Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: Roxboro Power Plant	Date: 09/01/2009
Unit Name: FGD Flush Pond	Operator's Name: Progress Energy
Unit I.D.:	Hazard Potential Classification: High☐ Significant☒ Low☐
Inspector's Name: Grady Adkins, David Ray	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Regular *		18. Sloughing or bulging on slopes?		
2. Pool elevation (operator records)?	502.4		19. Major erosion or slope deterioration?		
3. Decant inlet elevation (operator records)?	501		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	503.5		Is water entering inlet, but not exiting outlet?		
5. Lowest dam crest elevation (operator records)?	506		Is water exiting outlet, but not entering inlet?		
6. If instrumentation is present, are readings recorded (operator records)?	X		Is water exiting outlet flowing clear?		
7. Is the embankment currently under construction?	X		21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?		
9. Trees growing on embankment? (If so, indicate largest diameter below)			At isolated points on embankment slopes?		
10. Cracks or scarps on crest?			At natural hillside in the embankment area?		
11. Is there significant settlement along the crest?			Over widespread areas?		
12. Are decant trashracks clear and in place?			From downstream foundation area?		
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?			"Boils" beneath stream or ponded water?		
14. Clogged spillways, groin or diversion ditches?			Around the outside of the decant pipe?		
15. Are spillway or ditch linings deteriorated?			22. Surface movements in valley bottom or on hillside?		
16. Are outlets of decant or underdrains blocked?			23. Water against downstream toe?		
17. Cracks or scarps on slopes?			24. Were Photos taken during the dam inspection?	X	

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

Inspection Issue #	Comments
9-24	Flush pond is under construction - being rebuilt after seepage and piping problems in February 2008. No water is impounded.
2-5	Elevations are new construction elevations.
8 -	Foundation will be existing or reworked fly ash and and rock fill. The Flush Pond is inside the perimeter of the Ash Pond.

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # NC-0003425 INSPECTOR Grady Adkins, David Ray

Date 09/01/2009

Impoundment Name FGD Flush Pond

Impoundment Company Progress Energy

EPA Region 4

State Agency (Field Office) Addresss NC Department of Environment and Natural Resources
Division of Water Quality, Raleigh, NC

Name of Impoundment FGD Flush Pond

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

New X Update _____

	Yes	No
Is impoundment currently under construction?	X	
Is water or ccw currently being pumped into the impoundment?		X

IMPOUNDMENT FUNCTION: Part of the bioreactor system to remove and store the metals from settling pond discharge.

Nearest Downstream Town : Name Homes on Hyco Lake

Distance from the impoundment Adjacent to the Roxboro Power Plant

Impoundment Location:
Longitude 36 Degrees 31 Minutes 16 Seconds
Latitude 78 Degrees 59 Minutes 55 Seconds
State NC County Person County

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

If So Which State Agency? NC Utilities Commission. In Jan 2010, NCDENR Dam Safety will regulate.

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

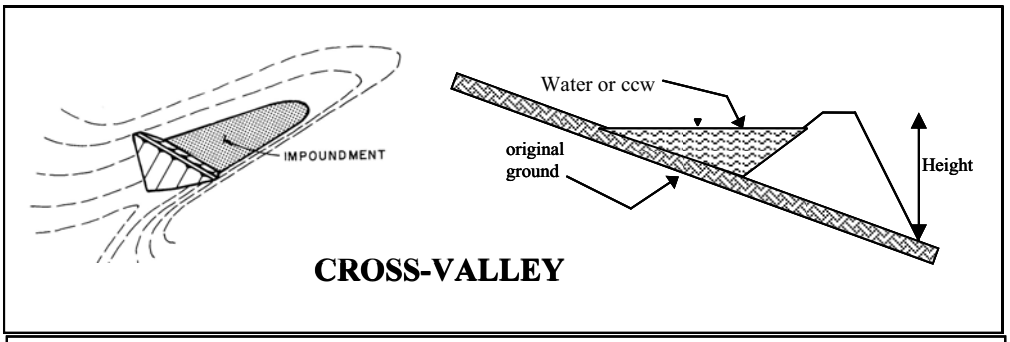
__X__ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

