2009	RAD	1963-03_BRF-10N231-Sht -Rev 8.cal	CAL
3/30/2009	RAD	1963-09_BRF-10N233-Sht -Rev 3.cal	CAL
3/30/2009	RAD	1963-10_BRF-10N238-Sht -Rev 2.cal	CAL
3/30/2009	RAD	1963-11_BRF-10N237-Sht -Rev 2.cal	CAL
3/30/2009	RAD	1964-03_BRF-10N240-Sht -Rev 2.cal	CAL
3/30/2009	RAD	1964-03_BRF-10N241-Sht -Rev 1.cal	CAL
3/30/2009	RAD	1964-07_BRF-10N232-Sht -Rev 2.cal	CAL
2/11/2009	RAD	1966-10_BRF-10N209-Sht -Rev 3 Main Plant Ash Disposal Areas Supplemental Details Sheet 2.cal	CAL
3/30/2009	RAD	1966-10_BRF-10N209-Sht -Rev 3.cal	CAL
3/30/2009	RAD	1967-10_BRF-10N208-Sht -Rev 2.cal	CAL
3/13/2009	RAD	1975-11_BRF-10E285-Sht -Rev 0 Main Plant Fly Ash Disposal Area No 2 Catwalk To Water Level Monitoring Station.cal	CAL
2/11/2009	RAD	1977-02_BRF-10W287-Sht -Rev 1 Main Plant Relocated Dike For Ash Disposal Lines Under L & N Railroad.cal	CAL
3/27/2009	RAD	1979 - BRF Dredge 2A No5 604G986 R0.pdf	PDF
2/11/2009	RAD	1979-07_BRF-10W288-Sht -Rev 1 Main Plant Reclaimed Ash Disposal Area No. 1 Grading Plan.cal	CAL
3/13/2009	RAD	1982-06_BRF-10W293-1-Sht -Rev 2 Main Plant Ash Disposal Area North Of Coal Pile Sheet 1.cal	CAL
3/13/2009	RAD	1982-06_BRF-10W293-2-Sht -Rev 1 Main Plant Ash Disposal Area North Of Coal Pile Sheet 2.cal	CAL
3/13/2009	RAD	1982-11_BRF-10W293-3-Sht -Rev 3 Main Plant Ash Disposal Area North Of Coal Pile Sheet 3.cal	CAL
3/13/2009	RAD	1982-12_BRF-10W293-4-Sht -Rev 3 Main Plant Ash Disposal Area North Of Coal Pile Sheet 4.cal	CAL
3/13/2009	RAD	1982-12_BRF-10W293-5-Sht -Rev 1 Main Plant Ash Disposal Area North Of Coal Pile Sections & Details.cal	CAL
3/13/2009	RAD	1982-12_BRF-10W293-Sht 4-Rev 0.cal	CAL
3/27/2009	RAD	1985 - Bull Run Steam Plant Ashponds1And2Asoil Investigationoesoilsschedule814.pdf	PDF
3/27/2009	RAD	1985 - Bull Run Steam Plant Ashponds1And2Asoil Investigationoesoilsschedule814.pdf	PDF
3/27/2009	RAD	1985 - BullRunsteamplantashponds1And2Asoilinvestigationoesoilsschedule814.pdf	PDF
3/27/2009	RAD	1985 - BullRunsteamplantashponds1And2Asoilinvestigationoesoilsschedule814.pdf	PDF
3/30/2009	RAD	1985 - BullRunsteamplantashstorageareasnorthwestofrailroadloopandtherailroadloopsoilsinvestigationoesoilsschedule816.pdf	PDF
3/30/2009	RAD	1985 - BullRunsteamplantflyashstackinrailroadloopdnesoilschedule819.pdf	PDF
3/30/2009	RAD	1985 - BullRunsteamplantrailroadloopandnwofrrloopprrembankmentscheduleno.pdf	PDF
3/30/2009	RAD	1985 - BullRunsteamplantrailroadloopborrowinvestigation.pdf	PDF
2/11/2009	RAD	1986-04_BRF-10W294-Sht -Rev 0 Main Plant Ash Disposal Area North Of Coal Pile Sections And Details.cal	CAL
2/11/2009	RAD	1986-04_BRF-10W294-Sht -Rev 1 Main Plant Ash Disposal Area North Of Coal Pile Sections And Details.cal	CAL
3/30/2009	RAD	1987 - BullRunfossilplantrailroadlogoby Soilsgroupslabanalysis.pdf	PDF
3/27/2009	RAD	1989 - BullRunfossilplantanassessmentofthephaseiiflyashdrystackingwr28149104.pdf	PDF
3/27/2009	RAD	1989 - BullRunfossilplantleachategenerationfromdrystackedflyashpart1Fieldexperiments.pdf	PDF
3/27/2009	RAD	1989 - BullRunfossilplantreportofageotechnicalexplorationdisposalponddikestristatetestinganddrillingmarch1989.pdf	PDF
3/27/2009	RAD	1989 - BullRunfossilplantreportofageotechnicalexplorationdisposalponddikestristatetestinganddrillingmarch1989.pdf	PDF
3/27/2009	RAD	1990 - BullRunfossilplantltradkendricktoreoliveraugust151990Subsurfaceexplorationandsitegeotechnicalassessment.pdf	PDF
3/30/2009	RAD	1992 - BullRunfossilplantconstructionqualitycontrolfordryflyashstackstage1Closureslreport209004087A.pdf	PDF

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Bull Run Fossil Plant (BRF)

Date Reviewed	Reviewed by	File Name	File Type
3/30/2009	RAD	1993 - Bull Run Fossil Plant Qualitycontrolforflyashstackiiexistinggeologicbufferslreport209004112A.pdf	PDF
2/10/2009	RAD	1993-12_BRF-10W293-6-Sht -Rev 0 Main Plant Ash Disposal Area North Of Coal Pile Sections And Details.cal	CAL
2/10/2009	RAD	1994-10_BRF-10W290-2-Sht -Rev 4 Powerhouse Unit 1 Civil Electrostatic Fly-Ash Collector Paving And Grading Plan.cal	CAL
3/30/2009	RAD	1995 - BullRunfossilplantnovember81995Qaqcofconstructionfortheremaininglowerhalfofstageiidryflyashstackingfacilityslreport.pdf	PDF
3/30/2009	RAD	1998-06_BRF-10W257-Sht -Rev 1.cal	CAL
3/27/2009	RAD	2004 - BRF Ash Disposal Area No1.tif	TIF
3/27/2009	RAD	2004 - BRF Ash Disposal Area No1.tif	TIF
3/27/2009	RAD	2004 - Bull Run Fossil Plant Mactec Reportofgeotechnicalexplorationashdisposalareajuly132004.pdf	PDF
3/27/2009	RAD	2004 - Bull Run Fossil Plant Mactec Reportofgeotechnicalexplorationashdisposalareajuly132004.pdf	PDF
3/27/2009	RAD	2006 - BullRunfossilplantmacteclettertoronpurkeymarch82006Reportoffieldinvestigationofashmaterials.pdf	PDF
2/11/2009	RAD	Br27631.cal	CAL
2/12/2009	JDB/RAD	BRF 2009 Ash Pond Inspection Tdec -- Plant Walkdown Results.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy2000.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy2001.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy2002.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy2004.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy2005.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy2006.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy2007.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy67.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy68.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy69.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy70.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy71.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy72.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy73.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy74.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy75.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy76.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy77.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy78.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy79.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy80.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy81.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy82.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy83.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy84.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy85.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy86.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy87.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy88.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy89.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy90.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy93.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy94.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy95.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy96.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy97.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy98.pdf	PDF
2/12/2009	JDB/RAD	BRF Ash Pond Insp Fy99.pdf	PDF
3/30/2009	RAD	BRF Blackwhite 10W296-1 No2.pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (1994).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (1995).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (1996).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (1997).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (1998).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (1999).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2000).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2001).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2002).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2003).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2004).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2005).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2006).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2007).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2008) & Plant Follow-Up.pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inpsection (2008).pdf	PDF
2/12/2009	JDB/RAD	BRF Dike Stability Inspection (1-9-09) S&Me Report.pdf	PDF
3/27/2009	RAD	BRF Dredge Cell 2A Graph No4.pdf	PDF
3/13/2009	RAD/JDB	BRF Geotechnical Engg Aug18 2005 Prep For Advatech By Urs.pdf	PDF
3/6/2009	RAD	BRF Operastions Manual Area 1 And 2A Ash And Gypsum Disposal Revision A August 30 2004.pdf	PDF
3/13/2009	RAD/JDB	BRF Operations Manual Gypsum And Ash Disposal Areas 1 1A 2A Volume 2 Nov 2004 Rev July 2005.pdf	PDF
3/27/2009	RAD	BRF Permit Ash Disposal Areas ! And @A Drawings November 1999.pdf	PDF
2/12/2009	JDB/RAD	BRF Quarterly Red Water Seep Inspections (1993-2008).pdf	PDF
3/13/2009	RAD/JDB	BRF Report Of Geotechnical Exploration East And West Ash Disposal Areas Mactec Engineering And Consulting Inc Aug 18 2004 Mactec Project 304304103701.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/12/2009	JDB/RAD	BRF Site Map (071393).pdf	PDF
2/10/2009	RAD	BRF-10Ds410-Sht 1-Rev 2 U1 Ash Sluice Pipe Trench & Supports.cal	CAL
2/10/2009	RAD	BRF-10E285-Sht -Rev 0 Main Plant Fly Ash Disposal Area No 2 Catwalk To Water Level Monitoring Station.cal	CAL
2/10/2009	RAD	BRF-10H294-10-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Miscellaneous Ditch Protection Details.cal	CAL
2/10/2009	RAD	BRF-10H294-11-Sht -Rev 0 Yard Dry Ash Stack-Northwets Of Rr Loop Highway - Railroad Grade Crossing Details.cal	CAL
2/10/2009	RAD	BRF-10H294-9-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Pipe Culvert Installation & Bedding Details.cal	CAL
2/10/2009	RAD	BRF-10N207-Sht -Rev 4 Yard Car Wash Finished Grading And Paving Plan.cal	CAL
2/11/2009	RAD	BRF-10N207-Sht -Rev 4 Yard Car Wash Finished Grading And Paving Plan.cal	CAL
2/11/2009	RAD	BRF-10N208-Sht -Rev 2 Main Plant Ash Disposal Areas Supplemental Details Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10N213-Sht -Rev 14 Main Plant Ash Disposal Areas And Dikes.cal	CAL
2/11/2009	RAD	BRF-10N213-Sht -Rev 14 Main Plant Ash Disposal Areas And Dikes.cal	CAL
2/10/2009	RAD	BRF-10N214-Sht -Rev 4 Main Plant Ash Disposal Areas Supplemental Details Sheet 3.cal	CAL
2/11/2009	RAD	BRF-10N214-Sht -Rev 4 Main Plant Ash Disposal Areas Supplemental Details Sheet 3.cal	CAL
2/11/2009	RAD	BRF-10N232-Sht -Rev 2 Yard Drainage Details Coal Area.cal	CAL
2/11/2009	RAD	BRF-10N251-Sht -Rev 3 Yard Coal Yard Surfacing.cal	CAL
2/10/2009	RAD	BRF-10N280-Sht -Rev 3 Main Plant Ash Disposal Area Connection Area 1 & Area 2 Sheet 1.cal	CAL
2/11/2009	RAD	BRF-10N280-Sht -Rev 3 Main Plant Ash Disposal Area Connection Area 1 & Area 2 Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10N281-Sht -Rev 2 Main Plant Ash Disposal Area Connection Area 1 & Area 2 Sheet 2.cal	CAL
2/11/2009	RAD	BRF-10N281-Sht -Rev 2 Main Plant Ash Disposal Area Connection Area 1 & Area 2 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10N282-Sht -Rev 1 Standard Drawing Ash Disposal Spillway.cal	CAL
2/11/2009	RAD	BRF-10N282-Sht -Rev 1 Standard Drawing Ash Disposal Spillway.cal	CAL
2/10/2009	RAD	BRF-10N283-Sht -Rev 0 Standard Drawing Weir For Ash Disposal Spillway.cal	CAL
2/11/2009	RAD	BRF-10N283-Sht -Rev 0 Standard Drawing Weir For Ash Disposal Spillway.cal	CAL
2/10/2009	RAD	BRF-10N284-Sht -Rev 2 Main Plant Ash Disposal Areas Supplemental Details Sheet 4.cal	CAL
2/11/2009	RAD	BRF-10N284-Sht -Rev 2 Main Plant Ash Disposal Areas Supplemental Details Sheet 4.cal	CAL
2/10/2009	RAD	BRF-10N292-Sht -Rev 0 Main Plant Ash Disposal Areas Divider Dike Skimmer & Access Catwalk To Spillway.cal	CAL
2/11/2009	RAD	BRF-10N292-Sht -Rev 0 Main Plant Ash Disposal Areas Divider Dike Skimmer & Access Catwalk To Spillway.cal	CAL
2/11/2009	RAD	BRF-10N340-Sht -Rev 0 Yard Unit 1 Concrete Cable Tunnel To Coal Structures Plan & Profile.cal	CAL
2/11/2009	RAD	BRF-10N353-Sht -Rev 2 Coal Handling Facilities Unit 1 Concrete Access To Manhole No. 8 Outline & Reinforcement.cal	CAL
2/11/2009	RAD	BRF-10N410-Sht -Rev 6 Yard Unit 1 Concrete Ash Sulice Pipe Trench & Supports Outline & Reinf - Sheet .cal	CAL
2/11/2009	RAD	BRF-10N411-Sht -Rev 5 Yard Unit 1 Concrete Ash Sulice Pipe Trench & Supports Outilne & Reinforcement - Sheet 2.cal	CAL
2/11/2009	RAD	BRF-10N412-Sht -Rev 4 Yard Unit 1 Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf - Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W204-Sht -Rev 3 Main Plant Fly-Ash Collecting System Areas Available For Contractor Use During Const.cal	CAL
2/11/2009	RAD	BRF-10W211-Sht -Rev 9 Main Plant General Grading Plan Coal Yard.cal	CAL
2/10/2009	RAD	BRF-10W258-1-Sht -Rev 5 Yard-Dry Fly-Ash Collection System Unit 1 Finished Grading,Drainage & Paving Plan - Sheet 1.cal	CAL
2/11/2009	RAD	BRF-10W258-1-Sht -Rev 5 Yard-Dry Fly-Ash Collection System Unit 1 Finished Grading,Drainage & Paving Plan - Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W258-2-Sht -Rev 2 Yard-Dry Fly-Ash Collection System Unit 1 Finished Grading,Drainage & Paving Plan - Sheet 2.cal	CAL
2/11/2009	RAD	BRF-10W258-2-Sht -Rev 2 Yard-Dry Fly-Ash Collection System Unit 1 Finished Grading,Drainage & Paving Plan - Sheet 2.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/10/2009	RAD	BRF-10W259-1-Sht -Rev 3 Yard Ash Pipe Trench Sump Plan.cal	CAL
2/10/2009	RAD	BRF-10W259-2-Sht -Rev 3 Yard Ash Pipe Trench Sump Details & Sections.cal	CAL
2/10/2009	RAD	BRF-10W259-3-Sht -Rev 2 Yard Ash Pipe Trench Sump Details & Sections.cal	CAL
2/11/2009	RAD	BRF-10W286-Sht -Rev 0 Main Plant Chemical Treatment Pond Plan And Details.cal	CAL
2/11/2009	RAD	BRF-10W288-Sht -Rev 1 Main Plant Reclaimed Ash Disposal Area No. 1 Grading Plan.cal	CAL
2/10/2009	RAD	BRF-10W289-1-Sht -Rev 3 Main Plant Ash Disposal Area Inside Loop Track Plan.cal	CAL
2/10/2009	RAD	BRF-10W289-2-Sht -Rev 3 Main Plant Ash Disposal Area Inside Loop Track Sections & Details.cal	CAL
2/10/2009	RAD	BRF-10W289-3-Sht -Rev 2 Main Plant - Yard Ash Disposal Area Inside Loop Track Stacking Plan.cal	CAL
2/10/2009	RAD	BRF-10W289-4-Sht -Rev 2 Main Plant - Yard Ash Disposal Area Inside Loop Track Stacking Plan Sections.cal	CAL
2/10/2009	RAD	BRF-10W289-6-Sht -Rev 1 Main Plant Ash Disposal Area Inside Loop Track - Closure Grading Plan .cal	CAL
2/10/2009	RAD	BRF-10W289-7-Sht -Rev 1 Main Plant Ash Disposal Area Inside Loop Track - Closure Sections & Monitoring Wells.cal	CAL
3/13/2009	RAD	BRF-10W289-Sht 4-Rev 0.cal	CAL
2/10/2009	RAD	BRF-10W290-2-Sht -Rev 4 Powerhouse Unit 1 Civil Electrostatic Fly-Ash Collector Paving And Grading Plan.cal	CAL
2/10/2009	RAD	BRF-10W290-2-Sht -Rev 5 Powerhouse Unit 1 Civil Electrostatic Fly-Ash Collector Paving And Grading Plan.cal	CAL
2/10/2009	RAD	BRF-10W290-3-Sht -Rev 3 Powerhouse Unit One Civil Electrostatic Fly Ash Collector Paving And Grading Plan.cal	CAL
2/10/2009	RAD	BRF-10W290-3-Sht -Rev 4 Powerhouse Unit One Civil Electrostatic Fly Ash Collector Paving And Grading Plan.cal	CAL
2/11/2009	RAD	BRF-10W293-1-Sht -Rev 2 Main Plant Ash Disposal Area North Of Coal Pile Sheet 1.cal	CAL
2/11/2009	RAD	BRF-10W293-2-Sht -Rev 1 Main Plant Ash Disposal Area North Of Coal Pile Sheet 2.cal	CAL
2/11/2009	RAD	BRF-10W293-3-Sht -Rev 3 Main Plant Ash Disposal Area North Of Coal Pile Sheet 3.cal	CAL
2/11/2009	RAD	BRF-10W293-4-Sht -Rev 3 Main Plant Ash Disposal Area North Of Coal Pile Sheet 4.cal	CAL
2/11/2009	RAD	BRF-10W293-5-Sht -Rev 1 Main Plant Ash Disposal Area North Of Coal Pile Sections & Details.cal	CAL
2/11/2009	RAD	BRF-10W293-6-Sht -Rev 0 Main Plant Ash Disposal Area North Of Coal Pile Sections And Details.cal	CAL
3/5/2009	RAD	BRF-10W293-Sht 4-Rev 0.cal	CAL
2/10/2009	RAD	BRF-10W294-12-Sht -Rev 0 Yard Ash Disposal Area - 2A Plan Section & Details Stack Grading.cal	CAL
2/10/2009	RAD	BRF-10W294-1-Sht -Rev 0 Yard Dry Ash Track-Northwest Of Rr Loop Retention Pond Stack Base & Haul Road Grading & Drainage Plan.cal	CAL
2/10/2009	RAD	BRF-10W294-2-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Haul Road Grading Drainage And Miscellaneous Sections .cal	CAL
2/10/2009	RAD	BRF-10W294-3-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Stacking Plan And Haul Road.cal	CAL
2/10/2009	RAD	BRF-10W294-4-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Haul Road & Stack Misc Sections & Profiles.cal	CAL
2/10/2009	RAD	BRF-10W294-5-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Construction Notes.cal	CAL
2/10/2009	RAD	BRF-10W294-6-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Ash Disposal Area Spillways Type A & B.cal	CAL
2/10/2009	RAD	BRF-10W294-7-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Ash Disposal Area Skimmer Details.cal	CAL
2/10/2009	RAD	BRF-10W294-8-Sht -Rev 0 Yard Dry Ash Stack-Northwest Of Rr Loop Ash Disposal Area Gravity Drain.cal	CAL
2/10/2009	RAD	BRF-10W294-Sht -Rev 0 Main Plant Ash Disposal Area North Of Coal Pile Sections And Details.cal	CAL
2/10/2009	RAD	BRF-10W294-Sht -Rev 1 Main Plant Ash Disposal Area North Of Coal Pile Sections And Details.cal	CAL
2/10/2009	RAD	BRF-10W297-10-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 4.cal	CAL
2/10/2009	RAD	BRF-10W297-11-Sht -Rev 0 Yard Gypsum & Ash Disposal Initial Site Grading Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W297-12-Sht -Rev 0 Yard Gypsum & Ash Disposal Initial Site Grading Sheet 2 .cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/10/2009	RAD	BRF-10W297-13-Sht -Rev 0 Yard Gypsum & Ash Disposal Initial Site Grading Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W297-14-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 1 Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W297-15-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 1 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W297-16-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 1 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W297-17-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 2 Sheet 1 .cal	CAL
2/10/2009	RAD	BRF-10W297-18-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 2 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W297-19-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 2 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W297-1-Sht -Rev 0 Yard Gypsum & Ash Disposal Drawing Index And Legend.cal	CAL
2/10/2009	RAD	BRF-10W297-20-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 3 Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W297-21-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 3 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W297-22-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 3 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W297-23-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 4 Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W297-24-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 4 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W297-25-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 4 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W297-26-Sht -Rev 0 Yard Gypsum & Ash Disposal Area 2A Sections.cal	CAL
2/10/2009	RAD	BRF-10W297-27-Sht -Rev 0 Yard Gypsum & Ash Disposal Area 2A Sections.cal	CAL
2/10/2009	RAD	BRF-10W297-28-Sht -Rev 0 Yard Gypsum & Ash Disposal Area 1A Sections.cal	CAL
2/10/2009	RAD	BRF-10W297-29-Sht -Rev 0 Yard Gypsum & Ash Disposal Areas 1 & 1A Sections.cal	CAL
2/10/2009	RAD	BRF-10W297-2-Sht -Rev 0 Yard Gypsum & Ash Disposal Site Location Plan.cal	CAL
2/10/2009	RAD	BRF-10W297-30-Sht -Rev 0 Yard Gypsum & Ash Disposal Miscellanous Details Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W297-31-Sht -Rev 0 Yard Gypsum & Ash Disposal Metal Spillway Details Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W297-32-Sht -Rev 0 Yard Gypsum & Ash Disposal Typical Cross Section & Details Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W297-33-Sht -Rev 0 Yard Existing Ash Disposal Details Sheet 4.cal	CAL
2/10/2009	RAD	BRF-10W297-34-Sht -Rev 0 Yard Gypsum & Ash Disposal Cover, Culvert & Road Details Compacted Clay Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W297-35-Sht -Rev 0 Yard Gypsum & Ash Disposal Geocomposite Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W297-36-Sht -Rev 0 Yard Gypsum & Ash Disposal Drainage Plan, Roads, & Ditch Schedule Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W297-37-Sht -Rev 0 Yard Gypsum & Ash Disposal Ditch Details & Notes Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W297-38-Sht -Rev 0 Yard Gypsum & Ash Disposal Waste Disposal Options Stage 1.cal	CAL
2/10/2009	RAD	BRF-10W297-39-Sht -Rev 0 Yard Gypsum & Ash Disposal Waste Disposal Options Stage 2.cal	CAL
2/10/2009	RAD	BRF-10W297-3-Sht -Rev 0 Yard Gypsum & Ash Disposal Phasing Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W297-40-Sht -Rev 0 Yard Gypsum & Ash Disposal Dredge Cell Plan.cal	CAL
2/10/2009	RAD	BRF-10W297-4-Sht -Rev 0 Yard Gypsum & Ash Disposal Phasing Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W297-5-Sht -Rev 0 Yard Gypsum & Ash Disposal Layout Plan Initial Grading.cal	CAL
2/10/2009	RAD	BRF-10W297-6-Sht -Rev 0 Yard Gypsum & Ash Disposal Layout Plan Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W297-7-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W297-8-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W297-9-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W298-10-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 4.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/10/2009	RAD	BRF-10W298-11-Sht -Rev 0 Yard Gypsum & Ash Disposal Initial Site Grading Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W298-12-Sht -Rev 0 Yard Gypsum & Ash Disposal Initial Site Grading Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W298-13-Sht -Rev 0 Yard Gypsum & Ash Disposal Initial Site Grading Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W298-14-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 1 Sheet 1 .cal	CAL
2/10/2009	RAD	BRF-10W298-15-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 1 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W298-16-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 1 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W298-17-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 2 Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W298-18-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 2 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W298-19-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 2 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W298-1-Sht -Rev 0 Yard Gypsum & Ash Disposal Drawing Index And Legend .cal	CAL
2/10/2009	RAD	BRF-10W298-20-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 3 Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W298-21-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 3 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W298-22-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 3 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W298-23-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 4 Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W298-24-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 4 Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W298-25-Sht -Rev 0 Yard Gypsum & Ash Disposal Stage 4 Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W298-26-Sht -Rev 0 Yard Gypsum & Ash Disposal Area 2A Sections.cal	CAL
2/10/2009	RAD	BRF-10W298-27-Sht -Rev 0 Yard Gypsum & Ash Disposal Area 2A Sections.cal	CAL
2/10/2009	RAD	BRF-10W298-28-Sht -Rev 0 Yard Gypsum & Ash Disposal Area 1A Sections.cal	CAL
2/10/2009	RAD	BRF-10W298-29-Sht -Rev 0 Yard Gypsum & Ash Disposal Areas 1 & 1A Sections.cal	CAL
2/10/2009	RAD	BRF-10W298-2-Sht -Rev 0 Yard Gypsum & Ash Disposal Site Location Plan .cal	CAL
2/10/2009	RAD	BRF-10W298-30-Sht -Rev 0 Yard Gypsum & Ash Disposal Miscellanous Details Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W298-31-Sht -Rev 0 Yard Gypsum & Ash Disposal Metal Spillway Details Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W298-32-Sht -Rev 0 Yard Gypsum & Ash Disposal Typical Cross Section & Details Sheet 3.cal	CAL
2/10/2009	RAD	BRF-10W298-33-Sht -Rev 0 Yard Existing Ash Disposal Details Sheet 4 .cal	CAL
2/10/2009	RAD	BRF-10W298-34-Sht -Rev 0 Yard Gypsum & Ash Disposal Cover, Culvert & Road Details Compacted Clay Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W298-35-Sht -Rev 0 Yard Gypsum & Ash Disposal Geocomposite Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W298-36-Sht -Rev 0 Yard Gypsum & Ash Disposal Drainage Plan, Roads, & Ditch Schedule Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W298-37-Sht -Rev 0 Yard Gypsum & Ash Disposal Ditch Details & Notes Final Cover.cal	CAL
2/10/2009	RAD	BRF-10W298-38-Sht -Rev 0 Yard Gypsum & Ash Disposal Waste Disposal Options Stage 1 .cal	CAL
2/10/2009	RAD	BRF-10W298-39-Sht -Rev 0 Yard Gypsum & Ash Disposal Waste Disposal Options Stage 2 .cal	CAL
2/10/2009	RAD	BRF-10W298-3-Sht -Rev 0 Yard Gypsum & Ash Disposal Phasing Sheet 1 .cal	CAL
2/10/2009	RAD	BRF-10W298-40-Sht -Rev 0 Yard Gypsum & Ash Disposal Wick Drain Arrangement .cal	CAL
2/10/2009	RAD	BRF-10W298-41-Sht -Rev 0 Yard Gypsum & Ash Disposal Typical Cross-Sections And Details.cal	CAL
2/10/2009	RAD	BRF-10W298-42-Sht -Rev 0 Yard Gypsum & Ash Disposal Cleanout & Standpipe Details .cal	CAL
2/10/2009	RAD	BRF-10W298-4-Sht -Rev 0 Yard Gypsum & Ash Disposal Phasing Sheet 2 .cal	CAL
2/10/2009	RAD	BRF-10W298-5-Sht -Rev 0 Yard Gypsum & Ash Disposal Layout Plan Initial Grading.cal	CAL
2/10/2009	RAD	BRF-10W298-6-Sht -Rev 0 Yard Gypsum & Ash Disposal Layout Plan Final Cover.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/10/2009	RAD	BRF-10W298-7-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 1.cal	CAL
2/10/2009	RAD	BRF-10W298-8-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 2.cal	CAL
2/10/2009	RAD	BRF-10W298-9-Sht -Rev 0 Yard Gypsum & Ash Disposal Existing Conditions Sheet 3.cal	CAL
3/30/2009	RAD	Bull Run Ash Storage Facility Soils Investigation.pdf	PDF
3/30/2009	RAD	Bull Run Dry Fly Ash Collection Facility Spec Manual.pdf	PDF
3/30/2009	RAD	Bull Run Dry Fly Ash Storage Geologic Buffer Report.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant Book No 4D.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant Develope Dredgecell Pond 2A Pcn5058.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant Drainage Substitution Phase I Ii Rlp July 29 2005.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant Dup Constr Quality Control For Dly Fly Ash Stack Stage 1 Closure.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant Duplicate Constr Quality Control For Dly Fly Ash Stack Stage 1 Closure.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant EdgemoorroadentranceBRF041011.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant Folder Qa Qc Fgd.pdf	PDF
3/27/2009	RAD	Bull Run Fossil Plant Gypsum Disposalareaqaqcreports.pdf	PDF
3/30/2009	RAD	Bull Run Fossil Plant Permitashdisposalareas1And2Adrawingsnovember1999.pdf	PDF
3/27/2009	RAD	Bull Run Fossil Plant Wastedisposalandashstackingplandecember22005.pdf	PDF
3/30/2009	RAD	Bull Run Fossilplant Hydrogeologyofashdisposalareas1And2Aseptember1999.pdf	PDF
3/30/2009	RAD	Bull Run Permit Ash Disposal Areas 1 And2A Drawings Nov 1999.pdf	PDF
3/30/2009	RAD	Bull Run Solid Waste Landfill Application.pdf	PDF
3/30/2009	RAD	Bull Run Steam Plant Duplicate Fly Ash Stack In Railroad Loop Dnesoilsched 819.pdf	PDF
3/30/2009	RAD	Bull Run Steam Plant Duplicate Fly Ashstack In Railroad Loop Dne Soil Sched 819.pdf	PDF
3/30/2009	RAD	Bull Run Steam Plant Railroad Loop Borrow Investigation.pdf	PDF
2/10/2009	RAD	BullRun.pdf (this is an aerial view w/ structures located - also includes top and toe of dike elevations)	PDF
3/30/2009	RAD	BullRunfossilplantmemofvanmetertoglbuchananjune51980Ashdensityandgradationtestsendessoilsscheduleno812.pdf	PDF
3/27/2009	RAD	BullRunfossilplantoperationsmanualgypsumandashdisposalareas11Aand2Avolume1Idl010208November2004Revisedjuly2005.pdf	PDF
3/27/2009	RAD	BullRunfossilplantursfinalreportgeotechnicalenggaugust182005.pdf	PDF
3/13/2009	RAD	BullRunopsmanualgypsumandashdispareas1,1A,2Avol3.pdf	PDF
3/27/2009	RAD	BullRunopsmanualgypsumandashdispareas1,1A,2Avol3.pdf	PDF
3/13/2009	RAD	BullRuntripperroomfloorbeaminspjune20-22,2001.pdf	PDF
3/13/2009	RAD	Permit Ash Disposal Areas 1 And2A Drawings Nov 1999.pdf	PDF
2/12/2009	JDB/RAD	S&Me Report 1431-09-010 Tva BRF.pdf	PDF

Appendix D

Cumberland Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
Cumberland Fossil Plant (CUF)

Location:	Cumberland Fossil Plant (CUF) 815 Cumberland City Road Cumberland City, Houston County, TN 37050 Latitude: 36.3812 N Longitude: 87.6515 W
Plant Contact:	Carrie McCarty Program Administrator Phone: 931-827-6278 Email: csmccart@tva.gov
Facts and Figures:	The Cumberland Fossil Plant has two coal-fired generating units. Construction began in 1968 and was completed in 1973. The plant consumes approximately 20,000 tons of coal per day. It is located on the Cumberland River near river mile 103, and is about 22 miles southwest of Clarksville, TN.
Coal Combustion Byproduct Disposal:	Approximately 530,000 tons of dry fly ash is collected in silos each year. Approximately 70 percent of the fly ash is marketed offsite into the concrete industry and the remaining 30 percent is hauled to an onsite dry stack disposal area (Dry Ash Stack). Approximately 135,000 tons per year of bottom ash is wet-sluiced to the Active Ash Pond. Dewatered bottom ash is reclaimed from the Active Ash Pond and stacked within the Dry Ash Stack. Approximately 1,100,000 tons of gypsum is produced each year. Roughly 75 percent of the gypsum is marketed to the adjacent wallboard company and the remaining 25 percent is wet-sluiced to the Gypsum Storage Area.
Geology and Seismicity:	The Cumberland Fossil Plant is located in the northern portion of west-central Tennessee along the south bank of the Cumberland River, at the confluence of the river and Wells Creek. The plant is situated near the middle of the Wells Creek Structure, a roughly circular area approximately 4 miles in diameter thought to be the result of a meteor impact. The rock within the central portion of the feature is highly fractured to a depth of several thousand feet and a pattern of radial and longitudinal faults have been mapped for several miles in all directions. Bedrock of the Cambrian aged Knox Dolomite and Lower Ordovician aged limestones of the Stones River Group are exposed within the central portion of the structure with the limestones and shales of the more recent Silurian, Devonian and Mississippian Periods exposed in approximately parallel bands around the periphery. The plant itself is underlain by bedrock of the Knox Dolomite; Stones River

Group; Hermitage Formation; Fernvale Limestone; Brassfield Limestone; Osgood Formation, Laurel Limestone, Waldron Shale, Lego Limestone, and Dixon Formation of the Wayne Group; Brownsport Formation; Decatur Limestone; Rockhouse Limestone and Birdsong Shale Members of the Ross Formation; Camden and Harriman Formations; Chattanooga Shale; New Providence Shale; and Fort Payne Formation. Because of the complexity of the bedrock structure, foundation conditions across the site are somewhat unpredictable and may vary drastically over short distances requiring the need for the advancement of borings at specific locations to verify bearing conditions. Because the plant is situated along the banks of Wells Creek and the Cumberland River, a mantle of alluvial soils primarily consisting of silty lean clays overly bedrock across portions of the site.

Evaluations of seismic hazards affecting the western portion of middle Tennessee, and thus the plant site, are dominated by events emanating from the New Madrid Seismic Zone (NMSZ) of the central Mississippi Valley. The NMSZ is the most active seismic zone east of the Rocky Mountains and the continuing seismicity of the zone is thought to be associated with the reactivation of faults within the Reelfoot Rift System. Although the majority of the events emanating from this zone are too small to be felt at the surface, this zone has produced a series of four earthquakes between December 1811 and early February 1812 each exhibiting estimated magnitudes on the order of 7.0 to 8.0. The “Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5” developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 2.

Facilities Reviewed:

Gypsum Storage Area
Ash Pond
Dry Ash Stack

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Cumberland Fossil Plant (CUF)
Gypsum Storage Area (GSA)

1. General Facility Information

Facility Status:	Temporarily Inactive	NID Identification:	TN16110
Surface Area (inside dikes)	170 acres (estimated)	Maximum Height (toe to top of dike):	50 feet (estimated, current phase) 140 feet (Proposed)
Free Water Volume:	Currently drained	Maximum Water Storage:	Currently drained
Estimated CCB Storage:	1,825,579 CY	Dike Length:	9,000 feet (estimated)
Plant Discharge to Facility:	6,000 gpm when active	Current Pool Elevation:	Drained

2. Site Visit Information

Stantec Assessment Team:	Steve Bickel, PE, Nathan Bader, PE, Stan Harris, PE and Matthew Hoy, EIT
TVA Staff Present:	Stuart Harris and Carrie McCarty
Field Assessment Dates:	January 14, 2009 and February 3 - 4, 2009
Weather/Site Conditions:	Mid-30 degrees F, sunny, moist ground both days.

3. History/Description of Usage

History and Operation: The gypsum storage area was constructed during 1995-1996. It was built over Area No. 1, which was the original ash pond. Approximately 1,100,000 tons of gypsum is produced each year. Roughly 75 percent of the gypsum is marketed to the adjacent wallboard company and the remaining 25 percent is wet-sluiced to the Gypsum Storage Area. The pond was constructed in several stages beginning with construction of a rock drainage blanket to collect and divert water away from the base. When gypsum is discharged to the pond intermittently, it is wet-sluiced to the northeast corner of the pond. Currently the pond is separated into a north and south area. The pond consists of an upper gypsum dike being

	constructed using rim-ditching operations, a lower perimeter ash dike, and an even lower clay dike which was the original perimeter dike for the disposal area. Discharge for the pond is through an RCP riser to outlet pipes in the northwest corner of the pond into the adjacent perimeter ditches. The perimeter ditches around the Gypsum Storage Area flow to the north along the neighboring Dry Stack and ultimately into the Ash Pond.
Past Failures/Releases:	A slope slough along the perimeter clay dike in the northwest corner of the Gypsum Storage Area reportedly occurred in 2005. The slope was temporarily repaired using rip rap and Stantec is currently evaluating slope stability. Seepage has also been reported in this area and along the Gypsum Storage Area to the east. As a result, the pond has also been drained until Stantec's evaluation is complete.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	"Operations Manual: Dry Ash and Gypsum Stacking Facility", prepared by Tennessee Valley Authority, October 10, 2003.
TVA Maintenance:	Exterior slopes mowed every two years.
TVA Inspections:	TVA Engineering performs annual inspections and prepares reports. Plant personnel recently started making daily observations, with documented inspections made weekly.
Problems Previously Identified During Past TVA Inspections:	Seepage areas around exterior dike, slope failure along northwest corner of perimeter dike.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10W300-1 through 19, 6314-W-C110200 through 224, 6314-W-C110300 through 316.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1972-1984, 1986-1990, 1994-1995, 1997-2004, 2006-2008.
Geotechnical Data:	"TVA-Fly Ash, Bottom Ash, and Scrubber Gypsum Study", Law Engineering, Inc., October 1995. "Report of Geotechnical Exploration, Gypsum Area Seepage Study, Cumberland Fossil Plant, Cumberland City, Tennessee", prepared by MACTEC Engineering and Consulting, Inc., May 1, 2007. "Report of Preliminary Geotechnical Exploration, Proposed Gypsum Wallboard Plant, TVA Cumberland Fossil Plant, Cumberland City, Tennessee", Law Engineering and Environmental Services, Inc., January 3, 1997. "Report of Subsurface Exploration and Stability Analyses, Proposed Fly Ash/Scrubber Sludge Disposal Facility, Cumberland Fossil Plant, Cumberland City, Tennessee", Law Engineering, January 27, 1992. "Report of Hydrogeologic Evaluation, Proposed Dry Fly Ash and Gypsum Disposal Facility, TVA Cumberland City, Tennessee", Law Engineering, March 13, 1992. "Laboratory Test Results, Samples from Gypsum Pond at Cumberland Fossil Plant", MACTEC Engineering and Consulting, May 13, 2004.

Project Update - Seepage Investigation and Repair, TVA Cumberland Fossil Plant, presented by Geosyntec Consultants to TVA, October 2007, May 2007, and July 2008.

Results of Laboratory Testing, TVA Fly Ash & Gypsum Disposal Facilities, Cumberland Fossil Plant, United Engineers and Constructors Inc., June 1992.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	None. Top dike consists of gypsum with no vegetation established.
Trees:	None observed.
Wave Wash Protection:	None observed.
Erosion:	None observed.
Instabilities:	Portions of the dike are currently being reconstructed using rim-ditching operations, but no evidence of instabilities were observed.
Animal Burrows:	None observed.
Freeboard:	**Measured:** Pond drained. **Design:** Not available on drawings.
Encroachments:	None observed.
Slope:	**Measured:** Currently being constructed, not measured. **Design:** Not available on drawings.

6.2. Crest

Crest Cover and Slope:	Gypsum cover from rim-ditching operations.
Erosion:	None observed.
Alignment:	Alignment appeared to agree with design drawings. No problem.

Settlement/Cracking:	None observed.
Bare Spots/Rutting:	No rutting observed. Crest is bare with no vegetation established.
Width:	**Measured:** 23 feet at Section 5; 20 feet at Section 6 **Design:** Not available on drawings.

6.3. Exterior Slopes

Vegetation:	Upper Gypsum slopes are bare and lack vegetation. Phragmites and brush are present on the intermediate ash dike slopes. A grass cover is present along the lower perimeter dike slopes.
Trees:	Small trees were located in a few areas around the perimeter of the pond.
Erosion:	Areas of erosion were observed along the upper gypsum dike and the lower ash dike in several areas.
Instabilities:	A slope failure has been repaired in the northwest corner of the pond along the perimeter clay dike. Slope instability in the form of shallow sloughing was also observed along the ash dike along the northwest side of the pond.
Uniform Appearance:	Good.
Seepage:	Seepage observed in the past when pond was filled at the northernmost portion of the pond. Seepage was also observed at the southeast side of the perimeter clay dike.
Benches:	One bench that consists of the surrounding access road was observed along the toe of the upper gypsum dike. The bench is 20 feet wide at Section 5 and Section 6.
Foundations, Drains, Relief Wells, Instrumentation:	Drainage pipes extending from the base of the Gypsum Storage Area were reportedly installed on 200-foot intervals. These pipes outlet along the toe of the slope in the perimeter drainage ditches. Flow was observed in selected outlets similar to the flow reported in previous annual inspection reports.

Animal Burrows:	None observed.	
Slope:	**Measured:**	3H:1V along upper gypsum dike at Section 5 and 6; 1.5H:1V to 2.3H:1V along the intermediate ash dike slope at Sections 5 and 6; 2.7H1V along the perimeter clay dike at Section 5.
	Design:	3H:1V for the upper gypsum dikes, intermediate ash dike, and lower perimeter clay dike (from Drawing 10W300-16)
Height:	**Measured:**	Approximately 50 feet at current phase.
	Design:	Approximately 140 feet at final stage (from Drawing 10W300-16).

6.4. Spillway Weirs/Riser Inlets

Number:	One located at northwest end of pond.
Size, Type and Material:	Unknown size, RCP
Height of Riser Inlets:	10 feet or less (estimated)
Access:	None
Joints:	Unknown, unable to observe.
Mis-Alignment:	Unknown, unable to observe.
Closed/Abandoned Conduits:	None reported or observed.

6.5. Outlet Pipes

Number:	Four
Size, Type and Material:	Outlets vary in size and range from steel pipe to corrugated metal pipe.
Headwall:	None was observed.
Joint Separations:	Unknown, could not observe.
Mis-Alignment:	Unknown, could not observe.
Closed/Abandoned Conduits:	None reported or observed.

7. Notable Observations and Concerns

- The gypsum pond is formed by a lower perimeter clay dike, an intermediate ash perimeter dike above the lower clay dike, and an upper gypsum dike. The pond contains two active cells (north and south). Rim-ditching operations are currently on-going to construct the upper gypsum dike. Seepage areas and past slope failures have been noted. Some slopes are also relatively steep (1.5H:1V). Seepage, slope instability, and on-going rim-ditching operations are a concern for the Gypsum Storage Area.
- The absence of an Emergency Action Plan, Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.
- Reconstructed upper gypsum dikes are lacking vegetation.
- Some trees were observed along the perimeter ash dike to the northeast of the Gypsum Storage Area.
- Erosion was observed along the crest and outslopes of the ash divider dike at several areas.
- The southwest and southeast sides of the perimeter ditch contain sediment build-up and standing water.
- Vegetation has not yet been re-established where trees have been removed from the downstream slope of the perimeter clay dike.
- Discharge pipes from interior pond drainage are elevated above a rip-rap channel. Over time, toe erosion will likely occur.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that the Gypsum Storage Area undergo further engineering study to evaluate the seepage, slope stability, and the on-going rim-ditching stacking plan. Remediation efforts to address these items will be developed based on the results. It is also recommended that a hydraulic and hydrologic analysis be performed to check freeboard and pond outlet adequacy relative to process flow and stormwater. The pond is scheduled to remain drained and temporarily inactive until Phase 2 studies and remedial construction activities, if needed, are performed.

- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.
- It is recommended that a program be established to develop as-built drawings and construction records for future maintenance and construction activities.

8.2. Maintenance Recommendations

- The loosely stacked gypsum material around the perimeter of the Gypsum Storage Area should be spread in appropriate thicknesses and compacted properly wherever it is to be used as structural dike material. The material used for dikes at outlet areas should consist of coarser gypsum, which has higher strength. Efforts to establish vegetation on completed slopes should also be made.
- CUF plant personnel should continue to monitor the existing slope failure along the perimeter dike outslope at the northwest corner of the Gypsum Storage Area until Phase 2 evaluations are complete and permanent repairs executed.
- CUF plant personnel should continue to monitor the seepage area below the perimeter clay dike.
- CUF personnel have reported a seepage area along the north corner of the Gypsum Storage Area that could not be seen because the pond is currently drained. If this seep re-appears upon re-filling, a crushed stone French drain should be installed by excavating back to intercept the gravel drainage layer that underlies the gypsum disposal area.
- The discharge pipes that drain the interior portion of the Gypsum Storage Area should be extended to ground level and away from the toe of slope.
- Remove trees from noted locations.
- Cut and maintain heavy/tall phragmite growth on slopes and the perimeter drainage ditch to allow better inspection. Establish annual mowing program.
- Regrade and repair erosion areas where noted.
- Clean sedimentation and phragmites from Gypsum Storage Area perimeter ditches. Remove sedimentation, check grades and regrade the perimeter ditches as needed to promote positive drainage and alleviate standing water issues. Use of rip-rap to re-establish ditch side slopes should be considered.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Cumberland Fossil Plant (CUF)
Ash Pond (AP-1)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN16109
Surface Area (inside dikes)	50 acres (estimated)	Maximum Height (toe to top of dike):	35 feet (estimated)
Free Water Volume:	1,296,069 CY (9/2008)	Maximum Water Storage:	2,165,158 CY (9/2008)
Estimated CCB Storage:	1,305,346 CY	Dike Length:	5,600 feet (estimated)
Plant Discharge to Facility:	Not provided by TVA	Current Pool Elevation:	384 feet (estimated)

2. Site Visit Information

Stantec Assessment Team:	Stephen Bickel, PE, Nathan Bader, PE, Stan Harris, PE and Matthew Hoy, EIT
TVA Staff Present:	Stuart Harris and Carrie McCarty
Field Assessment Dates:	January 14, 2009 and February 3 - 4, 2009
Weather/Site Conditions:	Mid-30 degrees F, sunny, moist ground both days.

3. History/Description of Usage

History and Operation: This disposal area was constructed in 1969. As part of this construction, Wells Creek was relocated in order to construct what was initially known as Disposal Area 1. As a result, portions of the current Active Ash Pond and Dry Stack were constructed over the original location of Wells Creek. Area 1 was located within the perimeter dikes that now include the current ash and gypsum disposal areas. In 1977, the divider dike for the stilling pool to the north (interior divider dike) was constructed. In 1979, the dikes around the Ash Pond were raised to elevation 395 feet with clay. In 1986, approximately 300 feet of the west portion of the divider dike between the Ash Pond and the Dry Ash Stack was constructed. In 1995-96, the current divider dike between the Ash Pond and Dry Stack was constructed (exterior divider dike) to

	form the current configuration. Approximately 135,000 dry tons of bottom ash is wet sluiced to the Ash Pond annually. Dewatered bottom ash is reclaimed and stacked in the Dry Stack area. Outlet for the Ash Pond is through four 48-inch RCP riser pipe/weirs that discharge through four 36-inch RCP sections into an adjacent discharge channel.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	"Operations Manual: Dry Ash and Gypsum Stacking Facility", prepared by Tennessee Valley Authority, October 10, 2003.
TVA Maintenance:	Exterior slopes are mowed every two years.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel recently started making daily observations, with documented inspections made weekly.
Problems Previously Identified During Past TVA Inspections:	Sloughed areas on interior divider dike, tree growth on dikes, animal burrows.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10N212, 213, 214, 218, 224, 225, 10W287-1, 287-2, 6314-W-C110200 through 222
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1972-1984, 1986-1990, 1994-1995, 1997-2004, 2006-2008.

Geotechnical Data:	"Cumberland Steam Plant - Ash Dike Raising - Borrow Area B Expansion and Proposed Borrow Area D", Memorandum from Frank Van Meter to G.L. Buchanan, June 16, 1981. "Cumberland Fossil Plant - Ash Disposal Area No. 1A", Power Engineering & Construction Calculations, K.W. Burnett, December 19, 1990. "Ash Pond Dike - Recommended Engineering Properties for Slope Stability Analyses", Tennessee Valley Authority, December 12, 1986. "Recommendations for Stability Improvement, Ash Pond Dike System, Cumberland Fossil Plant, Cumberland City, Tennessee", Law Engineering, March 13, 1992. "Report of Site Investigation - Cumberland Fossil Plant Soils Investigation for Ash Pond Dike and Borrow Areas", Hall, Blake, and Associates, Inc., October 3, 1986.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Phragmites and brush, dense coverage.
Trees:	Sparse small trees were noted in various areas on the majority of dikes.
Wave Wash Protection:	The interior divider dike separating the Stilling Pond from the Ash Pond has riprap protection. None observed on other interior slopes.
Erosion:	Erosion observed along divider dike to Dry Ash Stack around 36 inch HDPE pipe. The pipe is located at the west end of the divider dike; rill/gullies noted in various areas along this divider dike.
Instabilities:	None observed.
Animal Burrows:	None observed.

Freeboard:	**Measured:**	10.9 feet at Section 2
	Design:	Not available on drawings provided.
Encroachments:	None observed.	
Slope:	**Measured:**	1.8H:1V along divider dike at Section 1, 2.5H:1V along inner perimeter dike slope (Estimated), 2.2H:1V along Dry Stack divider dike at Section 3.
	Design:	2H:1V on interior divider dike (from Drawing 10N224), 2.5H:1V on perimeter dike (from Drawing 10N213).

6.2. Crest

Crest Cover and Slope:	Gravel-covered road on perimeter dike, crest appears relatively flat. Bottom ash and gravel-covered road on interior stilling pond divider dike, crest appears relatively flat. Bottom ash-covered road on divider dike between Dry Ash Stack and Ash Pond, crest appears relatively flat.	
Erosion:	Minor erosion rill/gullies on divider dike to Dry Ash Stack.	
Alignment:	Alignment appeared to agree with design drawings.	
Settlement/Cracking:	None observed.	
Bare Spots/Rutting:	None observed.	
Width:	**Measured:**	19 feet on divider dike at Section 1; 20 feet on perimeter dike at Section 2; 31 feet on Dry Stack divider dike at Section 3.
	Design:	16 feet on interior divider dike and perimeter dike (from Drawings 10N224 and 10N213). No information available for Dry Stack divider dike.

6.3. Exterior Slopes

Vegetation:	Maintained grass, adequate coverage.
Trees:	None observed.
Erosion:	None observed.

Instabilities:	None observed.
Uniform Appearance:	Good.
Seepage:	Standing water was observed along north portion of perimeter dike.
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control, or instrumentation were observed.
Animal Burrows:	One burrow on exterior dike was observed.
Slope:	**Measured:** 2.7H:1V at Section 2. **Design:** 3H:1V (from Drawing 10N213).
Height:	**Measured:** 15 feet at Section 2 **Design:** 35 feet at outlet area (from Drawing 10N214).

6.4. Spillway Weirs/Riser Inlets

Number:	Four, located at the east end of the stilling pond.
Size, Type and Material:	48-inch RCP push-together riser sections with standard TVA steel skimmers.
Height of Riser Inlets:	23 feet (est. from Drawing 10N214)
Access:	All spillways accessible via steel catwalks.
Joints:	Unable to observe below inlet any joint leakage or sealant.
Mis-Alignment:	None reported or observed.
Closed/Abandoned Conduits:	None reported or observed.

6.5. Outlet Pipes

Number:	Four
Size, Type and Material:	36-inch RCP
Headwall:	None observed.

Joint Separations:	Unknown, unable to observe.
Mis-Alignment:	Unknown, unable to observe.
Closed/Abandoned Conduits:	None reported or observed.

7. Notable Observations and Concerns

- The absence of an Emergency Action Plan, Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.
- One animal burrow was noted along the perimeter dike.
- Standing water attributed to poor drainage was noted along the toe of the north perimeter dike.
- RCP push-together riser spillways are a concern.
- Some minor erosion was noted along the outslope of the perimeter roadway just east of the sluicing channel.
- A few small trees were noted along the stilling pond divider dike.
- Erosion was noted along the new 36-inch HDPE drain pipe along the west end of the Ash Pond-Dry Stack divider dike. Several other areas of minor erosion along this divider dike were also noted.
- Some erosion was noted along the north outslope of the bottom ash area.
- The steel angles within the standard skimmers were observed to be corroded and in poor condition. Walkways that are supported by the skimmers are putting eccentric loading on the structure.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that the perimeter dikes for the Ash Pond undergo further engineering study to evaluate slope stability and seepage. It is also recommended that a hydraulic and hydrologic analysis be performed to check freeboard and pond outlet adequacy relative to process flow and stormwater.
- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.
- It is recommended that a program be established to develop as-built drawings and

construction records for future maintenance and construction activities.

8.2. Maintenance Recommendations

- Remove trees from noted locations.
- Repair animal burrows where noted.
- Cut and maintain heavy/tall phragmite growth on slopes of ponds to allow better observation. Establish mowing program of ponds and disposal areas.
- Regrade and repair erosion areas where noted.
- The RCP riser spillway outlet system may ultimately be modified or replaced, pending Stantec-TVA assessment of replacement system. Monitor the spillway systems until that time.
- Monitor standing water along toe of perimeter dike. Regrade adjacent drainage ditch if conditions worsen.
- Continue annual inspection program and execute recommendations.
- Evaluate the structural condition of the skimmers and the way walkways are supported, and modify or replace as necessary.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Cumberland Fossil Plant (CUF)
Dry Ash Stack (DS-1)

1. General Facility Information

Facility Status:	Active		
Surface Area:	110 acres (estimated)	Maximum Height (toe to top of stack):	35 feet Existing 200 feet Proposed

2. Site Visit Information

Stantec Assessment Team:	Stephen Bickel, PE, Nathan Bader, PE, Stan Harris, PE and Matthew Hoy, EIT
TVA Staff Present:	Stuart Harris and Carrie McCarty
Field Assessment Dates:	January 14, 2009 and February 3 - 4, 2009
Weather/Site Conditions:	Mid-30 degrees F, sunny, moist ground both days.

3. History/Description of Usage

History, Operation and Stacking Plan:	In 1972, Wells Creek was relocated in order to construct old Disposal Area 1. Old Area 1 was enclosed by the existing perimeter dike and contained sluiced ash. In the 1980s, sluicing operations ceased within Area 1 and began in the current Area 2 to the north. Divider dikes were constructed to separate the current pond from the gypsum and ash stacking operations. In 1995-96, the current divider dike between the Ash Pond and Dry Stack was constructed. In 1996, stacking within this area began. The Dry Stack is bordered by the Ash Pond to the north, by the bottom ash pond to the east, the Wet Gypsum Storage Area to the south, and by perimeter ditches and the old Area 1 perimeter dike to the west. There is a stacking plan available, and construction is currently proceeding to the north. The sequence consists of building the base and closing it, then moving up to the next level. The stack's maximum height is currently 35 feet. A small dredge cell was constructed within the northwest portion of the Dry Stack in 2007 to dispose of coal fines dredged to remove sediment build up in the Coal Yard Drainage Basin.

Stacking over Dredge Cells or CCB Ponds:	Previous Area 1 (the original ash pond) is located beneath the Dry Ash Stack and was used as the original ash pond for the plant. This pond operated until the 1980s when sluicing to Area 2 (current active ash pond) began. The stack is being constructed over sluiced bottom and fly ash. It is unknown how much sluiced ash is beneath the stack. A small dredge cell within the Dry Ash Stack area was also filled with dredged coal fines from the Coal Yard Drainage Basin in 2007.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

TVA Maintenance:	Mowing is performed every two years.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel recently started making daily observations, with documented inspections made weekly.
Problems Previously Identified During Past TVA Inspections:	Lack of vegetation and erosion along stack, erosion along access road, seepage areas along Wells Creek, animal burrow on exterior perimeter dike, tree growth on exterior dike, standing water, sedimentation and heavy growth in perimeter ditch.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10W288-1 through 5
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1972-1984, 1986-1990, 1994-1995, 1997-2004, 2006-2008.

Geotechnical Data:	"Operations Manual: Dry Ash and Gypsum Stacking Facility", prepared by Tennessee Valley Authority, October 10, 2003. "TVA-Fly Ash, Bottom Ash, and Scrubber Gypsum Study", Law Engineering, Inc., October 1995. "Report of Subsurface Exploration and Stability Analyses, Proposed Fly Ash/Scrubber Sludge Disposal Facility, Cumberland Fossil Plant, Cumberland City, Tennessee", Law Engineering, January 27, 1992. "Report of Hydrogeologic Evaluation, Proposed Dry Fly Ash and Gypsum Disposal Facility, TVA Cumberland Fossil Plant, Cumberland City, Tennessee", Law Engineering, July 3, 1992. "Geotechnical Investigation Report, Dry Ash Conversion Project, CUF 1 & 2", Raytheon Engineers and Constructors, July 7, 1993. Results of Laboratory Testing, TVA Fly Ash & Gypsum Disposal Facilities, Cumberland Fossil Plant, United Engineers and Constructors Inc., June 1992.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Exterior Slopes and Benches

Vegetation:	Sparse to good vegetation coverage. Some areas of exposed soil present primarily along the southeast face and in areas to the north where the stack is just recently being constructed.
Trees:	None observed.
Erosion:	Several areas of erosion along the dry stack were noted where vegetation is sparse, primarily along the southeast face.
Instabilities:	No evidence of instabilities were observed.
Uniform Appearance	Good.

Benches:	None observed.
Slope:	Design: 3H:1V along Dry Ash Stack (from Drawing 10W288-4); 3H:1V along outer perimeter dike to west (from Drawing 10N213). Measured: 2.25H:1V along Dry Ash Stack at Section 4. 2.7H:1V along perimeter dike to west at Section 2.
Height:	35 feet along Dry Ash Stack at Section 4. 15 feet along perimeter dike to west at Section 2.
Other:	None.

6.2. Perimeter Drainage Ditches and Down-Drains

Vegetation:	Phragmites/tall grass along majority of west perimeter ditch.
Rip-Rap Channel Lining:	None observed.
Erosion:	Some scarping of the ditch side slopes was observed along west perimeter ditch. In addition, sedimentation had accumulated in ditch at several areas along the adjacent stack faces.
Siltation in Ditches:	Sedimentation observed throughout majority of west perimeter ditch.
Standing Water in Ditches or on Benches:	Standing water noted within the perimeter ditch to the west.
Silted/Impeded Drainage Pipes:	The drainage pipe for the perimeter ditch along the northwest corner of the stack area to the Ash Pond had signs of erosion around the inlet and outlet.
Other:	None.

7. Notable Observations and Concerns

- The area beneath the Dry Ash Stack was initially operated as a wet ash disposal pond. Constructing embankments over hydraulically placed ash is a potential slope stability concern and requires engineering analysis and geotechnical exploration.
- The southeast face of the stack consists of exposed soil cover which is eroded throughout. Other small areas of sparse vegetation or erosion were also observed. Further to the north, soil cover and vegetation have not yet been completed and the exposed ash slopes exhibit some erosion.
- Erosion was noted around the existing rock check within active portions of the stack.
- Areas of erosion and rutting were noted along the access road at the base of the stack.
- Eroded ash sedimentation, vegetation, poor drainage, and standing water were observed throughout the perimeter ditch. The side slopes of the ditch also exhibit shallow sloughs and scarps due to excavations made for cleaning of sedimentation.
- Vegetation has not yet been established where recent tree removal has occurred along the exterior west perimeter dike slope in the vicinity of the old bridge.
- Seepage was observed below the west perimeter dike along the banks of Wells Creek. The seepage does not appear to have changed from previous descriptions provided in inspection reports.
- The absence of an Emergency Action Plan, Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that the Dry Ash Stack undergo further engineering study to evaluate the stacking plan and slope stability. This should include test borings, installation of piezometers, and installation of slope inclinometers; followed by laboratory testing and slope stability analysis of critical cross-sections.
- It is recommended that a program be established to develop as-built drawings and construction records for future maintenance and construction activities.
- Based on the findings of Phase 2 and designs from Phase 3, if performed, Stantec recommends that the existing O&M Manual be reviewed and updated. These updates may include sections on routine monitoring and facility maintenance.

8.2. Maintenance Recommendations

- CUF plant personnel should continue to monitor the seepage area below the west perimeter clay dike.
- Cut and maintain heavy/tall phragmite growth to allow better observation specifically in the perimeter ditches. Establish mowing program.
- Regrade and repair erosion areas where noted.
- Regrade, place new clay cover, and reseed the southeast face of the stack. Monitor other dry stack areas for erosion/sparse vegetation and repair as needed.
- Repair ruts and eroded areas along access road at base of stack if it is to remain in service.
- Clean sedimentation and phragmites from Dry Ash Stack perimeter ditches. Remove sedimentation, check grades and regrade the perimeter ditches as needed to promote positive drainage and alleviate standing water issues.
- Continue annual inspection program and execute recommendations.

Drawing Mark GP-1-1 Riprap placed in area to temporarily repair slope slough along the perimeter dike at the NW corner of the Gypsum Stack.

Drawing Mark GP-1-2 Small slope slough along ash divider dike outslope at NW side of the Gypsum Storage Area.

Drawing Mark GP-1-3 Trees and erosion along the perimeter ash dike at the northeast side of the Gypsum Storage Area.

Drawing Mark GP-1-4 Reconstructed gypsum dikes surrounding the two ponds lacking vegetation.

Drawing Mark GP-1-5 Heavy vegetation and sedimentation in perimeter drainage ditch along the southwest and southeast sides of the Gypsum Stack.

Drawing Mark GP-1-6 Seepage observed below the perimeter dike along the southeast side of the Gypsum Stack.

Drawing Mark GP-1-7 Discharge pipes and riprap channel along northwest corner of Gypsum Storage Area.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
GP-1-1	Riprap placed in area to temporarily repair slope slough along the perimeter dike at the NW corner of the Gypsum Stack.	Photo 27B
GP-1-2	Small slope slough along ash divider dike outslope at NW side of the Gypsum Storage Area.	Photo 65B
GP-1-3	Trees and erosion along the perimeter ash dike at the northeast side of the Gypsum Storage Area.	Photo 79B
GP-1-4	Reconstructed gypsum dikes surrounding the two ponds lacking vegetation.	Photo 76B
GP-1-5	Heavy vegetation and sedimentation in perimeter drainage ditch along the southwest and southeast sides of the Gypsum Stack.	Photo 31B
GP-1-6	Seepage observed below the perimeter dike along the southeast side of the Gypsum Stack.	Photo 30B
GP-1-7	Discharge pipes and riprap channel along northwest corner of Gypsum Storage Area.	Photo 70B

Drawing Mark AP-1-1 Crest and inside slopes of the perimeter dikes around the Ash Pond.

Drawing Mark AP-1-2 Animal burrow along north perimeter dike of Ash Pond.

Drawing Mark AP-1-3 Standing water along toe of north perimeter Ash Pond dike.

Drawing Mark AP-1-4 Spillways at northeast side of Stilling Pond.

Drawing Mark AP-1-5 Spillway discharge and channel.

Drawing Mark AP-1-6 Trees on stilling pond divider dike.

Drawing Mark AP-1-7 Erosion around 36” HDPE drain pipe along the west end of the divider dike.

Drawing Mark AP-1-8 Erosion along north outslope of Bottom Ash Area.

Drawing Mark AP-1-9 Erosion along divider dike between Dry Ash Stack and Ash Pond.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
AP-1-1	Crest and inside slopes of the perimeter dikes around the Ash Pond.	Photo 26B
AP-1-2	Animal burrow along north perimeter dike of Ash Pond.	Photo 21B
AP-1-3	Standing water along toe of north perimeter Ash Pond dike.	Photo 23B
AP-1-4	Spillways at northeast side of Stilling Pond.	Photo 25B
AP-1-5	Spillway discharge and channel.	Photo 24B
AP-1-6	Trees on stilling pond divider dike.	Photo 48B
AP-1-7	Erosion around 36” HDPE drain pipe along the west end of the divider dike.	Photo 38B
AP-1-8	Erosion along north outslope of Bottom Ash Area.	Photo 14B
AP-1-9	Erosion along divider dike between Dry Ash Stack and Ash Pond.	Photo 41B

Drawing Mark DS-1-1 Eroded ash from the adjacent dry stack deposited within the west perimeter ditch.

Drawing Mark DS-1-2 Seepage observed below the perimeter dike along the banks of Wells Creek.

Drawing Mark DS-1-3 Erosion around existing rock check in north portion of Dry Ash Stack

Drawing Mark DS-1-4 Exposed soil and erosion along southeast face of Dry Ash Stack.

