

Figure 2.4-65 thru Figure 2.4-67 Are Not Used

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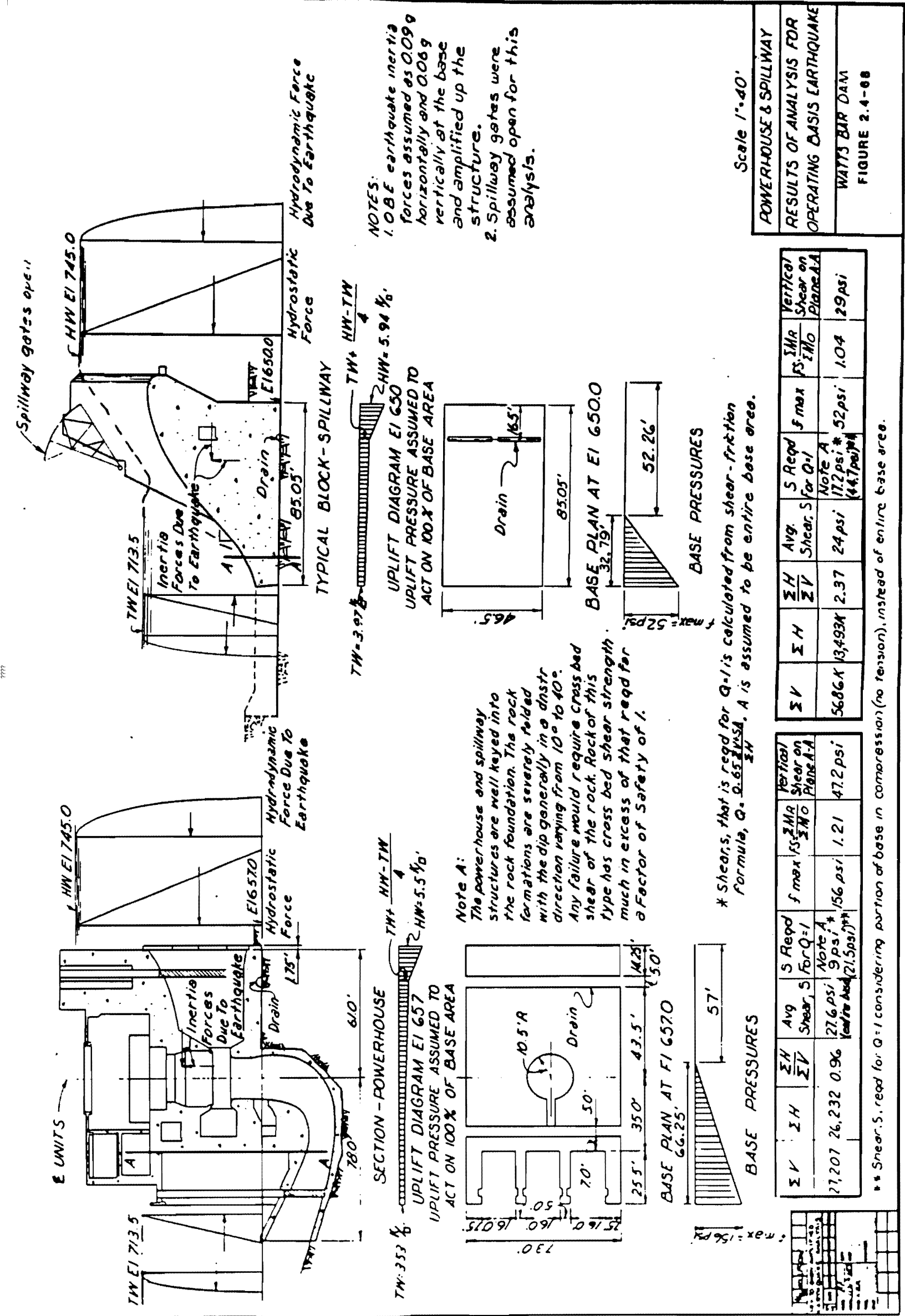


Figure 2.4-69 Deleted by Amendment 108

Figure 2.4-70 Deleted by Amendment 83

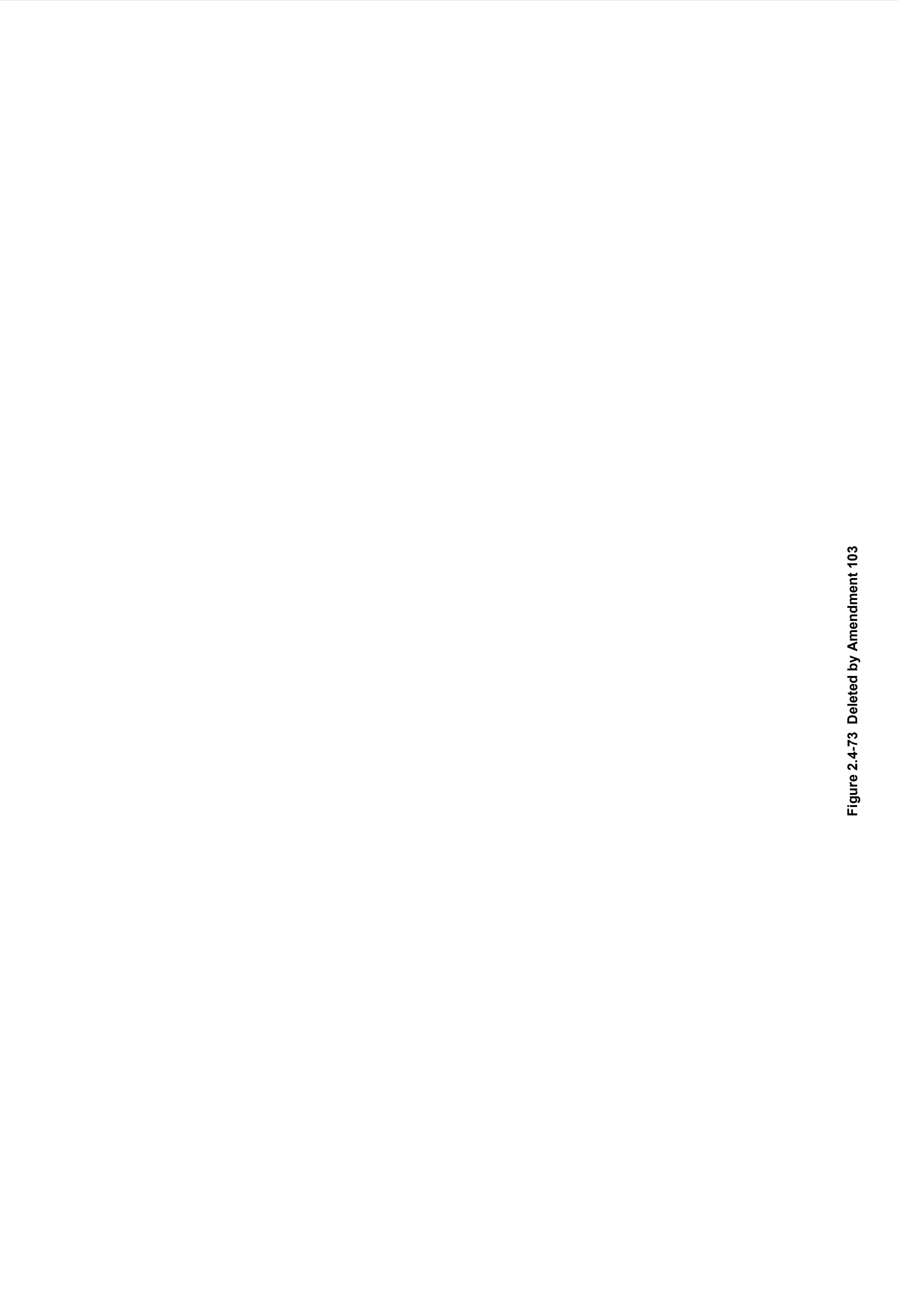


Figure 2.4-73 Deleted by Amendment 103

Figure 2.4-74 Deleted by Amendment 108

Figure 2.4-75 Deleted by Amendment 103

Figure 2.4-76 Analysis For OBE & 1/2 PMF Assumed Condition of Dam After Failure Norris Dam

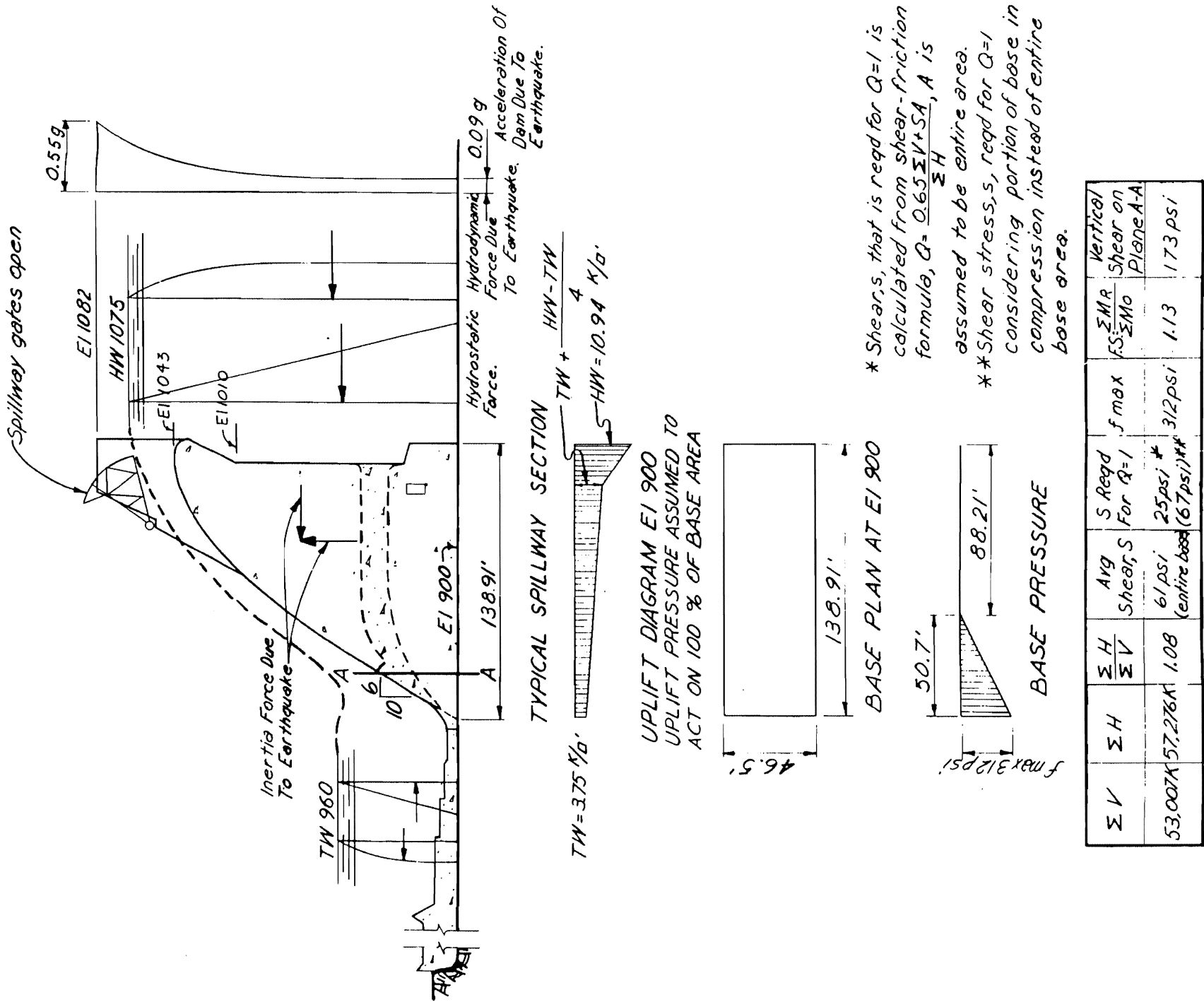
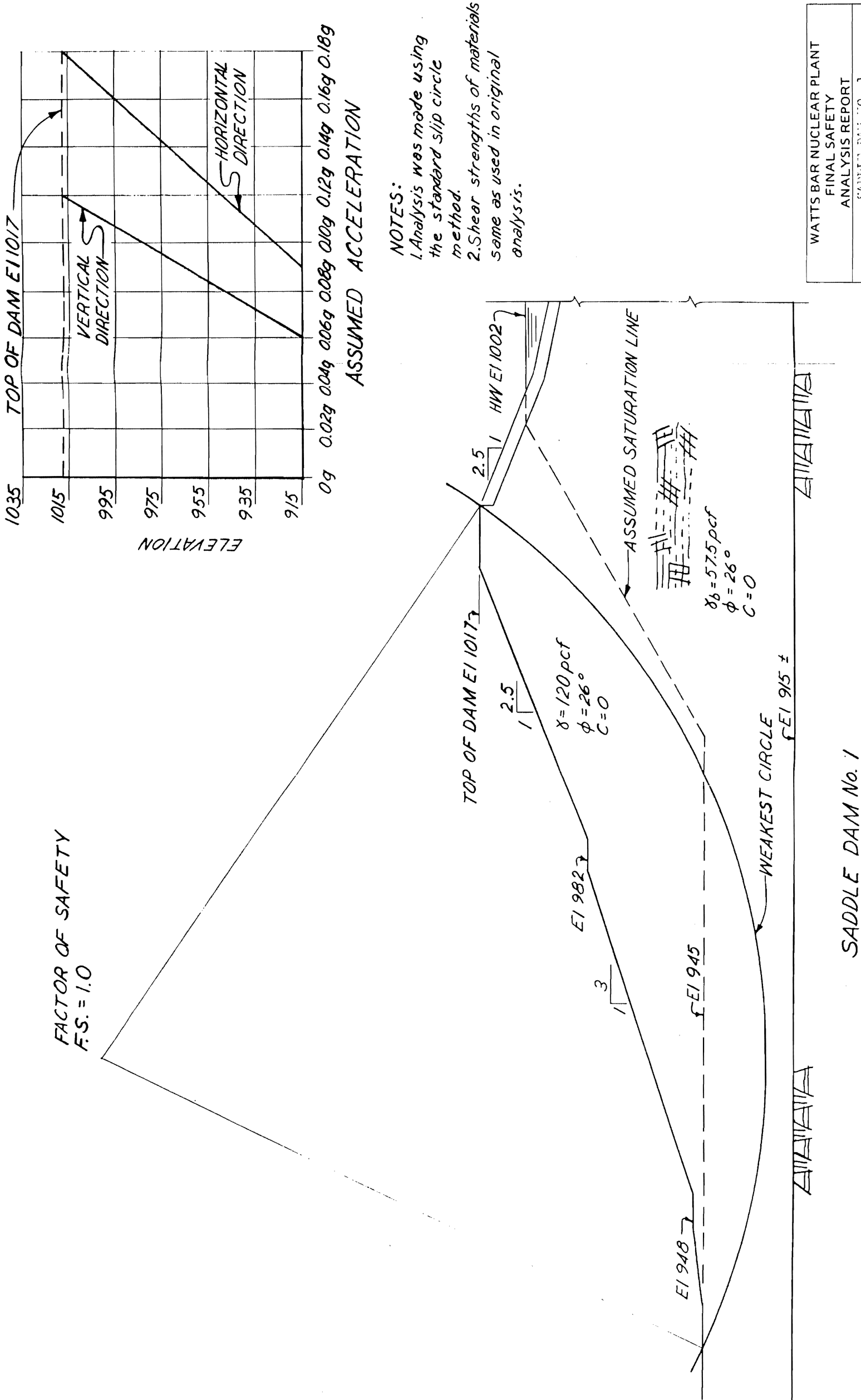


