



## TVA Disposal Facility Assessment Phase 1b Plant Summary Widows Creek Fossil Plant (WCF)

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Location:	2800 Steamplant Road Stevenson, Jackson County, Alabama 35772-2000
	Latitude: 34.890226      Longitude: 85.754385
Plant Contact:	Stanley Bramlett TVA Systems Engineer Phone: (256) 437-4350      Email: shbramle@tva.gov
Facts and Figures:	Widows Creek has eight coal-fired generating units. Construction of the main ash pond perimeter dike at Widows Creek began in 1950 and was completed in 1965. The winter net dependable generating capacity is 1,629 megawatts. The plant consumes some 10,000 tons of coal per day.
Coal Combustion Byproduct Disposal:	Approximately 280,000 dry tons of fly ash is wet sluiced to the main ash pond each year. Fly ash is retrieved from the main ash pond and stacked within the main ash pond footprint. Approximately 110,000 dry tons of bottom ash is wet sluiced to the main ash pond each year. Dewatered bottom ash is retrieved and stacked within the main ash pond footprint. Approximately 750,000 dry tons of scrubber gypsum is produced each year. The scrubber gypsum is wet sluiced to an onsite gypsum stacking area, where it is handled by a rim-ditch stacking method. Approximately 20,000 tons per year of scrubber gypsum is marketed offsite to the cement industry.
Geology and Seismicity:	The Widows Creek Fossil Plant is located in northeastern Alabama along the west shore of the Tennessee River, at the confluence of the river and Widows Creek. The plant is situated in the Sequatchie Valley District of the Appalachian Plateaus Physiographic Province, just south of a northeast to southwest trending thrust fault. The geologic mapping indicates the plant is underlain by Ordovician age limestone and shale bedrock of the Sequatchie Formation, Nashville Group, and Stones River Group. The Sequatchie Formation consists of thin bedded calcareous shale and mudstone interbedded with fossiliferous or bioclastic limestone. The Nashville Group is described as argillaceous and fossiliferous limestone overlain by laminated, silty limestone. The Stones River Group consists of locally argillaceous, fossiliferous limestone, with bentonite and bentonitic shale near the top of the formation. Although not depicted on the geologic mapping, alluvial deposits are likely present beneath the portions of the site adjacent to the river.



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Three zones of earthquake activity affecting northern Alabama are the New Madrid Seismic Zone (NMSZ), the Southern Appalachian Seismic Zone (SASZ), and the South Carolina Seismic Zone (SCSZ). Most earthquakes in Alabama occur within the SASZ. Historical records show that earthquakes with epicenters in Alabama have been recorded throughout most of the state, but they are often not strong enough to be felt on the surface, and would most likely do little or no damage. In contrast, if a large earthquake were to occur within the New Madrid zone to the northwest, damage to northern Alabama would be possible.

Facilities Reviewed:

- Abandoned Ash Disposal Area
- Bottom Ash Stack
- Gypsum Stack
- Gypsum Stack Stilling Pond
- Lower Stilling Pond
- Main Ash Pond A
- Old Scrubber Sludge Pond Dredge Cell
- Pump Pond
- Upper Stilling Pond



**TVA Disposal Facility Assessment  
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Abandoned Ash Disposal Area (AADA)**

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1. General Facility Information

Facility Status:	Inactive since June 1969	NID Identification:	N/A
Surface Area (inside dikes)	136 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:	9,375 feet
Plant Discharge to Facility:	N/A	Current Pool Elevation:	Filled and abandoned to elevation 625.0 feet

2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips  
 TVA Staff Present: Stanley Bramlett  
 Field Assessment Dates: January 14, 2009 and January 15, 2009.  
 Weather/Site Conditions: Sunny, Cold.

3. History/Description of Usage

History and Operation: Ash Disposal Area for Units 1-6, commissioned pre-1958. Decommissioned June 1969.  
 Past Failures/Releases: Based on available data, none were identified.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan: Inactive since June 1969.  
 Operations Manual: Inactive since June 1969.  
 TVA Maintenance: Inactive since June 1969.  
 TVA Inspections: Post closure inspection performed yearly.  
 Problems Previously Identified During Past TVA Inspections: Based on available data, none were identified.



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Abandoned Ash Disposal Area (AADA)**

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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:	10W7420 R14, 10W7420 R0, 10N7421 R6, 10N7422 R8, 10W7463-01, 10W7463-02, 10N7425
TVA As-Built Drawings:	FY 1969 Divider Dike Drawing.
TVA Construction Testing Records:	Based on available date, none were identified.
TVA Annual Inspection Reports:	FY 1967 - FY 2009
Geotechnical Data:	Geotechnical data was not available.

6. Stantec Field Observations

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

6.1. Interior Slopes

Vegetation:	N/A
Trees:	N/A
Wave Wash Protection:	N/A
Erosion:	N/A
Instabilities:	N/A
Animal Burrows:	N/A
Freeboard:	<b>Measured:</b> N/A <b>Design:</b> N/A
Encroachments:	N/A
Slope:	<b>Measured:</b> N/A <b>Design:</b> N/A



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6.2. Crest

Crest Cover and Slope:	N/A
Erosion:	N/A
Alignment:	N/A
Settlement/Cracking:	N/A
Bare Spots/Rutting:	N/A
Width:	<b>Measured:</b> N/A <b>Design:</b> N/A

6.3. Exterior Slopes

Vegetation:	Heavy grass cover.
Trees:	Heavily wooded.
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:	<b>Measured:</b> N/A <b>Design:</b> N/A
Height:	<b>Measured:</b> N/A <b>Design:</b> N/A

6.4. Spillway Weirs/Riser Inlets

Number:	2
Size, Type and Material:	Could not assess thoroughly.
Height of Riser Inlets:	Could not assess thoroughly.
Access:	Covered with woody vegetation.



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant Fossil Plant (WCF) Abandoned Ash Disposal Area (AADA)

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Joints: N/A  
Mis-Alignment: N/A  
Closed/Abandoned Conduits: Both discharge structures are abandoned.

## 6.5. Outlet Pipes

Number: (4)  
Size, Type and Material: Culverts.  
Headwall: N/A  
Joint Separations: N/A  
Mis-Alignment: N/A  
Closed/Abandoned Conduits: N/A

## 7. Notable Observations and Concerns

- None

## 8. Recommendations

### 8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that a program to develop as-built drawings and construction records for future maintenance and construction activities be maintained and established.

### 8.2. Maintenance Recommendations

- Continue annual inspection program and execute recommendations.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Bottom Ash Stack (BAS)**

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes)	40 acres	Maximum Height (toe to top of dike):	36 feet
Free Water Volume:	15 Acre-feet	Maximum Water Storage:	1,464 Acre-feet
Estimated CCB Storage:	900 Acre-feet	Dike Length:	6,925 feet
Plant Discharge to Facility:	77.4 cfs	Current Pool Elevation:	635.6 feet

2. Site Visit Information

Stantec Assessment Team:	Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips
TVA Staff Present:	Stanley Bramlett
Field Assessment Dates:	January 14, 2009 and January 15, 2009.
Weather/Site Conditions:	Sunny, Cold.

3. History/Description of Usage

History and Operation:	Commissioned Pre-1967. Provides Stacking area for Bottom Ash.
Past Failures/Releases:	Based on available data, none were identified.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	Based on available data, none were identified.
Operations Manual:	A coal combustion products operation manual is available for the Widows Creek Fossil Plant covering active facilities.
TVA Maintenance:	Based on available data, none were identified.
TVA Inspections:	FY1967 - FY2009
Problems Previously Identified During Past TVA	South dike noted to have landslide and seepage.



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Bottom Ash Stack (BAS)

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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:	10W7246 R1, 10W7460 R1, 10W7461-1 R0
TVA As-Built Drawings:	Based on available data, none were identified.
TVA Construction Testing Records:	Based on available data, none were identified.
TVA Annual Inspection Reports:	FY1967 - FY2009
Geotechnical Data:	May 2004 (Mactec Report), February 2003 (Mactec Report) and August 1980 (TVA Report).

## 6. Stantec Field Observations

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

### 6.1. Interior Slopes

Vegetation:	Sparse vegetation observed.
Trees:	None observed.
Wave Wash Protection:	None observed.
Erosion:	Interior slopes observed to have erosion, vegetation was not observed.
Instabilities:	None observed.
Animal Burrows:	Few observed.
Freeboard:	<b>Measured:</b> N/A <b>Design:</b> N/A
Encroachments:	
Slope:	<b>Measured:</b> N/A <b>Design:</b> N/A



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**Bottom Ash Stack (BAS)**

6.2. Crest

Crest Cover and Slope:	Bottom ash, no predominate slope.
Erosion:	None observed.
Alignment:	Observed to be in good condition.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	Observed throughout the south dike where vehicles travel.
Width:	<b>Measured:</b> 10 feet to 30 feet <b>Design:</b> N/A

6.3. Exterior Slopes

Vegetation:	Sparse vegetation observed.
Trees:	None observed.
Erosion:	Numerous areas of significant erosion particularly on the south side intermediate dike.
Instabilities:	Sloughing of the south side perimeter dike was observed. This instability has been reported in previous inspection reports dating back to 1985.
Uniform Appearance:	Observed to be uniform except for southern dike.
Seepage:	Observed on the south side perimeter dike adjacent to the Scrubber Road.
Benches:	Intermediate bench observed.
Foundations, Drains, Relief Wells, Instrumentation:	None observed.
Animal Burrows:	Few observed.
Slope:	<b>Measured:</b> 2H:1V <b>Design:</b> 2H:1V
Height:	<b>Measured:</b> 50 feet <b>Design:</b> 116 feet



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## 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:	Pipe inventory study is ongoing.

## 6.5. Outlet Pipes

Number:	See Upper Stilling Pond
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

- Sloughing has occurred in the southwest portion of the active Ash Pond. The stacking of bottom ash above the plant road level has created a cell approximately twelve to thirty feet in height with moderate slopes ranging from 2H:1V to 3H:1V. The majority of the slope disturbance is located down gradient of the sluice pipe outlets and Chemical Ponds consisting of copper and iron ponds. The previous inspection report states the spillway conduit inlets being plugged with the action item to clean the lines. This was apparently performed. Water discharging from the pond's spillway conduit is discharged mid slope. The slope disturbance appears to be localized below these sources of water. The landslide spoils have encroached onto the Scrubber Road causing standing water in the west-bound traffic lane of the road. The width of the encroachment is less than one hundred feet. However, numerous repairs to the slope and additional evidence of slope disturbance extends over three hundred feet along Scrubber Road. Numerous attempts to repair the sloughing have been made over the last couple of years according to a TVA WCF System Engineer.



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- Excessive seepage observed on the south dike extending 600 feet along Plant Road. Research revealed the construction of a bentonite slurry cut off wall which directs seepage through the bottom ash stack into this area.
- 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 the practice of terminating active spillway conduits above the toe of dikes or embankments cease. In at least one case, conduit outlets on the mid slope of dikes have caused surface erosion, rutting and sloughing. New conduits should be designed and constructed in accordance with acceptable dam safety regulations with the proper material, pressure rating, anti-seep measures, and outlet energy dissipating provisions to operate as a spillway conduit. The conduit outlet should be supported by a engineered concrete thrust block foundation. The outlet should extend into the receiving stilling pond or ditch with erosion protection in the area of the splash pool using a serviceable concrete apron.
- It is recommended conduit inventory study be conducted on all by-product disposal facilities. If inactive or abandoned pipes are discovered an abandonment plan should be developed and implemented.
- It is recommended the current practices of Construction Quality Assurance be reviewed and revised. It is recommended a CQA plan under the direct supervision of a licensed engineer in the State of Alabama.
- It is recommended that an Operations and Maintenance Plan, and an Emergency Action 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 maintained and established.

### 8.2. Maintenance Recommendations

- Seed and mulch bare areas.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.
- Achieve minimum design freeboard on all dikes.
- Maintained design interior slope grading.



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Bottom Ash Stack (BAS)**

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- Repair erosion and rutting on exterior slopes.
- Monitor seepage through the embankment slopes.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack (GS)**

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes)	95 acres	Maximum Height (toe to top of dike):	79 feet
Free Water Volume:	475 Acre-feet	Maximum Water Storage:	6,619 Acre-feet
Estimated CCB Storage:	7,892,243 CY	Dike Length:	Crest – 8,600 feet, Intermediate Bench – 9,450 feet, Perimeter Bench – 10,350 feet
Plant Discharge to Facility:	5,000 gpm (Unit 7/8 combined)	Current Pool Elevation:	Pond 1A - Dry Pond 2A/2B - Elevation 655 Pond 3 - Elevation 670

2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips  
 TVA Staff Present: Stanley Bramlett  
 Field Assessment Dates: January 14, 2009 and January 15, 2009  
 Weather/Site Conditions: Sunny, Cold.