Drawing Mark DS-1-5 Erosion and rutting along access road at the base of the Dry Ash Stack.

Drawing Mark DS-1-6 Uncompleted soil cover and vegetation along north end of Dry Ash Stack.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
DS-1-1	Eroded ash from the adjacent dry stack deposited within the west perimeter ditch.	Photo 20A
DS-1-2	Seepage observed below the perimeter dike along the banks of Wells Creek.	Photo 3B
DS-1-3	Erosion around existing rock check in north portion of Dry Ash Stack	Photo 37B
DS-1-4	Exposed soil and erosion along southeast face of Dry Ash Stack.	Photo 20B
DS-1-5	Erosion and rutting along access road at the base of the Dry Ash Stack.	Photo 35B
DS-1-6	Uncompleted soil cover and vegetation along north end of Dry Ash Stack.	Photo 36B

STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View - CUF

Tennessee Valley Authority
Cumberland Fossil Plant
Cumberland, Houston County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMS
CHECKED BY	DAG
CHECKED BY	
SCALE	AS SHOWN
REVISED	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

SHEET

1 OF 1

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Cumberland Fossil Plant (CUF)

Date Reviewed	Reviewed by	File Name	File Type
4/8/2009	NB	01 CUF 1986 1987 Soils Evaluation.pdf	PDF
4/8/2009	NB	01 CUF 1991 Study Info - Basic Quantities Etc.pdf	PDF
4/8/2009	NB	01-27-09-Night Shift.pdf	PDF
4/8/2009	NB	01-27-09-Night Shift.pdf	PDF
4/8/2009	NB	01-28-09-Night Shift.pdf	PDF
4/8/2009	NB	01-29-09-Night Shift.pdf	PDF
4/8/2009	NB	01-31-09 Night Shift.pdf	PDF
4/8/2009	NB	02 CUF 1986 Raised Dike Fill.pdf	PDF
4/8/2009	NB	02 CUF 1990 Area Ii Raise Ash Dredge Cell.pdf	PDF
4/8/2009	NB	02-01-2009 Night Shift.pdf	PDF
4/8/2009	NB	02-04-2009 Days.pdf	PDF
4/8/2009	NB	02-09-09 Nights.pdf	PDF
4/8/2009	NB	02-09-2009 Day Shift.pdf	PDF
4/8/2009	NB	02-10-2009 Nights.pdf	PDF
4/8/2009	NB	02-13-09-Day Shift.pdf	PDF
4/8/2009	NB	02-13-2009 Night.pdf	PDF
4/8/2009	NB	02-14-09-Day Shift.pdf	PDF
4/8/2009	NB	02-15-09-Day Shift.pdf	PDF
4/8/2009	NB	02-15-2009 Nights.pdf	PDF
4/8/2009	NB	02-16-09-Day Shift.pdf	PDF
4/8/2009	NB	02-18-2009 Days.pdf	PDF
4/8/2009	NB	02-20-09-Night Shift.pdf	PDF
4/8/2009	NB	02-21-09-Night Shift.pdf	PDF
4/8/2009	NB	02-22-09-Night Shift.pdf	PDF
4/8/2009	NB	02-23-2009 Nights Shift.pdf	PDF
4/8/2009	NB	02-24-09-Day Shift.pdf	PDF
4/8/2009	NB	02-24-2009 Nights.pdf	PDF
4/8/2009	NB	03 CUF 1986 Fill - Original Dike.pdf	PDF
4/8/2009	NB	03 CUF 1990 Cost Estimate Area East Of Pond 1 - Construct Ash Dredge Cell.pdf	PDF
4/8/2009	NB	03-02-09 Night Shift.pdf	PDF
4/8/2009	NB	03-03-09 Night Shift.pdf	PDF
4/8/2009	NB	03-04-2009 Day Shift.pdf	PDF
4/8/2009	NB	03-04-2009 Night Shiftdoc.pdf	PDF
4/8/2009	NB	03-05-09 Days.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/8/2009	NB	03-08-2009 Day Shift.pdf	PDF
4/8/2009	NB	04 CUF 1986 Soft Layer.pdf	PDF
4/8/2009	NB	04 CUF 1990 Cost Estimate Area East Of Pond 1 - Raise Ash Dredge Cell.pdf	PDF
4/8/2009	NB	05 CUF 1986 Ash.pdf	PDF
4/8/2009	NB	05 CUF 1990 Cost Estimate Area East Of Coal Pile - Construct Ash Dredge Cell.pdf	PDF
4/8/2009	NB	06 CUF 1986 Borrow.pdf	PDF
4/8/2009	NB	06 CUF 1990 Cost Estimate Area East Of Coal Pile - Raise Ash Dredge Cell.pdf	PDF
4/8/2009	NB	07 CUF 1986 Correspondence.pdf	PDF
4/8/2009	NB	07 CUF 1990 Ash Storage In Rock Quarry.pdf	PDF
4/8/2009	NB	08 CUF 1990 Area East Of Coal Pile.pdf	PDF
4/8/2009	NB	09 CUF 1990 Ash Pond Misc.pdf	PDF
4/8/2009	NB	10 CUF 1990 Fly Ash Misc.pdf	PDF
2/1/2009	NB	10W517-001.cal	CAL
2/1/2009	NB	10W517-002.cal	CAL
2/1/2009	NB	10W517-003.cal	CAL
2/1/2009	NB	10W517-004.cal	CAL
2/1/2009	NB	10W517-005.cal	CAL
2/1/2009	NB	10W517-006.cal	CAL
2/1/2009	NB	10W517-007.cal	CAL
2/1/2009	NB	10W517-008.cal	CAL
2/1/2009	NB	10W517-009.cal	CAL
2/1/2009	NB	10W517-010.cal	CAL
2/1/2009	NB	10W517-011.cal	CAL
2/1/2009	NB	10W517-012.cal	CAL
2/1/2009	NB	10W517-013.cal	CAL
2/1/2009	NB	10W517-014.cal	CAL
2/1/2009	NB	10W517-015.cal	CAL
2/1/2009	NB	10W517-016.cal	CAL
2/1/2009	NB	10W517-017.cal	CAL
2/1/2009	NB	10W517-018.cal	CAL
4/8/2009	NB	1-27-2009 Dayshift.pdf	PDF
4/8/2009	NB	1-28-2009 Day Shiftcopy Of Daily Shift Red H20 Seep Blank.pdf	PDF
4/8/2009	NB	1-29-2009 Dayshift.pdf	PDF
4/8/2009	NB	1-30-2009 Dayshift.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/8/2009	NB	1-31-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-07-2009 Day Shift.pdf	PDF
4/8/2009	NB	2-08-2009 Day Shift.pdf	PDF
4/8/2009	NB	2-10-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-11-2009 Days.pdf	PDF
4/8/2009	NB	2-1-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-12-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-14-2009 Night.pdf	PDF
4/8/2009	NB	2-16-2009 Nightshift.pdf	PDF
4/8/2009	NB	2-17-2009 Nightshift.pdf	PDF
4/8/2009	NB	2-19-2009 Day Shift.pdf	PDF
4/8/2009	NB	2-19-2009 Nightshift.pdf	PDF
4/8/2009	NB	2-20-2009 Day Shift.pdf	PDF
4/8/2009	NB	2-21-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-2-2009 Night Shift.pdf	PDF
4/8/2009	NB	2-2-2009 Night Shift.pdf	PDF
4/8/2009	NB	2-2-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-2-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-22-2009 Dayshift.pdf	PDF
4/8/2009	NB	2-23-2009 Day Shift.pdf	PDF
4/8/2009	NB	2-3-09 Day Shift.pdf	PDF
4/8/2009	NB	2-3-2009 Night Shift.pdf	PDF
4/8/2009	NB	2-3-2009 Night Shift.pdf	PDF
4/8/2009	NB	2-4-2009 Night Shift.pdf	PDF
4/8/2009	NB	2-5-2009 Day Shift.pdf	PDF
4/8/2009	NB	2-6-2009 Day Shift.pdf	PDF
4/8/2009	NB	2-6-2009 Nights.pdf	PDF
4/8/2009	NB	3-01-2009 Dayshift.pdf	PDF
4/8/2009	NB	3-02-2009 Dayshift.pdf	PDF
4/8/2009	NB	3-06-2009 Nightshift.pdf	PDF
4/8/2009	NB	3-07-2009 Nightshift.pdf	PDF
4/8/2009	NB	3-3-09 Days.pdf	PDF
4/8/2009	NB	3-5-2009 Night Shift.pdf	PDF
4/8/2009	NB	3-6-2009 Day Shift.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/8/2009	NB	3-7-2009 Day Shift.pdf	PDF
2/1/2009	NB	6314-W-C110200.cal	CAL
2/1/2009	NB	6314-W-C110201.cal	CAL
2/1/2009	NB	6314-W-C110203.cal	CAL
2/1/2009	NB	6314-W-C110204.cal	CAL
2/1/2009	NB	6314-W-C110205.cal	CAL
2/1/2009	NB	6314-W-C110206.cal	CAL
2/1/2009	NB	6314-W-C110207.cal	CAL
2/1/2009	NB	6314-W-C110208.cal	CAL
2/1/2009	NB	6314-W-C110209.cal	CAL
2/1/2009	NB	6314-W-C110210.cal	CAL
2/1/2009	NB	6314-W-C110211.cal	CAL
2/1/2009	NB	6314-W-C110212.cal	CAL
2/1/2009	NB	6314-W-C110213.cal	CAL
2/1/2009	NB	6314-W-C110214.cal	CAL
2/1/2009	NB	6314-W-C110215.cal	CAL
2/1/2009	NB	6314-W-C110216.cal	CAL
2/1/2009	NB	6314-W-C110217.cal	CAL
2/1/2009	NB	6314-W-C110218.cal	CAL
2/1/2009	NB	6314-W-C110219.cal	CAL
2/1/2009	NB	6314-W-C110220.cal	CAL
2/1/2009	NB	6314-W-C110221.cal	CAL
2/1/2009	NB	6314-W-C110223.cal	CAL
2/1/2009	NB	6314-W-C110224.cal	CAL
2/1/2009	NB	6314-W-D110222.cal	CAL
4/8/2009	NB	897 Cumberlandchemicaltreatmentponddesignandconstructchemtreatmentpond.pdf	PDF
4/8/2009	NB	Copy Of Daily Shift Red H20 Seep Blank.pdf	PDF
4/8/2009	NB	Cross Sections A-A & B-B.pdf	PDF
4/8/2009	NB	Cross Sections C-C & D-D.pdf	PDF
4/8/2009	NB	CUF- 10N212 - Main Plant Ash Disposal Areas Sheet No. 1 .cal	CAL
4/8/2009	NB	CUF- 10N212- Sh- Rev7.cal	CAL
4/8/2009	NB	CUF 1981 Borrow Area B Expansion & Proposed Borrow Area D.pdf	PDF
4/8/2009	NB	CUF 1981 Geo Report Borrow Area A & D.pdf	PDF
4/8/2009	NB	CUF 1986 Ash Pond Dike - Recommended Engg Properties For Teh Slope Stability Analysis.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/8/2009	NB	CUF 1986 Geo Soils Investigation For Ash Pond Dike & Borrow Areas.pdf	PDF
4/8/2009	NB	CUF 1989 Calcs & Geotech.pdf	PDF
4/8/2009	NB	CUF 1991 - 1997 Misc Geotechnical & Calcs - Some Piping Etc.pdf	PDF
4/8/2009	NB	CUF 1991 Additional Raising Dredge Cell In Ash Disposal Area No 1.pdf	PDF
4/8/2009	NB	CUF 1991 Grout Logs Continued.pdf	PDF
4/8/2009	NB	CUF 1991 Grout Logs.pdf	PDF
4/8/2009	NB	CUF 1991 Report Of Prliminary Gydrogeological Assessment - Proposed Disposal Site - Site No. 10.pdf	PDF
4/8/2009	NB	CUF 1992 Appendix A.pdf	PDF
4/8/2009	NB	CUF 1992 Appendix B.pdf	PDF
4/8/2009	NB	CUF 1992 Appendix C.pdf	PDF
4/8/2009	NB	CUF 1992 Appendix D.pdf	PDF
4/8/2009	NB	CUF 1992 Ash & Gypsum Disposal Study Addendum - Dry Ash Conversion Project.pdf	PDF
4/8/2009	NB	CUF 1992 Draft Ash & Gypsum Disposal Study Addendum - Fgd Retrofit Project.pdf	PDF
4/8/2009	NB	CUF 1992 Raise Dredge Cell In Ash Disposal Area No 1.pdf	PDF
4/8/2009	NB	CUF 1992 Recommendations For Stability Improvement - Ash Pond Dike System.pdf	PDF
4/8/2009	NB	CUF 1992 Report Of Hydrogeologic Evaluation - Proposed Dry Fly Ash & Gypsum Disposal Facility.pdf	PDF
4/8/2009	NB	CUF 1992 Report Of Hydrogeologic Evaluation Continued Well Slug Test Data.pdf	PDF
4/8/2009	NB	CUF 1992 Report Of Subsurface Exploration & Stability Analyses - Proposed Fly Ash Scrubber Sludge Disposal Facility.pdf	PDF
4/8/2009	NB	CUF 1993 Geotechnical Investigation Report - Dry Ash Conversion Project - CUF 1 & 2 Phase Ii.pdf	PDF
4/8/2009	NB	CUF 1994 1995 Fly Ash Task Team.pdf	PDF
4/8/2009	NB	CUF 1996 1997 General Info Budgets Etc.pdf	PDF
4/8/2009	NB	CUF 1997 1998 Drilling Syn Mtls.pdf	PDF
4/8/2009	NB	CUF 1997 1998 Drilling Temple - Inland.pdf	PDF
4/8/2009	NB	CUF 1997 1998 Geotechnical & Project Stuff - Rr To Dry Fly Ash Silos.pdf	PDF
4/8/2009	NB	CUF 1997 1998 Law Report Of Geotechnical Drilling - Gypsum Processing Plant.pdf	PDF
4/8/2009	NB	CUF 1997 1998 Synmat.pdf	PDF
4/8/2009	NB	CUF 1997 1998 Wallboard.pdf	PDF
4/8/2009	NB	CUF 2004 Laboratory Testing Results - Samples From Gypsum Pond At CUF - Mactec Project 3043041009-0001.pdf	PDF
4/8/2009	NB	CUF 2007 Background & Geotechnical.pdf	PDF
4/8/2009	NB	CUF 2007 Geosyntec.pdf	PDF
4/8/2009	NB	CUF 2007 Mactec.pdf	PDF
4/8/2009	NB	CUF 2007 Report Of Geotechnical Exploration - Gypsum Area Seepage Study.pdf	PDF
4/8/2009	NB	CUF 2007 Tva Background.pdf	PDF
4/8/2009	NB	CUF 2007 Tva Misc.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/8/2009	NB	CUF 2008 Gypsum Seepage Presentation.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy00.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy01.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy02.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy03.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy04.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy06.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy72.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy73.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy74.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy75.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy76.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy77.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy78.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy79.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy80.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy81.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy82.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy83.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy84.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy85.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy87.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy88.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy89.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy90.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy94.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy95.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy96.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy97.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy98.pdf	PDF
1/30/2009	NB	CUF Ash Pond Insp Fy99.pdf	PDF
4/8/2009	NB	CUF Ash_Pond_Insp_Summaries.doc	DOC
1/30/2009	NB	CUF Dike Report February 5, 2007.pdf	PDF
1/30/2009	NB	CUF Dike Report June 2, 2008.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
1/30/2009	NB	CUF Dike Report March 19, 2007.pdf	PDF
1/30/2009	NB	CUF-10H229-7-Sht -Rev 0 Yard - Ash And Sump Discharge Piping Cast Iron Frames & Grates.cal	CAL
2/1/2009	NB	CUF-10H256-Sht -Rev 1 Channel From Coal Yd Pln & Profile.cal	CAL
2/1/2009	NB	CUF-10H257-Sht -Rev 1 Channel From Coal Yd Cross Sects.cal	CAL
2/1/2009	NB	CUF-10H258-Sht -Rev 1 Channel From Coal Yd Cross Sects.cal	CAL
2/1/2009	NB	CUF-10H259A-Sht -Rev 1 Channel From Coal Yard.cal	CAL
2/1/2009	NB	CUF-10H259-Sht -Rev 1 Channel From Coal Yd Cross Sects.cal	CAL
2/1/2009	NB	CUF-10N211-Sht -Rev 6 Main Plant General Grading Plan Coal Area.cal	CAL
1/30/2009	NB	CUF-10N212-Sht -Rev 11 Main Plant Ash Disposal Areas Sheet No 1.cal	CAL
1/30/2009	NB	CUF-10N213-Sht -Rev 6 Main Plant Ash Disposal Areas Sheet No 2.cal	CAL
1/30/2009	NB	CUF-10N214-Sht -Rev 2 Standard Drawing Ash Disposal Spillway.cal	CAL
1/30/2009	NB	CUF-10N218-Sht -Rev 2 Main Plant Ash Disposal Areas Sheet No 3.cal	CAL
1/30/2009	NB	CUF-10N224-Sht -Rev 4 Main Plant Ash Disposal Areas Sheet No 3.cal	CAL
1/30/2009	NB	CUF-10N225-Sht -Rev 2 Main Plant Ash Disposal Area Divider Dike & Floating Boom.cal	CAL
1/30/2009	NB	CUF-10N247-Sht -Rev 6 Main Plant Car Wash Finished Grading And Paving Plan.cal	CAL
2/1/2009	NB	CUF-10N249-Sht -Rev 3 Main Plant Coal Barge Dock Grading.cal	CAL
2/1/2009	NB	CUF-10N251-Sht -Rev 3 Yard Coal Yard Surfacing.cal	CAL
2/1/2009	NB	CUF-10N253-Sht -Rev 5 Coal Handling Facilities Units 1 & 2 Navigation Channel, Dock And Spoil Area.cal	CAL
2/1/2009	NB	CUF-10W226-1-Sht -Rev 1 Yard Chemical Treatment Pond Miscellaneous Sections And Details.cal	CAL
2/1/2009	NB	CUF-10W226-Sht -Rev 3 Main Plant Coal Yard Drainage Basin.cal	CAL
1/30/2009	NB	CUF-10W229-1-Sht -Rev 0 Yard - Ash And Sump Discharge Piping Plan Plant Road And Details.cal	CAL
1/30/2009	NB	CUF-10W229-2-Sht -Rev 0 Yard - Ash & Sump Discharge Piping Profile Ash And Sump Piping Roadway Ramps.cal	CAL
1/30/2009	NB	CUF-10W229-3-Sht -Rev 1 Yard - Ash & Sump Discharge Piping Plan Sections & Details Summary Of Quantities.cal	CAL
1/30/2009	NB	CUF-10W229-4-Sht -Rev 0 Yard - Ash & Sump Discharge Piping Retaining Walls Plan Sections And Details.cal	CAL
1/30/2009	NB	CUF-10W229-5-Sht -Rev 0 Yard - Ash & Sump Discharge Piping Catch Basins And Inlets.cal	CAL
1/30/2009	NB	CUF-10W229-6-Sht -Rev 0 Yard - Ash & Sump Discharge Piping Pipe Culvert Installation And Bedding Details.cal	CAL
1/30/2009	NB	CUF-10W239-Sht -Rev 4 Yard Paving Grading Under Fly Ash Precipitators Details.cal	CAL
1/30/2009	NB	CUF-10W287-1-Sht -Rev 0 Main Plant Ash Disposal Area No. 1A Temporary Spillways Typical Plans, Details And Sections.cal	CAL
1/30/2009	NB	CUF-10W287-2-Sht -Rev 0 Main Plant Ash Disposa Area No. 1A Typical Dike Sections.cal	CAL
2/1/2009	NB	CUF-10W288-1-Sht -Rev 0 Yard Ash Disposal Stack Plan-Final.cal	CAL
2/1/2009	NB	CUF-10W288-2-Sht -Rev 0 Yard Ash Disposal Stack Plan - 5 Year.cal	CAL
2/1/2009	NB	CUF-10W288-3-Sht -Rev 0 Yard Ash Disposal Stack Plan - 10 Year.cal	CAL
2/1/2009	NB	CUF-10W288-4-Sht -Rev 0 Yard Ash Disposal Stack Sections & Details Stack Details.cal	CAL
2/1/2009	NB	CUF-10W288-5-Sht -Rev 0 Yard Ash Disposal Stack Sections & Details Storm Drains.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/1/2009	NB	CUF-10W294-2-Sht -Rev 0 Yard Scr Ammonia Unloading Facility Phase 2 - Limestone Conveyor & Ammonia Facility Access Road.cal	CAL
2/1/2009	NB	CUF-10W294-3-Sht -Rev 0 Site Existing Limestone Access & Ammonia Facility Access Road Profiles And Details.cal	CAL
2/1/2009	NB	CUF-10W300-10-Sht -Rev 0.cal	CAL
2/1/2009	NB	CUF-10W300-11-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Proposed Final Contours Sheet 2 Of 4.cal	CAL
2/1/2009	NB	CUF-10W300-12-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Proposed Final Contours Sheet 3 Of 4.cal	CAL
2/1/2009	NB	CUF-10W300-13-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Proposed Final Contours Sheet 4 Of 4.cal	CAL
2/1/2009	NB	CUF-10W300-14-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Cross Section A14-A14.cal	CAL
2/1/2009	NB	CUF-10W300-15-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Cross Section B15-B15.cal	CAL
2/1/2009	NB	CUF-10W300-16-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Cross Section C16-C16.cal	CAL
2/1/2009	NB	CUF-10W300-17-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Cross Section D17-D17.cal	CAL
2/1/2009	NB	CUF-10W300-18-Sht -Rev 0 Proposed Waste Disposal Facility Details Sheet 1 Of 2.cal	CAL
2/1/2009	NB	CUF-10W300-19-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Details Sheet 2 Of 2.cal	CAL
2/1/2009	NB	CUF-10W300-1-Sht -Rev 0 Vicinity Map Dry Fly Ash And Gypsum Stacking, Area Stewart County, Tennessee.cal	CAL
2/1/2009	NB	CUF-10W300-2-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Existing Site Conditions Sheet 1 Of 4.cal	CAL
2/1/2009	NB	CUF-10W300-3-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Existing Site Conditions Sheet 2 Of 4.cal	CAL
2/1/2009	NB	CUF-10W300-4-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Existing Site Conditions Sheet 3 Of 4.cal	CAL
2/1/2009	NB	CUF-10W300-5-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Existing Site Conditions Sheet 4 Of 4.cal	CAL
2/1/2009	NB	CUF-10W300-6-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Construction Sequence Stage 1 Stage No. 1.cal	CAL
2/1/2009	NB	CUF-10W300-7-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Construction Sequence Stage No. 2 & 3.cal	CAL
2/1/2009	NB	CUF-10W300-8-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Construction Sequence Stage No. 4.cal	CAL
2/1/2009	NB	CUF-10W300-9-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Proposed Waste Disposal Facility Construction Sequence Stage No. 5.cal	CAL
2/1/2009	NB	CUF-10W410-1-Sht -Rev 1 Yard Units 1 & 2 Concrete & Misc. Steel Coal Yard Drainage Trench Outline & Reinforcement.cal	CAL
2/1/2009	NB	CUF-10W410-2-Sht -Rev 1 Yard Units 1 & 2 Concrete & Misc. Steel Coal Yard Drainage Trench Outline & Reinforcement.cal	CAL
1/30/2009	NB	CUF-10W411-Sht -Rev 1 Yard Concrete And Structural Steel Ash & Sump Pipe Supports.cal	CAL
2/1/2009	NB	CUF-10W504-20-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Service Road Along Limestone Belt Conveyor Sheet No.1.cal	CAL
2/1/2009	NB	CUF-10W504-21-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Service Road Along Limestone Belt Conveyor Sheet No.2.cal	CAL
2/1/2009	NB	CUF-10W504-25-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Cross Sections At Limestone Barge Unloading Area Sheet No.1.cal	CAL
2/1/2009	NB	CUF-10W504-26-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Cross Sections At Limestone Barge Unloading Area Sheet No.2.cal	CAL
2/1/2009	NB	CUF-10W504-27-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Centerline Profiles & Sections Road At Limestone Unloading Area.cal	CAL
2/1/2009	NB	CUF-10W504-28-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Serv Rd Along Limestone Belt Conv Centerline Profiles Sht 1.cal	CAL
2/1/2009	NB	Sh1.cal	CAL
2/1/2009	NB	Sheet 2.cal	CAL
2/1/2009	NB	Sht 2.cal	CAL
2/1/2009	NB	CUF-10W507-12-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Roadway Geometry Centerline Profiles - Sheet 3 Limestone Handling Areas.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/1/2009	NB	CUF-10W508-29-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Svc Rd Along Limestone Belt Conveyor Sections & Dtls Sh.1.cal	CAL
2/1/2009	NB	CUF-10W508-31-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Svc Rd Along Limestone Belt Conveyor Sections & Dtls Sht 2.cal	CAL
2/1/2009	NB	CUF-10W510-1-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Enlarged Plan Of Road At Limestone Barge Unloading Area.cal	CAL
2/1/2009	NB	CUF-10W510-2-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Limestone Barge Unloading Overall Cell Layout.cal	CAL
2/1/2009	NB	CUF-10W510-3-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Limestone Barge Unloading Partial Cell Layout Sheet No.1.cal	CAL
2/1/2009	NB	CUF-10W510-4-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Limestone Barge Unloading Partial Cell Layout Sheet No.2.cal	CAL
2/1/2009	NB	CUF-10W510-5-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Limestone Barge Unloading Partial Cell Layout Sheet No.3.cal	CAL
2/1/2009	NB	CUF-10W512-8-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Limestone Runoff Basin Plan And Sections.cal	CAL
2/1/2009	NB	CUF-10W514-7-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Enlarged Plan Of Coal Pile Run-Off Trench.cal	CAL
2/1/2009	NB	CUF-10W514-8-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Profiles On Coal Pile Run-Off Trench.cal	CAL
2/1/2009	NB	CUF-10W514-9-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Site Preparation Details Of Coal Pile Run-Off Trench.cal	CAL
2/1/2009	NB	CUF-10W516-1-Sht -Rev 0 Fgd Retrofit Project Units 1 & 2 Enlarged Plan Of Road At Coal Barge Unloading Area.cal	CAL
4/8/2009	NB	Cumberlandashdisposalareano1Ainternaldredgecelldec191990.pdf	PDF
4/8/2009	NB	Cumberlandashdisposalareano1Ainternaldredgecelldec191990.pdf	PDF
4/8/2009	NB	Cumberlandchemicaltreatmentponddesignandconstructchemtreatmentpond.pdf	PDF
4/8/2009	NB	Cumberlandfossilplantashstackingplan.pdf	PDF
4/8/2009	NB	Cumberlandfossilplantashstackingplan.pdf	PDF
4/8/2009	NB	Cumberlandoperationsmanualdryashandgypsumstackingfacilitydrawingssept2003.pdf	PDF
4/8/2009	NB	Cumberlandoperationsmanualdryashandgypsumstackingfacilitydrawingssept2003.pdf	PDF
4/8/2009	NB	Cumberlandoperationsmanualdryashandgypsumstackingfacilitysept2003.pdf	PDF
4/8/2009	NB	Cumberlandoperationsmanualdryashandgypsumstackingfacilitysept2003.pdf	PDF
4/8/2009	NB	Cumberlandoperatioonsmanualdryashandgypsumstackingfacility.pdf	PDF
4/8/2009	NB	Cumberlandoperatioonsmanualdryashandgypsumstackingfacility.pdf	PDF
4/8/2009	NB	Cumberlandstacking Planscopeofworkfeb92000.pdf	PDF
4/8/2009	NB	Cumberlandstacking Planscopeofworkfeb92000.pdf	PDF
4/8/2009	NB	Existing Site Conditions Sh 1 Of 4.pdf	PDF
4/8/2009	NB	Existing Site Conditions Sh 2 Of 4.pdf	PDF
4/8/2009	NB	Existing Site Conditions Sh 3 Of 4.pdf	PDF
4/8/2009	NB	Existing Site Conditions Sh 4 Of 4.pdf	PDF
4/8/2009	NB	Proposed Final Contours Sh 1 Of 4.pdf	PDF
4/8/2009	NB	Proposed Final Contours Sh 2 Of 4.pdf	PDF
4/8/2009	NB	Proposed Final Contours Sh 3 Of 4.pdf	PDF
4/8/2009	NB	Proposed Final Contours Sh 4 Of 4.pdf	PDF
4/8/2009	NB	Proposed Waste Disposal Sh 1 Of 2.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/8/2009	NB	Proposed Waste Disposal Sh 2 Of 2.pdf	PDF
4/8/2009	NB	Rpt_Cumberlandtva_Yearlyinspection_Draft.pdf	PDF
4/8/2009	NB	Stage No 1 Disposal Area.pdf	PDF
4/8/2009	NB	Stage No 2 Disposal Area.pdf	PDF
4/8/2009	NB	Stage No 3 Disposal Area.pdf	PDF
4/8/2009	NB	Stage No 4 Disposal Area.pdf	PDF
4/8/2009	NB	Stage No 5 Disposal Area.pdf	PDF

Appendix E

Gallatin Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
Gallatin Fossil Plant (GAF)

Location:	Gallatin Fossil Plant 1499 Steam Plant Road Gallatin, Sumner County, TN 37066 Latitude: 36.315 N Longitude: 86.408 W
Plant Contact:	William B. Brock Technical Services Analyst Phone: 615-230-4065 Email: wbbrock@tva.gov
Facts and Figures:	The Gallatin Fossil Plant has four coal-fired generating units and eight combustion turbines. Construction began in 1953 and was completed in 1959. The plant consumes approximately 12,350 tons of coal per day. It is located on the north bank of the Cumberland River, about 30 miles northeast of Nashville, TN.
Coal Combustion Byproduct Disposal:	Approximately 185,000 dry tons of fly ash is wet-sluiced to Pond E each year. Approximately 45,000 dry tons of bottom ash is wet-sluiced to Pond A annually. There are no dry stacking operations currently at GAF.
Geology and Seismicity:	The Gallatin Fossil Plant is located in the northern portion of central Tennessee along the north bank of the Cumberland River, encompassing the Odom's Bend peninsula. As such, the geologic mapping depicts alluvial deposits consisting of clay, silt and very fine sand across large portions of the site. The mapping indicates the thickness of the alluvium is highly variable, but may be as much as 70 feet including terrace deposits. The remaining areas are underlain by residual clays resulting from the in-place weathering of the parent Ordovican age limestone and shale formations. The geologic mapping indicates the site is underlain by bedrock of the Bigby-Cannon Limestone, Hermitage Formation, Carters Limestone, and Lebanon Limestone in general order of descending lithology. The Bigby-Cannon Limestone is only mapped in the higher elevations at the site above approximate elevation 540 feet. The unit is described as consisting of medium to coarse grained limestone with phosphate pellets to a dark gray to brown-black microcrystalline limestone to a cryptocrystalline dove colored limestone depending on which of the three facies is the subject of observation. The Hermitage formation is primarily mapped within the interior of the peninsula between approximate elevations 510 feet o 540 feet above Mean

Sea Level. The Hermitage Formation consists of silty, nodular to laminated, argillaceous limestone with fossiliferous and phosphatic zones and may contain calcarenite (i.e., sandstone derived from the erosion of older limestone). Residuum formed by the solution weathering of the Hermitage Formation is typically a sandy to silty lean clay generally underlain by a zone of extensively weathered parent rock including “floating” boulders in the soil overburden, as well as pinnacles and slots in the bedrock mass filled with soft, wet unconsolidated clay soils. The Carters Limestone is mapped between approximate elevations 445 feet and 510 feet and consists of a densely crystalline limestone with thin shale partings. In general, the Lebanon Limestone is mapped below elevation 445 feet and is a thin bedded, fossiliferous limestone with thin calcareous shale partings.

The USGS topographic mapping depicts several enclosed drainage basins indicative of karst activity within the vicinity of the plant. Correlation of the locations of these features with the geologic mapping suggests this karst activity is associated with the upper portions of the Carters Limestone near the contact with the overlying Hermitage Formation.

Seismic events affecting central Tennessee, and thus the plant site, primarily emanate from two zones of earthquake activity – the New Madrid Seismic Zone (NMSZ) or the Southern Appalachia Seismic Zone (SASZ). The most active zone of the SASZ, the East Tennessee Seismic Zone (ETSZ), extends from northwestern Georgia through east Tennessee. However, most earthquakes emanating from this zone are relatively low in magnitude, with the largest known event in the ETSZ registering a magnitude of 4.6, suggesting a low risk of damage at the subject plant site from a seismic event emanating from the ETSZ. In contrast, if a large earthquake were to occur within the New Madrid zone to the west, damage to middle Tennessee would be possible. The “Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5” developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 1.

Facilities Reviewed:	Bottom Ash Pond A Fly Ash Pond E Stilling Ponds B, C and D Closed Disposal Area

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Gallatin Fossil Plant (GAF)
Bottom Ash Pond A (BAP-A)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN16520
Surface Area (inside dikes)	248 acres	Maximum Height (toe to top of dike):	20 to 25 feet (estimated)
Free Water Volume:	751,292 CY (Sept. 2008 data)	Maximum Water Storage:	2,164,530 CY Sept. 2008 data)
Estimated CCB Storage:	4,951,409 CY (current)	Dike Length:	7,300 feet (estimated)
Plant Discharge to Facility:	20.4 MGD	Current Pool Elevation:	Approx. 470 feet

2. Site Visit Information

Stantec Assessment Team:	Randy Roberts, PE and Paul Cooper, EIT
TVA Staff Present:	Bill Brock provided tour of facilities prior to Stantec field walks.
Field Assessment Dates:	January 14, 2009 and February 17, 2009
Weather/Site Conditions:	Low-teens, sunny, frozen ground on January 14, 2009; mid-40 degrees F, partly cloudy, moist ground on February 17, 2009

3. History/Description of Usage

History and Operation: The main ash pond at GAF was initially commissioned in 1970. It covered both areas now known as Bottom Ash Pond A and Fly Ash Pond E. Bottom Ash Pond A was formed by constructing a bottom ash divider dike in mid-1980s to separate bottom ash area (Ash Pond A) from fly ash area (Ash Pond E). That dike was raised in late 1980's for additional storage. The raised dike was constructed inwardly over sluiced ash. The divider dike is estimated to now be about 20 to 25 feet tall (estimated from old drawings). Approximately 45,000 tons of dry ash are sluiced to Bottom Ash Pond A annually. Outlet for Bottom Ash Pond A is through three 48 inch RCP riser pipe/weirs that discharge through three 30 inch RCP sections into adjacent Stilling Pond B. The outlet pipes are submerged.

Past Failures/Releases:	Annual inspection reports indicate pond leakage through sinkhole on south side of pond in early to mid-1970's. Circular dike was built to isolate and protect sinkhole in 1979. Circular dike removed and sinkhole repaired in 1990 reportedly by excavating and capping.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	An operations manual is present for Gallatin Fossil Plant covering all active facilities.
TVA Maintenance:	GAF personnel report that there is no maintenance performed for Bottom Ash Pond A.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel recently started making daily observations, with documented inspections made weekly.
Problems Previously Identified During Past TVA Inspections:	Pond leakage through sinkhole in south side of pond; minor sloughing and erosion along divider dike.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers10W271, 10N240, 10N243, 10N267, 10N272, 10N273-01 thru 03, 10N274, 10N278,
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1967 to 1989, 1993 to 2004, and 2007 to 2008.
Geotechnical Data:	"Gallatin Steam Plant, Ash Disposal Area 3, Deflector and Divider Dikes, SME-SOI-88-017", prepared by Singleton Materials Engineering Laboratory, September 8, 1988.

Tennessee Valley Authority letter dated April 8, 1986, initialed CDS.

Results of TVA in-house static slope stability analysis for raising of the divider dike, dated 1988.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Tall grass/cattail growth, adequate to sparse coverage.
Trees:	None observed.
Wave Wash Protection:	None observed.
Erosion:	A few areas of minor erosion noted along east end of divider dike.
Instabilities:	Two small/minor slough areas along east end of divider dike were noted. No other instabilities observed.
Animal Burrows:	None observed.
Freeboard:	**Measured:** 3.9 feet at both Sections 1 and 2 **Design:** 4 feet (from drawing 10W271)
Encroachments:	None observed.
Slope:	**Measured:** 2.0H:1V at Sect. 1; 1.2H:1V at Sect. 2 **Design:** Avg. of 1.4H:1V (from drawing 10W271)

6.2. Crest

Crest Cover and Slope:	Ash-covered access road, crest appears to be relatively flat.
Erosion:	None observed.
Alignment:	Alignment appears to agree with design drawings. No issues observed.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	Dike crest is ash-covered with no vegetation. No rutting observed.

Width:	**Measured:**	70 feet at Section 1; 43 feet at Section 2.
	Design:	40 feet minimum (from drawing 10W271)

6.3. Exterior Slopes

Vegetation:	Tall grass/cattail growth, adequate to sparse coverage.	
Trees:	None observed.	
Erosion:	One small area of erosion noted near toe of slope adjacent to submerged outlet pipes.	
Instabilities:	None observed.	
Uniform Appearance:	Relatively good, slopes vary somewhat.	
Seepage:	One small area of red-water seepage observed at toe just above water surface of adjacent Stilling Pond B just east of submerged outlet pipes.	
Benches:	None observed.	
Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control, or instrumentation observed.	
Animal Burrows:	None observed.	
Slope:	**Measured:**	1.9H:1V at Sect. 1; 1.7H:1V at Sect. 2
	Design:	Avg. of 1.7H:1V (from drawing 10W271)
Height:	**Measured:**	Could not measure - Stilling Ponds B and C pool against divider dike on exterior side.
	Design:	20 to 25 feet maximum height (estimated from TVA drawings)

6.4. Spillway Weirs/Riser Inlets

Number:	Three (3), located at northeast portion of pond.
Size, Type and Material:	48 inch RCP push-together riser sections with standard TVA steel skimmers.
Height of Riser Inlets:	17 feet (from TVA drawing 10N273-02).
Access:	At time of assessment, middle riser was accessible via catwalk.
Joints:	Unable to observe below inlet for middle riser. Remaining two risers not accessible.

Mis-Alignment:	None reported or observed.
Closed/Abandoned Conduits:	None reported or observed.

6.5. Outlet Pipes

Number:	Three (3)
Size, Type and Material:	36 inch RCP
Headwall:	None, outlet ends are submerged below Stilling Pond B pool level.
Joint Separations:	Unknown, unable to observe.
Mis-Alignment:	Unknown, unable to observe.
Closed/Abandoned Conduits:	None reported or observed.

7. Notable Observations and Concerns

- Karst bedrock and sinkhole activity is present plant-wide and is a concern. There is also historical documentation in annual reports from late 1970's that discuss sinkhole leakage in Bottom Ash Pond A through a sinkhole located in the south portion of the pond.
- Lack of Emergency Action Plans, Operation and Maintenance Plans, as-built drawings, and construction testing records is a concern.
- Higher pool elevation in Bottom Ash Pond A relative to adjacent stilling ponds is a concern. Bottom Ash Pond A is separated from stilling ponds with bottom ash divider dike. Pool elevation is about 11 to 12 feet lower in stilling ponds. Concern is related to capacity of stilling ponds if divider dike were to fail or be overtopped.
- The bottom ash divider dike was raised in the mid-1980's by constructing inwardly over sluiced fly ash. In addition, slopes vary and are steeper than 2H:1V in some cases. This is a potential slope stability concern.
- RCP push-together riser spillways are a concern.
- Erosion and minor sloughing was noted at a few locations along the divider dike.
- A small red-water seepage area was observed at the divider dike toe at the north end, just north of the submerged pipe outlets.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Long-term strategies relative to plant-wide karst subsurface conditions should be developed, including consideration to installing lining systems beneath all ponds or converting to dry disposal operation where appropriate.
- It is recommended that a capacity analysis be performed for the Stilling Ponds adjacent to Bottom Ash Pond A to check if sufficient volume capacity exists in the event of a breach/failure of the divider dike separating the stilling ponds from the ash ponds. Further hydraulic and hydrologic analysis may be warranted pending outcome of capacity analysis. It is also recommended that divider dike undergo further engineering to evaluate dike materials, slope stability, and seepage. Conclusions relative to the adequacy of the divider dike will be made based on these Phase 2 engineering activities.
- It is recommended that the existing Operations and Maintenance Plan be updated.
- It is recommended that a program be established to develop as-built drawings and construction records for future maintenance and construction activities.

8.2. Maintenance Recommendations

- Cut and maintain heavy/tall cattail and grass growth on interior and exterior slopes of divider dike to allow better observation.
- Monitor minor seepage area located at dike toe just north of submerged outlet pipes. Any change in quantity or color should be reported to appropriate TVA personnel.
- Repair erosion areas and minor sloughed areas where noted on divider dike slopes. Establish vegetation on dike slopes where sparse areas exist. Monitor and make repairs or re-seed as needed.
- Line divider dike slopes with rip-rap on both sides at pool level to help reduce and control erosion.
- Monitor RCP spillway risers. These spillway systems may ultimately be modified or replaced, pending Stantec-TVA assessment of replacement system.
- Establish mowing program of this area.
- Continue annual dike and facility inspections and execute recommendations.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Gallatin Fossil Plant (GAF)
Fly Ash Pond E (FAP-E)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN16524
Surface Area (inside dikes)	167 acres	Maximum Height (toe to top of dike):	25 to 30 feet (estimated)
Free Water Volume:	853,289 CY (2008 data)	Maximum Water Storage:	3,227,761
Estimated CCB Storage:	4,967,631 CY (current)	Dike Length:	7,000 feet (estimated)
Plant Discharge to Facility:	5.7 MGD	Current Pool Elevation:	Approx. 465 feet

2. Site Visit Information

Stantec Assessment Team:	Randy Roberts, PE and Paul Cooper, EIT
TVA Staff Present:	Bill Brock provided tour of facilities prior to Stantec field walks.
Field Assessment Dates:	January 14, 2009 and February 17, 2009
Weather/Site Conditions:	Low-teens, sunny, frozen ground on January 14, 2009; mid-40 degrees F, partly cloudy, moist ground on February 17, 2009

3. History/Description of Usage

History and Operation: The main ash pond at GAF was initially commissioned in 1970. It covered both areas now known as Bottom Ash Pond A and Fly Ash Pond E. Bottom Ash Pond A was formed by constructing a bottom ash divider dike in mid-1980s to separate bottom ash area (Ash Pond A) from fly ash area (Ash Pond E). That dike was raised in late 1980's for additional storage. In 2006, Fly Ash Pond E was expanded by constructing a new perimeter dike. The expansion was constructed over known sinkholes, which were mitigated. The new dike was also constructed over old saddle dikes, and inwardly over sluiced fly ash. Approximately 185,000 tons of dry fly ash are sluiced to Fly Ash Pond E annually. Outlet for Fly Ash Pond E is

	through two 48 inch RCP riser pipe/weirs that discharge through three 30 inch pipe sections into adjacent Stilling Pond C.
Past Failures/Releases:	Annual inspection reports indicate pond leakage through sinkhole on north side of pond in early to mid-1970's. This sinkhole was reportedly repaired in 1977.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	Document exists entitled "Pond Owner's Manual GAF Long Term Ash Disposal Gallatin Fossil Plant", dated April 21, 2006.
TVA Maintenance:	Mowing beneath power lines near perimeter dike along river. No other maintenance reported to be performed.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel recently started making daily observations, with documented inspections made weekly.
Problems Previously Identified During Past TVA Inspections:	Pond leakage through sinkhole in north side of pond; erosion and sparse vegetation along new dikes from 2006 expansion.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers10W271, 306-320, 410, 411, 415, 416, 506-510.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1967 to 1989, 1993 to 2004, and 2007 to 2008.

Geotechnical Data:	"Tennessee Valley Authority, Gallatin Fossil Plant, Ash Disposal Study. Phase 1 Report, Revision 0", prepared by Worley Parsons Resources and Energy, May 15, 2006. "Gallatin Steam Plant - Ash Disposal Area - Soils Exploration", Memorandum from F.P. Lacy to J.C. McCraw dated September 24, 1969. "Gallatin Fossil Plant Ash Disposal Ponds Dike Stability Analyses." prepared by Tennessee Valley Authority, May 13, 2005

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Tall grass/cattail growth, adequate to sparse coverage.	
Trees:	None observed.	
Wave Wash Protection:	None observed.	
Erosion:	Several areas of erosion noted along interior slopes.	
Instabilities:	None observed.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	11.4 feet at Section 3, 11.5 feet at Section 6
	Design:	Varies, depending on expansion phase.
Encroachments:	None observed.	
Slope:	**Measured:**	3.2H:1V at Sect. 3; 3.5H:1V at Sect. 6
	Design:	3H:1V (from TVA design drawings)

6.2. Crest

Crest Cover and Slope:	Ash - covered access road, crest appears to be relatively flat.
Erosion:	None was observed.
Alignment:	Alignment appears to agree with design drawings. No issues observed.
Settlement/Cracking:	None was observed.
Bare Spots/Rutting:	Dike crest is ash-covered with no vegetation. Rutting observed along north portion of dike.
Width:	**Measured:** 52 feet at Section 3; 50 feet at Section 6. **Design:** 45 feet (from drawings at Stage 1E)

6.3. Exterior Slopes

Vegetation:	Grass, sparse to adequate coverage, some areas bare.
Trees:	None observed.
Erosion:	Several areas of erosion were noted, especially where vegetation is sparse.
Instabilities:	None observed.
Uniform Appearance:	Good.
Seepage:	None observed.
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control, or instrumentation observed.
Animal Burrows:	None observed.
Slope:	**Measured:** 3.1H:1V at Sect. 3; 2.1H:1V at Sect. 6 **Design:** 3H:1V at Sect. 3 area (section J-J on drawing 10W271-312); 2.5H:1V at Sect. 6 area (section K-K on drawing 10W271-312)

Height:	**Measured:**	15 feet at Section 3; not measured at Section 6, but observations agree with design drawings.
	Design:	Approximately 14 feet at Sect. 3 area (section J-J on drawing 10W271-312); Approx. 27 feet at Sect. 6 area (section K-K on drawing 10W271-312)

6.4. Spillway Weirs/Riser Inlets

Number:	Two (2), located at northeast portion of pond.
Size, Type and Material:	48 inch RCP push-together riser sections with standard TVA steel skimmers.
Height of Riser Inlets:	Approximately 10 feet at current pool stage.
Access:	At time of assessment, north riser was accessible via catwalk.
Joints:	Unable to observe below inlet for north riser. Remaining riser not accessible.
Mis-Alignment:	None reported or observed.
Closed/Abandoned Conduits:	Old 48 inch outlet pipe at southwest side of ash pond noted on TVA drawing 10W271. Note on drawing says "plugged by plant".

6.5. Outlet Pipes

Number:	Two (2)
Size, Type and Material:	30 inch steel and PVC combination.
Headwall:	No headwall observed.
Joint Separations:	Unknown, unable to observe.
Mis-Alignment:	Unknown, unable to observe.
Closed/Abandoned Conduits:	Old 48 inch outlet pipe at southwest side of ash pond noted on TVA drawing 10W271. Note on drawing says "plugged by plant".

7. Notable Observations and Concerns

- Karst bedrock and sinkhole activity is present plant-wide and is a concern. There is also historical documentation in annual reports from late 1970's that discuss sinkhole leakage in Fly Ash Pond E through a sinkhole located in the north portion of the pond.
- Lack of Emergency Action Plans, Operation and Maintenance Plans, as-built drawings, and construction testing records is a concern.
- Higher pool elevation in Fly Ash Pond E relative to adjacent stilling ponds is a concern. Fly Ash Pond E is separated from stilling ponds with divider dike. Pool elevation is about 8 feet lower in stilling ponds. Concern is related to capacity of stilling ponds if divider dike were to fail or be overtopped. Also, CCB storage needs will require future raising of dikes four additional feet and corresponding higher pool elevation.
- Construction to raise perimeter dikes was performed in 2006 to increase long-term fly ash storage capacity. Project drawings indicate that portions of the dikes were constructed inwardly over sluiced fly ash, over old saddle dikes, and were potentially constructed using a bottom ash core. This presents concerns related to slope stability and potential for seepage paths to develop.
- RCP push-together riser spillways are a concern.
- An abandoned outlet pipe is located along southwest side of Fly Ash Pond E. Drawing 10W271 shows pipe was reportedly plugged by plant – date unknown, but probably in late 60's to early 70's.
- Erosion was noted at several areas along exterior and interior slopes. Some erosion areas are fairly widespread.
- Vegetative cover is sparse along exterior and interior slopes in several areas.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Long-term strategies relative to plant-wide karst subsurface conditions should be developed, including consideration to installing lining systems beneath all ponds or converting to dry disposal operation where appropriate.
- It is recommended that a capacity analysis be performed for the Stilling Ponds adjacent to Fly Ash Pond E to check if sufficient volume capacity exists in the event of a breach and/or failure of the divider dike separating the stilling ponds from the

ash ponds. Further hydraulic and hydrologic analysis may be warranted pending outcome of capacity analysis. It is also recommended that Fly Ash Pond E dikes undergo further engineering to evaluate dike materials, slope stability, and seepage. Conclusions relative to the adequacy of the dikes will be made based on these Phase 2 engineering activities.

- It is recommended that the Operations and Maintenance Plan be updated for the facility.
- It is recommended that a program be established to develop as-built drawings and construction records for future maintenance and construction activities.

8.2. Maintenance Recommendations

- Cut and maintain heavy/tall cattail and grass growth on interior and exterior dikes to allow better observation.
- Repair erosion areas on slopes. Establish vegetation where sparse areas exist. Monitor and make repairs or re-seed as needed.
- Line interior slopes with rip-rap at pool level to help reduce and control erosion.
- Monitor RCP spillway risers. These spillway systems may ultimately be modified or replaced, pending Stantec-TVA assessment of replacement system.
- Establish mowing program of this area.
- Continue annual dike and facility inspections and execute recommendations.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Gallatin Fossil Plant (GAF)
Stilling Ponds B, C and D (P-B, P-C, P-D)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN16521 (P-B), TN16522 (P-C), TN16523 (P-D)
Surface Area (inside dikes)	61 acres (estimated)	Maximum Height (toe to top of dike):	11 feet (Pond C); 8 feet (Pond D)
Free Water Volume:	330,039 CY (Sept. 2008 data)	Maximum Water Storage:	Not provided.
Estimated CCB Storage:	Pond does not store CCB.	Dike Length:	450 feet. on N side of Pond C, 150 feet. at outlet of Pond D.
Plant Discharge to Facility:	None. Ponds are stilling basins for Ponds A and E.	Current Pool Elevation:	Approximately 457 feet

2. Site Visit Information

Stantec Assessment Team:	Randy Roberts, PE and Paul Cooper, EIT
TVA Staff Present:	Bill Brock provided tour of facilities prior to Stantec field walks.
Field Assessment Dates:	January 14, 2009 and February 17, 2009
Weather/Site Conditions:	Low-teens, sunny, frozen ground on January 14, 2009; mid-40 degrees F, partly cloudy, moist ground on February 17, 2009.

3. History/Description of Usage

History and Operation: Stilling Ponds B, C and D are essentially all part of the same pond. Each designated area is separated by narrower pond sections/channels, but all areas are hydraulically connected and are at the same pool elevation. Pond B receives decant water from Bottom Ash Pond A, and flows to Pond B. Pond B receives decant water from Fly Ash Pond E and flows into Pond D. The stilling pond outlet is located at the west end of Pond D. The outlet consists of four 48 inch RCP riser/weir sections that discharge though four 36 inch RCP sections

into an adjacent small discharge pool. From here, water discharges through four 36 inch corrugated metal pipes into the adjacent reservoir. The Pond D area and outlet were initially commissioned in 1970 when the main ash pond area (formerly Disposal Area 3) was placed into operation. Pond B and C areas to the east were formed when the divider dike construction extended to the north to separate Bottom Ash Pond A and Fly Ash Pond E. The entire stilling pond area is naturally low-lying, and only two short saddle dike sections exist. One is at the outlet area of Pond D, and one is to the north of the Pond C area. The pool elevation is about 11 to 12 feet lower than adjacent Bottom Ash Pond A, and about 7 to 8 feet lower than adjacent Fly Ash Pond E.

Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	An operations manual is present for Gallatin Fossil Plant covering all active facilities.
TVA Maintenance:	TVA GAF personnel report that no maintenance is performed at stilling ponds.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel recently started making daily observations, with documented inspections made weekly.
Problems Previously Identified During Past TVA Inspections:	Trees on dike slope at outlet area.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10W271, 10N240, 10N243, 10N267, 10N271, 10N273-01 to 03, 10N274, 10N278

TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1967 to 1989, 1993 to 2004, and 2007 to 2008.
Geotechnical Data:	None available.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Tall grass, cattails on both dikes. Coverage is sparse on Pond C bottom ash saddle dike. Dense coverage on Pond D dike at outlet.	
Trees:	Yes. Tree growth exists on Pond D dike at outlet.	
Wave Wash Protection:	None observed.	
Erosion:	Widespread erosion noted on Pond C bottom ash saddle dike.	
Instabilities:	None observed.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	4.3 feet at Section 4, 4.5 feet at Section 5
	Design:	Not available on drawings.
Encroachments:	None observed.	
Slope:	**Measured:**	2.9H:1V at Section 4, 4.5H:1V at Section 5
	Design:	3H:1V at Section 4 area of Pond D (from Drawing 10N273-01); No drawings provided for Pond C dike.

6.2. Crest

Crest Cover and Slope:	Bottom ash (Pond C); Gravel and grass-covered access road (Pond D). Crests appeared relatively flat.

Erosion:	Erosion noted at edges of crest on bottom ash saddle dike at Pond C.
Alignment:	Alignment appeared to agree with design drawings. No issues observed.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	No rutting observed. Bottom ash dike at Pond C is bare with no vegetative cover.
Width:	**Measured:** 22 feet at Section 4, 13 feet at Section 5 **Design:** 26 feet at Section 4 area of Pond D (from Drawing 10N273-1); No drawings provided for Pond C dike.

6.3. Exterior Slopes

Vegetation:	Sparse to no vegetation for Pond C dike; thick coverage of grass, brush and trees for Pond D dike.
Trees:	Yes, numerous trees located on exterior slope of Pond D dike.
Erosion:	Widespread erosion noted on slope of Pond C bottom ash dike.
Instabilities:	No evidence of instability observed.
Uniform Appearance:	Good.
Seepage:	Seepage noted just beyond toe area of Pond C bottom ash dike.
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control, or instrumentation observed.
Animal Burrows:	None were visible.
Slope:	**Measured:** 3.1H:1V at Section 4, 2.2H:1V at Section 5 **Design:** 3H:1V at Section 4 area of Pond D (from Drawing 10N273-1); No drawings provided for Pond C dike.

Height:	**Measured:**	8.1 feet at Section 4, 10.2 feet at Section 5
	Design:	11 feet at Section 4 area of Pond D (from Drawing 10N273-1); No drawings available for Pond C dike.

6.4. Spillway Weirs/Riser Inlets

Number:	Four at Pond D
Size, Type and Material:	48 inch RCP
Height of Riser Inlets:	6 to 7 feet (from drawing 10N273-01).
Access:	Spillways are accessed via walkway to each spillway.
Joints:	Unable to observe below inlet level any joint leakage or sealant.
Mis-Alignment:	None reported or observed.
Closed/Abandoned Conduits:	None reported or observed.

6.5. Outlet Pipes

Number:	Four at Pond D
Size, Type and Material:	36 inch RCP into small discharge pool; then four (4) 36 inch corrugated metal pipes into adjacent reservoir.
Headwall:	Riprap around outlets.
Joint Separations:	Unknown, unable to observe.
Mis-Alignment:	Unknown, unable to observe.
Closed/Abandoned Conduits:	None reported or observed.

7. Notable Observations and Concerns

- Karst bedrock and sinkhole activity is present plant-wide and is a concern. There is also historical documentation in annual reports from late 1970's that discuss sinkhole leakage in adjacent ash ponds.
- Lack of Emergency Action Plans, Operation and Maintenance Plans, as-built drawings, and construction testing records is a concern.

- The pool elevation of the stilling basins is 11 to 12 feet lower than the pool in Bottom Ash Pond A and 7 to 8 feet lower than the pool in Fly Ash Pond E. The lower pool elevation relative to adjacent ash ponds is a concern. The concern is related to the capacity of the stilling ponds if divider dikes between stilling pond area and Bottom Ash Pond A and/or Fly Ash Pond E were to fail or be overtopped.
- A short length, low–height saddle dike is located along the north perimeter of Pond C. It is constructed of bottom ash, and is eroding. It currently pools approximately 2 to 3 feet of water. The dike appears to protect an adjacent sinkhole. If saddle dike failure occurred, or if adjacent dikes separating Stilling Ponds from Ash Ponds failed causing capacity of stilling ponds to be exceeded, water and/or sluiced ash could be released into adjacent land/sinkhole. A small amount of seepage was also observed just beyond the exterior toe of this saddle dike.
- RCP push-together riser structure spillways at outlet of Stilling Pond D are a concern.
- Erosion was noted at a few locations along stilling basin perimeter access road below Fly Ash Pond E.
- Widespread erosion was noted along sparsely vegetated bottom ash saddle dike on north side of Pond C.
- Trees were noted along exterior dike slope at outlet end of Stilling Pond D.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Long-term strategies relative to plant-wide karst subsurface conditions should be developed, including consideration to installing lining systems beneath all ponds or converting to dry disposal operation where appropriate.
- As described in the Phase 2 recommendations for Bottom Ash Pond A and Fly ash Pond E, a capacity analysis is being recommended for the Stilling Ponds to check if sufficient volume capacity exists in the event of a breach and/or failure of the divider dikes separating the stilling ponds from the ash ponds. Further hydraulic and hydrologic analysis may be warranted pending outcome of capacity analysis. Geotechnical investigations are also being recommended for the divider dikes (see Bottom Ash Pond A and Fly Ash Pond E recommendations). Conclusions relative to the adequacy and need for modifications to the stilling pond-ash pond divider dikes, and stilling pond saddle dikes will be made based on these Phase 2 engineering activities.

- It is recommended that the existing Operations and Maintenance Plan be updated for the facility.
- It is recommended that a program be established to develop as-built drawings and construction records for future maintenance and construction activities.

8.2. Maintenance Recommendations

- Cut and maintain heavy/tall cattail and grass growth on interior slopes of ponds to allow better observation.
- Remove trees/brush from downstream dike slope of Stilling Pond D outlet area.
- Repair erosion areas where noted on dike slopes.
- Line interior pond slopes with rip-rap to help reduce erosion.
- Continue to monitor RCP spillway risers. These spillway systems may ultimately be modified or replaced, pending Stantec-TVA assessment of replacement system.
- Establish mowing program of ponds and disposal areas.
- Continue annual dike and facility inspections.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Gallatin Fossil Plant (GAF)
Closed Disposal Area (CDA-1)

1. General Facility Information

Facility Status:	Closed	NID Identification:	Not Available
Surface Area (inside dikes)	73 acres (estimated)	Maximum Height (toe to top of dike):	25 feet (estimated)
Free Water Volume:	N/A	Maximum Water Storage:	N/A
Estimated CCB Storage:	Unknown; disposal area is abandoned and closed.	Dike Length:	5,100 feet (estimated)
Plant Discharge to Facility:	None. Disposal area is closed.	Current Pool Elevation:	N/A

2. Site Visit Information

Stantec Assessment Team:	Randy Roberts, PE and Paul Cooper, EIT
TVA Staff Present:	Bill Brock provided tour of facilities prior to Stantec field walks.
Field Assessment Dates:	January 13, 2009 and February 17, 2009
Weather/Site Conditions:	Low-20 degrees F, sunny, frozen ground on January 13, 2009; mid-40 degrees F, partly cloudy, moist ground on February 17, 2009.

3. History/Description of Usage

History and Operation: This disposal area was the first at GAF. It was in operation until usage was discontinued in 1970. The facility had four cells, referred to as A, B, C, and D. Ash was sluiced to the cells. In 1967, two slides occurred along exterior dikes adjacent to cells A and C. These two cells were drained and abandoned, but Cell B (middle cell) remained in operation until 1970 when disposal shifted to what was then called Area 3 (now known as Bottom Ash Pond A and Fly Ash Pond E). Cell B contained water until it was drained in 1973. Over time, vegetation developed in the abandoned cells, and the slide areas were monitored. Storm water continued to

	collect in Cell B where a skimmer was left in place to prevent loss of ash through the outlet pipe. In 1985, new slides began to develop and in 1986 the entire perimeter dike length was reconstructed and flattened to 2H:1V. In 1995 a formal closure plan was developed and submitted to TDEC, and was approved in 1997. The closure construction work was completed in 1998. GAF personnel are required to monitor toe seepage areas on a quarterly basis to comply with TDEC-approved closure plan.
Past Failures/Releases:	The 1974 inspection report indicates some ash washing through the spillway pipe and into adjacent river from Cell B. This cell was not being used for disposal, but was still collecting storm water and the spillway pipe was not yet abandoned.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	No OM has been prepared for this facility.
TVA Maintenance:	Erosion control BMP's and efforts to establish/maintain vegetation are being performed annually at active seeps at toes of dikes.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. GAF personnel perform quarterly inspections of toe seepage areas. Plant personnel recently started making daily observations, with documented inspections made weekly.
Problems Previously Identified During Past TVA Inspections:	Dike instability and erosion; toe seepage areas and difficulty establishing vegetation at seeps.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10N211, 212, 10W204, 10W215-2, 3

TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1967 to 1989, 1993 to 2004, 2007 to 2008.
Geotechnical Data:	None available.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	N/A, interior portion of closed disposal area has been filled/graded and contains thick vegetation and wooded areas.	
Trees:	N/A	
Wave Wash Protection:	N/A	
Erosion:	N/A	
Instabilities:	N/A	
Animal Burrows:	N/A	
Freeboard:	**Measured:**	N/A
	Design:	N/A
Encroachments:	N/A	
Slope:	**Measured:**	N/A
	Design:	N/A

6.2. Crest

Crest Cover and Slope:	Gravel and grass-covered access road along old crest of perimeter dike, crest appeared relatively flat.
Erosion:	None observed.
Alignment:	Alignment appeared to agree with design drawings. No problem.

Settlement/Cracking:	None observed.
Bare Spots/Rutting:	None observed.
Width:	**Measured:** 25 feet at Sections 8 and 9 **Design:** 30 feet (from drawing 10W204)

6.3. Exterior Slopes

Vegetation:	Trees, brush and woody growth noted throughout. Dense coverage.
Trees:	Yes. Numerous trees noted.
Erosion:	Minor areas around active seeps where establishing vegetation has been difficult.
Instabilities:	This disposal facility has a history of exterior dike slope instability. Inspection reports indicate that two slides occurred in 1967, and that one occurred in 1984. The slopes were steep at those times. In 1986, dike slopes were flattened to 2H:1V and no instabilities have reportedly occurred since. Stantec observed no instabilities during this assessment, and the slopes had a uniform appearance.
Uniform Appearance:	Good.
Seepage:	Yes, seepage areas at several toe locations are being monitored quarterly by GAF personnel to comply with TDEC-approved closure. Seepage areas are identified as Area 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E (2E1 and 2E2), and 2F. Stantec observed seepage at only three of these designated locations (1A, 2E, and 2F). The remaining areas were dry and no seepage was observed. Ground surface was wet and saturated at active locations, with minimum to no flow.
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control, or instrumentation were observed.
Animal Burrows:	None observed.
Slope:	**Measured:** 2H:1V at Sections 8 and 9

	Design:	2H:1V (from TVA drawing 10W204)
Height:	**Measured:**	Not measured.
	Design:	Approximately 25 feet, as estimated from TVA drawings. Stantec observations agree with drawings relative to slope height.

6.4. Spillway Weirs/Riser Inlets

Number:	N/A, disposal area is closed.
Size, Type and Material:	N/A
Height of Riser Inlets:	N/A
Access:	N/A
Joints:	N/A
Mis-Alignment:	N/A
Closed/Abandoned Conduits:	One weir structure has reportedly been abandoned within old Cell B. Drawing 10W215-2 of closure plan shows that concrete plug was to be placed at inlet end.

6.5. Outlet Pipes

Number:	N/A, disposal area is closed.
Size, Type and Material:	N/A
Headwall:	N/A
Joint Separations:	N/A
Mis-Alignment:	N/A
Closed/Abandoned Conduits:	One outlet pipe has reportedly been abandoned within old Cell B. Drawing 10W215-2 of closure plan shows that concrete plug was to be placed at outlet end.