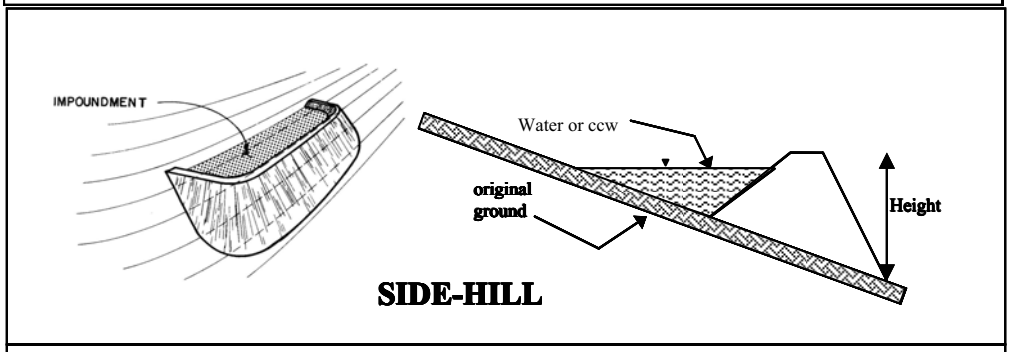
_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

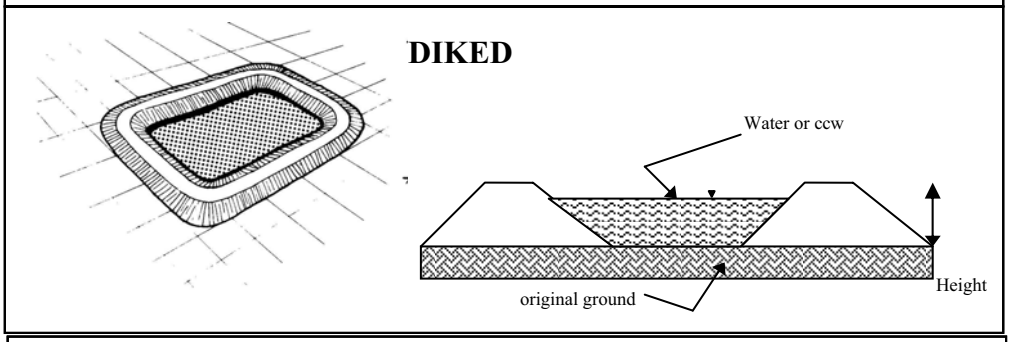
DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

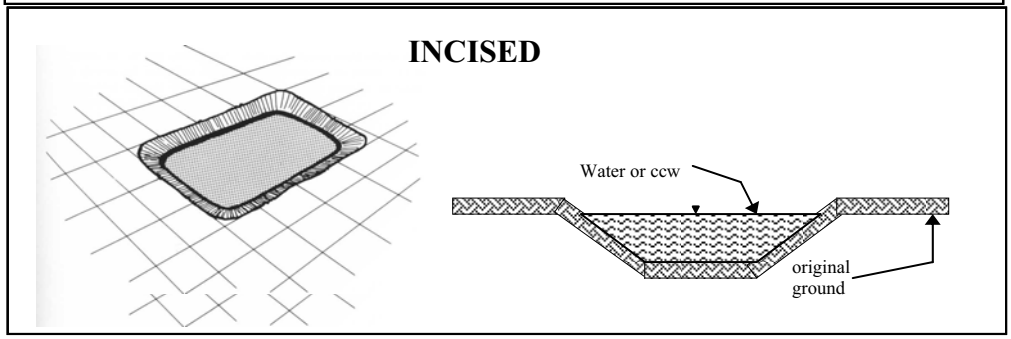
The bottom of this pond is at approximately the same elevation as the top of dam and dikes for the Ash Pond within which it is located. Failure of this structure could release directly or indirectly into the channels to the Cooling Reservoir. A release could disrupt power generation and cause environmental damage - A release would be contained within Lake Hyco.

CONFIGURATION:









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

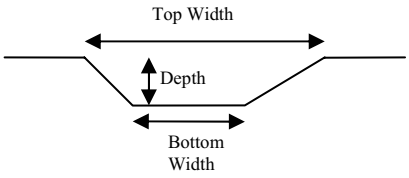
Embankment Height 37.5 feet
Pool Area 3.1 acres
Current Freeboard 4 feet

Embankment Material Ash with earth fill cap
Liner 60 MIL LLDPE
Liner Permeability very low

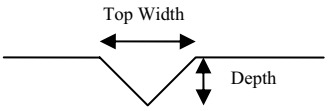
TYPE OF OUTLET (Mark all that apply)

