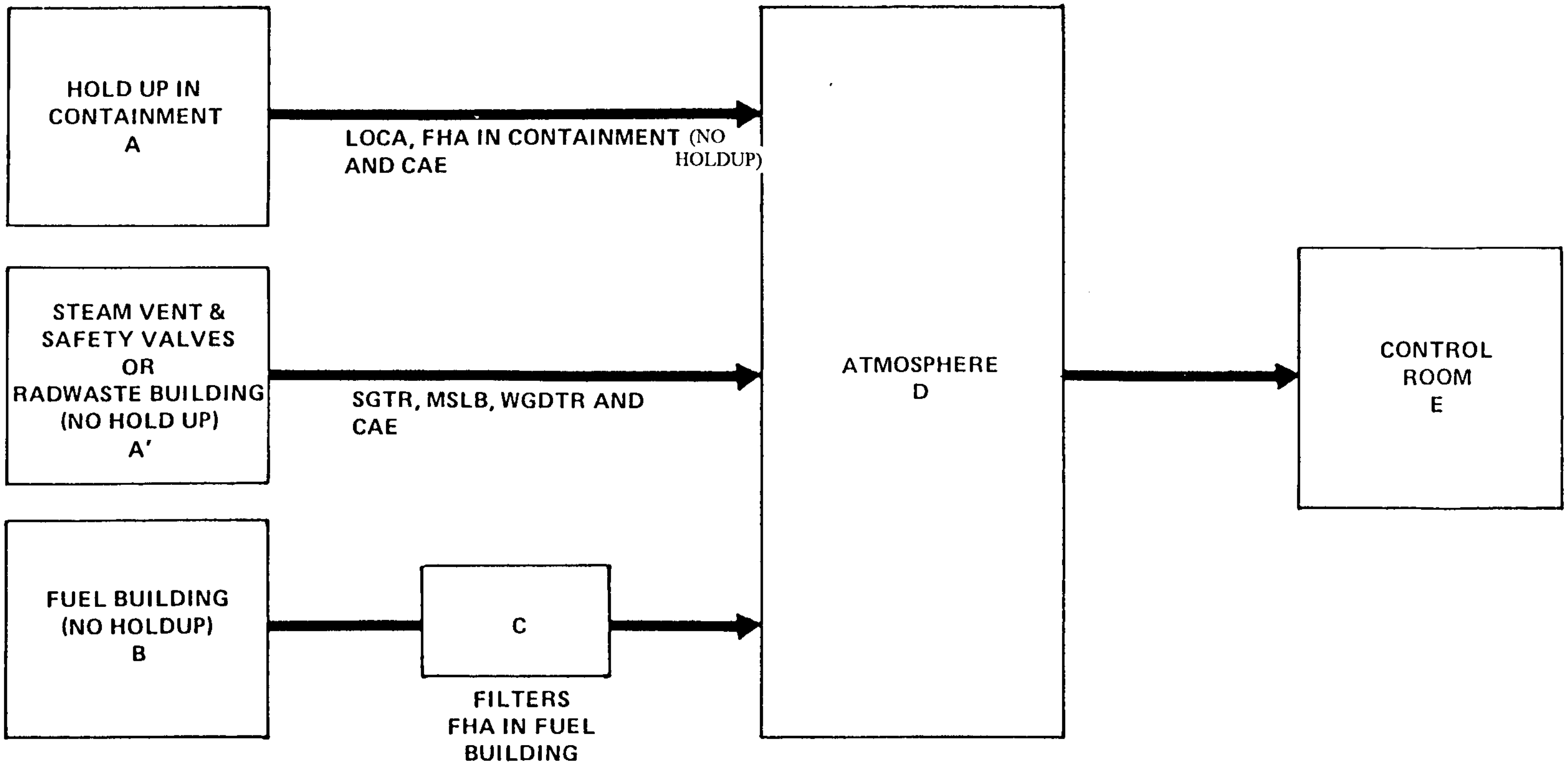

REV. OL-9
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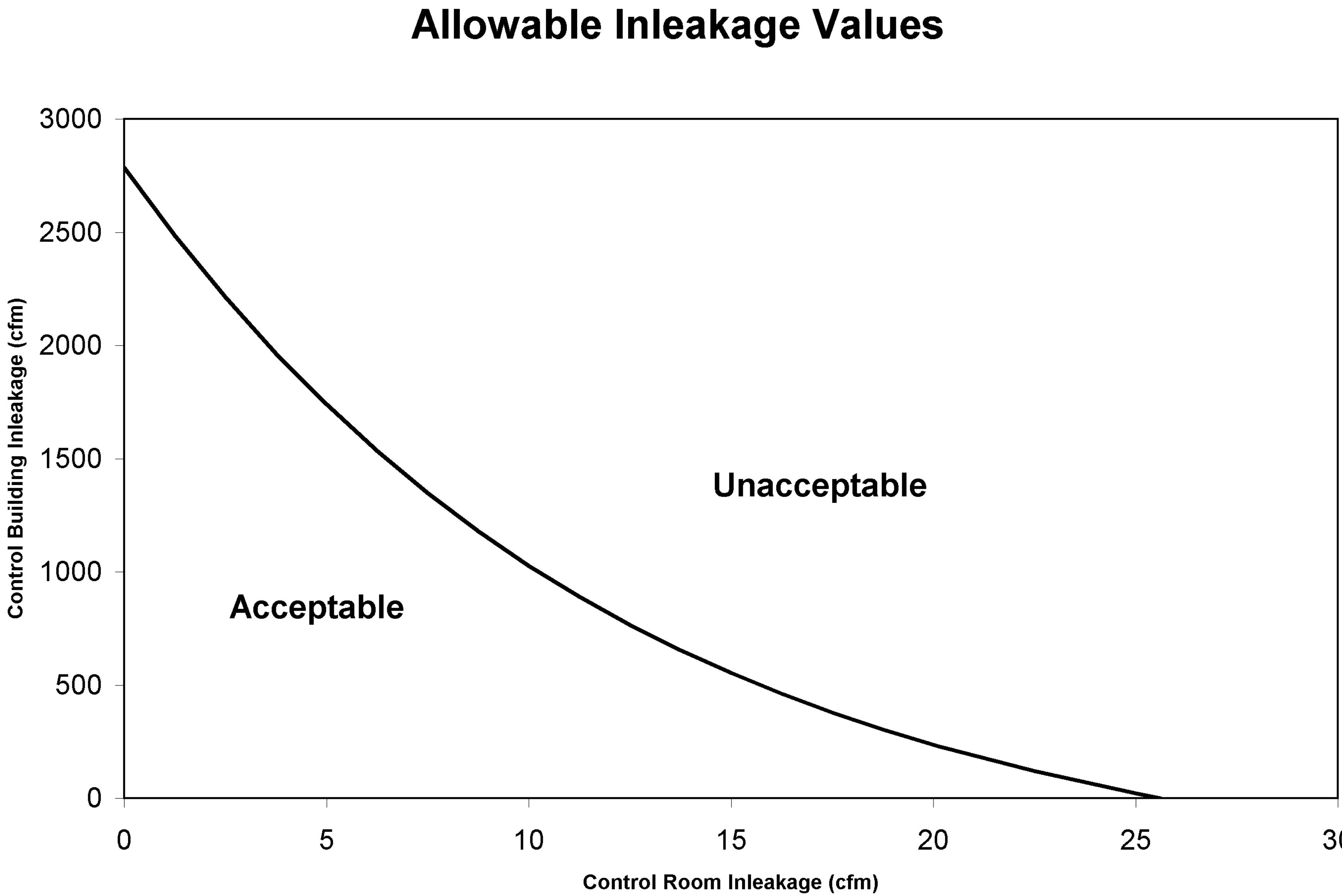
CALLAWAY PLANT