Figure 2.4-77 Spillway & Nonoverflow Results of Analysis For Operating Basis Earthquake -Cherokee Dam

Figure 2.4-79 Assumed Condition of Dam After Failure PBE And 1/2 Probable Max Flood - Cherokee Dam



NOTES:
1. Analysis was made using the standard slip circle method.
2. Shear strengths of materials same as used in original analysis.

WATTS BAR NUCLEAR PLANT FINAL SAFETY ANALYSIS REPORT	
SADDLE DAM NO. 1 RESULTS OF ANALYSIS FOR OPERATING BASIS EARTHQUAKE Douglas Dam Figure 2.4-81	

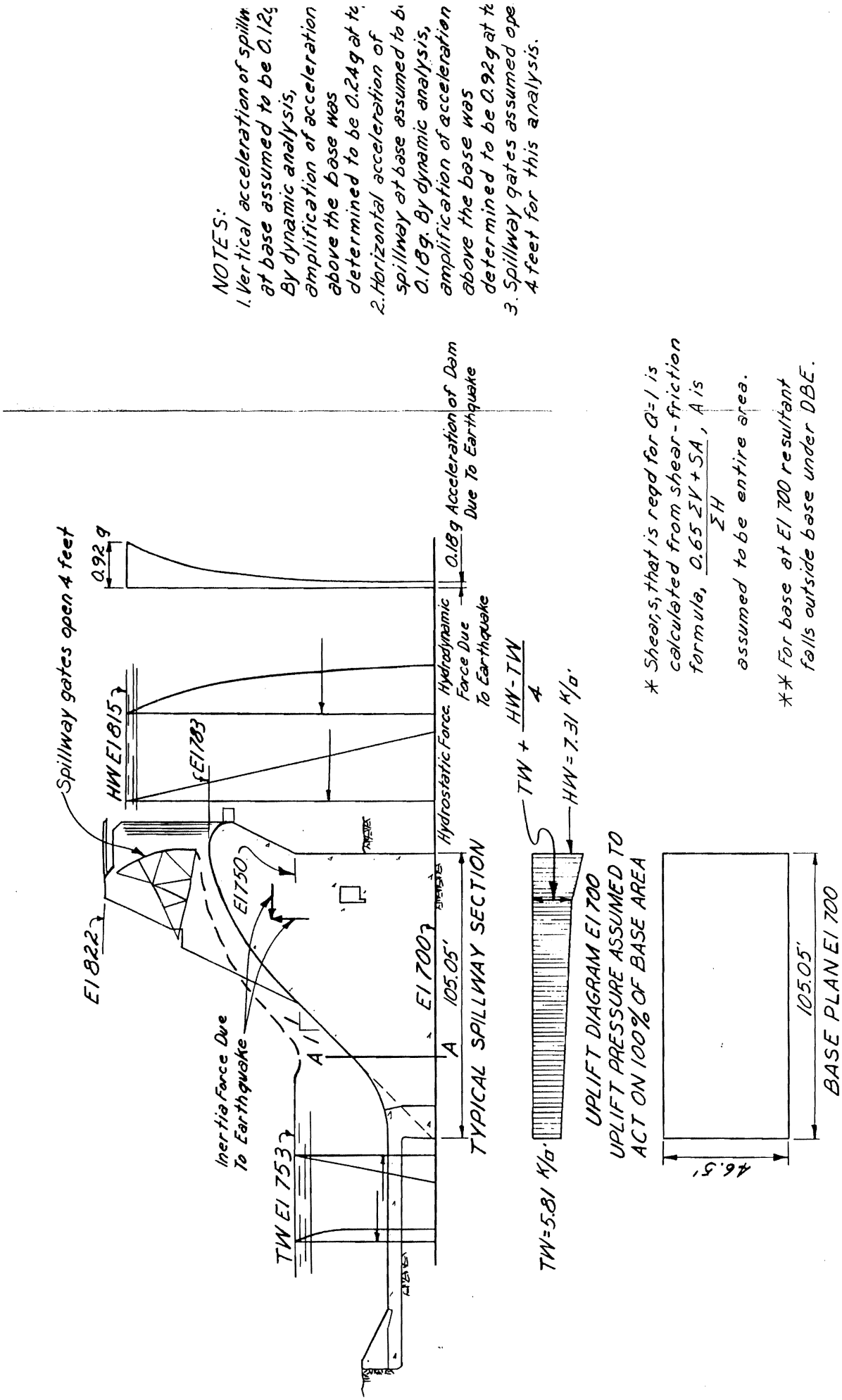
Figure 2.4-81 Saddle Dam No. 1 Results of Analysis For Operating Basis Earthquake - Douglas Dam

Figure 2.4-82 Douglas Dam Assumed Condition of Dam After Failure aBE And 1/2 Probable Maximum Flood - Douglas Project

Figure 2.4-83 Fontana Dam Assumed Condition of Dam after Failure OBE And 1/2 Probable Maximum Flood

Figure 2.4-84 Deleted by Amendment 63

Figure 2.4-85 Deleted by Amendment 63



NOTES:
1. Vertical acceleration of spillway at base assumed to be 0.12g. By dynamic analysis, amplification of acceleration above the base was determined to be 0.24g at the spillway at base assumed to be 0.18g. By dynamic analysis, amplification of acceleration above the base was determined to be 0.92g at the spillway gates assumed open 4 feet for this analysis.

* Shear, s , that is reqd for $Q=1$ is calculated from shear-friction formula, $0.65 \frac{\sum V + SA}{\sum H}$, A is assumed to be entire area.

** For base at $E1700$ resultant falls outside base under DBE.

BASE PRESSURE **

$\sum V$	$\sum H$	$\sum V$	Avg shear	S_{reqd} for $Q=1$	f_{max}	$F.S. \sum M_o$	$\sum M_o$
19,254K	29,534K	1.62	42 psi entire base	25 psi *	*	*	0.9

WATTS BAR NUCLEAR PLANT FINAL SAFETY ANALYSIS REPORT SPILLWAY	NUMERICAL ANALYSIS FOR SSE EARTHQUAKE Fort Loudoun Dam Figure 2.4-86
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Figure 2.4-86 Spillway Results of Analysis For SSE Earthquake Fort Loudoun Dam