3. History/Description of Usage

History and Operation: Commissioned 1986. Contains sluiced material from Units 7 and 8.  
 Past Failures/Releases: Abandoned decant weir failure on January 9, 2009. Side stack sloughs reportedly repaired in TVA inspection reports (1985-2009).



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack (GS)**

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4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan:	Based on available data, none were identified.
Operations Manual:	A coal combustion products operations manual is available for the Widows Creek Fossil Plant covering active facilities.
TVA Maintenance:	TVA Inspection reports make reference to minor maintenance issues (1985-2004).
TVA Inspections:	FY1986 - FY2009
Problems Previously Identified During Past TVA Inspections:	Construction deviation from design, operations are not fully functioning per designs. 2007 weir abandoned, slurry pipes unstable, woody growth in Pond 2B, perimeter and intermediate benches and slopes are vegetated, erosion occurs from the upper slope approximate elevation 650 feet.

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:	10W215 series
TVA As-Built Drawings:	Based on available data, none were identified.
TVA Construction Testing Records:	Based on available data, none were identified.
TVA Annual Inspection Reports:	FY1986 - FY2009
Geotechnical Data:	1980, 1984, 1991, 2004, 2009 borings were drilled.



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Gypsum Stack (GS)

## 6. Stantec Field Observations

Due to the dike recovery efforts in response to the January 9, 2009 incident, the gypsum stack engineering assessment was accelerated as requested by TVA. Phase 2 geotechnical exploration efforts began January 12, 2009. The Phase 1A and 1B site reconnaissance, completion of checklists and document review process were performed in parallel with the Phase 2 field exploration and office engineering analyses. The results of the Phase 1b assessment are provided in this report. The results, conclusions, recommendations and engineering designs of immediate work plans will be provided in a Phase 2 engineering report.

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

### 6.1. Interior Slopes

Vegetation:	Vegetation was not observed.
Trees:	Woody growth observed, approximately 15 feet tall.
Wave Wash Protection:	None observed.
Erosion:	None observed.
Instabilities:	Steep interior slopes with sloughing observed.
Animal Burrows:	None observed.
Freeboard:	<b>Measured:</b> 1.5 feet <b>Design:</b> 3.0 feet
Encroachments:	None observed.
Slope:	<b>Measured:</b> Approximately 1.5H:1V <b>Design:</b> 2H:1V

### 6.2. Crest

Crest Cover and Slope:	None observed on the three crests.
Erosion:	Surface erosion observed where the rim ditching operation was allowed to overtop.
Alignment:	Observed to be in marginal condition. Evidence of crest center lines not following the construction plans is apparent.
Settlement/Cracking:	None observed.



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Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack (GS)**

Bare Spots/Rutting: Rutting observed on all crests.

Width: **Measured:** 20 feet  
**Design:** 20 feet

6.3. Exterior Slopes

Vegetation: Dense brush covers lower and intermediate side slopes. The upper slope is bare.

Trees: Some woody growth present.

Erosion: Surface runoff erosion is present on all slopes around the perimeter. 8" - 12" deep and 6" - 8" wide. Erosion 1' - 6" deep 1'-4" wide x 25' long observed on the northeast groin. Reference is made to Work Plan 3 - field adjustments to Surface Drainage Plan.

Instabilities: Abandoned decant weir failure observed on 01/09/2009. Evidence of three landslides were observed along the west side of the stack. Slope inclinometer was installed in January, 2009. Monitoring of these slopes is ongoing.

Uniform Appearance: Observed to be in good condition.

Seepage: On the east side, there are wet areas and cattails present at the toe.

Benches: Intermediate bench and perimeter bench.

Foundations, Drains, Relief Wells, Instrumentation: 500 and 600 Series surface drainage inlets are incomplete. Toe drain and slope drain outlets Nos. 3 through 15 subdrainage outlets are complete. Outlets Nos. 1 and 2 have not been installed.

Animal Burrows: None observed.

Slope: **Measured:** 2.4H:1V  
**Design:** 2.5H:1V

Height: **Measured:** 50 to 79 feet  
**Design:** 150 feet planned



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack (GS)**

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6.4. Spillway Weirs/Riser Inlets

Number:	Two (2)
Size, Type and Material:	Pre-cast concrete, 4-foot diameter, manhole base, 1 foot r.c. barrels, one structure in Pond 2B, one structure in Pond 3.
Height of Riser Inlets:	N/A
Access:	Accessible.
Joints:	Observed to be in good condition.
Mis-Alignment:	Observed to be in good condition.
Closed/Abandoned Conduits:	Pipe inventory is ongoing.

6.5. Outlet Pipes

Number:	Two (2)
Size, Type and Material:	Two (2) 30 inch HDPE, reference is made to Work Plan 5 - Field Adjustments to spillway outfalls.
Headwall:	None observed.
Joint Separations:	None observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	A pipe inventory study is ongoing. Four abandoned pipe penetrations will be grouted under Work Plan 6 - Pipe Grouting Plan.

7. Notable Observations and Concerns

- Co-mingling of ash and gypsum is a concern. The addition of fly ash has a negative impact on permeability and strength.
- The practice of using push together pipe for spillway weir/riser structures is a concern due to the potential for leakage between joints.
- Observations of structural distress in CMP spillway conduits.
- Lower perimeter ditch drains poorly along west and south sides.
- 2009 Abandoned spillway structures were improperly abandoned.



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Gypsum Stack (GS)

- Internal dike instability in Pond 2B.
- Operating pond with minimum freeboard.
- The absence of an Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.

## 8. Recommendations

### 8.1. Phase 2 Engineering and Programmatic Recommendations

- A Phase 2 Geotechnical Study is already underway at the Gypsum Stack to evaluate the stability of the slopes, perform seepage analysis, and evaluate construction design and methods.
- It is recommended that a conduit inventory be conducted on all by-product disposal facilities. Conduit and Weir abandonment procedures should be standardized across TVA. One unanswered question Stantec had during the exit interviews involved the Order of Operations or 'OoO' identification number labeled on some of the conduits in the plans. A search of the TVA document server may provide valuable information in finding existing conduits in the field.
- It is recommended the practice of terminating active spillway conduits above the toe of dikes or embankments be stopped immediately. In at least two cases, conduits outlets on the mid slope of dikes have caused surface erosion, rutting and sloughing. The new conduits should be designed and constructed in accordance with dam safety regulations with the proper material, pressure rating, anti-seep measures, and outlet energy dissipating provisions to operate as a spillway conduit. The conduit outlet should be supported by a designed concrete thrust block foundation with the last section of conduit turned up at the end to 30 to 45 degrees from horizontal depending on conduit slope, size and operating capacity. The outlet should extend into the stilling pond or ditch with erosion protection in the area of the splash pool using a serviceable concrete apron.
- It is recommended the current practices of Construction Quality Assurance be reviewed and revised. It is recommended a more stringent CQA plan under the direct supervision of a licensed engineer in the State of Alabama begin immediately at the Gypsum Stack, Main Ash Pond and Dredge Cell. It is apparent that the construction and operation of the Gypsum Stack varies, sometimes significantly, from the available construction plans of the facility without the issuance of addendums or revisions by an Engineer of Record. The apparent deviations from the plans include relocated interior divider dikes, the operation of the ponds with marginal freeboard, and the unplanned abandonment and installation of spillway weir and conduit systems.



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- It is recommended that an Operations and Maintenance Plan, and an Emergency Action 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.
- Due to the limited construction monuments at this facility, it is recommended that additional surveyed monuments be established at selected locations. These monuments should be surveyed annually as a minimum.

### 8.2. Maintenance Recommendations

- Remove woody growth from exterior slopes.
- Seed and mulch bare areas.
- Cut and maintain heavy/tall cattail and grass growth on exterior slopes to permit better inspection.
- Repair erosion and rutting on exterior slopes.
- Cut tall brush and cattails at seepage areas to permit better inspections and observations.
- Monitor seepage areas on west dike for change until engineering evaluation can be completed and remedial actions developed.
- Conduct 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.
- Maintain minimum design freeboard based on hydraulic and hydrology analysis.
- Uncover all the inlets to the bench drains and uncover the outlets of the toe drains.
- Maintain design interior slope grading and design width of perimeter dike.
- Monitor seepage and static water levels through the dikes on a monthly basis.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack Stilling Pond (GSSP)**

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes):	8.5	Maximum Height (toe to top of dike):	15 feet
Free Water Volume:	81 Acre-feet	Maximum Water Storage:	135 Acre-feet
Estimated CCB Storage:	81 Acre-feet	Dike Length:	3,000 feet
Plant Discharge to Facility:	5,000 gpm	Current Pool Elevation:	614.0 feet

2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips  
 TVA Staff Present: Stanley Bramlett  
 Field Assessment Dates: January 14, 2009 and January 15, 2009.  
 Weather/Site Conditions: Sunny, Cold.

3. History/Description of Usage

History and Operation: Commissioned in 1986. Contains decant water from the gypsum stack. The water is pumped through the 008 outfall into Guntersville Reservoir.  
 Past Failures/Releases: The Gypsum Stack failure occurred on January 9, 2009 due to an abandoned decant weir.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan: Based on available data, none were identified.  
 Operations Manual: A coal combustion products operations manual is available for the Widows Creek Fossil Plant covering active facilities.  
 TVA Maintenance: Annual mowing, tree removal.  
 TVA Inspections: FY86 - FY09



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Phase 1b Byproduct Disposal Facility Summary  
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Gypsum Stack Stilling Pond (GSSP)**

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# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Gypsum Stack Stilling Pond (GSSP)

Problems Previously Identified During Past TVA Inspections: Floating fly ash, heavy vegetation, and woody growth on interior/exterior slopes. Skimmer attached to outlet control pipe should be replaced.

## 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: 10E7416-1, 10E7416-2, 10W215-1, 10W215-34  
TVA As-Built Drawings: Based on available data, none were identified.  
TVA Construction Testing Records: Based on available data, none were identified.  
TVA Annual Inspection Reports: FY1986 - FY2009  
Geotechnical Data: 1980, 1984, 1991, 2004, 2009 borings were drilled.

## 6. Stantec Field Observations

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

### 6.1. Interior Slopes

Vegetation: Heavy vegetation.  
Trees: None observed.  
Wave Wash Protection: Vegetated clay.  
Erosion: None observed.  
Instabilities: None observed.  
Animal Burrows: None observed.  
Freeboard: **Measured:** 6 feet  
**Design:** 7 feet  
Encroachments: None observed  
Slope: **Measured:** 2H:1V  
**Design:** 2H:1V



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack Stilling Pond (GSSP)**

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6.2. Crest

Crest Cover and Slope:	Vegetated clay. Relatively level.
Erosion:	None observed.
Alignment:	Normal alignment observed.
Settlement/Cracking:	None observed.
Bare Spots/Rutting:	None observed.
Width:	<b>Measured:</b> 25 feet to 50 feet <b>Design:</b> 25 feet to 50 feet

6.3. Exterior Slopes

Vegetation:	Heavy vegetation of native grasses.
Trees:	Sparse woody growth.
Erosion:	West slope due to failure of decant weir in Pond 2B of the FGD Wet Stacking Area on January 9, 2009. Area is approximately 80 feet wide by 250 feet long.
Instabilities:	None observed.
Uniform Appearance:	Observed to be uniform.
Seepage:	South dike observed to be wet at the toe.
Benches:	None observed.
Foundations, Drains, Relief Wells, Instrumentation:	None observed.
Animal Burrows:	None observed.
Slope:	<b>Measured:</b> 3H:1V <b>Design:</b> 3H:1V
Height:	<b>Measured:</b> 15 feet <b>Design:</b> 15 feet



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack Stilling Pond (GSSP)**

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6.4. Spillway Weirs/Riser Inlets

Number:	Two (2)
Size, Type and Material:	24 inch CMP, 36 inch HDPE.
Height of Riser Inlets:	Inlets outfall to perimeter ditch then enter the stilling pond through a 36 inch HDPE culvert.
Access:	Accessible.
Joints:	Not observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	See Abandoned Conduit Inventory drawing, March, 2009, Stantec Consulting Services.

