

UNITED STATES GOVERNMENT

# Memorandum

TENNESSEE VALLEY AUTHORITY

TO : Jerry L. Golden, Manager of Fossil Engineering, 8-197 SB-K

FROM : R. E. Harris, Civil Project Engineer, 7-198 SB-K

DATE :

SUBJECT: CUMBERLAND STEAM PLANT - ANNUAL POWER ENGINEERING AND CONSTRUCTION AND FOSSIL AND HYDRO POWER JOINT INSPECTION OF THE ASH DISPOSAL AREA

Attached is the inspection report of the Cumberland ash disposal areas dated April 6, 1988 (B65 880406 001) performed on March 23, 1988. This report includes recommendations for corrective work. I concur with these recommendations.

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R. E. Harris

*JTW*  
*KWB* REH:JTW:HLL

Attachment

cc (Attachment):

J. L. Golden, 8-197 SB-K

JLG:HLL -

cc (Attachment):

W. M. Bivens, 12-113 SB-K

WMB:HLL

cc (Attachment):

RIMS, SL 26 C-K

Gene Farmer, 12-109 SB-K (3)

Paul Wade, LP 3S 58K-C (5)

This was prepared principally by J. T. Weatherford, extension 6559.

2121f



TENNESSEE VALLEY AUTHORITY

# OFFICE OF POWER

POWER ENGINEERING  
FOSSIL ENGINEERING PROJECT

**INSPECTION OF**

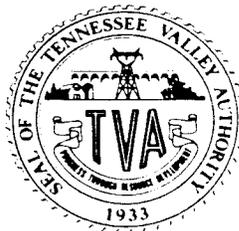
CUMBERLAND STEAM PLANT

ASH DISPOSAL AREAS

JOINT PE-F&H PR

INSPECTION

INSPECTED: MARCH 23, 1988



# FEP REPORT

TVA 10752 (OE 6-85)

TITLE CUMBERLAND STEAM PLANT - ALL UNITS - ANNUAL JOINT INSPECTION BY THE DIVISION OF POWER ENGINEERING AND CONSTRUCTION AND THE DIVISION OF FOSSIL AND HYDRO POWER		REPORT NO. FEP-ASH-88-01	
		PLANT/UNIT CUF-ALL UNITS SAR SECTIONS	
VENDOR	CONTRACT NO.	KEY NOUNS	
			UNID SYSTEM(S)
	REV	(FOR RIMS USE)	RIMS ACCESSION NUMBER
	R0		B65 '88 0406 001
APPLICABLE DESIGN DOCUMENTS	R1		
	R2		
REFERENCES	R3		
	R4		

**TENNESSEE VALLEY AUTHORITY  
OFFICE OF POWER  
FOSSIL ENGINEERING PROJECT**

	REVISION 0	R1	R2	R3	R4
DATE	APR 06 1988				
PREPARED	<i>J. L. Weatherford</i>				
CHECKED					
REVIEWED	<i>K. W. Burnett</i>				
APPROVED					

cc: RIMS, SL26 C-K

## EXECUTIVE SUMMARY

On March 23, 1988, the annual joint inspection of the ash disposal areas was conducted by representatives of PE and F&H PR. This was a visual inspection to appraise the general condition of the ash disposal areas and their associated dikes. The action taken on recommendations of the last inspection was evaluated and additional recommendations for corrective work are made.

## 1.0 General

- 1.1 On March 23, 1988, E. J. Reed of F&H PR, Chattanooga, Rodney Lowe, Assistant Yard Supervisor, Cumberland Steam Plant, K. W. Burnett of PE&C, Knoxville, and I inspected the ash disposal area at Cumberland Steam Plant. Our findings were discussed with the following plant personnel:

J. T. Reese, Superintendent  
Nathan Burris, Assistant Superintendent  
Walter Veal, Yard Supervisor

- 1.2 The last annual inspection was made April 8 and 9, 1987 (B65 870522 002)
- 1.3 The ash disposal area is shown on the attached print of drawing 10N212.