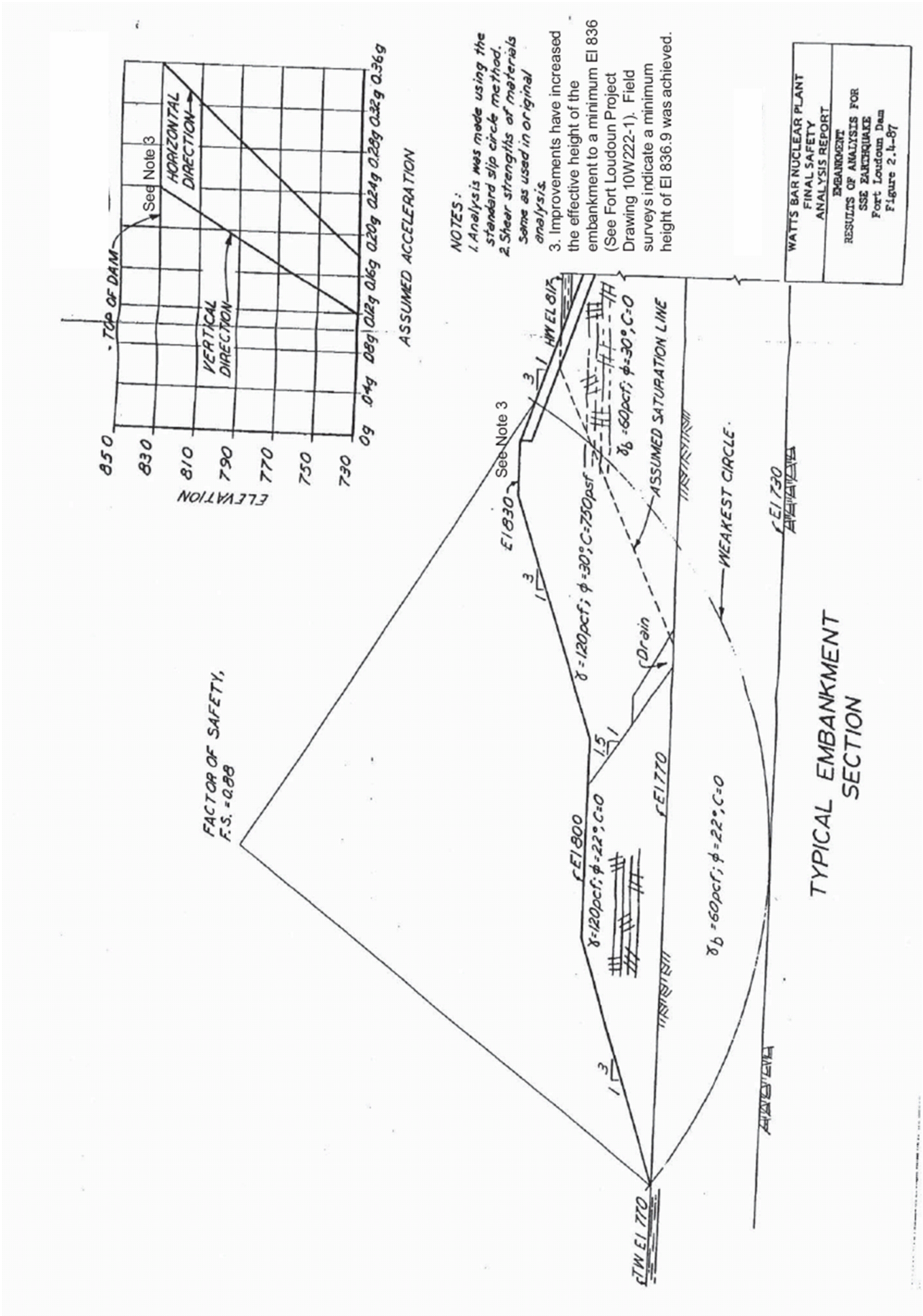


Figure 2.4-87 Embankment Results of Analysis For SSE Earthquake Fort Loudoun Dam

Figure 2.4-88 Fort Loudoun Dam Assumed Condition of Dam After Failure SSE Combined With a 25 Year Flood - Fort Loudoun Dam

Figure 2.4-89 Tellico Dam Assumed Condition of Dam After Failure SSE Combined With a 25 Year Flood Tellico Project

Figure 2.4-90 Norris Dam SSE + 25 Year Flood Judged Condition of Dam After Failure - Norris Dam



Figure 2.4-91 SSE With Epicenter In North Knoxville Vicinity

Figure 2.4-92 Deleted by Amendment 103

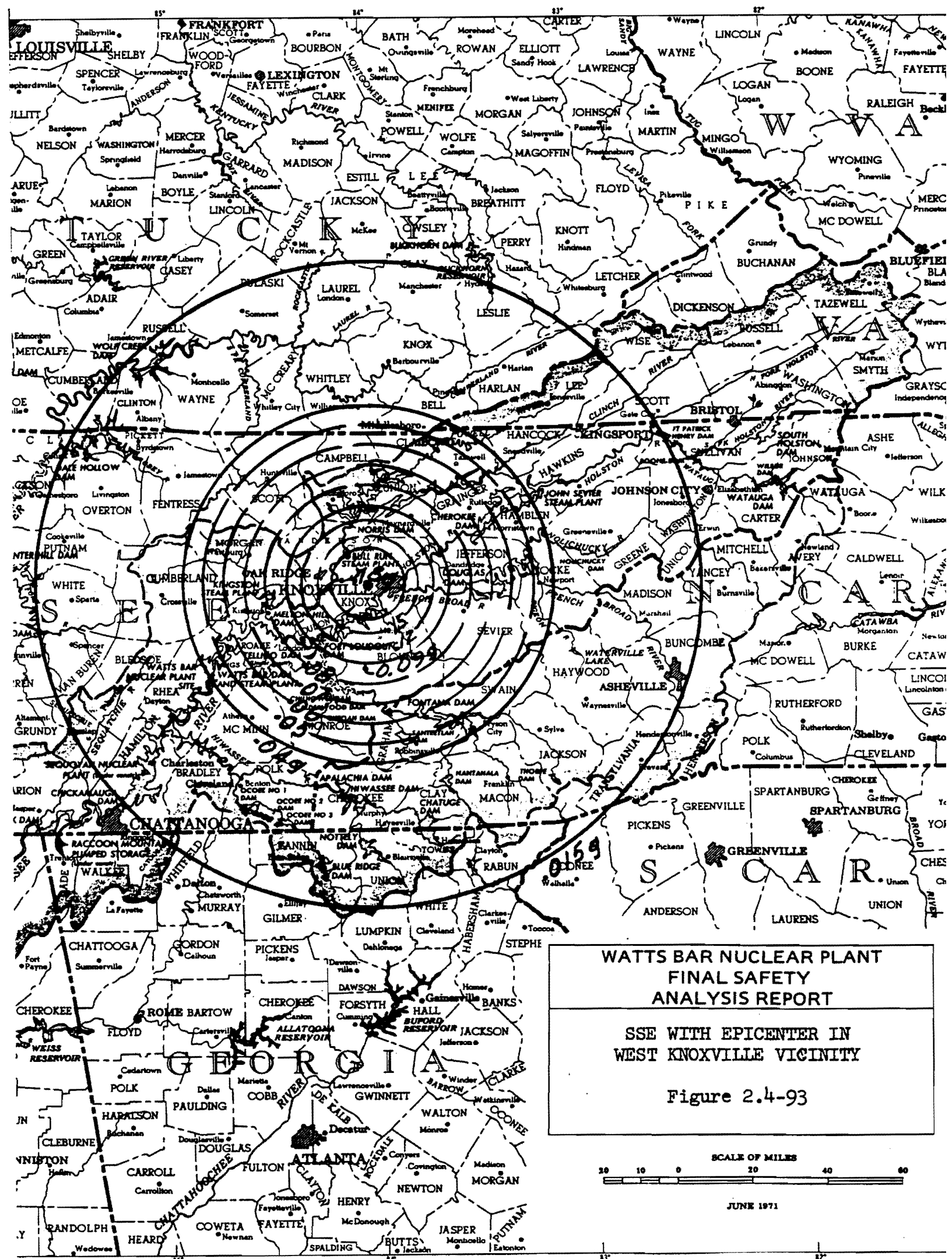


Figure 2.4-93 SSE With Epicenter In West Knoxville Vicinity

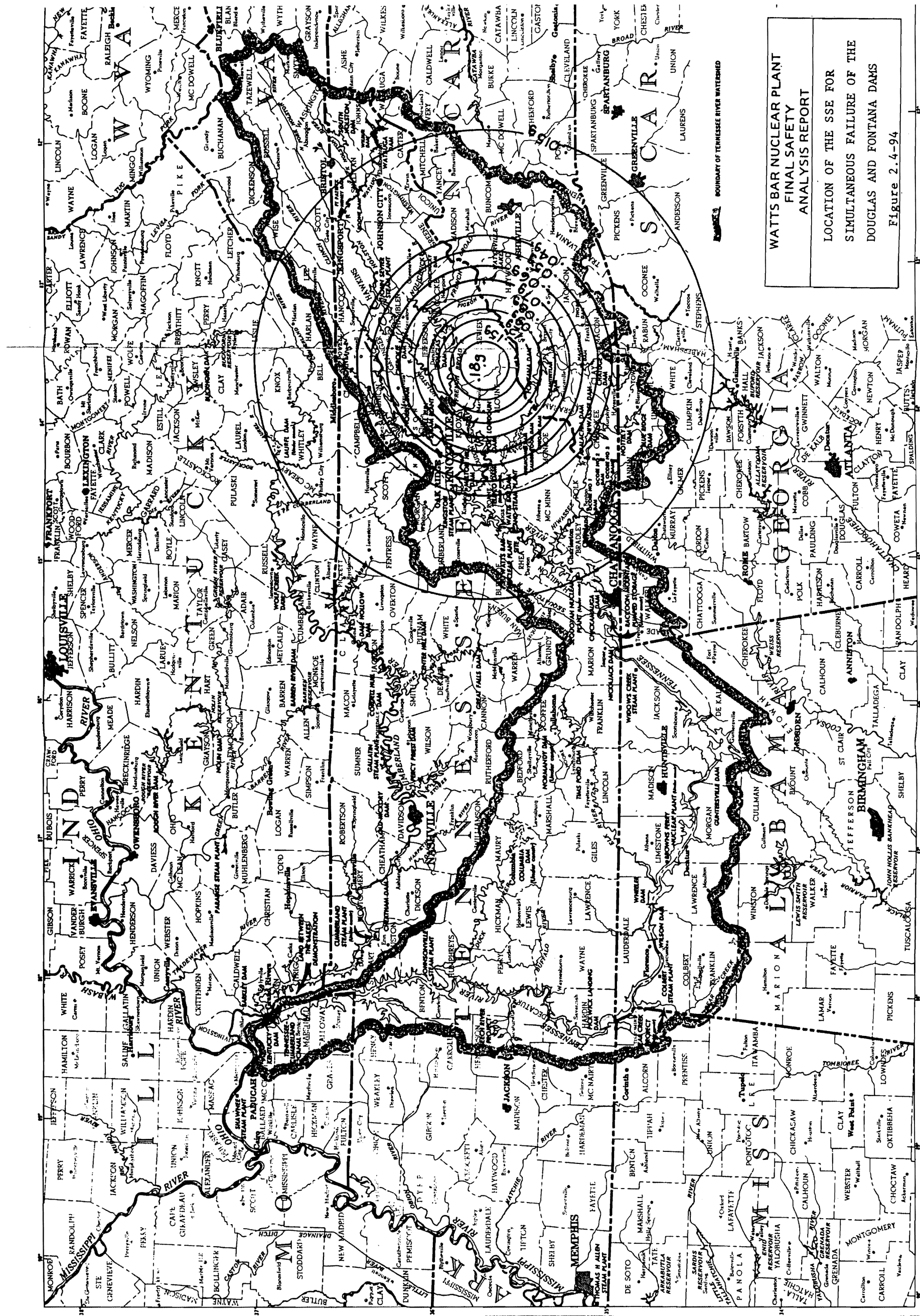


Figure 2.4-94 Location of SSE For Simultaneous Failure of The Douglas and Fontana Dams

