

US EPA ARCHIVE DOCUMENT

Evaluation of Fossil Coal Combustion Products (CCP) Facilities for Dam Safety Hazard Classification

TVA has performed a preliminary evaluation to classify coal combustion storage facilities in accordance with FEMA's Hazard Potential Classification System for Dams. These guidelines evaluate the consequences of a potential failure not the likelihood of a failure. Guidelines that were developed and utilized are included below. These results have been reviewed with Stantec, who have been contracted by TVA to assess all of the coal combustion storage areas. Stantec's detailed analysis could change these preliminary conclusions.

Definitions of a Dam - Federal Guidelines for Dam Safety (FEMA 93 issued June 1979)

Any artificial barrier, including appurtenant works, which impounds or diverts water, and which (1) is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to the maximum water storage elevation or (2) has an impounding capacity at maximum water storage elevation of fifty acre-feet or more. These guidelines do not apply to any such barrier which is not in excess of six feet in height regardless of storage capacity, or which has a storage capacity at maximum water storage elevation not in excess of fifteen acre-feet regardless of height. This lower size limitation should be waived if there is a potentially significant downstream hazard.

In addition to conventional structures, this definition of "dam" specifically includes "tailings dams," embankments built by waste products disposal and retaining a disposal pond.

TVA notes: Expand "tailings dams" definition to include wet coal-combustion by-product storage facilities. Dry stack storage areas are classified as a "dry stack" and not evaluated because they do not have dikes or impound water. Classifications of active structures will be based on current conditions (height/storage). Inactive ash ponds/dredge cells will not be reviewed since they are either inactive or closed, and they are no longer impounding water since the impounded water decreases every year once they are inactive. Classifications will be re-evaluated every five years or sooner if conditions change.

Hazard Potential Classification Systems for Dams (FEMA 333 Issued April 2004)

1. 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.

2. 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.

3. High Hazard Potential

Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

Hazard Potential Classification	Potential Loss of Human Life	Potential Economic, Environmental, Lifeline Losses
Low	None expected	Low and generally limited to owner
Significant	None expected	Yes
High	Probable. One or more expected	Yes (but not necessary for this classification)

Guidelines for TVA Evaluating FEMA Criteria below:

Hazard Potential Classification	Potential Loss of Human Life	Potential Environmental Impact	Potential Economic and Infrastructure Lifeline Losses
Low	0	Contained on TVA property or minimal off-property impact	No expected damages to public roads, powerlines, etc.
Significant	0	Off TVA property, may enter waters of the U.S.	Expected damages to public roads, powerlines, etc.
High	1 or more		

Facility

Overall Rating

Allen

East Ash Disposal & East Ash Stilling Pond

Significant

Bull Run

Dry Fly Ash Stack (Not Rated)

N/A

Fly Ash Pond and Stilling Basin Area 2

High (Impact: Housing)

Bottom Ash Disposal Area 1

Significant

Gypsum Disposal Area 2A

Low

Colbert

Disposal Area 5 (Not Rated)

N/A

Ash Pond 4

High (Impact: Highway/Housing)

Disposal Area 5 Basin

Significant

Facility	Overall Rating
Cumberland	
Dry Ash Stack (Not Rated)	N/A
Ash Pond	High (Impact: Highway)
Gypsum Storage Area	High (Impact: Industrial)
Gallatin	
Fly Ash Pond E	Significant
Bottom Ash Pond A	Significant
Stilling Pond B, C & D	Significant
John Sevier	
Dry Ash Stack (Not Rated)	N/A
Bottom Ash Pond	Significant
Johnsonville	
Ash Disposal Area 2	Significant
Kingston	
Main Ash Pond	Significant
Stilling Pond	Significant
Paradise	
Scrubber Sludge Complex	Low
Fly Ash Extension Area	Low
Slag Areas 2A & 2B	Low
Shawnee	
Consolidated Waste Dry Stack (Not Rated)	N/A
Ash Pond	Significant
Widows Creek	
Ash Pond	Significant
Gypsum Stack	High (Impact: Housing)
Watts Bar	
Ash Pond and Stilling Basin	Significant