7. Notable Observations and Concerns

- Indications of on-going seepage were observed at Seepage Areas 1A, 2E, and 2F

located just beyond the toes of the exterior dikes. Other designated seepage areas were noted to be dry. These areas are being monitored on a quarterly basis by GAF personnel and reported to TDEC to comply with the closure plan. Annual inspection reports indicate that these seeps were first noted in the mid 1980's. GAF is making efforts to establish vegetation and minimize erosion at active seeps. Stantec's judgment is that seeps are related to groundwater flow/seepage along shallow bedrock which is surfacing beyond toe of dike slopes (rock outcrops were observed at some seepage areas).

- Abandoned spillway riser/outlet pipe is located along east side of closed disposal area. TVA drawings show that weir inlet and pipe outlet were to be filled with concrete during closure of disposal area.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Phase 2 engineering is not recommended at this time for this closed facility.

8.2. Maintenance Recommendations

- Continue to monitor seepage areas at dike toe areas. Any change should be reported to TVA engineering staff. Consider installing collection system at active seeps to control seepage.
- Repair erosion areas as they become prevalent near active seeps.
- Continue annual dike and facility inspections.

Drawing Mark AP-A-1 Submerged pipe outlet for Bottom Ash Pond A to Stilling Pond B, only two of the three observed.

Drawing Mark AP-A-3 Isolated erosion along intermediate dike between Bottom Ash Pond A and Stilling Bond B (typical of a few locations along north end of dike).

Drawing Mark AP-A-5

Unbalanced pool level between Bottom Ash Pond A and Stilling Ponds B, C, and D (Stilling Pool B on left, Bottom Ash Pond A on right).

Drawing Mark AP-A-6

Seepage area located east of outlet structures.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
AP-A-1	Submerged pipe outlet for Bottom Ash Pond A to Stilling Pond B, only two of the three observed.	Photo 1B
AP-A-2	Weir structures at Bottom Ash Pond A to Stilling Pond B.	No Photo
AP-A-3	Isolated erosion along intermediate dike between Bottom Ash Pond A and Stilling Pond B (typical of a few locations along north end of dike).	Photo 87A
AP-A-4	Sinkhole reportedly repaired by plant personnel.	No Photo
AP-A-5	Unbalanced pool level between Bottom Ash Pond A and Stilling Ponds B, C, and D (Stilling Pool B on left, Bottom Ash Pond A on right).	Photo 82A
AP-A-6	Seepage area located east of outlet structures.	Photo 85A

Drawing Mark AP-E-1 Erosion on exterior slope of dike.

Drawing Mark AP-E-2 Rock outcrop and erosion on inner portion of pond.

Drawing Mark AP-E-3 Weir structures at Fly Ash Pond E to Stilling Pond C

Drawing Mark AP-E-4 Sinkhole reportedly repaired by plant personnel (approximate area).

Drawing Mark AP-E-5 Sparse vegetation and erosion on inner face of dike (typical of several locations)

Drawing Mark AP-E-6 Sparse vegetation and erosion on inner face of dike (typical of several locations).

Drawing Mark AP-E-7 Erosion rill/gully on inner face of dike (typical of several locations).

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
AP-E-1	Erosion on exterior slope of dike (typical).	Photo 68A
AP-E-2	Rock outcrop and erosion on inner portion of pond.	Photo 66A
AP-E-3	Weir structures at Fly Ash Pond E to Stilling Pond C.	Photo 73A
AP-E-4	Sinkhole reportedly repaired by plant personnel (approximate area).	Photo 70A
AP-E-5	Sparse vegetation and erosion on inner face of dike (typical of several locations).	Photo 63A
AP-E-6	Sparse vegetation and erosion on inner face of dike (typical of several locations).	Photo 67A
AP-E-7	Erosion rill/gully on inner face of dike (typical of several locations)	Photo 61A

Drawing Mark P-C-1 Erosion on inner face of saddle dike at Pond C.

Drawing Mark P-C-2 Possible toe seepage near exterior toe of saddle dike at Pond C.

Drawing Mark P-C-3 Bottom ash saddle dike at Pond C (Pond C on right).

Drawing Mark P-D-1 Weir structures at Stilling Pond D.

Drawing Mark P-D-2	Tree growth on exterior slope of Pond D outlet.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
P-C-1	Erosion on inner face of saddle dike at Pond C.	Photo 80A
P-C-2	Possible toe seepage near exterior toe of saddle dike at Pond C.	Photo 2B
P-C-3	Bottom ash saddle dike at Pond C (Pond C on right).	Photo 79A
P-D-1	Weir Structures at Stilling Pond D.	Photo 73A
P-D-2	Trees growth on exterior slope at Pond D outlet.	Photo 76A

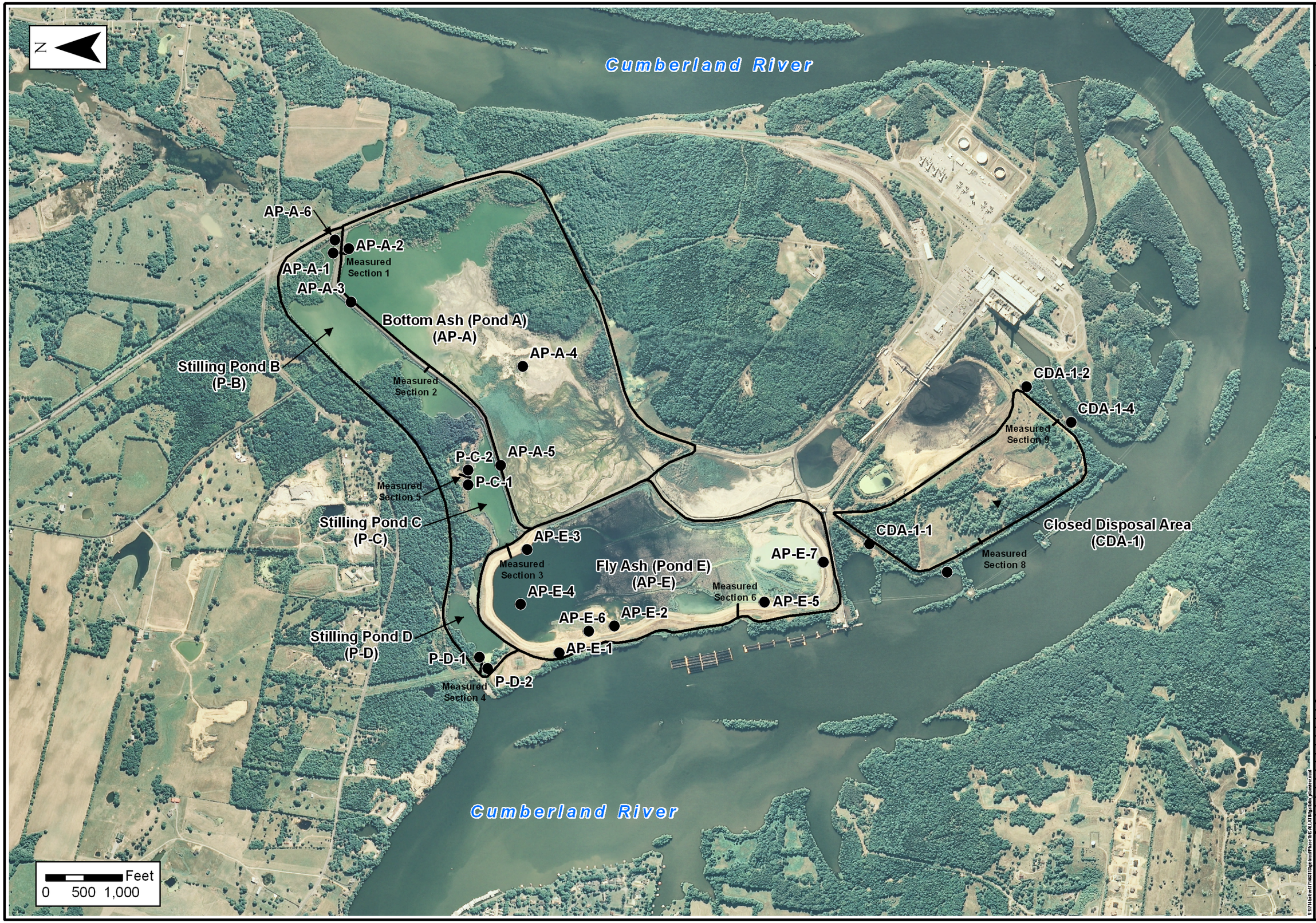
Drawing Mark CDA-1-1 Seepage Area 2E.

Drawing Mark CDA-1-2 Seepage Area 1A.

Drawing Mark CDA-1-3 Seepage Area 2B. No seepage observed (note the pipe outlet).

Drawing Mark CDA-1-4 Seepage Area 1B. No seepage observed.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
CDA-1-1	Seepage Area 2E.	Photo 18B
CDA-1-2	Seepage Area 1A.	Photo 43A
CDA-1-3	Seepage Area 2B. No seepage observed (note the outlet pipe).	Photo 48A
CDA-1-4	Seepage Area 1B. No seepage observed.	Photo 44A



STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View - GAF

Tennessee Valley Authority
Gallatin Fossil Plant
Gallatin, Sumner County, Tennessee

PROJECT NO.	171468118
DATE	FEBRUARY 2009
DRAWN BY	MEA
CHECKED BY	RLR
CHECKED BY	DAG
SCALE	AS SHOWN
REVISED	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

SHEET

1 OF 1

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Gallatin Fossil Plant (GAF)

Date Reviewed	Reviewed by	File Name	File Type
2/11/2009	PJC	Assumed 657B Pan For Haul Road Design.pdf	PDF
2/11/2009	PJC	Dike Construction Dredge Operations Sequence Dike Construction Bottom Ash.pdf	PDF
2/11/2009	PJC	Exhibits.pdf	PDF
2/11/2009	PJC	GAF April 20 2005 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF April 20 2006 Letter To Div Of Water Pollution Control.pdf	PDF
3/30/2009	PJC	GAF Ash Disposal Area 3 Deflector And Divider Dikes Smesoi88017 Sept 8 1988.pdf	PDF
3/3/2009	PJC	GAF Ash Disposal Area Soils Exploration Memo From Fflacy To Jcmccraw Dated Sept 24 1969.pdf	PDF
3/30/2009	PJC	GAF Ash Disposal Area Soils Exploration Memo From Fflacy To Jcmccraw Dated Sept 24 1969.pdf	PDF
3/30/2009	PJC	GAF Ash Disposal Study Phase 1 Report Revision 0 May 15 2006.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY 2000.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY 2001.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY 2002.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY 2003.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY 2004.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY 2007.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY67.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY68.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY69.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY70.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY71.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY72.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY73.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY74.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY75.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY76.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY77.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY78.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY79.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY80.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY81.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY82.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY83.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY84.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY85.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY86.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY87.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY88.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY89.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/11/2009	PJC	GAF Ash Pond Insp FY91.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY93.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY94.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY95.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY96.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY97.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY98.pdf	PDF
2/11/2009	PJC	GAF Ash Pond Insp FY99.pdf	PDF
2/11/2009	PJC	GAF Ash RP 2008 Summary.doc	DOC
3/3/2009	PJC	GAF calculation Dike Stability Analyses Cdx003002006002.pdf	PDF
2/11/2009	PJC	GAF Dike Raising - Stage 1 Bop & Major Earthwork.pdf	PDF
2/11/2009	PJC	GAF First Quarter 2002 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 1994 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 1995 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 1996 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 1997 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 1998 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 1999 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2000 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2001 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2002 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2003 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2004 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2005 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2006 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2007 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Fourth Quarter 2008 Red Water Seep Inspection Checksheet.pdf	PDF
3/30/2009	PJC	GAF Geology Of The GAF Site Division Of Water Control Planning Geologic Branch June 1953.pdf	PDF
2/11/2009	PJC	GAF June 20 1995 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF June 23 1994 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 12 2003 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 14 2008 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 15 1997 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 16 2002 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 21 1998 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 22 1996 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 24 2004 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 3 2007 Letter To Div Of Water Pollution Control.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/11/2009	PJC	GAF May 4 2001 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 5 1999 Letter To Div Of Water Pollution Control.pdf	PDF
2/11/2009	PJC	GAF May 8 2000 Letter To Div Of Water Pollution Control.pdf	PDF
3/3/2009	PJC	GAF Memo For Record Feb 17 1997 From Robert Chantome On Job No. 13523 Geotechnical Recommendations.pdf	PDF
3/30/2009	PJC	GAF Memo For Record Feb 17 1997 From Robert Chantome On Job No. 13523 Geotechnical Recommendations.pdf	PDF
2/11/2009	PJC	GAF Quarterly Red Water Inspection Checksheet Memo Dated Dec 4 1991.pdf	PDF
2/11/2009	PJC	GAF Quarterly Red Water Inspection Checksheet Memo Dated Nov 13 1992.pdf	PDF
2/11/2009	PJC	GAF Quarterly Red Water Inspection Checksheet Memo Dated Nov 5 1993.pdf	PDF
2/11/2009	PJC	GAF Red Water Inspection Sheets.pdf	PDF
2/23/2009	PJC	GAF Redwater Identificaiton Program June 27 1986.pdf	PDF
2/11/2009	PJC	GAF Second Quarter 1999 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Second Quarter 2000 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Third Quarter 2000 Red Water Seep Inspection Checksheet.pdf	PDF
2/11/2009	PJC	GAF Third Quarter 2002 Red Water Seep Inspection Checksheet.pdf	PDF
2/23/2009	PJC	GAF_Ashpondinsp_FY09_Draft.pdf	PDF
1/30/2009	RLR/PJC	GAF-10B620-Sht -Rev 0 Yard Coal Barge Unloader System Soil And Rock-Boring Location Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10Ds400-Sht 1-Rev 0 Conc Ash Disposal Trench.cal	CAL
2/23/2009	PJC	GAF-10E200-1-Sht -Rev 3.cal	CAL
2/23/2009	PJC	GAF-10E201-1-Sht -Rev 5.cal	CAL
2/23/2009	PJC	GAF-10H729-Sht -Rev 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10L239-Sht -Rev 0 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L240-Sht -Rev 0 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L241-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L242-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L243-Sht -Rev 0 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L244-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L245-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L246-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L247-Sht -Rev 1Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L248-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L249-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L251-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L252-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L253-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L254-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L255-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L256-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L257-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
1/30/2009	RLR/PJC	GAF-10L258-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L259-Sht -Rev 1 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10L260-Sht -Rev 0 Gen Grdg Coal Yd X-Sect.cal	CAL
1/30/2009	RLR/PJC	GAF-10N1400-Sht -Rev 3 Yard Units 3 & 4 Concrete Ash Disposal Trench Outline & Reinf - Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10N1401-Sht -Rev 1 Yard Units 3 & 4 Concrete Ash Disposal Trench Outline & Reinf - Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10N1405-Sht -Rev 0Yard Concrete Fly Ash Reclaiming System Outline & Reinforcement.cal	CAL
2/23/2009	PJC	GAF-10N207-Sht -Rev 6.cal	CAL
1/30/2009	RLR/PJC	GAF-10N209-Sht -Rev 1 Main Plant Surfacing Coal Yard & Utility Building Areas.cal	CAL
1/30/2009	RLR/PJC	GAF-10N211-Sht -Rev 14 Main Plant General Grading Plan Coal Yard Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10N212-Sht -Rev 7 Main Plant General Grading Plan Coal Yard Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10N240-Sht -Rev 0 Main Plant Plan Ash Disposal Area No. 3.cal	CAL
1/30/2009	RLR/PJC	GAF-10N241-Sht -Rev 0 Mn Plnt Ash Dspsl Area 3 Sects & Dets.Tif	TIF
1/30/2009	RLR/PJC	GAF-10N242-Sht -Rev 0 Mn Plnt Ash Dspsl Area 3 Sects & Dets.Tif	TIF
1/30/2009	RLR/PJC	GAF-10N243-Sht -Rev 0 Standard Drawing Ash Disposal Spillway.cal	CAL
1/30/2009	RLR/PJC	GAF-10N267-Sht -Rev 0 Main Plant Ash Disposal Area No. 3 Divider Dike.cal	CAL
1/30/2009	RLR/PJC	GAF-10N271-Sht -Rev 6 Main Plant Plan Ash Disposal Area No 3 Ss By Cad Dwg 10W271 R7.tif	TIF
1/30/2009	RLR/PJC	GAF-10N272-Sht -Rev 2 Main Plant Ash Disposal Area No. 3 Sections And Details Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10N273-1-Sht -Rev 3 Main Plant Ash Disposal Area No. 3 Sections And Details Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10N273-2-Sht -Rev 1 Main Plant Ash Disposal Area No. 3 Plan, Sections & Details Sheet 3.cal	CAL
1/30/2009	RLR/PJC	GAF-10N273-3-Sht -Rev 1 Yard - Ash Disposal Area Outlet Pipe - Storm Drainage From RR Loop Area To Old Hickory Reservoir.cal	CAL
1/30/2009	RLR/PJC	GAF-10N274-Sht -Rev 2 Standard Drawing Ash Disposal Spillway.cal	CAL
1/30/2009	RLR/PJC	GAF-10N278-Sht -Rev 0 Main Plant Ash Disposal Area Divider Dike & Floating Boom.cal	CAL
1/30/2009	RLR/PJC	GAF-10N390-1-Sht -Rev 0 Yard Concrete Ash Disposal Lines Supports Outline & Reinforcement - Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10N390-2-Sht -Rev 0 Yard Concrete Ash Disposal Lines Supports Outline & Reinforcement - Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10N390-3-Sht -Rev 0 Yard Concrete Ash Disposal Lines Supports Outline & Reinforcement - Sheet 3.cal	CAL
1/30/2009	RLR/PJC	GAF-10N390-4-Sht -Rev 0 Yard Concrete Ash Disposal Lines Supports Outline & Reinforcement - Sheet 4.cal	CAL
1/30/2009	RLR/PJC	GAF-10N400-Sht -Rev 2 Yard Units 1 & 2 Concrete Ash Disposal Trench Outline & Reinf Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10N401-Sht -Rev 1 Yard Units 1 & 2 Concrete Ash Disposal Trench Outline & Reinf - Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10N402-Sht -Rev 3 Yard Units 1-4 Concrete Ash Disposal Trench For Precipitators-Outl & Reinf - Sh 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10N403-Sht -Rev 1 Yard Units 1-4 Concrete Ash Disposal Trench For Precipitators - Outl & Reinf - Sh 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10N404-Sht -Rev 1 Yard Units 1 - 4 Concrete Ash Disposal Trench For Precipitators - Outline & Reinf Sh3.cal	CAL
1/30/2009	RLR/PJC	GAF-10N409-Sht -Rev 0 Yard Units 1 - 4 Concrete Ash Disposal Trench For Precipitators - Outl & Reinf - Sh4.cal	CAL
1/30/2009	RLR/PJC	GAF-10N440-1-Sht -Rev 0 Yard Civil Bridge Across Ash Pipes Superstructure - Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10N440-2-Sht -Rev 0 Yard Civil Bridge Across Ash Pipes Superstructure - Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10N440-3-Sht -Rev 0 Yard Civil Bridge Across Ash Pipes Substructure.cal	CAL
1/30/2009	RLR/PJC	GAF-10W203-Sht -Rev 1 Main Plant Fly Ash Collecting System Areas Available For Contractor Use During Const.cal	CAL
1/30/2009	RLR/PJC	GAF-10W204-Sht -Rev 2 Main Plant Coal Yard & Reclaimed Ash Disposal Areas 1 & 2 Sections & Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W215-1-Sht -Rev 0 Main Plant Abandoned Ash Disposal Area Closure - Grading Plan.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
1/30/2009	RLR/PJC	GAF-10W215-2-Sht -Rev 0 Main Plant Abandoned Ash Disposal Area Closure - Sections & Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W215-3-Sht -Rev 0 Yard Abandoned Ash Pond - Closure Concrete Endwalls & Inlets For Pipe Culverts.cal	CAL
2/23/2009	PJC	GAF-10W260-1-Sht -Rev 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10W270-1-Sht -Rev 0 Coal Handling Facilities - Barge Unloader Tva Contract 95P6G-79124H, Rd No. 1102856 Plot Plan Barge Unloading System.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-306-Sht -Rev 0 Yard Pond E Site Plan & Key Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-307-Sht -Rev 0 Yard Pond E Dike 2 (East Part) Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-308-Sht -Rev 0 Yard Pond E Dikes 1.4 & 2 (West Part) Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-309-Sht -Rev 0 Yard Pond E Dike 2 Profile.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-310-Sht -Rev 0 Yard Pond E Dikes 1A, 1B, 1.1, 1.2 & 1.3 Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-311-Sht -Rev 0 Yard Pond E Sinkhole Areas Remediation Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-312-Sht -Rev 0 Yard Pond E Dike Sections Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-313-Sht -Rev 0 Yard Pond E Dike Sections Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-314-Sht -Rev 0 Yard Pond E Dikes Sections-Sheet 3.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-315-Sht -Rev 0 Yard Pond E Precast Outlet Boxes Structural Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-316-Sht -Rev 0 Yard Pond E Sinkhole Remediation & Misc. Dike 2 Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-317-Sht -Rev 0 Yard Pond E Site Details Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-318-Sht -Rev 0 Yard Pond E Dike Plan North Half (3-Dimensional).cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-319-Sht -Rev 0 Yard Pond E Dike Plan South Half (3-Dimensional).cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-320-Sht -Rev 0 Yard Pond E Sinkhole Areas Investigation Remediation Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-410-Sht -Rev 0 Yard Pond E Dike 1C Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-411-Sht -Rev 0 Yard Pond E Dike 1C Profile.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-415-Sht -Rev 0 Yard Pond E Rock Chute Inlet Plan, Sections & Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-416-Sht -Rev 0 Yard Pond E Rock Chute & Misc Structural Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-502-Sht -Rev 0 Yard Flume & Detention Pond Dike Site Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-503-Sht -Rev 0 Yard Detention Pond Dike Area Plan.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-504-Sht -Rev 0 Yard Detention Pond Dike Profile, Sections & Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-506-Sht -Rev 0 Yard Pond E As-Constructed Survey August 2007 Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-507-Sht -Rev 0 Yard Pond E As-Constructed Survey August 2007 Sheet 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-508-Sht -Rev 0 Yard Pond E As-Constructed Survey August 2007 Sheet 3.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-509-Sht -Rev 0 Yard Pond E As-Constructed Survey August 2007 Sheet 4.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-510-Sht -Rev 0 Yard Pond E As-Constructed Survey August 2007 Sheet 5.cal	CAL
1/30/2009	RLR/PJC	GAF-10W271-Sht -Rev 7 Main Plant Plan Ash Disposal Area No. 3.cal	CAL
2/23/2009	PJC	GAF-10W271-Sht -Rev 7.cal	CAL
1/30/2009	RLR/PJC	GAF-10W316-Sht -Rev 0 Yard Units 1 - 4 Concrete Chemical Treatment Pond Sump Outline & Reinforcement (NLDF).cal	CAL
1/30/2009	RLR/PJC	GAF-10W380-1-Sht -Rev 5 Yard Units 1 - 4 Concrete Ash Disposal Trenches Fdn Plan & Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W380-2-Sht -Rev 3 Yard Units 1 - 4 Concrete Ash Disposal Trenches Part Plans & Dets - Sheet 1.cal	CAL
1/30/2009	RLR/PJC	GAF-10W380-3-Sht -Rev 5 Yard Units 1 - 4 Concrete Ash Disposal Trenches Part Plans & Dets - Sheet 2.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
1/30/2009	RLR/PJC	GAF-10W380-4-Sht -Rev 2 Yard Units 1 - 4 Concrete Ash Disposal Piping Crossover Plans & Details.cal	CAL
1/30/2009	RLR/PJC	GAF-10W381-1-Sht -Rev 5 Yard - Units 1 To 4 Dry Fly Ash Collection Facility Site Plan Finished Grading & Paving.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-1-Sht -Rev 4 Yard - Units 1 Thru 4 Dry Fly Ash Collection Facilities Concrete Dry Fly Ash Silo Foundation.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-2-Sht -Rev 6 Yard Units 1 - 4 Dry Dust Pa Collection Facility Concrete Fly Ash Silo Floor, Plinths And Pipe Trench.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-3-Sht -Rev 3 Yard Units 1 - 4 Dry Fly-Ash Collection Facility Concrete Truck Scale Pit & Sump Pit.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-4-Sht -Rev 6 Yard Units 1 - 4 Dry Fly-Ash Collection Facility Concrete Foundations For Compressor Bldg Scale Hours, Silo Filter.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-5-Sht -Rev 5 Powerhouse Units 1 - 4 Dry Fly Ash Collection Facility Concrete Foundations For Surge Bin Structure No. 1 & No. 2.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-6-Sht -Rev 3 Yard - Units 1 - 4 Dry Fly-Ash Collection Facility Concrete Truss Bridge Foundation And Abutments.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-7-Sht -Rev 3 Yard Units 1 - 4 Dry Fly Ash Collection Facility Concrete Foundations For Compressor Bldg.cal	CAL
1/30/2009	RLR/PJC	GAF-10W385-8-Sht -Rev 4 Yard Units 1 - 4 Dry Fly Ash Collection Facility Concrete Foundations For Compressor Bldg.cal	CAL
2/23/2009	PJC	GAF-10W502-1-Sht -Rev 0.cal	CAL
2/23/2009	PJC	GAF-10W502-2-Sht -Rev 0.cal	CAL
3/3/2009	PJC	Gallatinfossilplantadvanceauthorizationformjuly182005.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantaerialphotosofplantdisposal.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantaerialphotosofplantdisposal.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantashdisposalarea3Notesandmemocdungatetowatersysdevbranchfilesjune131977MagnitudeofAshDisposalPondLeakage Problem.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantashdisposalarea3Notesandmemocdungatetowatersysdevbranchfilesjune131977MagnitudeOfAshDisposalPondLeakage Problem.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantattachment4Ashdisposalprojectsupplementalgeotechnicaltestingdatanove2004Toseptember2005.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantAttachment4AshDisposalProjectSupplementalGeotechnicalTestingDataNove2004ToSeptember2005.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantclosurepostclosureplanabandonedashpondareaseptember1995.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantclosurepostclosureplanabandonedashpondareaseptember1995.pdf	PDF
3/30/2009	PJC	GallatinfossilplantGAF228Longtermashdisposalkellyevansreport.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantheavyequipmentdivisionestimateforashpondemay162006.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmactecletternov162004Laboratorytestresultsforlimestabilizedbottomashdisposalarea.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantMACTECLetterNov162004LaboratoryTestResultsForLimeStabilizedbottomAshDisposalArea.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmacteclettertoronpurkeymay312005Resultsofgeotechtestbottomashtestfillsoffsiteborrowareaandonsiteborrowareal.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantMACTECLetterToRonPurkeyMay312005ResultsOfGeotechTestBottomAshTestFillsOffsiteborrowAreaAndOnsite BorrowAreaL.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmactecreportofgeotechnicalexplorationashdisposalareaandpotentialonsiteandoffsiteborrowareasatt3.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantMACTECReportOfgeotechnicalExplorationAshDisposalAreaAndPotentialOnsiteAndOffsiteBorrowAreasAtt3.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmactecreportofgeotechnicalexplorationcoalyardareajune162005.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantMACTECReportOfGeotechnicalExplorationCoalyardAreaJune162005.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmactecreportofgeotechnicalinvestigationboyscoutborrowareajuly202005.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantMACTECReportOfGeotechnicalInvestigationBoyScoutBorrowAreaJuly202005.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/3/2009	PJC	Gallatinfossilplantmemorandumfromwncalverttowcboopjune261967Ashdikes.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantmemorandumfromwncalverttowcboopjune261967Ashdikes.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmemorandumjrparrishtoefthomasannualashponddikeinspectionaugust201970.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantmemorandumjrparrishtoefthomasannualashponddikeinspectionaugust201970.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmemorandumwallycarpentertokenburnettfebruary31991.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantmemorandumwallycarpentertokenburnettfebruary31991.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmemorandumwncalverttofplacyannualashdikeinspectionoctober91969.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantmemorandumwncalverttofplacyannualashdikeinspectionoctober91969.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantmemorandumwncalverttowcboopashdikesoctober241968.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantmemorandumwncalverttowcboopashdikesoctober241968.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantphotogeology1951Sinkholes.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantPhotogeology1951Sinkholes.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantpondowner'SmanualGAFlongtermashdisposalapril212006Rev0.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantsketchskta00027301R0Pondepeninsulaareasiteplan.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantsketchskta00027301R0Pondepeninsulaareasiteplan.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantskta00027200Topographicalmapsinkholes.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantskta00027200Topographicalmapsinkholes.pdf	PDF
3/30/2009	PJC	GallatinFossilPlantSTANTECPArtialRDPWorkbook.pdf	PDF
3/3/2009	PJC	Gallatinfossilplantteleconferencekarstinvestigationronpurkeysofficefridayjune242005Meetingminutes.pdf	PDF
3/30/2009	PJC	Gallatinfossilplantteleconferencekarstinvestigationronpurkeysofficefridayjune242005Meetingminutes.pdf	PDF
2/11/2009	PJC	Holes 1 And 3.pdf	PDF
2/11/2009	PJC	Img_1473.Jpg	JPG
2/11/2009	PJC	Img_1474.Jpg	JPG
2/11/2009	PJC	Img_1475.Jpg	JPG
2/11/2009	PJC	Img_1476.Jpg	JPG
2/11/2009	PJC	Img_1477.Jpg	JPG
2/11/2009	PJC	Img_1478.Jpg	JPG
2/11/2009	PJC	Img_1479.Jpg	JPG
2/11/2009	PJC	Img_1480.Jpg	JPG
2/11/2009	PJC	Img_1481.Jpg	JPG
2/11/2009	PJC	Img_1482.Jpg	JPG
2/11/2009	PJC	Img_1483.Jpg	JPG
2/11/2009	PJC	Img_1484.Jpg	JPG
2/11/2009	PJC	Img_1485.Jpg	JPG
2/11/2009	PJC	Img_1487.Jpg	JPG
2/11/2009	PJC	Img_1488.Jpg	JPG
2/11/2009	PJC	Img_1489.Jpg	JPG
2/11/2009	PJC	Img_1490.Jpg	JPG

Date Reviewed	Reviewed by	File Name	File Type
2/11/2009	PJC	Img_1491.Jpg	JPG
2/11/2009	PJC	Img_1492.Jpg	JPG
2/11/2009	PJC	Img_1493.Jpg	JPG
2/11/2009	PJC	Img_1494.Jpg	JPG
2/11/2009	PJC	Img_1495.Jpg	JPG
2/11/2009	PJC	Img_1496.Jpg	JPG
2/11/2009	PJC	Img_1497.Jpg	JPG
2/11/2009	PJC	Img_1498.Jpg	JPG
2/11/2009	PJC	Img_1499.Jpg	JPG
2/11/2009	PJC	Img_1500.Jpg	JPG
2/11/2009	PJC	Img_1501.Jpg	JPG
2/11/2009	PJC	Img_1502.Jpg	JPG
2/11/2009	PJC	Img_1503.Jpg	JPG
2/11/2009	PJC	Img_1504.Jpg	JPG
2/11/2009	PJC	Img_1505.Jpg	JPG
2/11/2009	PJC	Img_1506.Jpg	JPG
2/11/2009	PJC	Img_1507.Jpg	JPG
2/11/2009	PJC	Img_1508.Jpg	JPG
2/11/2009	PJC	Qrwsi Chk2 08.doc	DOC
2/11/2009	PJC	Qrwsi Chk3 08.doc	DOC
2/11/2009	PJC	Qrwsi Chk4 08.doc	DOC
2/11/2009	PJC	Wiedwards Memo On Stability Inspection Of Waste Disposal Areas Dated March 28 2002.pdf	PDF

Appendix F

John Sevier Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
John Sevier Fossil Plant (JSF)

Location:	John Sevier Fossil Plant (JSF) 611 Old Highway 70 S Rogersville, Hawkins County, TN 37857 Latitude: 36.376 N Longitude: 82.969 W
Plant Contact:	Jamey Dotson Program Manager Phone: 423-290-7269 Email: vjdotson@tva.gov
Facts and Figures:	The John Sevier Fossil Plant has four coal-fired generating units and generates five billion kilowatt-hours of electricity a year. Construction began in 1952 and was completed in 1957. The plant consumes approximately 5,700 tons of coal per day. It is located along the Holston River in Rogersville, Tennessee.
Coal Combustion Byproduct Disposal:	Approximately 215,000 tons of dry fly ash is collected in silos each year and hauled to an onsite permitted dry stack disposal area (Dry Fly Ash Disposal Area). Approximately 100,000 dry tons of fly ash is marketed offsite to the concrete industry. Approximately 20,000 dry tons per year of bottom ash is wet-sluiced to Bottom Ash Disposal Area 2. At the Bottom Ash Disposal Area, bottom ash is collected and sent offsite by Appalachian Products.
Geology and Seismicity:	The John Sevier Fossil Plant is located in the eastern portion of Tennessee along the southern flank of the Holston River just east (upstream) of the confluence of the river and Dodson Creek. As such, much of the site is underlain by alluvium and terrace deposits varying in thickness from less than 5 feet along the tributary stream banks to more than 30 feet adjacent to the river. Typical of alluvium in this region of the state, these soils consist of sands, silts, and gravels with few interspersed cobbles. The underlying bedrock consists of the Ordovician age Sevier Shale Formation, a silty to sandy calcareous shale with thin limestone layers and lenses of siltstone and sandstone. Solution weathering and the development of karst features may occur in the more calcareous zones of the bedrock unit. Seismic events affecting eastern Tennessee, and thus the plant site, primarily emanate from three zones of earthquake activity – the New Madrid Seismic Zone (NMSZ), Southern Appalachia Seismic Zone (SASZ), and the South Carolina Seismic Zone (SCSZ). The most active zone of the SASZ, the East Tennessee Seismic Zone (ETSZ), extends from northwestern

Georgia through east Tennessee and is situated in close proximity to the plant. However, most earthquakes emanating from this zone are relatively low in magnitude, with the largest known event in the ETSZ registering a magnitude of 4.6, suggesting a moderate risk of damage from a seismic event. In contrast, if a large earthquake were to occur within the New Madrid zone to the west, damage to East Tennessee would be possible. The "Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5" developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 2.

Facilities Reviewed:

Dry Fly Ash Disposal Area
Sediment Pond West (Former Stilling Pond)
Bottom Ash Disposal Area 2
Ash Disposal Area J
Sediment Pond East

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
John Sevier Fossil Plant (JSF)
Dry Fly Ash Disposal Area (DFADA)

1. General Facility Information

Facility Status:	Active		
Surface Area:	90 acres (estimated)	Maximum Height (toe to top of stack):	120 feet (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Denver Bennett and Roger Sims
Field Assessment Dates:	January 16, 2009 and February 23, 2009
Weather/Site Conditions:	Sunny, low teens (January 16, 2009), low to mid 30 degrees F, partly sunny (February 23, 2009)

3. History/Description of Usage

History, Operation and Stacking Plan:

The Dry Fly Ash Disposal Area was originally a series of ash ponds when the plant went online in 1955. The ponds were lettered from A to G with A being the most eastern pond and G being the most western (west half of Area G is now the Sediment Pond West). At the beginning of the plant operations, only Areas A, B and C were active and water was discharged to the river through a spillway in Area C. In 1971, Areas A, B, and C were abandoned and ash was sluiced to Areas D, E and F (spillway in F discharged to river). In 1973, sluicing stopped to areas D, E, and F due to a dike failure in E (though spillway still active) and areas H and I were activated (spillway in I to drainage channel along main plant road). In 1974, areas A, B, C, D, E, and F were used as disposal areas for dredged bottom ash. In 1976, Area G was activated in the west end of the current Dry Fly Ash Disposal Area, and received all sluiced fly ash while Areas H and I received all sluiced bottom ash. In 1979, the Bottom Ash Disposal Area 2 was activated and all sluicing stopped to the Dry Fly Ash Disposal Area. At this same time, Areas A through I were designated for dry ash disposal and Area G was filled and abandoned. In 1982, the bathtub area was constructed in the eastern portion of the Dry Fly Ash Disposal Area. In 1984, the bathtub area began receiving

	dredged bottom ash from the Bottom Ash Disposal Area 2. In 1990, all bottom ash was sluiced to the bathtub area as Bottom Ash Disposal Area 2 was offline. In 1993, dry fly ash began being stacked in the bathtub area, in addition to stacking done in Areas A through I. An operations manual was developed in 1999 for the dry fly ash stacking facility by Tribble & Richardson (along with Law Engineering). In 2001-2002, the eastern two thirds of the north dike was regraded to provide better stability to the dike. A seepage collection system (with two pumps) was constructed in the vicinity of two old clay pipes in the northeast corner in 2000 and expanded as part of the regrading in 2001-2002. Currently approximately 215,000 tons of dry fly ash is collected in silos each year and hauled to an onsite permitted dry stack disposal area (Dry Fly Ash Disposal Area). Approximately 100,000 dry tons of fly ash is marketed offsite to the concrete industry.
Stacking over Dredge Cells or CCB Ponds:	Yes. Area use to be a series of ash ponds (see history).
Past Failures/Releases:	May 26, 1973 - portion of north dike in what use to be Pond E, failed into the Holston River when area was a series of ponds. Other significant slides and sloughs have occurred after the area was transformed to a dry ash disposal area, but none of these released material offsite. The most notable of these were reported in 1989, 1990, 1997 and 2007 inspection reports (see below).

4. Owner's Operations, Maintenance and Inspection Information

TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year in late summer, early fall. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.

Problems Previously Identified During Past TVA Inspections:	Reference to concerns related to steep slopes (1967 - 1971) Failure noted on north side dike between Ponds E and F (1973) Small seep at Area C at location of an abandoned discharge pipe (1974) Raised water levels may cause sloughing of interior slopes (1982) Leakage in the east discharge pipe (1984) Spring at toe of north dike (1988) 100 feet long x 20 feet deep slide at toe of north side slope. (200' tension cracks in same area)(1989) Repaired 1989 slide still had tension cracks at slide location. Several small failures occurred (1990 - 1991) Sloughing failures occurred along east dike (1993 - 1994) Some sloughing occurred at toe of west dike of Stilling Pond (1994) Seepage occurring at some of 4 abandoned/plugged clay discharge pipes at northeast corner of facility. (Primarily Pipes 3 and 4) (1995 - 1999) 100' Slough at northeast corner of dike (1997 - 1999) General concerns expressed about steep slopes after stability analysis showed a factor of safety less than 1.0 at several areas (2000) Small seeps in vicinity of Clay Pipe 3 persist. Other seeps noted. Concern about ruptured pipes in dike expressed in 2001 (2000 - 2002). 50 feet x 25 feet slough reported on lower slope of ash stack near river (2007)

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10H291-1 through 10H291-12, 10W206-1 through 10W206-11, 10N290, 10N295, 10N296, 10N297, 10N298, 10N299, 10N400 through 10N403, 10W204-1 through 10W204-9, 17W445-1 through 17W445-4, 10W204-C1 through 10W204-C11, 10W204-1 through 10W204-12

TVA As-Built Drawings:	None available;
TVA Construction Testing Records:	None available;
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	Preliminary Geotechnical Investigations for the John Sevier Steam Plant (TVA, 1952), Draft Engineering Report, Dry Ash Disposal Area (TVA, 1986), Report of Hydrogeologic and Engineering Evaluation (Revised) Proposed Dry Fly Ash Disposal Facility (Law Engineering, 1994), Geotechnical Evaluation of Ash Pond Dike Facility (Parsons Energy and Environmental Services, Inc., 1999) Fly Ash Pond Dike Slope Stability Evaluation (Parsons Energy and Environmental Services, Inc., 1999) Report of Geotechnical Exploration; Dike Exploration and Testing Program (Law Engineering, 1999).

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Exterior Slopes and Benches

Vegetation:	Open stack on top with ash sides surrounded by a clay berm, slopes below ash stack are vegetated with grass and light brush, some trees near river bank on north and east side.
Trees:	Dense trees noted on lower slopes near river bank on section 1. Isolated trees on river side of access road on north side.
Erosion:	Erosion gulley on east side in exposed ash on upslope of Sediment Pond East.
Instabilities:	Western third of north slope has not been regraded the same way the rest of the slope was and therefore may be less stable. (see observations)

Uniform Appearance	Area of north slope regraded in 2001 (east portion) has uniform slope and is well vegetated. West half of north dike is irregular but well vegetated.
Benches:	Two main benches, mostly along north side and are marked with roads. First bench from stack is the perimeter road (15 feet wide) with main drainage ditch (50 feet wide). Second bench is below first bench and contains the access road (10 feet wide).
Slope:	From clay berm to perimeter road: 2.7H:1V to 3.3H:1V From perimeter road to access road: 3H:1V Access road to river: 2H:1V and steeper
Height:	120 feet from top of stack to river at measured section 2.
Other:	Clay berm separates the exposed ash from the vegetated exterior slopes. This berm has failed recently in five places and may have contributed to accumulation of ash in drainage channel below it. Four of these berm failures were located on the north side. Animal burrows are noticed in slope between perimeter road and access road.

6.2. Perimeter Drainage Ditches and Down-Drains

Vegetation:	Grass on drainage ditches, rip rap channels from stack to drainage ditches. Rip rap channels have some vegetation and brush in them.
Rip-Rap Channel Lining:	Rip rap present near outlet to Sediment Pond West. Rest of drainage channels do not have rip rap.
Erosion:	None observed.
Siltation in Ditches:	Fly ash has accumulated in the drainage ditch along the Perimeter Road. This is observed along the entire length of the ditch.
Standing Water in Ditches or on Benches:	Standing water is observed in drainage channel along perimeter road along length of north slope and portion so south slope.
Silted/Impeded Drainage Pipes:	None observed.

Other:

7. Notable Observations and Concerns

- The current Dry Fly Ash Disposal Area is located over past ash ponds and dredge cells and has had numerous historical instabilities along the north dike which borders the Holston River. Currently, several wet areas, including a red water seep, have been detected in the northeast corner of the disposal area in the area of past sloughs. Construction of embankments and stacking over hydraulically placed ash is a potential slope stability issue and is a concern.
- Wetness is observed along the access road in several places, most notably in the northeast corner in the area of the 2007 slough. Ponding water was noticed under the gravel in the road. Recent wet conditions at the site may be contributing to this.
- The red water seep noted above was observed approximately 240 feet west of the northeast riprap channel on the slope between the ash berm and the perimeter road. The red seep area measured 9 feet by 10 feet and a small flow was observed in 3-4 separate areas. This seep area is located almost directly above the wet area on the access road on the slope below.
- A wet area and possible seep was located between the two sump pumps on the north slope. Standing water was noted upslope from the west most pump and soggy soils extended approximately 300 feet east to the other pump. Loose, soggy soils were also noted near the eastern pump around the rusted standpipe. This area has had some seepage issues in the past due to presence of old clay pipes and should be monitored.
- The clay berm that surrounds the exposed ash at the top of the stack has failed in several places due to heavy rains in January 2009. The resulting failure deposited ash into the drainage channel below. Standing water and ash deposits were observed in the drainage channel along the perimeter road.
- Several animal burrows were noted in the northeast exterior slope near the ash silos.
- On the north side on the upslope from the Perimeter Road, a dip in the stack grade was noted. This low area had ash in the drainage channel below it and appeared to convey runoff from the exposed ash in the stack to the drainage channel below.
- The north slope was re-graded in 2001-2002 for the area below the perimeter road to Holston River. This re-graded area extends from the northeast corner of the stack westward to the connector road connecting the access road to the perimeter road, roughly two-thirds of the dike. The area that was not re-graded in 2001-2002 has a non-uniform but well vegetated surface. The irregular surface conditions include:

- An apparent slumped area along perimeter road measuring approximately 400 feet long.
- A raised area was observed starting at the east end of the slide noted above. The raised area was approximately 2 feet above the neighboring ground, 18 feet wide and extending the entire slope between the perimeter road and the access road.
- Numerous smaller depression and mounds on the slope between the perimeter road and the access road were observed.

- Two animal burrows were observed in the raised area noted above.
- Trees and brush noted in rip rap channels extending from top of stack to drainage ditch near perimeter road on northeast, northwest, and southwest corners of Dry Fly Ash Disposal Area.
- Standing water was noted on the northeast side on the lower bench prior to the access road. The water was noticed below the outfall of a 42 inch concrete pipe and patches of rip rap.
- A 24 inch concrete pipe was observed in the slope between the access road and the perimeter road, just east of the noted raised area in the slope. This appears to be the former spillway outlet pipe from Area F. Pipe was cracked and half filled with silt. Wetness was noted in the vicinity of this pipe. A concrete riser structure was noted upslope of this pipe on the next bench and they are believed to be connected. It is unknown how this pipe was abandoned or if it is still active.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that the Dry Fly Ash Disposal Area undergo further engineering study to evaluate the seepage on the north slope, to evaluate slope stability, and to evaluate the stacking plan over former ash ponds.
- Review of past documentation for the facility has shown multiple drawings for this area to document the recent changes including the 10W204 drawings that have been done within the past year (2008). However, closer examination of these drawings have shown that the topography used for the drawings appears to be pre 2001 as it does not show the access road located on the slope below the perimeter road. It is recommended that new mapping be prepared for this area to accurately depict current conditions.

- It is recommended that the existing Operations and Maintenance Plan be updated for the facility.
- During the 2001-2002 regrading, the piezometers on the north side of the Dry Fly Ash Disposal Area were abandoned. It is recommended that a monitoring plan be put in place including the installation of piezometers, slope inclinometers and surface monuments.
- A re-grading plan should be developed for the drainage ditch along the perimeter road to provide positive surface runoff to the Sediment Pond West.

8.2. Maintenance Recommendations

- Repair animal burrows where noted.
- Clean out ash deposited in drainage channels along the Dry Fly Ash Disposal Area and regrade channels to drain towards Sediment Pond West (former Stilling Pond).
- Clear trees and brush from the rip rap drainage channels in the northeast, northwest and southwest corners of the Dry Fly Ash Disposal Area.
- Regrade western third of north dike of Dry Fly Ash Disposal Area to match the eastern portion of the north dike regraded in 2001.
- Raise low area in northeast side of Dry Fly Ash Disposal Area upslope from Perimeter Road to eliminate runoff swale for dry fly ash runoff.
- Evaluate the status of the 24 inch concrete discharge pipe located east of the raised area in the north dike of the Dry Fly Ash Disposal Area and presumed to be the former spillway outlet from Area F. If this pipe is still active, clean siltation and brush for proper drainage. If this pipe is abandoned, properly plug or grout pipe.
- Provide temporary vegetation or widen clay berm in areas of ponding water to eliminate further release of ash into the drainage channel in the Dry Fly Ash Disposal Area. Monitor clay berm during and after heavy rainfalls for potential signs of failure.
- Continue to monitor noted seeps and wet areas for change of conditions.
- Continue mowing program on slopes but avoid leaving deep ruts from mowing on side slopes.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
John Sevier Fossil Plant (JSF)
Sediment Pond West (P-W)

1. General Facility Information

Facility Status:	Active	NID Identification:	Not known
Surface Area (inside dikes)	3 acres	Maximum Height (toe to top of dike):	44 feet (estimated north end crest to reservoir)
Free Water Volume:	Unknown	Maximum Water Storage:	Unknown
Estimated CCB Storage:	N/A	Dike Length:	1500 feet (estimated)
Plant Discharge to Facility:	N/A	Current Pool Elevation:	1090 (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Denver Bennett and Roger Sims
Field Assessment Dates:	January 16, 2009 and February 25, 2009
Weather/Site Conditions:	Sunny, low teens (January 16, 2009), low to mid 40 degrees F, partly cloudy (February 25, 2009)

3. History/Description of Usage

History and Operation:	Sediment Pond West currently takes runoff from the Dry Fly Ash Disposal Area from a 42 inch concrete pipe and 36 inch CMP in the northeast corner of the pond and discharges the effluent to Polly Branch through two 36" concrete riser spillways. In the past, this pond was named Area G and began operation in 1976 and received all sluiced fly ash from the plant. It was abandoned in 1979, but the spillways remained active. In 1984, construction began on turning the west portion of Area G into a stilling pond for the bathtub area of dry fly ash stack.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	A Byproducts Operations Manual is available for the John Sevier Fossil Plant, covering all active facilities.
TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year in late summer, early fall. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	West toe of exterior slope eroded and exposed a spring (1975) Wetness observed over 100 feet of north exterior slope (1978) Some soughing occurred at toe of west dike of Stilling Pond (1994) Sloughing at toe of west dike to pond (1994) Seepage along entire lower west bank (2002-2003) Slough noted on both sides of stairs at sedimentation pond (2008)

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing number 10N295(R3), 10N296(R2), 10N297 (R2)
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.

Geotechnical Data:	Preliminary Geotechnical Investigations for the John Sevier Steam Plant (TVA, 1952), Draft Engineering Report, Dry Ash Disposal Area (TVA, 1986), Report of Hydrogeologic and Engineering Evaluation (Revised) Proposed Dry Fly Ash Disposal Facility (Law Engineering, 1994), Geotechnical Evaluation of Ash Pond Dike Facility (Parsons Energy and Environmental Services, Inc., 1999) Fly Ash Pond Dike Slope Stability Evaluation (Parsons Energy and Environmental Services, Inc., 1999) Report of Geotechnical Exploration; Dike Exploration and Testing Program (Law Engineering, 1999).

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Grass and brush.	
Trees:	None observed	
Wave Wash Protection:	None observed, except around inlets on northeast corner of pond.	
Erosion:	None observed.	
Instabilities:	Some slumps and depressions were noted on along east side. A slight slump was observed on the west side near the riser structures.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	10 feet (all sections)
	Design:	4 feet (maximum pond elevation, 10N296 R2)
Encroachments:	None observed.	
Slope:	**Measured:**	2.5H:1V (Section 4) 1.5H1V (Section 6) 2H:1V (Section 7) 1.8H:1V (Section 8)
	Design:	2H:1V (10N296 R2)

6.2. Crest

Crest Cover and Slope:	Gravel road with grass shoulders. Relatively Level.
Erosion:	None observed.
Alignment:	Good.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	None observed .
Width:	**Measured:** 15 feet (Sections 6-8) 30 feet (Section 4) **Design:** 16 feet (10N296 R2)

6.3. Exterior Slopes

Vegetation:	Wooded with trees and brush on south and west side, grass with rip rap at river bank on north side, and grass on east side (shared with Dry Fly Ash Disposal Area).
Trees:	Trees were observed on west and south side.
Erosion:	None observed.
Instabilities:	None observed.
Uniform Appearance:	Good.
Seepage:	Red water seeps have been noted in the past on the west slope, but none were observed during the field assessment.
Benches:	1 bench located on north slope only, 18 feet below the crest. 11 feet wide.
Foundations, Drains, Relief Wells, Instrumentation:	None observed.
Animal Burrows:	None observed.

Slope:	**Measured:**	Ranges from 1.7H:1V (section 6) to 2.5H:1V (section 8)
	Design:	3H:1V (10N296 R2)
Height:	**Measured:**	44 feet (section 8, crest to reservoir)
	Design:	18 feet (on north end, crest to original ground, 10N296 R2)

6.4. Spillway Weirs/Riser Inlets

Number:	Two (2) total, in west end of pond.
Size, Type and Material:	36 inch diameter, concrete riser structures.
Height of Riser Inlets:	7 feet (10N296 R2).
Access:	No direct access, boat located on bank .
Joints:	Unable to observe.
Mis-Alignment:	Unable to observe.
Closed/Abandoned Conduits:	None noted.

6.5. Outlet Pipes

Number:	Two (2), discharging into Polly Branch west of the pond.
Size, Type and Material:	36 inch concrete.
Headwall:	None observed.
Joint Separations:	None observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- Outlet structure is two push together RCP structures.
- Past plans have shown three – 36 inch pipes flowing to the pond from the drainage channel along the main plant road on the south side. Only one of the three inlet pipes was located during the field assessment.
- Slight slump was noted on interior slope on west side of pond near outlet structures.
- Small slumps and depressions were observed on the east interior slope of the pond. These areas were well vegetated. The slumps may have been caused by tree and brush removal from the slopes.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Based on the limited as-built drawings available, it is recommended that a program be established to develop current conditions / as-built drawings to record future modifications to this facility. Construction records should also be included as part of this program to record and quantify construction means, methods and results.
- It is recommended that the existing Operations & Maintenance Plan be updated.
- It is recommended that an Emergency Action Plan be developed to identify concerns and actions necessary to effectively manage the concerns.

8.2. Maintenance Recommendations

- Repair erosion and sloughed areas where noted on interior slopes of ponds. Any slope steeper than 3H:1V should be lined with rip-rap to help reduce future erosion.
- Continue to monitor areas of past seeps and wet areas for change of conditions.
- Locate the two 36 inch concrete pipes that could not be field verified.
- Monitor concrete spillway risers and joints and repair as needed. This spillway may ultimately be modified or replaced, pending Stantec-TVA assessment.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
John Sevier Fossil Plant (JSF)
Bottom Ash Disposal Area 2 (BAD-2)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN07311
Surface Area (inside dikes)	41 acres (estimated)	Maximum Height (toe to top of dike):	37 feet (measured at section 25)
Free Water Volume:	N/A	Maximum Water Storage:	N/A
Estimated CCB Storage:	942,000 tons	Dike Length:	8600 feet (estimated)
Plant Discharge to Facility:	6.4 MGD	Current Pool Elevation:	1133 (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Denver Bennett and Roger Sims
Field Assessment Dates:	January 16, 2009 and February 24, 2009
Weather/Site Conditions:	Sunny, low teens (January 16, 2009), low to mid 30 degrees F, partly sunny (February 24, 2009).

3. History/Description of Usage

History and Operation: The Bottom Ash Disposal Area 2 came online in 1979 to receive all sluiced bottom ash and infrequent sluiced fly ash. A stilling pond exists in the west end of the area, accessed through a rock weir in an internal dike. Bottom ash was stacked in the southeastern portion of the area, starting in 1981. In 1987, sluicing stopped at Area 2 and the ash was dry hauled offsite for disposal. Ash was again sluiced to this area starting sometime between 1990 and 1993. In 1999, a bottom ash collection facility was constructed in the eastern part of the site and run by Appalachian Products, for offsite marketing of bottom ash. Currently, the Bottom Ash Disposal Area 2 receives sluiced bottom ash, intermittent fly ash (sluiced to separate trench for settlement), and discharges from the

	Coal Yard Runoff Pond and Chemical Treatment Pond - Iron. Approximately 20,000 dry tons per year of bottom ash is wet-sluiced to the bottom ash disposal area 2.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	A Byproducts Operations Manual is available for the John Sevier Fossil Plant, covering all active facilities.
TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year in late summer, early fall. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	Water/Spring noted from clay pipe(s) along north dike. (1981 - 1990) Wet/seep area on north dike near access road (1984 - 2004) Soft area observed along south dike (1984) Two low flow seeps near toe of north dike, west of access road. Red stained area on south toe (1996) Concerns expressed about possible ruptured ash inlet pipes crossing Polly Branch (2002 - 2003)

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10W293-1 through 10W293-3, 10W294-1, 10N297 (spillway section)
TVA As-Built Drawings:	None available.
TVA Construction	None available.

Testing Records:	
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	Preliminary Geotechnical Investigations for the John Sevier Steam Plant (TVA, 1952), Report of Geotechnical Exploration; Dike Exploration and Testing Program (Law Engineering, 1999).

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Bare ash with sparse brush in east portion of pond, east of internal divider dike. Rest of pond has adequate to dense grass and brush.
Trees:	None observed.
Wave Wash Protection:	Rip rap placed in northwest corner in Stilling Pond (average diameter 12 to 18 inch). Area had past slope instability (2007).
Erosion:	Internal ash dike separating inactive dredge area and ash pond has numerous erosion gullies and one noticeable slide on west bank along ash pond.
Instabilities:	North side, west half of pond has noticeable irregular slopes with minor slumps, slides and depressions throughout. This area is well vegetated and none of these look recent.
Animal Burrows:	None observed.
Freeboard:	**Measured:** 7 feet (Section 24) 12 to 14 feet (Sections 25 through 28) **Design:** 18 feet (10W293-2)
Encroachments:	Southeast portion of pond has become an inactive bottom ash dredge cell. Internal dike was constructed out of ash to separate this area from the pond.

Slope:	**Measured:**	2H:1V (all sections)
	Design:	2H:1V or flatter (10W293-2)

6.2. Crest

Crest Cover and Slope:	Gravel road with grass shoulders. Relatively level.
Erosion:	None was observed.
Alignment:	Good.
Settlement/Cracking:	None was observed.
Bare Spots/Rutting:	None was observed.
Width:	**Measured:** 15-20 feet (all sections) **Design:** 16 feet (10W293-2)

6.3. Exterior Slopes

Vegetation:	Grass on south side. Grass, heavy brush and trees on north side.
Trees:	Moderate to dense on north side. Wooded area located downslope from south bench.
Erosion:	None was observed.
Instabilities:	Minor slumping and irregularities on west slope of Stilling Pond. Southwest corner of Stilling Pond near access road contained an area 33 feet x 51 feet of multiple depressions and mounds.
Uniform Appearance:	South exterior slope looks good. North exterior slope is steep and overly vegetated. Trees present on slope.
Seepage:	Wet areas were noted along south slope. No standing water but wetness located in tire ruts (low area). Ponding areas observed in the lower, wooded area south of the southern dike. Unsure if this is local runoff or downstream seepage or boil.
Benches:	1 located on south side at toe of slope prior to reaching wooded area. Width varies from 38 feet to 55 feet.

Foundations, Drains, Relief Wells, Instrumentation:	None observed.	
Animal Burrows:	Multiple animal burrows located on south side. Two located in wooded area on north exterior slope.	
Slope:	**Measured:**	1.7H:1V (Sections 24-26) 2H:1V (Section 27 and 30) 3H:1V (Section 28 and 29)
	Design:	2H:1V (10W293-2)
Height:	**Measured:**	20 feet (measured Section 24) 37 feet (measured Section 25) 30 feet (measured Section 26) 13 feet, to bench (measured Section 27) 9 feet, to bench (measured Section 28) 2.5 feet, to bench (measured Section 29) 18 feet, to bench (measured Section 30)
	Design:	22 feet (10W293-2, crest to original ground at spillway section)

6.4. Spillway Weirs/Riser Inlets

Number:	Two (2) - located in northwest corner of Stilling Pond.
Size, Type and Material:	48 inch Concrete riser pipe with skimmer.
Height of Riser Inlets:	7 feet (10W293-2).
Access:	No access.
Joints:	Unable to adequately observe.
Mis-Alignment:	Unable to adequately observe.
Closed/Abandoned Conduits:	None observed.

6.5. Outlet Pipes

Number:	Two (2) - discharging into Polly Branch to the northwest of the Stilling Pond.
Size, Type and Material:	36 inch concrete pipes.
Headwall:	None.
Joint Separations:	None observed.

Mis-Alignment: None observed.

Closed/Abandoned Conduits: None observed.

7. Notable Observations and Concerns

- Steep exterior slopes were noted on the north side of the disposal area. These slopes are steeper than 2H:1V.
- Trees and heavy growth were observed on the north side exterior slopes.
- Slope irregularities were noticed on the interior slopes of the Bottom Ash Pond and Stilling Pond. Area is vegetated and the irregularities do not seem recent.
- Noticeable surging was observed in the culvert pipe between the ash channel and ash pond. This pipe was located in an internal dike.
- Wet areas were observed in the forested area south of the southern embankment. It is currently unknown if this was from local runoff or from the pond. This area should be monitored.
- Numerous animal burrows were observed in the south exterior slope.
- Tire ruts with wetness in the depressions are observed along south exterior bench.
- A slump and numerous erosion gullies were noticed on the east side of the internal ash dike dividing the inactive dredge area and the ash channel. Ash dike was comprised of bare ash.
- Outlet from stilling pond is through two concrete riser structures discharging into Polly Branch. RCP push-together riser structure spillways are a concern.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that Bottom Ash Disposal Area 2 undergo further engineering study to evaluate slope stability.
- Review of past inspection reports have shown one design drawing (10W293-1) constantly being referenced and marked up to show improvements and changes in pond operations over the years. This drawing is dated 1977 and is no longer accurate to current conditions at the disposal area. It is recommended that current mapping be prepared for this area to accurately depict current conditions.

- It is recommended that the existing Operations and Maintenance Plan be updated for the facility.
- The Bottom Ash Disposal Area 2 has changed since it went online in 1979. An updated hydrologic and hydraulic evaluation should be done to be determine the current maximum capacity for this facility.

8.2. Maintenance Recommendations

- Repair animal burrows where noted.
- Repair erosion and sloughed areas where noted on interior slopes of ponds. Line interior pond slopes with rip-rap to help reduce future erosion.
- Monitor north exterior slope of Bottom Ash Disposal Area 2 for fallen trees. Remove fallen trees and repair areas by compacting earthfill and seeding over disturbed earth.
- Repair erosion areas of internal ash dike in Bottom Ash Disposal Area 2 and provide vegetative cover and/or rip rap protection along the east side of the dike along the ash channel.
- Continue mowing program on slopes but avoid leaving deep ruts from mowing on side slopes. Mow and remove brush from interior slopes of the Bottom Ash Pond and Stilling Pond.
- Continue to monitor noted seeps and wet areas for change of conditions.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
John Sevier Fossil Plant (JSF)
Ash Disposal Area J (ADAJ)

1. General Facility Information

Facility Status:	Inactive		
Surface Area:	22 acres	Maximum Height (toe to top of stack):	50 feet (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Denver Bennett and Roger Sims
Field Assessment Dates:	January 16, 2009 and February 24, 2009
Weather/Site Conditions:	Sunny, low teens (January 16, 2009), low to mid 30 degrees F, partly sunny (February 24, 2009).

3. History/Description of Usage

History, Operation and Stacking Plan:	Ash Disposal Area J went online in late 1982, early 1983 and was used as a fly ash settlement pond. Ash was sluiced to the east end of the area. The west side of the disposal area acted as a stilling pond and contained two concrete riser structures which discharged into the Holston River. Sluicing was stopped in 1988 and the pond was dewatered and used as a dry stacking area. Ash Disposal Area J was inactive starting in early 1990's and officially closed in 1999.
Stacking over Dredge Cells or CCB Ponds:	Ash Disposal Area J is a former ash pond and dredge cell. It has been closed and filled to its banks and capped. No active stacking is occurring.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year in late summer, early fall. Other maintenance work is done on an as-needed basis.

TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	Slopes requiring stabilization on north and south dikes (includes 600' of river bank) (1984). Wash out of the interior slope at the eastern end of the pond (1984). Leakage problems around joints of pond discharge pipes (1984,1986). Stability problem at west end of facility (1985).

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10W286-1 through 10W286-7, 10H287-4, 10N297 (spillway configuration).
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	Ash Disposal Area Soils Exploration and Testing EN DES Soils Schedule 6.2 (TVA, 1981), Ash Pond J Soils Investigation on Ash Material EN DES Soils Schedule 6.2 (TVA, 1983) Report of Geotechnical Exploration; Dike Exploration and Testing Program (Law Engineering, 1999).

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Exterior Slopes and Benches

Vegetation:	Grass and some brush. Trees and rip rap on north side near river.
Trees:	Some noted near river bank on north side of varying sizes.
Erosion:	None observed.
Instabilities:	None observed.
Uniform Appearance	Good.
Benches:	Two (2) benches observed. First bench is access road around stack, two feet below top of stack, 15 feet wide on all sides. Second bench is on north and west side located 21 feet below access road on north side and 29 feet below access road on west side. Width is 10 feet on north side and 18 feet on west side.
Slope:	2.5H:1V (Section 19 and 22 and 23) 4H:1V crest to bench, 2H:1V bench to river(Section 21) 2.5H:1V crest to bench 1H:1V bench to river (Section 20)
Height:	18 feet above parking lot (Section 19 50 feet above river (Section 20) 41 feet above river (Section 21) 28 feet above road (Section 22 15 feet above road (Section 23)
Other:	

6.2. Perimeter Drainage Ditches and Down-Drains

Vegetation:	Grass.
Rip-Rap Channel Lining:	Rip rap located below outlet of selected drainage pipes (one on south side, two on north side).
Erosion:	None observed.

Siltation in Ditches:	None observed.
Standing Water in Ditches or on Benches:	Standing water was observed in southwest corner drainage ditch on stack.
Silted/Impeded Drainage Pipes:	Numerous drainage pipes from drainage channel around disposal area were partially filled with silt and overgrown with vegetation on downstream end. Several pipes were also deteriorated and dented at the outlet.
Other:	Drainage channel below the outlets of two drainage pipes on the southeast side had a white, musty appearance in the water. Unclear of the source.