Figure 2.4-95 Deleted by Amendment 103

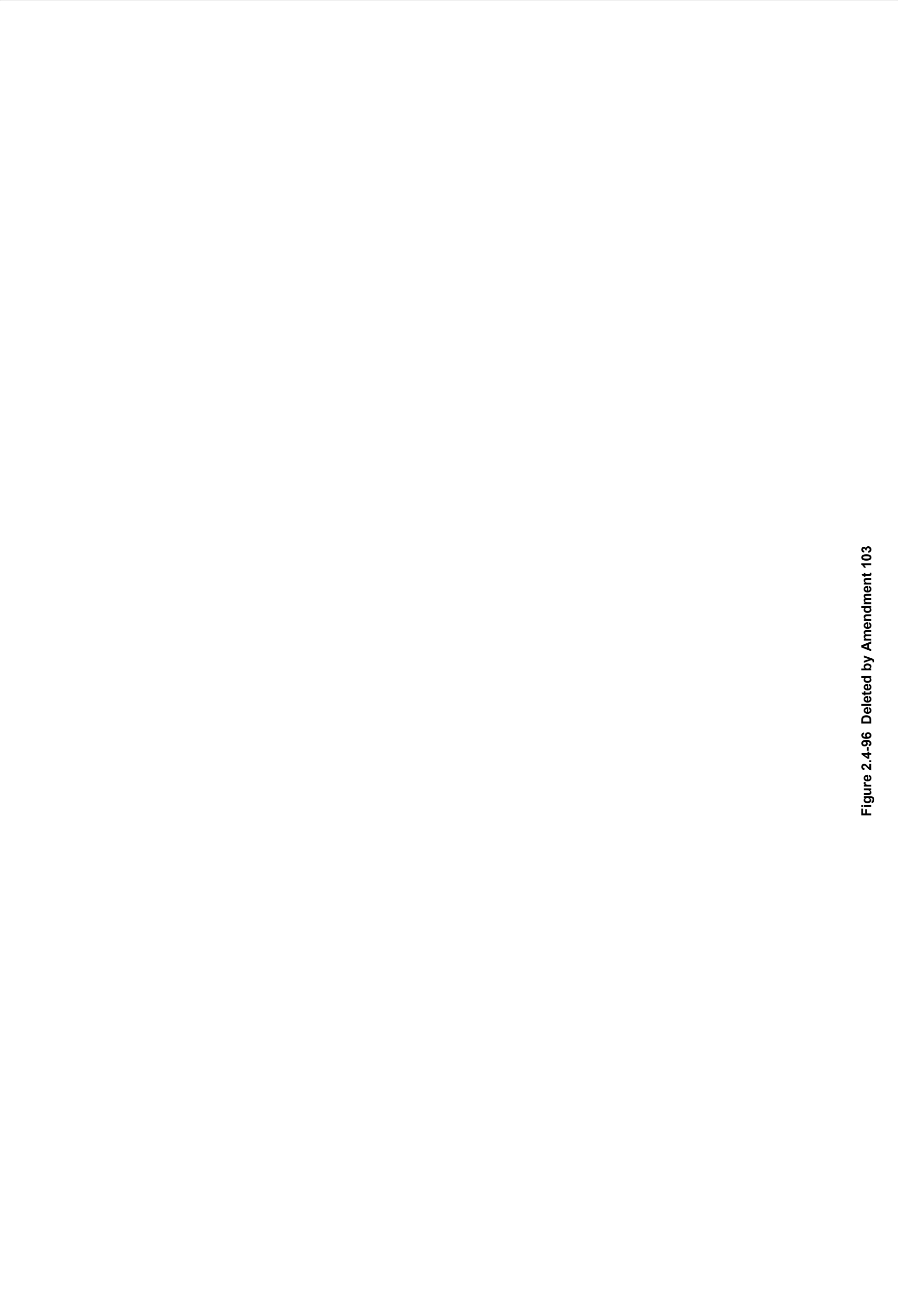


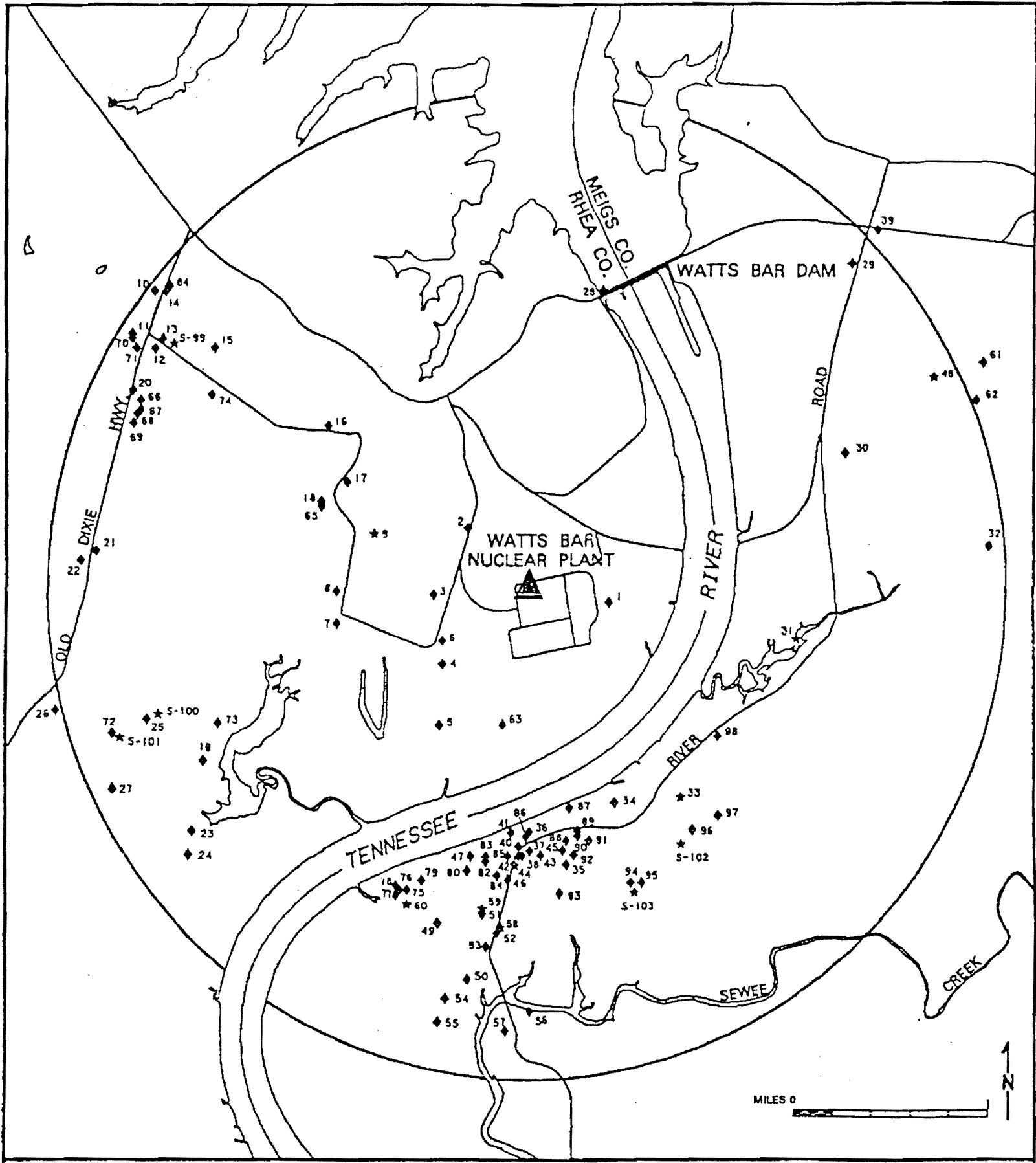
Figure 2.4-96 Deleted by Amendment 103

Figure 2.4-97 Deleted by Amendment 103

Figure 2.4-98 Not Used

Figure 2.4-100 Deleted by Amendment 83

Figure 2.4-101 Deleted by Amendment 33



- LEGEND
- ◆ WELL
 - ★ SPRING
 - ROADS
 - 2 MILE RADIUS OF PLANT SITE

AMENDMENT 83

WATTS BAR NUCLEAR PLANT
FINAL SAFETY
ANALYSIS REPORT

WELL AND SPRING INVENTORY
WITHIN 2 MILE RADIUS OF WATTS BAR
NUCLEAR PLANT SITE
FSAR FIG 2.4-102

SCANNED DOCUMENT
THIS IS A SCANNED DOCUMENT MAINTAINED ON
THE WBNP OPTICGRAPHICS SCANNER DATABASE

Figure 2.4-102 Wells And Spring Inventory Within 2-Mile Radius of Watts Bar Nuclear Plant Site

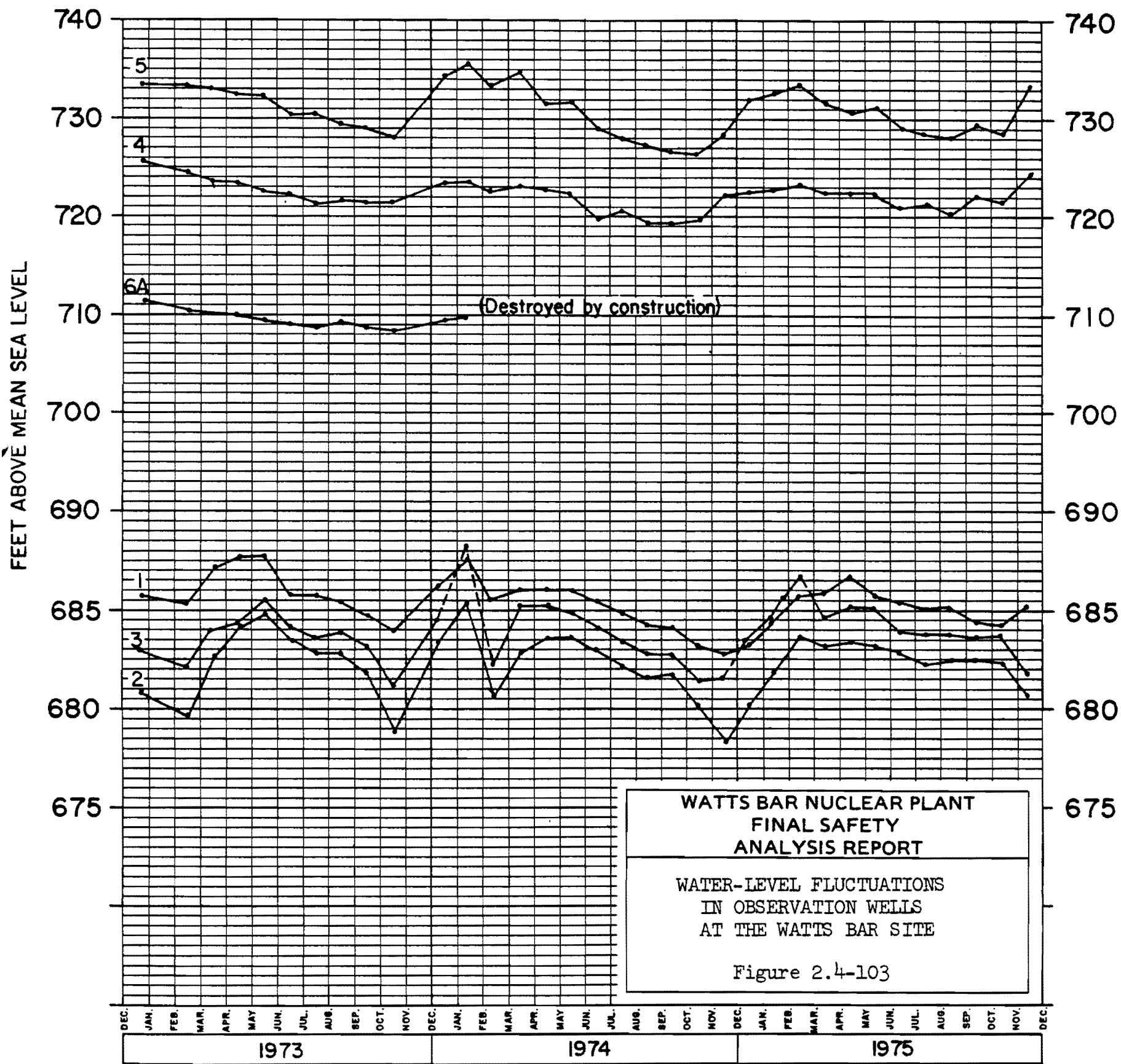
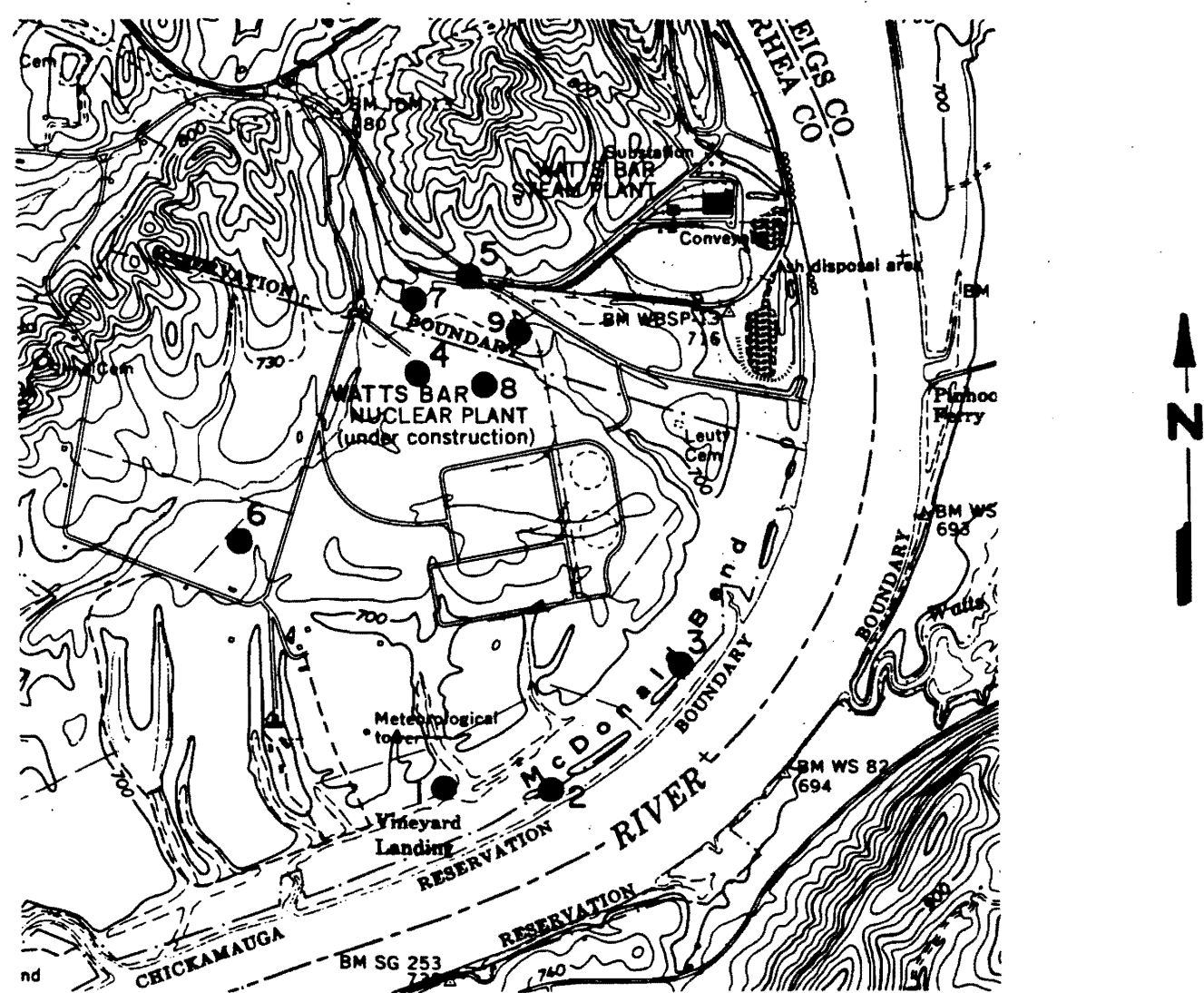