## 2.0 Change in Dike Since Last Inspection

- 2.1 This inspection continued to show several wet areas in the vicinity of the construction haul bridge along the bank of Wells Creek, which was at low pool. There was no apparent change in the amount of seepage, although a significant amount of redwater seepage has appeared (see recommendation No. 1). Also, there were no apparent signs of instability anywhere along either slope of the dike.
- 2.2 The south-southeast (S-SE) dike evidenced the encroachment of "rose bush" vegetative growth and other small bushes (see recommendation No. 3). The grass cover in general is good; however, some small local areas need to be addressed (see recommendation No. 4).
- 2.3 The dike roadway has an excellent crushed stone surface.

## 3.0 Change in Pond Operation Since Last Inspection

- 3.1 Area No. 1 has been sluiced full of fly ash with approximately 30 percent of this area covered with water. This area is no longer being used for the sluicing of fly ash.
- 3.2 The fly ash is presently being sluiced into area No. 2 through a breached dike in area No. 2A (see attached drawing 10N212).
- 3.3. The construction of the interior bottom ash dike for area No. 2 continues and is approximately 90 percent complete to elevation 373+. This dike serves to decrease the waterhead against the exterior dike so as to ensure stability of the exterior dike (see recommendation No. 1).
- 3.4 All sluice water continues to flow to the stilling pool via flow through spillway with a floating skimmer, with an additional floating skimmer directly in front of the standard spillways. All discharge is directed to the plant discharge channel.

#### 4.0 Condition of Spillways, Skinners, and Outlets

- 4.1 All spillways and skinners appear to be functioning properly, though a few small tree limbs were caught in the spillways (see recommendation No. 5). A small amount of floating ash was observed within the stilling pool, however, it would be impractical to try removing the floaters at this time.
- 4.2 The spillway outlets' headwall and adjacent channel slopes are protected by riprap with ready-mix concrete poured in the voids. There were no signs of loss of ash. Also, a tree limb was caught in the spillway outlets (see recommendation No. 5).

#### 5.0 Action on Recommendation of Last Inspection

- 5.1 The sparsely vegetated areas have not been reseeded.
- 5.2 Floating ash is removed from the stilling pool periodically.
- 5.3 Plant personnel are making an excellent effort in monitoring any change in the previously noted wet areas.

#### 6.0 Recommendation

- 6.1 In reference to the memorandum to Fossil Engineering Projects Files from R. E. Harris dated December 19, 1986 (B65 861219 007), the maximum water level of the stilling pool has been set at elevation 373. Upon raising the water level in the stilling pool, the plant personnel should continue to monitor the exterior dike slopes for possible increased seepage. If there is any significant change in seepage, please notify F&H PR, Chattanooga and PE&C, Knoxville.
- 6.2 With the bottom ash dike in place and the stilling pool water level at elevation 368, the seepage along Wells Creek remains at a reduced level. However, there is seepage along the creek and as the stilling pool level is increased to elevation 373, the seepage along the creek will likely increase. F&H PR should consider budgeting funds in the next two years to repair the exterior dike with a slurry trench.
- 6.3 All bushes, trees, and/or vines should be removed from the dike slopes by attaching a cable or chain and pulling out, such as to remove the root system.
- 6.4 The sparsely vegetated areas should be reseeded.
- 6.5 All tree limbs need to be removed from the spillways and spillway outlets.

CUMBERLAND STEAM PLANT  
MARCH 1988



① EXTERIOR DIKE SLOPE  
SMALL TREES TO BE REMOVED.