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

TRAPEZOIDAL

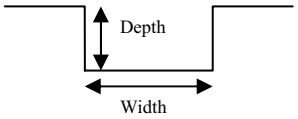


TRIANGULAR

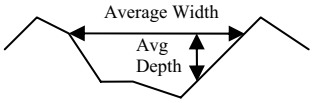


__3'__ depth
__35'__ bottom (or average) width
__83'__ top width

RECTANGULAR

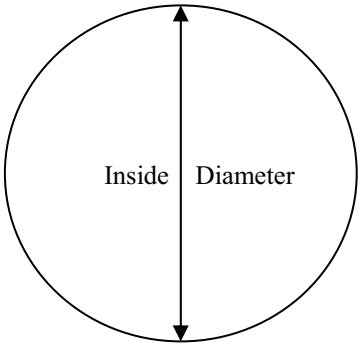


IRREGULAR



_____ **Outlet**

_____ inside diameter



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

Is water flowing through the outlet? YES _____ NO __X__

_____ **No Outlet**

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

The Impoundment was Designed By Worley Parsons

Has there ever been a failure at this site? YES X NO _____

If So When? February 2008

If So Please Describe :

In 2007, a wastewater treatment system, consisting of a gypsum settling pond, a bioreactor flush pond and a bioreactor was constructed for treatment of the blowdown steam from the FGD absorber units at the power plant. Pond water leakage was observed at various locations along the outer slopes of the settling and flush ponds.

In February 2008, a failure occurred at the Flush Pond in the form of a limited slope failure on both inner and outer slopes. The Flush Pond was dewatered and the operating level of the Settling Pond was lowered. Repairs to both ponds have been designed and approved. Construction is currently underway at the Flush Pond with repairs to the Settling Pond scheduled after completion of the work on the Flush Pond.

Has there ever been significant seepages at this site? YES ___X___ NO _____

If So When? _____

IF So Please Describe: _____

See previous sheet

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____ NO ___X___

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Repair work underway

ADDITIONAL INSPECTION QUESTIONS

ROXBORO POWER STATION – SEMORA, NC – FGD FLUSH POND

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

The embankment was constructed over a subgrade consisting of variable Bottom Ash, Fly Ash, and Rock Fill Materials.

Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

Copies of Construction Drawings and calculations for repair were provided by the Owner. There was no contact with the design Engineer of Record.

From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

The FGD Flush Pond experienced a failure in February 2008 that is described in a previous section. Repair work is under construction at the time of this inspection.

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: Roxboro Power Plant	Date: 09/01/2009
Unit Name: FGD Settling Pond	Operator's Name: Progress Energy
Unit I.D.:	Hazard Potential Classification: High☐ Significant☒ Low☐
Inspector's Name: Grady Adkins, David Ray	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Regular *		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	497 *		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	Pool Level		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	502.5		Is water entering inlet, but not exiting outlet?		X
5. Lowest dam crest elevation (operator records)?	506		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	X		Is water exiting outlet flowing clear?	X	
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?	X	
9. Trees growing on embankment? (If so, indicate largest diameter below)		X	At isolated points on embankment slopes?	X	
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?	X		From downstream foundation area?	X	
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?	X	
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?	X	
17. Cracks or scarps on slopes?		X	24. Were Photos taken during the dam inspection?	X	

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

Inspection Issue # Comments

* See attached Comment Sheet

Coal Combustion Waste Dam Inspection Checklist Form - Continuation
Roxboro Power Plant NC
Settling Pond

Comment Sheet

Inspection Issue No. and Comments

1. Operating Personnel ride the perimeter daily or weekly. Monthly report of piezometer readings and visual assessment. Limited field inspections by Independent Consultant annually since at least 2004. 5-Yr. Independent Consultant Inspection – latest in 2008.

2. Maximum operating level for pond is Elevation 497.7. Pond is now operating at a lower level awaiting repairs. Future maximum operating level is planned to be Elevation 498.2

3. Decant is floating skimmer that operates at pool elevation.

7. Embankment is scheduled for repair after construction of repairs to the Flush Pond are completed.

8. The Settling Pond was constructed within the perimeter of the Ash Pond. The embankment subgrade consists of variable bottom ash, fly ash, and rock fill materials.

17 &18. Repaired sloughs and scarps from seepage on outside face of Settling Pond were noted.

21. Seepage is exiting into a toe ditch downstream of Settling Pond and Flush Pond. Seepage is collected in sumps and pumped back into pond. One area with small (1-inch or less diameter) boils was observed in the toe ditch. Seepage outcrops (wet spots rather than running water) at isolated spots along dike slopes were noted.