Figure 2.4-103 Water-Level Fluctuations In Observation Wells at The Watts Bar Site



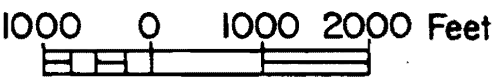
NOTE:

Topographic base from U.S.G.S - T.V.A. 7.5 minute quadrangle, Decatur, Tenn., 118-SE, Contour interval 20 feet.

LEGEND:

●² - Ground-water observation well showing number.

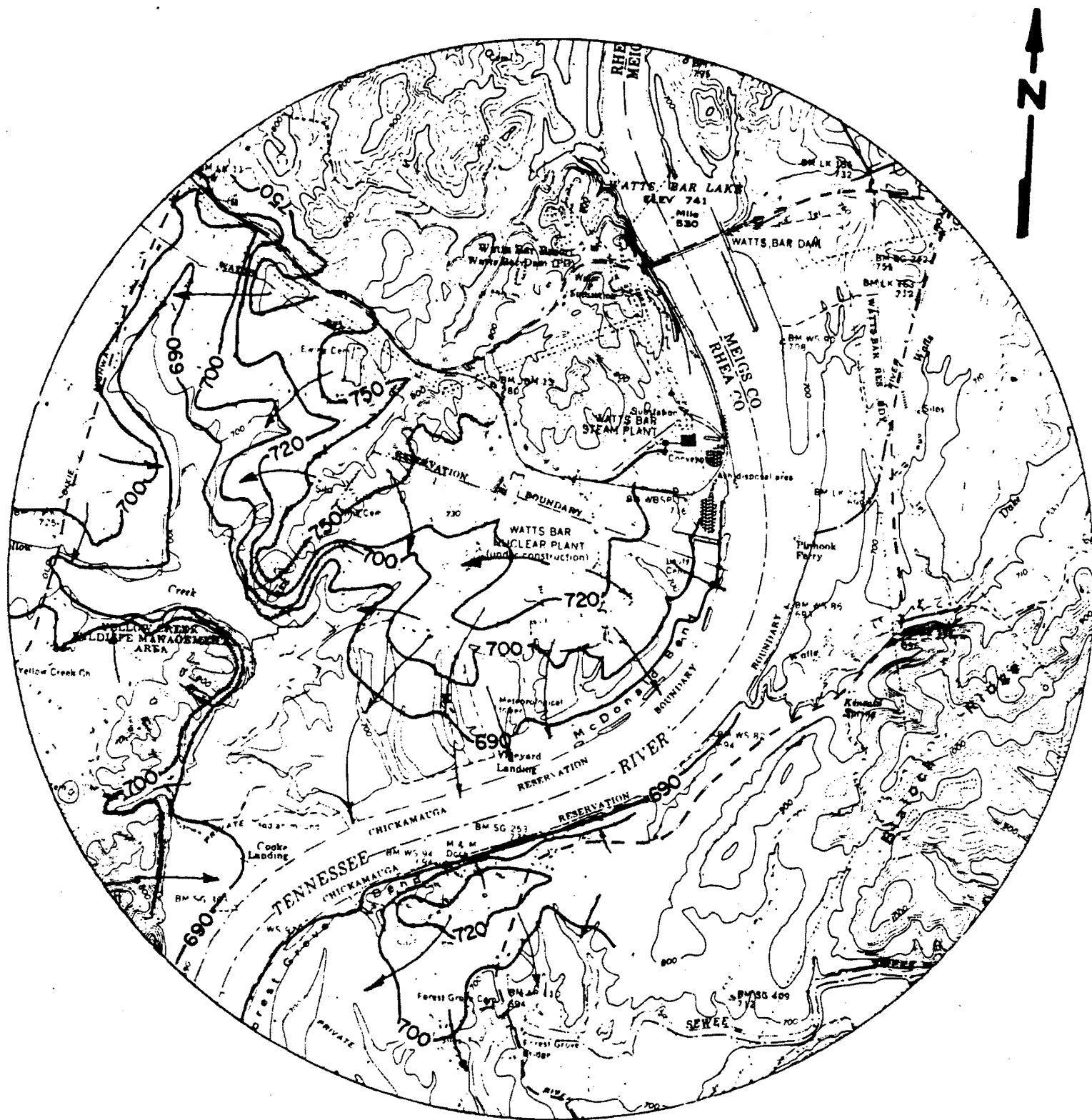
SCALE:



Revised by Amendment 50

WATTS BAR NUCLEAR PLANT FINAL SAFETY ANALYSIS REPORT
LOCATIONS OF GROUND - WATER OBSERVATION WELLS FIGURE 2.4-104

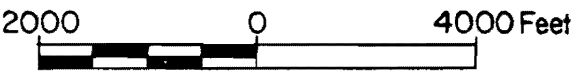
Figure 2.4-104 Locations of Ground - Water Observation Wells



EXPLANATION:

- 700 — Water table contour, in feet above mean sea level.
- General direction of ground-water movement.

SCALE:



Revised by Amendment 50

WATTS BAR NUCLEAR PLANT FINAL SAFETY ANALYSIS REPORT
GENERALIZED WATER-TABLE CONTOUR MAP
Figure 2.4-105

Figure 2.4-105 Generalized Water-Table Contour Map January 1972

DESIGN PRESSURE & TEMPERATURE DATA		
Line Design Pressure (PSI)	Design Temperature (°F)	
1	450	550
2	600	400
3	100	100

1. All design pressures are based on the design temperature of the material.
2. The design pressure is based on the design temperature of the material.
3. The design temperature is based on the design pressure of the material.
4. The design pressure is based on the design temperature of the material.
5. The design temperature is based on the design pressure of the material.

- NOTES:
1. All design pressures are based on the design temperature of the material.
 2. The design pressure is based on the design temperature of the material.
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 7. The design temperature is based on the design pressure of the material.
 8. The design pressure is based on the design temperature of the material.
 9. The design temperature is based on the design pressure of the material.
- REFERENCE DRAWING:
- 1. DESIGN DRAWING FOR THE SUPPLY OF THE SYSTEM
 - 2. DESIGN DRAWING FOR THE SUPPLY OF THE SYSTEM
 - 3. DESIGN DRAWING FOR THE SUPPLY OF THE SYSTEM
 - 4. DESIGN DRAWING FOR THE SUPPLY OF THE SYSTEM
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 - 7. DESIGN DRAWING FOR THE SUPPLY OF THE SYSTEM
 - 8. DESIGN DRAWING FOR THE SUPPLY OF THE SYSTEM
 - 9. DESIGN DRAWING FOR THE SUPPLY OF THE SYSTEM

Revised by Amendment

WATTS BAR NUCLEAR PLANT FINAL SAFETY ANALYSIS REPORT POWERHOUSE UNITS 1 & 2 FLOW DIAGRAM RESIDUAL HEAT REMOVAL SYSTEM TVA DWG NO. 47W010-1 R10 FIGURE 2.4-107