FIGURE 15 A -1

RELEASE PATHWAYS

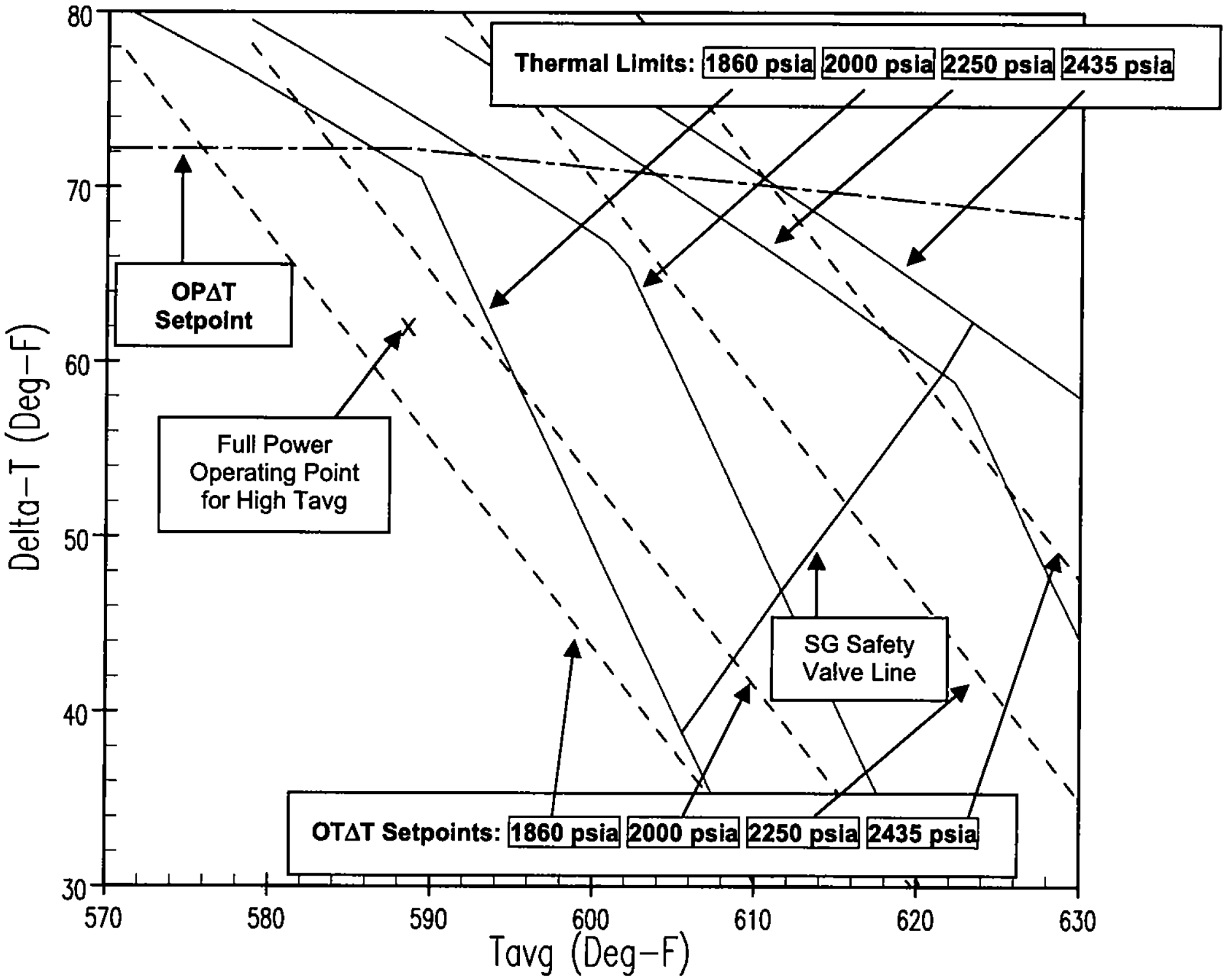


REV. 16
9/06

CALLAWAY PLANT

FIGURE 15A-2

ALLOWABLE INLEAKAGE VALUES



The analysis that produced the above figure conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

CALLAWAY PLANT

FIGURE 15.0-1

ILLUSTRATION OF OVERPOWER AND OVERTEMPERATURE PROTECTION

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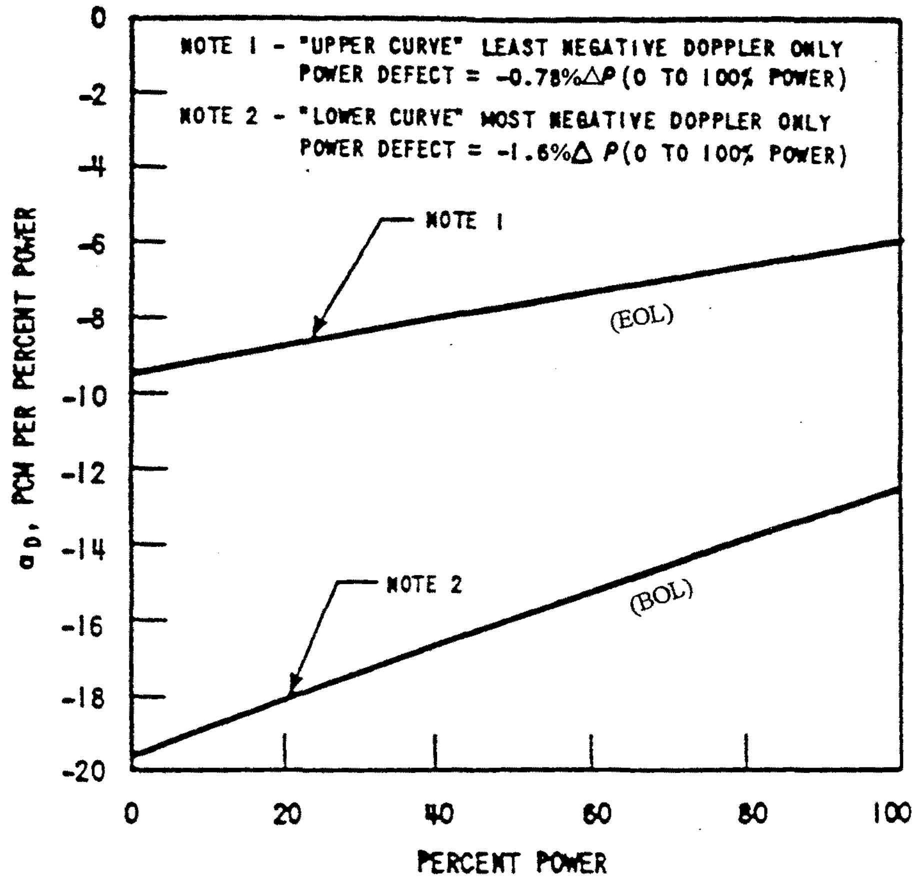
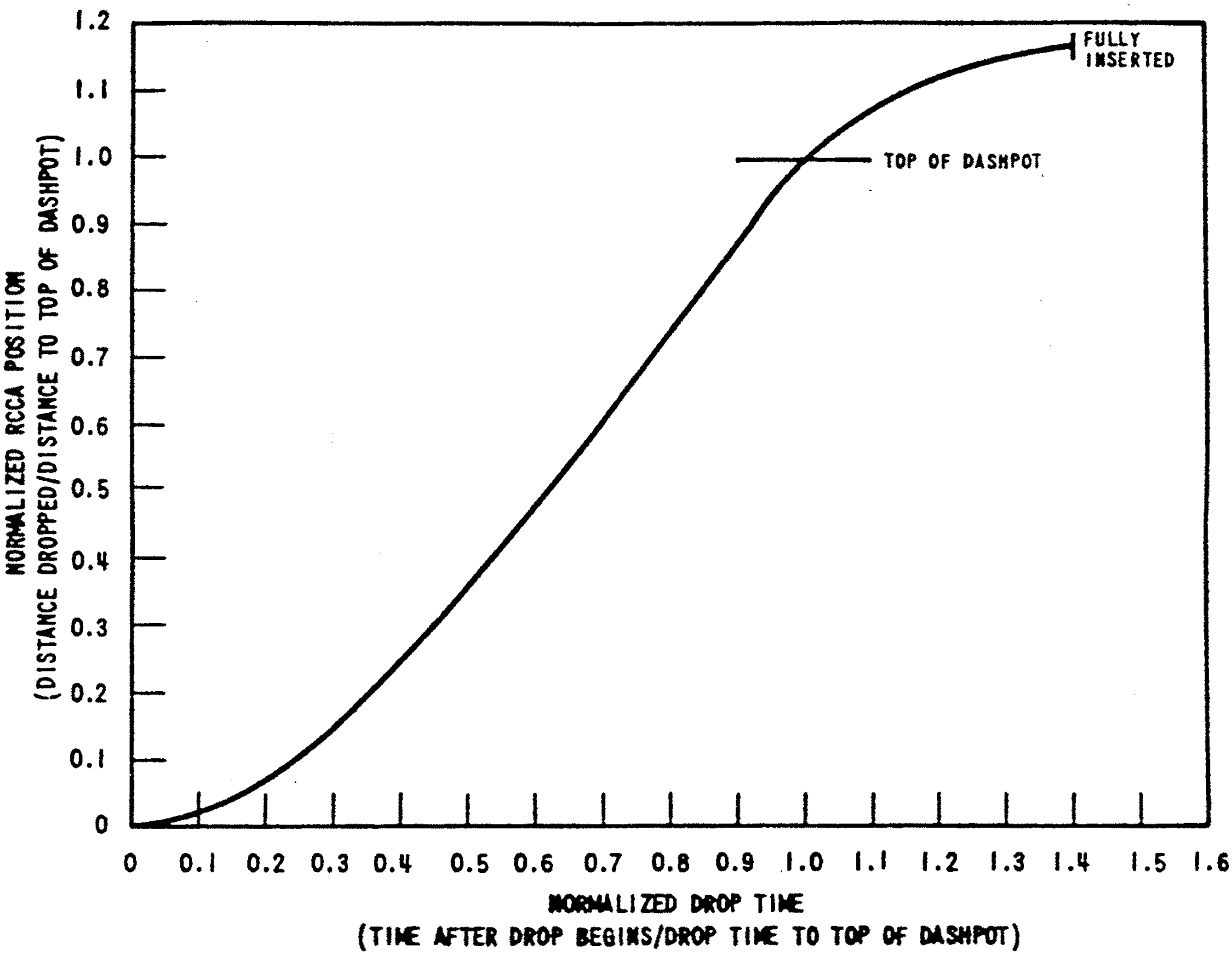