7. Notable Observations and Concerns

- The drainage ditches next to the road at the southwest corner should be regraded to promote positive drainage and eliminate standing water.
- Standing water in drainage ditch next to road in southwest corner. Water extended for a length of 110 feet and was 6 wide at its widest point.
- Drainage pipes are spaced around the disposal area to take runoff from the drainage ditch and discharge it away from the area into the river and drainage channels. Seven of these pipes were observed and majority of pipes had siltation and deterioration of the pipes on upstream and downstream end.
- Original spillway structure is located in northwest corner and is still active in disposal area. Outlet structure consists of two concrete riser structures, 48 inch inlet with 36 inch outlet. Outlet discharges to the north into the Holston River, but pipes do not reach river and discharge along the bank. Heavy vegetation is observed downstream of the outlet pipes along with some wet areas. Outlet pipes had a small amount of water flowing during February 24, 2009 inspection.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- An Operation and Maintenance Plan should be developed for this area.

8.2. Maintenance Recommendations

- Clean siltation and repair deteriorated pipes at Ash Disposal Area J.
- Continue mowing program on slopes but avoid leaving deep ruts from mowing on side slopes. Keep drainage channels clear of excess vegetation.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
John Sevier Fossil Plant (JSF)
Sediment Pond East (SPE)

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes)	1.2 acres	Maximum Height (toe to top of dike):	N/A
Free Water Volume:	Unknown	Maximum Water Storage:	Unknown
Estimated CCB Storage:	Unknown	Dike Length:	360 feet (shared with CTP - Iron) 125 feet (shared with CTP - Copper)
Plant Discharge to Facility:	N/A	Current Pool Elevation:	1102 (estimated)

2. Site Visit Information

Stantec Assessment Team:	Roger Denick, PE and John Beam, PG
TVA Staff Present:	Denver Bennett and Roger Sims
Field Assessment Dates:	January 16, 2009 and February 25, 2009
Weather/Site Conditions:	Sunny, low teens (January 16, 2009), low to mid 40 degrees F, partly cloudy (February 25, 2009).

3. History/Description of Usage

History and Operation:	Sediment Pond East went online in 1997 to receive storm water runoff from the Dry Fly Ash Disposal Area. The pond is a depressed structure with no main embankments. It shares a dike with Chemical Treatment Pond - Iron and Copper to the east. It discharges to a drainage ditch along the main plant road through a concrete riser pipe with skimmer. The riser pipe has 3 inch diameter orifice holes located four feet from the top of the riser for normal outflow operations. The outflow discharges into the drainage ditch and flows to the Sediment Pond West.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	A Byproducts Operations Manual is available for the John Sevier Fossil Plant, covering all active facilities.
TVA Maintenance:	Mowing and removal of excess vegetation on the ponds and dry stacks are done once per year in late summer, early fall. Other maintenance work is done on an as-needed basis.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports. Plant personnel also perform quarterly red water seep inspections.
Problems Previously Identified During Past TVA Inspections:	None reported.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10H291-1 through 10H291-11.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports from 1967 to 2008.
Geotechnical Data:	Preliminary Geotechnical Investigations for the John Sevier Steam Plant (TVA, 1952), Draft Engineering Report, Dry Ash Disposal Area (TVA, 1986), Report of Hydrogeologic and Engineering Evaluation (Revised) Proposed Dry Fly Ash Disposal Facility (Law Engineering, 1994), Geotechnical Evaluation of Ash Pond Dike Facility (Parsons Energy and Environmental Services, Inc., 1999) Fly Ash Pond Dike Slope Stability Evaluation (Parsons

Energy and Environmental Services, Inc., 1999) Report of Geotechnical Exploration; Dike Exploration and Testing Program (Law Engineering, 1999).

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	North and west slopes consisted primarily of clay soil with sparse brush vegetation. South and east slopes were grass covered with some brush.	
Trees:	None observed.	
Wave Wash Protection:	None observed.	
Erosion:	Erosion gullies were observed in the north slope (see observations).	
Instabilities:	None observed.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	8 feet (all sections)
	Design:	3 feet (minimum, top of riser structure) (10H291-10) 7 feet (typical, centerline of orifice holes)
Encroachments:	None observed.	
Slope:	**Measured:**	2.2H:1V (east side) 3H:1V (west, north, south sides)
	Design:	Not shown

6.2. Crest

Crest Cover and Slope:	Grass. Relatively Level.
Erosion:	None observed.
Alignment:	Good.
Settlement/Cracking:	None observed.

Bare Spots/Rutting:	None observed.	
Width:	**Measured:**	20 feet (sections 12 and 15, shared dike with Chemical Treatment Ponds Iron and Copper)
	Design:	Not shown

6.3. Exterior Slopes

Vegetation:	Grass (shared dikes).	
Trees:	None observed.	
Erosion:	None observed.	
Instabilities:	None observed.	
Uniform Appearance:	Good.	
Seepage:	None observed.	
Benches:	None observed.	
Foundations, Drains, Relief Wells, Instrumentation:	None observed.	
Animal Burrows:	None observed.	
Slope:	**Measured:**	2.6H:1V (sections 12 and 15 interior slopes of Copper and Iron Chemical Treatment Pond)
	Design:	Not shown
Height:	**Measured:**	15 feet (sections 12 and 15 interior slopes of Copper and Iron Chemical Treatment Pond)
	Design:	Not shown

6.4. Spillway Weirs/Riser Inlets

Number:	One (1) discharging into a drainage channel along the main road to Sediment Pond West.
Size, Type and Material:	48 inch concrete riser structure (with skimmer) with 3 inch diameter orifice holes (10 total) located 4 feet below top of riser.

Height of Riser Inlets:	6 feet above grade (10H291-10).
Access:	Located off south bank, limited access with higher pond water elevation.
Joints:	Unable to observe.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

6.5. Outlet Pipes

Number:	One (1) - discharging into drainage channel along main plant road.
Size, Type and Material:	36 inch concrete pipe.
Headwall:	None observed.
Joint Separations:	None observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- Outlet structure is a concrete riser structure discharging into a drainage channel along the main plant road. RCP push-together riser structure spillways are a concern.
- North and east interior slopes are primarily clay with little vegetation. Several erosion gullies have formed on the north slope (four total). These gullies measured 2 feet wide x 1.5 feet deep along slope (typical).
- Sediment pond takes runoff from Dry Fly Ash Disposal Area via two open channels which inlet at the midpoint of the west slope. Due to the amount of exposed ash on the dry stack during the current liner project, these channels have noticeable ash deposits in them. Significant accumulation of ash is also observed within the pond itself.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Based on the limited as-built drawings available, it is recommended that a program be established to develop current conditions / as-built drawings to record future modifications to this facility. Construction records should also be included as part of this program to record and quantify construction means, methods and results.
- It is recommended that the existing Operations and Maintenance Manual be updated for this facility.

8.2. Maintenance Recommendations

- Repair erosion and sloughed areas where noted on interior slopes of ponds. Any slope steeper than 3H:1V should be lined with rip-rap to help reduce future erosion.
- Clear drainage channels of excess deposited ash and remove excess ash from sediment pond to improve capacity.
- Establish vegetative growth on the north and west interior banks to reduce erosion.
- Monitor concrete spillway risers and joints and repair as needed. This spillway may ultimately be modified or replaced, pending Stantec-TVA assessment.

Drawing Mark DS-1-1 Animal burrows (typical) on Dry Ash Disposal Area.

Drawing Mark DS-1-2 Dip in dry stack grade on northeast side of Dry Fly Ash Disposal Area.

Drawing Mark DS-1-3 Drainage channel along perimeter road with standing water and ash deposits.

Drawing Mark DS-1-4 Slump in exposed ash situated on east side at the top of ash stack.

Drawing Mark DS-1-5 Wet area on access road near northeast corner of Dry Fly Ash Disposal Area.

Drawing Mark DS-1-6 Red water seep on slope above perimeter road in northeast corner of Dry Fly Ash Disposal Area.

Drawing Mark DS-1-7 Wet area, possible seep, between leachate collection pumps.

Drawing Mark DS-1-8 Hillside between two ground water relief pumps in vicinity of wet areas on the lower lift of the embankment.

Drawing Mark DS-1-9 Localized wet areas on access road.

Drawing Mark DS-1-10 Vegetated apparent slope slump just downslope of perimeter road.

Drawing Mark DS-1-11 24 inch CMP located in north slope near raised area.

Drawing Mark DS-1-12 Raised area on slope west of apparent slope slump.

Drawing Mark DS-1-13 Clay berm opening on top of reclaimed slope on north side of dry stack area.

Drawing Mark DS-1-14 Ash in drainage channel near inlet to stilling basin at northwest corner of dry stack area.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
DS-1-1	Animal burrows (typical) on Dry Stack.	JSP1A003
DS-1-2	Dip in dry stack grade on northeast side of Dry Fly Ash Disposal Area.	JSP1B1714
DS-1-3	Drainage channel along perimeter road with standing water and ash deposits.	JSP1B1717
DS-1-4	Slump in exposed ash situated on east side at the top of ash stack.	JSP1A083
DS-1-5	Wet area on access road near northeast corner of Dry Fly Ash Disposal Area.	JSP1B1710
DS-1-6	Red water seep on slope above perimeter road in northeast corner of Dry Fly Ash Disposal Area.	JSP1B2058
DS-1-7	Wet area, possible seep, between leachate collection pumps.	JSP1B1729
DS-1-8	Hillside between two ground water relief pumps in vicinity of wet area on the lower lift of the embankment.	JSP1B1728
DS-1-9	Localized wet areas on access road.	JSP1B1738
DS-1-10	Vegetated apparent slope slump just downslope of perimeter road.	JSP1A088
DS-1-11	24 inch CMP located in north slope near raised area.	JSP1B1752
DS-1-12	Raised area on slope west of apparent slope slump.	JSP1B1748
DS-1-13	Clay berm opening on top of reclaimed slope on north side of dry stack area.	JSP1762
DS-1-14	Ash in drainage channel near inlet to stilling basin at northwest corner of dry stack area.	JSP1B1759

Drawing Mark P-W-1 South riser structure on west side of Sediment Pond West.

Drawing Mark P-W-2 North riser structure on west side of Sediment Pond West.

Drawing Mark P-W-3 Outlet pipes from the spillways of Sediment Pond West.

Drawing Mark P-W-4 Slump in interior bank of dike near spillways of sediment pond.

Drawing Mark P-W-5 Inlet pipes from drainage from dry stack area.

Drawing Mark P-W-6 Irregular terrain and possible slump at southeast corner.

Drawing Mark P-W-7	36 inch Concrete drainage pipe near road. (Only 1 of 3 pipes located during field assessment).

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
P-W-1	South riser structure on west side of Sediment Pond West.	JSP1B1789
P-W-2	North riser structure on west side of Sediment Pond West.	JSP1B1791
P-W-3	Outlet pipes from the spillways of Sediment Pond West.	JSP1A121
P-W-4	Slump in interior bank of dike near spillways of sediment pond.	JSP1B1794
P-W-5	Inlet pipes from drainage from dry stack area.	JSP1B1793
P-W-6	Irregular terrain and possible slump at southeast corner.	JSP1B1788
P-W-7	36 inch Concrete drainage pipe near road. (Only 1 of 3 pipes located during field assessment).	JSP1B2077

Drawing Mark BAD-2-1

Irregular slopes along interior slope of north dike of ash pond.

Drawing Mark BAD-2-2

Irregular steep exterior slopes of dike on north side of ash pond with trees and brush.

Drawing Mark BAD-2-3 Outlet pipes from riser structures of Bottom Ash Disposal Area 2.

Drawing Mark BAD-2-4 Outlet riser structure in Stilling Pond.

Drawing Mark BAD-2-5

Animal burrows observed in south exterior slope.

Drawing Mark BAD-2-6

Erosion on interior dike at dredge storage area and pond.

Drawing Mark BAD-2-7

Slump and erosion on interior dike of ash pond and dredged storage area.

Drawing Mark BAD-2-8

Riser structure between Bottom Ash Channel and Bottom Ash Pond.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
BAD-2-1	Irregular slopes along interior slope of north dike of ash pond.	JSP1B1834
BAD-2-2	Irregular steep exterior slopes of dike on north side of ash pond with trees and brush.	JSP1B1836
BAD-2-3	Outlet pipes from riser structures of Bottom Ash Disposal Area 2.	JSP1B1847
BAD-2-4	Outlet riser structure in Stilling Pond.	JSP1B1845
BAD-2-5	Animal burrows observed in south exterior slope.	JSP1B1850
BAD-2-6	Severe erosion on interior dike at dredge storage area and pond.	JSP1B1859
BAD-2-7	Slump and erosion on interior dike of ash pond and dredged storage area.	JSP1B1861
BAD-2-8	Riser structure between Bottom Ash Channel and Bottom Ash Pond.	JSP1B1827

Drawing Mark AD-J-1

Risers within drainage basin at northwest corner of Ash Disposal Area J.

Drawing Mark AD-J-2

Outlet pipes on northwest corner of Ash Disposal Area J with vegetation and irregular topography at its outlet. Note drainage from pipes.

Drawing Mark AD-J-3 Damaged outlet pipe covered by vegetation (typical problem).

Drawing Mark AD-J-4 Silted inlet pipe within drainage channel (typical problem).

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
AD-J-1	Risers within drainage basin at northwest corner of Ash Disposal Area J.	JSP1B1879
AD-J-2	Outlet pipes on northwest corner of Ash Disposal Area J with vegetation and irregular topography at its outlet. Note drainage from pipes.	JSP1B1882
AD-J-3	Damaged outlet pipe covered by vegetation (typical problem).	JSP1B1892
AD-J-4	Silted inlet pipe within drainage channel (typical problem).	JSP1B1897

Drawing Mark P-E-1 Western end of sediment pond with inlet end of diversion channel shown.

Drawing Mark P-E-2 Inlet drainage channel to sediment pond showing check dams and ash buildup.

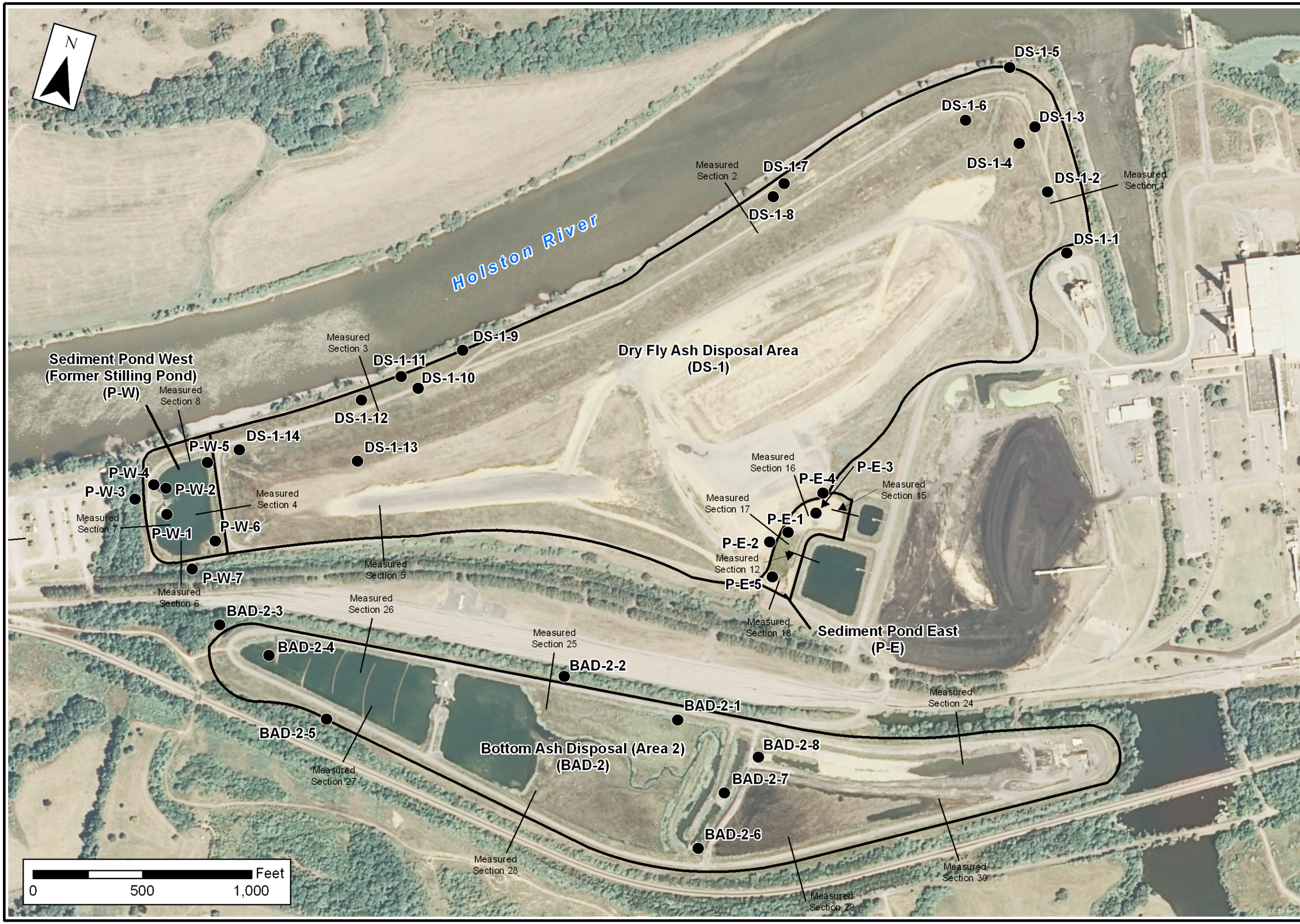
Drawing Mark P-E-3 Northern end of sediment pond.

Drawing Mark P-E-4 Areas of erosion on north bank of sediment pond.

Drawing Mark P-E-5

Outlet riser on southern portion of sediment pond.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
P-E-1	Western end of sediment pond with inlet end of diversion channel shown.	JSP1B1778
P-E-2	Inlet drainage channel to sediment pond showing check dams and ash buildup.	JSP1B2029
P-E-3	Northern end of Sediment Pond.	JSP1B1779
P-E-4	Areas of erosion on north bank of sediment pond.	JSP1B2026
P-E-5	Outlet riser on southern portion of sediment pond.	JSP1A311



STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 1 - JSF

Tennessee Valley Authority
John Sevier Fossil Plant
Rogersville, Hawkins County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMS
CHECKED BY	DAG
CHECKED BY	
SCALE	AS SHOWN
REVISED	

SHEET

1 OF 2

STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 2 - JSF

Tennessee Valley Authority
John Sevier Fossil Plant
Rogersville, Hawkins County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMS
CHECKED BY	DAG
CHECKED BY	
SCALE	AS SHOWN
REVISED	
1	
2	
3	
4	
5	
6	
7	
8	

SHEET

2 OF 2

X:\1714\active\171468118\gis\mxd\Phase1\tn\JOHN_SEVIER\John_sevier_planeview_2.mxd

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
John Sevier Fossil Plant (JSF)

Date Reviewed	Reviewed by	File Name	File Type
2/26/2009	RAD	1950S Displacement Of Weaver Brick Plant And Others Due To John Sevier Project.pdf	PDF
2/26/2009	RAD	1950S Drawings.pdf	PDF
2/26/2009	RAD	1952 Preliminary Geologic Investigation Figure Location And Summary Of Core Drilling.JPG	JPG
2/26/2009	RAD	1952 Preliminary Geologic Investigations Report.pdf	PDF
2/26/2009	RAD	1974 Report Effluent Guidelines For Point Sources.pdf	PDF
2/26/2009	RAD	1978 Approval From Tdph Of Disposal Of Flyash At JSF.pdf	PDF
2/26/2009	RAD	1978 Design Of Monitoring Program For Ash Pond Effluents.pdf	PDF
2/26/2009	RAD	1978 Outfall For New Ash Pond.pdf	PDF
2/26/2009	RAD	1979 December Memo Nldf Compliance.pdf	PDF
2/26/2009	RAD	1979 Draft Memo On Nldf Compliance.pdf	PDF
2/26/2009	RAD	1979 Memo Estimate For Sewage Treatment Facility.pdf	PDF
2/26/2009	RAD	1979 Memo Nldf Compliance.pdf	PDF
2/26/2009	RAD	1979 Nldf Compliance Memo.pdf	PDF
2/26/2009	RAD	1979 Nldf Compliance Program.pdf	PDF
2/26/2009	RAD	1979 Plant Employment Estimates For Sewage Treatment Facilities Evaluations.pdf	PDF
2/26/2009	RAD	1979 Project Authorization Chlorine Minimization.pdf	PDF
2/26/2009	RAD	1980 Car Wash Drains.pdf	PDF
2/26/2009	RAD	1980 Continued Use Of Old Ash Ponds Memo.pdf	PDF
2/26/2009	RAD	1980 Continued Use Of Old Ash Ponds.pdf	PDF
2/26/2009	RAD	1980 Information On Cooling And Lubricating.pdf	PDF
2/26/2009	RAD	1980 Metal Cleaning Waste Treatment Memo.pdf	PDF
2/26/2009	RAD	1980 Nldf Compliance Memo.pdf	PDF
2/26/2009	RAD	1980 Nldf Compliance Site Visit.pdf	PDF
2/26/2009	RAD	1980 Nldf Compliance.pdf	PDF
2/26/2009	RAD	1980 Requirements For Equipment Cooling And Lubricating.pdf	PDF
2/26/2009	RAD	1980S Weir Box Calculations.pdf	PDF
2/26/2009	RAD	1981 Ash Pond Questionnaire.pdf	PDF
2/26/2009	RAD	1981 Development Of Criteria For Disposal Of Utility Wastes In The State Of Tn.pdf	PDF
2/26/2009	RAD	1981 Elimination Of Hazardous Wastes Method Of Treatment.pdf	PDF
2/26/2009	RAD	1981 Investigation Of Potential Groundwater Contamination By Leachate From Ash Disposal Ponds.pdf	PDF
2/26/2009	RAD	1981 Memo Intake Dredging And Settling Pond.pdf	PDF
2/26/2009	RAD	1981 Memo JSF Intake Channel Dredge.pdf	PDF
2/26/2009	RAD	1981 Memo Water Leakage From Ash Pond Dike.pdf	PDF
2/26/2009	RAD	1981 Repair Of Ash Disposal Area 2.pdf	PDF
2/26/2009	RAD	1981 Tva Fly Ash Disposal Facility Phased Assessment Of Potential Environmental Impacts.pdf	PDF
2/26/2009	RAD	1981 Water Leakage From Ash Pond Dike.pdf	PDF
2/26/2009	RAD	1981-1986 Heavy Metal Samples.pdf	PDF
2/26/2009	RAD	1982 Additional Fly Ash Storage Area Memo.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/26/2009	RAD	1982 Authorization To Dispose Of Ash At Hawkins County Landfill.pdf	PDF
2/26/2009	RAD	1982 Dmr Excursion Report.pdf	PDF
2/26/2009	RAD	1982 Effluent Guidelines Ph For Point Sources Continually Discharging.pdf	PDF
2/26/2009	RAD	1982 Engineering Approval To Construct New Ash Ponds.pdf	PDF
2/26/2009	RAD	1982 Engineering Cost Study Removal Of Fly Ash Collectors John Sevier Steam Plant.pdf	PDF
2/26/2009	RAD	1982 Interim Compliance Status Report Tva Ash Pond And Metal Cleaning Waste Treatment Discharges.pdf	PDF
2/26/2009	RAD	1982 July Monthly Solid Waste Permit Meeting.pdf	PDF
2/26/2009	RAD	1982 Proposed Waste Treatment Facilities Preparation Of Engineering Reports.pdf	PDF
2/26/2009	RAD	1982 Quarterly Meeting Notes Solid Waste Disposal At Steam Plants.pdf	PDF
2/26/2009	RAD	1982 Request For Approval Construct New Fly Ash Disposal Pond In Area J.pdf	PDF
2/26/2009	RAD	1982 Request For State Approval Section 404 Permit And Construction Erosion And Sediment Control Plan.pdf	PDF
2/26/2009	RAD	1982 Response To Repair Water Leak Ash Pond Dike.pdf	PDF
2/26/2009	RAD	1982 Section 404 Permit For Proposed Fly Ash Disposal Area At Mile 105.0 Left Bank Holston River.pdf	PDF
2/26/2009	RAD	1982 Status Report Corps Of Engineers Section 404 Permits.pdf	PDF
2/26/2009	RAD	1982 Various Fly Ash Disposal Rerouting Of Polly Branch And Wastewater Permitting Correspondence.pdf	PDF
2/26/2009	RAD	1982 Water Temperature Monitoring Program Mod Memo.pdf	PDF
2/26/2009	RAD	1983 Additional Fly Ash Storage Area M10 594.pdf	PDF
2/26/2009	RAD	1983 Analysis Report For Fly Ash Arsenic.pdf	PDF
2/26/2009	RAD	1983 Memo On Additional Ash Storage And Monthly Meeting From January 1983.pdf	PDF
2/26/2009	RAD	1983 Monthly Solid Waste Permit Meeting Notes From Dec 1982.pdf	PDF
2/26/2009	RAD	1983 Report Pursuant To Executive Order 12088.pdf	PDF
2/26/2009	RAD	1983 Test Results For Metals.pdf	PDF
2/26/2009	RAD	1984 Ash Disposal Meeting With State And Tva In Johnson City.pdf	PDF
2/26/2009	RAD	1984 Ash Disposal Program.pdf	PDF
2/26/2009	RAD	1984 Ash Pond 003 Samples.pdf	PDF
2/26/2009	RAD	1984 Hazardous Waste Regulations Interpretations For Utility Wastes.pdf	PDF
2/26/2009	RAD	1984 Informational Memo On Ash Pond J.pdf	PDF
2/26/2009	RAD	1984 Metals Sample Analysis Request For 007 003 And 001.pdf	PDF
2/26/2009	RAD	1984 Metals Samples Ash Ponds 1 2 And 3 And 1983 Dredging And Borrow Area Memos.pdf	PDF
2/26/2009	RAD	1984 Purchase Req For Dredging Ash From Active Pond.pdf	PDF
2/26/2009	RAD	1984 Temporary Change In Discharge Scheme From Ash Pond J.pdf	PDF
2/26/2009	RAD	1984 Water Sampling.pdf	PDF
2/26/2009	RAD	1985 Ash Pond Discharge To Polly Branch Samples.pdf	PDF
2/26/2009	RAD	1985 Borrow Area Permit Application.pdf	PDF
2/26/2009	RAD	1985 Installation Of New Fly Ash Handling System For Dry Stacking At JSF.pdf	PDF
2/26/2009	RAD	1985 Lab Report For Fly Ash At John Sevier.pdf	PDF
2/26/2009	RAD	1985 Long Range Planning Committee Meeting Fossil Plant Waste Disposal Facilities.pdf	PDF
2/26/2009	RAD	1985 Long Range Planning Meeting.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/26/2009	RAD	1985 Solid Waste Disposal Inspection Schedule And 1984 Contract With Waste Mgt Of Tri Cities.pdf	PDF
2/26/2009	RAD	1985 Stormwater Runoff.pdf	PDF
2/26/2009	RAD	1986 Ash Disposal And Dry Stacking Decision.pdf	PDF
2/26/2009	RAD	1986 Ash Disposal John Sevier Fossil Plant Request To Pump To Bathtub Area.pdf	PDF
2/26/2009	RAD	1986 Ash Pond 2 Reclamation Of Disposal Of Accumulated Bottom Ash Volume In Onsite Borrow Area.pdf	PDF
2/26/2009	RAD	1986 Categorical Exclusion For Borrow Area.pdf	PDF
2/26/2009	RAD	1986 Evaluation Of Dry Fly Ash Stacking And Stream Rerouting In Ash Ponds At John Sevier Fossil Plant.pdf	PDF
2/26/2009	RAD	1987 Borrow Area Bottom Ash Disposal Permit Application.pdf	PDF
2/26/2009	RAD	1987 Borrow Area Proposed Permit Application.pdf	PDF
2/26/2009	RAD	1987 Ccw Intake Inspection.pdf	PDF
2/26/2009	RAD	1987 Clams.pdf	PDF
2/26/2009	RAD	1987 Evaluation Of The Ash Ponds And Stream Rerouting At John Sevier Fossil Plant.pdf	PDF
2/26/2009	RAD	1987 Flow Model Of Intake Skimmer.pdf	PDF
2/26/2009	RAD	1987 Intake Sample.pdf	PDF
2/26/2009	RAD	1987 JSF Ash Stacking Projects Proposed Plans For Extraction Procedure For Toxicity Testing.pdf	PDF
2/26/2009	RAD	1987 JSF Proposed Borrow Area.pdf	PDF
2/26/2009	RAD	1987 Meeting At Plant To Discuss Permitting Ash Disposal Sites.pdf	PDF
2/26/2009	RAD	1987 Meeting With The State On Ash Disposal Solid Waste Permit.pdf	PDF
2/26/2009	RAD	1987 Npdes Qa Study 7.pdf	PDF
2/26/2009	RAD	1987 Stormwater Samples.pdf	PDF
2/26/2009	RAD	1987 Telecon On Use Of Borrow Area For Ash Disposal.pdf	PDF
2/26/2009	RAD	1987 Validation Of Plant Ash Pond Effluent Flows.pdf	PDF
2/26/2009	RAD	1987 Weed And Debris Problem At JSF Intake.pdf	PDF
2/26/2009	RAD	1987 Workplan For Evaluation Of Dry Fly Ash Stacking And Stream Rerouting In Ash Ponds At John Sevier.pdf	PDF
2/26/2009	RAD	1988 Borrow Area Reclamation Design Of Ash Fill.pdf	PDF
2/26/2009	RAD	1988 Detention Dam Inspection.pdf	PDF
2/26/2009	RAD	1988 Fire Hydrant Flush Memo.pdf	PDF
2/26/2009	RAD	1988 JSF Detention Dam Inspections.pdf	PDF
2/26/2009	RAD	1988 Letter From State To Discontinue Ash Pond Monitoring Following Rain Events In Excess Of One Inch.pdf	PDF
2/26/2009	RAD	1988 Msds For Bottom Ash.pdf	PDF
2/26/2009	RAD	1988 Msds For Fly Ash.pdf	PDF
2/26/2009	RAD	1988 Npdes Sampling.pdf	PDF
2/26/2009	RAD	1988 Trash Rack And Intake Inspection.pdf	PDF
2/26/2009	RAD	1989 Trans Ash Letter.pdf	PDF
2/26/2009	RAD	1990 Acaa Yearly Report Information.pdf	PDF
2/26/2009	RAD	1990 Ea Fonsi Coal Combustion By-Product Marketing.pdf	PDF
2/26/2009	RAD	1990 Proposed Contract For The Sale And Transfer Of Fly Ash From John Sevier.pdf	PDF
2/26/2009	RAD	1991 Contract With Sefa For Sale Of Fly Ash.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/26/2009	RAD	1991 Correction Of Npdes Flows For 003 Outfall.pdf	PDF
2/26/2009	RAD	1991 Fly Ash Test Report.pdf	PDF
2/26/2009	RAD	1991 Tdhe Response To Tvas Petition For Rulemaking.pdf	PDF
2/26/2009	RAD	1992 Long Range Disposal Utilization Plans For Coal Combustion By Products JSF.pdf	PDF
2/26/2009	RAD	1992 Waste Survey John Sevier Fossil Plant.pdf	PDF
2/26/2009	RAD	1993 003 Outfall Elimination Request From Npdes Permit.pdf	PDF
2/26/2009	RAD	1993 Meeting To Discuss Pond J Closure.pdf	PDF
2/26/2009	RAD	1993 Notice Of Receipt Of Permit Application For Solid Waste Disposal Facility.pdf	PDF
2/26/2009	RAD	1993 Questionnaire For Partners For Clean Communities.pdf	PDF
2/26/2009	RAD	1994 Law Engineering Report Figure 4.pdf.JPG	JPG
2/26/2009	RAD	1994 Law Engineering Report Figure 6.JPG	JPG
2/26/2009	RAD	1994 Law Engineering Report.pdf	PDF
2/26/2009	RAD	1996 Agreement For Beneficial Use Of Bottom Ash As Cover For Roads And Driveways.pdf	PDF
2/26/2009	RAD	1997 Contract For Bottom Ash Use As Surface Cover.pdf	PDF
2/26/2009	RAD	1997 Contract For Bottom Ash Use In Snow And Ice Control.pdf	PDF
2/26/2009	RAD	1997 Contract Worksheet For Coal Combustion By-Products.pdf	PDF
2/26/2009	RAD	1998 Pz8_Pz9_W26_W27_Logs.pdf	PDF
2/26/2009	RAD	1998 W28-W32_Logs.pdf	PDF
2/26/2009	RAD	1St Qtr 03 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	1St Qtr 04 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	1St Qtr 05 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	1St Qtr 06 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	1St Qtr 07 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	1St Qtr 08 Red Water Seep Inspection.pdf	PDF
2/10/2009	JDB/RAD	1St Qtr Red Water Seep Inspections.pdf	PDF
2/27/2009	RAD	1St Qtr Red Water Seep Inspections.pdf	PDF
2/26/2009	RAD	2Nd Qtr 03 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	2Nd Qtr 04 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	2Nd Qtr 05 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	2Nd Qtr 06 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	2Nd Qtr 07 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	2Nd Qtr 08 Red Water Seep Inspection.pdf	PDF
2/27/2009	RAD	2Nd Qtr Red Water Seep Inspections.pdf	PDF
2/26/2009	RAD	3Rd Qtr 03 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	3Rd Qtr 04 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	3Rd Qtr 05 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	3Rd Qtr 06 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	3Rd Qtr 07 Red Water Seep Inspection.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/26/2009	RAD	3Rd Qtr 08 Red Water Seep Inspection.pdf	PDF
2/27/2009	RAD	3Rd Qtr Red Water Seep Inspections.pdf	PDF
2/26/2009	RAD	4Th Qtr 03 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	4Th Qtr 04 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	4Th Qtr 05 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	4Th Qtr 06 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	4Th Qtr 07 Red Water Seep Inspection.pdf	PDF
2/26/2009	RAD	4Th Qtr 08 Red Water Seep Inspection.pdf	PDF
2/27/2009	RAD	Bcp0010 073530232[1].pdf	PDF
3/17/2009	RAD	Chemical Pond Sediment Sampling.pdf	PDF
2/10/2009	JDB/RAD	John Sevier 2008 Ash Inspection Summary.doc	DOC
2/10/2009	JDB/RAD	John Sevier 2008 Ash Inspection Summary.pdf	PDF
3/1/2009	RAD	JohnSevierasbestoslandfillsmesoi87029November301997.pdf	PDF
4/7/2009	JDB	JohnSevierasbestoslandfillsmesoi87029November301997.pdf	PDF
3/1/2009	RAD	JohnSevierashdisposalareaproposeddrystackingsmereport.pdf	PDF
4/7/2009	JDB	JohnSevierashdisposalareaproposeddrystackingsmereport.pdf	PDF
3/1/2009	RAD	JohnSevierashdisposalareasoilsexplorationandtestingendessoilsscheduleno62.pdf	PDF
4/7/2009	JDB	JohnSevierashdisposalareasoilsexplorationandtestingendessoilsscheduleno62.pdf	PDF
3/1/2009	RAD	JohnSevierashdispstackareaexistingdispareaclosureditchsketch.pdf	PDF
4/7/2009	JDB	JohnSevierashdispstackareaexistingdispareaclosureditchsketch.pdf	PDF
3/1/2009	RAD	JohnSevierashpondjsoilsinvestigationonashmaterialendessoilssched6.pdf	PDF
4/7/2009	JDB	JohnSevierashpondjsoilsinvestigationonashmaterialendessoilssched6.pdf	PDF
3/1/2009	RAD	JohnSeviercancellationnoticeconstructflyashpondinareaj51063320656.pdf	PDF
4/7/2009	JDB	JohnSeviercancellationnoticeconstructflyashpondinareaj51063320656.pdf	PDF
3/1/2009	RAD	JohnSevierdraftengineeringreportdryashdisposalarea.pdf	PDF
4/7/2009	JDB	JohnSevierdraftengineeringreportdryashdisposalarea.pdf	PDF
3/1/2009	RAD	JohnSevierdraftreporthydrogeologicandenggevalproposeddryflhashdisposalfacilitysitesept301994.pdf	PDF
4/7/2009	JDB	JohnSevierdraftreporthydrogeologicandenggevalproposeddryflhashdisposalfacilitysitesept301994.pdf	PDF
3/1/2009	RAD	JohnSevierdrawing10H291-6Dryflhashstackcrosssecaandb.pdf	PDF
4/7/2009	JDB	JohnSevierdrawing10H291-6Dryflhashstackcrosssecaandb.pdf	PDF
3/1/2009	RAD	JohnSevierdryflyashfacilitynoticeofprojectinitiationmemo.pdf	PDF
4/7/2009	JDB	JohnSevierdryflyashfacilitynoticeofprojectinitiationmemo.pdf	PDF
3/1/2009	RAD	JohnSevierflyashdrystackorigdispareajerryglover.pdf	PDF
4/7/2009	JDB	JohnSevierflyashdrystackorigdispareajerryglover.pdf	PDF
3/1/2009	RAD	JohnSevierflyashponddikeslopestabilityevaluationphaseonereportdec91999.pdf	PDF
4/7/2009	JDB	JohnSevierflyashponddikeslopestabilityevaluationphaseonereportdec91999.pdf	PDF
3/1/2009	RAD	JohnSeviergeosyntechpreliminarysitingstudyforaddtlashdisposalnov2004.pdf	PDF
4/7/2009	JDB	JohnSeviergeosyntechpreliminarysitingstudyforaddtlashdisposalnov2004.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/1/2009	RAD	JohnSeviergeotechnicalevalofashponddikestabilityreport.pdf	PDF
4/7/2009	JDB	JohnSeviergeotechnicalevalofashponddikestabilityreport.pdf	PDF
4/7/2009	JDB	JohnSevierhydrogeologyreportmarch31994Sandmeinc.pdf	PDF
4/7/2009	JDB	JohnSevierlawenggsummaryoflandfillperimeterclosure.pdf	PDF
4/7/2009	JDB	JohnSeviernewashdisposalareasoilsinvestigationendessoilscheduleno6Memodec101976.pdf	PDF
4/7/2009	JDB	JohnSevierqaqcforclosurecappingashpondjandcappingborrowareaashstack.pdf	PDF
4/7/2009	JDB	JohnSevierqaqcforgeologicbufferconstrforsedimentholdingpond.pdf	PDF
4/7/2009	JDB	JohnSevierreportofhydrogeologicandenggevalrevisedproposeddryflyashdispfacilitysitesept301994.pdf	PDF
4/7/2009	JDB	JohnSevierreportofhydrogeologicevalproposeddryflyashdispfacsitemarch231992.pdf	PDF
4/7/2009	JDB	JohnSevierseepagefluxfromashdisposalareaintoholstonriverreportwr28141109May1987.pdf	PDF
4/7/2009	JDB	JohnSeviersteamplantasbestosfolder.pdf	PDF
4/7/2009	JDB	JohnSeviersteamplantborrowareareclamationdnesoilschedule67.pdf	PDF
2/10/2009	JDB/RAD	JSF Annual Ash Disposal Area Inspection Oct 1973.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Dike 1973 Failure.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy 2000.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy 2001.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy 2002.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy 2003.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy 2004.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy 2005.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy67.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy68.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy69.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy70.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy71.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy72.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy73.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy74.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy75.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy76.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy77.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy78.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy79.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy80.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy81.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy82.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy83.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy84.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy85.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy86.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy87.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy88.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy90.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy91.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy93.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy94.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy95.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy96.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy97.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy98.pdf	PDF
2/10/2009	JDB/RAD	JSF Ash Pond Insp Fy99.pdf	PDF
3/17/2009	RAD	JSF Dry Fly Ash Storage Investigation.pdf	PDF
2/27/2009	RAD	JSF Inspection 6 21 07 071970633[1].pdf	PDF
2/27/2009	RAD	JSF_ Gnd Water Digital File History Submittal 8-17-07 072341247[1].pdf	PDF
2/10/2009	JDB/RAD	JSF_Ash_Pond_Insp_Fy08.pdf	PDF
2/27/2009	RAD	JSF_Historical_Gnd Water Data_For_Dry_Ash_Stack 08-17-07 072341248[1].pdf	PDF
2/10/2009	RAD	JSF-1002H201-Sht -Rev 1 Commercial Access Road To Dry Fly Ash Facility.cal	CAL
2/10/2009	RAD	JSF-10H287-4-Sht -Rev 1 Ash Pond J.cal	CAL
4/7/2009	JDB	JSF-10H289-01 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-01 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-01 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10H291-02 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-02 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10H291-02 Rev 2.cal	CAL
4/7/2009	JDB	JSF-10H291-03 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-03 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10H291-04 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-04 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10H291-05 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-05 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10H291-06 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-06 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10H291-07 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-07 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10H291-08 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10H291-08 Rev 1.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
4/7/2009	JDB	JSF-10H291-10 Rev 0.cal	CAL
2/10/2009	RAD	JSF-10H291-10-Sht -Rev 1 Tribble & Richardson Law Engineering Proj. No. 3822-014 Dry Fly Ash Stack Pond Layout.cal	CAL
2/10/2009	RAD	JSF-10H291-11-Sht -Rev 2 Law Engineerng And Tribble & Richardson Inc. Dry Fly Ash Stack Details.cal	CAL
2/10/2009	RAD	JSF-10H291-12-Sht -Rev 1 Yard Ash Disposal Stack Area Location Plan.cal	CAL
2/10/2009	RAD	JSF-10H291-1-Sht -Rev 1 Law Engineering And Tribble & Richardson Inc. Dry Fly Ash Stack Existing Contours (West).cal	CAL
2/10/2009	RAD	JSF-10H291-2-Sht -Rev 2 Law Engineering And Tribble & Richardson Inc. Dry Fly Ash Stack Proposed Contours (West).cal	CAL
2/10/2009	RAD	JSF-10H291-3-Sht -Rev 2 Law Engineering And Tribble & Richardson Inc. Dry Fly Ash Stack Existing Contours (East).cal	CAL
2/10/2009	RAD	JSF-10H291-4-Sht -Rev 2 Law Engineering And Tribble & Richardson Inc. Dry Fly Ash Stack Proposed Contours (West).cal	CAL
2/10/2009	RAD	JSF-10H291-5-Sht -Rev 2 Law Engineering And Tribble & Richardson Inc. Dry Fly Ash Stack Cross - Section A.cal	CAL
2/10/2009	RAD	JSF-10H291-6-Sht -Rev 2 Law Engineering And Tribble & Richardson Inc. Dry Fly Ash Stack Cross - Section B And D.cal	CAL
2/10/2009	RAD	JSF-10H291-7-Sht -Rev 2 Law Enginneering And Tribble & Richardson Inc. Dry Fly Ash Stack Cross - Section C.cal	CAL
2/10/2009	RAD	JSF-10H291-8-Sht -Rev 2 Law Engineering And Tribble & Richardson Dry Fly Ash Stack Cross - Section E.cal	CAL
2/10/2009	RAD	JSF-10H291-9-Sht -Rev 0 Law Enginering And Tribble & Richardson Inc Dry Fly Ash Stack Access Road Plan And Profile.cal	CAL
2/11/2009	RAD	JSF-10N205-Sht -Rev 3 Condensing Water Supply Intake Trash Boom Beneral Layout & Dike Details.cal	CAL
4/7/2009	JDB	JSF-10N207-Sht -Rev 1.cal	CAL
2/11/2009	RAD	JSF-10N212-Sht -Rev 0 Coal Yard Location Of Settlement Slabs.cal	CAL
2/11/2009	RAD	JSF-10N230-Sht -Rev 1 Main Plant Ash Disposal Area Divider Dike & Floating Boom.cal	CAL
4/7/2009	JDB	JSF-10N290 Rev 0.cal	CAL
2/10/2009	RAD	JSF-10N290-Sht -Rev 0 Main Plant Ash Disposal Area E' Dike Repair.cal	CAL
2/10/2009	RAD	JSF-10N295-Sht -Rev 3 Main Plant Fly Ash Disposal Area 'G' - Plan.cal	CAL
2/10/2009	RAD	JSF-10N296-Sht -Rev 2 Main Plant Fly Ash Disposal Area 'G' - Sections & Details.cal	CAL
4/7/2009	JDB	JSF-10N297 Rev 0.cal	CAL
2/10/2009	RAD	JSF-10N297-Sht -Rev 2 Standard Drawing Ash Disposal Spillway.cal	CAL
4/7/2009	JDB	JSF-10N298 Rev 2.cal	CAL
2/10/2009	RAD	JSF-10N298-Sht -Rev 2 Standard Drawing Weir For Ash Disposal Spillway.cal	CAL
2/10/2009	RAD	JSF-10N400-Sht -Rev 3 Yard Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf - Sheet 1.cal	CAL
2/10/2009	RAD	JSF-10N401-Sht -Rev 2 Yard Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf - Sheet 2.cal	CAL
2/10/2009	RAD	JSF-10N402-Sht -Rev 4 Yard Concrete Ash Sluice Pie Trench & Supports Outine & Reinf Sheet 3.cal	CAL
2/10/2009	RAD	JSF-10N403-Sht -Rev 1 Yard Units 1 - 4 Concrete Ash Disposal Trench Outline & Reinf..cal	CAL
2/10/2009	RAD	JSF-10N410-Sht -Rev 3 Mn Plnt Ash Dspsl Area.cal	CAL
2/10/2009	RAD	JSF-10Rs403-Sht 1-Rev 0 Yard, Units 1-4 Ash Disposal Trench Reinforcement Schedule For Dwg 10N403.cal	CAL
4/7/2009	JDB	JSF-10W200-01 Rev 2.cal	CAL
2/10/2009	RAD	JSF-10W204-1-Sht -Rev 0 Yard Ash Disposal Stack Area Phase 1 Stack Plan.cal	CAL
2/10/2009	RAD	JSF-10W204-2-Sht -Rev 0 Yard Ash Disposal Stack Area Phase 2 Stack Plan.cal	CAL
2/10/2009	RAD	JSF-10W204-3-Sht -Rev 0 Yard Ash Disposal Stack Area Phase 3 Stack Plan.cal	CAL
2/10/2009	RAD	JSF-10W204-4-Sht -Rev 0 Yard Ash Disposal Stack Area Phase 4 Stack Plan.cal	CAL
2/10/2009	RAD	JSF-10W204-5-Sht -Rev 0 Yard Ash Disposal Stack Area Final Stack Plan.cal	CAL
2/10/2009	RAD	JSF-10W204-6-Sht -Rev 0 Yard Ash Disposal Stack Area Existing Disposal Area Closure.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/10/2009	RAD	JSF-10W204-7-Sht -Rev 0 Yard Ash Disposal Stack Area Sections And Details.cal	CAL
2/10/2009	RAD	JSF-10W204-8-Sht -Rev 0 Yard Ash Disposal Stack Area Contour Prior To Closure And Interim Cover For Phase 1.cal	CAL
2/10/2009	RAD	JSF-10W204-9-Sht -Rev 0 Yard Ash Disposal Stack Area Existing Contour.cal	CAL
2/10/2009	RAD	JSF-10W206-10-Sht -Rev 0 Yard Partial Plan New Riprap Along Ash Dike Toe.cal	CAL
2/10/2009	RAD	JSF-10W206-11-Sht -Rev 0 Yard Ash Disposal-Stack Area Cross Sections.cal	CAL
2/10/2009	RAD	JSF-10W206-1-Sht -Rev 1 Yard Ash Disposal - Stack Area Existing Features As Of February 2001 Legend & Drawing Index.cal	CAL
2/10/2009	RAD	JSF-10W206-2-Sht -Rev 0 Yard Ash Disposal-Stack Area Existing Features As Of February 2001 Sheet 2.cal	CAL
2/10/2009	RAD	JSF-10W206-3-Sht -Rev 0 Yard Ash Disposal-Stack Area Existing Features As Of February 2001 Sheet 3.cal	CAL
2/10/2009	RAD	JSF-10W206-4-Sht -Rev 1 Yard Ash Disposal-Stack Area Slope Regrading Plan Sheet 1.cal	CAL
2/10/2009	RAD	JSF-10W206-5-Sht -Rev 0 Yard Ash Disposal-Stack Area Slope Regrading Plan Sheet 2.cal	CAL
2/10/2009	RAD	JSF-10W206-6-Sht -Rev 0 Yard Ash Disposal - Stack Area Slope Regrading Plan Sheet 3.cal	CAL
2/10/2009	RAD	JSF-10W206-7-Sht -Rev 0 Yard Ash Disposal-Stack Area Cross Sections.cal	CAL
2/10/2009	RAD	JSF-10W206-8-Sht -Rev 0 Dike Embankment Stability Evaluation Ash Disposal-Stack Area Details.cal	CAL
2/10/2009	RAD	JSF-10W206-9-Sht -Rev 0 Yard Ash Disposal-Stack Area Slope Regrading Road Plan & Profile.cal	CAL
2/11/2009	RAD	JSF-10W211-1-Sht -Rev 1 Main Plant General Grading Plan Plant & Coal Yard Areas Detail & Sections.cal	CAL
2/11/2009	RAD	JSF-10W211-2-Sht -Rev 0 Main Plant Coal Yard Base Drainage Network Plan.cal	CAL
2/11/2009	RAD	JSF-10W211-3-Sht -Rev 0 Main Plant Coal Yard Base Drainage Network Profile.cal	CAL
2/10/2009	RAD	JSF-10W211-4-Sht -Rev 0 Main Plant Coal Yard Base Drainage Network Sections & Details.cal	CAL
2/11/2009	RAD	JSF-10W211-Sht -Rev 15 Main Plant General Grading Plan Plant & Coal Yard Areas.cal	CAL
2/11/2009	RAD	JSF-10W211-Sht -Rev 15 Main Plant General Grading Plan Plant & Coal Yard Areas.cal	CAL
2/10/2009	RAD	JSF-10W213-Sht -Rev 2 Main Plant Miscellaneous Sections Coal Yard Area.Tif	Tif
3/12/2009	RAD	JSF-10W213-Sht -Rev 2 Main Plant Miscellaneous Sections Coal Yard Area.Tif	Tif
2/10/2009	RAD	JSF-10W215-Sht -Rev 3 Yard Paving & Grading Under Fly Ash Precipitators.cal	CAL
4/7/2009	JDB	JSF-10W286-01 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10W286-01 Rev 3.cal	CAL
4/7/2009	JDB	JSF-10W286-02 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10W286-02 Rev 2.cal	CAL
4/7/2009	JDB	JSF-10W286-03 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10W286-04 Rev 1.cal	CAL
4/7/2009	JDB	JSF-10W286-05 Rev 0.cal	CAL
4/7/2009	JDB	JSF-10W286-06 Rev 0.cal	CAL
2/10/2009	RAD	JSF-10W286-1-Sht -Rev 3 Fly Ash Disposal Area J.cal	CAL
2/10/2009	RAD	JSF-10W286-2-Sht -Rev 2 Main Plant Fly Ash Disposal Area J Sheet 2.cal	CAL
2/10/2009	RAD	JSF-10W286-3-Sht -Rev 1 Main Plant Fly Ash Disposal Area J Sheet 3.cal	CAL
2/10/2009	RAD	JSF-10W286-4-Sht -Rev 1 Main Plant Flyash Disposal Area J Sheet 4.cal	CAL
2/10/2009	RAD	JSF-10W286-5-Sht -Rev 1 Main Plant Fly Ash Disposal E Plan.cal	CAL
2/10/2009	RAD	JSF-10W286-6-Sht -Rev 1 Main Plant Ash Disp Area J Closure - Sections Sheet 6.cal	CAL
2/10/2009	RAD	JSF-10W286-7-Sht -Rev 0 Main Plant Fly Ash Disposal Area J Closure Plan Sections & Details - Sheet 7.cal	CAL

Date Reviewed	Reviewed by	File Name	File Type
2/11/2009	RAD	JSF-10W288-Sht -Rev 1 Yard Borrow Area Ash Stack Closure Plan & Cross-Sections.cal	CAL
3/23/2009	RAD	JSF-10W291 Rev 1.cal	CAL
3/23/2009	RAD	JSF-10W291 Rev 2.cal	CAL
4/7/2009	JDB	JSF-10W292 Rev 2.cal	CAL
2/11/2009	RAD	JSF-10W293-1-Sht -Rev 2 Main Plant Ash Disposal Area No. 2 Plan.cal	CAL
2/11/2009	RAD	JSF-10W293-2-Sht -Rev 1 Main Plant Ash Disposal Area No. 2 Sections And Details.cal	CAL
2/11/2009	RAD	JSF-10W293-3-Sht -Rev 0 Main Plant Ash Disposal Area No. 2 Sections And Details.cal	CAL
2/11/2009	RAD	JSF-10W294-1-Sht -Rev 0 Main Plant Fly Ash Disposal Area No. 2 Catwalk To Water Level Monitoring Station.cal	CAL
3/12/2009	RAD	JSF-10W299-Sht -Rev 0 Main Plant Fly Ash Disposal Area 'G' Catwalk To Water Level Monitoring Station.cal	CAL
3/10/2009	RAD	JSF-10W321-1-Sht -Rev 0.cal	CAL
3/10/2009	RAD	JSF-10W321-2-Sht -Rev 0.cal	CAL
3/10/2009	RAD	JSF-10W421-01 Rev 1.cal	CAL
3/10/2009	RAD	JSF-10W421-02 Rev 1.cal	CAL
3/10/2009	RAD	JSF-10W421-03 Rev 1.cal	CAL
2/11/2009	RAD	JSF-10W708-Sht -Rev 0 Coal Handling Facilities Contractor'S Use Areas.cal	CAL
3/10/2009	RAD	JSF-17W438 Rev 2.cal	CAL
3/12/2009	RAD	JSF-17W445-1-Sht -Rev 2.cal	CAL
3/12/2009	RAD	JSF-17W445-1X-Sht -Rev 0.cal	CAL
3/12/2009	RAD	JSF-17W445-2-Sht -Rev 3.cal	CAL
3/12/2009	RAD	JSF-17W445-3-Sht -Rev 2.cal	CAL
3/12/2009	RAD	JSF-17W445-4-Sht -Rev 2.cal	CAL
2/27/2009	RAD	Kg0305 082410913[1].pdf	PDF
3/17/2009	RAD	Law Ground Water Monitoring Well Installation.pdf	PDF
3/17/2009	RAD	Law Report Of Geotechnical Exploration_Dike Exp And Testing.pdf	PDF
2/27/2009	RAD	M75080310 001 Solid Waste Correspondence 080810206[1].pdf	PDF
2/27/2009	RAD	M75080910 001 Solid Waste Correspondenc 082550699[1].pdf	PDF
2/27/2009	RAD	M75081205 001 Solid Waste Correspondence 083500030[1].pdf	PDF
2/27/2009	RAD	M75081210 001 Solid Waste Correspondence 083500035[1].pdf	PDF
2/27/2009	RAD	M75090106001 Solid Waste Correspondence 090140173[1].pdf	PDF
3/12/2009	RAD	Operations Manual.pdf	PDF
3/17/2009	RAD	Report Of Geographical Soil Sampling.pdf	PDF
2/27/2009	RAD	Sb0435 071910415[1].pdf	PDF
2/27/2009	RAD	Sb0437 071910422[1].pdf	PDF
2/27/2009	RAD	Sb0511 071940314[1].pdf	PDF
2/27/2009	RAD	Spb0792 072550597[1].pdf	PDF
2/27/2009	RAD	Spb4229 073460123[1].pdf	PDF
3/12/2009	RAD	Waste Disposal Permit And Ash Stacking Plan 12_05 App E.pdf	PDF
2/27/2009	RAD	Wjc00049 082191185[1].pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/27/2009	RAD	Wjc00090 082200110[1].pdf	PDF

Appendix G

Johnsonville Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
Johnsonville Fossil Plant (JOF)

Location:	Johnsonville Fossil Plant (JOF) 535 Steam Plant Road New Johnsonville, Humphreys County, TN 37134 Latitude: 36.035 N Longitude: 87.984 W
Plant Contact:	Tony Dillion Program Administrator Phone: 931-535-8206 Email: ardillion@tva.gov
Facts and Figures:	The Johnsonville Fossil Plant has ten coal-fired generating units. Construction began in 1949 and was completed in 1952. The plant consumes approximately 9,600 tons of coal per day. It is located on the Tennessee River at Kentucky Lake, and is about 35 miles west of Dickson, TN.
Coal Combustion Byproduct Disposal:	Approximately 260,000 tons of fly ash is wet-sluiced to the Active Ash Disposal (Areas 2 & 3) each year. Roughly all of this fly ash is being hauled to an offsite structural fill project. In addition, previously deposited fly ash is being dredged to an internal cell, dewatered and hauled to the offsite structural fill site. Approximately 30,000 tons per year of bottom ash is wet-sluiced to the Active Ash Disposal. Dewatered bottom ash is reclaimed from the Active Ash Disposal and stacked within the pond footprint for later use in the offsite structural fill project.
Geology and Seismicity:	The Johnsonville Fossil Plant is located in west-central Tennessee along the eastern bank of the Tennessee River, just south (upstream) of the confluence of the river and Trace Creek. As such, much of the site is underlain by alluvium and terrace deposits varying in thickness from less than 20 feet along the tributary stream banks up to more than 100 feet within the floodplain of the Tennessee River. The underlying bedrock consists of the Lower Mississippian age Fort Payne Formation and Devonian age Chattanooga Shale and Camden Formations, in general order of descending lithology. The Fort Payne Formation varies from a sandy, cherty limestone in the upper portions of the unit to an interbedded shale and cherty limestone lower in the stratigraphic column. The Chattanooga Shale is a fissile, carbonaceous shale thought to act as an aquitard preventing the downward migration of groundwater, etc. into the underlying Camden formation, the principal aquifer in the region.

The Camden formation consists of thin beds of cherty limestone interbedded with softer clay layers. Previous drilling at the site, discussed in reports and other documentation provided by TVA, suggests the presence of several small faults and a larger fault in the bedrock underlying the plant, as inferred from borehole data in the Camden Formation.

Evaluations of seismic hazards affecting the western portion of middle Tennessee, and thus the plant site, are dominated by events emanating from the New Madrid Seismic Zone (NMSZ) of the central Mississippi Valley. The NMSZ is the most active seismic zone east of the Rocky Mountains and the continuing seismicity of the zone is thought to be associated with the reactivation of faults within the Reelfoot Rift System. Although the majority of the events emanating from this zone are too small to be felt at the surface, this zone produced a series of four earthquakes between December 1811 and early February 1812 each exhibiting estimated magnitudes on the order of 7.0 to 8.0. The “Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5” developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 2.

Facilities Reviewed:

Active Ash Disposal Areas 2 & 3
South Railroad Loop Ash Disposal Area 4
Ash Dredge Pond East of Gas Turbines Area 5
North Abandoned Ash Disposal Area A

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Johnsonville Fossil Plant (JOF)
Active Ash Disposal Areas 2 & 3 (AADA 2&3)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN08512
Surface Area (inside dikes)	87 acres	Maximum Height (toe to top of dike):	36 feet
Free Water Volume:	Not provided by TVA	Maximum Water Storage:	Not provided by TVA
Estimated CCB Storage:	Not provided by TVA	Dike Length:	10,150 feet
Plant Discharge to Facility:	32 MGD	Current Pool Elevation:	387.5 feet

2. Site Visit Information

Stantec Assessment Team:	Stephen Bickel, PE, Nathan Bader, PE, Josh Kopp, EIT
TVA Staff Present:	Stuart Harris, Tony Dillon
Field Assessment Dates:	January 12, 2009 and February 23 - 25, 2009
Weather/Site Conditions:	Clear, moist ground during both assessments

3. History/Description of Usage

History and Operation: Approximately 260,000 tons of fly ash is wet-sluiced to the Active Ash Disposal Areas 2 & 3 each year. Roughly all of this fly ash is being hauled to an offsite structural fill project. In addition, previously deposited fly ash is being dredged to an internal cell, dewatered and hauled to the offsite structural fill site. Approximately 30,000 tons per year of bottom ash is wet-sluiced to the Active Ash Disposal Area. Dewatered bottom ash is reclaimed from the Active Ash Disposal Area and stacked within the pond footprint for later use in the offsite structural fill project. Outlet is through the southern spillway which consists of two 48 inch RCP riser pipe/weirs that discharge through two 36 inch RCP sections into Kentucky Lake. The third spillway in this area has been raised and is not in use. Two other sets of spillways used in the past are also

	present; one to the northwest and one set to the southeast. The southeast set of spillways consist of three risers that have been raised and are no longer in use. The northwest set of spillways consists of three risers that were reportedly filled with concrete to abandon them. Ash Disposal Areas 2 & 3 was initially constructed in the late 1960s and was brought into service in 1970. The pond was constructed on an island with an initial 5 to 11 foot tall clay dike (Crest El. 370 feet). The dikes were reportedly raised in the early 1970s an additional 8 feet (Crest elevation 378 feet) using an upstream method with new clay dikes. Again in 1978, the dikes were raised another 12 feet (Crest elevation 390 feet) with clay using upstream methods. In both cases, the raised dikes were constructed over bottom ash placed within the pond as a base. A 4 foot cutoff trench was also excavated along the interior slope face and filled with clay to help tie the two dikes together and minimize seepage.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	A Byproducts Operations Manual is available for the Johnsonville Fossil Plant, covering all active facilities.
TVA Maintenance:	Exterior slopes mowed twice annually.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports for repair/maintenance activities. Plant personnel recently started making daily observations and performing weekly reviews of the disposal facilities at this plant.
Problems Previously Identified During Past TVA Inspections:	Seepage along northeast and southeast slopes, animal burrows, heavy vegetation, isolated trees and depressions along exterior slopes at various areas around pond, pond freeboard is less than design, steep exterior slopes, sinkhole formed in the past above the south discharge pipes, abandoned weir structures, minimal storage capacity.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10W527, 527-1, 527-2, 528, 529, 10N502, 503, 524, 528, 529, 531, 10E200-01, JOFNC01, 604B887R0, 604K861R1, 604K862R0, 604K881R0 through 886R0, KY Lake Safety Harbor 1 and 2, 461K509.
TVA As-Built Drawings:	Some previous dikes are shown on the drawings listed above, but are not documented as being as-built.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1970 to 2008.
Geotechnical Data:	"Johnsonville Steam Plant-Ash Disposal Area No. 2 Dike Raising, Soil Exploration and Testing", Memorandum from G. Farmer to G.L. Buchanan, November 22, 1977. "Report of Geotechnical Evaluation: Ash Pond Dike: New Johnsonville Plant", Law Engineering, January 1994. "Subsurface Exploration Data: TVA Borings at Johnsonville Fossil Plant", Law Engineering, October 11 1994. "Report of Subsurface Exploration and Stability Analysis, Johnsonville Fossil Plant Ash Disposal Area, New Johnsonville", Law Engineering and Environmental Services, Inc., September 19, 1997. "Report of Ash Pond Investigation: Johnsonville Fossil Plant, New Johnsonville, Tennessee", MACTEC Engineering and Consulting, August 28, 2003 "Results of Laboratory Testing-Grab Samples from Active Ash Pond", performed by Law Engineering, July 1995.

"Johnsonville Steam Plant-Ash Pond-Soil and Foundation Exploration", Memorandum from J.C. McGraw to F.P. Lacy, TVA, September 17, 1969.

"Johnsonville Groundwater Assessment", TVA Resource Group, Engineering Services, March 1995.

"Geology of the New Johnsonville Steam Plant Site", TVA Water Control Planning Dept., Geologic Division, January 14,1948.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Tall grass, phragmites, dense coverage.
Trees:	None observed.
Wave Wash Protection:	Rip-rap slope protection present within portions of the pond (primarily within stilling pond and portions of the divider dikes).
Erosion:	Few locations of wave erosion, size and length vary.
Instabilities:	None observed.
Animal Burrows:	None observed.
Freeboard:	**Measured:** 2 feet. at Section 7 **Design:** 4 feet
Encroachments:	Dewatering of fly ash and bottom ash is performed internally within the central portion of the pond.
Slope:	**Measured:** 2.0H:1V (Estimated) **Design:** 2.0H:1V (from drawing 10W527)

6.2. Crest

Crest Cover and Slope:	Gravel access road, crest appeared relatively flat.
Erosion:	None observed.
Alignment:	Alignment appeared consistent with design drawings.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	None observed.
Width:	**Measured:** 23 feet at Section 7 20 feet at Section 10 **Design:** 16 feet for perimeter dike (from drawing 10W527)

6.3. Exterior Slopes

Vegetation:	Mostly grass with briars in various areas, adequate coverage. Briars have taken over slopes in the past and will continue to do so if not cleared regularly.
Trees:	Trees have been removed from majority of exterior slopes with the exception of those areas along the toe of the dike along the southern end of the pond.
Erosion:	Erosion rills, transverse depressions observed in various areas.
Instabilities:	Some minor shallow sloughing observed primarily along the eastern side of the pond.
Uniform Appearance:	Slopes appear fairly uniform.
Seepage:	Significant seepage along northeast and southeast dikes. Seepage collection system recently installed along southeast dike for better monitoring. Wet areas are present within the seepage areas observed. Standing water along the access road at the toe of the northeast dike was also observed.
Benches:	Benches observed along the northwestern portions of the dike. These benches appear to have been constructed for access by equipment to make repairs in the past.

Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control or instrumentation were observed with the exception of the recently installed seepage collection system on the southeast dike.	
Animal Burrows:	Numerous animal burrows observed throughout the majority of the dike on all sides.	
Slope:	**Measured:**	1.7H:1V at Sections 7, 8, 10, and 11 1.5H:1V at Section 9
	Design:	2.0H:1V with 3H:1V or flatter slopes below Elevation 378 feet (from drawing 10W527)
Height:	**Measured:**	Varies 20 to 30 feet
	Design:	Approximately 30 feet (from drawing 10W527)

6.4. Spillway Weirs/Riser Inlets

Number:	Three sets of 3 spillways; one set to the northwest (abandoned), one to the southeast (raised but not closed), and the current active set to the southwest.
Size, Type and Material:	48 inch RCP push-together riser sections with standard TVA steel skimmers.
Height of Riser Inlets:	Approximately 36 feet for the current active spillways.
Access:	Catwalk present to northernmost active spillway. No other access to current or abandoned spillways observed.
Joints:	Unable to observe joints or leakage below inlet level.
Mis-Alignment:	None observed or reported.
Closed/Abandoned Conduits:	The three spillways to the northwest were reportedly closed by filling them with concrete. Ash was covering these spillways at the time of this assessment and they could not be reviewed. The three spillways to the southeast were raised but no further efforts to close these structures were reported. The center spillway within the active set was raised and taken out of service due to what was believed to be joint separation in the discharge

pipe which caused a sinkhole to form along the exterior dike slope. Efforts were made to slip line this spillway but were unsuccessful.

6.5. Outlet Pipes

Number:	Three (3) abandoned to the northwest Three (3) currently out of service to the southeast Two (2) active and 1 out of service to the southwest
Size, Type and Material:	36 inch RCP
Headwall:	None observed or reported.
Joint Separations:	Separation in the central discharge pipe within the southwest set of spillways reported resulting in sinkhole on exterior slope. Slope was reportedly repaired. Efforts were made to slip line the pipe but were unsuccessful. The spillway was raised and taken out of service.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	7 of 9 spillways have been taken out of service or closed as described above.

7. Notable Observations and Concerns

- The absence of an Emergency Action Plan, Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.
- RCP push-together stacked riser structure spillways are a concern. A significant volume of water passes through the two open spillways with surging observed at the discharge into Kentucky Lake. The surging noted increases the potential for piping and internal erosion of the dike at joints in the discharge pipes. Document reviews indicate that in the late 1980s and early 1990s, sinkholes formed along the outslope below the current active spillways. It is believed that joint separation along the buried discharge pipes caused the subsidence. The area was repaired with rip-rap and the slope restored. No further documentation indicating that a detailed evaluation of the damaged structures was performed.
- Significant seepage present along the southeast and east dikes is a primary concern. A new seepage collection system has been installed along the toe of the southeast dikes with a single outlet for better monitoring. Continued evaluation of these seepage areas will be required.

- The perimeter dike outer slopes, particularly those along the east and southeast dikes are steep. Slopes of about 1.7H:1V were measured along the east and southeast sides of the perimeter dike. In addition, the hummocky and uneven surfaces that exist in several areas may be evidence of shallow slope movement (creep). Slope stability is a concern.
- Raising the dikes by using upstream construction over sluiced ash is a potential slope stability concern.
- The composition of the perimeter dikes and foundation materials are unknown. Considering the perimeter dike's steepness, height, and areas of seepage, it is a concern that the composition and engineering properties of the foundation and dike materials are largely unknown.
- The pond is operating at a high level with freeboard of about 2 feet or less. This is a primary concern when considering the seepage areas, slope stability issues, unknown composition of the dike and foundation materials, and potential for overtopping that is present.
- There are two sets of abandoned weir structures within the active pond. The first set is located to the northwest and the second is located along the southeast side of the pond. Each set has three structures. The freeboard at these abandoned structures is minimal, and the methods used for closing the northwest set of structures are relatively unknown. The southeast set of spillways have not been closed but have merely been raised to take them out of service.
- Animal burrows were noted along the perimeter dike faces in several areas. The animal burrows are abundant and have been reported for several years.
- Shallow depressions were observed in several areas on the perimeter dike outer slope along the west side. These depressions have been observed for several years and could be attributed to tree removal.
- There are several shallow transverse depressions and erosion rills on the southeast dike outer slope. The rills and depressions begin immediately below the crest and extend to the toe of slope in most cases. These are likely erosion rills even though there does not appear to be evidence of concentrated runoff from the dike road in these areas.
- Some rutting was observed along the toe of the east perimeter dike. The rutting was previously reported in annual inspections and is likely due to traffic within the seepage areas in this area.
- Phragmites are present on some of the divider dikes, the interior pond slopes and at exterior slope seepage areas where ground is soft.

- Trees are located along the toe of the perimeter dike slopes along the southwest and southeast portions of the pond. The trees are beginning to infringe upon the toe in these areas. In addition, briars are beginning to re-establish along the toe and outer slopes of the pond in these areas.
- Previous inspection reports appear adequate, but there is a trend of not all maintenance recommendations being executed.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that the perimeter dikes for Active Ash Disposal Areas 2 & 3 undergo further engineering study to evaluate slope stability and seepage. This slope stability program is currently underway at the Active Ash Disposal Areas 2 & 3.
- In addition to the slope stability evaluation being performed, it is recommended that a hydraulic and hydrologic study be performed to evaluate freeboard and pond outlet adequacy relative to process flow and stormwater. Currently, new spillways are being designed that should incorporate these analyses.
- It is recommended that the abandoned weir structures within Active Ash Disposal Areas 2 & 3 be evaluated and a plan prepared to properly close these structures.
- A plan is currently being prepared to lower the pool in Active Ash Disposal Areas 2 & 3 to allow for installation of a new spillway structure. Routine repairs and monitoring of the spillway systems should be continued until replacement is complete. Once the new spillway is in place, a plan should be prepared for proper closure of the old RCP stacked riser spillways.
- The seepage observed along the toe of the perimeter dike at the east side of Ash Disposal Area 2 & 3 should continue to be monitored. A seepage monitoring point should be installed similar to the collection system installed on the toe of the southeast dike.
- Because the active ash disposal pond is nearing capacity and there are significant concerns relative to the integrity of the structure, it is recommended that a new permitted disposal facility be identified and permitted as soon as possible.
- It is recommended that the existing Operations and Maintenance Manual be updated for this facility.
- It is recommended that a program to develop as-built drawings and construction records for future maintenance and construction activities be established.

8.2. Maintenance Recommendations

- Remove trees from noted locations at Ash Disposal Areas 2 & 3 and repair slopes as needed following tree removal. To minimize damage to the toe and slopes, rip rap should be placed along the slopes once tree removal is complete to protect against wave action.
- Cut and maintain heavy, tall phragmites growth on interior slopes of ponds to allow better observation.
- The plant should continue best management practice of repairing areas of erosion, animal burrows, depressions, etc. and covering and seeding exposed areas within the Active Ash Disposal Areas 2 & 3. The areas should continue to be monitored and repairs made as conditions warrant.
- Due to the history of heavy vegetation along the perimeter slopes of the Active Ash Disposal Area and the presence of some briars and heavier growth along the outslopes, the plant should consider mowing these areas more than twice a year.
- The seepage observed along the toe of the perimeter dike at the northeast side of Ash Disposal Area 2 should continue to be monitored. A seepage monitoring point consisting of a collection system and weir box or similar structure should be installed.
- Continue annual inspection program and execute recommendations.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Johnsonville Fossil Plant (JOF)
South Railroad Loop Ash Disposal Area 4 (CDA)

1. General Facility Information

Facility Status:	Closed		
Surface Area:	95 acres	Maximum Height (toe to top of stack):	70 feet

2. Site Visit Information

Stantec Assessment Team:	Stephen Bickel, PE, Nathan Bader, PE, Josh Kopp, EIT
TVA Staff Present:	Stuart Harris, Tony Dillon
Field Assessment Dates:	January 12, 2009 and February 23 - 25, 2009
Weather/Site Conditions:	Clear, moist ground during both assessments

3. History/Description of Usage

History, Operation and Stacking Plan:

Construction of the South Railroad Loop Ash Disposal Area 4 began in 1981. The disposal area was originally constructed in three parts; two dredge cells and a dry waste area. The perimeter dike for the areas was constructed of soil and rock to elevation 400 feet and was later raised to elevation 408 feet. One dredge cell within the disposal area was located along the southwest corner and the second was located along the east side of the disposal area. Two stilling ponds ("C" and "D") were located along the north portion of the disposal area and used when the dredge cells were in service. Pond "D" contains a Type B spillway which consist of a RCP riser and outlet pipe. Pond "C" has a wooden weir box and RCP outlet pipe which drains to Pond "D". The dredge cells were apparently raised using upstream techniques with ash dikes and received dredged ash from Ash Area 2 until they were filled. Later, dry stacking operations commenced in various portions of the disposal area over the previous dredge cells and within the northwestern portion of the disposal area where no dredge cell existed. The dry stacking operation followed a stacking plan developed in 1996. By 2000, dry stacking operations within the disposal area were complete and the area was covered with soil and vegetated for closure. A 40 mil. liner cover was also incorporated into closure of portions

	of the disposal area. The existing stacks are considerably different in height. This is attributed to the power lines present over the disposal area. A buffer was kept between equipment and the power lines and as a result, ash was stacked as high as the power lines allowed. The maximum height is along the east side and is approximately 70 to 80 feet in height. Plans for the stacking included 3H:1V slopes with benches every 30 to 40 feet in height.
Stacking over Dredge Cells or CCB Ponds:	Portions of the disposal area were used as dredge cells. These areas were located in the southwest corner and along the east side. These dredge cells operated until they were filled and then closed. Stacking operations were later performed above these structures with the majority of the stacking occurring over the eastern dredge cell.
Past Failures/Releases:	No failures or releases reported..

4. Owner's Operations, Maintenance and Inspection Information

TVA Maintenance:	Exterior slopes mowed annually.
TVA Inspections:	TVA Engineering performs annual dike inspections which include the old disposal area and prepares reports for repair/maintenance activities. Plant personnel recently started making daily observations and performing weekly reviews of the disposal facilities at this plant.
Problems Previously Identified During Past TVA Inspections:	Throughout the years, areas of erosion, washouts, seepage, sedimentation in drainage features, and lack of vegetative cover have been identified around various portions of the disposal area.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10W532-1 through 532-10, 532-17, 532-20 through 532-24, 10W219, 10W530-1 through 530-4, 461K509 E4 and E5, and STEP Inc. Plans for Solid Waste Disposal Facility (3 sheets).
TVA As-Built Drawings:	Drawings 10W532-20 through 532-24
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1981 to 2008.
Geotechnical Data:	"Final Closure Report, Area 2 of the Dredged Ash Disposal Facility (Rail Loop Area), Johnsonville Fossil Plant", Beaver Engineering, Inc. 1994. "Closure/Post Closure Plan, Dredged Ash Disposal Facility (Rail Loop Area), TVA, Johnsonville Fossil Plant", Tribble and Richardson, Inc. and Law Engineering, August 1991. "Hydrogeology of Rail Loop Dredged Ash Tacking Area, TVA New Johnsonville Fossil Plant", TVA Engineering laboratory, September 1997. "Johnsonville Groundwater Assessment", TVA Resource Group, Engineering Services, March 1995. "Geology of the New Johnsonville Steam Plant Site", TVA Water Control Planning Dept., Geologic Division, January 14,1948.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Exterior Slopes and Benches

Vegetation:	Grassy vegetation established throughout majority of existing disposal area with the exception of small areas where recent erosion has occurred. The original perimeter starter dike is heavily vegetated with trees throughout.
Trees:	The original perimeter starter dike has mature trees present throughout. Some smaller trees were also observed along various areas within the interior and top of the disposal area.
Erosion:	Numerous areas of erosion were reported in past annual inspection reports. Some of these areas have been repaired while some new areas have developed. These areas included numerous washouts, erosion rills along the slopes, benches and drainage features, and animal burrows.
Instabilities:	Several areas of shallow sloughing and instability are present throughout the original starter dike along the south and southwest sides.
Uniform Appearance	The disposal area consists of varying stacking and pond heights and is not uniform especially where erosion has occurred. The appearance is relatively poor along the majority of the original starter dike, where erosion and sloughing has occurred.
Benches:	Benches are present at varying levels throughout the disposal area. Along the east stack area, the benches generally serve as a drainage ditch for runoff. Some standing water, erosion and sedimentation was observed at various locations along the benches.

Slope:	Design: 3H:1V exterior and 2H:1V interior slopes are shown for the original starter dike (from drawing 10W530-2). For the dry stack slopes to the east, 3H:1V slopes are shown (from drawing 10W532-10). Within Stilling Pond "D", 2.5H:1V interior and exterior slopes are shown (from drawing 10W530-2). Measured: 3.0H:1V along eastern stack area at Section 2. 1.3H:1V along original starter dike at Section 3. 2.7H:1V along pond/stack slope in southwest corner of disposal area at Section 3. 2.7H:1V along stack in northwest corner of disposal area at Section 4. 2H:1V along stilling pond slopes (Estimated).
Height:	70 feet at eastern stack area (estimated). 15 to 20 feet along original starter dike (estimated). 40 to 50 feet at northwestern stack (estimated). 35 to 40 feet at pond/stack in southwest corner of disposal area (estimated).
Other:	None.

6.2. Perimeter Drainage Ditches and Down-Drains

Vegetation:	The drainage ditches throughout the disposal area have grassy vegetation except for areas that have eroded.
Rip-Rap Channel Lining:	Rip-rap was observed in various drainage swales throughout the disposal area. It is believed that the majority of these rip-rap areas were a result of previous erosion that occurred.
Erosion:	Erosion areas including washouts and rills were noted at various areas along selected drainage ditches.
Siltation in Ditches:	Some siltation was present in various ditches throughout the disposal area.
Standing Water in Ditches or on Benches:	Standing water was observed within some of the drainage ditches throughout the disposal area and along portions of the benches within the eastern stack area.
Silted/Impeded Drainage Pipes:	None observed.
Other:	None.

7. Notable Observations and Concerns

- The absence of an Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.
- This disposal area consisted of a combination of dredging and stacking operations. Based on the documents reviewed, several dredge ponds were used to dispose of ash prior to dry stacking and ultimate closure of the facility. The original starter dike along the southwest and south sides is very steep and overgrown. The slopes are as steep as about 1.5H:1V in parts. Some shallow sloughing and fallen trees are present throughout.
- Several areas requiring maintenance activities were observed throughout the disposal area. These areas included erosion rills, washouts, some animal burrows, and standing water in various portions of the disposal area. These areas are typical of the deficiencies observed in previous inspections. Previous inspection reports appear adequate, and the majority of the recommendations for repairs to the disposal area were attempted. Due to the drainage conditions and erosive nature of the materials used to construct the disposal area and final cover, continued erosion has occurred even after the previous repairs were made. It is expected that maintenance will need to be executed each year to repair eroded areas, washouts, etc.
- In addition to the trees observed along the original starter dike, some small trees were observed along various portions of the disposal area.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that an Operations and Maintenance Plan be developed for the facility.
- It is recommended that a program be established to develop as-built drawings and construction records for future maintenance and construction activities.

8.2. Maintenance Recommendations

- Refer to the current Annual Inspection Report for repair locations and instructions for the disposal area. The plant should continue best management practice to mow and maintain the exterior slopes and top of the disposal area to allow for better assessment of the facility. This includes cutting and maintaining vegetation, tree removal, repairs of erosion areas, etc.
- Continue annual inspection program and execute recommendations.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Johnsonville Fossil Plant (JOF)
Dredge Pond East of Gas Turbines Area 5 (CDA)

1. General Facility Information

Facility Status:	Inactive	NID Identification:	Not Available
Surface Area (inside dikes)	35 acres	Maximum Height (toe to top of dike):	36 feet
Free Water Volume:	N/A	Maximum Water Storage:	N/A
Estimated CCB Storage:	Unknown	Dike Length:	4,400 feet
Plant Discharge to Facility:	N/A	Current Pool Elevation:	Currently closed.

2. Site Visit Information

Stantec Assessment Team:	Stephen Bickel, PE, Nathan Bader, PE, Josh Kopp, EIT
TVA Staff Present:	Stuart Harris, Tony Dillon
Field Assessment Dates:	January 12, 2009 and February 23 - 25, 2009
Weather/Site Conditions:	Clear, moist ground during both assessments

3. History/Description of Usage

History and Operation: The Ash Dredge Pond East of Gas Turbines Area 5, also known as the Dupont Dredge Cell, was built in the late 1980s or early 1990s and is currently closed. It is located east of the Gas Turbines and northeast from the South Railroad Loop Ash Disposal Area. The cell was constructed with 10 to 12 foot tall perimeter clay dikes (Crest elevation 413.5 feet). The drawings indicate the interior of the cell was also excavated down to elevation 393 feet for additional storage. An impervious clay liner was also reportedly used along the bottom of the cell. The dikes were raised once in Phase 2 to elevation 428 feet by upstream methods using ash. In the late 1990s and early 2000s, dry stacking was performed to complete disposal in this cell. The spillway was located along the south portion of the cell and consisted of a wooden weir box with a 18 inch diameter corrugated HDPE pipe. The pipe was gravity drained along the adjacent roadway to

	stilling pond C within the South Railroad Loop Ash Disposal Area. The cell was covered with soil, vegetated, and closed in the early 2000s. According to documentation, the spillway was removed and the outlet pipe was plugged and sealed. To prevent rainfall from percolating down into the closed cell, an evapotransportation plan was submitted and installed in 2005. The plan consisted of planting trees along the crest of the closed cell.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	No OM has been prepared for this facility.
TVA Maintenance:	Due to the planting of trees for the evapotransportation plan, mowing is not performed along the crest of the closed cell.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports for repair/maintenance activities. Plant personnel recently started making daily observations and performing weekly reviews of the disposal facilities at this plant.
Problems Previously Identified During Past TVA Inspections:	Seepage has been reported along the crest of the original perimeter dike for years. This seepage has been attributed to a "bathtub" effect caused by rainfall percolating into the cell and filling up the cell above the original impervious liner.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10W218-1 through 218-5, 218-7, 218-8, 10W3264, 10E202-1.
TVA As-Built Drawings:	None available.
TVA Construction	None available.

Testing Records:

TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1987 to 2008.
Geotechnical Data:	"Johnsonville Fossil Plant - Offsite and Onsite Dredge Fly Ash Storage Areas Addendum", Singleton Materials Engineering Laboratory, April 18, 1988.
	"Report of Supplemental Hydrogeologic Activities - Proposed Dredged Ash Disposal Cell, TVA, New Johnsonville Steam Plant, New Johnsonville, Tennessee", Law Engineering, January 7, 1992.
	"Report of Subsurface Exploration, Ash Disposal Area, Johnsonville Fossil Plant, New Johnsonville, Tennessee", Law Gibb Group, November 30, 2000.
	"Report of Engineering Services, Ash Dredge Cell Earth Cap Project, Johnsonville Fossil Plant, New Johnsonville, Tennessee", Law Gibb Group, October 26, 2001.
	"Offsite and Onsite Fly Ash Storage-Material Evaluation, Johnsonville Steam Plant", GGEG Calculations, March 1988.
	"Johnsonville Groundwater Assessment", TVA Resource Group, Engineering Services, March 1995.
	"Geology of the New Johnsonville Steam Plant Site", TVA Water Control Planning Dept., Geologic Division, January 14,1948.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	No interior slopes.
Trees:	N/A
Wave Wash Protection:	N/A
Erosion:	N/A

Instabilities:	N/A
Animal Burrows:	N/A
Freeboard:	**Measured:** Cell currently closed. **Design:** 2 feet (from drawing 10W218-1)
Encroachments:	None observed.
Slope:	**Measured:** N/A **Design:** 2.0H:1V (from drawing 10W218-1)

6.2. Crest

Crest Cover and Slope:	Cell has been closed and covered with soil. Vegetation and some trees are established throughout the majority.
Erosion:	Minor erosion observed in various areas along the crest of the starter dike and top of the cell.
Alignment:	Alignment appears consistent with design drawings.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	None observed.
Width:	**Measured:** Unknown **Design:** 16 feet for original started dike (from drawing 10W218-1)

6.3. Exterior Slopes

Vegetation:	The exterior slopes are vegetated with a heavy stand of grass and phragmites.
Trees:	Trees were observed along the exterior slope in the north end of the cell and in various areas along the crest of the original starter dike and top of the closed cell.
Erosion:	Minor erosion was observed in various areas along the starter dike and the upper Phase 2 dike. A few animal paths were also observed in various areas along the exterior slopes and crest.
Instabilities:	None observed.
Uniform Appearance:	Exterior slopes are uniform with various areas of erosion.

Seepage:	Seepage was observed along the crest of the original starter dike around the entire perimeter of the cell. Heavy stands of phragmites are present throughout the crest of the starter dike due to the wet, soft ground conditions. This seepage has been reported for several years and originally started in the north portion of the cell. The seepage has continued to extend farther around the cell for years and appears to have completely surrounded the cell at this point.	
Benches:	Crest of original starter dike appears as a bench below the Phase 2 dike above.	
Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control, or instrumentation were observed	
Animal Burrows:	None observed.	
Slope:	**Measured:**	2.5H:1V for starter dike and 3H:1V or flatter for upper Phase 2 dike at Section 1
	Design:	3.0H:1V for starter dike and 4H:1V for Phase 2 dike (from drawing 10W218-5).
Height:	**Measured:**	19 feet for starter dike at Section 1
	Design:	20 feet or less for starter dike and 14.5 feet for Phase 2 dike (from drawings 10W218-1 and 218-5)

6.4. Spillway Weirs/Riser Inlets

Number:	One (1)
Size, Type and Material:	Wooden weir and wooden riser spillway.
Height of Riser Inlets:	10 to 12 ft. (from drawing 10W218-1).
Access:	Unknown.
Joints:	Unknown.
Mis-Alignment:	Unknown.
Closed/Abandoned Conduits:	Spillway was reportedly removed for closure of the cell.

6.5. Outlet Pipes

Number:	One (1)
Size, Type and Material:	18 inch Corrugated HDPE gravity drain pipe
Headwall:	None reported.
Joint Separations:	None reported.
Mis-Alignment:	None reported..
Closed/Abandoned Conduits:	Outlet pipe was reportedly plugged and sealed for closure of the cell.

7. Notable Observations and Concerns

- The absence of an Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.
- Significant seepage is present along the bench separating the starter dike from the remainder of the cell. Records indicate that a liner was installed within the bottom of the cell during construction. Since that time, the cell has been closed with a soil cover with the top exposed to rainfall. Over the years, rainfall has saturated the cell resulting in the seepage observed on the upper bench. Trees have been planted along the top of the cell as part of an evapotransportation project in an effort to limit the amount of rainfall that ends up percolating through the cell. These efforts have not remedied the seepage and it is continuing.
- Some trees were observed along various portions of the outer starter dike slopes surrounding the disposal area. In addition, the vegetation on this facility is waist high throughout the crest and slopes. Heavy stands of phragmites are present where wet ground conditions were observed.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that an Operations and Maintenance Plan be developed for this facility.
- It is recommended that a program to develop as-built drawings and construction records for future maintenance and construction activities be established.

8.2. Maintenance Recommendations

- The seepage observed around the Ash Dredge Pond East of Gas Turbines Area 5 should continue to be monitored. A seepage collection system should also be planned and installed to collect the seepage to outlets that can be easily monitored and to prevent further saturation of the starter dike until such time that the evapotransportation actions are established and functioning.
- It is recommended that trees be removed from exterior starter dike slopes. Slopes should be repaired as needed following tree removal.
- The plant should continue best management practice to mow and maintain the exterior slopes of the closed cell to allow for better assessment of the facility. This includes cutting and maintaining heavy/tall phragmites growth within seepage areas around the cell to allow better assessments, repairing erosion areas, and monitoring animal paths and repairing erosion if it occurs.
- Continue annual inspection program and execute recommendations.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Johnsonville Fossil Plant (JOF)
North Abandoned Ash Disposal Area 1 (CDA1)

1. General Facility Information

Facility Status:	Inactive	NID Identification:	Not Available
Surface Area (inside dikes)	45 acres (Area A) 113 Acres (Areas A, B, and C)	Maximum Height (toe to top of dike):	25 to 30 feet
Free Water Volume:	N/A	Maximum Water Storage:	N/A
Estimated CCB Storage:	Unknown	Dike Length:	2,100 feet (Area A-west perimeter dike)
Plant Discharge to Facility:	N/A	Current Pool Elevation:	Currently closed.

2. Site Visit Information

Stantec Assessment Team:	Stephen Bickel, PE, Nathan Bader, PE, Josh Kopp, EIT
TVA Staff Present:	Stuart Harris, Tony Dillon
Field Assessment Dates:	January 12, 2009 and February 23 - 25, 2009
Weather/Site Conditions:	Clear, moist ground during both assessments

3. History/Description of Usage

History and Operation: The North Abandoned Ash Disposal Area 1 was the original disposal pond for the plant. It was built in the early 1950s and is currently closed. It is located north of the plant and borders the neighboring Dupont property to the north and west. During operation, the area was divided into three disposal areas (Areas A, B, C). These areas were constructed with ash dikes along the perimeter and separating each area. The dikes were raised at least once by upstream methods using bottom ash. The final dike to create Area C was constructed in 1970. During this time and by the end of 1970, the disposal area only received Dupont effluent with the plant effluent being disposed of in the new Ash Disposal Areas 2 & 3. Throughout 1975 and 1976, Areas A and B were closed and covered with soil to establish vegetation. The

	perimeter dikes were also covered with soil and flattened to 2.5H:1V in 1978. The exact location of the various abandoned spillways and outlet pipes is unknown, but they were reportedly filled with concrete or removed. An informal agreement was established with Dupont in 1972 so that Dupont would assume responsibility for Pond C. Currently, only the southern portion of Area A is outside the Dupont property fence line and can be reviewed. The fence line was constructed in 1977.
Past Failures/Releases:	Seepage along the west perimeter dike along the bank of Kentucky Lake has been reported for years.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	No OM has been prepared for this facility.
TVA Maintenance:	Ditches were excavated along the inner dike slope to direct runoff to a new outlet pipe near the Dupont fence line in the 1990s.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports for repair/maintenance activities. Plant personnel recently started making daily observations and performing weekly reviews of the disposal facilities at this plant.
Problems Previously Identified During Past TVA Inspections:	Redwater seepage along the outer dike slopes of Area A.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Drawing numbers 10N503, 10H443 and 525.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.

TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1967 to 2008.
Geotechnical Data:	"Johnsonville Groundwater Assessment", TVA Resource Group, Engineering Services, March 1995. "Geology of the New Johnsonville Steam Plant Site", TVA Water Control Planning Dept., Geologic Division, January 14,1948.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Ditch slopes along interior of Area A heavily vegetated.
Trees:	Trees present along interior ditch slopes.
Wave Wash Protection:	None observed.
Erosion:	Some erosion observed along interior ditch slopes.
Instabilities:	None observed.
Animal Burrows:	None observed.
Freeboard:	**Measured:** Cell currently closed. **Design:** Not available.
Encroachments:	None observed.
Slope:	**Measured:** None measured. **Design:** Ditch excavated to elevation 370 with 2.5H:1V slope (from drawing 10H443)

6.2. Crest

Crest Cover and Slope:	Cell has been closed and covered with soil. Vegetation and some trees are established throughout the majority.
Erosion:	Minor exposed areas and erosion throughout.
Alignment:	No drawings for comparison.
Settlement/Cracking:	None observed.

Bare Spots/Rutting:	Some bare spots observed along top of closed cell.	
Width:	**Measured:**	Unknown
	Design:	Not available.

6.3. Exterior Slopes

Vegetation:	The perimeter ash dike along the west side consists of ash with a soil cover. The area has been vegetated throughout the majority.	
Trees:	Trees were observed in various areas throughout.	
Erosion:	Erosion was observed in various areas throughout the majority of the exterior slope along Area A. In some areas, ash was exposed.	
Instabilities:	Some erosion and shallow sloughing were observed in various areas along the exterior slope.	
Uniform Appearance:	Exterior slopes are partly uniform with various areas of erosion.	
Seepage:	Seepage was observed along the toe of the west dike in several areas. This seepage has been reported for several years and appears unchanged from previous inspections.	
Benches:	None observed.	
Foundations, Drains, Relief Wells, Instrumentation:	No provisions for drainage/seepage control, or instrumentation were observed.	
Animal Burrows:	None observed.	
Slope:	**Measured:**	3.0H:1V at Section 5
	Design:	2.5H:1V (from drawing 10H443).
Height:	**Measured:**	28 feet at Section 5
	Design:	Varies (Max. elevation 378 feet)

6.4. Spillway Weirs/Riser Inlets

Number:	Unknown.
Size, Type and Material:	Unknown.
Height of Riser Inlets:	Unknown.
Access:	Unknown.
Joints:	Unknown.
Mis-Alignment:	Unknown.
Closed/Abandoned Conduits:	Unknown.

6.5. Outlet Pipes

Number:	One (1) outlet pipe observed to drain interior runoff ditch, total number unknown.
Size, Type and Material:	36 inch Corrugated HDPE
Headwall:	None observed.
Joint Separations:	None reported
Mis-Alignment:	None reported.
Closed/Abandoned Conduits:	None reported.

7. Notable Observations and Concerns

- The absence of an Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.
- This closed facility was the original disposal area for the plant. It consisted of Ponds A, B, and C. Since it was originally constructed, disposal in this area was shared with the neighboring Dupont plant. Document reviews and discussions with plant personnel indicate that there is an informal agreement with Dupont that they have assumed management of these facilities. Currently, fencing around the Dupont facility limits access to the majority of the area with only the southern end of previous Pond A extending outside the fence line.

- Some trees were observed along various portions of the outer dike slopes along the west side of Pond A. Some erosion is also present along the clay cover with exposed ash present in some areas along the banks of Kentucky Lake.
- Seepage has been reported along the west banks of Pond A for several years. The seepage was also observed during the assessments by Stantec personnel. Continued monitoring of these seepage areas will be required.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that an Operations and Maintenance Plan be developed for this facility.
- It is recommended that a program to develop as-built drawings and construction records for future maintenance and construction activities be established.

8.2. Maintenance Recommendations

- It is recommended that trees be removed from the outer slopes along the west side of Area A. Slopes should be repaired as needed following tree removal. Areas of erosion and exposed ash should also be repaired and new clay cover installed. To minimize damage to the toe and slopes, rip rap should be placed along the slopes once repairs are complete to protect against wave action. The dike should continue to be monitored and repaired as conditions warrant.
- The seepage observed along the toe of the west dike at the North Abandoned Ash Disposal Area 1 (Area A) should continue to be monitored.
- The plant should continue best management practice to mow and maintain the closed cell until such time that management of the facility is assumed by Dupont.
- Continue annual inspection program and execute recommendations.

Drawing Mark AP-2&3-1 Erosion rill along exterior perimeter dike slope (Typ.).

Drawing Mark AP-2&3-2 Seepage collection system on southeast perimeter dike.

Drawing Mark AP-2&3-3 Standing water/seepage along southeast perimeter dike toe.

Drawing Mark AP-2&3-4 Heavy growth and phragmites along interior divider dike (Typ.).

Drawing Mark AP-2&3-5 Bench and lower rip rap slope along northwest perimeter dike.

Drawing Mark AP-2&3-6 Depression along exterior slope at northwest dike (Typ.).

Drawing Mark AP-2&3-7 Animal burrow (Typ.).

Drawing Mark AP-2&3-8 Standing water/seepage and rutting along toe of northeast dike (Typ.).

Drawing Mark AP-2&3-9 Southeast weir taken out of service (Typ.).

Drawing Mark AP-2&3-10 Raised weir at southeast set of spillways (Typ.).

Drawing Mark AP-2&3-11 Abandoned weir along northwest set of spillways (Typ.).

Drawing Mark AP-2&3-12 Active spillways along southwest side of pond.

Drawing Mark AP-2&3-13

Trees along toe of southwest dike (Typ.), note surging discharge pipe.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
AP-2&3-1	Erosion rill along exterior perimeter dike slope (Typ.).	Photo 44B
AP-2&3-2	Seepage collection system on southeast perimeter dike.	Photo 43B
AP-2&3-3	Standing water/seepage along southeast perimeter dike toe.	Photo 46B
AP-2&3-4	Heavy growth and phragmites along interior divider dike (Typ.).	Photo 49B
AP-2&3-5	Bench and lower rip rap slope along northwest perimeter dike.	Photo 52B
AP-2&3-6	Depression along exterior slope at northwest dike (Typ.).	Photo 54B
AP-2&3-7	Animal burrow (Typ.).	Photo 55B
AP-2&3-8	Standing water/seepage and rutting along toe of northeast dike (Typ.).	Photo 57B
AP-2&3-9	Southeast weir taken out of service (Typ.).	Photo 64B
AP-2&3-10	Raised weir at southeast set of spillways (Typ.).	Photo 66B
AP-2&3-11	Abandoned weir along northwest set of spillways (Typ.).	Photo 69B
AP-2&3-12	Active spillways along southwest side of pond.	Photo 68B
AP-2&3-13	Trees along toe of southwest dike (Typ.), note surging discharge pipe.	Photo 42A

Drawing Mark CDA-4-1 Erosion exposing liner along toe of eastern stack area.

Drawing Mark CDA-4-2 Steep slopes and heavy growth along original starter dike slope (Typ.).

Drawing Mark CDA-4-3 Outlet for drainage area along southern portion of disposal area (Typ.).

Drawing Mark CDA-4-4 Trees and heavy growth along original starter dike slope (Typ.).

Drawing Mark CDA-4-5 Standing water along bench of eastern stack area (Typ.).

Drawing Mark CDA-4-6 Heavy vegetation along top of disposal area (Typ.).

Drawing Mark CDA-4-7 Erosion rill along southwest side of disposal area (Typ.).

Drawing Mark CDA-4-8 Washout along northwest stack area slope (Typ.).

Drawing Mark CDA-4-9 Spillway in Stilling Pond “D”

Drawing Mark CDA-4-10 Vegetation along interior of Stilling Pond “C” (Typ.).

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
CDA-4-1	Erosion exposing liner along toe of eastern stack area.	Photo 10B
CDA-4-2	Steep slopes and heavy growth along original starter dike slope (Typ.).	Photo 11B
CDA-4-3	Outlet for drainage area along southern portion of disposal area (Typ.).	Photo 12B
CDA-4-4	Trees and heavy growth along original starter dike slope (Typ.).	Photo 14B
CDA-4-5	Standing water along bench of eastern stack area (Typ.).	Photo 80B
CDA-4-6	Heavy vegetation along top of disposal area (Typ.).	Photo 82B
CDA-4-7	Erosion rill along southwest side of disposal area (Typ.).	Photo 15B
CDA-4-8	Washout along northwest stack area slope (Typ.).	Photo 88B
CDA-4-9	Spillway in Stilling Pond “D”	Photo 19B
CDA-4-10	Vegetation along interior of Stilling Pond “C” (Typ.).	Photo 21B

Drawing Mark CDA-5-1 Seepage along crest of starter dike (Typ.).

Drawing Mark CDA-5-2 Trees along exterior starter dike slope in north end of cell.

Drawing Mark CDA-5-3

Heavy phragmite growth along seepage area at crest of starter dike (Typ.).

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
CDA-5-1	Seepage along crest of starter dike (Typ.).	Photo 1B
CDA-5-2	Trees along exterior starter dike slope in north end of cell.	Photo 3B
CDA-5-3	Heavy phragmite growth along seepage area at crest of starter dike (Typ.).	Photo 6B

Drawing Mark CDA-1-1 Erosion, trees, exposed ash along west dike of Area A (Typ.).

Drawing Mark CDA-1-2 Seepage along toe of west dike of Area A.

Drawing Mark CDA-1-3 Erosion, shallow scarps along west dike of Area A (Typ.).

Drawing Mark CDA-1-4 Ditch outlet pipe adjacent to Dupont property.

Drawing Mark CDA-1-5 Heavy vegetation along interior ditch side slopes (Typ.).

Drawing Mark CDA-1-6 Areas of erosion and lack of vegetation along top of closed Area A (Typ.).

Drawing Mark CDA-1-7

Heavy vegetation and some trees along top of closed Area A (Typ.).

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
CDA-1-1	Erosion, trees, exposed ash along west dike of Area A (Typ.).	Photo 27B
CDA-1-2	Seepage along toe of west dike of Area A.	Photo 28B
CDA-1-3	Erosion, shallow scarps along west dike of Area A (Typ.).	Photo 29B
CDA-1-4	Ditch outlet pipe adjacent to Dupont property.	Photo 30B
CDA-1-5	Heavy vegetation along interior ditch side slopes (Typ.).	Photo 31B
CDA-1-6	Areas of erosion and lack of vegetation along top of closed Area A (Typ.).	Photo 32B
CDA-1-7	Heavy vegetation and some trees along top of closed Area A (Typ.).	Photo 33B

STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View - JOF

Tennessee Valley Authority
Johnsonville Fossil Plant
Johnsonville, Benton County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMG
CHECKED BY	DAG
CHECKED BY	
SCALE	AS SHOWN
REVISED	
1	
2	
3	
4	
5	
6	
7	
8	

SHEET

1 OF 1

\\A17\4\active\171468118\gis\mxd\Phase 1b\JOHNSONVILLE\johnsonville_planview.mxd

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Johnsonville Fossil Plant (JOF)