23. The only water at the toe is in the seepage collection ditch along the base of the embankment.

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # NC-0003425 INSPECTOR Grady Adkins, David Ray

Date 09/01/2009

Impoundment Name FGD Settling Pond

Impoundment Company Progress Energy

EPA Region 4

State Agency (Field Office) Addresss NC Department of Environment and Natural Resources (NCDENR)
Division of Water Quality, Raleigh, NC

Name of Impoundment FGD Settling Pond

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

New _____ Update _____

	Yes	No
Is impoundment currently under construction?		X
Is water or ccw currently being pumped into the impoundment?	X	

IMPOUNDMENT FUNCTION: Store and thicken the FGD gypsum sludge

Nearest Downstream Town : Name Homes on Hyco Lake

Distance from the impoundment Adjacent to Roxboro Power Plant

Impoundment Location:
Longitude 36 Degrees 31 Minutes 16 Seconds
Latitude 78 Degrees 59 Minutes 55 Seconds
State NC County Person County

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

If So Which State Agency? NC Utilities Commission. In Jan 2010, NCDENR Dam Safety will regulate.

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

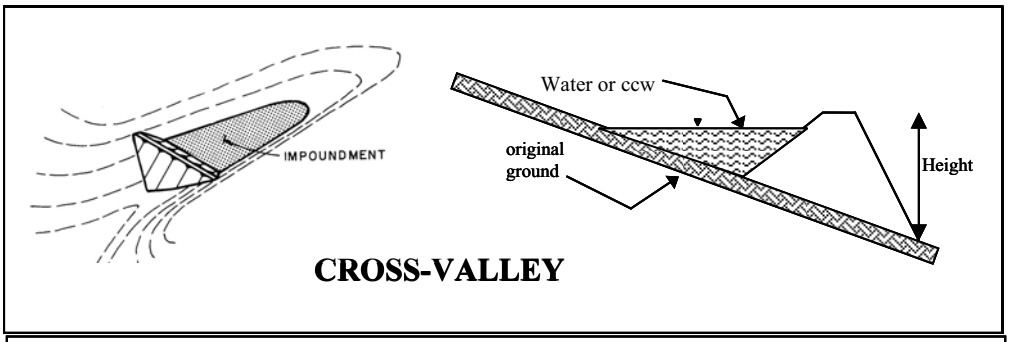
__X__ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

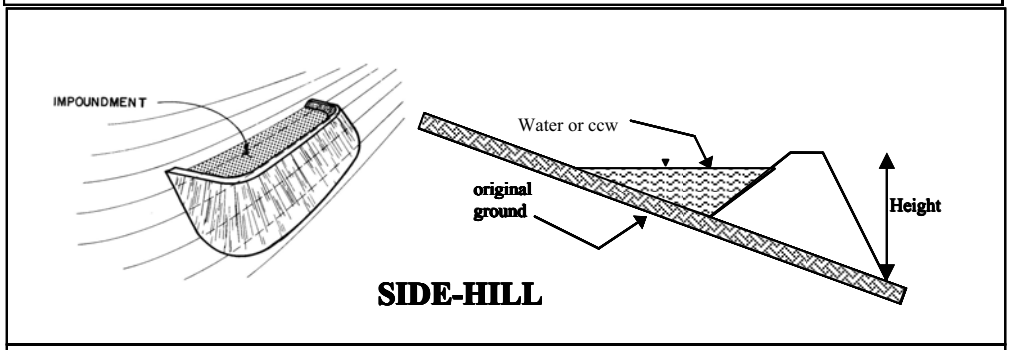
_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

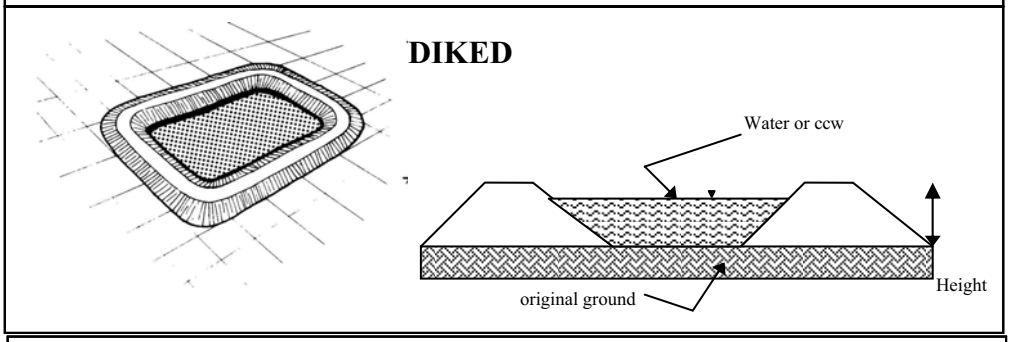
DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