REV. OL-7
5/94

CALLAWAY PLANT

Figure 15.0-2

Doppler Power Coefficient Used in Accident Analysis



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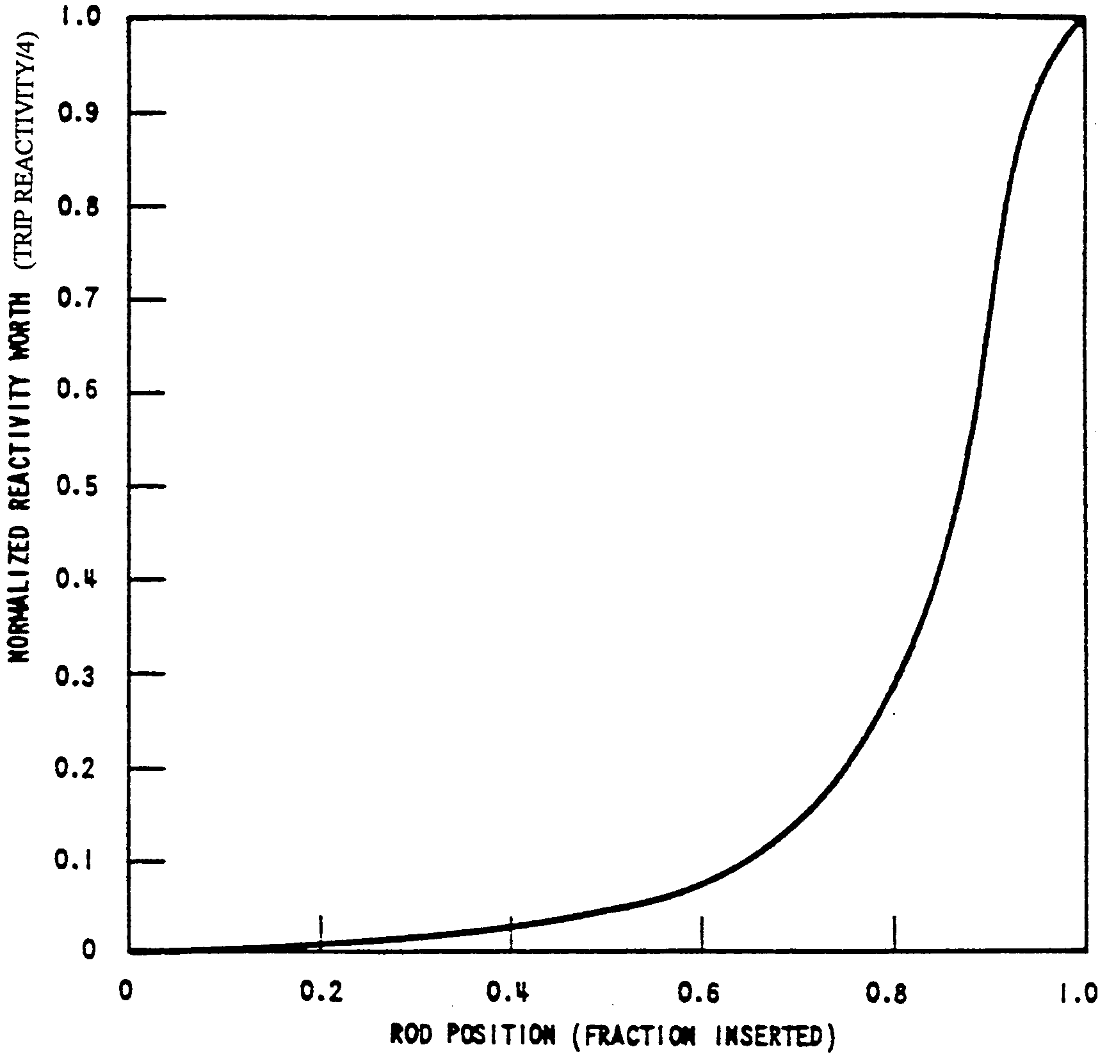
6/88

CALLAWAY PLANT

FIGURE 15.0-3

RCCA POSITION VERSUS
TIME TO DASHPOT

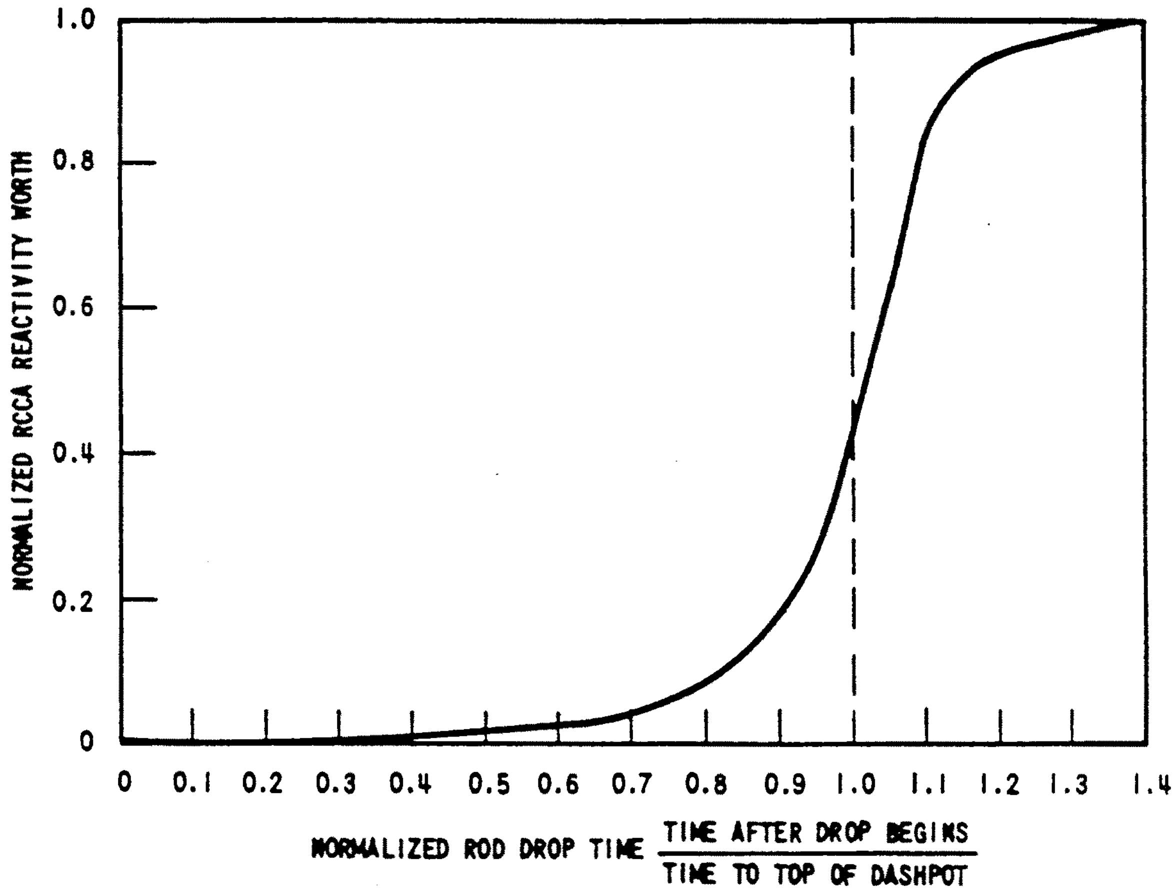


REV. OL-7
5/94

CALLAWAY PLANT

FIGURE 15.0-4

NORMALIZED ROD WORTH VERSUS PERCENT INSERTED



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6/88

CALLAWAY PLANT

FIGURE 15.0-5

NORMALIZED RCCA BANK REACTIVITY WORTH VERSUS NORMALIZED DROP TIME

Figure 15.0-6 Deleted

ABBREVIATIONS USED:

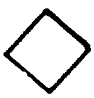
AFWS - AUXILIARY FEEDWATER SYSTEM
CVCS - CHEMICAL AND VOLUME CONTROL SYSTEM
ESFAS - ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
FW - FEEDWATER
RTS - REACTOR TRIP SYSTEM
SIS - SAFETY INJECTION SYSTEM
SI - SAFETY INJECTION
RT - REACTOR TRIP
CS - CONTAINMENT SPRAY
ECCS - EMERGENCY CORE COOLING SYSTEM
HL - HOT LEG
CL - COLD LEG
CCWS - COMPONENT COOLING WATER SYSTEM
RCS - REACTOR COOLANT SYSTEM
SWS - SERVICE WATER SYSTEM
HPI - HIGH PRESSURE INJECTION
LPI - LOW PRESSURE INJECTION
CI - CONTAINMENT ISOLATION
SG - STEAM GENERATOR

NOTES:

1. FOR TRIP INITIATION AND SAFETY SYSTEM ACTUATION, MULTIPLE SIGNALS ARE SHOWN BUT ONLY A SINGLE SIGNAL IS REQUIRED. THE OTHER SIGNALS ARE BACKUPS.
2. NO TIMING SEQUENCE IS IMPLIED BY POSITION OF VARIOUS BRANCHES. REFER TO EVENT TIMING SEQUENCES PRESENTED IN TABULAR FORM IN PERTINENT ACCIDENT ANALYSIS SECTION OF CHAPTER 15.0 OF THE FSAR.
3. WHEN OVERTEMPERATURE AND OVERPOWER ARE USED IT REFERS TO OT-DELTA T AND OP-DELTA T.

DIAGRAM SYMBOLS:

 - EVENT TITLE

 - BRANCH POINT FOR DIFFERENT PLANT CONDITIONS

 - SAFETY SYSTEM

 - SAFETY ACTION

- SYSTEM REQUIRED TO MEET SINGLE-FAILURE CRITERIA

- MANUAL ACTION REQUIRED DURING SYSTEM OPERATION

CALLAWAY PLANT

FIGURE 15.0-7

ABBREVIATIONS AND SYMBOLS USED IN SEQUENCE DIAGRAMS

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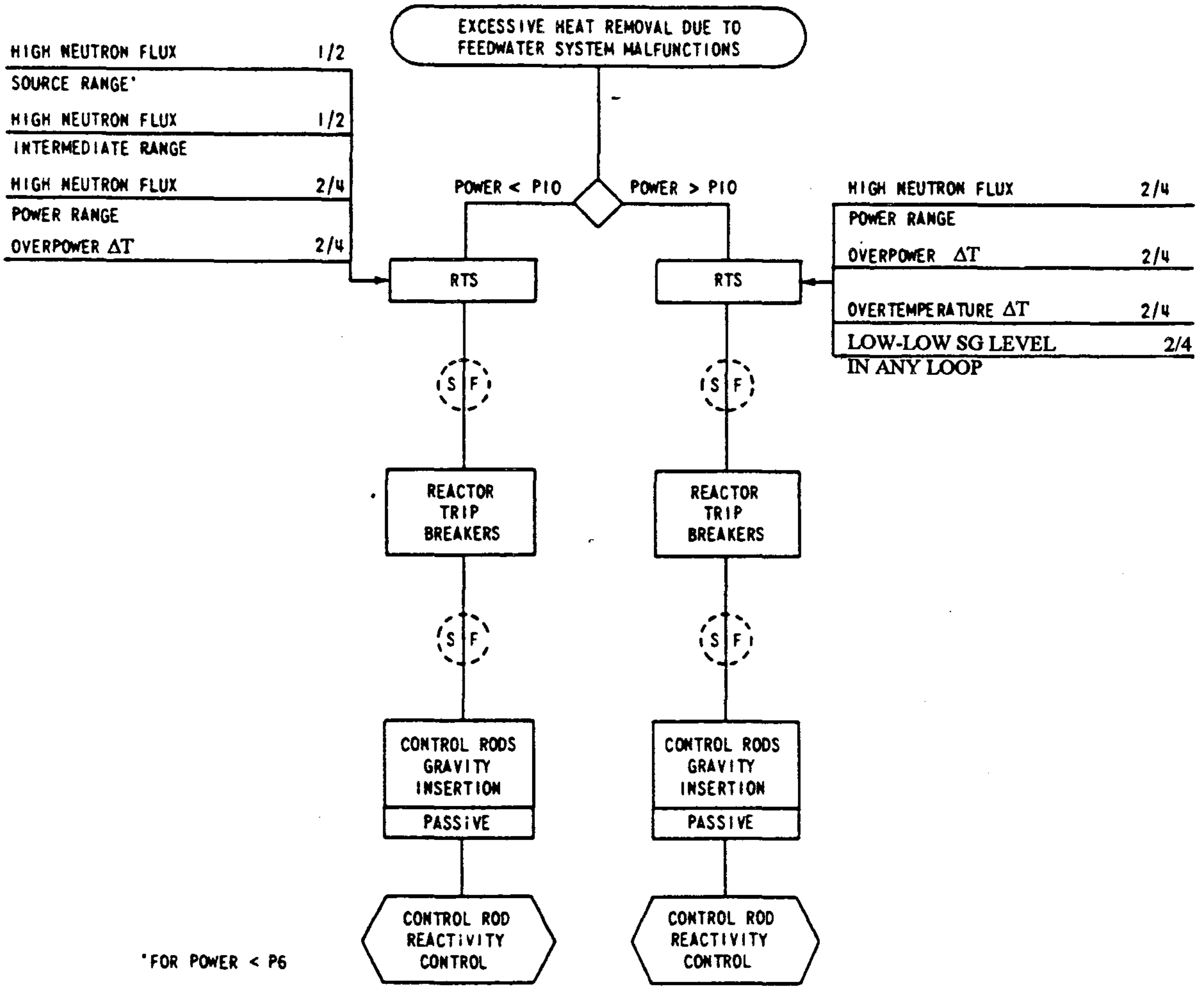
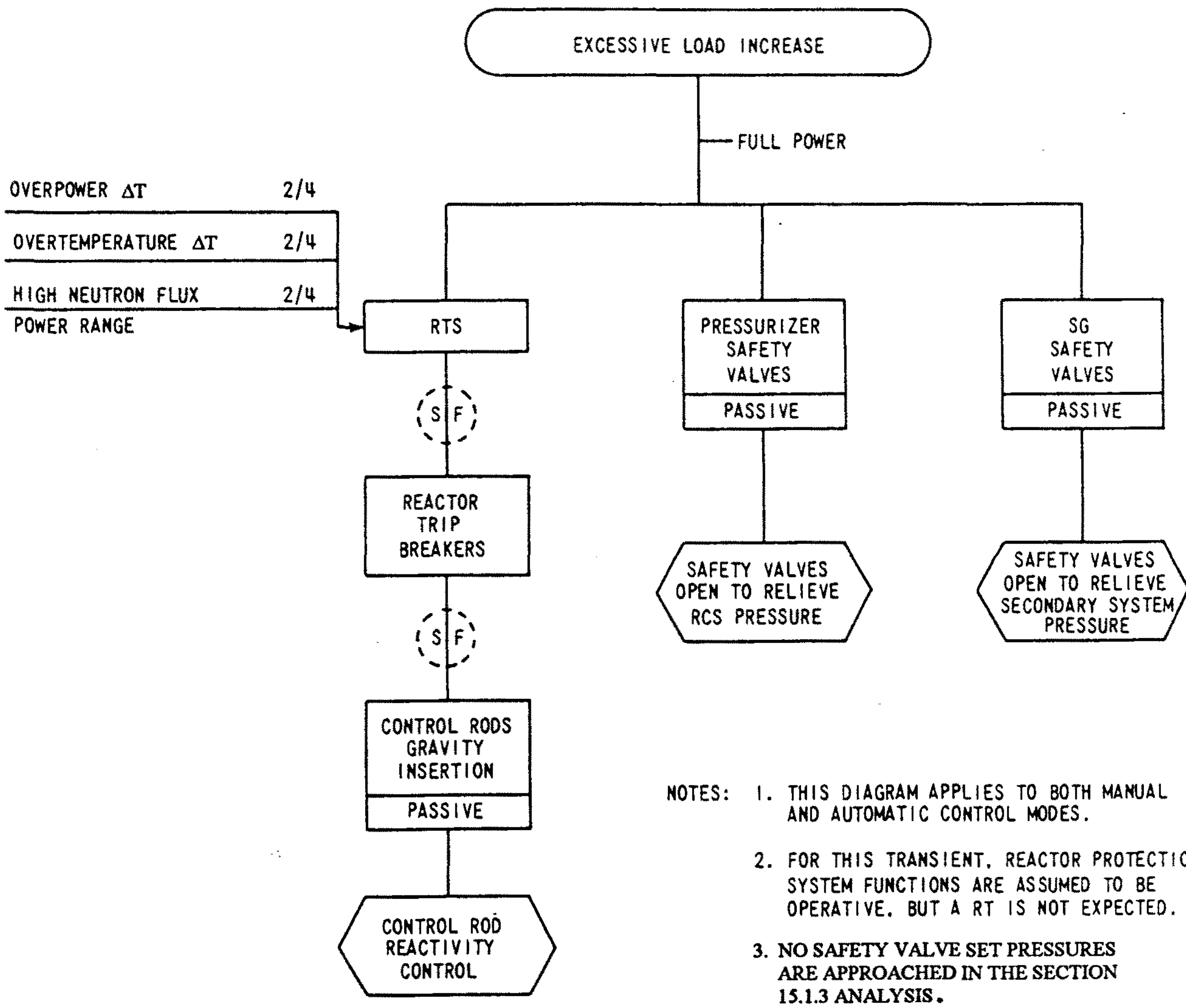


CALLAWAY PLANT

FIGURE 15.0-8

EXCESSIVE HEAT REMOVAL DUE TO FEEDWATER SYSTEMS MALFUNCTION



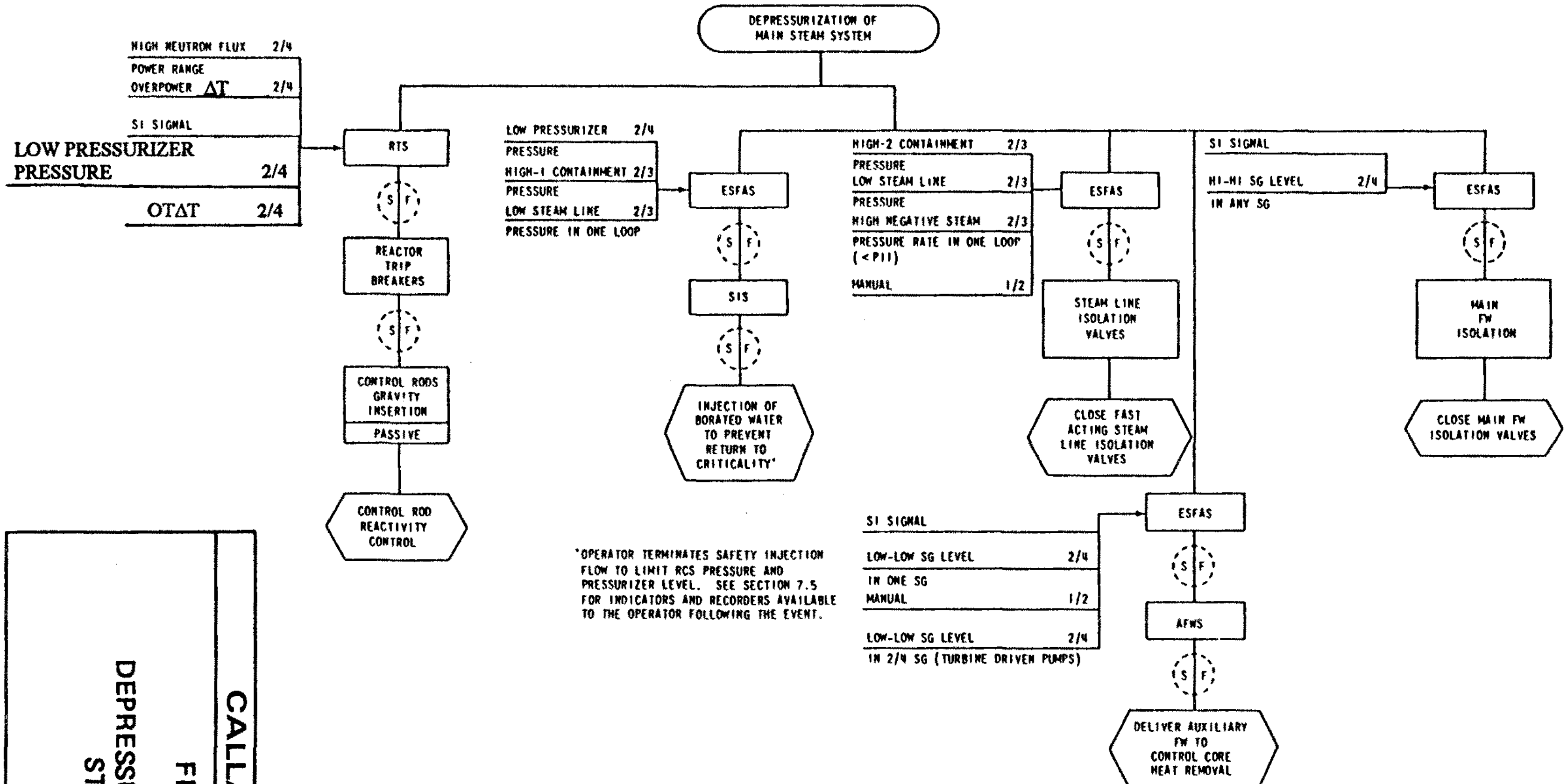
NOTES:
1. THIS DIAGRAM APPLIES TO BOTH MANUAL AND AUTOMATIC CONTROL MODES.
2. FOR THIS TRANSIENT, REACTOR PROTECTION SYSTEM FUNCTIONS ARE ASSUMED TO BE OPERATIVE, BUT A RT IS NOT EXPECTED.
3. NO SAFETY VALVE SET PRESSURES ARE APPROACHED IN THE SECTION 15.1.3 ANALYSIS.