6.5. Outlet Pipes

Number:	One (1)
Size, Type and Material:	30 inch carbon steel with wooden skimmer.
Headwall:	None observed.
Joint Separations:	Unable to observe.
Mis-Alignment:	Unable to observe.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- Reported distress at the skimmer structure.
- The absence of an Emergency Action Plan, Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack Stilling Pond (GSSP)**

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8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- Implement a proposed skimmer replacement.
- It is recommended that an Operations and Maintenance Plan and an Emergency Action Plan be prepared for the facility.
- It is recommended that a program to develop as-built drawings and construction records for future operation, maintenance and construction activities be maintained and established.
- Due to the limited construction monuments at this facility, it is recommended that additional surveyed monuments be established at selected locations. These monuments should be surveyed annually as a minimum.
- Re-establish emergency overflow spillway weir.
- A Phase 2 Hydrologic and Hydraulic Study of the spillway system is currently being performed.

8.2. Maintenance Recommendations

- Seed and mulch bare areas.
- Repair erosion and rutting on exterior slopes.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.
- Maintain design freeboard based on updated hydrologic and hydraulic study results on all dikes.
- Maintain design interior slope grading.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Lower Stilling Pond (LSP)**

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes):	4 Acres	Maximum Height (toe to top of dike):	21 feet
Free Water Volume:	64 Acre-feet	Maximum Water Storage:	84 Acre-feet
Estimated CCB Storage:	N/A	Dike Length:	1,685 feet
Plant Discharge to Facility:	77.4 cfs	Current Pool Elevation:	611.5 feet

2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips  
 TVA Staff Present: Stanley Bramlett, Stuart Harris  
 Field Assessment Dates: January 14, 2009 and January 15, 2009.  
 Weather/Site Conditions: Sunny, Cold.

3. History/Description of Usage

History and Operation: Commissioned 1986. The Lower Stilling Pond receives discharge from the Active Ash Pond and functions with the Upper Stilling Pond as one pond.  
 Past Failures/Releases: Based on available data, none were identified.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan: Based on available data, none were identified.  
 Operations Manual: A coal combustion products operations manual is available for the Widows Creek Fossil Plant covering active facilities.  
 TVA Maintenance: Based on available data, none were identified.  
 TVA Inspections: FY1986 - FY2009



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Lower Stilling Pond (LSP)

Problems Previously Identified During Past TVA Inspections: Floating fly ash and accumulation of ash, interior slopes are heavily vegetated and contain woody growth.

## 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:	10W234-1
TVA As-Built Drawings:	Based on available data, none were identified.
TVA Construction Testing Records:	Based on available data, none were identified.
TVA Annual Inspection Reports:	FY1986 - FY2009
Geotechnical Data:	Based on available data, none were identified.

## 6. Stantec Field Observations

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

### 6.1. Interior Slopes

Vegetation:	Heavy vegetation observed.
Trees:	Dense woody growth observed.
Wave Wash Protection:	Vegetated slopes.
Erosion:	Northwest groin, the dike intersecting the dredge cell is composed of fly ash and is observed to be eroding.
Instabilities:	None observed.
Animal Burrows:	
Freeboard:	<b>Measured:</b> 3 feet <b>Design:</b> 5 feet



**TVA Disposal Facility Assessment**  
**Phase 1b Byproduct Disposal Facility Summary**  
**Widows Creek Fossil Plant (WCF)**  
**Lower Stilling Pond (LSP)**

Encroachments: None observed.

Slope: **Measured:** 2H:1V  
**Design:** 2H:1V

6.2. Crest

Crest Cover and Slope: Crest is utilized for vehicle travel. The majority of the crest is composed of bottom ash and gravel. Areas that are not traveled on are observed to be heavily vegetated. Relatively level.

Erosion: None observed.

Alignment: Observed to be in good condition.

Settlement/Cracking: None observed.

Bare Spots/Rutting: Rutting observed where vehicles travel.

Width: **Measured:** 20 feet  
**Design:** 20 feet

6.3. Exterior Slopes

Vegetation: Dense brush observed.

Trees: Sparse woody growth observed.

Erosion: None observed.

Instabilities: None observed.

Uniform Appearance: Observed to be uniform.

Seepage: None observed.

Benches: None observed.

Foundations, Drains, Relief Wells, Instrumentation: None observed.

Animal Burrows: None observed.

Slope: **Measured:** N/A  
**Design:** N/A

Height: **Measured:** 21 feet  
**Design:** 21 feet



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Lower Stilling Pond (LSP)**

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6.4. Spillway Weirs/Riser Inlets

Number:	Five (5)
Size, Type and Material:	36 inch CMP.
Height of Riser Inlets:	Based on available data, the height is unknown. The rises are 48 inch concrete structures connected to the 36 inch CMPs.
Access:	Limited access to one inlet at the time of inspection was available.
Joints:	Unable to be observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

6.5. Outlet Pipes

Number:	Five (5)
Size, Type and Material:	36 inch CMP.
Headwall:	10 foot wide wooden skimmer.
Joint Separations:	Unable to observe.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

7. Notable Observations and Concerns

- Seepage reported in 2007 was observed to be present.
- Reports of structural distress at weirs and conduits.
- Steep interior slopes with sloughing.
- Exterior slopes are heavily vegetated.
- Sloughing on the interior slopes of the lower stilling pond was observed. The two ponds operate in series with an internal divider dike serving both ponds. The divider dike is fifteen to twenty feet in height and about one hundred feet in length. Looking at the lower pond, the most impacted interior slope was the internal divider dike on the northwest side. A pile of approximately thirty plastic sand bags were stacked



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Lower Stilling Pond (LSP)

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across a portion of the crest of the divider dike. Based on an exit interview with Stuart Harris of TVA conducted by Stantec, hydraulic issues involving the spillway conduits in both the upper and lower ponds have reportedly caused structural distress in the dikes surrounding the ponds. Repairs to the dikes were made to protect the dike slopes.

- Five decant weir spillway structures exceed 30 feet in height.
- 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

- Replace tall spillway structures constructed of push together pipe with short stop-log structures, seamless conduit with anti seepage measures.
- It is recommended a conduit inventory be conducted on all by-product disposal facilities. If inactive or improperly abandoned pipes are discovered, an abandonment plan should be developed and implemented.
- It is recommended that an Operations and Maintenance Plan and an Emergency Action 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 maintained and established.

### 8.2. Maintenance Recommendations

- Seed and mulch bare areas.
- Repair erosion and rutting on exterior slopes.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.
- Maintain minimum freeboard on all dikes.
- Maintain designed interior slope grading.



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Main Ash Pond A (MAPA)

## 1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes):	160 Acres	Maximum Height (toe to top of dike):	53 feet
Free Water Volume:	5,850 Acre-feet	Maximum Water Storage:	8,268 Acre-feet
Estimated CCB Storage:	5,850 acre-feet	Dike Length:	11,590 feet
Plant Discharge to Facility:	77.4 cfs	Current Pool Elevation:	<u>632.5 feet</u>

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## 2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips

TVA Staff Present: Stanley Bramlett, Stuart Harris

Field Assessment Dates: January 14, 2009 and January 15, 2009.

Weather/Site Conditions: Sunny, Cold

Deleted: Steve Bramlett

## 3. History/Description of Usage

History and Operation: Commissioned in 1975. Contains sluiced material from Units 1 through 6.

Past Failures/Releases: Based on available data, none were identified.

## 4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan: Based on available data, none were identified.

Operations Manual: A coal combustion products operations manual is available for the Widows Creek Fossil Plant covering active facilities.

TVA Maintenance: Based on available data, none were identified.

TVA Inspections: FY1975 - FY2009

Problems Previously: Some floating fly ash near discharge structures.

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# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Main Ash Pond A (MAPA)

Identified During Past TVA  
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:	10W7426 R1, 10W7460 R1, 10W7461-1 R0
TVA As-Built Drawings:	Based on available data, none were identified.
TVA Construction Testing Records:	Based on available data, none were identified.
TVA Annual Inspection Reports:	FY1975 - FY2009
Geotechnical Data:	May 2004 (Mactec Report), February 2003 (Mactec Report) August 1980 (TVA Report).

## 6. Stantec Field Observations

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

### 6.1. Interior Slopes

Vegetation:	<del>Sparse vegetation observed.</del>	Deleted: Spares vegetation observed
Trees:	None observed.	
Wave Wash Protection:	None observed.	
Erosion:	<del>Observed minor surface erosion.</del>	Deleted: Observed minor surface erosion present
Instabilities:	None observed.	
Animal Burrows:	None observed.	
Freeboard:	<b>Measured:</b> 2 feet <b>Design:</b> 5 feet	
Encroachments:	None observed.	
Slope:	<b>Measured:</b> Vertical <b>Design:</b> 2H:1V	



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Main Ash Pond A (MAPA)**

6.2. Crest

Crest Cover and Slope: Gypsum and ash. Relatively level.

Erosion: None observed.

Alignment: Observed to be in good condition.

Settlement/Cracking: None observed.

Bare Spots/Rutting: ~~Rutting along entire crest, approximately 6 inch deep x 8 inch wide.~~

Deleted: Rutting along entire crest, approximately 5" deep x 8" wide

Width: **Measured:** 12 feet  
**Design:** 16 feet

6.3. Exterior Slopes

Vegetation: Dense brush and dense grass observed.

Trees: Dense woody growth with large trees on the west slope north of the Red Water River Pond observed.

Erosion: ~~None observed.~~

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Instabilities: None observed.

Uniform Appearance: Observed to be uniform.

Seepage: None observed.

Benches: Intermediate bench observed.

Foundations, Drains, Relief Wells, Instrumentation: None observed.

Animal Burrows: ~~Few observed.~~

Deleted: None observed

Slope: **Measured:** 2H:1V  
**Design:** 2H:1V

Height: **Measured:** 51  
**Design:** 66



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Main Ash Pond A (MAPA)**

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6.4. Spillway Weirs/Riser Inlets

Number: Five (5)  
Size, Type and Material: 4-foot diameter, reinforced concrete manholes.  
Height of Riser Inlets: 32 feet.  
Access: Accessible.  
Joints: Reported open joints during inspection performed in 2007.  
Mis-Alignment: Reported damage during dredging operation.  
Closed/Abandoned Conduits: Pipe Inventory study is ongoing.

6.5. Outlet Pipes

Number: Five (5)  
Size, Type and Material: 36 inch steel.  
Headwall: 10 foot diameter skimmer.  
Joint Separations: Unable to be observed.  
Mis-Alignment: Unable to be observed.  
Closed/Abandoned Conduits: Pipe study ongoing.

7. Notable Observations and Concerns

- 2007 seepage on east dike observed.
- Seepage on northeast dike south of the bridge accessing the gypsum stack observed.
- Five riser inlets exceed 30 feet in height.
- Low overhead power transmission line clearance observed in areas where dipping and stacking ash occurs.
- 2008 erosion noted on field inspection at the northeast dike between the bridge accessing Widows Creek.

- The practice of using push together pipe for spillway conduits is a concern.
- Reports of structural distress at weirs and conduits.

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# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Main Ash Pond A (MAPA)

- Existing and abandoned conduits through embankments.
- Steep interior slopes.
- Exterior slopes are heavily vegetated with some woody growth.
- The absence of an Emergency Action Plan, Operation and Maintenance Plan, as-built drawings and construction testing records is a concern.
- The current spillway structure is believed to be constructed of push-together RCP riser sections. The use of push-together risers presents a concern for leakage between the joints.

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## 8. Recommendations

### 8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended that Main Ash Pond A undergo a Geotechnical Study to evaluate the seepage, slope stability, ongoing rim-ditching stacking plan, and future dry stack landfill. 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.
- It is recommended that a conduit inventory study be conducted on all by-product disposal facilities. If inactive or improperly abandoned pipes are discarded, an abandonment plan should be developed and implemented.
- It is recommended the current practices of Construction Quality Assurance be reviewed and revised. It is recommended a more stringent CQA plan under the direct supervision of a licensed engineer in the State of Alabama begin immediately Active Ash Pond.
- It is recommended that an Operations and Maintenance Plan, and an Emergency Action 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 maintained be established.
- Due to the limited construction monuments at this facility, it is recommended that additional surveyed monuments be established at selected locations. These monuments should be surveyed annually as a minimum.