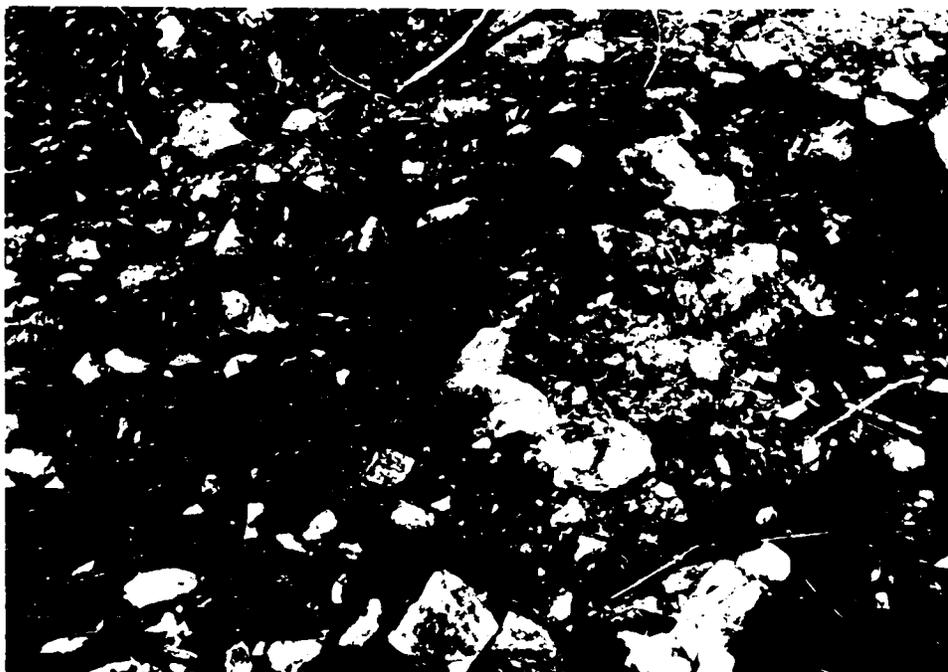


② EXTERIOR DIKE SLOPE  
SPARSLEY VEGETATED AREA.