CALLAWAY PLANT

FIGURE 15.0-9

EXCESSIVE LOAD INCREASE

REV OL-8
11/95



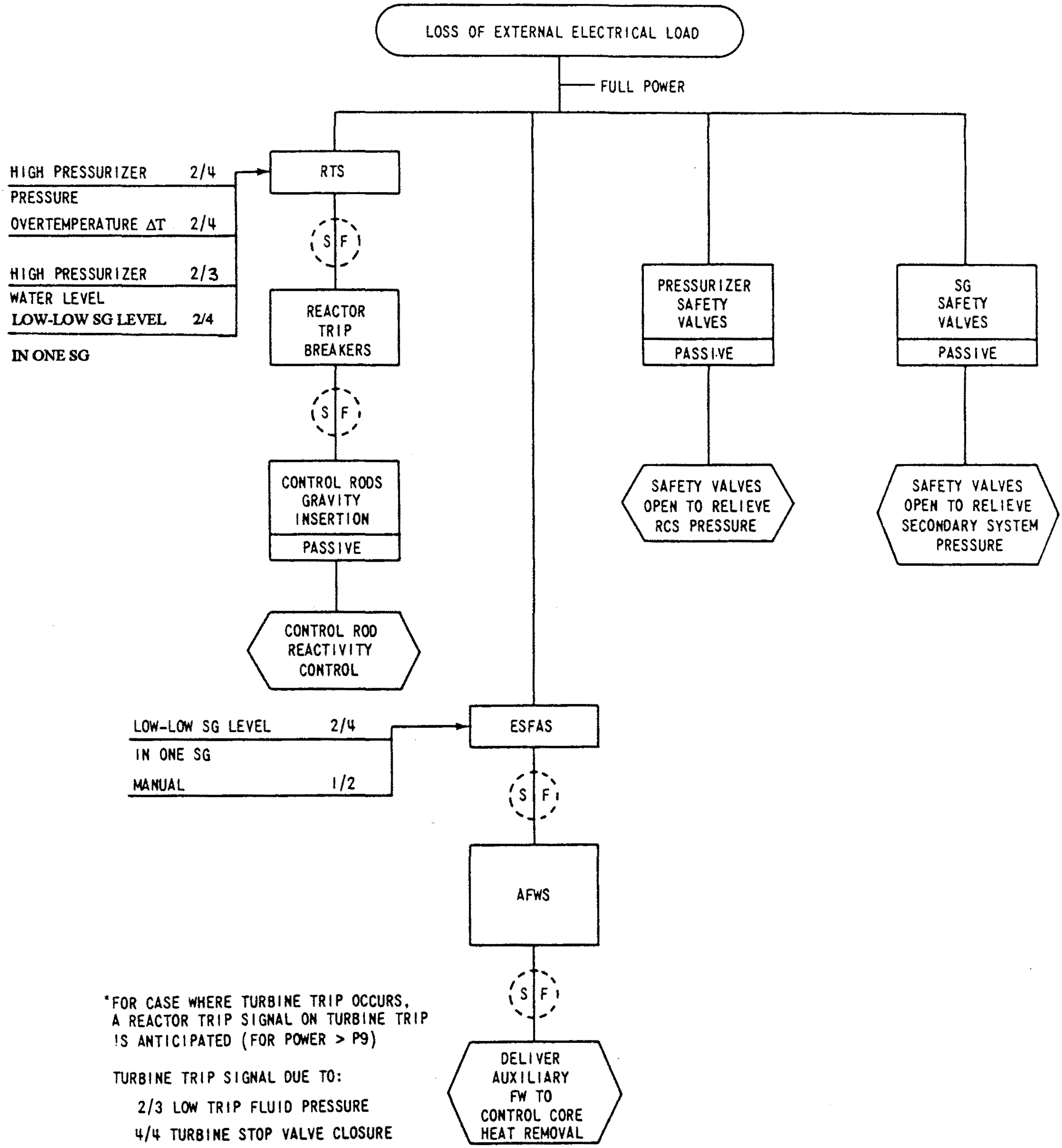
CALLAWAY PLANT

FIGURE 15.0-10

DEPRESSURIZATION OF MAIN STEAM SYSTEM

REV OL-8
11/95

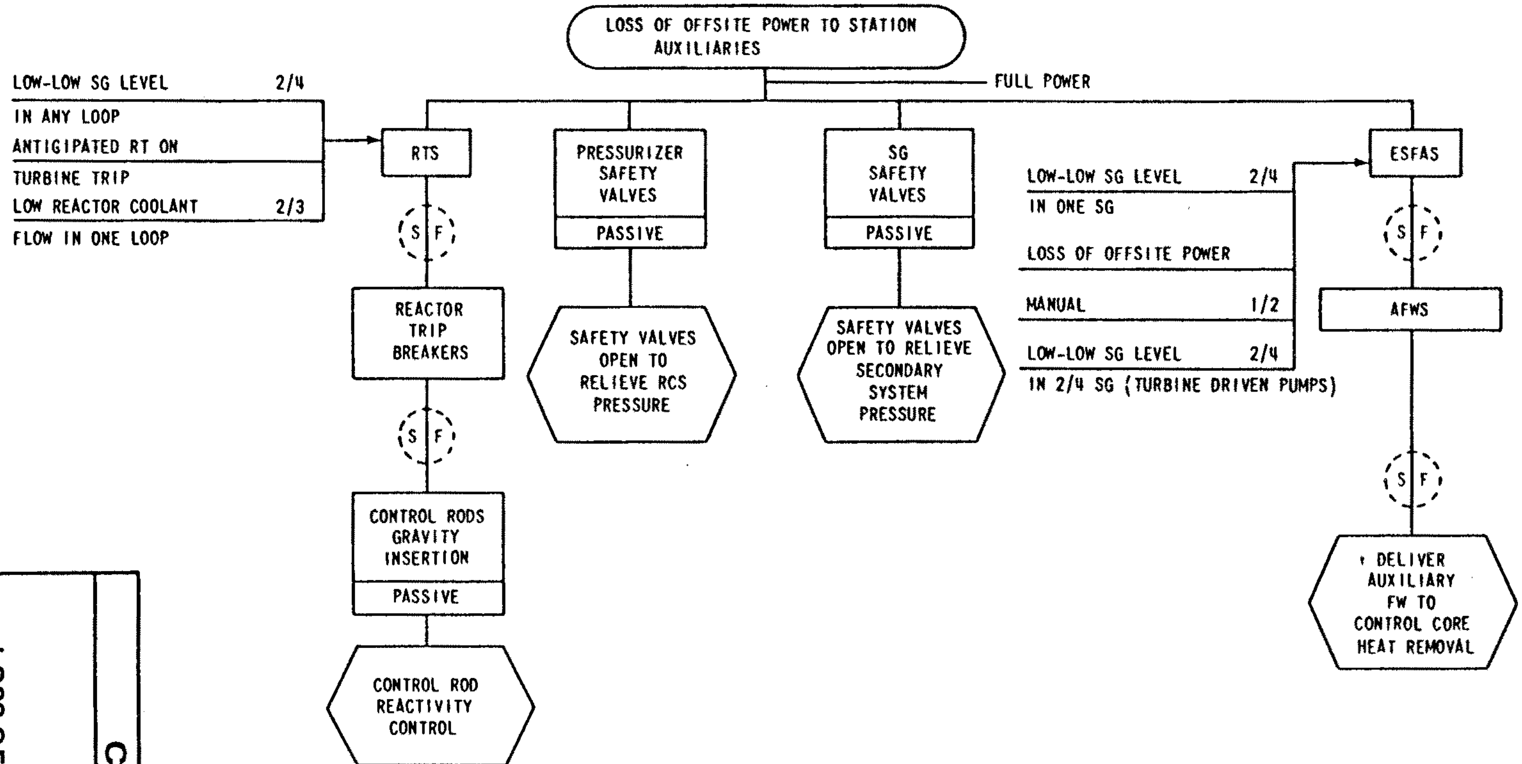
14, 114-3



CALLAWAY PLANT

FIGURE 15.0-11

LOSS OF EXTERNAL LOAD



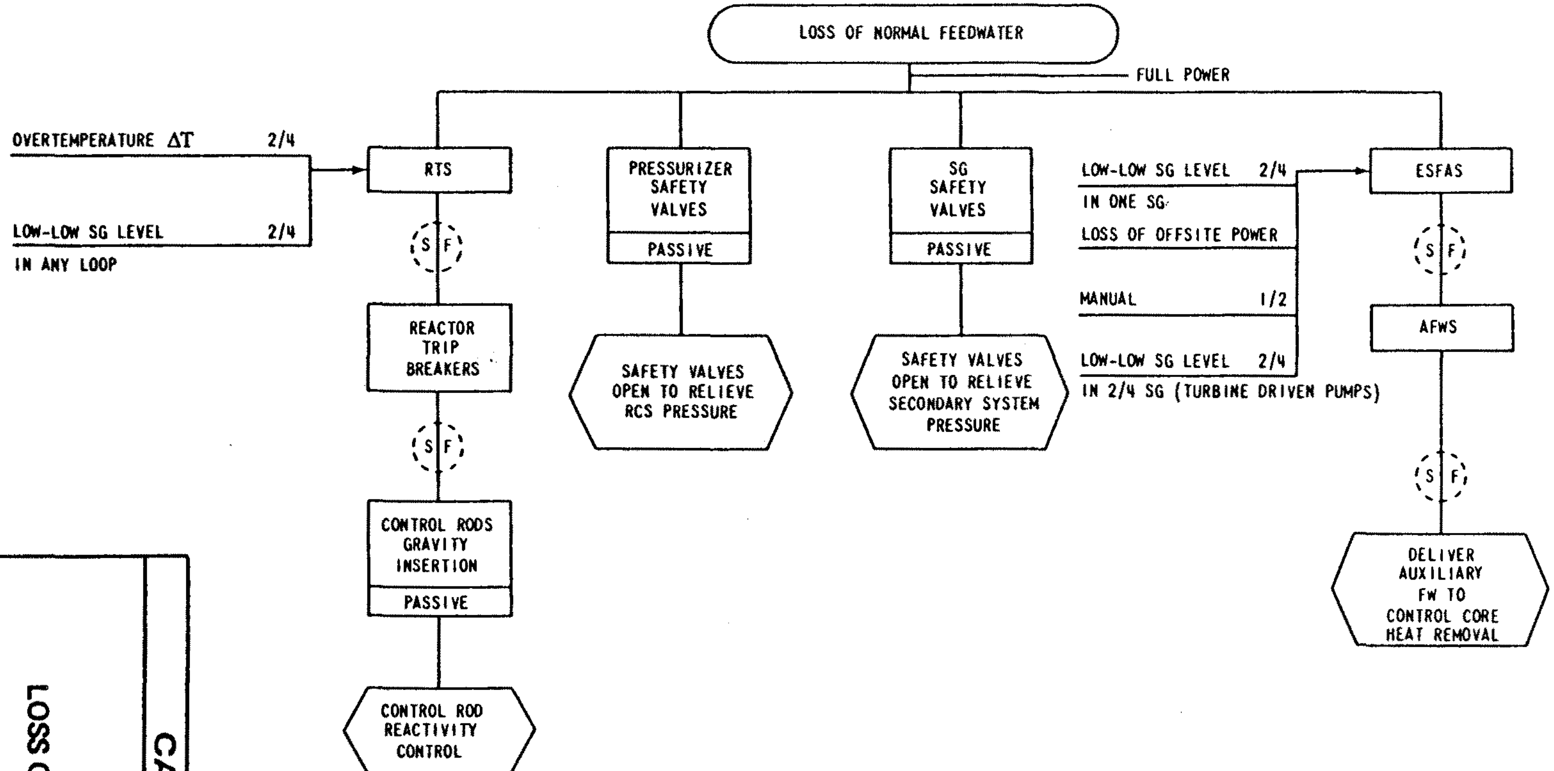
CALLAWAY PLANT

FIGURE 15.0-12