Deleted: The practice using push together pipe for spillway conduits¶  
<#>Reports of structural distress at weirs and conduits ¶  
<#>Existing and Abandoned conduits through embankments ¶  
<#>Steep interior slopes¶  
<#>Surface erosion on the exterior slopes¶  
<#>Rutting on the exterior slopes¶  
<#>Seepage through the embankments – cattails and grass growth are present near the toe¶  
<#>Operating under the design freeboard of 5 feet ¶  
Exterior slopes are heavily vegetated with some woody growth.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Main Ash Pond A (MAPA)**

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8.2. Maintenance Recommendations

- Remove woody growth from exterior slopes.
- Seed and mulch bare areas.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.
- Achieve design freeboard minimum of 5 feet on all dikes.
- Maintain designed interior slope grading.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Old Scrubber Sludge Pond Dredge Cell (DC)**

1. General Facility Information

Facility Status:	Inactive	NID Identification:	N/A
Surface Area (inside dikes):	116 Acres	Maximum Height (toe to top of dike):	53 feet
Free Water Volume:	Less than 50 Acre-feet	Maximum Water Storage:	6,070 Acre-feet
Estimated CCB Storage:	5,228 Acre-feet	Dike Length:	8,622 feet
Plant Discharge to Facility:	0 cfs	Current Pool Elevation:	641.0 feet

2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips  
 TVA Staff Present: Stanley Bramlett  
 Field Assessment Dates: January 14, 2009 and January 15, 2009.  
 Weather/Site Conditions: Sunny, Cold.

3. History/Description of Usage

History and Operation: Commissioned in 1973. Contains dredge material from the active ash pond.  
 Past Failures/Releases: Based on available data, none were identified.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan: Based on available data, none were identified.  
 Operations Manual: A coal combustion products operations manual is available for the Widows Creek Fossil Plant covering active facilities.  
 TVA Maintenance: Based on available data, none were identified.  
 TVA Inspections: FY1973 - FY2009



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Old Scrubber Sludge Pond Dredge Cell (DC)**

Problems Previously Identified During Past TVA Inspections:	Interior slopes have no vegetation, erosion present on the interior slopes, exterior slopes have sparse vegetation, erosion is present on exterior slopes, heavy vegetation in perimeter ditch.
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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:	10W7420, 10E200
TVA As-Built Drawings:	Based on available data, none were identified.
TVA Construction Testing Records:	Based on available data, none were identified.
TVA Annual Inspection Reports:	FY1973 – FY2009
Geotechnical Data:	May 2004 (Mactec), February 2003 (Mactec), August 1980 (TVA).

6. Stantec Field Observations

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

6.1. Interior Slopes

Vegetation:	None observed.
Trees:	None observed.
Wave Wash Protection:	None observed.
Erosion:	Heavy erosion along the perimeter of the interior slope observed.
Instabilities:	Observed the interior slopes to be steep with minor sloughing.
Animal Burrows:	None observed.
Freeboard:	<b>Measured:</b> 1.5 feet <b>Design:</b> 4.0 feet



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Old Scrubber Sludge Pond Dredge Cell (DC)**

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Encroachments: None observed.

Slope: **Measured:** 1.5H:1V  
**Design:** 2H:1V

6.2. Crest

Crest Cover and Slope: Gypsum and ash.

Erosion: None observed.

Alignment: Observed to be in good condition.

Settlement/Cracking: None observed.

Bare Spots/Rutting: Observed rutting where vehicles travel.

Width: **Measured:** 12 feet  
**Design:** 16 feet

6.3. Exterior Slopes

Vegetation: Heavy vegetation with some bare spots observed.

Trees: Some woody growth observed.

Erosion: Observed throughout slope on northeast corner.

Instabilities: None observed.

Uniform Appearance: Observed to be uniform.

Seepage: Red water observed at the toe of the eastern slope.

Benches: Intermediate.

Foundations, Drains, Relief Wells, Instrumentation: None observed. The status of planned subdrainage system was unknown at the time of this report.

Animal Burrows: None observed.

Slope: **Measured:** 2H:1V  
**Design:** 2H:1V

Height: **Measured:** 50 feet  
**Design:** 66 feet



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Old Scrubber Sludge Pond Dredge Cell (DC)**

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6.4. Spillway Weirs/Riser Inlets

Number:	Two (2)
Size, Type and Material:	Fiberglass stop log riser structures 4 feet wide.
Height of Riser Inlets:	20 foot planned.
Access:	Accessible.
Joints:	Unable to observe.
Mis-Alignment:	Unable to observe.
Closed/Abandoned Conduits:	N/A

6.5. Outlet Pipes

Number:	Two (2)
Size, Type and Material:	18 inch diameter steel pipe, "equalization", temporary.
Headwall:	20 feet fiberglass riser structure, 4 feet wide
Joint Separations:	None observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	Pipe inventory study is ongoing.

7. Notable Observations and Concerns

- Existing and abandoned conduits through embankments.
- Steep interior slopes.
- Rutting on the southwest exterior slopes.
- Seepage through the embankments - cattails and grass growth are present near the toe.
- Operating with minimum freeboard.
- Exterior slopes are heavily vegetated with some woody growth.
- Along the northeast perimeter of the DC, the exterior slope surface is saturated and soft in at least two areas. Each area extends from the top of the first tier bench to the toe (approximately fifty feet vertically). The areas are bare ground, void of vegetation presumably due to the unbalanced pH of the water. The source of water



## TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Old Scrubber Sludge Pond Dredge Cell (DC)

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appears to be stormwater runoff ponding in a roadside ditch located on the first tier bench. The observations at the Ash Dredge Cell also included evidence like standing water in ditches, sediment filled ditches, clogging toe drain outlets, rutting and erosion, loss of soil cover and the exposure of ash and gypsum within the perimeter ditches.

- Known seepage at the toe of the slope.
- Abandoned equalizing pipes between the Old Scrubber Sludge Pond (OSSP) and raised dredge cells.
- 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 Dredge Cell undergo further Geotechnical Evaluation to evaluate the seepage, slope stability, and the closure 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 outlet adequacy relative to stormwater.
- It is recommended the current practices of Construction Quality Assurance be reviewed and revised. It is recommended a more stringent CQA plan under the direct supervision of a licensed engineer in the State of Alabama begin immediately.
- It is recommended that an Operations and Maintenance Plan, and an Emergency Action Plan be prepared 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.
- Due to the limited construction monuments at this facility, it is recommended that additional surveyed monuments be established at selected locations. These monuments should be surveyed annually as a minimum.
- Abandoned pipes should be evaluated to determine their status. If it is determined that any of these pipes are inactive or improperly abandoned, then an abandonment plan should be developed and implemented.
- It is recommended conduit inventory study be conducted on all by-product disposal facilities. If inactive or improperly abandoned pipes are discovered, an abandonment plan should be developed and implemented.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Old Scrubber Sludge Pond Dredge Cell (DC)**

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8.2. Maintenance Recommendations

- Maintain minimum design freeboard on all dikes.
- Maintain design interior slope grading.
- Monitor seepage through the embankment slopes.
- Remove woody growth from exterior slopes.
- Seed and mulch bare areas.
- Cut and maintain heavy/tall cattail and grass growth on exterior slopes to permit better assessment.
- Repair erosion and rutting on exterior slopes.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Pump Pond (PP)**

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes)	0.40 acres	Maximum Height (toe to top of dike):	21 feet
Free Water Volume:	3.75 Acre-feet	Maximum Water Storage:	5.25 Acre-feet
Estimated CCB Storage:	N/A	Dike Length:	425 feet
Plant Discharge to Facility:	77.4 cfs Normal operating conditions, recycle 100% of inflow back to plant)	Current Pool Elevation:	601.7 feet

2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips  
 TVA Staff Present: Stanley Bramlett  
 Field Assessment Dates: January 14, 2009 and January 15, 2009.  
 Weather/Site Conditions: Sunny, Cold.

3. History/Description of Usage

History and Operation: Commissioned in 1986. Pumps to the Condenser Cooling Water Intake with a portion being pumped to the wet gypsum system or overflows into the 001 outfall into Guntersville Reservoir.  
 Past Failures/Releases: Based on available data, none were identified.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan: Based on available data, none were identified.  
 Operations Manual: A coal combustion products operations manual is available for the Widows Creek Fossil Plant covering active facilities.



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Pump Pond (PP)

TVA Maintenance: Based on available data, none were identified.  
TVA Inspections: FY1986 - FY2009  
Problems Previously Identified During Past TVA Inspections: Seepage in 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: 10W234-1  
TVA As-Built Drawings: Based on available data, none were identified.  
TVA Construction Testing Records: Based on available data, none were identified.  
TVA Annual Inspection Reports: FY1986 - FY2009  
Geotechnical Data: Based on available data, none were identified.

## 6. Stantec Field Observations

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

### 6.1. Interior Slopes

Vegetation: Sparse brush observed.  
Trees: Woody growth observed on the north and east slopes.  
Wave Wash Protection: Vegetated slopes.  
Erosion: Observed on the west slope, approximately 4 inches to 12 inches wide by 6 inches to 8 inches deep by 12 feet long.  
Instabilities: None observed.  
Animal Burrows: None observed.  
Freeboard: **Measured:** 3 feet



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Pump Pond (PP)**

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**Design:** 5 feet





# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Pump Pond (PP)

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## 6.4. Spillway Weirs/Riser Inlets

Number:	Five (5)
Size, Type and Material:	36 inch CMP.
Height of Riser Inlets:	Based on available data, the height is unknown.
Access:	Limited, only one inlet was accessible during assessment.
Joints:	Unable to be observed.
Mis-Alignment:	None observed.
Closed/Abandoned Conduits:	None observed.

## 6.5. Outlet Pipes

Number:	Three (3) plant recycling pumps with 3 intake pipes, 3 emergency spillway culverts.
Size, Type and Material:	Culverts observed to be 48 inch oval CMP.
Headwall:	Pump station structure.
Joint Separations:	None observed.
Mis-Alignment:	Culverts observed to be oval.
Closed/Abandoned Conduits:	None observed.

## 7. Notable Observations and Concerns

- 2007 seepage observed on east dike.
- 2008 three principal spillway conduits show evidence of distress.
- The Pump Pond is receiving pond from the Lower Stilling Pond. The Lower Stilling Pond spillways experience continuous surging problems.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Pump Pond (PP)**

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8. Recommendations

8.1. Phase 2 Engineering and Programmatic Recommendations

- It is recommended conduit inventory study be conducted on all by-product disposal facilities. If inactive or improperly abandoned areas are discovered, an abandonment plan should be developed and implemented.
- 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 maintained and established.
- A hydrologic and hydraulic analysis is recommended to address the Lower Stilling Pond surging problems.

8.2. Maintenance Recommendations

- Seed and mulch bare areas.
- Repair erosion and rutting on interior and exterior slopes.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.
- Maintain minimum freeboard on all dikes.
- Maintain design interior slope grading.



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Upper Stilling Pond (USP)**

1. General Facility Information

Facility Status:	Active	NID Identification:	N/A
Surface Area (inside dikes)	4 Acres	Maximum Height (toe to top of dike):	21 feet
Free Water Volume:	64 Acre-feet	Maximum Water Storage:	84 Acre-feet
Estimated CCB Storage:	N/A	Dike Length:	1,700 feet
Plant Discharge to Facility:	77.4 cfs	Current Pool Elevation:	611.5 feet

2. Site Visit Information

Stantec Assessment Team: Robert Fuller, Craig Barnett, Josh Bell and Ben Phillips  
 TVA Staff Present: Stanley Bramlett, Stuart Harris  
 Field Assessment Dates: January 14, 2009 and January 15, 2009.  
 Weather/Site Conditions: Sunny, Cold.

3. History/Description of Usage

History and Operation: Commissioned in 1986. The Upper Stilling Pond receives discharge from the Active Ash Pond and functions with the Lower Stilling Pond as one pond.  
 Past Failures/Releases: Based on available data, none were identified.

4. Owner's Operations, Maintenance and Inspection Information

Emergency Action Plan: Based on available data, none were identified.  
 Operations Manual: A coal combustion products operations manual is available for the Widows Creek Fossil Plant covering active facilities.  
 TVA Maintenance: Based on available data, none were identified.  
 TVA Inspections: FY1986 - FY2009



**TVA Disposal Facility Assessment**  
**Phase 1b Byproduct Disposal Facility Summary**  
**Widows Creek Fossil Plant (WCF)**  
**Upper Stilling Pond (USP)**

Problems Previously Identified During Past TVA Inspections:	Floating ash and accumulation of ash, interior slopes are heavily vegetated and contain woody growth. Discharge structures in good condition.
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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:	10W234-1
TVA As-Built Drawings:	Based on available data, none were identified.
TVA Construction Testing Records:	Based on available data, none were identified.
TVA Annual Inspection Reports:	FY1986 - FY2009
Geotechnical Data:	Based on available data, none were identified.

6. Stantec Field Observations

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

6.1. Interior Slopes

Vegetation:	Heavy vegetation observed.
Trees:	Dense woody growth observed.
Wave Wash Protection:	Vegetated slopes.
Erosion:	Northwest groin, the dike intersecting the dredge cell is composed of fly ash and is observed to be eroding.
Instabilities:	None observed.
Animal Burrows:	None observed.
Freeboard:	<b>Measured:</b> 3 feet <b>Design:</b> 5 feet



**TVA Disposal Facility Assessment**  
**Phase 1b Byproduct Disposal Facility Summary**  
**Widows Creek Fossil Plant (WCF)**  
**Upper Stilling Pond (USP)**

Encroachments: None observed.