Date Reviewed	Reviewed by	Comments	File Type
2/20/2009	NB	Aerial Shot 3.jpg	JPG
2/20/2009	NB	Ash Pond Before.jpg	JPG
2/20/2009	NB	Ash Pond Construction 2.jpg	JPG
2/20/2009	NB	Ash Pond Construction.jpg	JPG
2/20/2009	NB	Ash Pond Picture.pdf	PDF
2/20/2009	NB	Before E Pond.jpg	JPG
2/20/2009	NB	Culvert Under Road.jpg	JPG
2/20/2009	NB	Ga000068.pdf	PDF
2/20/2009	NB	Picture1.jpg	JPG
2/20/2009	NB	Plant Aerial 2.jpg	JPG
2/20/2009	NB	Plant Aerial 3.jpg	JPG
2/20/2009	NB	Plant Picture.jpg	JPG
2/20/2009	NB	Pae Inspections.pdf	PDF
2/20/2009	NB	Sos Daily Inspections.pdf	PDF
2/20/2009	NB	1993 Annual By Products- Storage Area Dike Inspection - Corporate To Do Inspections.pdf	PDF
2/20/2009	NB	1993 Cover Letter.pdf	PDF
2/20/2009	NB	1993 Red Water Report.pdf	PDF
2/20/2009	NB	1994 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	1994 Red Water Report.pdf	PDF
2/20/2009	NB	1995 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	1995 Red Water.pdf	PDF
2/20/2009	NB	1996 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	1996 Red Water Report.pdf	PDF
2/20/2009	NB	1997 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	1997 Red Water Report.pdf	PDF
2/20/2009	NB	1998 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	1998 Red Water Report.doc	DOC
2/20/2009	NB	1999 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	1999 Red Water Report.doc	DOC
2/20/2009	NB	1999, North Bank Reason For Improvement.doc	DOC
2/20/2009	NB	2000 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	2000 Red Water Report.doc	DOC
2/20/2009	NB	2001 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	2001 Red Water Report.doc	DOC
2/20/2009	NB	2002 Dike Stability Inspection.pdf	PDF
2/20/2009	NB	2002 Red Water Report.doc	DOC
2/20/2009	NB	2003 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	2003 Dike Stability And Seepage Report - Cover Letter.doc	DOC
2/20/2009	NB	2003 Dike Stability And Seepage Report 12-23-2002.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
2/20/2009	NB	2003 Red Water Report.doc	DOC
2/20/2009	NB	2004 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	2004 Dike Stability And Seepage Report - Cover Letter.doc	DOC
2/20/2009	NB	2004 Dike Stability And Seepage Report 12-16-2003.pdf	PDF
2/20/2009	NB	2004 Red Water Report.doc	DOC
2/20/2009	NB	2005 Dike Inspection Notes.doc	DOC
2/20/2009	NB	2005 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	2005 Dike Stability And Seepage Report - Cover Letter 7-13-2005.doc	DOC
2/20/2009	NB	2005 Dike Stability And Seepage Report 2-2-2005.pdf	PDF
2/20/2009	NB	2005 Red Water Report.doc	DOC
2/20/2009	NB	2006 Annual Ash Pond Dike Inspection.pdf	PDF
2/20/2009	NB	2006 Dike Stability And Seepage Report - Cover Letter 7-28-2006.doc	DOC
2/20/2009	NB	2006 Dike Stability And Seepage Report 1-25-2006.pdf	PDF
2/20/2009	NB	2006 Red Water Report.pdf	PDF
2/20/2009	NB	2007 Dike Stability And Seepage Report - Cover Letter 7-30-2007.doc	DOC
2/20/2009	NB	2007 Dike Stability And Seepage Report 11-20-2006.doc	DOC
2/20/2009	NB	2007 JOF Ash Pond Insp Front Sheet 2007.doc	DOC
2/20/2009	NB	2007 Red Water Report.doc	DOC
2/20/2009	NB	2008 Dike Stability And Seepage Report - Cover Letter 8-26-2008.doc	DOC
2/20/2009	NB	2008 Dike Stability And Seepage Report 11-19-2007.doc	DOC
2/20/2009	NB	2008 Dike Stability And Seepage Report Attachment 1.doc	DOC
2/20/2009	NB	2008 JOF Ash Pond Map Api08-2.ppt	PPT
2/20/2009	NB	2008 JOF Ash Pond Map Api08.pdf	PDF
2/20/2009	NB	2008 Note To File. 12.31.2008 Dike Inspection (File 4191).doc	DOC
2/20/2009	NB	2008 Red Water Report.doc	DOC
2/20/2009	NB	2009 - 2003 Finding And Recommendations Of JOF'S Active Ash Pond.doc	DOC
2/20/2009	NB	2009 JOF Summary 2008 Ash Rp Fy 2008 - Nov 2008.doc	DOC
2/20/2009	NB	Aerial View -Johnsonville Steam Plant- Page 30 In JOF Brown Book.pdf	PDF
2/20/2009	NB	Discharge Location Map - Page 209 In JOF Brown Book.pdf	PDF
2/20/2009	NB	JOF Ash Pond Information.doc	DOC
2/20/2009	NB	JOF Summary 2008 Ash Rp Fy 2008.doc	DOC
2/20/2009	NB	JOF-10N503-Sht -Rev 9.cal	CAL
2/20/2009	NB	JOF-10W527-1-Sht -Rev 1.cal	CAL
2/20/2009	NB	JOF-10W527-2-Sht -Rev 1.cal	CAL
2/20/2009	NB	JOF-10W527-Sht -Rev 15.cal	CAL
2/20/2009	NB	JOF-10Ds403-Sht 1-Rev 1 Ash Sluice Pipe Trench & Supports Units 7 - 10 Anchor Bolt Details Dwg Nos 10N403, 406.cal	CAL
2/20/2009	NB	JOF-10Ds406-1-Sht 1-Rev 0 Yard Units 1 - 10 Anchor Bolt Details Ash Sluice Relocation Dwg Nos 10N406.cal	CAL
2/20/2009	NB	JOF-10Ds406-Sht -Rev 0 Fly Ash Reclaiming System Anchor Bolt Details Dwg No 10B406.cal	CAL
2/20/2009	NB	JOF-10H443-Sht -Rev 1 Main Plant Site Grading At Ash Disposal Area.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
2/20/2009	NB	JOF-10H443-Sht -Rev 1 Main Plant Site Grading At Ash Disposal Area.pdf	PDF
2/20/2009	NB	JOF-10H515-Sht -Rev 0 Ash Disposal Dike.cal	CAL
2/20/2009	NB	JOF-10H516-Sht -Rev 0 Ash Disposal Dike.cal	CAL
2/20/2009	NB	JOF-10H517-Sht -Rev 0 Ash Disposal Dike.cal	CAL
2/20/2009	NB	JOF-10H518-Sht -Rev 0 Ash Disposal Dike.cal	CAL
2/20/2009	NB	JOF-10H519-Sht -Rev 0 Ash Disposal Dike.cal	CAL
2/20/2009	NB	JOF-10H525-Sht -Rev 2 Ash Disposal Area.cal	CAL
2/20/2009	NB	JOF-10N252-Sht -Rev 0 Yard Condrete Washing Pad At Utility Building.cal	CAL
2/20/2009	NB	JOF-10N400-Sht -Rev 6 Yard Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf - Sheet 1.cal	CAL
2/20/2009	NB	JOF-10N401-Sht -Rev 4 Yard Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf - Sheet 2.cal	CAL
2/20/2009	NB	JOF-10N402-Sht -Rev 2 Yard Units 1-6 Concrete Ash Sluice Pipe Extension Outline & Reinforcement.cal	CAL
2/20/2009	NB	JOF-10N403-Sht -Rev 3 Yard Units 7-10 Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf. - Sheet 1.cal	CAL
2/20/2009	NB	JOF-10N404-Sht -Rev 1 Yard Units 7-10 Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf. - Sheet 2.cal	CAL
2/20/2009	NB	JOF-10N405-Sht -Rev 5 Yard Units 1-10 Concrete Ash Sluice Relocation Outline & Reinf. - Sh 1.cal	CAL
2/20/2009	NB	JOF-10N406-Sht -Rev 4 Yard Units 1-10 Concrete Ash Sluice Relocation Outline & Reinf - Sh 2.cal	CAL
2/20/2009	NB	JOF-10N407-Sht -Rev 1 Yard Units 1-10 Concrete Ash Sluice Trench Outline & Reinforcement.cal	CAL
2/20/2009	NB	JOF-10N503-Sht -Rev 9 Main Plant Dike For Ash Disposal Area .cal	CAL
2/20/2009	NB	JOF-10N524-Sht -Rev 0 Main Plant Ash Disposal Area Divider Dike & Floating Boom.cal	CAL
2/20/2009	NB	JOF-10N531-Sht -Rev 0 Standard Drawing Weir For Ash Disposal Spillway.cal	CAL
2/20/2009	NB	JOF-10W212-Sht -Rev 2 Main Plant Drainage & Dike Details Ash Disposal Area.cal	CAL
2/20/2009	NB	JOF-10W218-1-Sht -Rev 3 Main Plant Ash Dredge Cell-East Of Gas Turbines Plan & Gravity Drain.cal	CAL
2/20/2009	NB	JOF-10W218-2-Sht -Rev 3 Main Plant Ash Dredge Cell-East Of Gas Turbines Profile, Sections & Details.cal	CAL
2/20/2009	NB	JOF-10W218-3-Sht -Rev 4 Main Plant Ash Dredge Cell-East Of Gas Turbines Spillway Plan & Sections.cal	CAL
2/20/2009	NB	JOF-10W218-4-Sht -Rev 3 Main Plant Ash Dredge Cell-East Of Gas Turbines Sump Pump Box For Underdrain Plan, Sections & Details.cal	CAL
2/20/2009	NB	JOF-10W218-5-Sht -Rev 3 Main Plant Ash Dredge Cell-East Of Gas Turbine Closure Plan & Sections.cal	CAL
2/20/2009	NB	JOF-10W218-7-Sht -Rev 1 Main Plant Ash Dredge Cell-East Of Gas Turbines Profile, Sections & Details.cal	CAL
2/20/2009	NB	JOF-10W218-8-Sht -Rev 0 Main Plant Ash Dredge Cell-East Of Gas Turbines Tree Planting Plan 2006.cal	CAL
2/20/2009	NB	JOF-10W219-Sht -Rev 2 Ash Disposal Area Inside Railroad Loop Settling Pond C Plan & Sections.cal	CAL
2/20/2009	NB	JOF-10W222-1-Sht -Rev 1 Yard North Rail Loop Ash Disposal Facility Site Location, Drawing Index, And Legend.cal	CAL
2/20/2009	NB	JOF-10W222-10-Sht -Rev 1 Yard North Rail Loop Ash Disposal Facility Cross Sections - Sheet 2.cal	CAL
2/20/2009	NB	JOF-10W222-11-Sht -Rev 2 Yard North Rail Loop Ash Disposal Facility Details - Sheet 1.cal	CAL
2/20/2009	NB	JOF-10W222-12-Sht -Rev 0 Yard North Rail Loop Ash Disposal Facility Details - Sheet 2.cal	CAL
2/20/2009	NB	JOF-10W222-13-Sht -Rev 1 Yard North Rail Loop Ash Disposal Facility Details - Sheet 3.cal	CAL
2/20/2009	NB	JOF-10W222-14-Sht -Rev 1 Yard North Rail Loop Ash Disposal Facility Access Road And Discharge Pipe Profiles.cal	CAL
2/20/2009	NB	JOF-10W222-15-Sht -Rev 0 Yard North Rail Loop Ash Disposal Faility Partial Liner Cross Sections & Notes.cal	CAL
2/20/2009	NB	JOF-10W222-16-Sht -Rev 0 Yard Ash Disposal North End Of Railroad Loop Section & Handhole #8.cal	CAL
2/20/2009	NB	JOF-10W222-17-Sht -Rev 0 Yard Ash Disposal North End Of Railroad Loop Retaining Wall & Handhole #2.cal	CAL
2/20/2009	NB	JOF-10W222-18-Sht -Rev 0 Yard North Rail Loop Ash Disposal Facility Partial Plan.cal	CAL
2/20/2009	NB	JOF-10W222-19-Sht -Rev 0 Yard North Rail Loop Ash Disposal Facility Details.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
2/20/2009	NB	JOF-10W222-2-Sht -Rev 0 Yard North Rail Loop Ash Disposal Facility Overall Site Location & Site Boundaries.cal	CAL
2/20/2009	NB	JOF-10W222-3-Sht -Rev 1 Yard North Rail Loop Ash Disposal Facility Existing Topography & Pertinent Features.cal	CAL
2/20/2009	NB	JOF-10W222-4-Sht -Rev 2 Yard North Rail Loop Ash Disposal Facility Initial Dike Construction And Site Development.cal	CAL
2/20/2009	NB	JOF-10W222-5-Sht -Rev 2 Yard North Rail Loop Ash Disposal Facility Sediment Pond Plain, Sections, & Principle Spillway & Discharge Piping.cal	CAL
2/20/2009	NB	JOF-10W222-6-Sht -Rev 2 Yard North Rail Loop Ash Disposal Facility Intermediate Stage 1 Grading Plan.cal	CAL
2/20/2009	NB	JOF-10W222-7-Sht -Rev 2 Yard North Rail Loop Ash Disposal Facility Intermediate Stage 2 Grading Plan.cal	CAL
2/20/2009	NB	JOF-10W222-8-Sht -Rev 2 Yard North Rail Loop Ash Disposal Facility Final Grading Plan.cal	CAL
2/20/2009	NB	JOF-10W222-9-Sht -Rev 1 Yard North Rail Loop Ash Disposal Facility Cross Sections - Sheet 1.cal	CAL
2/20/2009	NB	JOF-10W400-1-Sht -Rev 0 Yard Units 1 - 6 Concrete Ash Sluice Pipe Trench & Supports Outline & Reinforcing, Sheet 3.cal	CAL
2/20/2009	NB	JOF-10W408-1-Sht -Rev 0 Yard Units 1 - 10 Concrete Ash Trench Wall Modifications Outline & Reinforcement.cal	CAL
2/20/2009	NB	JOF-10W522-Sht -Rev 0 Yard Bottom Ash Disposal Area West Of Boat Harbor Conceptual Stacking Plan.cal	CAL
2/20/2009	NB	JOF-10W527-1-Sht -Rev 1 Main Plant Ash Disposal Area West Of Boat Harbor Erosion Repair 1994 - Sheet 1.cal	CAL
2/20/2009	NB	JOF-10W527-2-Sht -Rev 1 Main Plant Ash Disposal Area West Of Boat Area Erosion Repair 1994 Sheet 2.cal	CAL
2/20/2009	NB	JOF-10W527-Sht -Rev 15 Main Plant Ash Disposal Area West Of Boat Harbor.cal	CAL
2/20/2009	NB	JOF-10W528-Sht -Rev 11 Standard Drawing Ash Disposal Spillway.cal	CAL
2/20/2009	NB	JOF-10W529-Sht -Rev 6 Main Plant Ash Disposal Area Sections.cal	CAL
2/20/2009	NB	JOF-10W530-1-Sht -Rev 2 Yard Ash Disposal Area Inside Railroad Loop Sheet 1.cal	CAL
2/20/2009	NB	JOF-10W530-2-Sht -Rev 2 Yard Ash Disposal Area Inside Railroad Loop Sheet 2.cal	CAL
2/20/2009	NB	JOF-10W530-3-Sht -Rev 2 Yard Ash Disposal Area Inside Railroad Loop Sheet 3.cal	CAL
2/20/2009	NB	JOF-10W530-4-Sht -Rev 1 Yard Ash Disposal Area Inside Railroad Loop Sheet 4.cal	CAL
2/20/2009	NB	JOF-10W532-1-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Base Contours.cal	CAL
2/20/2009	NB	JOF-10W532-10-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan X-Sect'S Area 3, Misc Details.cal	CAL
2/20/2009	NB	JOF-10W532-17-Sht -Rev 3 Yard Rr Loop Ash Stacking Area Sections.cal	CAL
2/20/2009	NB	JOF-10W532-2-Sht -Rev 1 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Final Contours.cal	CAL
2/20/2009	NB	JOF-10W532-20-Sht -Rev 2 Law Engineering And Tribble & Richardson Inc. Rr Loop Ash Stacking Area Proposed Cover.cal	CAL
2/20/2009	NB	JOF-10W532-21-Sht -Rev 0 Yard Rr Loop Ash Stacking Area Spring 2002 Repairs.cal	CAL
2/20/2009	NB	JOF-10W532-22-Sht -Rev 0 Yard Rr Loop Ash Stacking Area Spring 2002 Broad Area Treatments.cal	CAL
2/20/2009	NB	JOF-10W532-23-Sht -Rev 0 Yard Rr Loop Ash Stacking Area Sections For Spring 2002 Repairs.cal	CAL
2/20/2009	NB	JOF-10W532-24-Sht -Rev 0 Yard Rr Loop Ash Stacking Area Roadway Pipe Gate For Spring 2002 Repairs.cal	CAL
2/20/2009	NB	JOF-10W532-3-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Site Geometry.cal	CAL
2/20/2009	NB	JOF-10W532-4-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Ditch Profiles.cal	CAL
2/20/2009	NB	JOF-10W532-5-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Access Road Profiles..cal	CAL
2/20/2009	NB	JOF-10W532-6-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Stack Profiles Area 1,2, & 3.cal	CAL
2/20/2009	NB	JOF-10W532-7-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Cross Sections Area 1.cal	CAL
2/20/2009	NB	JOF-10W532-8-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Cross Sections Area 2.cal	CAL
2/20/2009	NB	JOF-10W532-9-Sht -Rev 0 Law Engineering And Tribble & Richardson Inc Rr Loop Ash Stacking Area Incremental Stacking Plan Cross Sections Area 3.cal	CAL
2/20/2009	NB	JOF-10N523-Sht -Rev 1 Main Plant Chemical Treatment Pond (Iron).cal	CAL
2/20/2009	NB	JOF-10W526-Sht -Rev 3 Main Plant Chemical Treatment Pond & Ash Pond Interior Dikes.cal	CAL
2/20/2009	NB	JOF-10B719-Sht -Rev 0 Coal Tracks Adzing And Boring Template.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
2/20/2009	NB	JOF-10H702-Sht -Rev 4 Coal Trcks.cal	CAL
2/20/2009	NB	JOF-10H703-Sht -Rev 5 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H704-Sht -Rev 4 Coal Tracks & Access Hwy..cal	CAL
2/20/2009	NB	JOF-10H705-Sht -Rev 7 Coal Tracks & Access Highway.cal	CAL
2/20/2009	NB	JOF-10H706-Sht -Rev 3 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H707-Sht -Rev 5 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H718-Sht -Rev 2 Coal Tracks Supplemental Track Details.cal	CAL
2/20/2009	NB	JOF-10H720-Sht -Rev 2 Access Highway & Coal Tracks Standard Details For Box Curves.cal	CAL
2/20/2009	NB	JOF-10H721-Sht -Rev 1 Coal Tracks Culvert At Station 111 + 80 6'X6'X117'-73' Skew Barrel.cal	CAL
2/20/2009	NB	JOF-10H722-Sht -Rev 1 Coal Tracks Culvert At Station 111 + 80 6'X6'X117'-73 Skew Wings & Reinforcing Steel.cal	CAL
2/20/2009	NB	JOF-10H723-Sht -Rev 3 Access Highway & Coal Tracks Culvert At Station 163+90 8'X10'X20T-90 Skew Barrel.cal	CAL
2/20/2009	NB	JOF-10H724-Sht -Rev 2 Access Highway & Coal Tracks Culvert At Station 163+90 8'X10'X207' - 90 Skew Wings & Reinforcing Steel.cal	CAL
2/20/2009	NB	JOF-10H731-Sht -Rev 2 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H732-Sht -Rev 2 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H733-Sht -Rev 3 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H734-Sht -Rev 1 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H748-Sht -Rev 2 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H749-Sht -Rev 2 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H751-Sht -Rev 2 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H752-Sht -Rev 1 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H753-Sht -Rev 1 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H754-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H755-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H756-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H757-Sht -Rev 1 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H763-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H764-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H770-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H771-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10H772-Sht -Rev 0 Coal Tracks.cal	CAL
2/20/2009	NB	JOF-10Mm241-Sht -Rev 0 Coal Yd Ext X-Sects .cal	CAL
2/20/2009	NB	JOF-10Mm242-Sht -Rev 0 Coal Yd Ext X-Sects .cal	CAL
2/20/2009	NB	JOF-10Mm243-Sht -Rev 0 Coal Yd Ext X-Sects.cal	CAL
2/20/2009	NB	JOF-10Mm244-Sht -Rev 0 Coal Yd Ext X-Sects.cal	CAL
2/20/2009	NB	JOF-10Mm854-Sht -Rev 0 Coal Tracks Interchange Yard.cal	CAL
2/20/2009	NB	JOF-10N240-Sht -Rev 5 Yard Catch Basin For Coal Yard.cal	CAL
2/20/2009	NB	JOF-10W211-1-Sht -Rev 1 Main Plant Coal Yard Grading Plan.cal	CAL
2/20/2009	NB	JOF-10W211-2-Sht -Rev 0 Main Plant Coal Yard Cross Sections.cal	CAL
2/20/2009	NB	JOF Ash Pond Insp Fy 2000.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
2/20/2009	NB	JOF Ash Pond Insp Fy 2001.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy 2003.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy 2004.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy 2005.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy 2006.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy 2007.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy67.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy68.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy69.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy70.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy71.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy72.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy73.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy74.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy75.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy76.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy77.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy78.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy79.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy80.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy81.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy82.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy83.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy84.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy85.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy86.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy87.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy88.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy89.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy93.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy94.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy95.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy96.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy97.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy98.pdf	PDF
2/20/2009	NB	JOF Ash Pond Insp Fy99.pdf	PDF
2/20/2009	NB	JOF-10N503-Sht -Rev 9.cal	CAL
2/20/2009	NB	JOF-10W527-1-Sht -Rev 1.cal	CAL
2/20/2009	NB	JOF-10W527-2-Sht -Rev 1.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
2/20/2009	NB	JOF-10W527-Sht -Rev 15.cal	CAL
4/13/2009	PC/NB	Johnsonville.pdf (This Is An Aerial View W/ Structures Located - Also Includes Top And Toe Of Dike Elevations)	PDF
4/13/2009	PC/NB	JOF Api08.pdf	PDF
4/13/2009	PC/NB	JOF Fy09 Ash Pond Report Front.pdf	PDF
4/13/2009	PC/NB	JOF Fy09 Ash Pond Report.pdf	PDF
4/13/2009	PC/NB	JOF_Kee R4 Inspection_Fy08.pdf	PDF
4/13/2009	PC/NB	Pae, Sos, And Smt Inspections Week Of 020109	PDF
4/13/2009	PC/NB	Pae, Sos, And Smt Inspections Week Of 020809	PDF
4/13/2009	PC/NB	Pae, Sos, And Smt Inspections Week Of 021509.pdf	PDF
4/13/2009	PC/NB	Pae, Sos, And Smt Inspections Week Of 022209	PDF
4/13/2009	PC/NB	Pae, Sos, And Smt Inspections Week Of 030109	PDF
4/13/2009	PC/NB	Pae, Sos, And Smt Inspections Wek Of 12509.pdf	PDF
4/13/2009	PC/NB	01 JOF Solid Waste Correspondence.pdf	PDF
4/13/2009	PC/NB	03 JOF Dupont Dredge Cell Remediation Telecon.pdf	PDF
4/13/2009	PC/NB	04 JOF Water Samples From JOF Dredge Cell.pdf	PDF
4/13/2009	PC/NB	05 JOF Dupont Seep Remediation.pdf	PDF
4/13/2009	PC/NB	06 JOF Dupont Trees.pdf	PDF
4/13/2009	PC/NB	07 JOF Design Change Notice.pdf	PDF
4/13/2009	PC/NB	09 JOF Solid Waste Correspondence.pdf	PDF
4/13/2009	PC/NB	10 JOF Ash Disposal Closure - Dupont Pond.pdf	PDF
4/13/2009	PC/NB	11 JOF Misc.pdf	PDF
4/13/2009	PC/NB	13 JOF Notes.pdf	PDF
4/13/2009	PC/NB	16 JOF Addendum Cover Page.pdf	PDF
4/13/2009	PC/NB	17 JOF Design Review Info.pdf	PDF
4/13/2009	PC/NB	18 JOF Evaporative Tree Cap.pdf	PDF
4/13/2009	PC/NB	19 JOF Dupont Dredge Cell Repair Kickoff Meeting.pdf	PDF
4/13/2009	PC/NB	JOF- 10W218- Sh 8- Rev 0.cal	CAL
4/13/2009	PC/NB	JOF- 10W218- Sh 8.cal	CAL
4/13/2009	PC/NB	JOF 2005 Ash Balance & Present Worth.pdf	PDF
4/13/2009	PC/NB	01 JOF 2006 Conceptual Estimates.pdf	PDF
4/13/2009	PC/NB	02 JOF 2006 Misc Reports & Info.pdf	PDF
4/13/2009	PC/NB	03 JOF 2006 Draft Phase 1B Report Rev A Markup.pdf	PDF
4/13/2009	PC/NB	04 JOF 2006 Option 3A Estimate.pdf	PDF
4/13/2009	PC/NB	05 JOF 2006 Phase 1B Supplement Report Rev A.pdf	PDF
4/13/2009	PC/NB	06JOF 2006 Draft Phase 1 B Report Rev C.pdf	PDF
4/13/2009	PC/NB	07 JOF 2006 Draft Phase 1B Report Rev A.pdf	PDF
4/13/2009	PC/NB	604B887R0.cal	CAL
4/13/2009	PC/NB	604K861R1.cal	CAL
4/13/2009	PC/NB	604K862R0.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	604K881R0.cal	CAL
4/13/2009	PC/NB	604K882R0.cal	CAL
4/13/2009	PC/NB	604K883R0.cal	CAL
4/13/2009	PC/NB	604K884R0.cal	CAL
4/13/2009	PC/NB	604K885R0.cal	CAL
4/13/2009	PC/NB	604K886R0.cal	CAL
4/13/2009	PC/NB	JOF 1977 Soil Exploration & Testing.pdf	PDF
4/13/2009	PC/NB	02 JOF 1996 Pcr.pdf	PDF
4/13/2009	PC/NB	03 JOF 1997.pdf	PDF
4/13/2009	PC/NB	04 JOF 1996 Dike Repair.pdf	PDF
4/13/2009	PC/NB	05 JOF 1995 Repair.pdf	PDF
4/13/2009	PC/NB	06 JOF 1994 Repair.pdf	PDF
4/13/2009	PC/NB	07 JOF Water Elev.pdf	PDF
4/13/2009	PC/NB	08 JOF Misc.pdf	PDF
4/13/2009	PC/NB	JOF 1997 Project Status Reports.pdf	PDF
4/13/2009	PC/NB	JOF Misc Photos.pdf	PDF
4/13/2009	PC/NB	01 JOF 1999 Copied For Item 1.2. Of Epa Letter To Bynum Dated 2-6-99.pdf	PDF
4/13/2009	PC/NB	02 JOF 1999 Copied For Item 1.2. Of Epa Letter To Bynum Dated 2-6-99.pdf	PDF
4/13/2009	PC/NB	03 JOF 1999 Copied For Item 1.2. Of Epa Letter To Bynum Dated 2-6-99.pdf	PDF
4/13/2009	PC/NB	04 JOF 1999 Copied For Item 1.2. Of Epa Letter To Bynum Dated 2-6-99.pdf	PDF
4/13/2009	PC/NB	05 JOF 1999 Copied For Item 1.2. Of Epa Letter To Bynum Dated 2-6-99.pdf	PDF
4/13/2009	PC/NB	01 JOF 2003 Road Repairs.pdf	PDF
4/13/2009	PC/NB	02 JOF 2003 Task Assignment Order.pdf	PDF
4/13/2009	PC/NB	03 JOF 2003 Activities Accomplishments Week If July 28.pdf	PDF
4/13/2009	PC/NB	04 JOF 1981 Repair Of Ash Disposal Area.pdf	PDF
4/13/2009	PC/NB	05 JOF Manhour Cost Estimate Phase Ii Unit 1 2 & 3.pdf	PDF
4/13/2009	PC/NB	06 JOF 2003 Things To Accomplish.pdf	PDF
4/13/2009	PC/NB	07 JOF Environmental Analysis Of Ash Disposal Options Draft.pdf	PDF
4/13/2009	PC/NB	08 JOF Environmental Analysis Of Ash Disposal Options.pdf	PDF
4/13/2009	PC/NB	09 JOF 2003 Recovery Team.pdf	PDF
4/13/2009	PC/NB	10 JOF 2003 Task Assignment Order Tao.pdf	PDF
4/13/2009	PC/NB	11 JOF 2003 North Of Coal Yard.pdf	PDF
4/13/2009	PC/NB	12 JOF 2003 Recovery Team Meeting Minutes & Agenda.pdf	PDF
4/13/2009	PC/NB	13 JOF 2003 Ashpond Reports.pdf	PDF
4/13/2009	PC/NB	15 JOF 2003 Mactec Task Order Proposal For Ash Pond Investigation.pdf	PDF
4/13/2009	PC/NB	16 JOF Ponded Fly Ash Test.pdf	PDF
4/13/2009	PC/NB	17 JOF Ash Pond Management Plan.pdf	PDF
4/13/2009	PC/NB	18 JOF Storage Recovery Team Meeting Agenda.pdf	PDF
4/13/2009	PC/NB	19 JOF Effect Of Transash Cell On Fwv.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	20 JOF 2003 Ash Management Plan.pdf	PDF
4/13/2009	PC/NB	21 JOF 2003 Recovery Team Activities Accomplishments.pdf	PDF
4/13/2009	PC/NB	22 JOF 2003 2 Additional Holes.pdf	PDF
4/13/2009	PC/NB	23 JOF Johnsonville.pdf	PDF
4/13/2009	PC/NB	24 JOF Ash Friday.pdf	PDF
4/13/2009	PC/NB	25 JOF 1995 Ash Data Law Engineering.pdf	PDF
4/13/2009	PC/NB	26 JOF 2003 Dry Stack Abdn Ash Area.pdf	PDF
4/13/2009	PC/NB	27 JOF Spillway Closure.pdf	PDF
4/13/2009	PC/NB	28 JOF 2003 Nrl Quantities.pdf	PDF
4/13/2009	PC/NB	Main Ash Pond Drawing Topography.cal	CAL
4/13/2009	PC/NB	Ash Pond Prop JOFnc01 (R Values).cal	CAL
4/13/2009	PC/NB	JOF 2002 Slope Stability Analysis .pdf	PDF
4/13/2009	PC/NB	JOF Misc Info.pdf	PDF
4/13/2009	PC/NB	JOF- 10W527- Sh- Rev15.cal	CAL
4/13/2009	PC/NB	Main Ash Complex Topo 9-20-00 J0000029.Pro.cal	CAL
4/13/2009	PC/NB	01 JOF 1994 Final Closure Report - Area 2 Of The Dredged Ash Disposal Facility (Rail Loop Area) - Daily Logs.pdf	PDF
4/13/2009	PC/NB	03 JOF 1994 Final Closure Report - Area 2 Of The Dredged Ash Disposal Facility (Rail Loop Area) - Lab Tests.pdf	PDF
4/13/2009	PC/NB	04 JOF 1994 Final Closure Report - Area 2 Of The Dredged Ash Disposal Facility (Rail Loop Area) - Documents.pdf	PDF
4/13/2009	PC/NB	05 JOF 1994 Final Closure Report - Area 2 Of The Dredged Ash Disposal Facility (Rail Loop Area) - Field Tests.pdf	PDF
4/13/2009	PC/NB	JOF 1994 Final Closure Report Cover Page.pdf	PDF
4/13/2009	PC/NB	02 JOF 1994 Request For Task Proposal.pdf	PDF
4/13/2009	PC/NB	03 JOF 1993 Scope Of Work Partial Closure Of Dry Ash Stack Rr Loop.pdf	PDF
4/13/2009	PC/NB	04 JOF 1993 Request For Task Proposal.pdf	PDF
4/13/2009	PC/NB	05 JOF 1993 Scope Of Work Stage 1 Closure Of Dry Ash Stack Rr Loop.pdf	PDF
4/13/2009	PC/NB	06 JOF 1993 Preliminary Specification Corrosion Protection Of Transmission Line Towers In The Ash Stacking Area.pdf	PDF
4/13/2009	PC/NB	07 JOF 1993 Meeting Clean Stack In The Rr Loop.pdf	PDF
4/13/2009	PC/NB	08 JOF 1991 Closure Post Closure Plan Dredge Ash Disposal Facility (Rail Loop Area) - Tribble & Richardson - Law Engineering.pdf	PDF
4/13/2009	PC/NB	09 JOF 1990 Cost Estimate Request.pdf	PDF
4/13/2009	PC/NB	10 JOF 1990 Scope Of Work - Cost Estimate.pdf	PDF
4/13/2009	PC/NB	10W530-1 Copy.tif	TIF
4/13/2009	PC/NB	10W530-1.tif	TIF
4/13/2009	PC/NB	JOF Photos 3-6-91 Rr Loop Back.tif	TIF
4/13/2009	PC/NB	JOF Photos 3-6-91 Rr Loop.tif	TIF
4/13/2009	PC/NB	JOF Photos Aug 1990 Back.tif	TIF
4/13/2009	PC/NB	JOF Photos Aug 1990.tif	TIF
4/13/2009	PC/NB	01 JOF Fly Ash Bottom Ash & Scrubber Sludge Study Data.pdf	PDF
4/13/2009	PC/NB	02 JOF Calcs Dredge Fly Ash Storage.pdf	PDF
4/13/2009	PC/NB	03 JOF Q Test.pdf	PDF
4/13/2009	PC/NB	04 JOF R Test.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	05 JOF Rbar Test.pdf	PDF
4/13/2009	PC/NB	JOF 1986 1988 Crosssections & Computation Sheet.pdf	PDF
4/13/2009	PC/NB	JOF Miscellaneous Info.pdf	PDF
4/13/2009	PC/NB	01 JOF 330 Sluice Line Support.pdf	PDF
4/13/2009	PC/NB	04 JOF330-Bottom Ash & Fly Ash Lines Support And Containment.pdf	PDF
4/13/2009	PC/NB	05 JOF 330 Tech Mtg.pdf	PDF
4/13/2009	PC/NB	06 JOF 330 Support & Containment.pdf	PDF
4/13/2009	PC/NB	07 JOF Plant Phase 1 Kickoff Meeting Agenda.pdf	PDF
4/13/2009	PC/NB	08 JOF 330 Teleconference 1Pm.pdf	PDF
4/13/2009	PC/NB	09 JOF 330 Mtg.pdf	PDF
4/13/2009	PC/NB	10 JOF Categorical Exclusion Checklist.pdf	PDF
4/13/2009	PC/NB	11 JOF Dwg Notes.pdf	PDF
4/13/2009	PC/NB	13 JOF Ppd Rev 1.pdf	PDF
4/13/2009	PC/NB	14 JOF Bottom And Fly Ash Sluice Line Support.pdf	PDF
4/13/2009	PC/NB	15 JOF Trench Docs.pdf	PDF
4/13/2009	PC/NB	16 JOF French Drain System For Trench Dwg Parking Lot.pdf	PDF
4/13/2009	PC/NB	17 JOF Permits And Project Status Mtg.pdf	PDF
4/13/2009	PC/NB	18 JOF Proposed Solutions Support Of Sluice Lines.pdf	PDF
4/13/2009	PC/NB	19 Bottom And Fly Ash Containment.pdf	PDF
4/13/2009	PC/NB	20 JOF Permits.pdf	PDF
4/13/2009	PC/NB	21 JOF Drainage Arrangement Of Dwgs.pdf	PDF
4/13/2009	PC/NB	22 JOF Support And Containment Bottom And Fly Ash Support.pdf	PDF
4/13/2009	PC/NB	23 JOF 330 Bottom Ash & Fly Ash Lines Photos.pdf	PDF
4/13/2009	PC/NB	24 JOF Ash Capital Project Mtg.pdf	PDF
4/13/2009	PC/NB	25 JOF Ash Capital Project Mtg.pdf	PDF
4/13/2009	PC/NB	26 JOF Ash Sluice Line Support And Containment.pdf	PDF
4/13/2009	PC/NB	27 JOF Calcs & Rainfall.pdf	PDF
4/13/2009	PC/NB	29 JOF Wcs Work Completion Statement.pdf	PDF
4/13/2009	PC/NB	30 JOF Draft 6 1 Ash Pipe Containment Phase 1 Reports.pdf	PDF
4/13/2009	PC/NB	31 JOF Ash Sluice Line Support & Containment.pdf	PDF
4/13/2009	PC/NB	32 JOF Estimate Summary & Misc.pdf	PDF
4/13/2009	PC/NB	33 JOF Ash Sluice Line Containment Estimate.pdf	PDF
4/13/2009	PC/NB	34 JOF Temporary Construction Access Road.pdf	PDF
4/13/2009	PC/NB	35 JOF Lifting Beam & Misc.pdf	PDF
4/13/2009	PC/NB	36 JOF Project Planning Document Rev 1.pdf	PDF
4/13/2009	PC/NB	38 JOF Ash Pipe Lifting Beam.pdf	PDF
4/13/2009	PC/NB	39 JOF Drawing For Lifting Device.pdf	PDF
4/13/2009	PC/NB	40 JOF Estimate For Drilling Road.pdf	PDF
4/13/2009	PC/NB	42 Ash Sluic Line Containment.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	43 JOF Sluice High Hazzard Lift Plan.pdf	PDF
4/13/2009	PC/NB	44 JOF Estimate Ash Sluice Line Containment.pdf	PDF
4/13/2009	PC/NB	45 JOF Sluice Line Support 50 Percent Design Review.pdf	PDF
4/13/2009	PC/NB	46 JOF Mactec.pdf	PDF
4/13/2009	PC/NB	48 JOF Design Change Notice.pdf	PDF
4/13/2009	PC/NB	49 JOF Project Action Item List.pdf	PDF
4/13/2009	PC/NB	51 JOF Capital Project Justification Form.pdf	PDF
4/13/2009	PC/NB	52 JOF 330 Phase Iii Package Review.pdf	PDF
4/13/2009	PC/NB	54 JOF 2005 Ash Pipe Support & Containment Phase 1 Report.pdf	PDF
4/13/2009	PC/NB	JOF 1994 Geotechnical Evaluation - Ash Pond Dike.pdf	PDF
4/13/2009	PC/NB	JOF 1994 Subsurface Exploration Data - Tva Borings At JOF.pdf	PDF
4/13/2009	PC/NB	JOF 1997 Report Of Subsurface Exploration & Stability Analysis.pdf	PDF
4/13/2009	PC/NB	JOF 1999 Report Of Subsurface Exploration - Proposed Ash Disposal Area.pdf	PDF
4/13/2009	PC/NB	JOF 2000 Report Of Subsurface Exploration - Ash Disposal Area.pdf	PDF
4/13/2009	PC/NB	JOF 2001 Report Of Engineering Services - Ash Dredge Cell Earth Cap Project.pdf	PDF
4/13/2009	PC/NB	01 JOF 2006 Book 3.pdf	PDF
4/13/2009	PC/NB	02 JOF 2006 Misc Email.pdf	PDF
4/13/2009	PC/NB	03 JOF 2006 Estimates.pdf	PDF
4/13/2009	PC/NB	04 JOF 2006 Misc Calcs.pdf	PDF
4/13/2009	PC/NB	05 JOF 2006 Parsons.pdf	PDF
4/13/2009	PC/NB	06 JOF 2004 Rules Of Tn Dep Of Env & Conservation Division Of Water Pollution Control.pdf	PDF
4/13/2009	PC/NB	07 JOF 2006 Tdecs Permitting Handbook - Npdes & State Operating Permit Process.pdf	PDF
4/13/2009	PC/NB	08 JOF 2005 R Petty Emails - Long Term Ash Disposal - Est Quantities.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Ash Capacity Increase Project - Project Planning Document Rev C (Ppd).pdf	PDF
4/13/2009	PC/NB	JOF 2006 Ash Capacity Increase Project - Project Planning Document Rev D (Ppd).pdf	PDF
4/13/2009	PC/NB	JOF 2006 Draft Ash Capacity Increase Project - Project Planning Document Rev D (Ppd).pdf	PDF
4/13/2009	PC/NB	JOF 2006 Misc Handwritten Notes.pdf	PDF
4/13/2009	PC/NB	JOF 2007 Ash Capacity Increase Project - Project Planning Document Rev E (Ppd).pdf	PDF
4/13/2009	PC/NB	JOF Project Planning Document Rev 0 (Ppd).pdf	PDF
4/13/2009	PC/NB	Tva JOF Map 1.jpg	JPG
4/13/2009	PC/NB	Tva JOF Map 2.jpg	JPG
4/13/2009	PC/NB	Tva JOF Map 3.jpg	JPG
4/13/2009	PC/NB	Tva JOF Map 4.jpg	JPG
4/13/2009	PC/NB	Tva JOF Map 5.jpg	JPG
4/13/2009	PC/NB	Tva JOF Map 6.jpg	JPG
4/13/2009	PC/NB	03 JOF 1996 Scenerio For Handling Following Plant Meeting.pdf	PDF
4/13/2009	PC/NB	04 JOF 1996 Delay Area 4 Closure From 1992 To 2002 Dredge Over 3 Year Span.pdf	PDF
4/13/2009	PC/NB	05 JOF 1996 Executive Summary Fhp Fhe Estimating.pdf	PDF
4/13/2009	PC/NB	06 JOF 1996 Minutes Of May 6 1996 Meeting.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	07 JOF 1996 Executive Summary Fhp Fhe Estimating.pdf	PDF
4/13/2009	PC/NB	08 JOF 1996 Humphries County Airport Fill Project.pdf	PDF
4/13/2009	PC/NB	09 JOF Capital Project Justification Forms.pdf	PDF
4/13/2009	PC/NB	10 JOF 1996 Trans-Ash Rr Loop Ash Stacking Plan Area 4 Proposal.pdf	PDF
4/13/2009	PC/NB	11 JOF 1995 Long Range Ash Disposal Options.pdf	PDF
4/13/2009	PC/NB	12 JOF 1995 Update On Proposed Activities.pdf	PDF
4/13/2009	PC/NB	13 JOF 1995 Study For Ash Long-Range Plan Land Acquisition.pdf	PDF
4/13/2009	PC/NB	14 JOF 1995 Ash Stacking Plan.pdf	PDF
4/13/2009	PC/NB	15 JOF 1995 By-Product Management Team Meeting Agenda.pdf	PDF
4/13/2009	PC/NB	16 JOF 1995 General Scope.pdf	PDF
4/13/2009	PC/NB	17 JOF 1994 Meeting Minutes.pdf	PDF
4/13/2009	PC/NB	18 JOF 1994 Task Assignment Order Tao.pdf	PDF
4/13/2009	PC/NB	19 JOF 1994 Disposal Options - Estimates Of Cost.pdf	PDF
4/13/2009	PC/NB	20 JOF 1994 Borings.pdf	PDF
4/13/2009	PC/NB	21 JOF 1994 Task Assignment Order Tao.pdf	PDF
4/13/2009	PC/NB	22 JOF 1994 Fly Ash Utilization Project.pdf	PDF
4/13/2009	PC/NB	23 JOF 1994 Fly Ash Utilization Agenda.pdf	PDF
4/13/2009	PC/NB	24 JOF 1994 Proposed Relocation - Changes For Ash Pile Location.pdf	PDF
4/13/2009	PC/NB	25 JOF Misc Drawing.pdf	PDF
4/13/2009	PC/NB	26 JOF Ash Storage Capacity.pdf	PDF
4/13/2009	PC/NB	27 JOF Short Long Term Ash Disposal Plan.pdf	PDF
4/13/2009	PC/NB	28 JOF Areas 1-6 Acres - Storage.pdf	PDF
4/13/2009	PC/NB	29 JOF 1994 Active Ash Pond Kickoff Meeting.pdf	PDF
4/13/2009	PC/NB	30 JOF 1994 Meeting With Sverdrup Co.pdf	PDF
4/13/2009	PC/NB	31 JOF 1994 Pre Johnsonville Meeting.pdf	PDF
4/13/2009	PC/NB	32 JOF 1994 Constant Head Permeability Test Beaver Engineering.pdf	PDF
4/13/2009	PC/NB	33 JOF Why The Flyash Can Not Be Dewatered And Hauled Directly From The Ash Pond.pdf	PDF
4/13/2009	PC/NB	34 JOF Pump Back To The Existing Ash Pond From The Dredge Pond.pdf	PDF
4/13/2009	PC/NB	35 JOF Ash Study.pdf	PDF
4/13/2009	PC/NB	36 JOF Overhead Power Lines In Dry Stacking Area.pdf	PDF
4/13/2009	PC/NB	37 JOF 1994 Phase 1A Input.pdf	PDF
4/13/2009	PC/NB	38 JOF 1993 Phase 1A Initiation.pdf	PDF
4/13/2009	PC/NB	39 JOF Study For Long-Range Byproduct Management.pdf	PDF
4/13/2009	PC/NB	40 JOF 1993 Long Range Plans.pdf	PDF
4/13/2009	PC/NB	41 JOF 1993 Meeting Minutes Ash Disposal.pdf	PDF
4/13/2009	PC/NB	42 JOF 1992 Differential Site Development Quantities.pdf	PDF
4/13/2009	PC/NB	43 JOF Site 2.pdf	PDF
4/13/2009	PC/NB	44 JOF Site 3.pdf	PDF
4/13/2009	PC/NB	45 JOF Gravel Pit.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	JOF Pcr.pdf	PDF
4/13/2009	PC/NB	JOF Schedule.pdf	PDF
4/13/2009	PC/NB	Material For Dike Ref Dwgs 10E203-01 02.cal	CAL
4/13/2009	PC/NB	Misc Records.cal	CAL
4/13/2009	PC/NB	01 JOF 2004 Schedules.pdf	PDF
4/13/2009	PC/NB	02 JOF 2004 Meeting Notes.pdf	PDF
4/13/2009	PC/NB	03 JOF 2004 Correspondence.pdf	PDF
4/13/2009	PC/NB	04 JOF 2004 Maps.pdf	PDF
4/13/2009	PC/NB	05 JOF 2004 Design.pdf	PDF
4/13/2009	PC/NB	06 JOF 2001 Cost Est.pdf	PDF
4/13/2009	PC/NB	07 JOF 2001 Option - JOFnrl.pdf	PDF
4/13/2009	PC/NB	08 JOF 2000 2001 Option - JOFnrl Permits.pdf	PDF
4/13/2009	PC/NB	09 JOF 2001 Storm Water Pollution Prevention Plan - Swppp.pdf	PDF
4/13/2009	PC/NB	10 JOF 2001 Operations Manual - North Rail Loop Ash Disposal Facility.pdf	PDF
4/13/2009	PC/NB	11 JOF 2000 Storm Water & Pond Design Calcs.pdf	PDF
4/13/2009	PC/NB	12 JOF 2001 Rev 1 Operations Manual North Rail Loop Ash Disposal Facility.pdf	PDF
4/13/2009	PC/NB	13 JOF 2003 Sepcification John-0-Ts-02210 Rev 0 For Geosynthetic Clay Liner.pdf	PDF
4/13/2009	PC/NB	14 JOF Misc & Estimates North Rail Loop.pdf	PDF
4/13/2009	PC/NB	16 JOF Alternate Form D - Dcn Package Document List (Pdl) For Dcas.pdf	PDF
4/13/2009	PC/NB	JOF Cells 1-3 & Ponds April 27 2004 Not Numbered.cal	CAL
4/13/2009	PC/NB	JOF- 10E200-01- Sh- Rev 5.cal	CAL
4/13/2009	PC/NB	JOF- 421 P 502- Sh- Rev 2.cal	CAL
4/13/2009	PC/NB	Benton Co. Tenn. Map No. 92 & 91.cal	CAL
4/13/2009	PC/NB	Humphreys Co. Tenn. Map No. 88 & 69.cal	CAL
4/13/2009	PC/NB	JOF 2005 Draft Soil Test Boring Record - Soil Classification & Remarks.pdf	PDF
4/13/2009	PC/NB	JOF 2005 Report Of Geotechnical Drilling & Lab Testing - Proposed Causeway Extension.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Proposal For Geotechnical Drilling & Lab Services - Proposed New Ash Pond.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Report Of Subsurface Exploration - Proposed New Ash Storage Area.pdf	PDF
4/13/2009	PC/NB	JOF August 2003 Report Of Ash Pond Investigation.pdf	PDF
4/13/2009	PC/NB	JOF December 2003 Report Of Ash Pond Investigation.pdf	PDF
4/13/2009	PC/NB	JOF 1970 Kentucky Reservation Maps & Survey Branch.pdf	PDF
4/13/2009	PC/NB	JOF 2005 Spreadsheet Report - Nr Loop Proj Estimates.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Additional Ash Capacity - Option 3M.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Additional Ash Capacity - Phase 1B - Schedule Commitments.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Ash Capacity Increase Project - Horizontal Auger Hydraulic Dredge Case Study Paper.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Categorical Exclusion Checklist For Proposed Tva Actions.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Dredge Case Studies Email Conrad Worleyparson.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Economic Eval Of JOF 455 - Transport System Options.pdf	PDF
4/13/2009	PC/NB	JOF 2006 Misc Email Meeting Minutes - Density - Footprint.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	JOF 2006 Site Volume Table - Unadjusted - Ash Pond.pdf	PDF
4/13/2009	PC/NB	JOF Caterpillar Commercial Vessels.pdf	PDF
4/13/2009	PC/NB	JOF Fmsm Engineers Drawing - Additional Ash Disposal Study Recommended Disposal Options & Topography Within Five Miles.pdf	PDF
4/13/2009	PC/NB	JOF Proposed Access Drawing.pdf	PDF
4/13/2009	PC/NB	JOF Proposed Ash Storage Area & Embankment Drawing 2.pdf	PDF
4/13/2009	PC/NB	JOF Proposed Ash Storage Area & Embankment Drawing.pdf	PDF
4/13/2009	PC/NB	01 JOF 1977 Memo Ash Disposal Area 2 Dike Raising.pdf	PDF
4/13/2009	PC/NB	02 JOF 1977 Cost Estimate.pdf	PDF
4/13/2009	PC/NB	03 JOF 1977 Request For Cost Estimate For Ash Disposal Pond Construction.pdf	PDF
4/13/2009	PC/NB	04 JOF Existing Dike Sketch.pdf	PDF
4/13/2009	PC/NB	05 JOF Dike Raising Estimates.pdf	PDF
4/13/2009	PC/NB	06 JOF Future Ash-Disposal Area.pdf	PDF
4/13/2009	PC/NB	07 JOF Development Of Ash Disposal Area.pdf	PDF
4/13/2009	PC/NB	09 JOF 1977 Ash Disposal Area Expansion.pdf	PDF
4/13/2009	PC/NB	10 JOF 1975 Ash Pond South Alternate Calcs & Sketches.pdf	PDF
4/13/2009	PC/NB	11 JOF 1974 Misc Note.pdf	PDF
4/13/2009	PC/NB	12 JOF 1973 Ash Disposal Areas - Inspection Trip.pdf	PDF
4/13/2009	PC/NB	13 JOF 1973 Reclamation Of Abandoned Ash Areas - Inspection Trip.pdf	PDF
4/13/2009	PC/NB	14 JOF 1973 Ash Disposal Ponds A And B.pdf	PDF
4/13/2009	PC/NB	15 JOF 1973 Handwritten Ash Pond Dike Reclamation Note.pdf	PDF
4/13/2009	PC/NB	16 JOF Ash Pond Dike - Location Of Base Line.pdf	PDF
4/13/2009	PC/NB	17 JOF 1973 Existing Ash Dikes - Superseded Drawings.pdf	PDF
4/13/2009	PC/NB	18 JOF 1973 Baseline For Cross Sections - Abandoned Ash Pond Dike.pdf	PDF
4/13/2009	PC/NB	20 JOF 1972 Release Of Abandoned Ash Disposal Ponds A And B To E.I. Du Pont Dr Nemours.pdf	PDF
4/13/2009	PC/NB	21 JOF 1972 Environmental Controls - Solids Meeting With Tva - Pond Rework.pdf	PDF
4/13/2009	PC/NB	22 JOF 1973 Estimate - Ash Pond Reclamation.pdf	PDF
4/13/2009	PC/NB	23 JOF 1971 Additional Ash Handling Equipment - Dry Scheme.pdf	PDF
4/13/2009	PC/NB	24 JOF 1971 Unit 7-10 Additional Ash Handling Equipment.pdf	PDF
4/13/2009	PC/NB	25 JOF 1971 Barge Unloading Alternatives Letters.pdf	PDF
4/13/2009	PC/NB	26 JOF 1970 List Of Names.pdf	PDF
4/13/2009	PC/NB	27 JOF 1970 Release Of Ash Disposal Pond Rights To Dupont Company.pdf	PDF
4/13/2009	PC/NB	28 JOF 1970 Ash Disposal Area B - Slag Testing.pdf	PDF
4/13/2009	PC/NB	29 JOF 1969 Ash Pond - Soil & Foundation Exploration.pdf	PDF
4/13/2009	PC/NB	30 JOF 1970 Conversation With Ro Lane Concerning Tests Preformed On The Existing Ash Dike.pdf	PDF
4/13/2009	PC/NB	31 JOF 1969 Ash Dike Estimate Of Capacity - Determine No Of Spillways Required To Maintain Approx Equal Elevation In Pond And Lake.pdf	PDF
4/13/2009	PC/NB	32 JOF Total Pump Capacity Present System (Before New Prec).pdf	PDF
4/13/2009	PC/NB	33 JOF 1969 Ash Disposal Area.pdf	PDF
4/13/2009	PC/NB	34 JOF 1969 Expansion Of Ash Disposal Area.pdf	PDF
4/13/2009	PC/NB	35 JOF Records Parrish Thomas.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	36 JOF 1969 Ash Ponds At Tva Steam Plants.pdf	PDF
4/13/2009	PC/NB	37 JOF 1969 Ash Dike Repairs.pdf	PDF
4/13/2009	PC/NB	38 JOF 1969 Ash Disposal Area No 2 - Revised Design Schedule.pdf	PDF
4/13/2009	PC/NB	39 JOF 1969 Ash Dike.pdf	PDF
4/13/2009	PC/NB	40 JOF 1969 Ash Dike For New Pond.pdf	PDF
4/13/2009	PC/NB	41 JOF 1969 New Ash Pond - Area For Borrow Inside Pond.pdf	PDF
4/13/2009	PC/NB	42 JOF 1969 Area Available For Borrow Inside New Pond.pdf	PDF
4/13/2009	PC/NB	43 JOF 1969 Volumes Fill.pdf	PDF
4/13/2009	PC/NB	44 JOF 1969 Construction Of New Ash Pond.pdf	PDF
4/13/2009	PC/NB	45 JOF 1969 Ash Dike For New Pond.pdf	PDF
4/13/2009	PC/NB	46 JOF Earth Quantities Ash Dike.pdf	PDF
4/13/2009	PC/NB	47 JOF 1969 Ash Pond West Of Boat Harbor - Quantity Estimate.pdf	PDF
4/13/2009	PC/NB	48 JOF 1969 Capacity Of New Ash Pond @ El 370 377 & 384.pdf	PDF
4/13/2009	PC/NB	49 JOF 1969 New Ash Pond For Borrow Inside Pond.pdf	PDF
4/13/2009	PC/NB	50 JOF 1969 Ash Dike West Of Boat Harbor - Estimate Of Quantities In Dike.pdf	PDF
4/13/2009	PC/NB	51 JOF 1969 Ash Dike West Of Boat Harbor - Earth Quantities To Raise The Dike.pdf	PDF
4/13/2009	PC/NB	52 JOF 1969 Memos Parrish Thomas Ash Disposal.pdf	PDF
4/13/2009	PC/NB	53 JOF 1969 Ash Pond Meetings Between Design And Power And Tva And Dupont.pdf	PDF
4/13/2009	PC/NB	54 JOF 1969 Inspection Of Ash Dike Break.pdf	PDF
4/13/2009	PC/NB	55 JOF 1969 Ash Dike West Of Boat Harbor - Flood Data.pdf	PDF
4/13/2009	PC/NB	56 JOF 1969 Ash Pond Calcs.pdf	PDF
4/13/2009	PC/NB	57 JOF 1969 Elimination Of Head Equalizing Slot In Dike.pdf	PDF
4/13/2009	PC/NB	58 JOF 1969 New Ash Disposal - Calculations Of Cl Dike.pdf	PDF
4/13/2009	PC/NB	59 JOF 1969 Ash Disposal.pdf	PDF
4/13/2009	PC/NB	60 JOF Grassing (Ash Dike).pdf	PDF
4/13/2009	PC/NB	61 JOF 1968 Ash Dike Quantities.pdf	PDF
4/13/2009	PC/NB	62 JOF 1968 Ash Area Quantities Ash Capacity And Earth Fill.pdf	PDF
4/13/2009	PC/NB	63 Col 1969 Location Of New Ash Disposal Pond.pdf	PDF
4/13/2009	PC/NB	64 JOF 1968 New Ash Area Relocation Of West Dike.pdf	PDF
4/13/2009	PC/NB	65 JOF 1968 Ash Disposal Area West Of Boat Harbor - Cross Sections.pdf	PDF
4/13/2009	PC/NB	66 JOF 1968 Ash Dike Proposed By Mcgraw.pdf	PDF
4/13/2009	PC/NB	67 JOF 1968 Ash Dike Cross Dike To El 370.pdf	PDF
4/13/2009	PC/NB	68 JOF 1968 Proposed Ash Disposal Area - Plans And Specifications.pdf	PDF
4/13/2009	PC/NB	69 JOF 1968 Ash Dikes Calcs Capacity.pdf	PDF
4/13/2009	PC/NB	70 JOF 1968 Ash Disposal Area No. 2.pdf	PDF
4/13/2009	PC/NB	71 JOF 1949 321A506 Rev 1.pdf	PDF
4/13/2009	PC/NB	72 JOF 1968 Ash-Disposal Pond.pdf	PDF
4/13/2009	PC/NB	73 JOF 1968 Ash-Disposal Spillway.pdf	PDF
4/13/2009	PC/NB	74 JOF 1968 Ash Disposal Dikes.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	75 JOF 1968 Ash-Disposal Pond.pdf	PDF
4/13/2009	PC/NB	76 JOF 1968 Ashdisposal Area West Of Boat Harbor.pdf	PDF
4/13/2009	PC/NB	77 JOF 1968 Traverse Computations.pdf	PDF
4/13/2009	PC/NB	78 JOF 1968 Ash Disposal Area No. 2.pdf	PDF
4/13/2009	PC/NB	79 JOF 1968 Ash Disposal.pdf	PDF
4/13/2009	PC/NB	80 JOF 1967 Ash Disposal Studies.pdf	PDF
4/13/2009	PC/NB	81 JOF 1967 Ash Disposal Pond.pdf	PDF
4/13/2009	PC/NB	82 JOF 1966 1967 Ash Disposal Studies.pdf	PDF
4/13/2009	PC/NB	83 JOF 1967 Cost Estimate.pdf	PDF
4/13/2009	PC/NB	84 JOF 1967 Ash Disposal Areas.pdf	PDF
4/13/2009	PC/NB	85 JOF 1967 Ash Ponds.pdf	PDF
4/13/2009	PC/NB	86 JOF 1967 Additional Ash-Disposal Area.pdf	PDF
4/13/2009	PC/NB	87 JOF 1967 Ash Disposal Pond.pdf	PDF
4/13/2009	PC/NB	88 JOF 1967 Ash Disposal Studies.pdf	PDF
4/13/2009	PC/NB	89 JOF 1967 Ash Disposal Pond.pdf	PDF
4/13/2009	PC/NB	90 JOF 1967 Cost Estimate.pdf	PDF
4/13/2009	PC/NB	Kentucky Lake Ash Pond A B & C Section C-C.cal	CAL
4/13/2009	PC/NB	Kentucky Lake Safety Harbor 2.cal	CAL
4/13/2009	PC/NB	Kentucky Lake Safety Harbor.cal	CAL
4/13/2009	PC/NB	Main Plant Dike For Ash Disposal Area 10N503 Rev 7.cal	CAL
4/13/2009	PC/NB	Topography Johnsonville Site 461K509-B-5 R Top Of Dike Elevation 365.0.cal	CAL
4/13/2009	PC/NB	Topography Johnsonville Site 461K509-B-5 R.cal	CAL
4/13/2009	PC/NB	JOF 1988 Material Evaluations.pdf	PDF
4/13/2009	PC/NB	JOF 2002 N. Rail Loop Disposal Facility.pdf	PDF
4/13/2009	PC/NB	01 JOF 2000 Operations Manual - North Rail Loop Ash Disposal Facility.pdf	PDF
4/13/2009	PC/NB	02 JOF 2000 Operations Manual - Appendix A.pdf	PDF
4/13/2009	PC/NB	03 JOF 2000 Operations Manual - Appendix B.pdf	PDF
4/13/2009	PC/NB	04 JOF 2000 Operations Manual - Appendix C.pdf	PDF
4/13/2009	PC/NB	05 JOF 2000 Operations Manual - Appendix D.pdf	PDF
4/13/2009	PC/NB	06 JOF 2000 Operations Manual - Appendix E.pdf	PDF
4/13/2009	PC/NB	07 JOF 2000 Operations Manual - Appendix F.pdf	PDF
4/13/2009	PC/NB	08 JOF 2000 Operations Manual - Appendix G.pdf	PDF
4/13/2009	PC/NB	09 JOF 2000 Operations Manual - Appendix H.pdf	PDF
4/13/2009	PC/NB	JOF-10W222-1-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-10-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-11-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-12-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-13-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-14-Sht -Rev 0 .cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	JOF-10W222-14-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-15-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-2-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-3-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-4-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-5-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-6-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-7-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-8-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W222-9-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	01 JOF Cover.pdf	PDF
4/13/2009	PC/NB	02 JOF 1992 Dredged Ash Disposal Permit No Idl 431020082.pdf	PDF
4/13/2009	PC/NB	03 JOF Alternative Permeability Testing Of Pond Liners.pdf	PDF
4/13/2009	PC/NB	04 JOF Thermoplastic Pipe.pdf	PDF
4/13/2009	PC/NB	05 JOF Scope Of Work - Cost Estimate.pdf	PDF
4/13/2009	PC/NB	06 JOF Ash Pond Dredge Drawings.pdf	PDF
4/13/2009	PC/NB	07 JOF 1992 Request For Task Proposal.pdf	PDF
4/13/2009	PC/NB	10 JOF 1990 Scope Of Work - Cost Estimate - Raise New Dredge Cell And Final Closure& New Dredge Pond.pdf	PDF
4/13/2009	PC/NB	11 JOF 1990 Ash Pond Construction Of Second Dike.pdf	PDF
4/13/2009	PC/NB	12 JOF 1990 Phase Ii Dredge Cell.pdf	PDF
4/13/2009	PC/NB	14 JOF 1990 Application For Solid Waste Disposal Permit For Dredged Ash Disposal Area - Sargent & Lundy.pdf	PDF
4/13/2009	PC/NB	15 JOF 1991 Handwritten Notes Exist Rr Loop.pdf	PDF
4/13/2009	PC/NB	16 JOF 1991 Scope Of Work - Cost Estimate.pdf	PDF
4/13/2009	PC/NB	17 JOF 1991 New Dredge Pond - Phase I - Calcs & Sketches.pdf	PDF
4/13/2009	PC/NB	18 JOF 1991 Future Ash Dredging - Stacking Activity.pdf	PDF
4/13/2009	PC/NB	19 JOF 1991 Handwritten Costs.pdf	PDF
4/13/2009	PC/NB	20 JOF 1991 Revised Project Authorization.pdf	PDF
4/13/2009	PC/NB	21 JOF 1991 Cost Estimates.pdf	PDF
4/13/2009	PC/NB	22 JOF 1991 Work Breakdown Summary Schedule.pdf	PDF
4/13/2009	PC/NB	23 JOF 1991 Detailed Cost Justification Statement.pdf	PDF
4/13/2009	PC/NB	23 JOF 1991 Handwritten Estimates.pdf	PDF
4/13/2009	PC/NB	24 JOF 1991 Detailed Cost Justification Statement.pdf	PDF
4/13/2009	PC/NB	25 JOF Attatchment No 1 Map Over Kentucky Lake.pdf	PDF
4/13/2009	PC/NB	JOF- 10W218- Sh 1- Rev 0.cal	CAL
4/13/2009	PC/NB	JOF- 10W218- Sh 2- Rev 0.cal	CAL
4/13/2009	PC/NB	JOF- 10W218- Sh 3- Rev 0.cal	CAL
4/13/2009	PC/NB	JOF- 10W218- Sh 4- Rev 0.cal	CAL
4/13/2009	PC/NB	JOF- 10W3264- Sh - Rev 0.cal	CAL
4/13/2009	PC/NB	Section Of The Drawing That Supersedes 10N200R16.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	02 JOF 2001 Scope Of Work.pdf	PDF
4/13/2009	PC/NB	03 JOF 2001 Cost Estimate - Covering The Dupont Cell.pdf	PDF
4/13/2009	PC/NB	04 JOF 2001 Rev 1 Tva Task Assignment Order Tao.pdf	PDF
4/13/2009	PC/NB	05 JOF 2000 Misc Note Slope Stability Analysis.pdf	PDF
4/13/2009	PC/NB	06 JOF 2000 Preliminary Field Logs B-1 B-2.pdf	PDF
4/13/2009	PC/NB	07 JOF 2000 Approx Location Of Soil Borings.pdf	PDF
4/13/2009	PC/NB	08 JOF 2000 Tva Task Assignment Order Tao.pdf	PDF
4/13/2009	PC/NB	09 JOF 2000 Lawgibb Cost Estimate.pdf	PDF
4/13/2009	PC/NB	10 JOF 2000 Stablity Analysis Report.pdf	PDF
4/13/2009	PC/NB	11 JOF 2000 Waste Products Study Report.pdf	PDF
4/13/2009	PC/NB	12 JOF 2000 Dupont Dredge Pond.pdf	PDF
4/13/2009	PC/NB	13 JOF 2000 Dupont Dredge Cell Soil Parameters.pdf	PDF
4/13/2009	PC/NB	15 JOF Dredged Fly Ash Storage.pdf	PDF
4/13/2009	PC/NB	16 JOF Fly Ash Bottom Ash & Scrubber Sludge Strength Testing Summary.pdf	PDF
4/13/2009	PC/NB	17 JOF 2000 Contract Invoice.pdf	PDF
4/13/2009	PC/NB	18 JOF Dupont Cell Cover.pdf	PDF
4/13/2009	PC/NB	19 JOF 1990 Design Cost Estimate.pdf	PDF
4/13/2009	PC/NB	20 JOF Raise New Dredge Cell & Final Closure Bill Of Materials.pdf	PDF
4/13/2009	PC/NB	01 JOF 2003 Ash Landfill Final Permit Notice.pdf	PDF
4/13/2009	PC/NB	02 JOF 2000 Roll Test Data Report.pdf	PDF
4/13/2009	PC/NB	05 JOF 1998 Request For Proposal Rfp - Removeal Of Ponded Fly Ash - Recommendation Of Award.pdf	PDF
4/13/2009	PC/NB	06 JOF 1998 Closure Bid.pdf	PDF
4/13/2009	PC/NB	07 JOF 1998 Ash Drudging Kickoff.pdf	PDF
4/13/2009	PC/NB	07 JOF 1998 Edr F&Hp Environmental Decision Record.pdf	PDF
4/13/2009	PC/NB	08 JOF 1998 Bid Spreadsheets.pdf	PDF
4/13/2009	PC/NB	10 JOF 1998 Minimum Net Clearances Distances From Live Parts.pdf	PDF
4/13/2009	PC/NB	11 JOF 1998 Liner Bid.pdf	PDF
4/13/2009	PC/NB	12 JOF 1998 Request For Proposal Rfp Removal Of Ponded Fly Ash.pdf	PDF
4/13/2009	PC/NB	13 JOF 1998 Items For Addendum - Removal Of Ponded Fly Ash.pdf	PDF
4/13/2009	PC/NB	14 JOF 1998 Project Authorization Summary.pdf	PDF
4/13/2009	PC/NB	15 JOF 1998 Ash Handling Project.pdf	PDF
4/13/2009	PC/NB	17 JOF 1998 Tva Purchasing Requisition.pdf	PDF
4/13/2009	PC/NB	18 JOF 1998 Requisition Request Sheet.pdf	PDF
4/13/2009	PC/NB	19 JOF 1998 Rfp Discussion Glover.pdf	PDF
4/13/2009	PC/NB	20 JOF 1998 Short Code For O&M - Dredging Of South End Rr Loop.pdf	PDF
4/13/2009	PC/NB	21 JOF 1998 Draft Agenda For Ash Meeting.pdf	PDF
4/13/2009	PC/NB	22 JOF 1998 Closure Post Closure Plan - Long Term Ash Disposal.pdf	PDF
4/13/2009	PC/NB	23 JOF 1998 List Of Bidders For The Rfp.pdf	PDF
4/13/2009	PC/NB	24 JOF 1998 Ash Meeting - Need To Complete The Following.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	25 JOF 1998 Contract With Law Enggr And Environmental Services.pdf	PDF
4/13/2009	PC/NB	26 JOF 1997 Ash Disposal Area Boring Locations.pdf	PDF
4/13/2009	PC/NB	27 JOF 1997 Short Long Term Disposal Plan Meeting.pdf	PDF
4/13/2009	PC/NB	28 JOF 1997 Postpone Meeting - Agenda - Cash Flow - Schedule - Project Status - Closure Plan.pdf	PDF
4/13/2009	PC/NB	29 JOF 1997 Long Range Ash Disposal.pdf	PDF
4/13/2009	PC/NB	30 JOF 1997 Law Enggr & Environmental Services.pdf	PDF
4/13/2009	PC/NB	31 JOF 1997 Ash Dredge Stack O&M Projects - Private.pdf	PDF
4/13/2009	PC/NB	32 JOF 1997 Fossil Supply - Rr Loop Area Dredge Cell Closure Plan.pdf	PDF
4/13/2009	PC/NB	33 JOF 1997 Ash Plans - Action Items From Meeting.pdf	PDF
4/13/2009	PC/NB	34 JOF 1997 Approval Of Invoice.pdf	PDF
4/13/2009	PC/NB	35 JOF 1997 Ash Pond Free Water Volume - Storage Capacity.pdf	PDF
4/13/2009	PC/NB	36 JOF 1997 Preliminary Documentation Of Help Simulation.pdf	PDF
4/13/2009	PC/NB	38 JOF 1997 Preliminary Finished Grading Plan.pdf	PDF
4/13/2009	PC/NB	39 JOF 1996 Survey Of Main Ash Pond.pdf	PDF
4/13/2009	PC/NB	40 JOF 1997 Cost Estimate And Scope Of Work - Rr Loop Area Dredge Cell Modeling & Hydrogeologic Report.pdf	PDF
4/13/2009	PC/NB	41 JOF Cost Estimate And Scope Of Work Draft.pdf	PDF
4/13/2009	PC/NB	42 JOF Drawing Boring Layout On Existing Topography.pdf	PDF
4/13/2009	PC/NB	44 JOF 1993 Closure Post-Closure Plan Dredged Ash Disposal Facility (Rail Loop Area) By Tribble & Richardson And Law.pdf	PDF
4/13/2009	PC/NB	45 JOF 1997 Bearings & Plant Coordinates.pdf	PDF
4/13/2009	PC/NB	46 JOF 1997 Task Order.pdf	PDF
4/13/2009	PC/NB	47 JOF 1997 Task Assignment Order Tao.pdf	PDF
4/13/2009	PC/NB	48 JOF Misc Topo Maps.pdf	PDF
4/13/2009	PC/NB	49 JOF Short Code For 4836 Law Engg Norris Lab Hydrogeologic Study.pdf	PDF
4/13/2009	PC/NB	50 JOF 1997 Borings.pdf	PDF
4/13/2009	PC/NB	51 JOF 1997 Borings.pdf	PDF
4/13/2009	PC/NB	53 JOF 1997 Solid Waste Disposal Strategy - Schedule.pdf	PDF
4/13/2009	PC/NB	54 JOF 1997 Resubmit Rr Loop Closure Plan.pdf	PDF
4/13/2009	PC/NB	55 JOF 1997 Erosion Repair And Reseeding.pdf	PDF
4/13/2009	PC/NB	56 JOF 1997 Long Range Ash Disposal - Phase 3 Project Initiation.pdf	PDF
4/13/2009	PC/NB	57 JOF 1997 Landfill Environment Requirements Pcn 4629.pdf	PDF
4/13/2009	PC/NB	58 JOF 1997 Clean Out Stack Rr Loop Dredge Cell Spend Plan.pdf	PDF
4/13/2009	PC/NB	59 JOF 1996 Additional O&M Required For Ash Handling.pdf	PDF
4/13/2009	PC/NB	60 JOF 1996 Project Authorization Summary.pdf	PDF
4/13/2009	PC/NB	61 JOF 1996 Spend Plan Change Control.pdf	PDF
4/13/2009	PC/NB	62 JOF Hed Costs Acc Npv Costs Mis Reports Disposal Summary.pdf	PDF
4/13/2009	PC/NB	63 JOF Annual Production Of Ash.pdf	PDF
4/13/2009	PC/NB	64 JOF 1996 Capital Project.pdf	PDF
4/13/2009	PC/NB	65 JOF 1996 Budget Adjustments.pdf	PDF
4/13/2009	PC/NB	66 JOF Pcn 4638 & Pcm 4629 Proposed Budget Adjustments.pdf	PDF

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	67 JOF Ash Fill Against Transmission Towers.pdf	PDF
4/13/2009	PC/NB	68 Ash Fill Against Transmission Towers.pdf	PDF
4/13/2009	PC/NB	69 Ash Fill Against Transmission Towers.pdf	PDF
4/13/2009	PC/NB	70 JOF 1996 Area 4 Proposal.pdf	PDF
4/13/2009	PC/NB	71 JOF Groundwater Assessment.pdf	PDF
4/13/2009	PC/NB	JOF 88 Proposed Gravity Drn.pdf	PDF
4/13/2009	PC/NB	JOF Dec 88 Ext Slope @ Plant Const Cell Photo.pdf	PDF
4/13/2009	PC/NB	JOF Dec 88 Plant Const Cell 2.pdf	PDF
4/13/2009	PC/NB	JOF Dec 88 Plant Const Cell 3.pdf	PDF
4/13/2009	PC/NB	JOF Dec 88 Plant Const Cell.pdf	PDF
4/13/2009	PC/NB	Topographical.cal	CAL
4/13/2009	PC/NB	Topography Main Ash Complex_J0000012.Pro.cal	CAL
4/13/2009	PC/NB	JOF 1994 Analysis Of Char - Sbm - Fly Ash & Bottom Ash.pdf	PDF
4/13/2009	PC/NB	JOF 1994 Analysis Of Crushed Stone - Fly Ash - Bottom Ash.pdf	PDF
4/13/2009	PC/NB	JOF 1994 Analysis Of Lime - Fly Ash.pdf	PDF
4/13/2009	PC/NB	JOF 1994 Volume 1 Analysis Of Fly Ash - Cement.pdf	PDF
4/13/2009	PC/NB	JOF 1994 Volume Ii Analysis Of Fly Ash - Cement.pdf	PDF
4/13/2009	PC/NB	01 JOF 1990 Ash Area In Rr Loop.pdf	PDF
4/13/2009	PC/NB	02 JOF 1981 Ash Storage.pdf	PDF
4/13/2009	PC/NB	03 JOF 1981 Cost Estimate.pdf	PDF
4/13/2009	PC/NB	04 JOF 1981 Ash Disposal Area Inside Rr Loop.pdf	PDF
4/13/2009	PC/NB	05 JOF Fill Volume - North Dredge Pond Nw Dike - Ash Disposal Area Within Rr Loop.pdf	PDF
4/13/2009	PC/NB	06 JOF Fill Volume - Dredge Pond Divider Dike - Ash Disposal Area Within Rr Loop.pdf	PDF
4/13/2009	PC/NB	06 JOF Fill Volume - North Dredge Pond Ne Dike - Ash Disposal Area Within Rr Loop.pdf	PDF
4/13/2009	PC/NB	08 JOF Fill Volume - Main Runoff Control Dike - Ash Disposal Area Within Rr Loop.pdf	PDF
4/13/2009	PC/NB	08 JOF Fill Volume - South Dredge Pond South Dike - Ash Disposal Area Within Rr Loop.pdf	PDF
4/13/2009	PC/NB	10 JOF Cut Volume - North Dredge Pond - Ash Disposal Area Within Rr Loop.pdf	PDF
4/13/2009	PC/NB	11 JOF Cut Volume - South Dredge Pond - Ash Disposal Area Within Rr Loop.pdf	PDF
4/13/2009	PC/NB	12 JOF 1981 Cost Estimate Request.pdf	PDF
4/13/2009	PC/NB	13 JOF 1981 Dry Fly Ash Storage Estimate.pdf	PDF
4/13/2009	PC/NB	14 JOF 1981 Siting Program Flood Studies.pdf	PDF
4/13/2009	PC/NB	15 JOF 1981 Cost Estimate.pdf	PDF
4/13/2009	PC/NB	16 JOF 1981 Man Hour Estimate Summary & Cost Worksheet.pdf	PDF
4/13/2009	PC/NB	17 JOF Dry Stacking Volume Inside Rail Loop.pdf	PDF
4/13/2009	PC/NB	18 JOF 1980 Dry Fly Ash Storage Area.pdf	PDF
4/13/2009	PC/NB	19 JOF 1980 Misc Proposed Dry Flyash Handling Collection.pdf	PDF
4/13/2009	PC/NB	19 JOF 1980 Possible Site For Dry Ash Disposal Area.pdf	PDF
4/13/2009	PC/NB	JOF Ash Storage Sketch.cal	CAL
4/13/2009	PC/NB	Tvanjcl.Dwg Sheet 2 Of 3.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	Tvanjcs.Dwg Sheet 3 Of 3.cal	CAL
4/13/2009	PC/NB	Tvanjex.Dwg Sheet 1 Of 3.cal	CAL
4/13/2009	PC/NB	JOF 1969 Ash Pond - Soil & Foundation Exploration.pdf	PDF
4/13/2009	PC/NB	01 JOF 2002 Waste Disposal Permit & Ash Stacking Plan - Operations Manual Rev 1.pdf	PDF
4/13/2009	PC/NB	02 JOF 2002 Appendix A.pdf	PDF
4/13/2009	PC/NB	03 JOF 2002 Appendix B.pdf	PDF
4/13/2009	PC/NB	04 JOF 2002 Appendix C.pdf	PDF
4/13/2009	PC/NB	05 JOF 2002 Appendix D.pdf	PDF
4/13/2009	PC/NB	06 JOF 2002 Appendix E.pdf	PDF
4/13/2009	PC/NB	07 JOF 2002 Appendix F.pdf	PDF
4/13/2009	PC/NB	08 JOF 2002 Appendix G.pdf	PDF
4/13/2009	PC/NB	09 JOF 2002 Appendix H.pdf	PDF
4/13/2009	PC/NB	10 JOF 2002 Site Information.pdf	PDF
4/13/2009	PC/NB	11 JOF 2002 Description Of Solid Wastes.pdf	PDF
4/13/2009	PC/NB	12 JOF 2002 Daily Operations.pdf	PDF
4/13/2009	PC/NB	13 JOF 2002 Surface Water Management.pdf	PDF
4/13/2009	PC/NB	14 JOF 2002 Geologic Buffer.pdf	PDF
4/13/2009	PC/NB	15 JOF 2002 Gas Control.pdf	PDF
4/13/2009	PC/NB	16 JOF 2002 Leachate Control.pdf	PDF
4/13/2009	PC/NB	17 JOF 2002 Groundwater Monitoring.pdf	PDF
4/13/2009	PC/NB	18 JOF 2002 Environ Protection Statements.pdf	PDF
4/13/2009	PC/NB	19 JOF 2002 Closure & Post Closure.pdf	PDF
4/13/2009	PC/NB	20 JOF 2002 Quality Assurance - Quality Control.pdf	PDF
4/13/2009	PC/NB	21 JOF 2002 References.pdf	PDF
4/13/2009	PC/NB	22 JOF 2002 Appendix B.pdf	PDF
4/13/2009	PC/NB	23 JOF 2002 Appendix B.pdf	PDF
4/13/2009	PC/NB	24 JOF 2002 Appendix C.pdf	PDF
4/13/2009	PC/NB	25 JOF 2002 Appendix D.pdf	PDF
4/13/2009	PC/NB	26 JOF 2002 Appendix E.pdf	PDF
4/13/2009	PC/NB	27 JOF 2002 Appendix F.pdf	PDF
4/13/2009	PC/NB	28 JOF 2002 Appendix G.pdf	PDF
4/13/2009	PC/NB	29 JOF 2002 Appendix H.pdf	PDF
4/13/2009	PC/NB	JOF 1988 Offsite & Onsite Dredge Fly Ash Storage Areas Addendum.pdf	PDF
4/13/2009	PC/NB	JOF 1988 Offsite & Onsite Dredge Fly Ash Storage Areas Misc.pdf	PDF
4/13/2009	PC/NB	JOF 1988 Offsite & Onsite Dredge Fly Ash Storage Areas.pdf	PDF
4/13/2009	PC/NB	JOF 1997 Hydrology Of Rail Loop Dredged Ash Stacking Area.pdf	PDF
4/13/2009	PC/NB	JOF2_1A.Out.txt	TXT
4/13/2009	PC/NB	JOF5_4.Out.txt	TXT
4/13/2009	PC/NB	JOF5_4A.Out.txt	TXT

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	JOF5_5.Out.txt	TXT
4/13/2009	PC/NB	JOF5_5A.Out.txt	TXT
4/13/2009	PC/NB	JOF6_2.Out.txt	TXT
4/13/2009	PC/NB	JOF6_2A.Out.txt	TXT
4/13/2009	PC/NB	JOF6_3.Out.txt	TXT
4/13/2009	PC/NB	JOF6_3A.Out.txt	TXT
4/13/2009	PC/NB	JOF6_4A.Out.txt	TXT
4/13/2009	PC/NB	JOF7_1.Out.txt	TXT
4/13/2009	PC/NB	JOF7_1A.Out.txt	TXT
4/13/2009	PC/NB	JOF7_2.Out.txt	TXT
4/13/2009	PC/NB	JOF7_2A.Out.txt	TXT
4/13/2009	PC/NB	JOF7_3.Out.txt	TXT
4/13/2009	PC/NB	JOF7_3A.Out.txt	TXT
4/13/2009	PC/NB	JOF8_1.Out.txt	TXT
4/13/2009	PC/NB	JOF8_1A.Out.txt	TXT
4/13/2009	PC/NB	JOF8_2.Out.txt	TXT
4/13/2009	PC/NB	JOF8_2A.Out.txt	TXT
4/13/2009	PC/NB	JOF8_3.Out.txt	TXT
4/13/2009	PC/NB	JOF8_3A.Out.txt	TXT
4/13/2009	PC/NB	JOF9_10.Out.txt	TXT
4/13/2009	PC/NB	JOF9_2.Out.txt	TXT
4/13/2009	PC/NB	JOF9_3.Out.txt	TXT
4/13/2009	PC/NB	JOF9_4.Out.txt	TXT
4/13/2009	PC/NB	JOF9_6.Out.txt	TXT
4/13/2009	PC/NB	JOF9_7.Out.txt	TXT
4/13/2009	PC/NB	JOF9_8.Out.txt	TXT
4/13/2009	PC/NB	JOF9_9.Out.txt	TXT
4/13/2009	PC/NB	JOF_Run2_1.Out.txt	TXT
4/13/2009	PC/NB	JOF 1995 Groundwater Assessment.pdf	PDF
4/13/2009	PC/NB	JOF 2000 Hydrogeologic Evaluation Of Proposed North Railroad Loop Ash Disposal Facility Revision.pdf	PDF
4/13/2009	PC/NB	JOF 1998 Closure-Post Closure Plan Dredge Ash Disposal (Rail Loop Area).pdf	PDF
4/13/2009	PC/NB	JOF 1995 Ponded Fly Ash (New & Old Dredge Cells - Active Ash Pond) & Bottom Ash.pdf	PDF
4/13/2009	PC/NB	JOF 1948 Geology Of The New Johnsonville Steam Plant Site.pdf	PDF
4/13/2009	PC/NB	JOF 1987 Test Request & Boring Logs.pdf	PDF
4/13/2009	PC/NB	JOF- 461K509 E-4.cal	CAL
4/13/2009	PC/NB	JOF- 461K509 E-5 Rev 1.cal	CAL
4/13/2009	PC/NB	JOF 10E200-01 Rev 5.cal	CAL
4/13/2009	PC/NB	JOF 10E201-01 Rev 6.cal	CAL
4/13/2009	PC/NB	JOF 10E201-02 Rev 6.cal	CAL

Date Reviewed	Reviewed by	Comments	File Type
4/13/2009	PC/NB	JOF 10E202-01 Rev 3.cal	CAL
4/13/2009	PC/NB	JOF 10N503 Rev 7.cal	CAL
4/13/2009	PC/NB	JOF 10N528 Rev 9.cal	CAL
4/13/2009	PC/NB	JOF 10N529 Rev 3.cal	CAL
4/13/2009	PC/NB	JOF 10W222-01 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-03 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-04 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-05 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-06 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-07 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-08 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-09 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-10 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W222-13 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W526-13 Rev 2.cal	CAL
4/13/2009	PC/NB	JOF 10W527 Rev 13.cal	CAL
4/13/2009	PC/NB	JOF 10W527-13 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF 10W527-2 Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10N502-Sht -Rev 14.cal	CAL
4/13/2009	PC/NB	JOF-10N700-Sht -Rev 0.cal	CAL
4/13/2009	PC/NB	JOF-10W527-Sht -Rev 15.cal	CAL
4/13/2009	PC/NB	JOF-21W720-1-Sht -Rev 1.cal	CAL
4/13/2009	PC/NB	JOF-21W720-2-Sht -Rev 2.cal	CAL
4/13/2009	PC/NB	JOF-21W720-3-Sht -Rev 1.cal	CAL
4/13/2009	PC/NB	Johnsonvillehydrogeologyofrailloopdredgedashstackingarea.pdf	PDF
4/13/2009	PC/NB	Johnsonvilleoperationsmanualdredgedashdisposalareaapril2001.pdf	PDF
4/13/2009	PC/NB	Johnsonvillesiteandonsitedredgeflyashstorageareassmesoi87035Feb21988.pdf	PDF
4/16/2009	PJC	JOF_Ap-D_Closure_Report(2003).pdf	PDF
4/16/2009	PJC	JOF_Ash_Pond_Insp_Fy08_Rev1.pdf	PDF
4/16/2009	PJC	10W227 Section K-K - Ash Pond Proposed Stack .cal	CAL
4/16/2009	PJC	01 JOF 1994 Clean Stack In The Rr Loop.pdf	PDF
4/16/2009	PJC	02 JOF 330 Telegon Nb Both Options.pdf	PDF
4/16/2009	PJC	199-03.cal	CAL
4/16/2009	PJC	2006 Additional Ash Disposal Capacity Markup .cal	CAL

Appendix H

Kingston Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
Kingston Fossil Plant (KIF)

Location:	Kingston Fossil Plant (KIF) 714 Swan Pond Road Harriman, Roane County, TN 37748 Latitude: 35.898333 Longitude: -84.518889
Plant Contact:	Dwayne Rushing (Yards Ops Supervisor) Phone: 865-717-2061 Email: N/A
Facts and Figures:	The Kingston Fossil Plant is located on Watts Bar Reservoir, on the confluence of the Emory and Clinch Rivers, near Kingston, Tennessee. The plant has nine coal-fired generating units and consumes approximately 14,000 tons of coal per day at maximum operating capacity. Construction on the plant began in 1951 and was completed in 1955.
Coal Combustion Byproduct Disposal:	Approximately 390,000 dry tons of fly ash is sluiced to the Ash Pond annually. Prior to dredge cell failure, fly ash was dewatered and hydraulically dredged into adjacent dredge cells. Similarly, approximately 95,000 dry tons of bottom ash is sluiced to the Ash Pond annually. Bottom ash was primarily used to build the dikes around the dredge cell.
Geology and Seismicity:	The Kingston Fossil Plant is located in east-central Tennessee near the confluence of the Emory and Clinch Rivers. The plant is situated on the western edge of the Valley and Ridge Physiographic province near the base of the Cumberland Plateau. Numerous faults, trending northeast to southwest as characteristic of the Valley and Ridge Province, are depicted on the geologic mapping and the plant is positioned between the Chattanooga Fault to the north, and the Kingston Fault to the South. The geologic mapping shows the plant to be underlain by Lower Ordovician and Cambrian age limestone and shale bedrock formations. Although not depicted on the geologic mapping, previous drilling programs at the plant indicate alluvial deposits consisting of fine sands, silty sands, and sandy silts are present at the site, as are commonly found adjacent to the rivers. The geologic mapping indicates Pine Ridge, just north of the plant, and the northern corner of the ash disposal area are underlain by the Rome Formation consisting of arenaceous shale interbedded with very thin siltstone layers and thin beds of sandstone. The

majority of the plant, including the majority of the ash disposal area, is underlain by the Conasauga Shale Formation consisting of an argillaceous to silty shale with of zones of shaley limestone scattered throughout. The geologic mapping indicates this formation is contorted, brecciated, and sheared throughout. A narrow band of the Maynardville Limestone separates the mainland plant from the peninsula. The Maynardville Limestone Formation consists of fine grained, laminated to thinly bedded dolomite in the upper part and fine grained, thin to very thick-bedded limestone with ribboned shale seams and dolomite laminate in the lower part. The peninsula is underlain by the Knox Group, consisting of siliceous dolomite with a few limestone beds in the upper part and scattered thin quartz sandstone beds and lenses. The Knox Group generally weathers to a thick residuum of red-orange soil with chert fragments and is known for karst activity. The USGS topographic map depicts a few enclosed drainage basins indicative of karst activity within the peninsula area.

Seismic events affecting eastern Tennessee, and thus the plant site, primarily emanate from three zones of earthquake activity – the New Madrid Seismic Zone (NMSZ), Southern Appalachia Seismic Zone (SASZ), and the South Carolina Seismic Zone (SCSZ). The most active zone of the SASZ, the East Tennessee Seismic Zone (ETSZ), extends from northwestern Georgia through east Tennessee and is situated in close proximity to the plant. However, most earthquakes emanating from this zone are relatively low in magnitude, with the largest known event in the ETSZ registering a magnitude of 4.6, suggesting a moderate risk of damage from a seismic event. In contrast, if a large earthquake were to occur within the New Madrid zone to the west, damage to East Tennessee would be possible. The “Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5” developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 2.

Facilities Reviewed:

Ash Pond
Stilling Pond
Peninsula Gypsum Pond

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Kingston Fossil Plant (KIF)
Ash Pond (AP)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN14504
Surface Area (inside dikes)	92 acres	Maximum Height (toe to top of dike):	Water surface to top of dike 24 feet
Free Water Volume:	Unknown	Maximum Water Storage:	Unknown
Estimated CCB Storage:	Unknown	Dike Length:	±4,950 feet
Plant Discharge to Facility:	Unknown	Current Pool Elevation:	760.5 feet

2. Site Visit Information

Stantec Assessment Team:	Adam Crace, PE and Luis Arduz, PE
TVA Staff Present:	None
Field Assessment Dates:	February 11, 2009
Weather/Site Conditions:	Mid-50 degrees F, partly cloudy, moist ground.