LOSS OF OFFSITE POWER TO STATION AUXILIARIES

REV OL-8
11/95

14,114-5



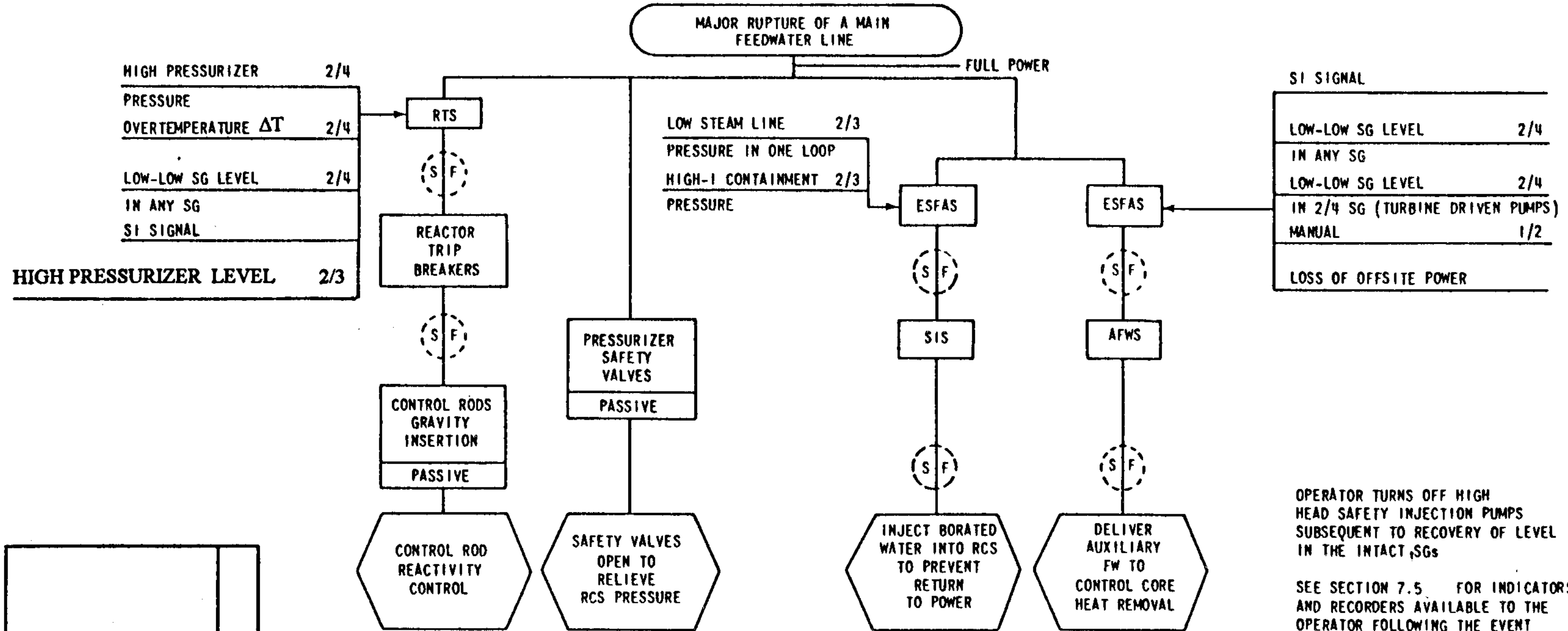
CALLAWAY PLANT

FIGURE 15.0-13

LOSS OF NORMAL FEEDWATER

REV OL-8
11/95

14,114-6

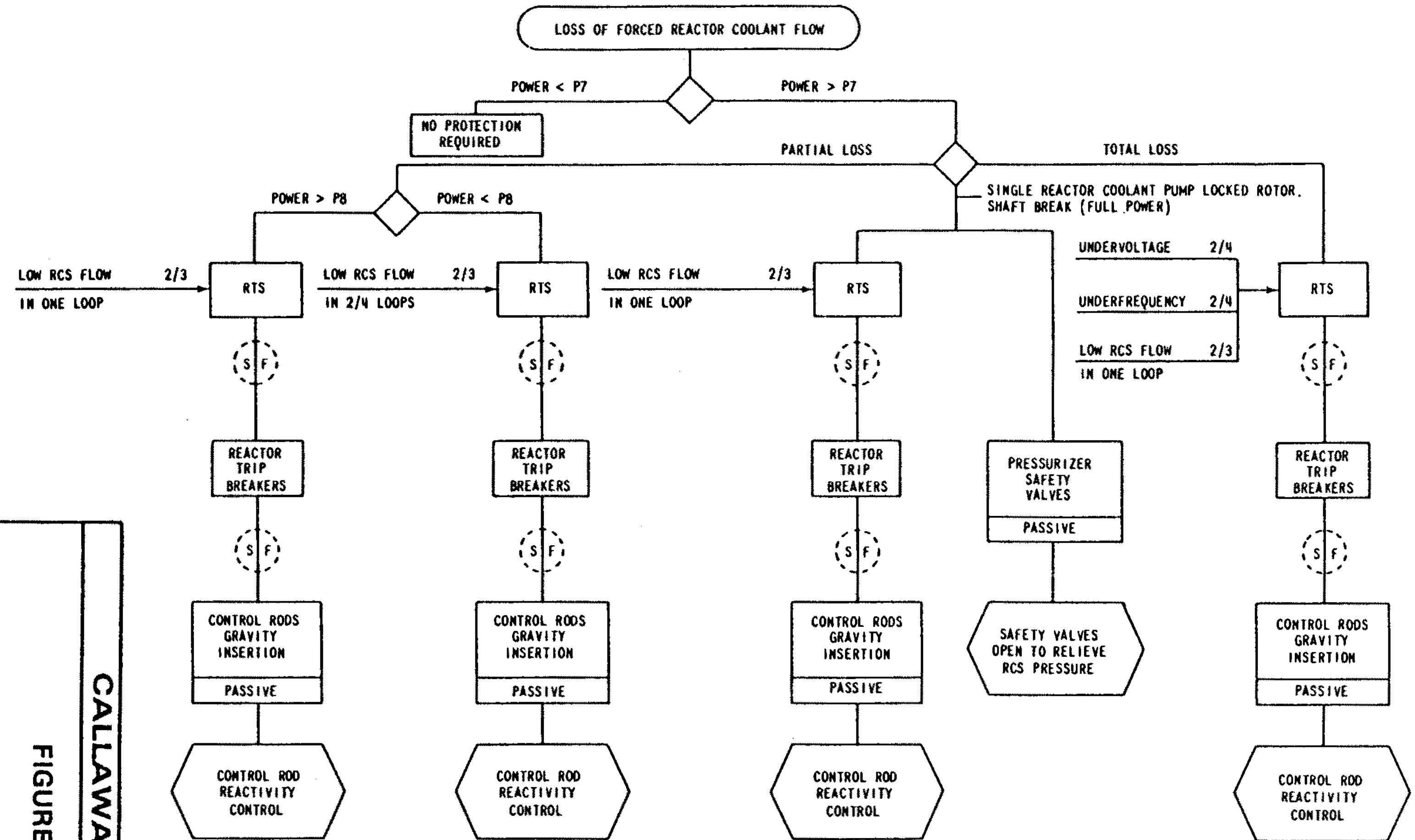


CALLAWAY PLANT

FIGURE 15.0-14
MAJOR RUPTURE OF A MAIN FEEDWATER LINE

REV OL-8
11/95

14,114-7

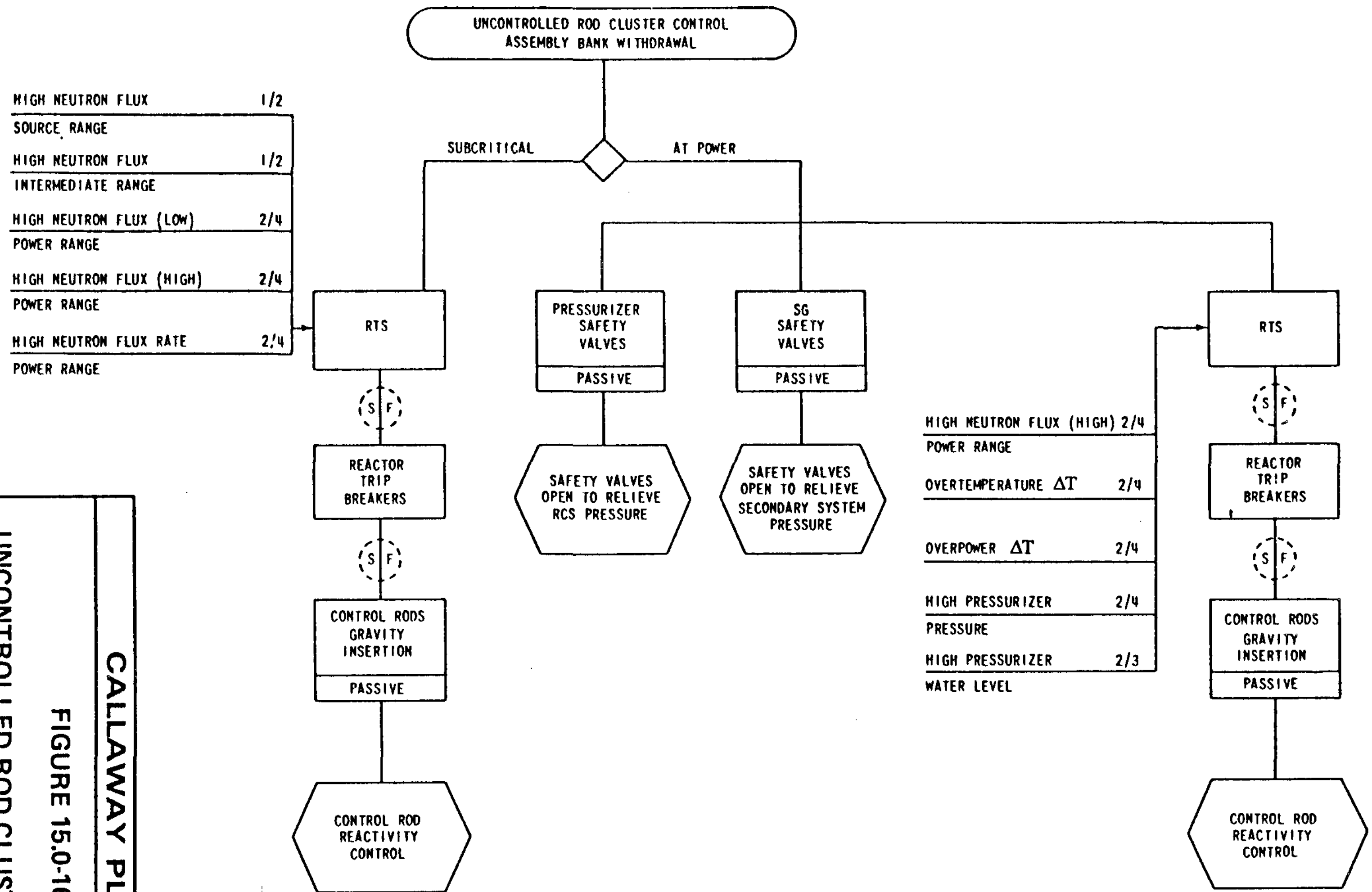


14,114-8

CALLAWAY PLANT