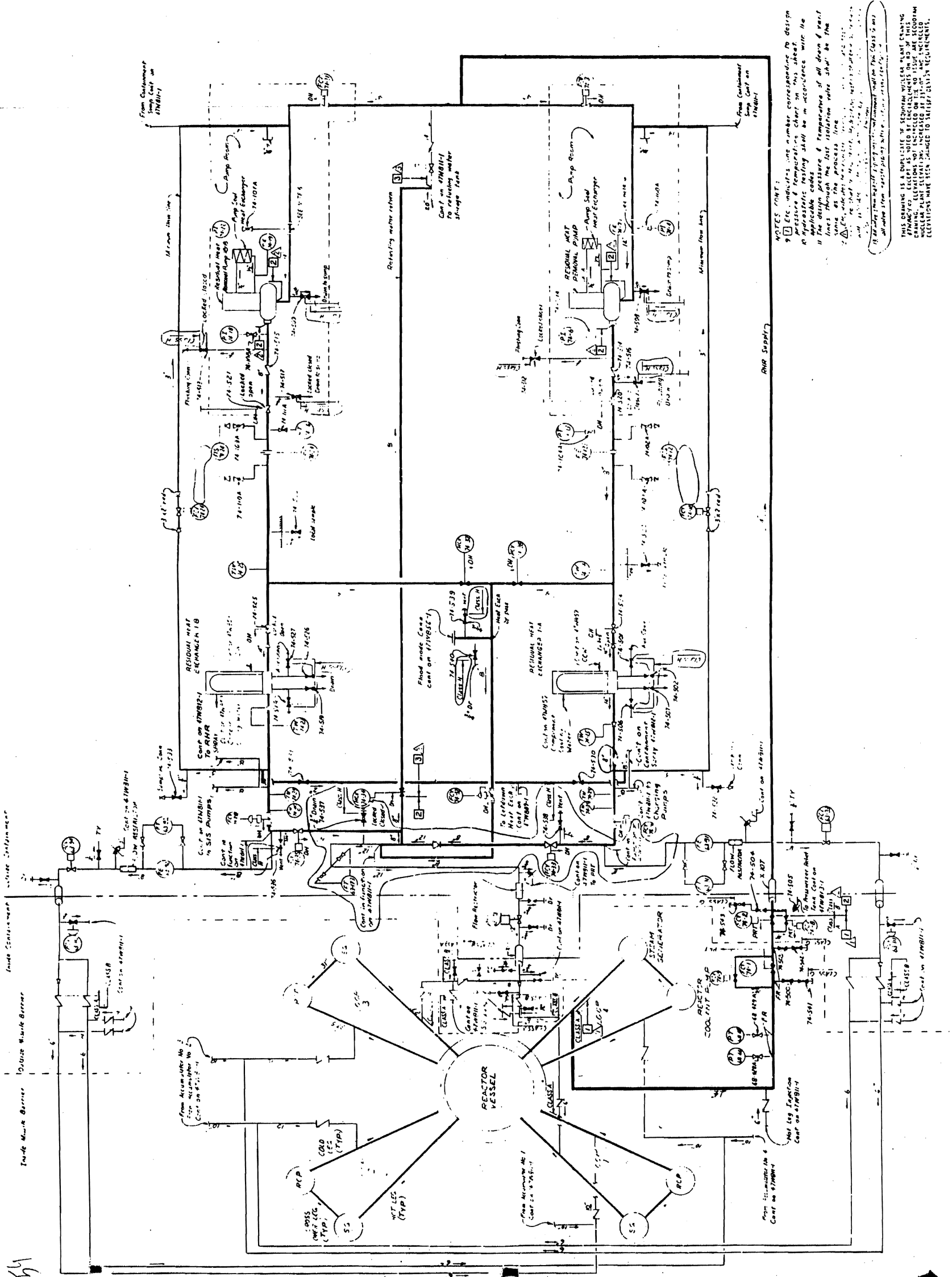
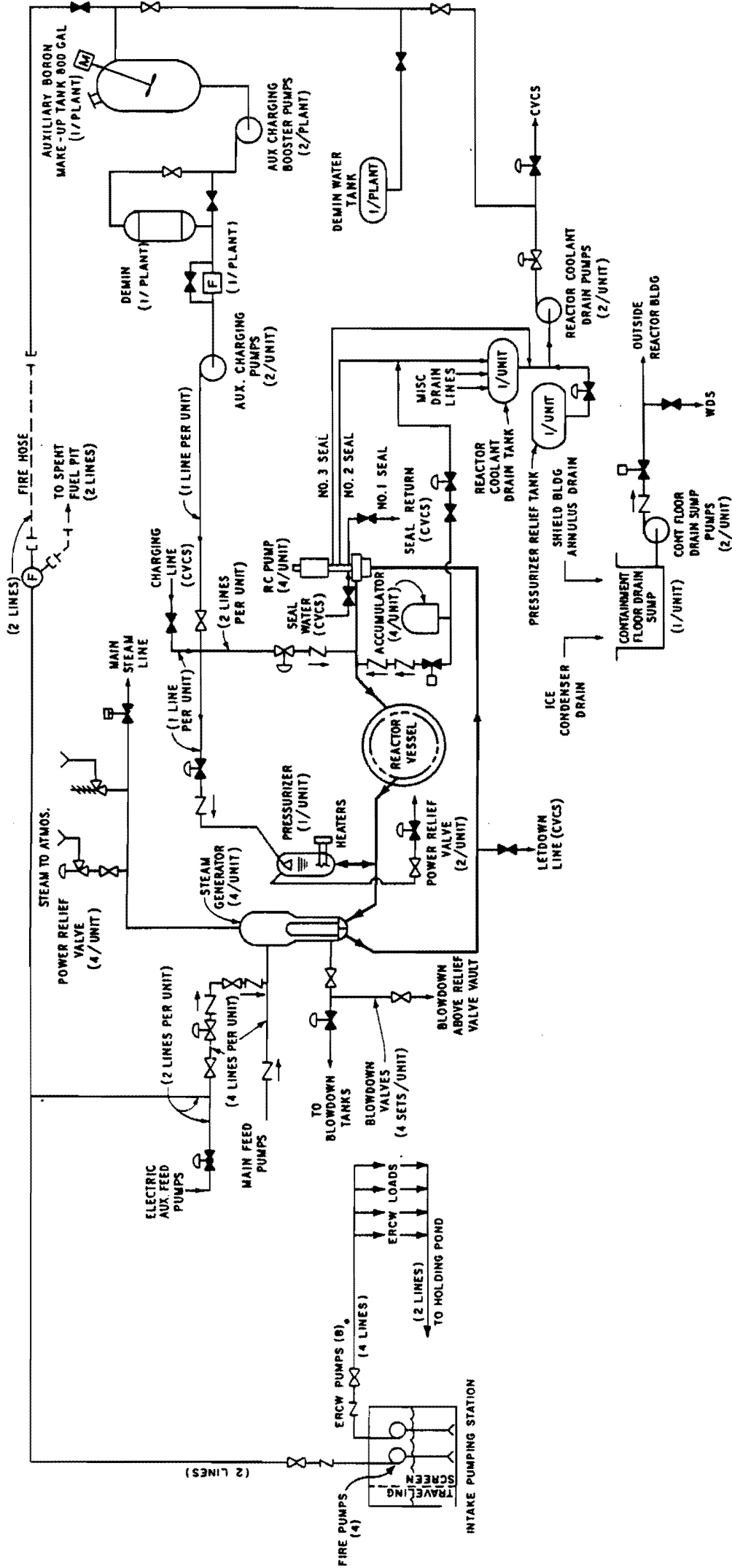


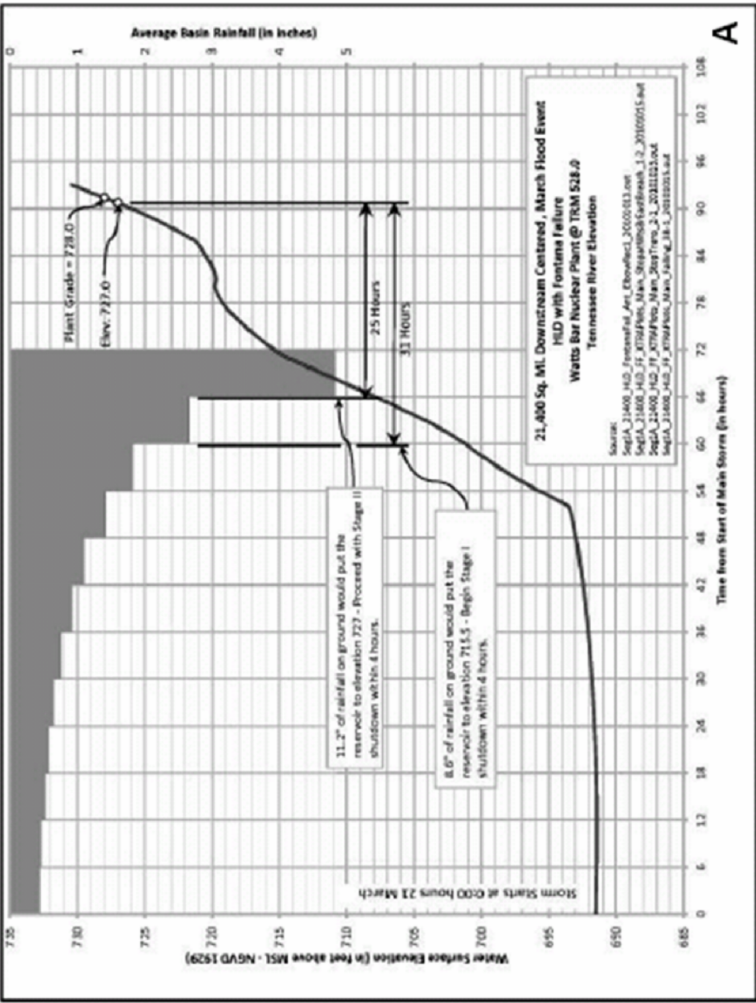
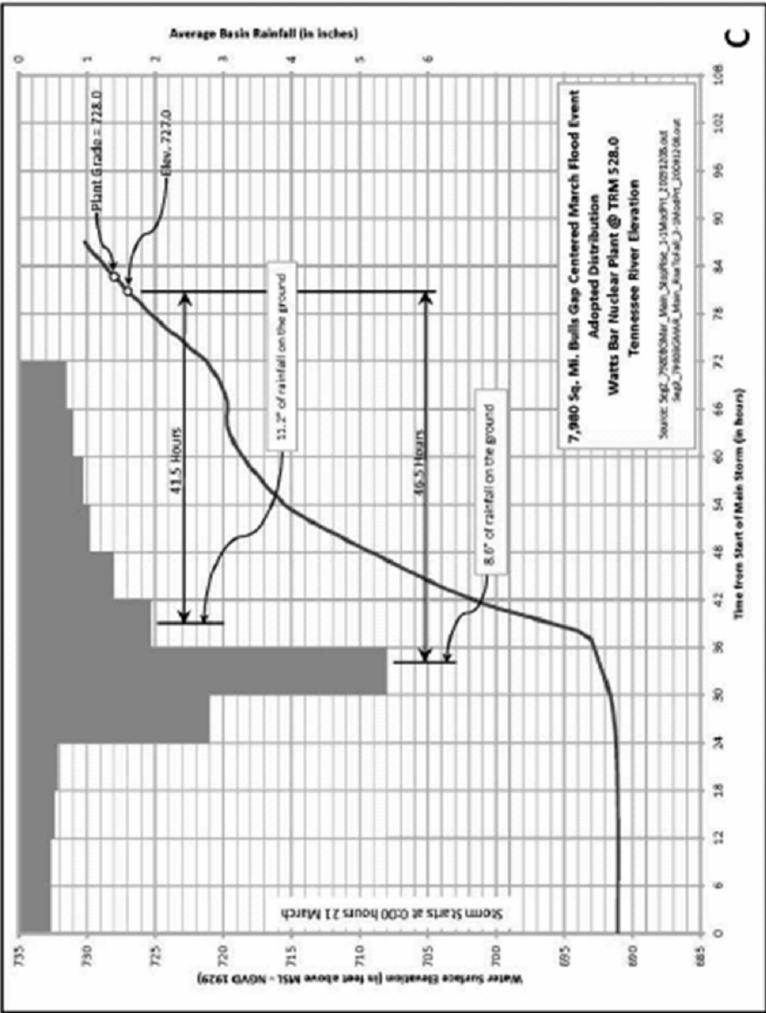
Figure 2.4-107 Powerhouse Units 1 & 2 Flow Diagram - Residual Heat Removal System



NOTES:
DRAWING DOES NOT INCLUDE:
VENTILATION SYS., EMERGENCY POWER SYS.,
SAMPLING SYS., DETAILS OF ERCW LOADS,
SPOOL PIECE CONNECTIONS.

WATTS BAR NUCLEAR PLANT FINAL SAFETY ANALYSIS REPORT
SCHEMATIC FLOW DIAGRAM FLOOD PROTECTION PROVISIONS NATURAL CONVECTION COOLING (unit 1 shown, unit 2 similar) Figure 2.4-109

Figure 2.4-109 Schematic Flow Diagram Flood Protection Provisions Natural Convection Cooling (Unit 1 Shown, Unit 2 Similar)



NOTE: Times shown allow 4 hours for communications and forecast computations.