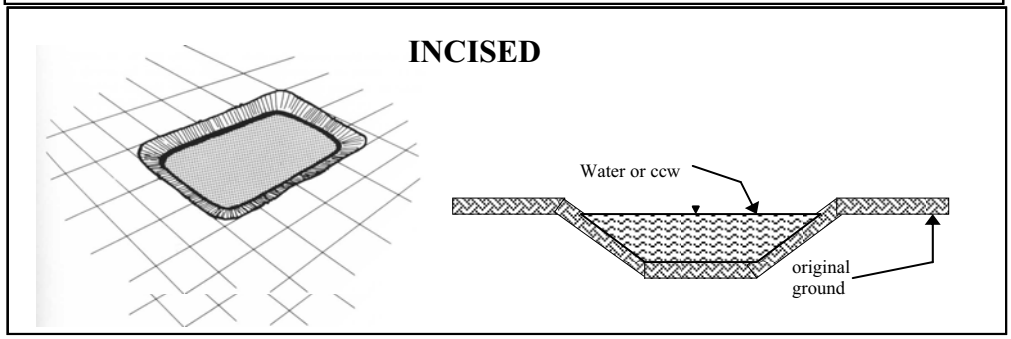
The bottom of this pond is at approximately the same elevation as the top of dam and dikes for the Ash Pond within which it is located. Failure of this structure could release directly into the channels to the Cooling Reservoir. A release could disrupt power generation and cause environmental damage - A release would be contained within Lake Hyco.

CONFIGURATION:









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

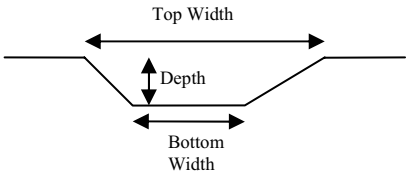
Embankment Height 38 feet
Pool Area 16.6 acres
Current Freeboard 8.3 feet

Embankment Material Ash with earth fill cap
Liner GCL
Liner Permeability unknown

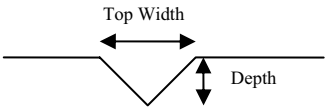
TYPE OF OUTLET (Mark all that apply)

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

TRAPEZOIDAL

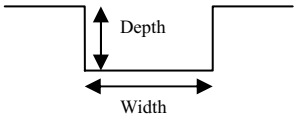


TRIANGULAR

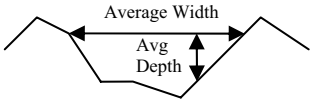


__3.5__ depth
__16.5__ bottom (or average) width
__186__ top width
_____

RECTANGULAR

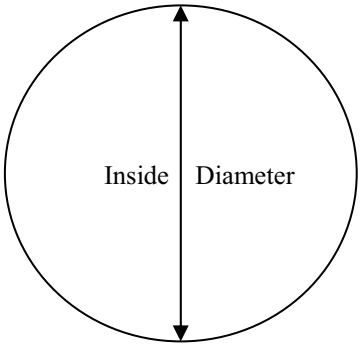


IRREGULAR



_____ **Outlet**

_____ inside diameter



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

_____

Is water flowing through the outlet? YES _____ NO __X__

_____ **No Outlet**

_____

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

The Impoundment was Designed By Brown and Root, Inc.
_____

Has there ever been a failure at this site? YES _____ NO ____X____

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES ___X___ NO _____

If So When? _____

IF So Please Describe: _____

Pond was constructed in 2007. Variable size seeps were observed along the outer slope of the northern and western embankments. A sinkhole developed in the embankment of the adjacent flush pond that is currently under construction. The settling pond will be modified to place a more impervious liner. Design has been approved - Construction will follow reconstruction of the Flush Pond.

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES ___x___ NO _____

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Operating level has been lowered following seepage at this embankment and sinkhole at Flush Pond.

ADDITIONAL INSPECTION QUESTIONS

ROXBORO POWER STATION – SEMORA, NC – FGD SETTLING POND

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

The embankment was constructed over a subgrade consisting of variable Bottom Ash, Fly Ash, and Rock Fill Materials.

Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

Copies of Construction Drawings and calculations for repair were provided by the Owner. There was no contact with the design Engineer of Record.

From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

The FGD Settling Pond experienced variable amounts of seepage at spots along the northern and western sides of the ponds not long after it was put in service in 2007. In response to the seepage problems at the Flush Pond, the water level was lowered and a repair plan developed. Spot repairs were made at several locations. Final repair work will follow completion of repairs to the Flush Pond.

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name: Roxboro Power Plant	Date: 09/01/2009
Unit Name: West Ash Pond Dam & Dikes 1, 2,,& 4	Operator's Name: Progress Energy
Unit I.D.:	Hazard Potential Classification: High☐ Significant☒ Low☐
Inspector's Name: Grady Adkins, David Ray	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Regular *		18. Sloughing or bulging on slopes?		X
2. Pool elevation (operator records)?	463 *		19. Major erosion or slope deterioration?		X
3. Decant inlet elevation (operator records)?	463 *		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	N/A		Is water entering inlet, but not exiting outlet?		X
5. Lowest dam crest elevation (operator records)?	470 *		Is water exiting outlet, but not entering inlet?		X
6. If instrumentation is present, are readings recorded (operator records)?	X		Is water exiting outlet flowing clear?	X	
7. Is the embankment currently under construction?		X	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	X		From underdrain?	X	
9. Trees growing on embankment? (If so, indicate largest diameter below)	X		At isolated points on embankment slopes?	X	
10. Cracks or scarps on crest?		X	At natural hillside in the embankment area?		X
11. Is there significant settlement along the crest?		X	Over widespread areas?		X
12. Are decant trashracks clear and in place?	X		From downstream foundation area?	X	
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		X	"Boils" beneath stream or ponded water?		X
14. Clogged spillways, groin or diversion ditches?		X	Around the outside of the decant pipe?		X
15. Are spillway or ditch linings deteriorated?		X	22. Surface movements in valley bottom or on hillside?		X
16. Are outlets of decant or underdrains blocked?		X	23. Water against downstream toe?	X	
17. Cracks or scarps on slopes?	X		24. Were Photos taken during the dam inspection?	X	

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

Inspection Issue # Comments

* See attached Comment Sheet

Coal Combustion Waste Dam Inspection Checklist Form - Continuation
Roxboro Power Plant NC
West Ash Pond and Dikes 1, 2, & 4

Comment Sheet

Inspection Issue No. and Comments

1. Operating Personnel ride the perimeter daily or weekly. Monthly report of piezometer readings and visual assessment. Limited field inspections by Independent Consultant annually since at least 2004. 5-Yr. Independent Consultant Inspection – latest in 2008.

2. Maximum operating level for pool is Elevation 465 to maintain minimum freeboard of 5 feet.

5. Crest of West Ash Pond Dam and Dikes 2 and 4 is Elevation 470. Crest of Filter Dam (Dike 1) is Elevation 473.

8. Record drawings show that West Dam was founded on competent bedrock.

9. Small trees and brush on West Dam are 2 inches or less max diameter.

17. Tall, thick vegetative cover prevents full observation of all slopes. One small scarp approximately 6 inches high was noted and photographed near upper limit of riprap on West Pond Dam – may be indicative of shallow surface slide.

21. Minor seepage at designated discharge points (concrete flumes) at West Ash Pond Dam. Deposit of fines was observed at upstream end of two discharge flumes.
The Filter Dam is designed to filter seepage through it. Seepage water is clear. Seepage outcrops (wet spots rather than running water) were noted at isolated spots along toe of dike slopes.

23. There is a berm between the toe of the West dam and standing water from the cooling pond. The Filter Dam (Dike 1) has water at the toe. These are both design features.

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # NC-0003425 INSPECTOR Grady Adkins/David Ray

Date 09/01/2009

Impoundment Name West Ash Pond

Impoundment Company Progress Energy

EPA Region 4

State Agency (Field Office) Addresss NC Department of Environment and Natural Resources (NCDENR)
Division of Water Quality, Raleigh, NC

Name of Impoundment West Ash Pond

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

New _____ Update _____

	Yes	No
Is impoundment currently under construction?		X
Is water or ccw currently being pumped into the impoundment?	X	

IMPOUNDMENT FUNCTION: CCW Impoundment

Nearest Downstream Town : Name Homes on Hyco Lake

Distance from the impoundment Adjacent to Roxboro Power Plant

Impoundment Location: Longitude 36 Degrees 31 Minutes 16 Seconds
Latitude 78 Degrees 59 Minutes 55 Seconds
State NC County Person County

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

If So Which State Agency? NC Utilities Commission. In Jan 2010,NCDENR Dam Safety will regulate.