Slope: **Measured:** 2H:1V  
**Design:** 2H:1V

6.2. Crest

Crest Cover and Slope: Crest is utilized for vehicle travel. The majority of the crest is composed of bottom ash and gravel. Areas that are not traveled on are heavily vegetated. Relatively level.

Erosion: None observed.

Alignment: Observed to be in good condition.

Settlement/Cracking: None observed.

Bare Spots/Rutting: Rutting observed where vehicles travel.

Width: **Measured:** 20 feet  
**Design:** Not shown on design drawings.

6.3. Exterior Slopes

Vegetation: Dense brush observed.

Trees: Sparse woody growth observed.

Erosion: None observed.

Instabilities: None observed.

Uniform Appearance: Observed to be uniform.

Seepage: None observed.

Benches: None observed.

Foundations, Drains, Relief Wells, Instrumentation: None observed.

Animal Burrows: None observed.

Slope: **Measured:** N/A  
**Design:** N/A

Height: **Measured:** 21 feet  
**Design:** 21 feet



**TVA Disposal Facility Assessment  
Phase 1b Byproduct Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Upper Stilling Pond (USP)**

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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

- Steep interior slopes.
- Based on the observations at the Upper and Lower Stilling Ponds for the Main Ash Pond, evidence of sloughing on the interior slopes of the lower stilling pond was observed. The two ponds operate in series with an internal divider dike serving both ponds. The divider dike is fifteen to twenty feet in height and about one hundred feet in length. Looking at the lower pond, the most impacted interior slope was the internal divider dike on the northwest side. A pile of approximately thirty plastic sand bags were stacked across a portion of the crest of the divider dike. Based on an exit interview with Stuart Harris of TVA conducted by Stantec, hydraulic surging issues involving the spillway conduits in both the upper and lower ponds have reportedly caused structural distress in the dikes surrounding the ponds. Repairs to the dikes were made to protect the dike slopes.



# TVA Disposal Facility Assessment Phase 1b Byproduct Disposal Facility Summary Widows Creek Fossil Plant (WCF) Upper Stilling Pond (USP)

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- 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 a conduit inventory be conducted on all by-product disposal facilities.
- It is recommended that an Operations and Maintenance Plan and an Emergency Action 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 maintained and established.
- A Hydrologic and Hydraulic Analysis is recommended to address the MAPA spillway surging problems.

### 8.2. Maintenance Recommendations

- Seed and mulch bare areas.
- Repair erosion and rutting on exterior slopes.
- Continue mowing of exterior slopes.
- Continue annual inspection program and execute recommendations.
- Maintain minimum freeboard on all dikes.
- Maintain designed interior slope grading.



Drawing Mark AADA Overview of abandoned Ash Disposal Area.





Drawing Mark BAS-1-4 Bottom Ash Stack exterior slope. Slip area on south side of the stack.



Drawing Mark BAS-1-4 Bottom Ash Stack exterior slope. Repaired slip area on south side of the stack.



BAS-1

Typical erosion of the exterior slope without adequate clay cover. Photo taken on south side of the stack.





Drawing Mark GS-1-1 Weir structure located on intermediate dike of Pond 3 and Pond 2B.



Drawing Mark GS-1-2 Interior slope on west dike of Pond 2B.



Drawing Mark GS-1-3 Overtopping of Pond 3 rim ditch.



GS-1 Woody growth on southern exterior dike (Typ.).



Drawing Mark GS-2

Runoff erosion on east exterior embankment of Gypsum Stack (Typ.).



Drawing Mark GS-3

Repaired slide area on west exterior embankment (Typ.).



Drawing Mark GS-4      Pond 2B spillway outlet eroding embankment at discharge point.



Drawing Mark GS-5      Spillway weir in Pond 2B.



Stantec

TVA Disposal Facility Assessment  
Phase 1 Coal Combustion Product Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack  
Photos, Concerns/Photo Log

Concerns/Photo Log		
Drawing Mark	Comments	Photo/GPS ID
GS-1-1	Weir structure located in intermediate dike of Pond 3 and Pond 2B.	HPIM0387
GS-1-2	Interior slope on west dike of Pond 2B.	DSCF2235
GS-1-3	Overtopping of Pond 3 rim ditch.	HPIM1393
GS-1	Woody growth on southern exterior dike (Typ.).	HPIM0295
GS-2	Runoff erosion on east exterior embankment of Gypsum Stack (Typ.).	HPIM0318
GS-3	Repaired slide area on west exterior embankment (Typ.).	HPIM0356
GS-4	Pond 2B spillway outlet eroding embankment at discharge point.	HPIM0356
GS-5	Spillway weir in Pond 2B.	HPIM0281



**TVA Disposal Facility Assessment  
Phase 1 Coal Combustion Product Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Gypsum Stack Stilling Pond  
Photos, Concerns/Photo Log**



Drawing Mark GSSP-1 Overview of the Gypsum Stack Stilling Pond.





Drawing Mark LSP-1-6 Erosion on eastern exterior slope.



Drawing Mark LSP-1 Runoff erosion on northwest interior slope.





**TVA Disposal Facility Assessment  
Phase 1 Coal Combustion Product Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Main Ash Pond A  
Photos, Concerns/Photo Log**

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Drawing Mark AP-1 Active Ash Pond interior slope.





Drawing Mark DC-1 Freeboard of Dredge Cell.



Drawing Mark DC-1 South dike vegetation on exterior slope, north of the Stilling Pond.



Drawing Mark DC-1 Rim ditch for the Dredge Cell.



Drawing Mark DC-1-5 North east perimeter of the Dredge Cell, soft saturated area.





Drawing Mark PP-1 Erosion on western interior slope.



Drawing Mark PP-2 Pump Pond Pump Stations and the deformation of the overflow pipes on the eastern dike.



Drawing Mark PP-3 Overview of Structure.



Drawing Mark PP-4 Overview of the outlet for the emergency spillway for the Pump Pond.





**TVA Disposal Facility Assessment  
Phase 1 Coal Combustion Product Disposal Facility Summary  
Widows Creek Fossil Plant (WCF)  
Upper Stilling Pond  
Photos, Concerns/Photo Log**



Drawing Mark USP-1 Overview of the Upper Stilling Pond.





**Coal Combustion Product Disposal Facility Assessment  
Phase 1 Document Review Form  
Widows Creek Fossil Plant (WCF)**

Date Reviewed	Reviewed by	File Name	File Type
3/20/2009	RDF	01 WCF 1976 Precipitator Foundations - Summary.pdf	PDF
3/20/2009	RDF	01 WCF 1978 Phase I Foundation Investigation For So2 Scrubber For Unit 7 - Geotek Project No. 78-531.pdf	PDF
3/20/2009	RDF	01 WCF 1978 Phase II Foundation Investigation For So2 Scrubber For Unit 7 - Geotek Project No. 78-531.pdf	PDF
3/20/2009	RDF	01 WCF 1981 Waste Disposal Area Dike Raising Soils Exploration & Testing En Des Soils Schedule No. 83.1.pdf	PDF
3/20/2009	RDF	01 WCF 1983 Dikes Raising.pdf	PDF
3/20/2009	RDF	01 WCF 1983 Forced Oxidation - Project Schedule Baseline.pdf	PDF
3/20/2009	RDF	01 WCF 1984 En Des Soil Sched 83.2.pdf	PDF
3/20/2009	RDF	01 WCF 1988 Landfill App To Adem.pdf	PDF
3/20/2009	RDF	01 WCF 1989 1990 Misc Notes & Sketches - Bedrock Variance Request.pdf	PDF
3/20/2009	RDF	01 WCF 2002 Misc Notes Clearance Meetings.pdf	PDF
3/20/2009	RDF	01 WCF 2005 Engineering Evaluation & Design Recommendations For Renovation Of Gypsum-Fly Ash Storage Facility.pdf	PDF
3/20/2009	RDF	01 WCF 2007 Scope Of Work - Raise Dredge Cell.pdf	PDF
3/20/2009	RDF	02 WCF 1976 Steam Plant Geologic Reports .pdf	PDF
3/20/2009	RDF	02 WCF 1981 Scrubber Sludge & Ash Pond Dikes Raising.pdf	PDF
3/20/2009	RDF	02 WCF 1981 Waste Disposal Area Dike Raising Soils Exploration & Testing En Des Soils Schedule No. 83.1.pdf	PDF
3/20/2009	RDF	02 WCF 1982 Top-Of-Rock Contour Map.pdf	PDF
3/20/2009	RDF	02 WCF 1984 Table Of Contents.pdf	PDF
3/20/2009	RDF	02 WCF 1989 Alabama Historical Commission Certifications For Colbert & Widows Creek.pdf	PDF
3/20/2009	RDF	02 WCF 1990 Scope Of Work - Cost Estimate.pdf	PDF
3/20/2009	RDF	02 WCF 2002 Dredge Cell I Calcs & Sketches.pdf	PDF
3/20/2009	RDF	02 WCF 2005 Engineering Evaluation & Design Recommendations For Renovation Of Gypsum-Fly Ash Storage Facility.pdf	PDF
3/20/2009	RDF	02 WCF 2008 Meetings.pdf	PDF
3/20/2009	RDF	02 WCF Appendix C - Pre-Construction Survey Of Mill Building (Color Photos).pdf	PDF
3/20/2009	RDF	03 WCF 1958 Steam Plant Geologic Reports 'Foundation Exploration For Unit 7'.pdf	PDF
3/20/2009	RDF	03 WCF 1981 Borrow Soils.pdf	PDF
3/20/2009	RDF	03 WCF 1981 Waste Disposal Area Dike Raising Soils Exploration & Testing Tables.pdf	PDF
3/20/2009	RDF	03 WCF 1982 Borrow Area Dike Raising.pdf	PDF
3/20/2009	RDF	03 WCF 1984 Discussion.pdf	PDF
3/20/2009	RDF	03 WCF 1989 Reference - Memo Loney To Downer - Cultural Resources Section.pdf	PDF
3/20/2009	RDF	03 WCF 1990 Junior Brendle Misc Notes.pdf	PDF
3/20/2009	RDF	03 WCF 2005 Field Exploration & Site Inspection.pdf	PDF
3/20/2009	RDF	03 WCF 2008 Rfp.pdf	PDF
3/20/2009	RDF	03 WCF Appendix C Continued.pdf	PDF
3/20/2009	RDF	03 WCF Step 1 Thru Step 3 - Raise Perimeter Dikes Around Original Pond.pdf	PDF
3/20/2009	RDF	04 WCF 1949 Steam Plant Geologic Reports 'Preliminary Geologic Investigations For The Central Area Steam Plant'.pdf	PDF
3/20/2009	RDF	04 WCF 1981 Controlled Earthfill.pdf	PDF
3/20/2009	RDF	04 WCF 1981 Waste Disposal Area Dike Raising Soils Exploration & Testing Drawings.pdf	PDF
3/20/2009	RDF	04 WCF 1982 Seismic Time Distance Graph.pdf	PDF



**Coal Combustion Product Disposal Facility Assessment  
Phase 1 Document Review Form  
Widows Creek Fossil Plant (WCF)**