*CUMBERLAND STEAM PLANT  
MARCH 1988*

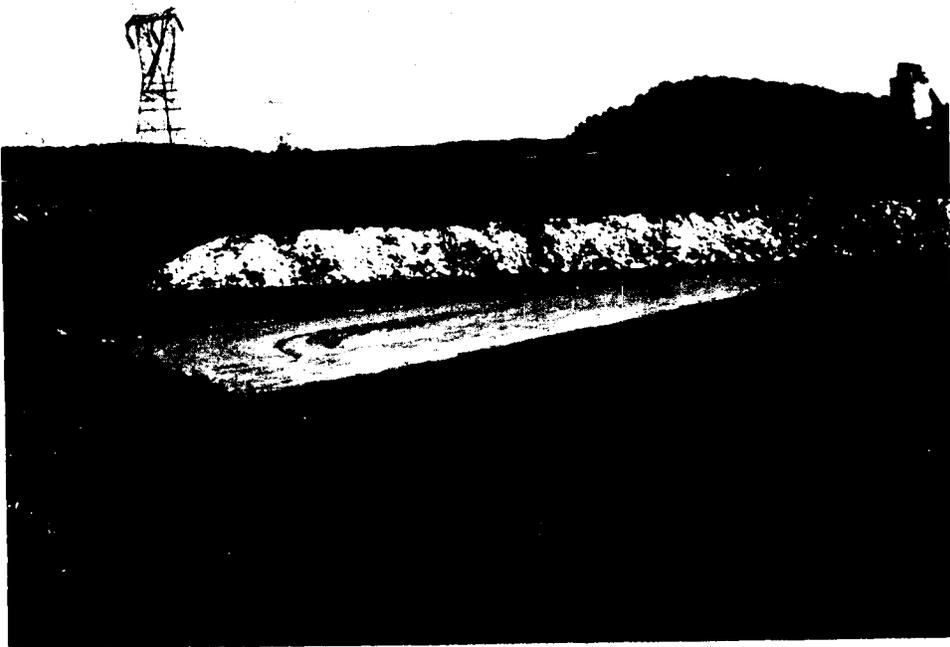


③ *DIKE ROADWAY  
EXCELLENT CRUSHED STONE SURFACE*

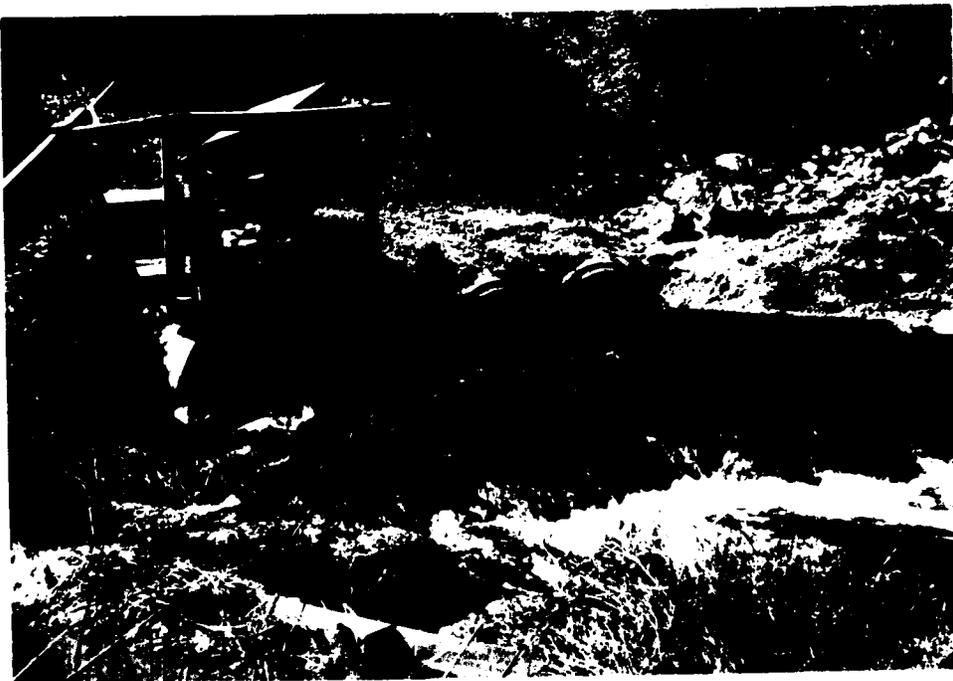


④ *WELLS CREEK CHANNEL  
RED WATER SEEPAGE*

CUMBERLAND STEAM PLANT  
MARCH 1988

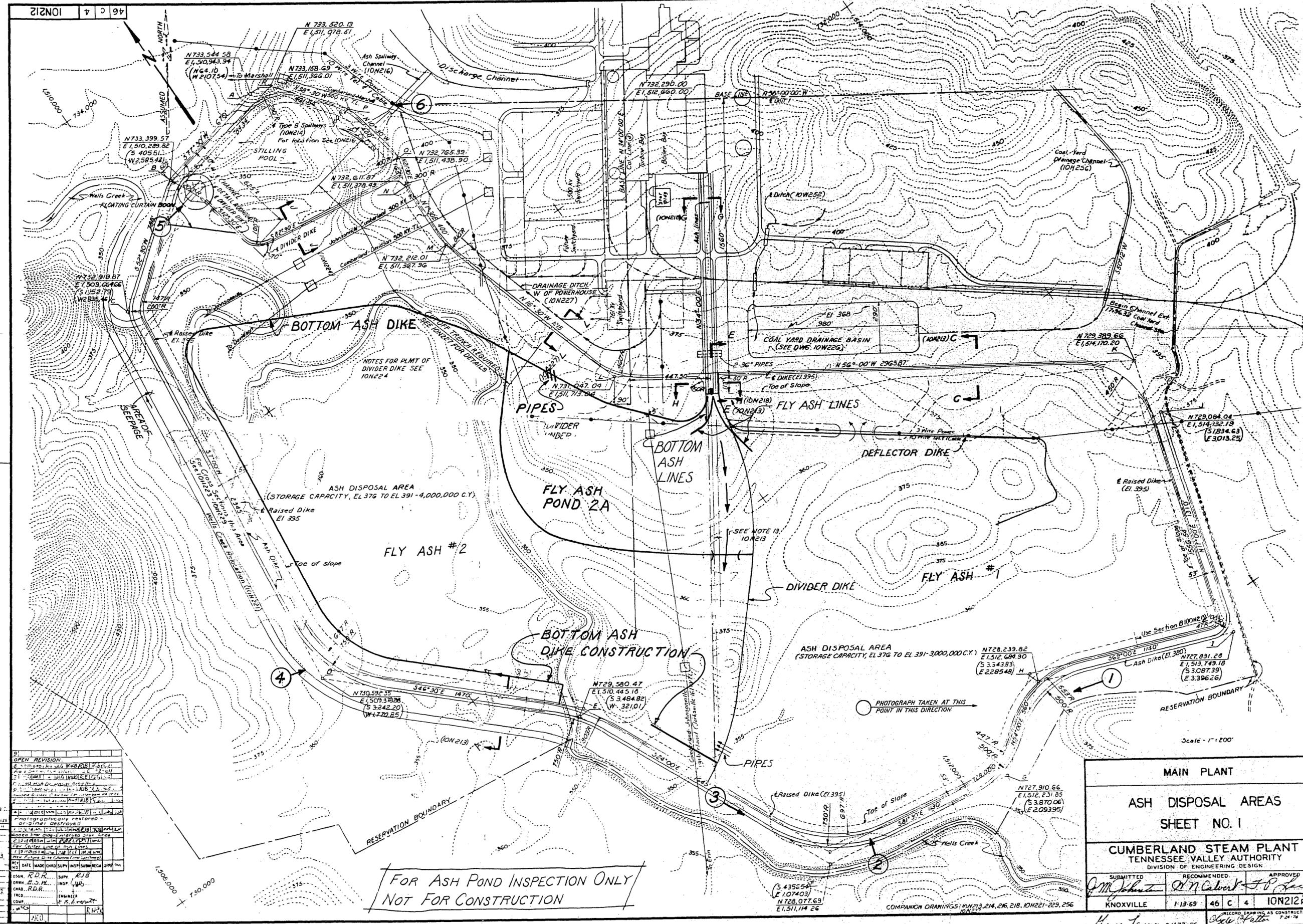


5 FLOW - THROUGH SPILLWAY TO STILLING POOL  
NOTE: FLOATING SKIMMER WITH TRAPPED  
FLY ASH.



6 DISCHARGE CHANNEL AND OUTLET  
PIPES.

46 C 4 10N212



FOR ASH POND INSPECTION ONLY  
NOT FOR CONSTRUCTION

NO.	DATE	BY	DESCRIPTION
1			Photographically restored - original destroyed
2			Revised to show proposed construction
3			Revised to show proposed construction
4			Revised to show proposed construction
5			Revised to show proposed construction
6			Revised to show proposed construction
7			Revised to show proposed construction
8			Revised to show proposed construction
9			Revised to show proposed construction
10			Revised to show proposed construction

**MAIN PLANT**

**ASH DISPOSAL AREAS**

**SHEET NO. 1**

**CUMBERLAND STEAM PLANT**  
TENNESSEE VALLEY AUTHORITY  
DIVISION OF ENGINEERING DESIGN

SUBMITTED	RECOMMENDED	APPROVED
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
KNOXVILLE	1-13-69	46 C 4 10N212 R9

Scale - 1" = 200'

COMpanion DRAWINGS: 10N213, 214, 216, 218, 10N221-229, 256

*[Signature]* 2-14-73 RG

ME 20 01 72 1.5 E36