FIGURE 15.0-15
LOSS OF FORCED REACTOR COOLANT FLOW

Rev. OL-0
6/86



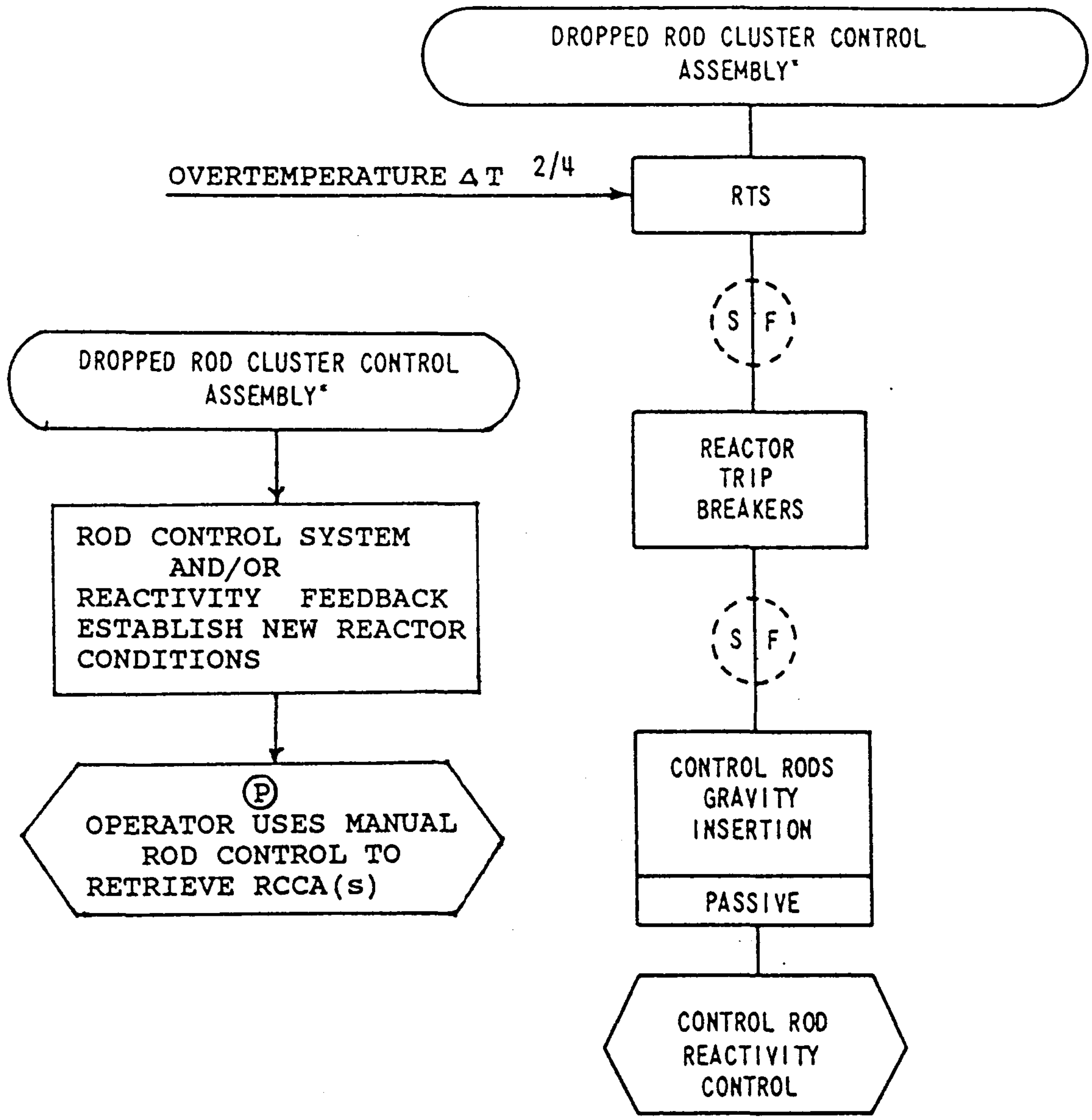
CALLAWAY PLANT

FIGURE 15.0-16

UNCONTROLLED ROD CLUSTER CONTROL ASSEMBLY BANK WITHDRAWAL

REV OL-8
11/95

14,114-9



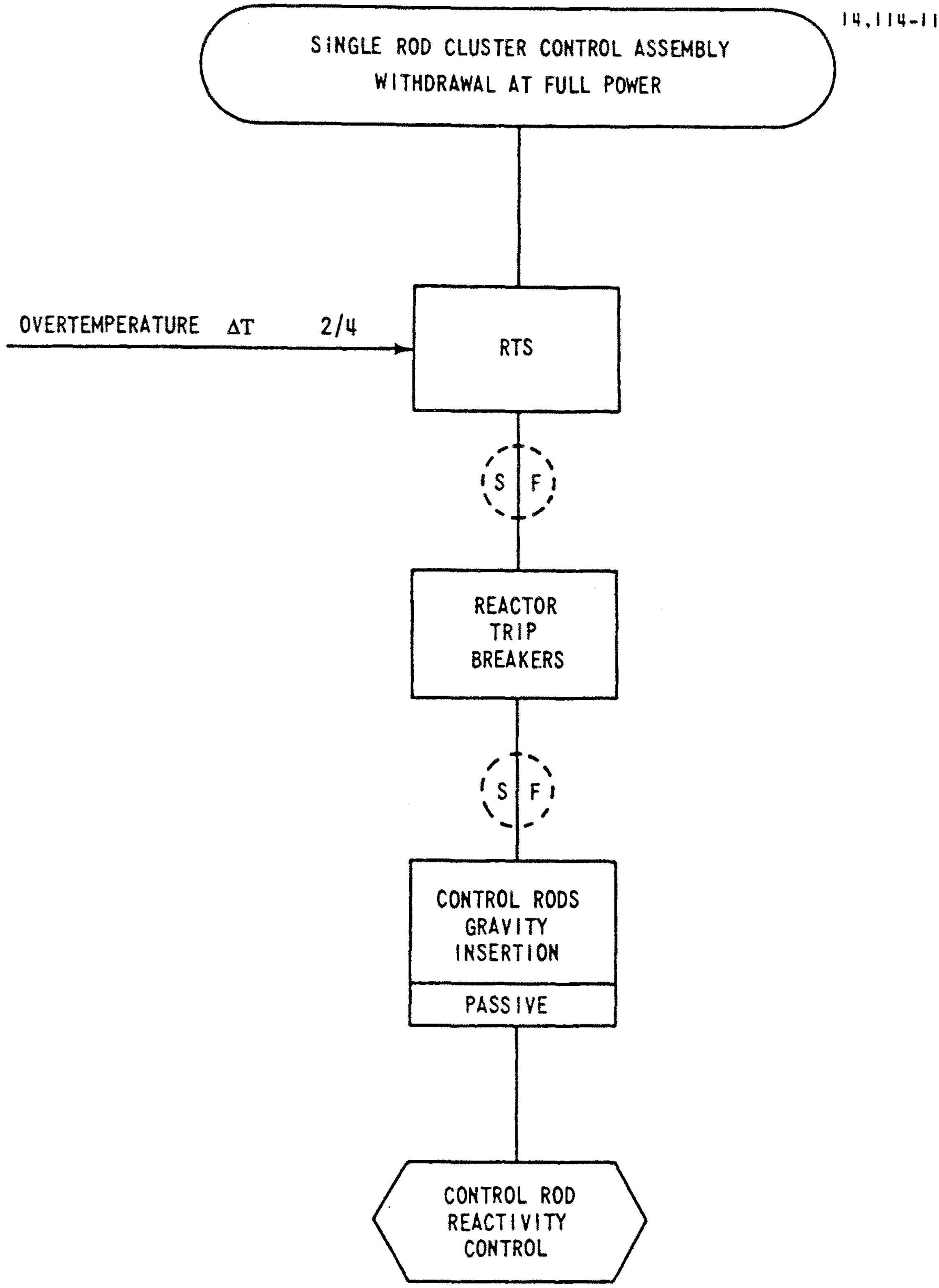
*TRIP SEQUENCE MAY OCCUR IF ROD WORTH IS LOW AND AUTOMATIC ROD WITHDRAWAL IS RAPID. TRIP IS NOT MODELED IN THE SAFETY ANALYSIS.