3. History/Description of Usage

History and Operation:	Fly ash and bottom ash is sluiced into a channel that drains into the Ash Pond. The bottom ash is excavated out and transported to the Dredge Cells. Sluice water flows into five 48" RCP riser pipe/weirs that discharge into the Stilling Basin. Once the particulates have settled out in the Ash Pond the Fly Ash and Bottom Ash are transported to the Dredge Cells.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	A Byproducts Operations Manual is available for the Kingston Fossil Plant covering all active facilities.
TVA Maintenance:	Slopes mowed as determined by TVA personnel.
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports.
Problems Previously Identified During Past TVA Inspections:	None reported.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	None available.
TVA As-Built Drawings:	None available.
TVA Construction Testing Records:	None available.
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1968 to 2008.
Geotechnical Data:	Mactec's Report of Geotechnical Exploration, February 23, 2005; Boring Records (1988) used in Closure Plan of Ash Pond Area, 1995; Revised 1998, 1975 TVA Ash Disposal Area Dike Raising - Soil Investigation.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Well trimmed grass, adequate coverage, some disturbed areas near the northern abutment due to recent dredging operations.
Trees:	Sparse with less than 6" diameter and some brush areas at the northern abutment.
Wave Wash Protection:	None was observed along the northeastern dike. Riprap of 12 inch average diameter observed along north slope in front of five riser/weir structures. Concrete used for a 55 foot length at juncture of divider dike and Dike C.
Erosion:	Wave erosion at locations along the northeastern and southeastern edge of pond.
Instabilities:	None were observed.
Animal Burrows:	None were observed.
Freeboard:	**Measured:** 10.5 feet at Section 5. **Design:** Not found to date
Encroachments:	Dredging is underway near the northeastern corner of the Ash Pond (Photo CIMG9480).
Slope:	**Measured:** Varies from 1.7H:1V (Section 3) to 2.2H:1V (Section 2). **Design:** 2:H:1V (from Drawing 10W421).

6.2. Crest

Crest Cover and Slope:	Gravel/ash covered access road, crest appeared relatively flat.
Erosion:	None observed.
Alignment:	Alignment appeared uniform and to agree with design drawings.

Settlement/Cracking:	None observed.	
Bare Spots/Rutting:	Entire crest shows signs of minor rutting (<2 inches) due to construction traffic.	
Width:	**Measured:**	Varies from 16 - 25 feet.
	Design:	16 feet (from Drawing 10W421).

6.3. Exterior Slopes

Vegetation:	Mostly grass, adequate coverage with good overall height.	
Trees:	There are numerous trees and brush located near the waters edge with approximately 30% having a diameter greater than 12 inches.	
Erosion:	Located on approximately 5% of the slope below the lower bench with a depth of 3 inches, width of 6 inches and a length between 3 to 10 feet.	
Instabilities:	No evidence of instability was observed.	
Uniform Appearance:	Good.	
Seepage:	None observed.	
Benches:	Approximate 15-foot wide bench approximately 13 feet below the crest.	
Foundations, Drains, Relief Wells, Instrumentation:	Two piezometers located on the crest near the intersection of the divider dike and Dike C. Five 12 inch metal pipes were installed at various locations below the lower bench. The pipes were installed to intersect seeps from the Ash Pond and Stilling Pond.	
Animal Burrows:	None observed.	
Slope:	**Measured:**	Varies from 2:2H:1V (Section 1) to 1.5H:1V (Section 5).
	Design:	2.H:1.V (from Drawing 10W421
Height:	**Measured:**	23 feet to the water surface.
	Design:	24 feet to water surface.

6.4. Spillway Weirs/Riser Inlets

Number:	Five (5)
Size, Type and Material:	48 inch RCP push-together riser sections with standard TVA steel skimmers.
Height of Riser Inlets:	Estimated at 8.5 feet.
Access:	By boat.
Joints:	Pipe risers are push together and sealed annually by divers using oakum joint sealant.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

6.5. Outlet Pipes

Number:	Five (5)
Size, Type and Material:	36 inch steel pipes.
Headwall:	N/A
Joint Separations:	N/A
Mis-Alignment:	Unable to observe.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- The exterior dike slope is steeper than 2H:1V in several areas. Stantec did a review of the slopes on approximately 500 foot intervals using data from a recent topographic survey and found that eight of the twelve sections exhibited slope configurations steeper than 2H:1V for heights of approximately 15 feet.
- Rutting is present on the lower bench on the exterior slope over approximately 30% of the bench with some of the ruts containing standing water from local surface runoff. The rutting is from recent construction traffic and past mowing activities.
- Raising the dikes by using upstream construction over sluiced ash is a potential slope stability concern.
- RCP push-together riser structure spillways are a concern.

- Several pipe penetrations were noted along the exterior slopes. Some of the pipe penetrations represent seepage/drainage control pipes and others are full penetrations.
- Foundation conditions are a concern based on historical data. There is available data showing soft/weak clay zones at various locations.
- Areas near the recent construction activities show signs of rutting and disturbed ground cover particularly near the intersection of Dike C and Dike D.
- Trees and brush are located near the waters edge around 80-percent of the dike. Recommendations for tree removal have been provided in past annual reports, but have not yet been performed.
- Wave action erosion was noted at several locations along interior slopes on the northeastern and southeastern dike just above pool level.
- Contraction scour of the exterior slope along the northeastern portion of the dike due to the flow of the Clinch River and the Emory River.
- Previous inspection reports appear adequate, but there is a trend of not all maintenance recommendations being executed.
- The absence of an Emergency Action Plan, Operation and Maintenance Plan, as-built drawings and construction testing records is a concern. The documentation may exist, however, these documents have not been uncovered during the document research.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that Dike C undergo Geotechnical Exploration and Phase 2 Engineering Study to evaluate seepage on the east dike face, slope stability, foundation conditions and to the lateral expansion/closure plan on the west side of the facility. Stantec is currently working on this project.
- It is recommended that a river morphology study be performed to determine the impact of the rerouted stream on Dike C. Stantec is currently working on this project.
- It is recommended that the existing Operations and Maintenance Manual be updated for this facility.
- It is recommended that a program to develop as-built drawings and construction records for future maintenance and construction activities be established.

8.2. Maintenance Recommendations

- Remove trees and brush from exterior slope near the waters edge around the perimeter of Dike C. If the trees are large the roots also need to be removed and the area needs to be backfilled with compacted material.
- Repair erosion on interior slopes, and line with rip-rap to help reduce future erosion.
- Monitor seepage areas around the outflow pipes for change.
- Monitor and repair rutted and disturbed areas as construction operations approach completion near the northeast portion of Dike C.
- Identify full pipe penetrations and grout pipes full unless they are used in the current facility design.
- The rutting on the exterior bench below the crest needs to be regraded maintaining positive drainage and seeded.
- Continue annual joint repairs of RCP risers. This spillway system may ultimately be modified or replaced, pending Stantec-TVA assessment of replacement system. Monitor until that time.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Kingston Fossil Plant (KIF)
Stilling Pond (SP)

1. General Facility Information

Facility Status:	Active	NID Identification:	TN14504
Surface Area (inside dikes)	±29 acres	Maximum Height (toe to top of dike):	N/A
Free Water Volume:	N/A	Maximum Water Storage:	N/A
Estimated CCB Storage:	N/A	Dike Length:	±4,800 feet
Plant Discharge to Facility:	N/A	Current Pool Elevation:	754.7 feet

2. Site Visit Information

Stantec Assessment Team:	Adam Crace, PE, Jim Andrew, PE and Luis Arduz, PE
TVA Staff Present:	None.
Field Assessment Dates:	February 11, 2009
Weather/Site Conditions:	Mid-50 degrees F, cloudy/

3. History/Description of Usage

History and Operation:	Sluice water flows from the Ash Pond into five 48 inch RCP riser pipe/weirs that penetrate the divider dike, and these discharge into the stilling basin. The water from the stilling basin then flows into six 48" RCP pipe/weirs that discharge into the Emory River intake channel. The divider dike also includes a lime feeder facility located adjacent to the Ash Pond.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	A Byproducts Operations Manual is available for the Kingston Fossil Plant covering all active facilities.

TVA Maintenance:	N/A
TVA Inspections:	TVA Engineering performs annual dike inspections and prepares reports.
Problems Previously Identified During Past TVA Inspections:	Floating ash in the Stilling Pond near the weir and skimmer, some erosion of the dike roads (from 2009 Annual Inspection).

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	Ash Disposal Area Divider Dike 2 Floating Boom (TVA Drawing 10N424).
TVA As-Built Drawings:	N/A
TVA Construction Testing Records:	N/A
TVA Annual Inspection Reports:	TVA Annual Inspection Reports 1968 to 2008.
Geotechnical Data:	None obtained as of this writing.

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Weeds, cattails with sparse coverage.
Trees:	None observed.
Wave Wash Protection:	None observed.
Erosion:	Sporadic wave wash erosion, some surface runoff erosion (2 to 4 inches wide, 2 inches deep and up to 8 feet in length).
Instabilities:	None observed.

Animal Burrows:	None observed.	
Freeboard:	**Measured:**	7 feet at Section 6
	Design:	2 feet maximum
Encroachments:	None were observed	
Slope:	**Measured:**	Varies 1.7H:1V (Section 5) to 2.8H:1V (Section 1) approximately
	Design:	2H:1V

6.2. Crest

Crest Cover and Slope:	Gravel and ash cover (construction traffic road).	
Erosion:	None observed.	
Alignment:	Good.	
Settlement/Cracking:	None observed.	
Bare Spots/Rutting:	None observed.	
Width:	**Measured:**	12 feet to 15 feet
	Design:	16 feet

6.3. Exterior Slopes

Vegetation:	Weeds, cattails with sparse coverage.
Trees:	None observed.
Erosion:	No significant signs observed.
Instabilities:	None observed.
Uniform Appearance:	Slope along interior divider dike is not uniform. Becomes steeper along SW portion of dike.
Seepage:	None observed.
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	None observed.

Animal Burrows:	None observed.	
Slope:	**Measured:**	1.7H:1V to 3H:1V
	Design:	2H:1V
Height:	**Measured:**	N/A
	Design:	N/A

6.4. Spillway Weirs/Riser Inlets

Number:	Six (6) located in the Stilling Pond at the SE end of the pond.
Size, Type and Material:	48 inch RCP push-together riser sections with standard TVA steel skimmers.
Height of Riser Inlets:	Approximately 8.5 feet with one of the risers at 10.5 feet.
Access:	Two spillways accessible via catwalks and the other four are accessible only from a boat.
Joints:	Unknown.
Mis-Alignment:	None reported or observed.
Closed/Abandoned Conduits:	None reported or observed.

6.5. Outlet Pipes

Number:	Six (6) located in Emory River at the SE end of the Stilling Pond.
Size, Type and Material:	36 inch steel pipes.
Headwall:	Appears to be in good shape, however, some minor seepage around four of the six pipes was observed.
Joint Separations:	Unknown, unable to observe.
Mis-Alignment:	Unknown, unable to observe.
Closed/Abandoned Conduits:	None reported or observed.

7. Notable Observations and Concerns

- The exterior dike slope is steeper than 2H:1V in several areas. Stantec did a review of the slopes on approximately 500 foot intervals using data from a recent topographic survey and found that eight of the twelve sections exhibited slope configurations steeper than 2H:1V for heights of approximately 15 feet.
- Rutting is present on the lower bench on the exterior slope over approximately 30% of the bench with some of the ruts containing standing water from local surface runoff. The rutting is from recent construction traffic and past mowing activities.
- Raising the dikes by using upstream construction over sluiced ash is a potential slope stability concern.
- RCP push-together riser structure spillways are a concern.
- Several pipe penetrations were noted along the exterior slopes. Some of the pipe penetrations represent seepage/drainage control pipes and others are full penetrations.
- Foundation conditions are a concern based on historical data. There is available data showing soft/weak clay zones at various locations.
- The slope on the stilling pond side was not uniform, becoming steeper along the southern end or approximately one third of the length of the dike. Based upon field observations and estimates from cross-sections taken perpendicular to the crest of this divider dike using LIDAR mapping, these slopes range from 1.7H:1V to 1.9H:1V. The stability of these steeper slopes is a concern.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- None at this time.

8.2. Maintenance Recommendations

- Remove tall brush and cattails on the Stilling Pond slope. Some areas are bare, exposing ash/soil embankment materials.
- Repair sporadic erosion as noted just above the Stilling Pond pool level. This erosion appears to be mostly due to wave wash, and partly due to surface runoff on the slope.
- Install rip rap slope protection on the Stilling Pond side of this dike.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Kingston Fossil Plant (KIF)
Peninsula Gypsum Pond (PGP)

1. General Facility Information

Facility Status:	Inactive. Construction not fully completed	NID Identification:	N/A
Surface Area (inside dikes)	51.2 acres (TVA Drawing 10W427-3)	Maximum Height (toe to top of dike):	28 feet
Free Water Volume:	N/A	Maximum Water Storage:	N/A
Estimated CCB Storage:	N/A	Dike Length:	5,800 feet
Plant Discharge to Facility:	N/A	Current Pool Elevation:	Impoundment is currently dry

2. Site Visit Information

Stantec Assessment Team:	Adam Crace, PE, Luis Arduz, PE and Jim Andrews, PE
TVA Staff Present:	None
Field Assessment Dates:	February 10, 2009 and February 11, 2009
Weather/Site Conditions:	Mid-50 degrees F, cloudy.

3. History/Description of Usage

History and Operation:	Impoundment to store and dewater sluiced synthetic gypsum. Not operating at this time.
Past Failures/Releases:	No failures or releases reported.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	No EAP has been prepared for this facility.
Operations Manual:	Dated May 2006 (Revision 0)
TVA Maintenance:	N/A
TVA Inspections:	N/A

Problems Previously Identified During Past TVA Inspections:	N/A

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10W427_1 through _11, 10W428_2 through _22
TVA As-Built Drawings:	None found as part of Stantec review.
TVA Construction Testing Records:	None found as part of Stantec review.
TVA Annual Inspection Reports:	2009
Geotechnical Data:	Mactec Engineering and Consulting, Inc. Reports (2003, 2005 and 2006), S&ME, Inc. Report of Drilling Well Abandonment and Installation Services (2008), Geosyntec Consultants, Summary of Construction Drop-Outs Mitigation Measures (2008).

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Most of the interior slopes include seed and straw. Some areas of the dike have no vegetative cover.
Trees:	None observed.
Wave Wash Protection:	None observed.
Erosion:	Surface runoff erosion noted at several locations
Instabilities:	None observed.
Animal Burrows:	None observed.
Freeboard:	**Measured:** N/A **Design:** N/A

Encroachments:	None observed.
Slope:	**Measured:** Estimated between 3H:1V and 4H:1V **Design:** 3H:1V

6.2. Crest

Crest Cover and Slope:	Crest did not have any cover.
Erosion:	None observed.
Alignment:	Uniform. No issues observed.
Settlement/Cracking:	One segment roughly 100 feet in length located approximately 800 feet NE from the overflow (stormwater pond drop inlet) structure, along the northern dike shows some vertical deflection. This deflection was estimated to be as much as 18 inches.
Bare Spots/Rutting:	Occasional truck traffic rutting observed.
Width:	**Measured:** 21 feet to 33 feet **Design:** 20 feet (DWG 10W428_21)

6.3. Exterior Slopes

Vegetation:	Grass covered along southern portion of dike. No vegetative cover was observed along the eastern portion of dike.
Trees:	None observed.
Erosion:	Sporadic areas show surface runoff erosion.
Instabilities:	None observed.
Uniform Appearance:	Good.
Seepage:	None observed.
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	None observed.
Animal Burrows:	None observed.

Slope:	**Measured:**	Estimated between 3H:1V and 3.5H:1V
	Design:	3H:1V
Height:	**Measured:**	N/A
	Design:	24 feet

6.4. Spillway Weirs/Riser Inlets

Number:	Three (3)
Size, Type and Material:	5 feet drop inlet, precast concrete.
Height of Riser Inlets:	5.5 feet
Access:	N/A
Joints:	None observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

6.5. Outlet Pipes

Number:	Three (3)
Size, Type and Material:	48 inch diameter RCP, Class III.
Headwall:	N/A
Joint Separations:	None observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- Karst bedrock and sinkhole activity is present at this site. One notable feature was observed since December, 2008. This feature was noted along the northern portion of the crest within a limestone lined ditch. This feature was being treated during the site reconnaissance on February 11, 2009. The subsurface extent of this feature is unknown.
- Most of the impoundment's area was not covered with vegetation during Stantec's Phase 1b walkthrough, and consequently surface runoff erosion was observed in several areas.

- Truck traffic rutting was noted along the eastern portion of the dike.
- Occasional boulders were noted near the toe of the southern dike interior slope.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that Karst activity at the site be reviewed and its impact on development considered.
- It is recommended that an Operations and Maintenance Plan be developed for the facility.
- It is recommended that a program to develop as-built drawings and construction records for future maintenance and construction activities be established.

8.2. Maintenance Recommendations

- Facility is not in operation. Future maintenance should be performed in accordance with an approved Operations and Maintenance Plan.

Drawing Mark AP-1 Typical disturbed ground cover in the interior slope because of recent construction activities.

Drawing Mark AP-2 Northern most location on Dike C showing brushy area looking southeast.

Drawing Mark AP-3 Typical view of dredging taking place in the ash pond.

Drawing Mark AP-4 Typical trees and brush located on the exterior slope.

Drawing Mark AP-5 Typical rutting on the interior slope because of recent construction activities.

Drawing Mark AP-6 Interior slope (Ash Pond side) at northern corner junction with Dike C.

Drawing Mark AP-7	Five outfall structures from Ash Pond into Stilling Pond.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
AP-1	Typical disturbed ground cover in the interior slope because of recent construction activities.	CIMG9481
AP-2	Northern most location on Dike C showing brushy area looking southeast.	CIMG9474
AP-3	Typical view of dredging taking place in the ash pond.	CIMG9480
AP-4	Typical trees and brush located on the exterior slope.	HPIM58
AP-5	Typical rutting on the interior slope because of recent construction activities.	HPIM69
AP-6	Interior slope (Ash Pond side) at northern corner junction with Dike C.	HPIM70
AP-7	Five outfall structures from Ash Pond into Stilling Pond.	HPIM70

Drawing Mark P-1 View of the six stacked concrete weir inlets.

Drawing Mark P-2 View of the diffuser pipes looking northwest.

Drawing Mark P-3

Exterior slope (Stilling Pond side) near middle of divider dike below lime feeder facility.

Drawing Mark P-4 Typical view of exterior slope that varies from 1.5H:1V to 2.8H:1V.

Drawing Mark P-5 Typical area of rutting from auto/truck traffic on the upper bench on the exterior slope with ponding water from surface runoff.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
P-1	View of the six stacked concrete weir inlets.	CIMG9490
P-2	View of the diffuser pipes looking northwest.	HPIM65
P-3	Exterior slope (Stilling Pond slide) near middle of divider dike below lime feeder facility.	CIMG9496
P-4	Typical view of the exterior slope that varies from 1.5H:1V to 2.8H:1V	HPIM69
P-5	Typical area of rutting from auto/truck traffic on the upper bench on the exterior slope with ponding water from surface runoff.	HPIM69

Drawing Mark PGP-1 Interior Slope: Erosion on east inner slope.

Drawing Mark PGP-2 Interior Slope: chert boulders at toe of south inner slope.

Drawing Mark PGP-3 Interior Slope: erosion in middle of south inner slope.

Drawing Mark PGP-4 Interior Slope: equipment ruts at pump location: western end of south inner slope.

Drawing Mark PGP-5 Interior Slope: slope protection (straw) north inner slope.

Drawing Mark PGP-6 Exterior slope of east dike, no ground cover.

Drawing Mark PGP-7 Exterior slope of south dike, grass cover, wet and soft at toe of slope.

Drawing Mark PGP-8 Silt check, crushed limestone near the bank of Clinch River.

Drawing Mark PGP-9

Exterior slope of dike near the overflow structure, runoff erosion observed.

Drawing Mark PGP-10

Slope near the juncture of the PGP outslope and the interior slope of the Stilling Pond, runoff erosion observed.

Drawing Mark PGP-11

Crest: Potential area of sinkhole/karst activity on west side of crest, previously treated with geotextile fabric and crushed

Drawing Mark PGP-12

Crest: Same area noted above being further treated by excavator, additional geotextile fabric.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
PGP-1	Interior Slope: erosion on east inner slope.	0794
PGP-2	Interior Slope: chert boulders at toe of south inner slope	0795
PGP-3	Interior Slope: erosion in middle of south inner slope.	0795
PGP-4	Interior Slope: equipment ruts at pump location: western end of south inner slope.	0798
PGP-5	Interior Slope: slope protection (straw) north inner slope.	0800
PGP-6	Exterior slope of east dike, no ground cover.	CIMG9425
PGP-7	Exterior slope of south dike, grass cover, wet and soft at toe of slope.	CIMG9431
PGP-8	Silt check, crushed limestone near the bank of Clinch River.	CIMG9434
PGP-9	Exterior slope of dike near the overflow structure, runoff erosion observed.	CIMG9437
PGP-10	Slope near the juncture of the PGP outslope and the interior slope of the Stilling Pond, runoff erosion observed.	CIMG9441
PGP-11	Crest: Potential area of sinkhole/karst activity on west side of crest, previously treated with geotextile fabric and crushed rock.	HPIM3
PGP-12	Crest: Same area noted above being further treated by excavator, additional geotextile fabric.	HPIM77

STANTEC CONSULTING SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 1 - KIF

Tennessee Valley Authority
Kingston Fossil Plant
Kingston, Roane County, Tennessee

PROJECT NO.	175669007
DATE	MARCH 2009
DRAWN BY	AMS
CHECKED BY	AAC
CHECKED BY	
SCALE	AS SHOWN
REVISED	
1	
2	
3	
4	
5	
6	
7	
8	

SHEET

1 OF 2

STANTEC
CONSULTING
SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View 2 - KIF

Tennessee Valley Authority
Kingston Fossil Plant
Kingston, Roane County, Tennessee

PROJECT NO.	175669007
DATE	MARCH 2009
DRAWN BY	AMG
CHECKED BY	AAC
CHECKED BY	
SCALE	AS SHOWN
REVISED	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

SHEET

2 OF 2

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Kingston Fossil Plant (KIF)