Date Reviewed	Reviewed by	File Name	File Type
3/20/2009	RDF	04 WCF 1984 Data Summary Sheets.pdf	PDF
3/20/2009	RDF	04 WCF 1989 Cultural Resources Evaluation Note.pdf	PDF
3/20/2009	RDF	04 WCF 1990 Alabama Dep Of Environmental Management Permit To Operate Landfill & Letter Denying Request.pdf	PDF
3/20/2009	RDF	04 WCF 2001 Soil For Dike S Volume Check.pdf	PDF
3/20/2009	RDF	04 WCF 2005 Laboratory Materials Testing.pdf	PDF
3/20/2009	RDF	04 WCF 2008 Geosyntech.pdf	PDF
3/20/2009	RDF	05 Cof 1988 Landfill App To Adem.pdf	PDF
3/20/2009	RDF	05 WCF 1949-1958 Site Investigations.pdf	PDF
3/20/2009	RDF	05 WCF 1981 Uncontrolled Earthfill.pdf	PDF
3/20/2009	RDF	05 WCF 1981 Waste Disposal Area Dike Raising Soils Exploration & Testing Soil Profile.pdf	PDF
3/20/2009	RDF	05 WCF 1984 Attachment A.pdf	PDF
3/20/2009	RDF	05 WCF 1990 Misc Asbestos Disposal Notes.pdf	PDF
3/20/2009	RDF	05 WCF 2001 Misc Notes Ash Pond Dikes.pdf	PDF
3/20/2009	RDF	05 WCF 2005 Engineering Evaluation & Recommendations.pdf	PDF
3/20/2009	RDF	05 WCF 2008 Misc Corresp..pdf	PDF
3/20/2009	RDF	05 WCF Information Pertaining To The Scrubber Sludge Disposal Project.pdf	PDF
3/20/2009	RDF	06 WCF 1981 Fly Ash.pdf	PDF
3/20/2009	RDF	06 WCF 1981 Waste Disposal Area Dike Raising Soils Exploration & Testing Particle Size Analysis.pdf	PDF
3/20/2009	RDF	06 WCF 1982 Exploratory Agreement.pdf	PDF
3/20/2009	RDF	06 WCF 1984 Attachment B.pdf	PDF
3/20/2009	RDF	06 WCF 1988 1989 Memos - Construction Demolition Asbestos Waste Disposal Areas.pdf	PDF
3/20/2009	RDF	06 WCF 1990 Elevation Information.pdf	PDF
3/20/2009	RDF	06 WCF 2001 Gypsum Sluice Line Letter.pdf	PDF
3/20/2009	RDF	06 WCF 2005 Operating Guidelines For Gypsum Stacking Facility.pdf	PDF
3/20/2009	RDF	06 WCF 2007 Misc Calcs.pdf	PDF
3/20/2009	RDF	06 WCF Misc Drill Holes.pdf	PDF
3/20/2009	RDF	07 WCF 1972 Drawing - Core Drill Layout & Summary.pdf	PDF
3/20/2009	RDF	07 WCF 1981 Bottom Ash.pdf	PDF
3/20/2009	RDF	07 WCF 1981 Waste Disposal Area Dike - Particle Unconsolidated Undrained Triaxial Compression (Q) Test.pdf	PDF
3/20/2009	RDF	07 WCF 1982 Site Location Maps For Saturated Conductivity Tests.pdf	PDF
3/20/2009	RDF	07 WCF 1984 Attachment C.pdf	PDF
3/20/2009	RDF	07 WCF 1989 Environmental Decision Record.pdf	PDF
3/20/2009	RDF	07 WCF 1990 Memo From Ruffner To Cowser Authorization.pdf	PDF
3/20/2009	RDF	07 WCF 2001 Ash Disposal Project.pdf	PDF
3/20/2009	RDF	07 WCF 2005 Appendix 1 Mactec Report Of Geotechnical Drilling Gypsum Fly Ash Storage.pdf	PDF
3/20/2009	RDF	07 WCF 2007 2008 Estimates.pdf	PDF
3/20/2009	RDF	07 WCF Misc Info - Drill Holes - Maps - Etc.pdf	PDF
3/20/2009	RDF	08 WCF 1981 Ash Pond & Scrubber Dikes.pdf	PDF



**Coal Combustion Product Disposal Facility Assessment  
Phase 1 Document Review Form  
Widows Creek Fossil Plant (WCF)**

Date Reviewed	Reviewed by	File Name	File Type
3/20/2009	RDF	08 WCF 1981 Waste Disposal Area Dike - Misc Tests.pdf	PDF
3/20/2009	RDF	08 WCF 1981 Waste Disposal Area Dike - Particle Size Analysis.pdf	PDF
3/20/2009	RDF	08 WCF 1982 Borrow Area For The Scrubber Sludge Pond Dike Raising.pdf	PDF
3/20/2009	RDF	08 WCF 1984 Attachment D.pdf	PDF
3/20/2009	RDF	08 WCF 1988 Asbestos Landfills Memo - General Categorical Exclusion Conditions.pdf	PDF
3/20/2009	RDF	08 WCF 1990 Memo From Ruffner To Schmiebach Re Waste Permit Variance.pdf	PDF
3/20/2009	RDF	08 WCF 1990 Petition For Clearance To Adem.pdf	PDF
3/20/2009	RDF	08 WCF 2002 Ash - Mechanical Review.pdf	PDF
3/20/2009	RDF	08 WCF 2005 Appendix 2 Results Of Chemical Analyses Of Gypsum-Fly Ash Samples By Tva Central Lab Services.pdf	PDF
3/20/2009	RDF	08 WCF Misc Drawings (Back Cover).pdf	PDF
3/20/2009	RDF	09 WCF 1982 Meeting Notes - Ground Water Concerns.pdf	PDF
3/20/2009	RDF	09 WCF 1984 Attachment E.pdf	PDF
3/20/2009	RDF	09 WCF 1988 Environmental Review Checklist.pdf	PDF
3/20/2009	RDF	09 WCF 1996 Improvement Activity Summary - Long Term Ash Disposal Phase Iii - Phase Ii.pdf	PDF
3/20/2009	RDF	09 WCF 2001 Bottom Ash Base Misc.pdf	PDF
3/20/2009	RDF	09 WCF 2005 Appendix 3 Grain Size Distribution Curves For Widows Creek Gypsum-Fly Ash Deposits.pdf	PDF
3/20/2009	RDF	09 WCF Misc Notes & Drawings (Front Cover).pdf	PDF
3/20/2009	RDF	09 WCF Misc Sketches.pdf	PDF
3/20/2009	RDF	10 WCF 1982 Gsg - Workplan.pdf	PDF
3/20/2009	RDF	10 WCF 1984 Attachment F.pdf	PDF
3/20/2009	RDF	10 WCF 1988 Nepa Categorical Exclusion - Asbestos Demolition Waste Landfills.pdf	PDF
3/20/2009	RDF	10 WCF 1990 Misc Memos And Notes Re Permits With Adem.pdf	PDF
3/20/2009	RDF	10 WCF 2005 Appendix 4 Summary Of Permeability Test Results From Previous (1991) Study.pdf	PDF
3/20/2009	RDF	10 WCF Misc Notes & Drawings Cont (Front Cover).pdf	PDF
3/20/2009	RDF	10E214 R1.cal	CAL
3/20/2009	RDF	10E217-01 R1.cal	CAL
2/2/2009	TCB	10H232-1 Thru 9 30" Drainage Pipe From Gypsum Stack Stilling Pond (008 Outfall)	Hard Copy
2/5/2009	TCB	10N7425-Sht -Rev 0.cal	CAL
2/5/2009	TCB	10N7429-Sht -Rev 0.cal	CAL
2/5/2009	TCB	10N8223-Sht -Rev 0.cal	CAL
2/2/2009	TCB	10W219 Finished Grading And Paving Plan	Hard Copy
2/2/2009	TCB	10W219-1 Continuous Emissions Monitoring System Bldg Slab - Units 1-6 Location And Details	Hard Copy
1/26/2009	TCB	10W7420-Sht -Rev 13.dwg	DWG
1/26/2009	TCB	10W7420-Sht -Rev 14.dwg	DWG
1/26/2009	TCB	10W7420-Sht -Rev 15.dwg	DWG
1/26/2009	TCB	10W7420-Sht -Rev 16.dwg	DWG
2/2/2009	TCB	10W7428-1 Concrete And Misc. Steel Strainer Fdn And Hoist Outline And Reinforcement	Hard Copy
2/2/2009	TCB	10W7434-1 Thru 30 Series - Unit 7 Concrete Absorber Bldg Foundation System	Hard Copy



**Coal Combustion Product Disposal Facility Assessment  
Phase 1 Document Review Form  
Widows Creek Fossil Plant (WCF)**

Date Reviewed	Reviewed by	File Name	File Type
2/2/2009	TCB	10W7435-1 Thru 9 Series - Unit 7 Concrete Absorber Bldg Foundation System	Hard Copy
2/2/2009	TCB	10W7436-1 Thru 2 Series - Unit 7 Concrete Absorber Bldg Foundation System	Hard Copy
2/2/2009	TCB	10W7440-1 Thru 9 Series - Unit 7 Concrete Absorber Bldg Foundation System	Hard Copy
2/2/2009	TCB	10W7441-1 Unit 7 Concrete Ball Mill Sump, Outline And Reinf Sections, Details	Hard Copy
2/2/2009	TCB	10W7448-1 Unit 7 Concrete Absorber Bldg Electrical Conduit Duct Bank Outline And Reinf	Hard Copy
2/2/2009	TCB	10W7455-1 - Unit 7 Concrete Ball Mill And Absorber Bldg'S Existing And Proposed	Hard Copy
2/2/2009	TCB	10W7455-10 Thru 14 Series - Unit 7 Concrete Ball Mill And Absorber Bldg'S Existing And Proposed	Hard Copy
2/2/2009	TCB	10W7471 Concrete Sbs Area Transformer Foundation Plan And Sections	Hard Copy
2/2/2009	TCB	10W7550-149 Flow Diagram Effluent Bleed And Sump Piping System	Hard Copy
3/20/2009	RDF	11 WCF 1984 Attachment G.pdf	PDF
3/20/2009	RDF	11 WCF 1990 Letter (With Attachment) From Lance To Bittner.pdf	PDF
3/20/2009	RDF	11 WCF 2005 Appendix 5 Design Slope Geometry & Stability Analysis From 1991 Engineering Evaluation.pdf	PDF
3/20/2009	RDF	11 WCF Misc Notes.pdf	PDF
3/20/2009	RDF	12 WCF 1984 Attachment H.pdf	PDF
3/20/2009	RDF	12 WCF 1989 Asbestos - Demolition Solid Waste Disposal Plan By Maps & Survey Dep.pdf	PDF
3/20/2009	RDF	12 WCF Request To Do Work & Meeting.pdf	PDF
3/20/2009	RDF	13 WCF 1979 Soils Exploration And Testing - En Des Soils Schedule No 83.1 (85.1).pdf	PDF
3/20/2009	RDF	13 WCF 1990 More Misc Notes & Info.pdf	PDF
3/20/2009	RDF	14 WCF 1989 Imput For Permit Application.pdf	PDF
3/20/2009	RDF	14 WCF 1989 Permit Application Solid Waste Disposal Facility Adem.pdf	PDF
3/20/2009	RDF	14 WCF Drawing Proposed Phase I & li Disposal Areas.pdf	PDF
3/20/2009	RDF	15 WCF 1981 Soils Exploration And Testing - En Des Soils Schedule No 85.1 (83.1).pdf	PDF
3/20/2009	RDF	15 WCF 1989 Historical Commission Clearance From Graham To Lance About WCF & Col.pdf	PDF
3/20/2009	RDF	16 WCF Bellefonte Section Use For Projection To Widows Creek.pdf	PDF
3/20/2009	RDF	17 WCF 1989 Law Engineering Drilling Soil Sampling Soil Testing & Monitoring Well Instal Services.pdf	PDF
3/20/2009	RDF	17 WCF Misc Maps & Summary Of Core Drilling.pdf	PDF
2/2/2009	TCB	17W7450-1 Mechanical Scrubber System Slurry Piping	Hard Copy
2/2/2009	TCB	17W7450-2 Mechanical Scrubber System Slurry Piping	Hard Copy
2/2/2009	TCB	17W7450-3 Mechanical Scrubber System Slurry Piping	Hard Copy
3/20/2009	RDF	18 WCF 1984 Assessment Of Potential Effects Of Pond On Ground Water We28-4-34-101.pdf	PDF
3/20/2009	RDF	18 WCF Scrubber Sludge Pond Dike Raising.pdf	PDF
3/20/2009	RDF	19 WCF 1989 Request For Approval Payment Of Invoice.pdf	PDF
3/20/2009	RDF	20 WCF 1989 Schedule.pdf	PDF
3/20/2009	RDF	21 WCF Alternatives For Asbestos Demo Waste Disposal.pdf	PDF
3/20/2009	RDF	22 WCF 1989 Soil Profile.pdf	PDF
3/20/2009	RDF	23 WCF 1989 Top Of Rock Contour Map.pdf	PDF
3/20/2009	RDF	24 WCF 1989 Former Borrow Area.pdf	PDF
3/20/2009	RDF	25 WCF 1989 Misc Notes & Info.pdf	PDF