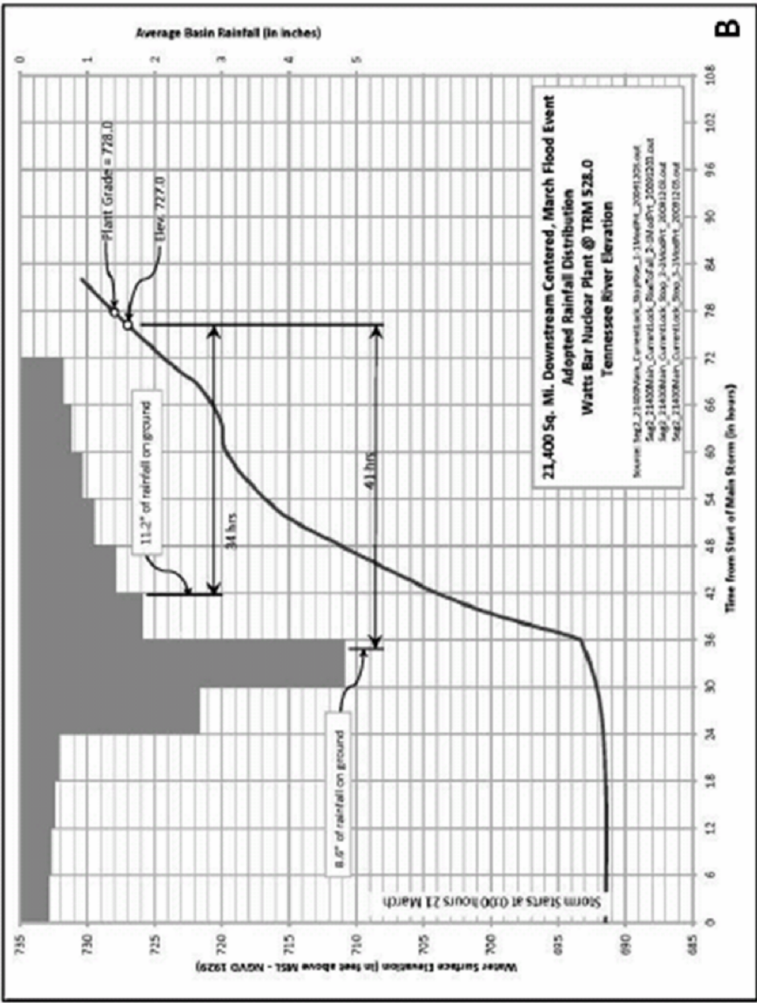
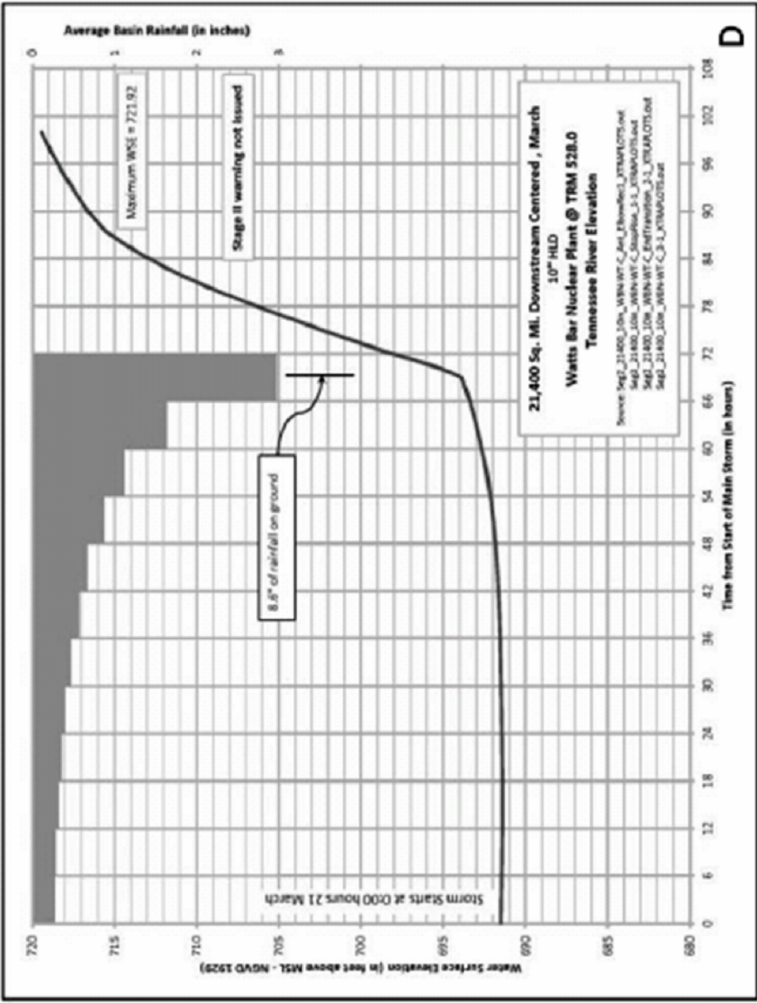
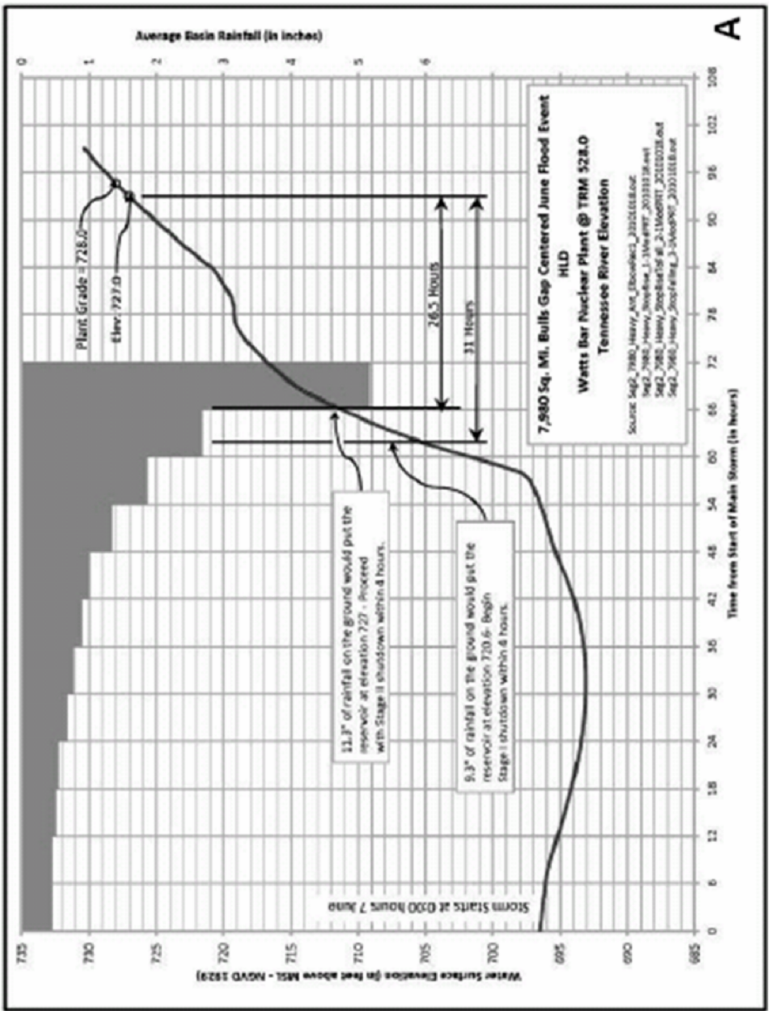
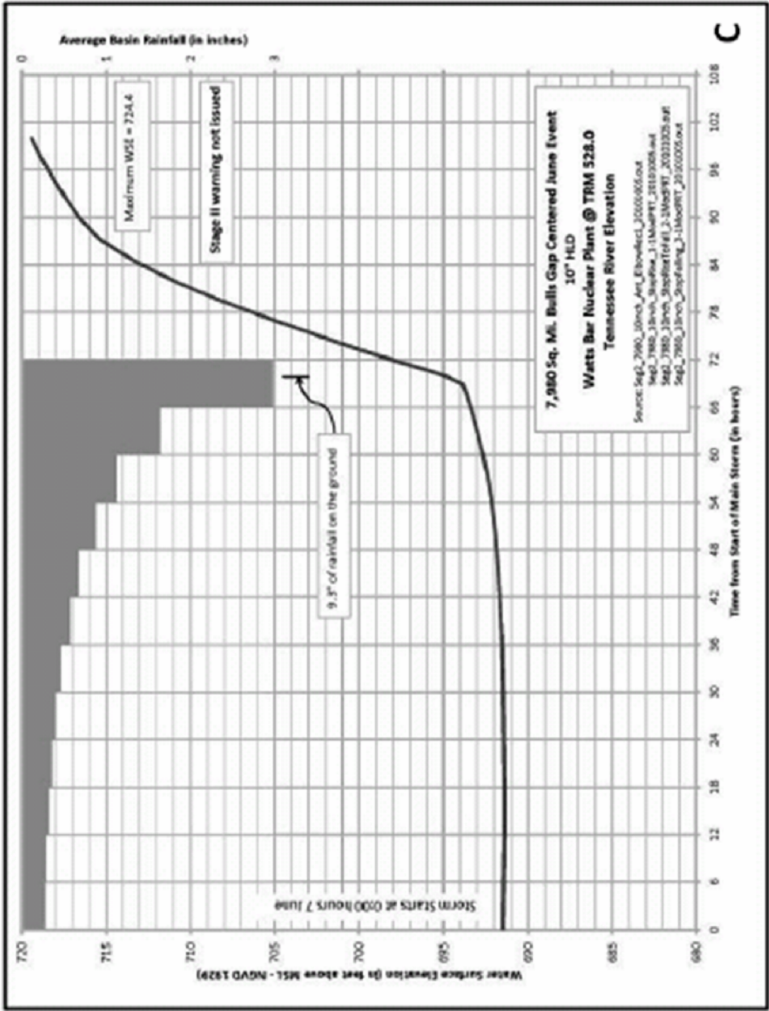


Figure 2.4-110 (Sheet 1) Watts Bar Nuclear Plant Rainfall Flood Warning Time Basis For Safe Shutdown For Plant Flooding - Winter Events



NOTE: Times shown allow 4 hours for communications and forecast computations.

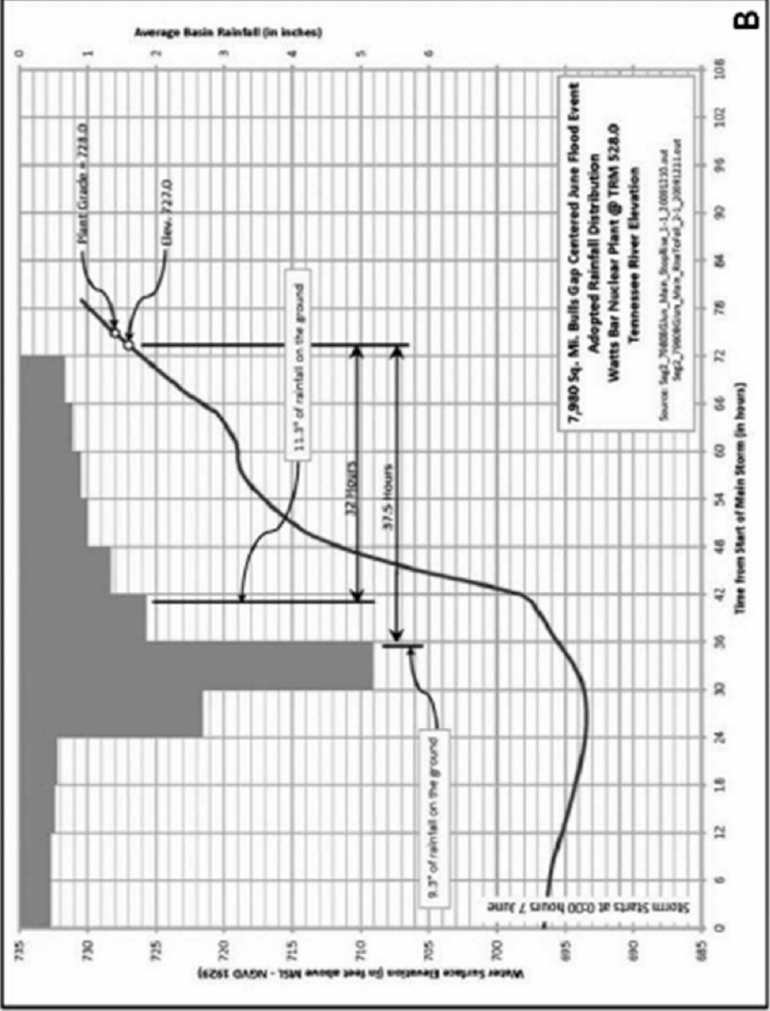


Figure 2.4-110 (Sheet 2) Watts Bar Nuclear Plant Rainfall Flood Warning Time Basis For Safe Shutdown For Plant Flooding - Summer Events