Date Reviewed	Reviewed by	File Name	File Type
2/25/2009	JDE	01 1986 KIF Steam Plant Photos.pdf	PDF
3/2/2009	JDE	01 1998 KIF Coal Receiving Rr Project - Swppp.pdf	PDF
3/2/2009	JDE	01 KIF Project File.pdf	PDF
2/26/2009	JDE	01 KIF Tva Fossil & Hydro Power Cost Estimate & Scope Of Work - Est # 94336 R1.pdf	PDF
3/2/2009	JDE	02 1998 KIF Coal Receiving Rr Project Bids.pdf	PDF
2/26/2009	JDE	02 KIF 1994 Coal Yard Runoff Pond - Alt 4 - One Submersible Pump & One Pipe - Estimate Revisions .pdf	PDF
2/25/2009	JDE	02 KIF Hydrated Limestone Fee System.pdf	PDF
3/2/2009	JDE	03 1998 KIF Coal Receiving Rr Project Authorization Summary.pdf	PDF
2/26/2009	JDE	03 KIF 1994 Coal Yard Runoff Pond - Alt 4 - One Submersible Pump & One Pipe.pdf	PDF
2/25/2009	JDE	03 KIF Dike C Seepage Repair Est..pdf	PDF
2/25/2009	JDE	03 KIF Study - Cooling Water - Intake Channel.pdf	PDF
3/2/2009	JDE	04 1998 KIF Coal Receiving Rr Project Trackwork Estimate Draft.pdf	PDF
2/26/2009	JDE	04 KIF 1994 Coal Yard Runoff Pond - Alt 4 - One Submersible Pump & One Pipe Handwritten Note.pdf	PDF
2/25/2009	JDE	04 KIF Dike C Seepage Repair Est..pdf	PDF
3/2/2009	JDE	05 1998 KIF Coal Receiving Rr Project Emory River Pier 3 Footing.pdf	PDF
2/26/2009	JDE	05 KIF 1994 Coal Yard Drainage Pond Sump & Inlet Pipes.pdf	PDF
2/25/2009	JDE	05 KIF Dike C Seepage Repair Est Pictures 1 (Dike C 1984 - KIF C 1985).pdf	PDF
3/2/2009	JDE	06 1998 KIF Coal Receiving Rr Project Letter From Tn Historical Commission - Dep Of Envir & Conserv.pdf	PDF
2/26/2009	JDE	06 KIF 1994 Nagle Pumpa Inc Preliminary Dwg Nagle Pumps.pdf	PDF
2/25/2009	JDE	06 KIF Dike C Seepage Repair Est Pictures 2 (East Dike 1984 - KIF C 1985).pdf	PDF
3/2/2009	JDE	07 99-00 KIF Coal Receiving Rr Project Misc Yard Operations Projects Report.pdf	PDF
2/26/2009	JDE	07 KIF 1994 Coal Yard Runoff Pond Alt 1 - One Pumps & One Pipeline.pdf	PDF
2/25/2009	JDE	07 KIF Dike C Seepage Repair Est Pictures 3 (KIF C 1985).pdf	PDF
3/2/2009	JDE	08 97 KIF Coal Receiving Rr Project Letter From Harry Petty To Dr. Susan Frankenberg Dep Of Anthro. Un. Of Tn..pdf	PDF
2/26/2009	JDE	08 KIF 1994 Coal Yard Rainfall Runoff Pump-Pond Study.pdf	PDF
2/25/2009	JDE	08 KIF Acidic Drainage East Dike.pdf	PDF
2/25/2009	JDE	08 KIF Dredge Dikes (Interior).pdf	PDF
2/12/2009	JWH	08-573804.pdf	PDF
2/26/2009	JDE	09 KIF 1994 Coal Yard Runoff Pond - Alt 5 - Submersible Pump & 1 Pipe (Pvc) Executive Summary.pdf	PDF
2/25/2009	JDE	09 KIF Acidic Drainage East Dike Pictures 1983.pdf	PDF
3/2/2009	JDE	09 Undated KIF Coal Receiving Rr Project Drawing Plans Table & Details.pdf	PDF
3/2/2009	JDE	10 1998 KIF National Flood Insurance Program $3100.pdf	PDF
2/26/2009	JDE	10 KIF 1994 Coal Yard Runoff Pond Alt 1 - One Pumps & One Pipeline Revised.pdf	PDF
2/25/2009	JDE	10 KIF Acidic Drainage East Dike Misc.pdf	PDF
3/18/2009	AAC	10B415-Ash Disposal Area Repair Of Dike C.pdf	PDF
2/9/2009	AAC	10B415-Ash Disposal Area Repair Of Dike C.pdf	PDF
3/31/2009	JDE	10E202-1.pdf	PDF
2/13/2009	JWH	10H431_1_Acidic Drainage Repair 1.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/13/2009	JWH	10H431_2_Acidic Drainage Repair 2.pdf	PDF
3/18/2009	AAC	10N200.pdf	PDF
2/9/2009	AAC	10N200_Voided - General Plan.pdf	PDF
3/18/2009	AAC	10N211.pdf	PDF
2/9/2009	AAC	10N211_General Grading Plan Coal Yard.pdf	PDF
3/18/2009	AAC	10N400.pdf	PDF
2/9/2009	AAC	10N400_General Ash Disposal Area.pdf	PDF
3/18/2009	AAC	10N401.pdf	PDF
2/9/2009	AAC	10N401_Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf - Sheet 1.pdf	PDF
3/18/2009	AAC	10N402.pdf	PDF
2/9/2009	AAC	10N402_Concrete Ash Sluice Pipe Trench & Supports Outline & Reinf - Sheet 2.pdf	PDF
3/18/2009	AAC	10N420.pdf	PDF
2/9/2009	AAC	10N420_Ash Pond Dike Plan-Raising Ash Disposal Area Dike.pdf	PDF
3/18/2009	AAC	10N421_Ash Pond Dike Section & Details.pdf	PDF
2/9/2009	AAC	10N421_Ash Pond Dike Section & Details.pdf	PDF
3/18/2009	AAC	10N422.pdf	PDF
2/9/2009	AAC	10N422_Standard Drawing Ash Disposal Spillway.pdf	PDF
3/18/2009	AAC	10N423.pdf	PDF
2/9/2009	AAC	10N423_Standard Drawing Weir For Ash Disposal Spillway.pdf	PDF
3/18/2009	AAC	10N424.pdf	PDF
2/9/2009	AAC	10N424_Ash Disposal Area Divider Dike & Floating Boom.pdf	PDF
2/9/2009	AAC	10W200_1_General Plan.pdf	PDF
3/18/2009	AAC	10W200-01.pdf	PDF
2/6/2009	AAC	10W225_1_Coal Yard Runoff Pond Discharge Pipe Upgrade Pipe Route & Grading Plan.pdf	PDF
2/6/2009	AAC	10W225_2_Coal Yard Runoff Pond Discharge Pipe Upgrade Partial Plan, Sections & Legend.pdf	PDF
2/6/2009	AAC	10W225_3_Coal Yard Runoff Pond Discharge Pipe Upgrade Partial Plan & Sections.pdf	PDF
2/6/2009	AAC	10W400-10 Bench 3 Cross Sections Details.pdf	PDF
2/6/2009	AAC	10W400-11 Bench 4 Cross Sections Details..pdf	PDF
2/6/2009	AAC	10W400-2 Existing Site Plan.pdf	PDF
2/6/2009	AAC	10W400-3 Propsed Bench And Drainage Ditch Regrade And Underdrain Extensions.pdf	PDF
2/6/2009	AAC	10W400-4 Surface Water Downdrain Details.pdf	PDF
2/6/2009	AAC	10W400-5 Ground Water Underdrain Details.pdf	PDF
2/6/2009	AAC	10W400-7 Drainage Bench Ditch Details.pdf	PDF
2/6/2009	AAC	10W400-8 Bench 1 Cross Sections Details.pdf	PDF
2/6/2009	AAC	10W400-9 Bench 2 Cross Sections Details.pdf	PDF
3/18/2009	AAC	10W400-Cover.pdf	PDF
2/9/2009	AAC	10W418_8_Wetlands Closure Plan 1.pdf	PDF
2/9/2009	AAC	10W418_9_Wetlands Closure Plan 2.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/18/2009	AAC	10W418-8.pdf	PDF
3/18/2009	AAC	10W418-9.pdf	PDF
3/30/2009	AAC	10W419-1.pdf	PDF
3/30/2009	AAC	10W419-2.pdf	PDF
3/30/2009	AAC	10W419-3.pdf	PDF
3/18/2009	AAC	10W421.pdf	PDF
3/18/2009	AAC	10W421_Ash Pond Dike Section & Details - Handdrawn.pdf	PDF
2/9/2009	AAC	10W421_Ash Pond Dike Section & Details - Handdrawn.pdf	PDF
4/7/2009	AAC	10W425 Cover Page.pdf	PDF
2/12/2009	JWH	10W425_1_Yard Dredge Cells Existing Contours And Stage A Plan.pdf	PDF
2/12/2009	JWH	10W425_87_Yard Dredge Cell Dike Restoration Plans & Section Sheet 5.pdf	PDF
2/12/2009	JWH	10W425_88_Yard Dredge Cell Dike Restoration Section & Detail Sheet 1.pdf	PDF
2/12/2009	JWH	10W425_89_Yard Dredge Cell Dike Restoration Section Sheet 2.pdf	PDF
2/12/2009	JWH	10W425_90_Yard Dredge Cell Dike Restoration Section & Details Sheet 3.pdf	PDF
2/12/2009	JWH	10W425_91_Yard Dredge Cell Dike Restoration Details Sheet 1.pdf	PDF
2/12/2009	JWH	10W425_92_Yard Dredge Cell Dike Restoration Ditch Profiles.pdf	PDF
2/12/2009	JWH	10W425_93_Yard Dredge Cell Dike Restoration Borrow Pit Area.pdf	PDF
3/18/2009	AAC	10W425-10.pdf	PDF
3/18/2009	AAC	10W425-11.pdf	PDF
3/18/2009	AAC	10W425-12.pdf	PDF
3/18/2009	AAC	10W425-13.pdf	PDF
3/18/2009	AAC	10W425-14.pdf	PDF
3/18/2009	AAC	10W425-15.pdf	PDF
3/18/2009	AAC	10W425-16.pdf	PDF
3/18/2009	AAC	10W425-17.pdf	PDF
3/18/2009	AAC	10W425-18.pdf	PDF
3/18/2009	AAC	10W425-2.pdf	PDF
3/18/2009	AAC	10W425-20.pdf	PDF
3/18/2009	AAC	10W425-23.pdf	PDF
3/18/2009	AAC	10W425-24.pdf	PDF
3/18/2009	AAC	10W425-25.pdf	PDF
3/18/2009	AAC	10W425-3.pdf	PDF
3/18/2009	AAC	10W425-32.pdf	PDF
3/18/2009	AAC	10W425-33.pdf	PDF
3/18/2009	AAC	10W425-34.pdf	PDF
3/18/2009	AAC	10W425-36.pdf	PDF
3/18/2009	AAC	10W425-38.pdf	PDF
3/18/2009	AAC	10W425-39.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/18/2009	AAC	10W425-4.pdf	PDF
3/18/2009	AAC	10W425-42.pdf	PDF
3/18/2009	AAC	10W425-44.pdf	PDF
3/18/2009	AAC	10W425-48.pdf	PDF
3/18/2009	AAC	10W425-5.pdf	PDF
3/18/2009	AAC	10W425-51.pdf	PDF
3/18/2009	AAC	10W425-56.pdf	PDF
3/18/2009	AAC	10W425-6.pdf	PDF
3/18/2009	AAC	10W425-60.pdf	PDF
3/18/2009	AAC	10W425-61.pdf	PDF
3/18/2009	AAC	10W425-64.pdf	PDF
3/18/2009	AAC	10W425-65.pdf	PDF
2/12/2009	JWH	10W425-66.pdf	PDF
2/9/2009	AAC	10W425-69.pdf	PDF
2/12/2009	JWH	10W425-7.pdf	PDF
2/12/2009	JWH	10W425-70.pdf	PDF
2/12/2009	JWH	10W425-71.pdf	PDF
2/12/2009	JWH	10W425-72.pdf	PDF
2/12/2009	JWH	10W425-73.pdf	PDF
2/12/2009	JWH	10W425-74.pdf	PDF
2/12/2009	JWH	10W425-76.pdf	PDF
2/12/2009	JWH	10W425-77.pdf	PDF
2/12/2009	JWH	10W425-78.pdf	PDF
2/12/2009	JWH	10W425-79.pdf	PDF
3/18/2009	AAC	10W425-8.pdf	PDF
3/18/2009	AAC	10W425-80.pdf	PDF
3/18/2009	AAC	10W425-81.pdf	PDF
3/18/2009	AAC	10W425-82.pdf	PDF
3/18/2009	AAC	10W425-83.pdf	PDF
3/18/2009	AAC	10W425-84.pdf	PDF
3/18/2009	AAC	10W425-85.pdf	PDF
3/18/2009	AAC	10W425-86.pdf	PDF
3/18/2009	AAC	10W425-9.pdf	PDF
2/9/2009	AAC	10W426_1_Ash Pond Area Existing Contours (1994).pdf	PDF
3/18/2009	AAC	10W426-1.pdf	PDF
3/18/2009	AAC	10W426-2.pdf	PDF
3/12/2009	AAC	10W427_1_Drawing Index.pdf	PDF
2/12/2009	JWH	10W427_10_Phase Ii Stage Ia.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/12/2009	JWH	10W427_11_Phase I And Phase Ii Final Cover Grading Plan.pdf	PDF
2/12/2009	JWH	10W427_2_Existing Site Conditions And Boring Locations.pdf	PDF
2/12/2009	JWH	10W427_3_Site Development Plan.pdf	PDF
2/12/2009	JWH	10W427_4_Phase I Initial Grading Plan And Soil Dikes.pdf	PDF
2/12/2009	JWH	10W427_5_Phase I Top Of Geologic Buffer.pdf	PDF
2/12/2009	JWH	10W427_6_Phase I Stage Ia.pdf	PDF
2/12/2009	JWH	10W427_7_Phase I Stage Ib.pdf	PDF
2/12/2009	JWH	10W427_8_Phase Ii Initial Grading Plan And Soil Dikes.pdf	PDF
2/12/2009	JWH	10W427_9_Phase Ii Top Of Geological Buffer.pdf	PDF
2/9/2009	AAC	10W428_10_Existing Borrow Area.pdf	PDF
2/9/2009	AAC	10W428_11_Proposed Borrow Area Grading Plan.pdf	PDF
2/9/2009	AAC	10W428_12_Perimeter Berm Cross Sections Sheet 1 Of 2.pdf	PDF
2/9/2009	AAC	10W428_13_Perimeter Berm Cross Sections Sheet 2 Of 2.pdf	PDF
2/9/2009	AAC	10W428_14_Storm Detention Pond Sections.pdf	PDF
2/9/2009	AAC	10W428_15_Proposed Road Plan And Profile.pdf	PDF
2/9/2009	AAC	10W428_16_Proposed Road Cross Sections Sheet 1 Of 3.pdf	PDF
2/9/2009	AAC	10W428_17_Proposed Road Cross Sections Sheet 2 Of 3.pdf	PDF
2/9/2009	AAC	10W428_18_Proposed Road Cross Sections Sheet 3 Of 3.pdf	PDF
2/9/2009	AAC	10W428_19_Pump Station Plan Sections And Details.pdf	PDF
2/9/2009	AAC	10W428_2_Existing Site Conditions.pdf	PDF
2/9/2009	AAC	10W428_20_Storm Drainage Plan.pdf	PDF
2/9/2009	AAC	10W428_21_Drainage System Details Sheet 1 Of 2.pdf	PDF
2/9/2009	AAC	10W428_22_Drainage System Details Sheet 2 Of 2.pdf	PDF
2/9/2009	AAC	10W428_3_Site Development Plan.pdf	PDF
2/9/2009	AAC	10W428_4_Erosion Control Plan.pdf	PDF
2/9/2009	AAC	10W428_5_Erosion Control Details Sheet 1 Of 2.pdf	PDF
2/9/2009	AAC	10W428_6_Erosion Control Details Sheet 2 Of 2.pdf	PDF
2/9/2009	AAC	10W428_7_Phase I Initial Grading Plan And Soil Dikes.pdf	PDF
2/9/2009	AAC	10W428_8_Phase I Top Of Geologic Buffer.pdf	PDF
2/9/2009	AAC	10W428_9_Cross Sections.pdf	PDF
2/13/2009	JWH	10W430_Yard Acidic Drainage Repair Plan.pdf	PDF
2/9/2009	AAC	10W440_1_Yard Redwater Treatment Using Engineered Wetlands (Manmade) Sheet 1.pdf	PDF
2/9/2009	AAC	10W440_2_Yard Redwater Treatment Using Engineered Wetlands (Manmade) Sheet 2.pdf	PDF
3/18/2009	AAC	10W440-1.pdf	PDF
2/9/2009	AAC	10W441_1_Abandoned Ash Pond Drainage Diversion Details & Sections.pdf	PDF
2/9/2009	AAC	10W441_2_Abandoned Ash Pond Drainage Diversion Plan & Sections.pdf	PDF
3/18/2009	AAC	10W441-1.pdf	PDF
3/18/2009	AAC	10W441-2.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/2/2009	JDE	11 1998 KIF Coal Receiving System Projected Cashflow (Confidential).pdf	PDF
2/26/2009	JDE	11 KIF 1994 Coal Yard Runoff Pond Alt 2 - Two Pumps & One Pipeline.pdf	PDF
3/2/2009	JDE	12 1996 KIF Coal Receiving Rr Project Csx Transportation Office Of Chief Engineer Stand Roadbed & Ballast Sec.pdf	PDF
2/26/2009	JDE	12 KIF 1994 Coal Yard Runoff Pond Alt 3 - Two Pumps & Two Pipeline.pdf	PDF
3/2/2009	JDE	13 1997 KIF Coal Receiving Rr Application For Emory River Mile 8.7 Rr Bridge In Roane Cty B65 971016 250.pdf	PDF
2/26/2009	JDE	13 KIF 1994 Coal Yard Runoff Pond Cost Estimate - Scope Of Work For Phase Ii Approval.pdf	PDF
3/2/2009	JDE	14 1997 KIF Coal Receiving Rr Roane County Newpaper Article.pdf	PDF
2/26/2009	JDE	14 KIF 1994 Coal Yard Runoff Pond Alt 1 2 & 3 Attatchment 3 - Estimating Bill Of Material And Alt 1 2 & 3 Attatchment 4 - Cash Flow And Cost Summary.pdf	PDF
3/2/2009	JDE	15 1999 KIF Coal Receiving Rr Water Quality Certification.pdf	PDF
2/26/2009	JDE	15 KIF 1994 Coal Yard Runoff Pond Project Report By Performing Unit Actuals.pdf	PDF
3/2/2009	JDE	16 1997 KIF Coal Receiving Rr Letter To Us Coast Guard Re Water Surface Elevations.pdf	PDF
2/26/2009	JDE	16 KIF 1994 Coal Yard Rainfall Runoff Study Meeting Announcement.pdf	PDF
3/2/2009	JDE	17 1997 KIF Coal Receiving Rr Letter To Dr Frankenberg Re Additional Prints Of Proposed Rr Centerline.pdf	PDF
2/26/2009	JDE	17 KIF 1994 Coal Yard Runoff Pond Cost Estimate Request (Rfp) - General Scope For Phase I - Cost Summary.pdf	PDF
2/6/2009	AAC	17W412_1_Chemical Treatment Pond And Coal Pile Drainage 1.pdf	PDF
2/6/2009	AAC	17W412_2_Chemical Treatment Pond And Coal Pile Drainage 2.pdf	PDF
2/6/2009	AAC	17W412_3_Chemical Treatment Pond And Coal Pile Drainage 3.pdf	PDF
3/2/2009	JDE	18 1997 KIF Coal Rr Us Army Corps Of Engineers & State Of Tn Re Proposed Causeway @ Mile 10.4 L Roane Cty.pdf	PDF
2/26/2009	JDE	18 KIF 1994 Coal Yard Runoff Pond Phase Ii Preliminary Schedule - Basis For Pumping Capacity To Prevent Pond Overflow.pdf	PDF
3/2/2009	JDE	19 1997 KIF Coal Receiving Rr Roane County Newpaper Article Harrisman.pdf	PDF
2/26/2009	JDE	19 KIF 1994 Coal Yard Runoff Pond Fossil Engineering Project Performing Unit Actuals.pdf	PDF
4/7/2009	LJA	1975 Geotech Near Peninsula Gypsum Pond.pdf	PDF
3/18/2009	AAC	1986 Dredge Cell Stability Analysis.pdf	PDF
3/18/2009	AAC	1986 Spillway Relocation And Dike C Repairs.pdf	PDF
3/18/2009	AAC	1994 Singleton Geotech Dredge Cell Closure.pdf	PDF
3/18/2009	AAC	1995 Singleton Dredge Cell Ash Testing.pdf	PDF
3/2/2009	JDE	20 1997 KIF Coal Receiving Rr Geotechnical Exploration - 2 Additional Rr Bridges - Law Engineering.pdf	PDF
2/26/2009	JDE	20 KIF 1994 Coal Yard Runoff Pond General Scope For Phase Ii.pdf	PDF
3/18/2009	AAC	2004 Ash Pond Hydrogeologic Investigation.pdf	PDF
3/18/2009	AAC	2004 Parsons Utexas Stability Lateral Expansion.pdf	PDF
3/18/2009	AAC	2005 Ash Landfill Minor Permit Mod.pdf	PDF
3/18/2009	AAC	2005 Dredge Cell Restoration Project.pdf	PDF
3/18/2009	AAC	2005 Mactec Field Density Reports.pdf	PDF
3/18/2009	AAC	2005 Mactec Monitoring Well Report Dredge Cell.pdf	PDF
3/12/2009	AAC	2005 Proposed Dredge Cell Restoration Supporting Information.pdf	PDF
4/7/2009	AAC	2005 Seepage And Stability Analysis.pdf	PDF
4/1/2009	JDE	2006 Mactec Gypsum Area Geosynthetic Testing.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/7/2009	AAC	2007 Geosyntec 50% Design Comments Lateral Expansion.pdf	PDF
4/7/2009	AAC	2007 Geosyntec KIF Presentation.pdf	PDF
3/18/2009	AAC	2008 Ash Pond And Stilling Pond Area.pdf	PDF
3/12/2009	AAC	2009 Ash Processing Area Construction And Operation Plan Chemical Ponds.pdf	PDF
3/2/2009	JDE	21 1997-98 KIF Coal Receiving Rr Project - Construction Bid Schedule.pdf	PDF
2/26/2009	JDE	21 KIF 1994 Coal Yard Rainfall Runoff Study Mech Auxiliaries Phase Ii Scope Revised.pdf	PDF
3/2/2009	JDE	22 1997 KIF Coal Receiving Rr Project Roane Cty News - Public Notice.pdf	PDF
2/26/2009	JDE	22 KIF 1994 Coal Yard Runoff Pond General Scope For Phase Ii - Cost Summary For Phase Ii & Iii .pdf	PDF
3/2/2009	JDE	23 1997 KIF Coal Receiving Rr Project Agreement Between Roane County Tn & Tva.pdf	PDF
2/26/2009	JDE	23 KIF 1994 Coal Yard Rainfall Runoff Study Analysis Of Significant Rainfall & Basis For Pumping Capacity Needed To Prevent Pond Overflow.pdf	PDF
3/2/2009	JDE	24 1997 KIF Coal Receiving Rr Project Norfolk Southern Re Alternatives To Design.pdf	PDF
2/26/2009	JDE	24 KIF 1994 Coal Yard Rainfall Runoff Study Revised Draft Analysis Of Significant Rainfall.pdf	PDF
3/2/2009	JDE	25 1997 KIF Coal Receiving Rr Project To Us Army Corps Of Engineers Application For Rail Spur.pdf	PDF
2/26/2009	JDE	25 KIF 1994 Coal Yard Rainfall Runoff Study Draft Analysis Of Significant Rainfall.pdf	PDF
3/2/2009	JDE	26 1997 KIF Coal Receiving Rr Project Respons To Norfolk Southern - Alternative Track.pdf	PDF
2/26/2009	JDE	26 KIF 1993 Coal Yard Rainfall Runoff Study Ron Purkey Note.pdf	PDF
3/2/2009	JDE	27 1997 KIF Coal Receiving Rr Project Us Dot Us Coast Guard Proposed Rr Bridge Mile 8-7.pdf	PDF
2/26/2009	JDE	27 KIF 1994 Coal Yard Rainfall Runoff Study Dan Scott B65 940629 102.pdf	PDF
3/2/2009	JDE	28 1997 KIF Coal Receiving Rr Project Us Dot Us Coast Guard Proposed Rr Bridge Mile 8-7 2.pdf	PDF
2/26/2009	JDE	28 KIF 1994 Coal Yard Rainfall Runoff Study Dan Scott Revised Draft.pdf	PDF
3/2/2009	JDE	29 1997 KIF Coal Receiving Rr Project Misc Names Numbers And Sketch.pdf	PDF
2/26/2009	JDE	29 KIF 1994 Coal Yard Rainfall Runoff Study Dan Scott Draft.pdf	PDF
3/2/2009	JDE	30 1997 KIF Coal Access Rr Fill Volume & Qty Bke.pdf	PDF
2/26/2009	JDE	30 KIF 1994 Coal Yard Rainfall Runoff Study Misc Cherie Mount.pdf	PDF
3/2/2009	JDE	31 1997 KIF Coal Receiving Rr Project Proposed Bridge Drawing At Mile 8-7.pdf	PDF
2/26/2009	JDE	31 KIF 1994 Coal Yard Runoff Pond Cost Estimate Request (Rfp) 6-2-94.pdf	PDF
3/18/2009	AAC	31N202.pdf	PDF
2/9/2009	AAC	31N202_Water Supply Intake Channel Dike Plan And Section.pdf	PDF
3/2/2009	JDE	32 1997 KIF Coal Receiving Rr Project Misc Office Letters Bryant Petty Printz Conner.pdf	PDF
2/26/2009	JDE	32 KIF 1994 Coal Yard Rainfall Runoff Study Phase I Inputs Phase Ii Scope.pdf	PDF
3/2/2009	JDE	33 1997 KIF Coal Receiving Rr Project Letter To Dr Frankenberg With Adjusted Centerline.pdf	PDF
2/26/2009	JDE	33 KIF 1994 Coal Yard Rainfall Runoff Study Mechanical Auxiliaries Engineering Nagle Pumps.pdf	PDF
3/2/2009	JDE	34 1997 KIF Coal Receiving Rr Project Drawing Review Letter.pdf	PDF
2/26/2009	JDE	34 KIF 1994 Coal Yard Runoff Pond Memo Dan Scott To Rg Johnson Phase Ii Scope Of Work.pdf	PDF
3/2/2009	JDE	35 1997 KIF Coal Receiving Rr Project Letter From Shumate To Godfrey About Crossing Fritzsche Land.pdf	PDF
2/26/2009	JDE	35 KIF 1994 Coal Yard Runoff Pond Phase I Estimate - Project Development Estimate.pdf	PDF
3/2/2009	JDE	36 1997 KIF Coal Receiving Rr Project Change Of Contract Recommendation.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/26/2009	JDE	36 KIF 1994 Coal Yard Rainfall Runoff Study Structural Engineering Input.pdf	PDF
2/26/2009	JDE	37 KIF 1994 Coal Yard Runoff Pond Misc.pdf	PDF
3/2/2009	JDE	37 KIF Coal Receiving Rr Project - Purpose & Need For The Project.pdf	PDF
3/2/2009	JDE	38 KIF Coal Receiving Rr Project Letter From Michael Smith To Harold Petty Coal Receiving.pdf	PDF
2/26/2009	JDE	38 KIF 1994 Coal Yard Rainfall Runoff Study Fossil & Hydro Power Project Authorization Summary.pdf	PDF
2/26/2009	JDE	39 KIF 1994 Coal Yard Rainfall Runoff Study Rainfall Data.pdf	PDF
3/2/2009	JDE	39 KIF Coal Receiving Rr Project Misc Phone Numbers.pdf	PDF
2/26/2009	JDE	40 KIF 1994 Coal Yard Rainfall Runoff Study Rainfall Data Drainage calcs.pdf	PDF
3/2/2009	JDE	40 KIF Coal Receiving Rr Project Single View Monthly Barchart.pdf	PDF
3/2/2009	JDE	41 KIF Coal Receiving Rr Project -The Kingston Steam Plant- Pages 99-100.pdf	PDF
2/26/2009	JDE	41 KIF Misc Topo.pdf	PDF
2/26/2009	JDE	42 KIF 10N211 Rev 6 Main Plant General Grading Plan Coal Yard.pdf	PDF
3/2/2009	JDE	42 KIF Coal Receiving Rr Project Phase 1-3 Cost & Pending Project Commitments.pdf	PDF
3/2/2009	JDE	43 1997KIF Coal Receiving Rr Project Cause & Effect Diagram For Kingston'S Missed Milestone.pdf	PDF
2/26/2009	JDE	43 KIF Tva Fossil & Hydro Power Cost Estimate & Scope Of Work - Est # 94126 R1.pdf	PDF
3/2/2009	JDE	44 1997KIF Coal Receiving Rr Project Team Meeting.pdf	PDF
2/26/2009	JDE	44 KIF 1993-1994 Coal Yard Runoff Pond Phase 1 Input - Cost Estimate.pdf	PDF
2/26/2009	JDE	45 KIF 1991 Reguarding 12-23-1990 Letter To Tn Dept Of Health & Environment About Unanticipated Bypasses.pdf	PDF
3/2/2009	JDE	45 KIF Coal Receiving Rr Project Projected Expenses - Budget - Forecast.pdf	PDF
2/26/2009	JDE	46 KIF 1993-1994 Coal Yard Runoff Pond Phase 1 Input - Scope - Cost Estimate.pdf	PDF
3/2/2009	JDE	46 KIF Coal Receiving Rr Project Misc Maps & Drawings.pdf	PDF
3/2/2009	JDE	47 1997 KIF Coal Receiving Rr Project Fairfield Eng Option 1-5 Items Listing & Budget Pricing.pdf	PDF
2/26/2009	JDE	47 KIF 1993 Coal Yard Runoff Pond Pumps Problem Assessment & Resolution Request.pdf	PDF
2/26/2009	JDE	48 KIF 1994 Coal Yard Runoff Pond Kwb Cer # KIF93-1218Po (Handwritten).pdf	PDF
3/2/2009	JDE	48 KIF Coal Receiving Rr Project Letter From Petty To Johnson Meeting With Harriman City About Rr Crossings.pdf	PDF
3/2/2009	JDE	49 1997 KIF Coal Receiving Rr Project Letter From Petty To Johnson About Harriman Meeting.pdf	PDF
2/26/2009	JDE	49 KIF 1994 Coal Yard Runoff Pond Cost Estimate Request No. KIF93-1218-Po.pdf	PDF
3/2/2009	JDE	50 1997 KIF Coal Receiving Rr Project Change In Fuel Strategy Cobb & Quinn.pdf	PDF
2/26/2009	JDE	50 KIF Misc Undated Site Photos.pdf	PDF
3/2/2009	JDE	51 1997 KIF Coal Receiving Rr Project Letter To Norfolk Southern From Frye Re Harriman Yard.pdf	PDF
2/26/2009	JDE	51 KIF Coal Yard Runoff Pond Pipe Route & Grading Plan Drawing.pdf	PDF
3/2/2009	JDE	52 1997 KIF Coal Receiving Rr Project Schedule Of Plan Submittals For Emory River Rr Bridge.pdf	PDF
3/2/2009	JDE	53 1997 KIF Coal Receiving Rr Project Law'S Proposal For The Two Bridges.pdf	PDF
3/2/2009	JDE	54 1997 KIF Coal Receiving Rr Project Letter Petty To Burris Kingston Rail Spur Meeting.pdf	PDF
3/2/2009	JDE	55 1997 KIF Coal Receiving Rr Project Capital Project Justification Form.pdf	PDF
3/2/2009	JDE	56 1997 KIF Coal Receiving Rr Project Property Procurements.pdf	PDF
3/2/2009	JDE	57 1997 KIF Coal Receiving Rr Project Scoping document 1St Public Mtg.pdf	PDF
3/2/2009	JDE	58 1997 KIF Coal Receiving Rr Project Emory River Rr Bridge Review Meeting.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/2/2009	JDE	59 1997 KIF Coal Receiving Rr Project Maps From Petty To Dunn.pdf	PDF
3/2/2009	JDE	60 1997 KIF Coal Receiving Rr Project Transmittal Of Executed Utility Request.pdf	PDF
3/2/2009	JDE	61 1997 KIF Coal Receiving Rr Project Roane County News & East Tn Flyer.pdf	PDF
3/2/2009	JDE	62 KIF Coal Receiving Rr Project Figure 1-A Kingston Alternative Coal Receiving System.pdf	PDF
3/2/2009	JDE	63 KIF Coal Receiving Rr Project Proposed Team Meeting By Petty.pdf	PDF
3/2/2009	JDE	64 1997 KIF Coal Receiving Rr Project Tn Dept Of Environment Request For Aquatic Resource Alteration Permit.pdf	PDF
3/2/2009	JDE	65 1997 KIF Coal Receiving Rr Project Monthly Bar Chart 2.pdf	PDF
3/2/2009	JDE	66 KIF Coal Receiving Rr Project Harriman Map.pdf	PDF
2/12/2009	AAC	Appendix A.pdf	PDF
2/12/2009	AAC	Appendix B.pdf	PDF
2/13/2009	JWH	Ash Pond Info & Other Info.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Control Phase 1 JPT Meeting.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Control.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Drawing.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Meeting Summary 1.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Meeting Summary 2.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Meeting Summary 3.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Meeting Summary 4.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Meeting.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Weekly Meeting 1.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Weekly Meeting 2.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Weekly Meeting 3.pdf	PDF
2/13/2009	JWH	Ash Pond Ph Treatment Weekly Meeting 4.pdf	PDF
2/13/2009	JWH	Ash Pond Treatment Drawing.pdf	PDF
4/7/2009	AAC	Aug 2007 Dredge Cell PZ Data.pdf	PDF
2/12/2009	JWH	Calcs-Scope-Drawings.pdf	PDF
2/13/2009	JWH	Chemical Treatment Options.pdf	PDF
3/18/2009	AAC	Closure Post Closure Plan Ash Pond Area September 1995 Revised April 1998.pdf	PDF
3/4/2009	LJA	Closure Post Closure Plan Ash Pond Area September 1995 Revised April 1998.pdf	PDF
3/16/2009	AAC	Closurepost Closure Plan Ash Pond Area Sept 1995.pdf	PDF
2/12/2009	AAC	Components Of Master Plan.pdf	PDF
2/12/2009	JWH	Concrete Lift Station Notes.pdf	PDF
3/18/2009	AAC	Cone Penetration Report.pdf	PDF
3/18/2009	AAC	Cone Penetration Tests.pdf	PDF
4/7/2009	AAC	Cost Estimate For Hydrated Lime Feed System.pdf	PDF
2/26/2009	JDE	Cti Request For Proposal.pdf	PDF
4/1/2009	JDE	Demolition Waste Landfill Soils Data.pdf	PDF
2/13/2009	JWH	Division Of Water Supply Monthly Operation Report.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/7/2009	AAC	Dredge Cell Piezometer Readings.pdf	PDF
4/7/2009	AAC	Dredge Cell Toe Piezometer Readings.pdf	PDF
2/13/2009	JWH	E-Mail Records & Ash Pond Conditioning.pdf	PDF
2/13/2009	JWH	E-Mail Records & Eastman Chemical.pdf	PDF
2/13/2009	JWH	E-Mail Records & Environmental Assessment.pdf	PDF
2/13/2009	JWH	E-Mail Records & Iqt Info.pdf	PDF
2/13/2009	JWH	E-Mail Records & Pedestrian Bridge Info.pdf	PDF
2/13/2009	JWH	E-Mail Records & Sketch.pdf	PDF
2/13/2009	JWH	E-Mail Records 1.pdf	PDF
2/13/2009	JWH	E-Mail Records 10.pdf	PDF
2/13/2009	JWH	E-Mail Records 11.pdf	PDF
2/13/2009	JWH	E-Mail Records 12.pdf	PDF
2/13/2009	JWH	E-Mail Records 13.pdf	PDF
2/13/2009	JWH	E-Mail Records 14.pdf	PDF
2/13/2009	JWH	E-Mail Records 15.pdf	PDF
2/13/2009	JWH	E-Mail Records 16.pdf	PDF
2/13/2009	JWH	E-Mail Records 17.pdf	PDF
2/13/2009	JWH	E-Mail Records 18.pdf	PDF
2/13/2009	JWH	E-Mail Records 2.pdf	PDF
2/13/2009	JWH	E-Mail Records 3.pdf	PDF
2/13/2009	JWH	E-Mail Records 4.pdf	PDF
2/13/2009	JWH	E-Mail Records 5.pdf	PDF
2/13/2009	JWH	E-Mail Records 6.pdf	PDF
2/13/2009	JWH	E-Mail Records 7.pdf	PDF
2/13/2009	JWH	E-Mail Records 8.pdf	PDF
2/13/2009	JWH	E-Mail Records 9.pdf	PDF
2/13/2009	JWH	E-Mail Records.pdf	PDF
2/13/2009	JWH	Emory River Samples.pdf	PDF
2/13/2009	JWH	Engineering Team Recommendations.pdf	PDF
2/26/2009	JDE	FGD By-Product Leachate Containment Studies For KIF.pdf	PDF
2/12/2009	JWH	Floor Doors.pdf	PDF
4/1/2009	JDE	Gypsum Stack Parsons Proposal Approval.pdf	PDF
2/12/2009	AAC	Implementation Plan.pdf	PDF
4/1/2009	JDE	Info On Redwater Wetlands.pdf	PDF
2/12/2009	AAC	Intro To Master Plan.pdf	PDF
2/13/2009	JWH	JPT Meeting Summary 1.pdf	PDF
2/13/2009	JWH	JPT Meeting Summary 2.pdf	PDF
2/13/2009	JWH	JPT Meeting Summary 3.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/13/2009	JWH	JPT Meeting Summary 4.pdf	PDF
3/2/2009	JDE	KIF & Brf Presentation To Tdec 12-05-07.pdf	PDF
3/17/2009	LJA	KIF 03-08-07 Peninsula Site Alternative Phasing Considerations Meeting With Tdec.pdf	PDF
3/18/2009	AAC	KIF 1951 Geotech Report.pdf	PDF
2/27/2009	JDE	KIF 1962 Tva Permit For Occupancy & Use Of Premises By State Of Tn Game & Fish.pdf	PDF
2/27/2009	JDE	KIF 1973 Figure 4-10 Direct Shear Test Report - Yatesville Dam.pdf	PDF
3/18/2009	AAC	KIF 1975 Dike Raising Soils Investigation.pdf	PDF
4/1/2009	JDE	KIF 1988 Groundwater Assessment.pdf	PDF
4/7/2009	AAC	KIF 1994 Singleton Geotech Vol 1 Of 2.pdf	PDF
4/7/2009	AAC	KIF 1994 Singleton Geotech Vol 2 Of 2.pdf	PDF
3/18/2009	AAC	KIF 1995 Ash Pond Hydrogeologic Eval.pdf	PDF
3/18/2009	AAC	KIF 1995 Closure Post Closure Original Ash Pond.pdf	PDF
3/18/2009	AAC	KIF 1995 Closure Post Closure Original Ash Ponda.pdf	PDF
3/18/2009	AAC	KIF 1995 Dike Raising Using Fly Ash Investigation.pdf	PDF
4/1/2009	JDE	KIF 19Nov03 Mtg Agenda_Ppt.pdf	PDF
4/1/2009	JDE	KIF 19Nov03 Mtg Attendees.pdf	PDF
N/A	N/A	KIF 2000 Coal Yard Flood Analysis.pdf	PDF
2/26/2009	JDE	KIF 2000 Coal Yard Flood Analysis.pdf	PDF
3/2/2009	JDE	KIF 2000 Coal Yard Piping - Stormwater Force Main Hydraulic calculations.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 1.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 11.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 12.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 3 Continued.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 3.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 4.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 5.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 6.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 7.pdf	PDF
3/2/2009	JDE	KIF 2001 Tab 8.pdf	PDF
N/A	N/A	KIF 2001 Tab Misc.pdf	PDF
3/17/2009	LJA	KIF 2003 Drawing For Potential FGD Storage-Disposal Option 3A - Part Of Study doc.pdf	PDF
3/18/2009	AAC	KIF 2003 Failure Analysis.pdf	PDF
3/18/2009	AAC	KIF 2003 Failure And Lateral Expansion Peer Review.pdf	PDF
2/27/2009	JDE	KIF 2003 Misc Info 3A Study Drawings & Summary Of Gypsum Disposal Options.pdf	PDF
2/27/2009	JDE	KIF 2003 Misc Info 3B Study Drawings.pdf	PDF
2/27/2009	JDE	KIF 2003 Misc Info Study Drawings & Site Location Pics.pdf	PDF
N/A	N/A	KIF 2003 Report Of Geotechnical Exploration Proposed Scrubber Stack Disposal Area.pdf	PDF
3/17/2009	LJA	KIF 2004 Gypsum Stack Study & Options.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/17/2009	LJA	KIF 2004 Gypsum Stack Veneer Runs.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 1 Wet Ash In Pond Peninsula Rev0.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 2 Dry Ash In Pond Peninsula Rev0.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 3 Wet Ash In Pond & Gyp Rev0.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 4 Dry Ash In Pond & Gyp Rev0.pdf	PDF
N/A	N/A	KIF 2004 Option 5 Wet Ash In Pond Peninsula Rev0.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 5 Wet Ash In Pond Peninsula Rev0.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 6 Dry Ash In Pond Peninsula Rev0.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 7 Wet Ash In Pond & Gyp Rev0.pdf	PDF
2/27/2009	JDE	KIF 2004 Option 8 Dry Ash In Pond & Gyp Rev0.pdf	PDF
3/17/2009	LJA	KIF 2004 Prelim Sludge Options 1 & 2 Summary.pdf	PDF
3/13/2009	LJA	KIF 2004 Proposed Gypsum Pond Drainage System Using A 60-40 Bottom Ash - Flyash Filter & A Bottom Ash Drainage Layer.pdf	PDF
3/17/2009	LJA	KIF 2004 Revised Waste Disposal Table For Gypsum & Ash.pdf	PDF
3/17/2009	LJA	KIF 2004 Summary Of Gypsum Disposal Options.pdf	PDF
2/27/2009	JDE	KIF 2005 (KIF450) Stage 1 Gypsom Pond Phase 2 Approval Cost Est Too.pdf	PDF
2/27/2009	JDE	KIF 2005 (KIF450) Stage 1 Gypsom Pond Phase 2 Approval Cost Est.pdf	PDF
2/27/2009	JDE	KIF 2005 Ash & Gypsom Disposal Project Milestones Revised 10-4-05.pdf	PDF
N/A	N/A	KIF 2005 Ash Study Ph2 Qto Estim'D Option 1 And Option 5 Rev1-Xls.pdf	PDF
2/27/2009	JDE	KIF 2005 Ash Study Ph2 Qto Estim'D Option 1 And Option 5 Rev1-Xls.pdf	PDF
2/27/2009	JDE	KIF 2005 Ash Study Ph2 Qto Estim'D Option 2 And Option 6 Rev1-Xls.pdf	PDF
2/27/2009	JDE	KIF 2005 Ash Study Ph2 Qto Estim'D Option 3 And Option 7 Rev1-Xls.pdf	PDF
2/27/2009	JDE	KIF 2005 Ash Study Ph2 Qto Estim'D Option 4 And Option 8 Rev1-Xls.pdf	PDF
N/A	N/A	KIF 2005 Civil Drawings Relocation - Access Road - Drainage Plan.pdf	PDF
2/27/2009	JDE	KIF 2005 Decision Matrix Jan 27- 05 Plant Managers Conf Room 1.pdf	PDF
2/27/2009	JDE	KIF 2005 Decision Matrix Jan 27- 05 Plant Managers Conf Room 2.pdf	PDF
3/16/2009	AAC	KIF 2005 Dredge Cell Dike Restoration Mactec.pdf	PDF
2/27/2009	JDE	KIF 2005 Gypsum Marketers Area Coordination Meeting - Decisions & Actions.pdf	PDF
2/27/2009	JDE	KIF 2005 Gypsum Pond Meeting.pdf	PDF
3/3/2009	JDE	KIF 2005 Hydrogeologic Evaluation Of Coal-Combustion Byproduct Disposal Facility.pdf	PDF
2/27/2009	JDE	KIF 2005 JPT Meeting Agenda Rev 0.pdf	PDF
2/27/2009	JDE	KIF 2005 JPT Meeting Agenda Rev 1.pdf	PDF
2/27/2009	JDE	KIF 2005 KIF450 U6-9 FGD Phase A & Phase B.pdf	PDF
2/27/2009	JDE	KIF 2005 Letters Marketer Power Requirements & Gypsum Responsibilty Matrix.pdf	PDF
2/27/2009	JDE	KIF 2005 Mobilization Activities For KIF.pdf	PDF
3/12/2009	AAC	KIF 2005 Monitoring Well Installation Ash Disposal Area Mactec.pdf	PDF
4/7/2009	AAC	KIF 2005 Monitoring Well Installation Ash Disposal Area Mactec.pdf	PDF
4/1/2009	JDE	KIF 2005 Mw Installation.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 1-1 .pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 1-2 .pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 1-3.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 1-4.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 3.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 3-1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 3-2.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 3-3.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Option 3-4.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 1 Wet Ash In Pond Peninsula Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 2 Dry Ash In Pond Peninsula Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 3 Wet Ash In Pond & Gyp Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 4 Dry Ash In Pond & Gyp Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 5 Wet Ash In Pond Peninsula Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 6 Dry Ash In Pond Peninsula Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 7 Wet Ash In Pond & Gyp Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Option 8 Dry Ash In Pond & Gyp Rev1.pdf	PDF
2/27/2009	JDE	KIF 2005 Options 1 Est Number 0509301R1 Ash In Pond Present Worth.pdf	PDF
2/27/2009	JDE	KIF 2005 Options 1-8 Ash In Pond Present Worth.pdf	PDF
3/13/2009	LJA	KIF 2005 Peninsula Site Plan Showing Locations Of Subsurface Profiles.pdf	PDF
2/27/2009	JDE	KIF 2005 Petty Intro.pdf	PDF
N/A	N/A	KIF 2005 Preliminary Slope Stability Analysis Mcnulty.pdf	PDF
N/A	N/A	KIF 2005 Report Of Geotechnical Investigation - Gypsum Stack Borrow Area.pdf	PDF
2/27/2009	JDE	KIF 2005 Responsibility Matrix Draft.pdf	PDF
2/27/2009	JDE	KIF 2005 Responsibility Matrix Letter Miller To Nuyt.pdf	PDF
2/27/2009	JDE	KIF 2005 Review Of Sensitivity Analysis By Ash Group Daniel Smith 2-14-05.pdf	PDF
2/27/2009	JDE	KIF 2005 Tva - Rso&E - Enviromental Policy & Planning - R&Ta Geographic Info.pdf	PDF
N/A	N/A	KIF 2005 Worleyparsons Gypsom Disposal Preliminary Design Presentation.pdf	PDF
4/1/2009	JDE	KIF 2006 Operations Manual Revision 2 Dredge Cell Lateral Expansion.pdf	PDF
N/A	N/A	KIF 2006 Report Of Additional Geotechnical Exploration - Proposed Gypsum Disposal Area.pdf	PDF
2/26/2009	JDE	KIF 2006 Report Of Geotechnical Investigation - 33-5 Acre Borrow Area.pdf	PDF
2/23/2009	JDE	KIF 2007 Aquatic Resource Alteration Permit For Wetlands Alteration.pdf	PDF
3/12/2009	AAC	KIF 2007 Dredge Cell Weir Closure Sketch.pdf	PDF
2/26/2009	JDE	KIF 2007 FGD Disposal - Pipe Friction Losses FGD Stormwater.pdf	PDF
2/26/2009	JDE	KIF 2007 Gypsom Disposal - Responsibilities Matrix.pdf	PDF
3/16/2009	AAC	KIF 2007 Lateral Expansion Comments.pdf	PDF
3/16/2009	AAC	KIF 2007 Mactec Field Density Test Results & Record Of Site Visits.pdf	PDF
2/26/2009	JDE	KIF 2007 Misc Info.pdf	PDF
2/26/2009	JDE	KIF 2007 Request For Proposal (Rfp) - To Provide Assistance In Permitting Various Flyash Expansion Projects.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/26/2009	JDE	KIF 2007 Units 1-9 Flue Gas Desulfurization (FGD) Project - Gypsum Disposal Area Assignment Of Responsibilities For Advatech.pdf	PDF
2/13/2009	JWH	KIF 3-15-06 Meeting Agenda.pdf	PDF
2/13/2009	JWH	KIF Agenda & Info For Scrubber 1.pdf	PDF
2/13/2009	JWH	KIF Agenda & Info For Scrubber 2.pdf	PDF
2/13/2009	JWH	KIF Agenda E-Mail 1.pdf	PDF
2/13/2009	JWH	KIF Agenda E-Mail 2.pdf	PDF
2/13/2009	JWH	KIF Alternative Final Cover System Demo.pdf	PDF
2/9/2009	JDE	KIF Api 2008 Final.pdf	PDF
2/13/2009	JWH	KIF App C.pdf	PDF
2/13/2009	JWH	KIF App D 1.pdf	PDF
2/13/2009	JWH	KIF App D 2.pdf	PDF
2/13/2009	JWH	KIF App D Drawing.pdf	PDF
2/13/2009	JWH	KIF App E.pdf	PDF
2/13/2009	JWH	KIF App F.pdf	PDF
3/3/2009	JDE	KIF Appendix A - Mactec Boring Logs.pdf	PDF
3/18/2009	AAC	KIF Appendix A Vegetation Requirements.pdf	PDF
3/3/2009	JDE	KIF Appendix B - Mactec PZ Logs.pdf	PDF
3/18/2009	AAC	KIF Appendix B Ash Tclp_Voc Testing.pdf	PDF
3/18/2009	AAC	KIF Appendix B Monitoring Well Diagrams.pdf	PDF
3/3/2009	JDE	KIF Appendix C - Mactec Geotech Report.pdf	PDF
3/18/2009	AAC	KIF Appendix C Groundwater Collection Techniques And Qc.pdf	PDF
3/18/2009	AAC	KIF Appendix C Soils Data.pdf	PDF
3/3/2009	JDE	KIF Appendix D - EPA Use Of EMFM.pdf	PDF
3/18/2009	AAC	KIF Appendix D Mw Groundwater Levels.pdf	PDF
3/18/2009	AAC	KIF Appendix E Gypsum Leachate Analysis From Cuf.pdf	PDF
3/18/2009	AAC	KIF Appendix E Hydrogeologic Eval Of Ash Pond.pdf	PDF
3/18/2009	AAC	KIF Appendix F Seepage Model Simulations Option A.pdf	PDF
3/18/2009	AAC	KIF Appendix G Seepage Model Simulations Option B.pdf	PDF
3/18/2009	AAC	KIF Appendix H Seepage Model Leachate Option A.pdf	PDF
3/18/2009	AAC	KIF Appendix I Seepage Model Leachate Option B.pdf	PDF
3/18/2009	AAC	KIF Appendix J Groundwater Quality Data.pdf	PDF
2/13/2009	JWH	KIF Ash & Gypsum Milestones 1.pdf	PDF
2/13/2009	JWH	KIF Ash & Gypsum Milestones 2.pdf	PDF
2/13/2009	JWH	KIF Ash & Gypsum Milestones 3.pdf	PDF
2/3/2009	DEH	KIF Ash Disposal Area Dikes Raising 1975.pdf	PDF
4/1/2009	JDE	KIF Ash Disposal Area Groundwater Monitoring Dec08.pdf	PDF
4/1/2009	JDE	KIF Ash Disposal Area Groundwater Monitoring June08.pdf	PDF
4/1/2009	JDE	KIF Ash Disposal Area Groundwater Monitoring March08.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/1/2009	JDE	KIF Ash Disposal Area Groundwater Monitoring Report Dec07.pdf	PDF
4/1/2009	JDE	KIF Ash Disposal Area Groundwater Monitoring Report June08.pdf	PDF
4/1/2009	JDE	KIF Ash Disposal Area Groundwater Monitoring Report Mar08.pdf	PDF
4/1/2009	JDE	KIF Ash Disposal Area Groundwater Monitoring Sep08.pdf	PDF
3/18/2009	AAC	KIF Ash Pond - Total Volume Required For Closure.pdf	PDF
2/12/2009	JWH	KIF Ash Pond - Total Volume Required For Closure.pdf	PDF
3/18/2009	AAC	KIF Ash Pond - Volume Required For Final Grade Minus Two Feet.pdf	PDF
2/12/2009	JWH	KIF Ash Pond - Volume Required For Final Grade Minus Two Feet.pdf	PDF
3/18/2009	AAC	KIF Ash Pond Area Closure - Fill Qtys.pdf	PDF
2/12/2009	JWH	KIF Ash Pond Area Closure - Fill Qtys.pdf	PDF
4/7/2009	AAC	KIF Ash Pond Available Volume Nov03.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Closure_Post-Closure 1998 - Vol 1.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Closure_Post-Closure 1998 - Vol 2.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Closure_Post-Closure 2006 - Vol 1.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Dry Hauling Approval.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Dec06.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring June05.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring June07.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Mar05.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Report Dec00-Jan03.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Report Dec03.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Report June04.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Report June06.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Report Mar04.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Report Sep04.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Sep03.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Silver Exceedence.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Groundwater Monitoring Silver Re-Sample.pdf	PDF
2/9/2009	JDE	KIF Ash Pond Insp 2009 Edited Draft.pdf	PDF
2/9/2009	JDE	KIF Ash Pond Insp 2009_Draft.pdf	PDF
2/9/2009	JDE	KIF Ash Pond Insp 2009_Final R0.pdf	PDF
2/9/2009	DEH	KIF Ash Pond Insp Fy00.pdf	PDF
2/6/2009	DEH	KIF Ash Pond Insp Fy01.pdf	PDF
2/6/2009	DEH	KIF Ash Pond Insp Fy02.pdf	PDF
2/6/2009	DEH	KIF Ash Pond Insp Fy03.pdf	PDF
2/4/2009	DEH	KIF Ash Pond Insp Fy04.pdf	PDF
2/24/2009	DEH	KIF Ash Pond Insp Fy05.pdf	PDF
2/24/2009	DEH	KIF Ash Pond Insp Fy06.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/24/2009	DEH	KIF Ash Pond Insp Fy07.pdf	PDF
2/24/2009	JDE/DEH	KIF Ash Pond Insp Fy08.pdf	PDF
2/24/2009	JDE/DEH	KIF Ash Pond Insp Fy09.pdf	PDF
2/24/2009	JDE	KIF Ash Pond Insp Fy67.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy68.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy69.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy70.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy71.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy72.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy73.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy74.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy75.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy76.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy77.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy78.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy79.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy80.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy81.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy82.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy83.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy84.pdf	PDF
2/11/2009	JDE	KIF Ash Pond Insp Fy85.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy86.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy87.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy88.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy90.pdf	PDF
2/10/2009	DEH	KIF Ash Pond Insp Fy93.pdf	PDF
2/10/2009	DEH	KIF Ash Pond Insp Fy94.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy95.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy96.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy97.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy98.pdf	PDF
2/11/2009	DEH	KIF Ash Pond Insp Fy99.pdf	PDF
4/1/2009	JDE	KIF Ash Pond Mw J1 Closure.pdf	PDF
4/1/2009	JDE	KIF Ash Pond New Outfall Structure App Letter.pdf	PDF
2/12/2009	AAC	KIF Boring Locations Map-Profiles.pdf	PDF
2/12/2009	AAC	KIF Boring Locations-Profiles 1.pdf	PDF
2/12/2009	AAC	KIF Boring Logs-Piezometer Readings.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/13/2009	JWH	KIF Bottom Ash From Pond.pdf	PDF
4/3/2009	JDE	KIF Byproduct Disposal Peer Review Recommendations.pdf	PDF
4/3/2009	JDE	KIF Byproduct Disposal Plan Peer Review Summary.pdf	PDF
4/3/2009	JDE	KIF Byproduct Disposal Plan Peer Review.pdf	PDF
2/13/2009	JWH	KIF calculations E-Mail.pdf	PDF
2/13/2009	JWH	KIF Cell 1.pdf	PDF
2/13/2009	JWH	KIF Cell 3.pdf	PDF
2/27/2009	JDE	KIF Civil Drawings Base 4 - Option 1 - Base4 & Dikes.pdf	PDF
2/13/2009	JWH	KIF Closure Cost.pdf	PDF
4/1/2009	JDE	KIF Construction Debris In Dredge Cell Permit Mod.pdf	PDF
2/13/2009	JWH	KIF Contract 99998970 1.pdf	PDF
2/13/2009	JWH	KIF Contract 99998970 2.pdf	PDF
2/27/2009	JDE	KIF Contract For System-Wide Gypsum Marketing Partner.pdf	PDF
4/1/2009	JDE	KIF Corrective Action Report.pdf	PDF
4/1/2009	JDE	KIF Correspondence.pdf	PDF
4/7/2009	AAC	KIF Daily Site Assessment Logs.pdf	PDF
2/13/2009	JWH	KIF Design & Analysis Of Surf Water.pdf	PDF
3/18/2009	AAC	KIF Dike C Soils Data 1985.pdf	PDF
4/1/2009	JDE	KIF Dmr-Qa Forms.pdf	PDF
4/1/2009	JDE	KIF Dmr-Qa Results.pdf	PDF
2/13/2009	JWH	KIF Draft Ea.pdf	PDF
2/13/2009	JWH	KIF Draft Of Contract 99998970.pdf	PDF
2/13/2009	JWH	KIF Drainage Study Info-Sketches-Email Records.pdf	PDF
2/13/2009	JWH	KIF Drainage System Pipe Design Drawings.pdf	PDF
2/13/2009	JWH	KIF Drainage System Pipe Design.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Chronology For Dike Construction And Dredging.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Chronology For Dike Construction And Dredging.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Dike Stability Construction Of Dikes With 100% Fly Ash.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Dike Stability Construction Of Dikes With 100% Fly Ash.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Areas By Planimeter.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Areas By Planimeter.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Berm Ditch Qty calcs.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Berm Ditch Qty calcs.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Chronology For Dike Construction And Dredging.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Chronology For Dike Construction And Dredging.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Cover Drainage System (Option B) Quantity calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Cover Drainage System (Option B) Quantity calculations.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Cover System (Option A) Quantity calculations.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/18/2009	AAC	KIF Dredge Cell - Cover System (Option A) Quantity calculations.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Cover System (Option B) Quantity calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Cover System (Option B) Quantity calculations.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Dike Base Reinforcement Quantity calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Dike Base Reinforcement Quantity calculations.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Dike Construction Dredge Cell Operations Sequence.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Dike Construction Dredge Cell Operations Sequence.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Dike Qty calc (Bottom Ash).pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Dike Qty calc (Bottom Ash).pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Displacement Due To Seismic Load.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Displacement Due To Seismic Load.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Material Unit Weights.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Material Unit Weights.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - North Ditch.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - North Ditch.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Qty calculation For Geotextile Reinforcement For Stage A.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Qty calculation For Geotextile Reinforcement For Stage A.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Rip Rap Quantity calculation.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Rip Rap Quantity calculation.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Rip Rap Quantity calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Rip Rap Quantity calculations.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Spillway Mat'L Qty'S.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Spillway Mat'L Qty'S.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Spillway Stability calcs.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Spillway Stability calcs.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Stage A Hor Alignment.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Stage A Hor Alignment.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Stage A Partner Qtys.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Stage A Partner Qtys.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Stage B Hor Alignment.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Stage B Hor Alignment.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Stage C Hor Alignment.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Stage C Hor Alignment.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Stage D Hor Alignment.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Stage D Hor Alignment.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Stage E Hor Alignment.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Stage E Hor Alignment.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Storage Volume (Fly Ash).pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/18/2009	AAC	KIF Dredge Cell Storage Volume (Fly Ash).pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Terrace Ditch Capacity calcs.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Terrace Ditch Capacity calcs.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell - Toe Drainage System Quantity calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell - Toe Drainage System Quantity calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell 2005 Repair Analysis.pdf	PDF
4/7/2009	AAC	KIF Dredge Cell 2006 Failure Corrective Action.pdf	PDF
4/7/2009	AAC	KIF Dredge Cell 2006 Failure Discussion.pdf	PDF
4/1/2009	JDE	KIF Dredge Cell Ammonia Notifcation Letter.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Closure Plan Sec 1.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Closure Plan Sec 2.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Closure Plan Toc.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Closure Requirements.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Cover calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Cover calculations.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Data.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Data.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Design Maximum Crest Acceleration calculations.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Design Maximum Crest Acceleration calculations.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Design.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Design.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Drainage Minor Mod Approval.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Filter Fabric calcs For Toe Drain.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Filter Fabric calcs For Toe Drain.pdf	PDF
4/7/2009	AAC	KIF Dredge Cell Misc documents.pdf	PDF
4/7/2009	AAC	KIF Dredge Cell New Dry Ash Study.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Qty calcs For Ditch Across Ash Pond.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Qty calcs For Ditch Across Ash Pond.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Restoration 2005 Drawings.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Restoration 2005 Drawings2.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Runoff 25 Year Retention Pond calcs.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Stage A Partner Qtys.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Stage A Partner Qtys.pdf	PDF
2/12/2009	JWH	KIF Dredge Cell Stage B Partner Qtys.pdf	PDF
3/18/2009	AAC	KIF Dredge Cell Stage B Partner Qtys.pdf	PDF
4/1/2009	JDE	KIF Dredge Cell Vertical Expansion Approval.pdf	PDF
4/7/2009	AAC	KIF Dredge Cell Well Data.pdf	PDF
2/12/2009	JWH	KIF Dredge Cells - Storage Volume (Fly Ash).pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/18/2009	AAC	KIF Dredge Cells - Storage Volume (Fly Ash).pdf	PDF
2/12/2009	JWH	KIF Dredge Cells - Storage Volume Fly Ash.pdf	PDF
3/18/2009	AAC	KIF Dredge Cells - Storage Volume Fly Ash.pdf	PDF
2/12/2009	JWH	KIF Dredge Cells - Storage Volume Top Of Stack.pdf	PDF
3/18/2009	AAC	KIF Dredge Cells - Storage Volume Top Of Stack.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records & Info 1.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records & Info 1.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records & Info 2.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records & Info 2.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 1.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 2.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 3.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 4.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 5.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 6.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 7.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 8.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records 9.pdf	PDF
2/13/2009	JWH	KIF E-Mail Records.pdf	PDF
2/12/2009	AAC	KIF E-Mail Records.pdf	PDF
2/24/2009	JDE	KIF Environmental Assessment For Fly Ash Disposal By Capenter & Bohac.pdf	PDF
2/13/2009	JWH	KIF Expectations For JPT Support.pdf	PDF
2/13/2009	JWH	KIF Expectations Of JPT & E-Mail Records.pdf	PDF
2/13/2009	JWH	KIF FGD Addition.pdf	PDF
4/1/2009	JDE	KIF FGD Public Announcement.pdf	PDF
2/12/2009	AAC	KIF Field Boring Logs 1.pdf	PDF
2/12/2009	AAC	KIF Field Boring Logs 2.pdf	PDF
2/12/2009	AAC	KIF Field Boring Logs 3.pdf	PDF
2/12/2009	AAC	KIF Field Boring Logs 4.pdf	PDF
2/12/2009	AAC	KIF Field Boring Logs 5.pdf	PDF
2/12/2009	AAC	KIF Field Boring Logs 6.pdf	PDF
2/12/2009	AAC	KIF Field Boring Logs 7.pdf	PDF
3/3/2009	JDE	KIF Figure 2-1 Site Topography.pdf	PDF
2/13/2009	JWH	KIF Final Cover System Stability Analysis.pdf	PDF
2/13/2009	JWH	KIF Foundation Settlement Analysis 1.pdf	PDF
2/13/2009	JWH	KIF Foundation Settlement Analysis 2.pdf	PDF
2/13/2009	JWH	KIF Foundation Settlement Analysis Drawings.pdf	PDF
2/13/2009	JWH	KIF Foundation Stability Analysis 1.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/13/2009	JWH	KIF Foundation Stability Analysis 2.pdf	PDF
2/12/2009	AAC	KIF Geoprobe Results & Maps.pdf	PDF
2/13/2009	JWH	KIF Geosyntec Att 11 Thru 13.pdf	PDF
2/13/2009	JWH	KIF Geosyntec Att 2 Thru 7.pdf	PDF
2/13/2009	JWH	KIF Geosyntec Att 8 Thru 10.pdf	PDF
2/13/2009	JWH	KIF Geosyntec Consultants Info.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Downdrain Design.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Drainage Centerline Figures.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Drainage Pipe Design.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Final Cover Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Final Cover Stability Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Foundation Settlement Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Foundation Stability Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Geotextile Design.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Groundwater Monitoring Locations.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Gypsum Perm Test Results.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Gypsum Properties.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Gypsum Stack Plan.pdf	PDF
2/13/2009	JWH	KIF Geosyntec Intro.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Liquefaction.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Post-Dvlp Hydrocad.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Preconsolidation Stress Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Section Line Locations.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Seepage Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Seismic Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Surface Water calculations.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Surface Water Design_Analysis.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Surface Water Mgmt Plan.pdf	PDF
4/7/2009	LJA	KIF Geosyntec Xsec.pdf	PDF
2/13/2009	JWH	KIF Geotextile Design Analysis.pdf	PDF
2/13/2009	JWH	KIF Ground Water Assessment.pdf	PDF
4/1/2009	JDE	KIF Gyp Permit Operations Manua.pdf	PDF
2/13/2009	JWH	KIF Gypsum Disposal Pond Design.pdf	PDF
2/12/2009	AAC	KIF Gypsum Drilling Progress 1.pdf	PDF
2/12/2009	AAC	KIF Gypsum Drilling Progress 2.pdf	PDF
4/1/2009	JDE	KIF Gypsum Marketer Mtg 2Nov05.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond App Part 1.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Application Receipt Public Notice.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/1/2009	JDE	KIF Gypsum Pond Correspondence.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Design Ppt Update.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Environmental Assessment Comments.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Geosyntec Correspondence.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Plans.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Project Planning Review Part2.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Project Planning Review.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Project Schedule.pdf	PDF
4/1/2009	JDE	KIF Gypsum Pond Wetland Alteration Permit App.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack 15Jan03 Agenda_Sow.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack 27Oct05 Mtg.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack 5Oct05 Mtg.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Boring Data.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Boring Field Reports - All.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Boring Location Map.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Boring Location Maps.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Boring Locations And Profiles.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Boring Locations.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Boring Locations2.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack calendar.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Closure_Post-Closure Plan.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Conceptual Details.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Constant Head Results.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Development Responsibility Matrix.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Disposal Option Summary.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Existing Topo.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Facility Eval.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Geologic Buffer Waiver Request.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Geosyntec Presentation.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Groundwater Elev.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Groundwater Monitoring Plan.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Gypsum Sampling Results.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Horizontal K Results.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Hydrogeo Sow.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Mactec Additional Geotech Feb06.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Mactec Geotech Report Oct05.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Mactec Lab Assignment.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Mactec Lab Results.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/27/2009	LJA	KIF Gypsum Stack Mactec Sample Handling Info.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Mactec Sampling Info.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Mactec Sampling Info2.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Material Spec And QA_QC.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Misc Communication.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Misc Correspondence.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Misc Notes.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Ops Manual Toc.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Ops Manual.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Option 1A Cost Est.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Option 1B Const Quantities.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Option 2A Cost Est.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Option 2B Cost Est.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet - Cover.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet1.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet10.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet11.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet12.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet13.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet14.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet15.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet16.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet17.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet2.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet3.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet4.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet5.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet6.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet7.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet8.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Calc Sheet9.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Parsons Phase I Prelim Study.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Phase 1A Proposal.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Phasing Mtg With Tdec Mar07.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Design Ppt.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing2.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing3.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing4.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing5.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing6.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing7.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing8.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Drawing9.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Dwgs.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Prelim Mtg Notes.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Profiles.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Profiles2.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack PZ Data.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Response To Tdec And Lab Results.pdf	PDF
4/7/2009	LJA	KIF Gypsum Stack Response To Tdec Comments.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Rock Core Photos.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Sampling Correspondence.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Soil Sample Photos.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Soil Sample Photos2.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Soil Sample Photos3.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Soil Sample Photos4.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Soil Sample Photos5.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Sounding Results.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Subsurface Profiles.pdf	PDF
3/27/2009	LJA	KIF Gypsum Stack Undisturbed Sample Summary.pdf	PDF
4/1/2009	JDE	KIF Gypsum Stack Variance.pdf	PDF
2/27/2009	JDE	KIF Handwritten Misc Notes.pdf	PDF
2/12/2009	AAC	KIF Hydrogeologic Investigation.pdf	PDF
3/12/2009	AAC	KIF Hydrogeological Evaluation Of Coal-Combustion Byproduct Disposal Facility Expansion.pdf	PDF
2/13/2009	JWH	KIF Info & Sketches 1.pdf	PDF
2/13/2009	JWH	KIF Info & Sketches 2.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Approval Letter.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Approval Request.pdf	PDF
3/18/2009	AAC	KIF Lateral Expansion Drainage calculations.pdf	PDF
3/18/2009	AAC	KIF Lateral Expansion Drainage calculations2.pdf	PDF
3/18/2009	AAC	KIF Lateral Expansion Drainage calculations3.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Drainage Mods.pdf	PDF
3/18/2009	AAC	KIF Lateral Expansion Drawings 2.pdf	PDF
3/18/2009	AAC	KIF Lateral Expansion Drawings.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Nod Response Letter.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/1/2009	JDE	KIF Lateral Expansion Ops Manual Comments.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Ops Manual Minor Revision.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Ops Manual Revision.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Ops Manual.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Public Notice - Final.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Public Notice.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Qa_Qc Attachment.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Qa_Qc Plan.pdf	PDF
4/1/2009	JDE	KIF Lateral Expansion Report App F-H.pdf	PDF
2/13/2009	JWH	KIF Liquefaction Analysis.pdf	PDF
2/13/2009	JWH	KIF Loc Of Critical Drain Bench.pdf	PDF
2/12/2009	AAC	KIF Mactec Constant Head Test.pdf	PDF
3/2/2009	JDE	KIF Mactec Engineering And Consulting Inc Jan 25 2006.pdf	PDF
2/13/2009	JWH	KIF Mactec Report 1.pdf	PDF
2/13/2009	JWH	KIF Mactec Report 2.pdf	PDF
2/12/2009	AAC	KIF Mactec Report Gypsum At Cumberland.pdf	PDF
2/12/2009	AAC	KIF Mactec Samples 21A On.pdf	PDF
2/12/2009	AAC	KIF Mactec Soundings.pdf	PDF
2/13/2009	JWH	KIF Mactec Tao For Geo Explor 1.pdf	PDF
2/13/2009	JWH	KIF Mactec Tao For Geo Explor 2.pdf	PDF
2/13/2009	JWH	KIF Mactec Tao Generation Form.pdf	PDF
2/12/2009	AAC	KIF Mactec Testing.pdf	PDF
2/12/2009	AAC	KIF Mactec Triaxial Shear Test.pdf	PDF
4/1/2009	JDE	KIF Master Plan App A.pdf	PDF
4/1/2009	JDE	KIF Master Plan App B.pdf	PDF
4/1/2009	JDE	KIF Master Plan Ch 1.pdf	PDF
4/1/2009	JDE	KIF Master Plan Ch 4.pdf	PDF
4/1/2009	JDE	KIF Master Plan Intro.pdf	PDF
3/18/2009	AAC	KIF May 2004 Mactec Geotech Report.pdf	PDF
3/18/2009	AAC	KIF May 2005 Mactec Geotech Report.pdf	PDF
4/1/2009	JDE	KIF NPDES Biological Monitoring Data.pdf	PDF
4/1/2009	JDE	KIF NPDES Biomonitoring Report 2008.pdf	PDF
4/1/2009	JDE	KIF NPDES Mod Notification.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Apr08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Aug08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Dec07.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Feb08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Feb-Jun05 Corrected.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/1/2009	JDE	KIF NPDES Monitoring Report Jan07.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Jan08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report July08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Jun08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Mar08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report May08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Multiple 04-05 Corrected.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Nov02 Corrected.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Nov08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Oct08.pdf	PDF
4/1/2009	JDE	KIF NPDES Monitoring Report Sep08.pdf	PDF
4/1/2009	JDE	KIF NPDES Renewal App Comments.pdf	PDF
4/1/2009	JDE	KIF NPDES Renewal App.pdf	PDF
4/1/2009	JDE	KIF NPDES Toxicity Report Aug08.pdf	PDF
4/1/2009	JDE	KIF NPDES Toxicity Report Feb02.pdf	PDF
2/12/2009	AAC	KIF Operations Manual Dredge Cell Lateral Expansion Vol 1 Idl 730094 6 1 04 Rev 7 06.pdf	PDF
4/1/2009	JDE	KIF Operations Manual Dredge Cell Lateral Expansion Vol 1 Idl 730094 6 1 04 Rev 7 06.pdf	PDF
4/1/2009	JDE	KIF Operations Manual Dredge Cell Lateral Expansion Vol 1 Idl 730094 6 1 04.pdf	PDF
4/1/2009	JDE	KIF Operations Manual Dredge Cell Lateral Expansion Vol 2 Idl 730094 6 1 04 Rev 5 06.pdf	PDF
4/1/2009	JDE	KIF Operations Manual Dredge Cell Lateral Expansion Vol 2 Idl 730094 6 1 04 Rev 7 06.pdf	PDF
2/13/2009	JWH	KIF Operations Manual.pdf	PDF
2/27/2009	JDE	KIF Option 1-3 Geotech Investigation.pdf	PDF
4/1/2009	JDE	KIF Outfall Structure Coe Approval.pdf	PDF
2/13/2009	JWH	KIF Parsons Contract 99998970 Phase 1 Study.pdf	PDF
4/7/2009	LJA	KIF Parsons Phase 1B Letter.pdf	PDF
2/13/2009	JWH	KIF Part 2 Permit App 450.pdf	PDF
4/7/2009	LJA	KIF Partial Mactec Geotech Report Feb06.pdf	PDF
2/12/2009	AAC	KIF Penninsula - Aquifer Test Summary.pdf	PDF
2/13/2009	JWH	KIF Phase 1 Quantities.pdf	PDF
2/12/2009	AAC	KIF Pics Nb-21.pdf	PDF
2/12/2009	AAC	KIF Pics Nb-44.pdf	PDF
2/12/2009	AAC	KIF Pics Nb-66.pdf	PDF
2/12/2009	AAC	KIF Pics Nb-73.pdf	PDF
2/12/2009	AAC	KIF Pics Nb-74.pdf	PDF
2/12/2009	AAC	KIF Pics Rocks.pdf	PDF
2/27/2009	JDE	KIF Pond Vs Penisula - Sensitivity Analysis Summary.pdf	PDF
4/1/2009	JDE	KIF Precip Data.pdf	PDF
2/13/2009	JWH	KIF Prelim Sludge Disp.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/13/2009	JWH	KIF Prelim Sludge Opt 1.pdf	PDF
4/1/2009	JDE	KIF Presentation To Plant Manager March 27 2007 Geosyntec Consultants.pdf	PDF
2/13/2009	JWH	KIF Project Planning doc Rev 0.pdf	PDF
2/13/2009	JWH	KIF Questions-Needs-E-Mails-Sketches 1.pdf	PDF
2/13/2009	JWH	KIF Questions-Needs-E-Mails-Sketches.pdf	PDF
4/1/2009	JDE	KIF Redwater Seep Inspection Report 2001.pdf	PDF
4/1/2009	JDE	KIF Redwater Seep Inspection Report 2002.pdf	PDF
4/1/2009	JDE	KIF Redwater Seep Inspection Report 2007.pdf	PDF
4/1/2009	JDE	KIF Renewed NPDES Report.pdf	PDF
4/7/2009	AAC	KIF Replace Kennedy Weir.pdf	PDF
2/13/2009	JWH	KIF Responsed To Tdec.pdf	PDF
2/13/2009	JWH	KIF Review Of Project Planning - First Half.pdf	PDF
2/13/2009	JWH	KIF Review Of Project Planning - Second Half.pdf	PDF
2/13/2009	JWH	KIF Scope Change.pdf	PDF
2/13/2009	JWH	KIF Scrubber Addition.pdf	PDF
2/13/2009	JWH	KIF Scrubber Gyps Stack Opt 1A.pdf	PDF
2/13/2009	JWH	KIF Scrubber Gyps Stack Opt 2A.pdf	PDF
2/13/2009	JWH	KIF Scrubber Gyps Stack Opt 2B.pdf	PDF
2/13/2009	JWH	KIF Seepage Analysis App A.pdf	PDF
2/13/2009	JWH	KIF Seepage Analysis Drawings.pdf	PDF
2/13/2009	JWH	KIF Seepage Analysis.pdf	PDF
4/7/2009	AAC	KIF Sept 2005 Mactec Geotech Report Dredge Cell Restoration.pdf	PDF
2/13/2009	JWH	KIF Site Volume Table.pdf	PDF
4/1/2009	JDE	KIF Stilling Pond Spillway Inspection July08.pdf	PDF
4/1/2009	JDE	KIF Storm Water Effluent Exceedence And Correction Report Apr08.pdf	PDF
4/1/2009	JDE	KIF Storm Water Effluent Exceedence And Correction Report Jan07.pdf	PDF
4/1/2009	JDE	KIF Storm Water Effluent Exceedence And Correction Report July03.pdf	PDF
4/1/2009	JDE	KIF Storm Water Effluent Exceedence And Correction Report Nov03.pdf	PDF
4/1/2009	JDE	KIF Storm Water Effluent Exceedence And Correction Report Nov08.pdf	PDF
4/1/2009	JDE	KIF Storm Water Effluent Exceedence And Correction Report Oct03.pdf	PDF
4/1/2009	JDE	KIF Storm Water Effluent Exceedence And Correction Report Oct05.pdf	PDF
4/1/2009	JDE	KIF Storm Water Monitoring Report 04 Corrections.pdf	PDF
4/1/2009	JDE	KIF Storm Water Monitoring Report 05.pdf	PDF
4/1/2009	JDE	KIF Storm Water Monitoring Report 06.pdf	PDF
4/1/2009	JDE	KIF Storm Water Monitoring Report 07.pdf	PDF
2/13/2009	JWH	KIF Study Drawings.pdf	PDF
2/13/2009	JWH	KIF Study For Storage Drawing.pdf	PDF
4/7/2009	AAC	KIF Study On Moving Current Weir In Stilling Pond.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/12/2009	AAC	KIF Subsurface Investigation.pdf	PDF
2/12/2009	AAC	KIF Sum Of Bulk Samples.pdf	PDF
2/12/2009	AAC	KIF Sum Of Undisturbed Samples.pdf	PDF
2/11/2009	DEH	KIF Summary Of Fy2008 Ash Pond Dike Stability Inspection Report.doc	doc
2/13/2009	JWH	KIF Surf Water calcs.pdf	PDF
4/1/2009	JDE	KIF Swpp Inspection Report.pdf	PDF
2/13/2009	JWH	KIF Table Of Contents.pdf	PDF
2/13/2009	JWH	KIF Tao 1.pdf	PDF
2/13/2009	JWH	KIF Tao 10.pdf	PDF
2/13/2009	JWH	KIF Tao 2.pdf	PDF
2/13/2009	JWH	KIF Tao 3.pdf	PDF
2/13/2009	JWH	KIF Tao 4.pdf	PDF
2/13/2009	JWH	KIF Tao 5.pdf	PDF
2/13/2009	JWH	KIF Tao 6.pdf	PDF
2/13/2009	JWH	KIF Tao 7.pdf	PDF
2/13/2009	JWH	KIF Tao 8.pdf	PDF
2/13/2009	JWH	KIF Tao 9.pdf	PDF
2/13/2009	JWH	KIF Tao Request.pdf	PDF
2/27/2009	JDE	KIF Tdec Tva Nepa Process Integration.pdf	PDF
2/13/2009	JWH	KIF Tdec Tva Nepa Process.pdf	PDF
4/1/2009	JDE	KIF Unlabeled Volumes.pdf	PDF
4/1/2009	JDE	KIF Water Withdrawal Report 2007.pdf	PDF
2/12/2009	AAC	KIF Well And Borings Resurvey.pdf	PDF
3/18/2009	AAC	KIF Well Data.pdf	PDF
3/18/2009	AAC	KIF Well Data_Tabular.pdf	PDF
2/12/2009	AAC	KIF Well Info.pdf	PDF
2/24/2009	JDE	KIF_NPDES_Permit.pdf	PDF
2/12/2009	AAC	KIF_Structures_Aerial_24X24.pdf	PDF
3/12/2009	AAC	KIF1994 Singleton Lab Dredge Cell Investigation.pdf	PDF
3/16/2009	AAC	KIF1995 Dredge Cells - Closure Additional Lab Testing By Gilbert Commonwealth Inc.pdf	PDF
N/A	N/A	KIF200~1.pdf	PDF
4/7/2009	AAC	KIF2007 Dredge Cell Swan Pond Rd Drainage Improvements.pdf	PDF
3/13/2009	LJA	Kingston-Penninsula Drop-Out Mitigation Report Rev 1.pdf	PDF
3/13/2009	LJA	Kingston-Penninsula_Drop-Out Work Plan Rev 3.doc	doc
4/1/2009	JDE	Lateral Expansion Parsons Proposal Approval.pdf	PDF
2/11/2009	AAC	Mactec 2004 Dredge Cells Geotechnical Exploration.pdf	PDF
4/1/2009	JDE	Mactec Gypsum Stack Proposal Sow.pdf	PDF
4/1/2009	JDE	Mactec Proposal Approval.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
2/13/2009	JWH	Man Hour Estimate.pdf	PDF
2/13/2009	JWH	Meeting Attendance Record.pdf	PDF
2/12/2009	JWH	Misc Info.pdf	PDF
3/17/2009	LJA	Misc Notes Emails Pics Etc.pdf	PDF
4/1/2009	JDE	Misc Redwater documents.pdf	PDF
2/24/2009	JDE	NPDES Permit Application For Renewal December 20, 2002.pdf	PDF
2/24/2009	JDE	NPDES Permit Comments On Draft Permit June 30, 2003.pdf	PDF
4/7/2009	AAC	Old Pictures.pdf	PDF
2/12/2009	AAC	Operations Manual Vol 1 - Dredge Cell Lateral Expansion 2004 Parsons.pdf	PDF
4/1/2009	JDE	Operations Manual Vol 1 - Dredge Cell Lateral Expansion 2004 Parsons.pdf	PDF
2/12/2009	AAC	Operations Manual Vol 2 - Dredge Cell Lateral Expansion 2004 Parsons.pdf	PDF
4/1/2009	JDE	Operations Manual Vol 2 - Dredge Cell Lateral Expansion 2004 Parsons.pdf	PDF
4/1/2009	JDE	Parsons Gypsum Stack Volume calc.pdf	PDF
2/13/2009	JWH	Path Forward documents.pdf	PDF
2/13/2009	JWH	Peer Review Of Coal Byproducts Summary.pdf	PDF
2/12/2009	AAC	Permit Application (Rev 1) Coal Combustion Byproduct Disposal Facility - Peninsula Site KIF 450.pdf	PDF
3/13/2009	LJA	Phase 1B calculations For Gypsum Stack.pdf	PDF
2/13/2009	JWH	Pier Review Groundwater Sample Techniques.pdf	PDF
2/13/2009	JWH	Planting And Site Improvement Plan Sheet 1.pdf	PDF
2/13/2009	JWH	Planting And Site Improvement Plan Sheet 2.pdf	PDF
2/12/2009	JWH	Prestige.pdf	PDF
2/12/2009	AAC	Program Summary 1.pdf	PDF
2/12/2009	AAC	Program Summary 2.pdf	PDF
2/12/2009	AAC	Program Summary Drawings.pdf	PDF
2/12/2009	JWH	Project Authorization 923064A 1.pdf	PDF
2/12/2009	JWH	Project Authorization 923064A 2.pdf	PDF
2/12/2009	JWH	Project Development Estimate 1.pdf	PDF
2/12/2009	JWH	Project Development Estimate 2.pdf	PDF
2/13/2009	JWH	Project Schedule 1.pdf	PDF
2/13/2009	JWH	Project Schedule 2.pdf	PDF
3/13/2009	LJA	Proposed Gypsum Disposal Area Well Report S&Me 2008.pdf	PDF
3/31/2009	JDE	Report On Planning, Design, Construction, Costs, And Operations Of KIF - 1965.pdf	PDF
2/12/2009	JWH	Rfp No 923064A.pdf	PDF
2/12/2009	JWH	Scope For Phase 1 - 2.pdf	PDF
2/12/2009	AAC	Site - Building Summary.pdf	PDF
4/7/2009	AAC	Sk 10W425-73A.pdf	PDF
4/7/2009	AAC	Sk 10W425-73B.pdf	PDF
3/18/2009	AAC	Sk Pro637 C40.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
3/18/2009	AAC	Sk Pro637 C41.pdf	PDF
3/18/2009	AAC	Sk Pro637 C44.pdf	PDF
3/18/2009	AAC	Sk Pro637 C46.pdf	PDF
3/18/2009	AAC	Sk Pro637 C50.pdf	PDF
3/18/2009	AAC	Sk Pro637 C53.pdf	PDF
3/18/2009	AAC	Sk Pro637 C54.pdf	PDF
3/18/2009	AAC	Sk Pro637 C55.pdf	PDF
3/18/2009	AAC	Sk Pro637 C56.pdf	PDF
3/18/2009	AAC	Sk Pro637 C62.pdf	PDF
3/18/2009	AAC	Sk Pro637 C64.pdf	PDF
3/18/2009	AAC	Sk Pro637 C68.pdf	PDF
3/18/2009	AAC	Sk Pro637 C70.pdf	PDF
3/18/2009	AAC	Sk Pro637 C71.pdf	PDF
3/18/2009	AAC	Sk Pro637 C73.pdf	PDF
3/18/2009	AAC	Sk Pro637 C74.pdf	PDF
3/18/2009	AAC	Sk Pro637 C75.pdf	PDF
2/13/2009	JWH	Standard Drawing Cast Iron Frames & Grates.pdf	PDF
2/13/2009	JWH	Standard Drawing Catch Basins And Inlets.pdf	PDF
4/1/2009	JDE	Survey Map 10.pdf	PDF
4/1/2009	JDE	Survey Map 11.pdf	PDF
4/1/2009	JDE	Survey Map 12.pdf	PDF
4/1/2009	JDE	Survey Map 13.pdf	PDF
4/1/2009	JDE	Survey Map 2.pdf	PDF
4/1/2009	JDE	Survey Map 3.pdf	PDF
4/1/2009	JDE	Survey Map 4.pdf	PDF
4/1/2009	JDE	Survey Map 5.pdf	PDF
4/1/2009	JDE	Survey Map 6.pdf	PDF
4/1/2009	JDE	Survey Map 7.pdf	PDF
4/1/2009	JDE	Survey Map 8.pdf	PDF
4/1/2009	JDE	Survey Map 9.pdf	PDF
4/1/2009	JDE	Survey Map.pdf	PDF
4/1/2009	JDE	Tac 1200-1-7.pdf	PDF
4/1/2009	JDE	Tdec Nepa Process Integration.pdf	PDF
4/1/2009	JDE	Tva Ash And Gypsum Disposal Deadline.pdf	PDF
3/18/2009	AAC	Tva-00003123.pdf	PDF
4/1/2009	JDE	Tva-00025939.pdf	PDF
4/1/2009	JDE	Tva-00025941.pdf	PDF
4/1/2009	JDE	Tva-00025943.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/1/2009	JDE	Tva-00025945.pdf	PDF
4/1/2009	JDE	Tva-00025947.pdf	PDF
4/1/2009	JDE	Tva-00025949.pdf	PDF
4/1/2009	JDE	Tva-00025951.pdf	PDF
4/1/2009	JDE	Tva-00025953.pdf	PDF
4/1/2009	JDE	Tva-00025954.pdf	PDF
4/1/2009	JDE	Tva-00025955.pdf	PDF
4/1/2009	JDE	Tva-00025956.pdf	PDF
4/1/2009	JDE	Tva-00025958.pdf	PDF
4/1/2009	JDE	Tva-00025960.pdf	PDF
4/1/2009	JDE	Tva-00025961.pdf	PDF
4/1/2009	JDE	Tva-00025962.pdf	PDF
4/1/2009	JDE	Tva-00025964.pdf	PDF
4/1/2009	JDE	Tva-00025965.pdf	PDF
4/1/2009	JDE	Tva-00025966.pdf	PDF
4/1/2009	JDE	Tva-00025967.pdf	PDF
4/1/2009	JDE	Tva-00025968.pdf	PDF
4/1/2009	JDE	Tva-00025969.pdf	PDF
4/1/2009	JDE	Tva-00025970.pdf	PDF
4/1/2009	JDE	Tva-00025971.pdf	PDF
4/1/2009	JDE	Tva-00025973.pdf	PDF
4/1/2009	JDE	Tva-00025974.pdf	PDF
4/1/2009	JDE	Tva-00025975.pdf	PDF
4/1/2009	JDE	Tva-00025977.pdf	PDF
4/1/2009	JDE	Tva-00025979.pdf	PDF
4/1/2009	JDE	Tva-00025981.pdf	PDF
4/1/2009	JDE	Tva-00026018.pdf	PDF
4/1/2009	JDE	Tva-00026020.pdf	PDF
4/1/2009	JDE	Tva-00026022.pdf	PDF
4/1/2009	JDE	Tva-00026024.pdf	PDF
4/1/2009	JDE	Tva-00026026.pdf	PDF
4/1/2009	JDE	Tva-00026029.pdf	PDF
4/1/2009	JDE	Tva-00026030.pdf	PDF
4/1/2009	JDE	Tva-00026031.pdf	PDF
4/1/2009	JDE	Tva-00026033.pdf	PDF
4/1/2009	JDE	Tva-00026034.pdf	PDF
4/1/2009	JDE	Tva-00026035.pdf	PDF
4/1/2009	JDE	Tva-00026037.pdf	PDF

Date Reviewed	Reviewed by	File Name	File Type
4/1/2009	JDE	Tva-00026039.pdf	PDF
4/1/2009	JDE	Tva-00026041.pdf	PDF
4/1/2009	JDE	Tva-00026042.pdf	PDF
2/3/2009	DEH	Unreadable Preliminary Geological Investigations For Eastern Area Steam Plant.pdf	PDF
4/7/2009	AAC	Xxxx-2.pdf	PDF
4/7/2009	AAC	Xxxx-3.pdf	PDF
4/7/2009	AAC	Xxxx-4A.pdf	PDF
4/7/2009	AAC	Xxxx-4B.pdf	PDF
4/7/2009	AAC	Xxxx-5.pdf	PDF
4/7/2009	AAC	Xxxx-6.pdf	PDF

Appendix I

Watts Bar Fossil Plant

TVA Disposal Facility Assessment
Phase 1 Plant Summary
Watts Bar Fossil Plant (WBF)

Location:	Watts Bar Fossil Plant Watts Bar Highway Spring City, Rhea County, Tennessee 37381 Latitude: 35.611 N Longitude: 84.782 W
Plant Contact:	Kelly Evans TVA Engineer Phone: (423)751-4653 Email: keevans@tva.gov
Facts and Figures:	WBF, originally named Watts Bar Steam Plant, was the first coal-fired power plant built by TVA. WBF was constructed in stages between 1940 and 1945. The plant operated until 1957 and was then shut down until 1970. The plant was operated from 1970 to 1982, then again placed in extended shutdown mode. In 1996, TVA prepared an EA on the proposed sale of boiler slag stockpiled at the WBF site and subsequently began marketing and removing the boiler slag. Economic analyses indicated no positive benefit to TVA for returning WBF to service, so TVA terminated the air permits for the plant in 1997. In 2007, a closure plan for the slag disposal area was submitted and was still in process at the time of the site visit.
Coal Combustion Byproduct Disposal:	Inactive fossil plant and disposal areas with no byproduct currently being disposed
Geology and Seismicity:	The Watts Bar Fossil Plant is located in east-central Tennessee along the west bank of the Tennessee River, just south (downstream) of the Watts Bar Lock and Dam. The plant is situated near the western edge of the Valley and Ridge Physiographic province near the base of the Cumberland Plateau. Numerous faults, trending northeast to southwest as characteristic of the Valley and Ridge Province, are depicted on the geologic mapping and the plant is positioned just south of the Chattanooga Fault. The geologic mapping shows the plant to be underlain by Cambrian age limestone and shale bedrock of the Conasauga Group and Rome Formation. The Conasauga Group at the site is described as consisting of the Nolichucky Shale, a clayey shale with shaley limestone lenses; the Maryville, Rogersville, and Rutledge Formations, consisting of limestone and clayey shale; and the Pumpkin Valley Shale, a dull brown to maroon shale

interbedded with thin layers of blocky, sandy siltstone. The Rome Formation consists of variegated red, green, and yellow shale and siltstone with beds of fine-grained sandstone. Although not depicted on the geologic mapping, alluvial deposits are likely present beneath the portions of the site adjacent to the river.

Seismic events affecting eastern Tennessee, and thus the plant site, primarily emanate from three zones of earthquake activity – the New Madrid Seismic Zone (NMSZ), Southern Appalachia Seismic Zone (SASZ), and the South Carolina Seismic Zone (SCSZ). The most active zone of the SASZ, the East Tennessee Seismic Zone (ETSZ), extends from northwestern Georgia through east Tennessee and is situated in close proximity to the plant. However, most earthquakes emanating from this zone are relatively low in magnitude, with the largest known event in the ETSZ registering a magnitude of 4.6, suggesting a moderate risk of damage from a seismic event. In contrast, if a large earthquake were to occur within the New Madrid zone to the west, damage to East Tennessee would be possible. The "Geologic Hazards Map of Tennessee – Environmental Geology Series No. 5" developed and published by the Tennessee Department of Environment and Conservation (TDEC), Division of Geology and compiled by Robert Miller (1978) shows the plant to be located in Seismic Risk Zone 2.

Facilities Reviewed: Slag Disposal Area (AADA-1)
Ash Pond / Stilling Pond (AADA-2)

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Watts Bar Fossil Plant (WBF)
Slag Disposal Area (AADA-1)

1. General Facility Information

Facility Status:	Closed	NID Identification:	Not Available
Surface Area (inside dikes)	24.5 Acres	Maximum Height (toe to top of dike):	12 Feet
Free Water Volume:	N/A	Maximum Water Storage:	N/A
Estimated CCB Storage:	N/A	Dike Length:	N/A
Plant Discharge to Facility:	N/A	Current Pool Elevation:	N/A

2. Site Visit Information

Stantec Assessment Team:	Robert Fuller, PE Benjamin Phillips, EIT
TVA Staff Present:	Steve Williams (Exit Interview).
Field Assessment Dates:	January 16, 2009.
Weather/Site Conditions:	Sunny, Cold.

3. History/Description of Usage

History and Operation:	Sluiced Disposal.
Past Failures/Releases:	None documented.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	N/A
Operations Manual:	N/A
TVA Maintenance:	Facility is in the process of final closure.
TVA Inspections:	Annually.
Problems Previously Identified During Past TVA	Closure needs to be completed.

Inspections:

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10W245-01 through 10W245-08.
TVA As-Built Drawings:	No drawings were identified as "As-Built".
TVA Construction Testing Records:	N/A
TVA Annual Inspection Reports:	1967 -2008
Geotechnical Data:	N/A

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	Needs additional vegetation for erosion protection.	
Trees:	None.	
Wave Wash Protection:	N/A	
Erosion:	Minor	
Instabilities:	None observed.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	N/A
	Design:	N/A
Encroachments:	None	
Slope:	**Measured:**	N/A
	Design:	N/A

6.2. Crest

Crest Cover and Slope:	Grass
Erosion:	None observed.
Alignment:	Consistent.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	Minor.
Width:	**Measured:** N/A **Design:** N/A

6.3. Exterior Slopes

Vegetation:	Grass.
Trees:	None.
Erosion:	Minor.
Instabilities:	None observed.
Uniform Appearance:	Yes.
Seepage:	None observed.
Benches:	N/A
Foundations, Drains, Relief Wells, Instrumentation:	Sump to the redwater collection pond is located at the south eastern end of the area.
Animal Burrows:	None observed.
Slope:	**Measured:** N/A **Design:** N/A
Height:	**Measured:** N/A **Design:** N/A

6.4. Spillway Weirs/Riser Inlets

Number:	N/A
Size, Type and Material:	N/A

Height of Riser Inlets:	N/A
Access:	N/A
Joints:	N/A
Mis-Alignment:	N/A
Closed/Abandoned Conduits:	N/A

6.5. Outlet Pipes

Number:	N/A
Size, Type and Material:	N/A
Headwall:	N/A
Joint Separations:	N/A
Mis-Alignment:	N/A
Closed/Abandoned Conduits:	N/A

7. Notable Observations and Concerns

- Minor erosion on embankment slopes.
- Incomplete drainage structure at north end of area.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- None.

8.2. Maintenance Recommendations

- Continue to monitor areas associated with the closure plan.
- Continue annual facility inspections.
- Monitor areas of erosion and repair as needed.

TVA Disposal Facility Assessment
Phase 1 Coal Combustion Product Disposal Facility Summary
Watts Bar Fossil Plant (WBF)
Ash Pond and Stilling Pond (AADA-2)

1. General Facility Information

Facility Status:	Inactive	NID Identification:	Not Available
Surface Area (inside dikes)	14.3 Acres	Maximum Height (toe to top of dike):	30
Free Water Volume:	5 Acre-feet	Maximum Water Storage:	N/A
Estimated CCB Storage:	N/A	Dike Length:	N/A
Plant Discharge to Facility:	N/A	Current Pool Elevation:	N/A

2. Site Visit Information

Stantec Assessment Team:	Robert Fuller, PE Benjamin Phillips, EIT
TVA Staff Present:	Steve Williams (Exit Interview)
Field Assessment Dates:	January 16, 2009.
Weather/Site Conditions:	Sunny, Cold.

3. History/Description of Usage

History and Operation:	Built in 1974 for sluiced disposal. Bottom ash dike constructed in 1976 to form stilling pond portion.
Past Failures/Releases:	None documented.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	N/A
Operations Manual:	N/A
TVA Maintenance:	Mowing.
TVA Inspections:	Annually.

Problems Previously Identified During Past TVA Inspections:	Minor seepage along toe of embankment. Erosion along riverbank adjacent to toe and at spillway outfall.

5. Documents Reviewed

See attached Document Log for complete list of documents provided by TVA for review. In particular, the following provided pertinent information for the assessment of this facility:

TVA Design Drawings:	10N245
TVA As-Built Drawings:	No drawings were identified as "As-Built".
TVA Construction Testing Records:	N/A
TVA Annual Inspection Reports:	1974 -2008
Geotechnical Data:	N/A

6. Stantec Field Observations

See attached Concerns/Photo Log, Photos, and Site Plan Drawing.

6.1. Interior Slopes

Vegetation:	None.	
Trees:	None.	
Wave Wash Protection:	N/A	
Erosion:	None observed.	
Instabilities:	None observed.	
Animal Burrows:	None observed.	
Freeboard:	**Measured:**	5 feet
	Design:	N/A
Encroachments:	None	
Slope:	**Measured:**	N/A
	Design:	N/A

6.2. Crest

Crest Cover and Slope:	Grass, bottom ash, gravel, and asphalt pavement.
Erosion:	None observed.
Alignment:	Consistent.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	Minor.
Width:	**Measured:** N/A **Design:** N/A

6.3. Exterior Slopes

Vegetation:	Grass and some woody growth.
Trees:	Yes.
Erosion:	Minor.
Instabilities:	None observed.
Uniform Appearance:	Yes.
Seepage:	None observed
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	Well covers were observed on eastern side of the embankment.
Animal Burrows:	None observed.
Slope:	**Measured:** N/A **Design:** N/A
Height:	**Measured:** N/A **Design:** N/A

6.4. Spillway Weirs/Riser Inlets

Number:	3
Size, Type and Material:	CMP

Height of Riser Inlets:	N/A
Access:	Deteriorated metal access bridge.
Joints:	N/A
Mis-Alignment:	N/A
Closed/Abandoned Conduits:	N/A

6.5. Outlet Pipes

Number:	3
Size, Type and Material:	Concrete.
Headwall:	Yes
Joint Separations:	N/A
Mis-Alignment:	N/A
Closed/Abandoned Conduits:	N/A

7. Notable Observations and Concerns

- Excess vegetation, some woody, on the embankment.
- Steep slopes on the embankment.
- Erosion on the riverbank below the embankment toe and at the spillway discharge into the river.

8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that a capacity analysis be performed for the Stilling Pond and Ash Pond to check if sufficient volume capacity exists for storm water runoff. Further hydraulic/hydrologic analysis may be needed pending outcome of capacity analysis.
- It is recommended that the submitted closure plan be completed.

8.2. Maintenance Recommendations

- Cut and maintain heavy/tall cattail and grass growth on interior slopes of ponds to allow better observation.
- Remove trees/brush from downstream dike slope of Stilling Pond and Ash Pond and outlet area.
- Continue to monitor areas associated with the closure plan.
- Continue annual dike and facility inspections.

Drawing Mark AADA-1-4

Lack of vegetative cover on AADA and AADA slopes.

Drawing Mark AADA-1-3

Lack of drainage ditch at toe of AADA embankment.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
AADA-1-4	Lack of vegetative cover on AADA and AADA slopes.	WBF-AADA-1-4
AADA-1-3	Lack of drainage ditch at toe of AADA embankment.	WBF-AADA-1-3

Drawing Mark P-1-1

Excess vegetation on embankment crest and slopes.

Concerns/Photo Log		
Drawing Mark	**Comments**	**Photo/GPS ID**
P-1-1	Excess vegetation on embankment crest and slopes.	WBF-P-1-1

STANTEC
CONSULTING
SERVICES INC.
1409 N. Forbes Rd.
Lexington, Kentucky
40511-2050
859-422-3000

Stantec

Plan View - WBF

Tennessee Valley Authority
Watts Bar Fossil Plant
Spring City, Rhea County, Tennessee

PROJECT NO.	171468118
DATE	MARCH 2009
DRAWN BY	AMG
CHECKED BY	BLP
CHECKED BY	BLP
SCALE	AS SHOWN
REVISED	
1	
2	
3	
4	
5	
6	
7	
8	

SHEET

1 OF 1

V:\171\active\171468118\gis-mxd\phase1b\WATTS_BAR\watts_bar_planview.mxd

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Watts Bar Fossil Plant (WBF)

Date Reviewed	Reviewed by	File Name	File Type
4/26/2009	BLP	10N235-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10N240-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10N245-Sht -Rev 4.cal	CAL
4/26/2009	BLP	10N246-Sht -Rev 2.cal	CAL
4/26/2009	BLP	10N247-Sht -Rev 1.cal	CAL
4/26/2009	BLP	10N248-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10N249-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10N301-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10N302-Sht -Rev 5.cal	CAL
4/26/2009	BLP	10N303-Sht -Rev 7.cal	CAL
4/26/2009	BLP	10N325-Sht -Rev 1.cal	CAL
4/26/2009	BLP	10N551-Sht -Rev 3.cal	CAL
4/26/2009	BLP	10W200-Sht -Rev 9.cal	CAL
4/26/2009	BLP	10W243-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10W250-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10W251-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10W252-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10W255-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10W316-Sht -Rev 0.cal	CAL
4/26/2009	BLP	10W425-01 Rev 0.cal	CAL
4/26/2009	BLP	10W425-02 Rev 0.cal	CAL
4/26/2009	BLP	10W425-03 Rev 1.cal	CAL
4/26/2009	BLP	10W425-03 Rev 1-.cal	CAL
4/26/2009	BLP	10W425-04 Rev 0.cal	CAL
4/26/2009	BLP	10W425-05 Rev 0.cal	CAL
4/26/2009	BLP	10W425-06 Rev 0.cal	CAL
4/26/2009	BLP	10W425-06 Rev 0-.cal	CAL
4/26/2009	BLP	10W425-07 Rev 0.cal	CAL
4/26/2009	BLP	10W425-07 Rev 0-.cal	CAL
4/26/2009	BLP	10W425-08 Rev 0.cal	CAL
4/26/2009	BLP	10W425-09 Rev 0.cal	CAL
4/26/2009	BLP	10W425-10 Rev 0.cal	CAL
4/26/2009	BLP	10W425-11 Rev 0.cal	CAL
4/26/2009	BLP	10W425-12 Rev 0.cal	CAL
4/26/2009	BLP	15N420-Sht -Rev 2.cal	CAL
4/26/2009	BLP	15N810-Sht -Rev 12.cal	CAL
4/26/2009	BLP	15W832-Sht -Rev 2.cal	CAL
4/26/2009	BLP	17W301-Sht -Rev 3.cal	CAL

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Watts Bar Fossil Plant (WBF)

Date Reviewed	Reviewed by	File Name	File Type
4/26/2009	BLP	17W305-1 -Sht -Rev 0.cal	CAL
4/27/2009	BLP	WBF Agenda Items Restart Plan.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy00.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy01.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy03.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy04.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy05.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy06.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy07.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy67.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy68.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy69.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy70.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy71.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy72.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy73.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy74.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy75.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy76.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy77.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy78.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy79.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy80.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy81.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy82.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy83.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy84.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy85.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy86.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy87.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy88.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy93.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy94.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy95.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy96.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy97.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy98.pdf	PDF
2/18/2009	BLP	WBF Ash Pond Insp Fy99.pdf	PDF

Coal Combustion Product Disposal Facility Assessment
Phase 1 Document Review Form
Watts Bar Fossil Plant (WBF)

Date Reviewed	Reviewed by	File Name	File Type
2/18/2009	BLP	WBF Fauem Study.pdf	PDF
2/18/2009	BLP	WBF Memo And Attachments On Watts Bar Fossil Restart Kick Off Meeting.pdf	PDF
2/18/2009	BLP	WBF Memo And WBF Documents From Restart Meeting.pdf	PDF
2/18/2009	BLP	WBF Memo To Mech Eng Files On WBF Restart Meeting.pdf	PDF
2/18/2009	BLP	WBF Memo To Those Listed From Glwimberly Dated July 3 1991 On WBF Restart Activities.pdf	PDF
2/26/2009	BLP	WBF_Ash_Pond_Insp_Fy08.pdf	PDF