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Date Reviewed	Reviewed by	File Name	File Type
3/20/2009	RDF	26 WCF 1989 Groundwater Assessment.pdf	PDF
3/20/2009	RDF	26 WCF 1989 Groundwatersampling Well Depths Table Elevations & Subsoil Stratum Samples At Plant L.pdf	PDF
3/20/2009	RDF	28 WCF 1988 Store Summary Data.pdf	PDF
3/20/2009	RDF	29 WCF 1989 Environmental Status Report.pdf	PDF
3/20/2009	RDF	30 WCF 1988 New Adem Permit Application Form.pdf	PDF
3/20/2009	RDF	31 WCF 1990 Solid Waste Permit Application Rev 1.pdf	PDF
3/20/2009	RDF	32 WCF Misc Notes Maps Letters.pdf	PDF
3/20/2009	RDF	33 WCF Review Practice Of Landfilling.pdf	PDF
3/20/2009	RDF	45N546 R14.cal	CAL
3/20/2009	RDF	45N7502 R16.cal	CAL
3/20/2009	RDF	45N7562-1 R4.cal	CAL
3/20/2009	RDF	45N7568-2 R7.cal	CAL
3/20/2009	RDF	45N7583 R7.cal	CAL
3/20/2009	RDF	45N7584 R6.cal	CAL
3/20/2009	RDF	45N7585 R10.cal	CAL
3/20/2009	RDF	45N7587 R9.cal	CAL
3/20/2009	RDF	45N8515 R3.cal	CAL
3/20/2009	RDF	45N8516 R3.cal	CAL
3/20/2009	RDF	461 K 529-3 R1.cal	CAL
3/20/2009	RDF	461 K 529-7 R1.cal	CAL
3/20/2009	RDF	55N651 R18.cal	CAL
3/20/2009	RDF	55N7666 R9.cal	CAL
3/20/2009	RDF	55N7668 R6.cal	CAL
2/5/2009	TCB	61816Uc.dwg	DWG
3/20/2009	RDF	90-059 Figure 10.cal	CAL
3/20/2009	RDF	90-059 Figure 11.cal	CAL
3/20/2009	RDF	90-059 Figure 12.cal	CAL
3/20/2009	RDF	90-059 Figure 13.cal	CAL
3/20/2009	RDF	90-059 Figure 14.cal	CAL
3/20/2009	RDF	90-059 Figure 15.cal	CAL
3/20/2009	RDF	90-059 Figure 16.cal	CAL
3/20/2009	RDF	90-059 Figure 17.cal	CAL
3/20/2009	RDF	90-059 Figure 3 .cal	CAL
3/20/2009	RDF	90-059 Figure 4.cal	CAL
3/20/2009	RDF	90-059 Figure 5.cal	CAL
3/20/2009	RDF	90-059 Figure 6.cal	CAL
3/20/2009	RDF	90-059 Figure 7.cal	CAL
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3/20/2009	RDF	90-059 Figure 9.cal	CAL
1/15/2009	RDF	Ardaman And Associates Reports	PDF
1/15/2009	RDF	Conceptual Design Recommendations.pdf	PDF
1/13/2009	RDF	DCA-WCF-04-1016-001 (10W235-1)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-002 (10W235-2)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-003 (10W235-3)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-004 (10W235-4)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-005 (10W235-5)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-006 (10W235-6)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-007 (10W235-7)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-008 (10W235-8)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-009 (10W235-9)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-010 (10W235-10)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-011 (10W235-11)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-012 (10W235-12)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-013 (10W235-13)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-014 (10W235-14)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-015 (10W235-15)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-016 (10W235-16)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-017 (10W235-17)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-018 (10W235-18)	CAL
1/13/2009	RDF	DCA-WCF-04-1016-019 (10W235-19)	CAL
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1/12/2009	RDF	DCA-WCF-05-1077-003-R0 (10W7431-2-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-004-R0 (10W7431-3-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-005-R0 (10W7431-4-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-006-R0 (10W7431-5-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-007-R0 (10W7431-6-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-008-R0 (10W7431-7-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-009-R0 (10W7431-8-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-010-R0 (10W7431-9-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-011-R0 (10W7431-10-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-012-R0 (10W7431-11-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-013-R0 (10W7431-12-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-014-R0 (10W7431-13-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-015-R0 (10W7431-14-Sht ).tif	TIF
1/12/2009	RDF	DCA-WCF-05-1077-016-R0 (10W7431-15-Sht ).tif	TIF



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1/12/2009	RDF	DCA-WCF-05-1077-017-R0 (10W7431-16-Sht ).tif	TIF
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1/12/2009	RDF	DCA-WCF-05-1077-019-R0 (10W7431-18-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-026-R0 (10W235-9-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-027-R0 (10W235-13-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-028-R0 (10W235-13-Sht ).tif	TIF
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1/13/2009	RDF	DCA-WCF-05-1077-030-R0 (10W235-13-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-031-R0 (10W235-14-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-032-R0 (10W235-14-Sht ).tif	TIF
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1/13/2009	RDF	DCA-WCF-05-1077-034-R0 (10W235-3-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-035-R0 (10W235-4-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-036-R0 (10W235-5-Sht ).tif	TIF
1/13/2009	RDF	DCA-WCF-05-1077-037-R0 (10W235-6-Sht ).tif	TIF
3/20/2009	RDF	Doran Cove Quadrangle Alabama-Tennessee.tif	TIF
1/15/2009	RDF	Engineering Evaluation And Design Recommendations.pdf	PDF
1/15/2009	RDF	Evaluation Of Engineering Properties And Wet Stacking Disposal.pdf	PDF
1/15/2009	RDF	Interim Report On Evaluation Of Fgd Gypsum-Flyash - Widows Creek.pdf	PDF
1/22/2009	RDF	Jan 18 2009 FY2009 Draft WCF Ash Rp.pdf	PDF
3/20/2009	RDF	JOE Sketch - Long Range Ash Study Rr Loop - Cross-Sections For Dike Materials .cal	CAL
3/20/2009	RDF	JOE Sketch - Long Range Ash Study Rr Loop - Cross-Sections For Storage Volumes .cal	CAL
3/20/2009	RDF	JOE Sketch - Long Range Ash Study Rr Loop - Cross-Sections For Storage Volumes.cal	CAL
1/15/2009	RDF	Proposed Management Plan.pdf	PDF
1/15/2009	RDF	Proposed Underdrain System - Widows Creek.pdf	PDF
3/20/2009	RDF	Section 10W7465-01.cal	CAL
3/20/2009	RDF	Soil Excavation Map (Proposed).cal	CAL
3/20/2009	RDF	Std6E Std4E.cal	CAL
3/20/2009	RDF	Summary 2008 Wcf Ash Rp 2008.pdf	PDF
3/20/2009	RDF	WCF 1950 (Duplicate) Geology Of The Widows Creek Steam Plant Site By Kellber & Benziger.pdf	PDF
3/20/2009	RDF	WCF 1950 Geology Of The Widows Creek Steam Plant Site By Kellber & Benziger Mf 83.pdf	PDF
3/20/2009	RDF	WCF 1973 Experimental So2 Removal System & Waste Disposal Pond.pdf	PDF
3/20/2009	RDF	WCF 1975 Report Of Subsurface Investigation & Engineerig Eval Proposed Addition.pdf	PDF
3/20/2009	RDF	WCF 1975 Soils Investigation Wcs P-1 Letter To Montgomery.pdf	PDF
3/20/2009	RDF	WCF 1976 Well Logs.pdf	PDF
3/20/2009	RDF	WCF 1977 Foundation Investigations Unit 7 So2 Scrubber.pdf	PDF
3/20/2009	RDF	WCF 1980 1981 Waste Disposal Area Dike Rasing Soils Exploration & Testing - En Des Soils Schedule No 85.1.pdf	PDF
3/20/2009	RDF	WCF 1982 1983 Background Info.pdf	PDF



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Date Reviewed	Reviewed by	File Name	File Type
3/20/2009	RDF	WCF 1982 Environmental Impact Statement Environmental Evaluations Task 6- Water Wet Limestone Scrubber Research Project.pdf	PDF
3/20/2009	RDF	WCF 1982 Permeability Tests - Cost Estimate.pdf	PDF
3/20/2009	RDF	WCF 1983 Addendum 1 Evaluation Of Engineering Properties & Wet Stacking Disposal Fgd Gypsum - Fly Ash Waste.pdf	PDF
3/20/2009	RDF	WCF 1983 Ash Pond Dike Raising Soil Investigation.pdf	PDF
3/20/2009	RDF	WCF 1983 Chemistry Oxidation & Landfill Unit 8 Fgd System Phase Ii Testing Stone.pdf	PDF
3/20/2009	RDF	WCF 1983 Disposal Area For Forced Oxidation Scrubber Sludge Subsurface Investigation & Groundwater Monitoring - Soil Schedule 83.2.pdf	PDF
3/20/2009	RDF	WCF 1983 Evaluation Of Engineering Properties & Wet Stacking Disposal Fgd Gypsum - Fly Ash Waste.pdf	PDF
3/20/2009	RDF	WCF 1983 Evaluation Of Engineering Properties & Wet Stacking Disposal Fgd Gypsum - Fly Ash Waste.pdf	PDF
3/20/2009	RDF	WCF 1983 Memo Disposal Area For Forced Oxidation Scrubber Sludge Subsurface Investigation & Groundwater Monitoring - Soil.pdf	PDF
3/20/2009	RDF	WCF 1983 Rewetting Characteristics Of Gypsum & Fly Ash For Dry Stacking.pdf	PDF
3/20/2009	RDF	WCF 1984 1985 Ash Disposal Area.pdf	PDF
3/20/2009	RDF	WCF 1984 Analysis Of Soil Investigation Report Endes Soil Schedule 85.1.pdf	PDF
3/20/2009	RDF	WCF 1984 Ash Pond Dredge Cell Stability Analysis (Using Pcstabl5M).pdf	PDF
3/20/2009	RDF	WCF 1984 Background Information - Concrete Pipe.pdf	PDF
3/20/2009	RDF	WCF 1984 Background Information - Steel Pipe.pdf	PDF
3/20/2009	RDF	WCF 1984 Completion Of Dikes As Of 12-31-83.pdf	PDF
3/20/2009	RDF	WCF 1984 Completion Of Quantities Remaining 12-31-83.pdf	PDF
3/20/2009	RDF	WCF 1984 Computation Of Quantities.pdf	PDF
3/20/2009	RDF	WCF 1984 Forced Oxidation Wet Stack Disposal Of Gypsum Fly Ash Mixture Engineering Properties - En Des Soil Schedules 83.21.pdf	PDF
3/20/2009	RDF	WCF 1984 Invitation Bid & Acceptance Design & Construct A Slurry Trench Wall & Design Impervious Earth Cap.pdf	PDF
3/20/2009	RDF	WCF 1984 Listing Of Quantities Remaining 12-31-83.pdf	PDF
3/20/2009	RDF	WCF 1984 Raising Ash Disposal Area Dikes & Table Of Contents.pdf	PDF
3/20/2009	RDF	WCF 1984 Slurry Trench Info.pdf	PDF
3/20/2009	RDF	WCF 1984 Soil Design Parameters.pdf	PDF
3/20/2009	RDF	WCF 1984 Stability Analysis - End Of Construction.pdf	PDF
3/20/2009	RDF	WCF 1984 Stability Analysis - Summary.pdf	PDF
3/20/2009	RDF	WCF 1984 Stability Analysis Full Operating Condition.pdf	PDF
3/20/2009	RDF	WCF 1984 Stability Analysis Sudden Drawdown.pdf	PDF
3/20/2009	RDF	WCF 1984 Weak Area Investigation.pdf	PDF
3/20/2009	RDF	WCF 1985 Old (Abandoned) Ash Disposal Area Red Water Seepage Soils Investigation Soils Schedule 83.3.pdf	PDF
3/20/2009	RDF	WCF 1986 Additional References & Misc Notes.pdf	PDF
3/20/2009	RDF	WCF 1986 Development Of Reclamation Techniques For Scrubber Sludge Pond.pdf	PDF
3/20/2009	RDF	WCF 1986 Gravity Drain Pipe & Table Of Contents.pdf	PDF
3/20/2009	RDF	WCF 1986 Gypsum Sludge Pond.pdf	PDF
3/20/2009	RDF	WCF 1986 Units 7 & 8 - Fog Project.pdf	PDF
3/20/2009	RDF	WCF 1987 Coal Yard Drainage Basin Liner Sme-Soi-87-003 - Nuclear Engineering Branch.pdf	PDF
3/20/2009	RDF	WCF 1988 Design & Development Of Asbestos-Demolition Landfill .pdf	PDF
3/20/2009	RDF	WCF 1988-1990 Asbestos Waste Landfills.pdf	PDF