Figure 2.4-111 Deleted by Amendment 103



Figure 2.4-112 OBE with Epicenter Within Area Shown

Figure 2.4-113 Deleted by Amendment 107

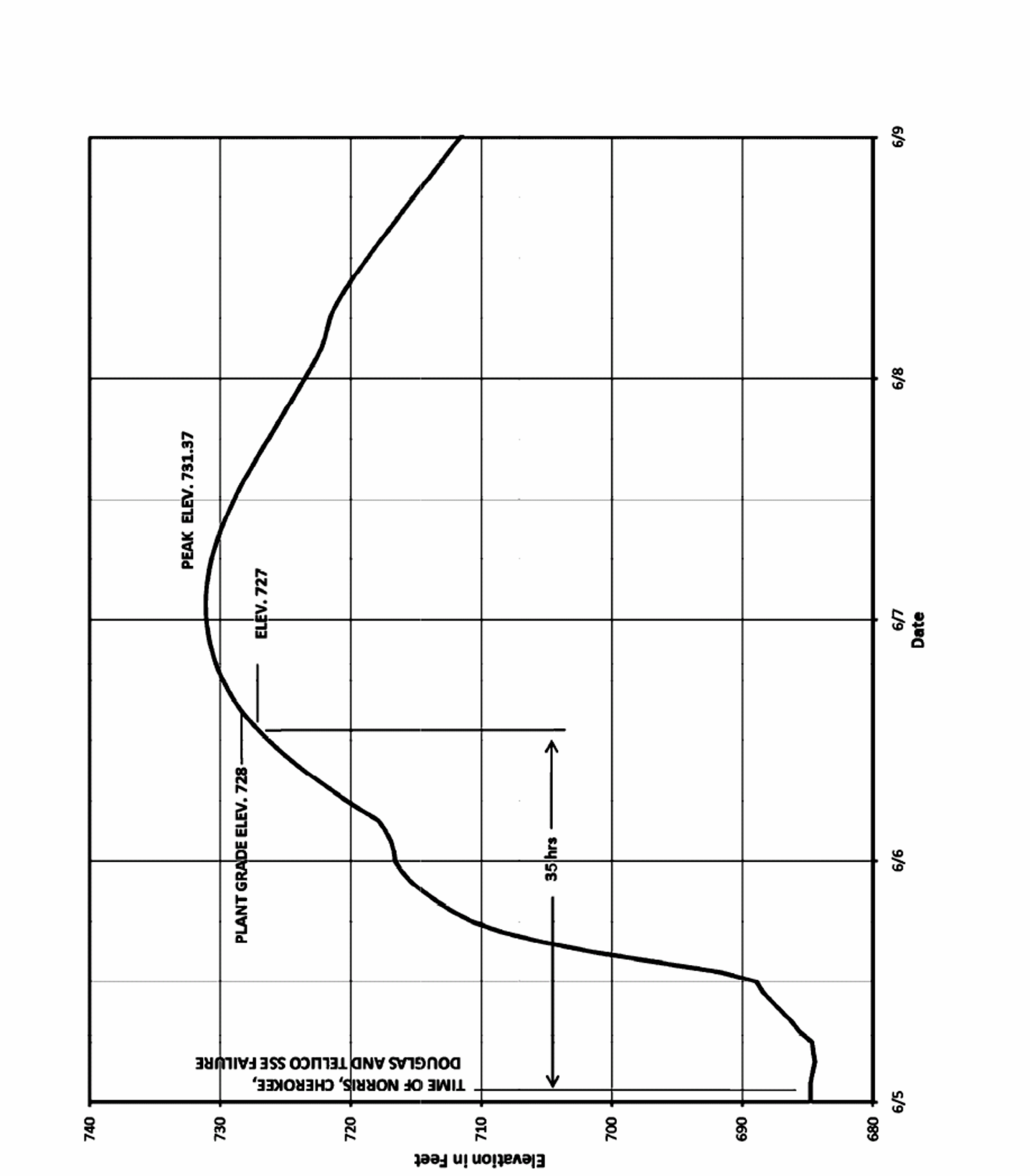


Figure 2.4-114 SSE Failure of Norris, Cherokee, Douglas, and Tellico Dams with 25-Year Flood Failure Wave at Watts Bar Nuclear Plant

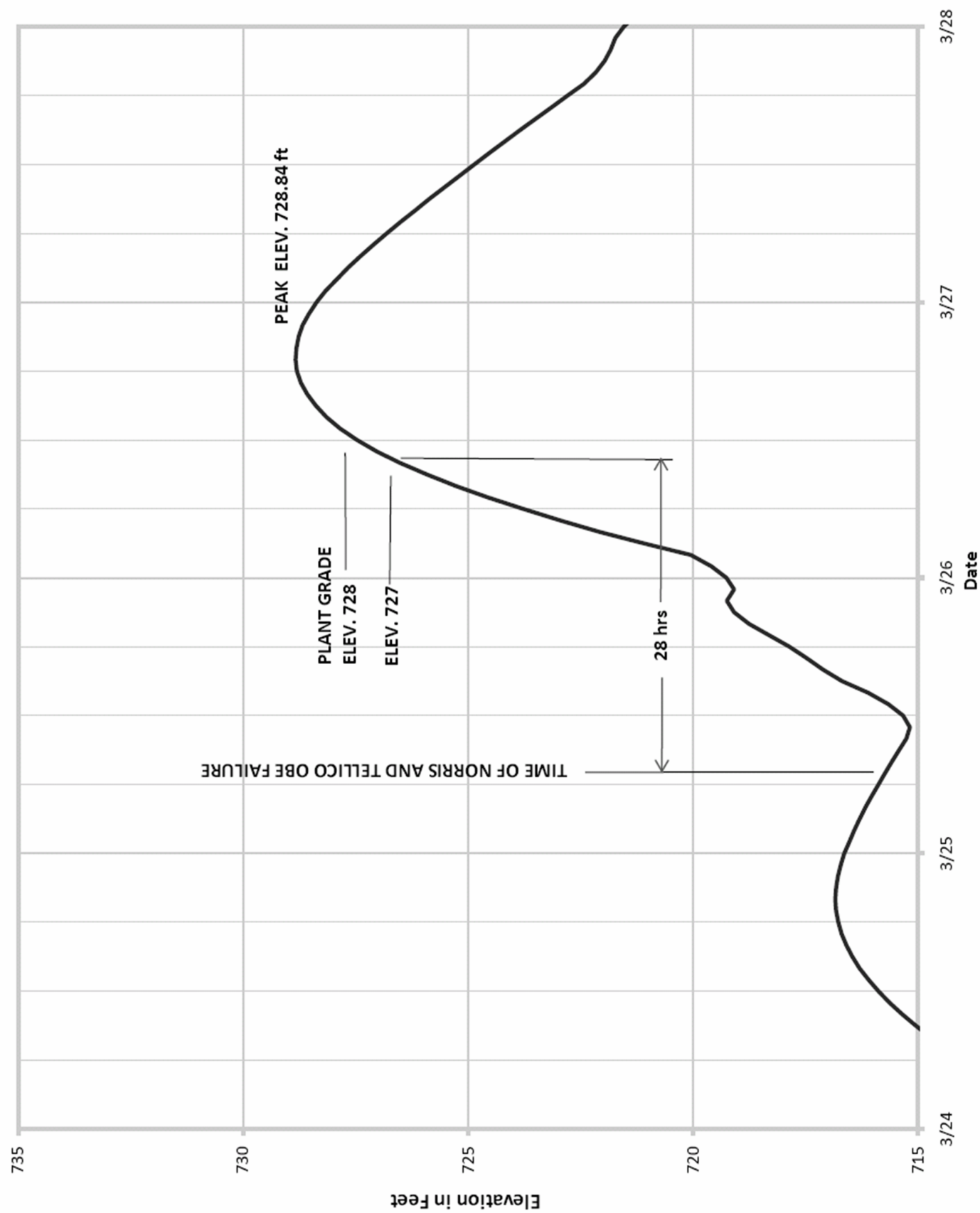


Figure 2.4-115 OBE Failure of Norris and Tellico Dams with 1/2 PMF Event
Failure Wave at Watts Bar Nuclear Plant

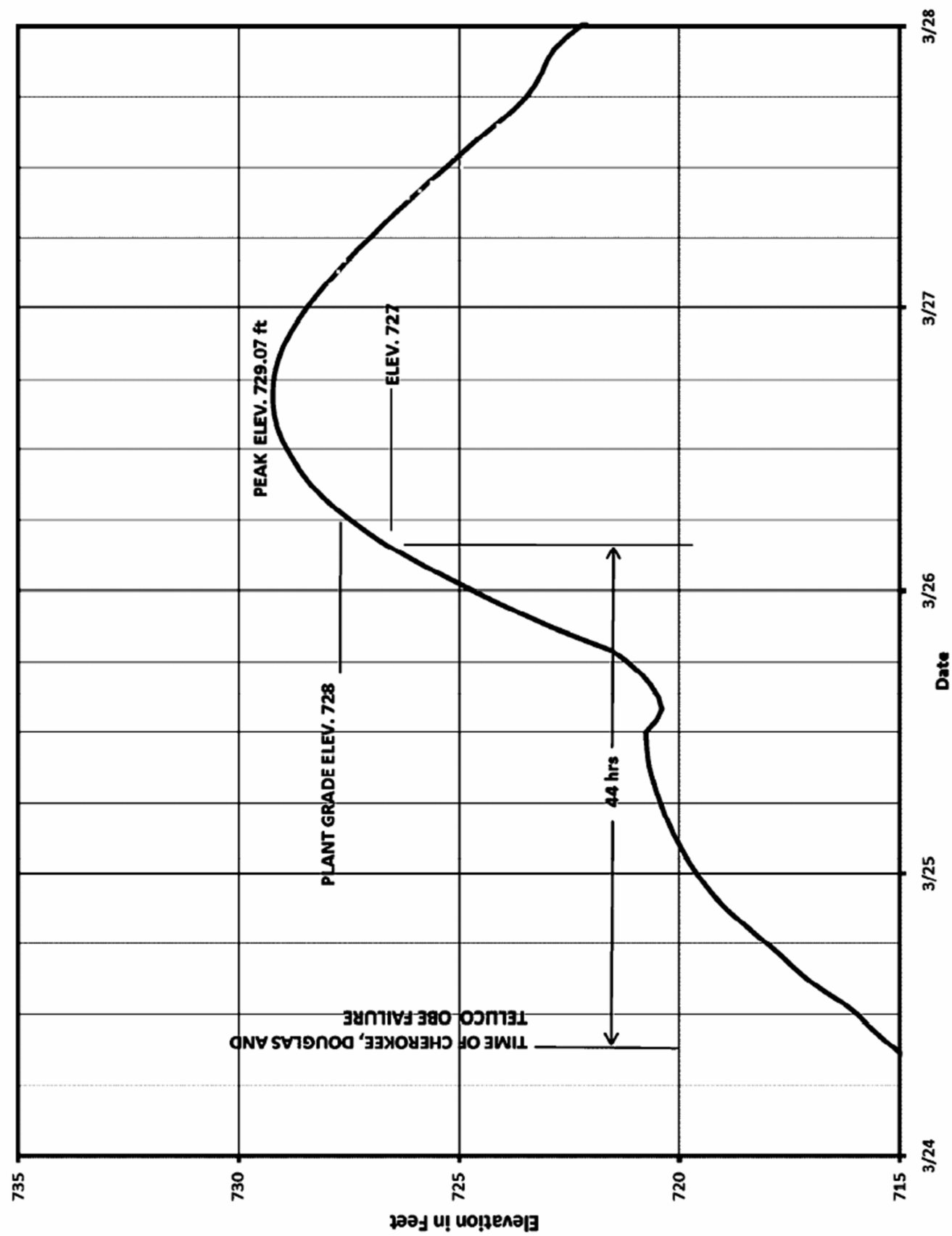


Figure 2.4-116 OBE Failure of Cherokee, Douglas and Tellico Dams with 1/2 PMF Event
Failure Wave at Watts Bar Nuclear Plant