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

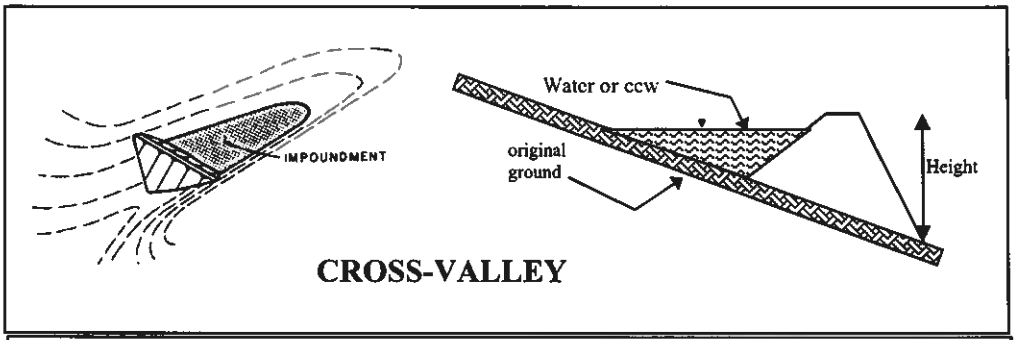
__X__ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

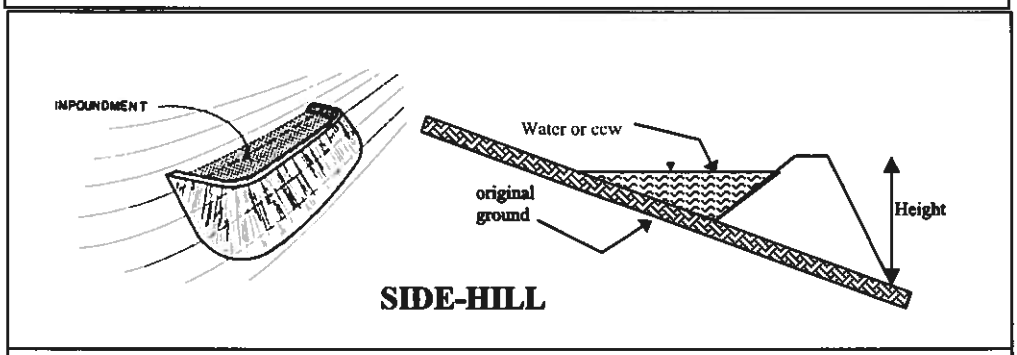
_____ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

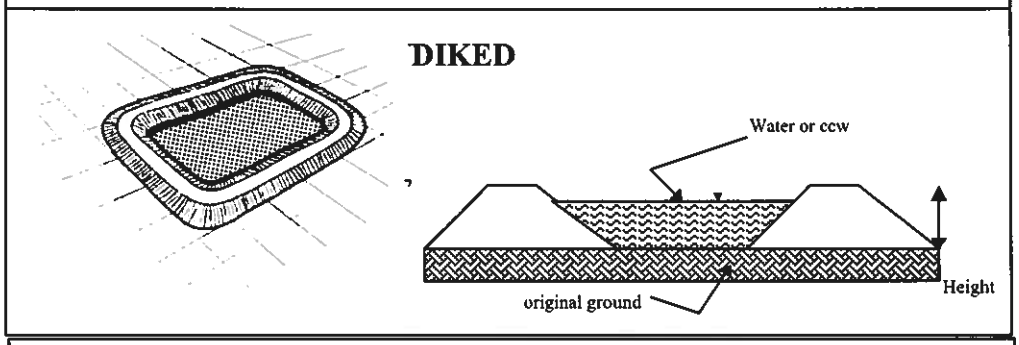
DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