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3/20/2009	RDF	WCF 1990 Assessment Of Potential Effects On Groundwater Of The Phase Ii Fgd Pond.pdf	PDF
3/20/2009	RDF	WCF 1990 Civil Replace Lighting Off Oil Tanks - Plant A 910110A0006.pdf	PDF
3/20/2009	RDF	WCF 1990 Civil Transformer Yard Oil Spill Containment 910110A0007.pdf	PDF
3/20/2009	RDF	WCF 1990 Draft Rev 1 Assessment Of Petential Effects On Groundwater Of The Phase Ii Fgd Pond Wr28-1-34-107.pdf	PDF
3/20/2009	RDF	WCF 1990 Groundwater Assessment Wet Stacking Disposal Of Fgd Gypsum - Fly Ash Waste Phase Ii - Workplan.pdf	PDF
3/20/2009	RDF	WCF 1990 Rev 1 Assessment Of Potential Effects On Groundwater Of The Phase Ii Fgd Pond.pdf	PDF
3/20/2009	RDF	WCF 1991 Intermim Report On Evaluation Of Fgd Gypsum Flyash Wet-Stacking Disposal Facility.pdf	PDF
3/20/2009	RDF	WCF 1991 Preliminary Evaluation Misc Info.pdf	PDF
3/20/2009	RDF	WCF 1991 Preliminary Evaluation Proposed Underdrain System Gypsum Fly Ash Disposal Facility.pdf	PDF
3/20/2009	RDF	WCF 1991 Volume I Forced Oxidation Gypsum Dry Stacking - Phase Ii Geotechnical Investigation .pdf	PDF
3/20/2009	RDF	WCF 1991 Volume Ii Forced Oxidation Gypsum Dry Stacking - Phase Ii Geotechnical Investigation .pdf	PDF
3/20/2009	RDF	WCF 1994 Specifications For The Utilities Board Of The City Of Stevenson Sanitary Sewerage Improvements.pdf	PDF
3/20/2009	RDF	WCF 1996 Technical Report - Replacement Of Common Station Service Transformer Watthour Totalizer.pdf	PDF
3/20/2009	RDF	WCF 1996 Technical Report - Tripping Of Unit 8 By Generator Backup Impedance Relay.pdf	PDF
3/20/2009	RDF	WCF 1996 Unit 3 Refurbish Coal Silos - Project Id 423D.pdf	PDF
3/20/2009	RDF	WCF 1998 Annual Inspection Of Waste Disposal Areas.pdf	PDF
3/20/2009	RDF	WCF 2001 Crane Pad Unloading Areas - Report Of Geotechnical Exploration.pdf	PDF
3/20/2009	RDF	WCF 2001 Preliminary Engineering Scope.pdf	PDF
3/20/2009	RDF	WCF 2001 Selective Catalytic Reduction Units - Report Of Geotechnical Exploration - S&Me Project No. 1431-01-124.pdf	PDF
3/20/2009	RDF	WCF 2002 Parsons Hydraulic Modeling Associated With Active Ash Pond.pdf	PDF
3/20/2009	RDF	WCF 2002 Proposed Scr Addition - Report Of Geotechnical Exploration.pdf	PDF
3/20/2009	RDF	WCF 2003 Proposed Ash Pond Dike Raise - Report Of Geotechnical Exploration.pdf	PDF
3/20/2009	RDF	WCF 2003 Proposed Coal Handling Upgrades.pdf	PDF
3/20/2009	RDF	WCF 2004 Draft Dredge Cell Dike Report Of Cone Penetrometer Testing.pdf	PDF
3/20/2009	RDF	WCF 2004 Report Of Geotechnical Drilling Gypsum Fly Ash Storage Facility.pdf	PDF
3/20/2009	RDF	WCF 2004-06 Gypsum Stacking.pdf	PDF
3/20/2009	RDF	WCF 2005 Drawings Ash Stacking Plan.pdf	PDF
3/20/2009	RDF	WCF Ash Dike Raising Plan Of Borrow Investigation 604B1062R0.cal	CAL
1/29/2009	KA	WCF Ash Pond Insp FY00.pdf	PDF
1/29/2009	KA	WCF Ash Pond Insp FY01.pdf	PDF
1/29/2009	KA	WCF Ash Pond Insp FY02.pdf	PDF
1/29/2009	KA	WCF Ash Pond Insp FY03.pdf	PDF
1/29/2009	KA	WCF Ash Pond Insp FY04.pdf	PDF
1/29/2009	KA	WCF Ash Pond Insp FY05.pdf	PDF
1/29/2009	KA	WCF Ash Pond Insp FY06.pdf	PDF
1/29/2009	KA	WCF Ash Pond Insp FY07.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY67.pdf	PDF
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1/22/2009	RDF	WCF Ash Pond Insp FY69.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY70.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY71.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY72.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY73.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY74.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY75.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY76.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY77.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY78.pdf	PDF
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1/22/2009	RDF	WCF Ash Pond Insp FY83.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY84.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY85.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY86.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY87.pdf	PDF
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1/22/2009	RDF	WCF Ash Pond Insp FY91.pdf	PDF
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1/22/2009	RDF	WCF Ash Pond Insp FY96.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY97.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY98.pdf	PDF
1/22/2009	RDF	WCF Ash Pond Insp FY99.pdf	PDF
3/20/2009	RDF	WCF Conceptual Design Recommendations For Construction & Management Of The Fgd Gypsum- Fly Ash Waste Disposal Facility.pdf	PDF
3/20/2009	RDF	WCF Environmental Information.pdf	PDF
3/20/2009	RDF	WCF Geometry & Design Calculations (Misc).pdf	PDF
3/20/2009	RDF	WCF Misc Drawings & Notes.pdf	PDF
3/20/2009	RDF	WCF Production Manager Training.pdf	PDF
3/20/2009	RDF	WCF Red H2O Photos.pdf	PDF
3/20/2009	RDF	WCF Scrubber Sludge Borrow Top Of Rock Larger Print.cal	CAL
3/20/2009	RDF	WCF Scrubber Sludge Borrow Top Of Rock.cal	CAL
3/20/2009	RDF	WCF Scrubber Sludge Borrow.cal	CAL
3/20/2009	RDF	WCF Short Long Term Disposal Plan.pdf	PDF



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3/20/2009	RDF	WCF Site Plan & Hydraulic Design Calculation.pdf	PDF
2/5/2009	RDF	WCF Spillwayeval_March2007.pdf	PDF
3/20/2009	RDF	WCF Weir (Skimmer) Replacement Sketch.pdf	PDF
3/20/2009	RDF	WCF Weir (Skimmer) Replacement.pdf	PDF
3/20/2009	RDF	WCF Wet Stack Disposal Of Gypsum - Fly Ash Mixture - Engineering Properties.pdf	PDF
3/20/2009	RDF	WCF Wiring Diagram Main Relay Board Pnl 42 161 Kv Osc No. 2.pdf	PDF
3/20/2009	RDF	WCF Wiring Diagrams Turbo Generator Auxiliaries Schematic Diagrams - Sh 3 45N8680-3 R8.pdf	PDF
1/22/2009	RDF	WCF_Ash_Pond_Insp_FY08.pdf	PDF
2/2/2009	TCB	WCF-06-1118 (10W219-2) Concrete Stacks Cems Bldg Foundation Outline And Reinforcement	Hard Copy
2/3/2009	JTB	WCF-10E200-01-Sht-Rev 3.cal	CAL
2/3/2009	JTB	WCF--10E2001-01-Sht-Rev 5.cal	CAL
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2/3/2009	JTB	WCF-10H215-5-Sht -Rev 1.cal	CAL
1/27/2009	TCB	WCF-10N206-Sht -Rev 1.cal	CAL
1/27/2009	TCB	WCF-10N7400-Sht -Rev 5.cal	CAL
2/3/2009	JTB	WCF-10N7421-Rev 6.cal	CAL
2/3/2009	JTB	WCF-10N7422-Rev8.cal	CAL
1/27/2009	TCB	WCF-10N7424-Sht -Rev 1_Spillway.cal	CAL
2/3/2009	JTB	WCF-10N8221-Sht -Rev 7.cal	CAL
2/3/2009	JTB	WCF-10N8738-1-Sht -Rev 2.cal	CAL
2/3/2009	JTB	WCF-10N8738-3-Sht -Rev 1.cal	CAL
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1/27/2009	TCB	WCF-10W213-Sht -Rev 5.cal	CAL
2/3/2009	JTB	WCF-10W215-04-Sht-Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W215-1-Sht -Rev 2.cal	CAL
1/13/2009	RDF	WCF-10W215-27-Sht -Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W215-28-Sht -Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W215-29-Sht -Rev 1.cal	CAL



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Date Reviewed	Reviewed by	File Name	File Type
1/13/2009	RDF	WCF-10W215-2-Sht -Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W215-30-Sht -Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W215-34-Sht -Rev 0.cal	CAL
1/13/2009	RDF	WCF-10W215-35-Sht -Rev 0.cal	CAL
1/13/2009	RDF	WCF-10W215-3-Sht -Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W215-4-Sht -Rev 2.cal	CAL
1/13/2009	RDF	WCF-10W216-1-Sht -Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W216-2-Sht -Rev 1.cal	CAL
1/13/2009	RDF	WCF-10W216-3-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W234-1-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W234-2-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W234-3-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W234-4-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W234-5-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W234-6-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W234-7-Sht -Rev 0.cal	CAL
1/13/2009	RDF	WCF-10W235-17-Sht -Rev 0.cal	CAL
1/12/2009	RDF	WCF-10W7416-3-Sht -Rev 1.cal	CAL
1/12/2009	RDF	WCF-10W7416-4-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W7420-1-Sht -Rev 1.cal	CAL
2/3/2009	JTB	WCF-10W7420-1Sht-Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W7420-2-Sht -Rev 2.cal	CAL
1/26/2009	TCB	WCF-10W7420-3-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W7420-4-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W7420-5-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W7420-6-Sht -Rev 0.cal	CAL
2/3/2009	JTB	WCF-10W7420-Rev 14.cal	CAL
1/26/2009	TCB	WCF-10W7420-Sht -Rev 17.cal	CAL
2/5/2009	TCB	WCF-10W7420-Sht -Rev 17.cal	CAL
1/26/2009	TCB	WCF-10W7421-Sht -Rev 9.cal	CAL
1/26/2009	TCB	WCF-10W7422-Sht -Rev 11.cal	CAL
1/26/2009	TCB	WCF-10W7423-Sht -Rev 10.cal	CAL
1/26/2009	TCB	WCF-10W7426-Sht -Rev 1.cal	CAL
1/26/2009	TCB	WCF-10W7460-Sht -Rev 1.cal	CAL
1/26/2009	TCB	WCF-10W7461-1-Sht -Rev 0.cal	CAL
2/3/2009	JTB	WCF-10W7463-01-Sht-Rev 0.cal	CAL
2/3/2009	JTB	WCF-10W7463-02-Sht-Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7463-1-Sht -Rev 1.cal	CAL



**Coal Combustion Product Disposal Facility Assessment  
Phase 1 Document Review Form  
Widows Creek Fossil Plant (WCF)**

Date Reviewed	Reviewed by	File Name	File Type
1/27/2009	TCB	WCF-10W7463-2-Sht -Rev 1.cal	CAL
1/26/2009	TCB	WCF-10W7464-Sht -Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7465-1-Sht -Rev 5.cal	CAL
1/27/2009	TCB	WCF-10W7465-2-Sht -Rev 4.cal	CAL
1/27/2009	TCB	WCF-10W7465-3-Sht -Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7466-1-Sht -Rev 1.cal	CAL
2/3/2009	JTB	WCF-10W7466-1-Sht-Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7466-2-Sht -Rev 1.cal	CAL
2/3/2009	JTB	WCF-10W7466-2-Sht-Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7467-1-Sht -Rev 1.cal	CAL
1/27/2009	TCB	WCF-10W7467-2-Sht -Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7467-3-Sht -Rev 0.cal	CAL
1/26/2009	TCB	WCF-10W7468-Sht -Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7470-1-Sht -Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7470-2-Sht -Rev 0.cal	CAL
1/27/2009	TCB	WCF-10W7470-3-Sht -Rev 0.cal	CAL
1/26/2009	RDF	Widows Creek.doc	DOC
1/26/2009	RDF	Widows Creek.pdf	PDF
1/26/2009	RDF	Widows Creek.pdf (This Is An Aerial With Structure Locations And Top & Toe Of Dikes)	PDF
3/20/2009	RDF	Yard Ash Disposal Area Unit 7 & 8 Plan 10W7465-01 Rev 1.cal	CAL
3/20/2009	RDF	Yard Ash Disposal Area Unit 7 & 8 Plan 10W7465-01 Rev 3.cal	CAL
3/20/2009	RDF	Yard Ash Disposal Area Unit 7 & 8 Plan 10W7465-02 Rev 1.cal	CAL
3/20/2009	RDF	Yard Ash Disposal Area Unit 7 & 8 Plan 10W7465-02 Rev 4.cal	CAL