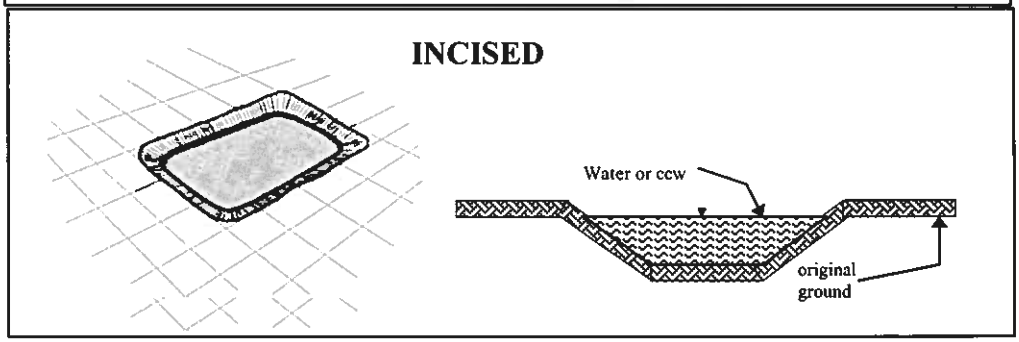
Failure of the West Ash Pond Dam or Dikes would release directly or indirectly into the cooling lake reservoir (Lake Hyco). A release could disrupt power generation and cause environmental damage. A release would be contained in the lake.

CONFIGURATION:









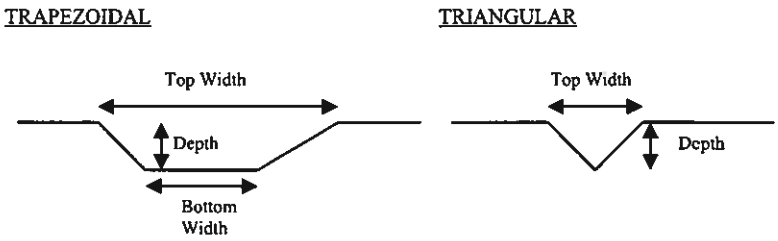
__X__ Cross-Valley (Dam and Dike 1)
_____ Side-Hill
__X__ Diked (on Westside)
_____ Incised (form completion optional)
_____ Combination Incised/Diked

Embankment Height 93 feet
Pool Area 2400 acres
Current Freeboard 5 feet

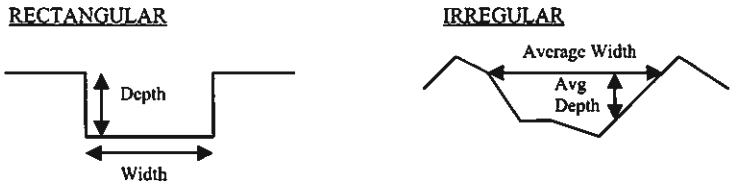
Embankment Material earth fill
Liner N/A
Liner Permeability N/A

TYPE OF OUTLET (Mark all that apply)

_____ **Open Channel Spillway**
_____ Trapezoidal
_____ Triangular
_____ Rectangular
_____ Irregular

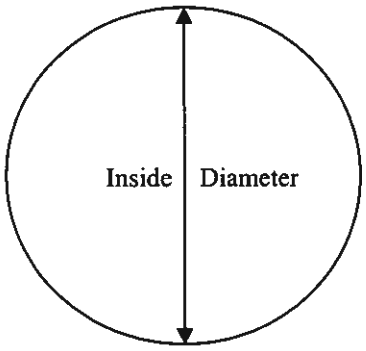


_____ depth
_____ bottom (or average) width
_____ top width



2 **Outlet**

48" inside diameter



Material
_____ corrugated metal
X welded steel Riser Pipes
X concrete Conduits through Dam
_____ plastic (hdpe, pvc, etc.)
_____ other (specify) _____

Is water flowing through the outlet? YES X NO _____

_____ **No Outlet**

X **Other Type of Outlet** (specify) Filter Dam (Dike 1)

The Impoundment was Designed By Brown and Root, Inc.

Has there ever been a failure at this site? YES _____ NO ____X____

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES _____ NO ___X___

If So When? _____

IF So Please Describe: _____

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES ___x___ NO _____

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Piezometers were installed in 1987 and monitored on a regular basis. Monitoring was increased from quarterly to monthly following recommendation in the 2007 Independent Consultant's Limited Field Inspection Report.

ADDITIONAL INSPECTION QUESTIONS

ROXBORO POWER STATION – SEMORA, NC – WEST ASH POND AND DIKES 1, 2, AND 4

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

The record drawings show that the West Ash Pond Dam and Dikes 1 and 2 were constructed over a prepared foundation stripped to sound rock with a central core keyway excavated 10 feet into rock.

Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

Record Drawings were provided by the owner. There was no contact with the design Engineer of Record.

From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

None on this structure. Dikes constructed within the Ash Pond have experienced seepage problems in the past and are addressed in a separate report.