CALLAWAY PLANT

FIGURE 15.0-17

DROPPED ROD CLUSTER CONTROL ASSEMBLY

REV. OL-5
6/91

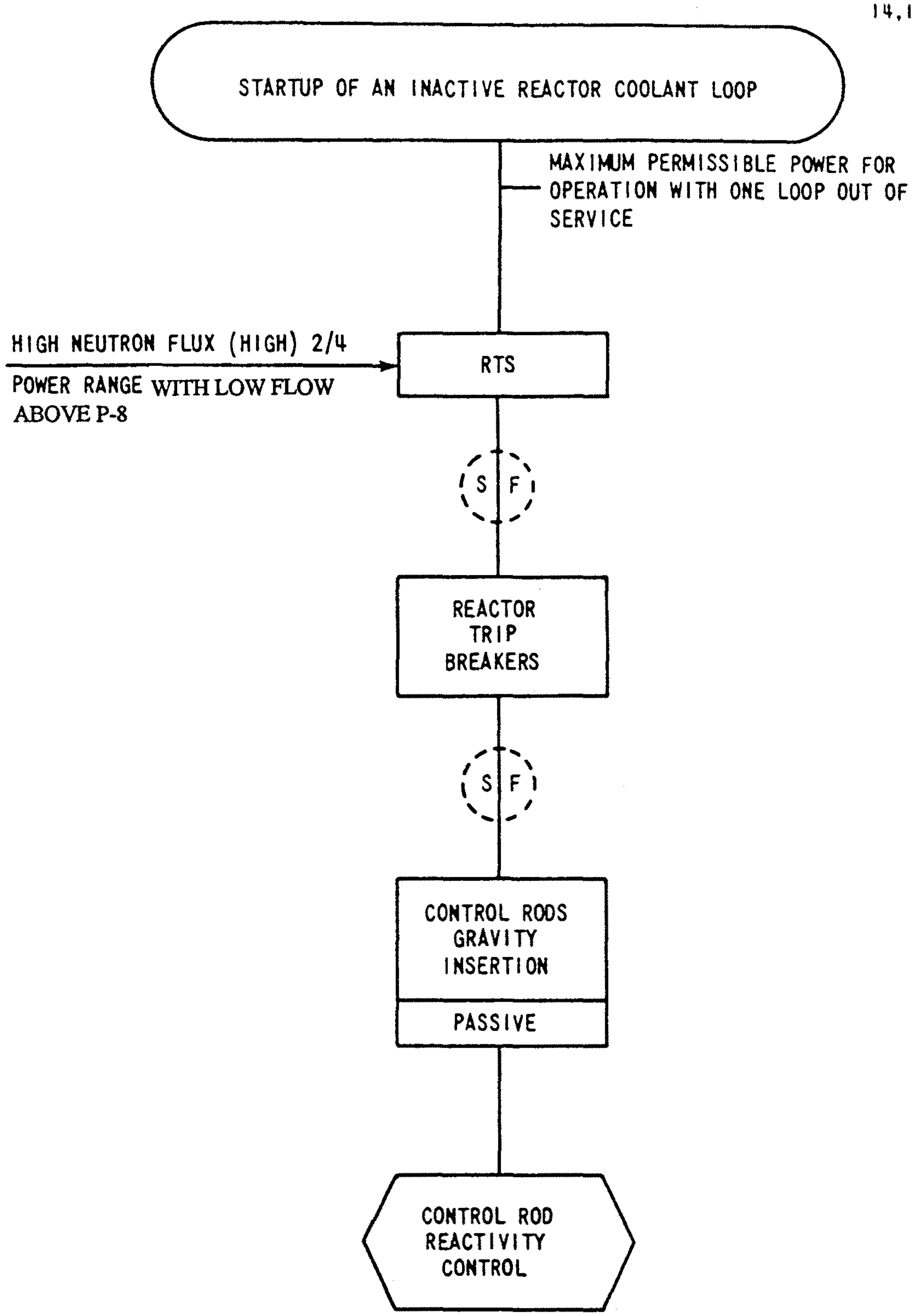


CALLAWAY PLANT

FIGURE 15.0-18

SINGLE ROD CLUSTER CONTROL ASSEMBLY WITHDRAWAL AT FULL POWER

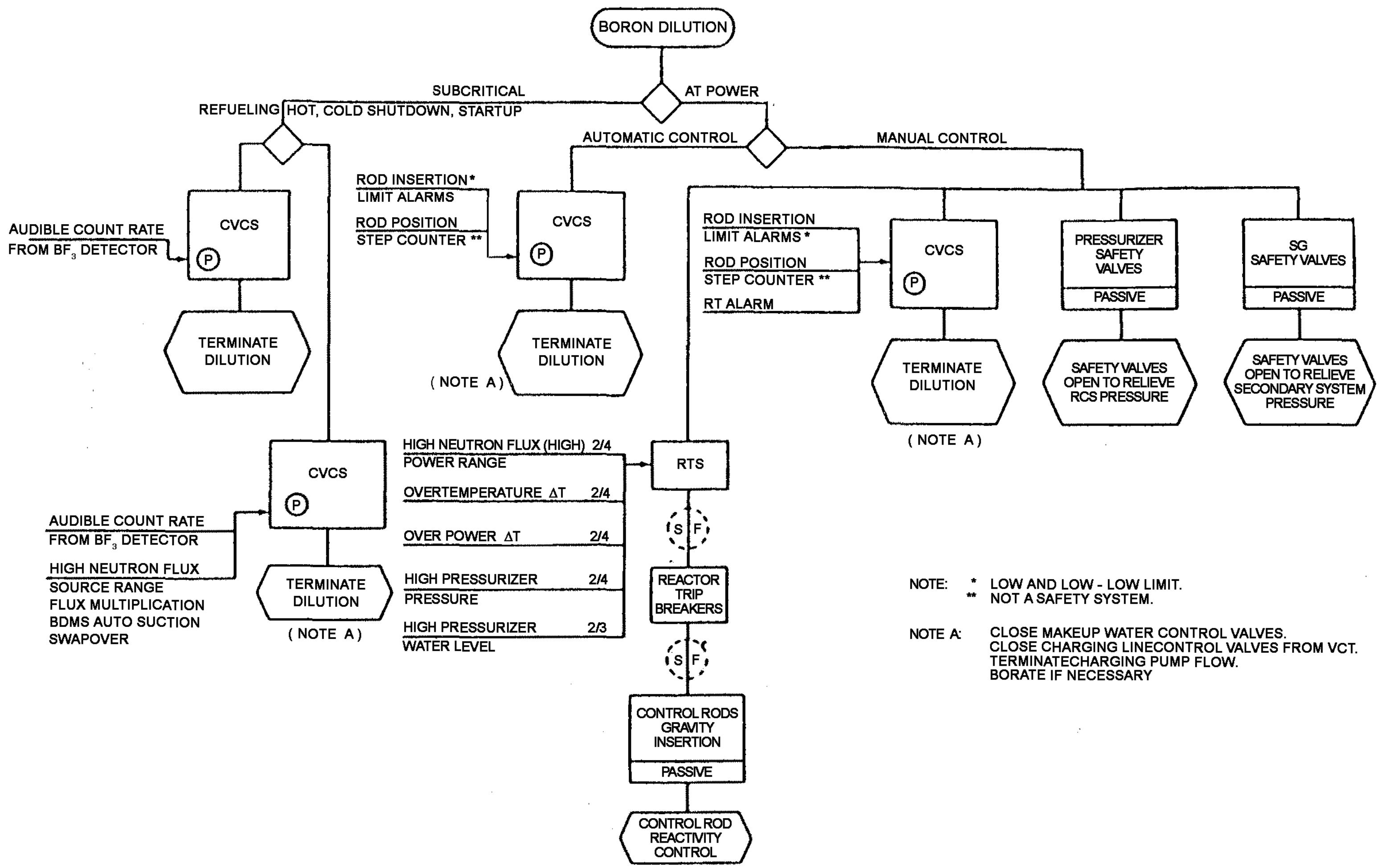
REV OL-8
11/95



CALLAWAY PLANT

FIGURE 15.0-19

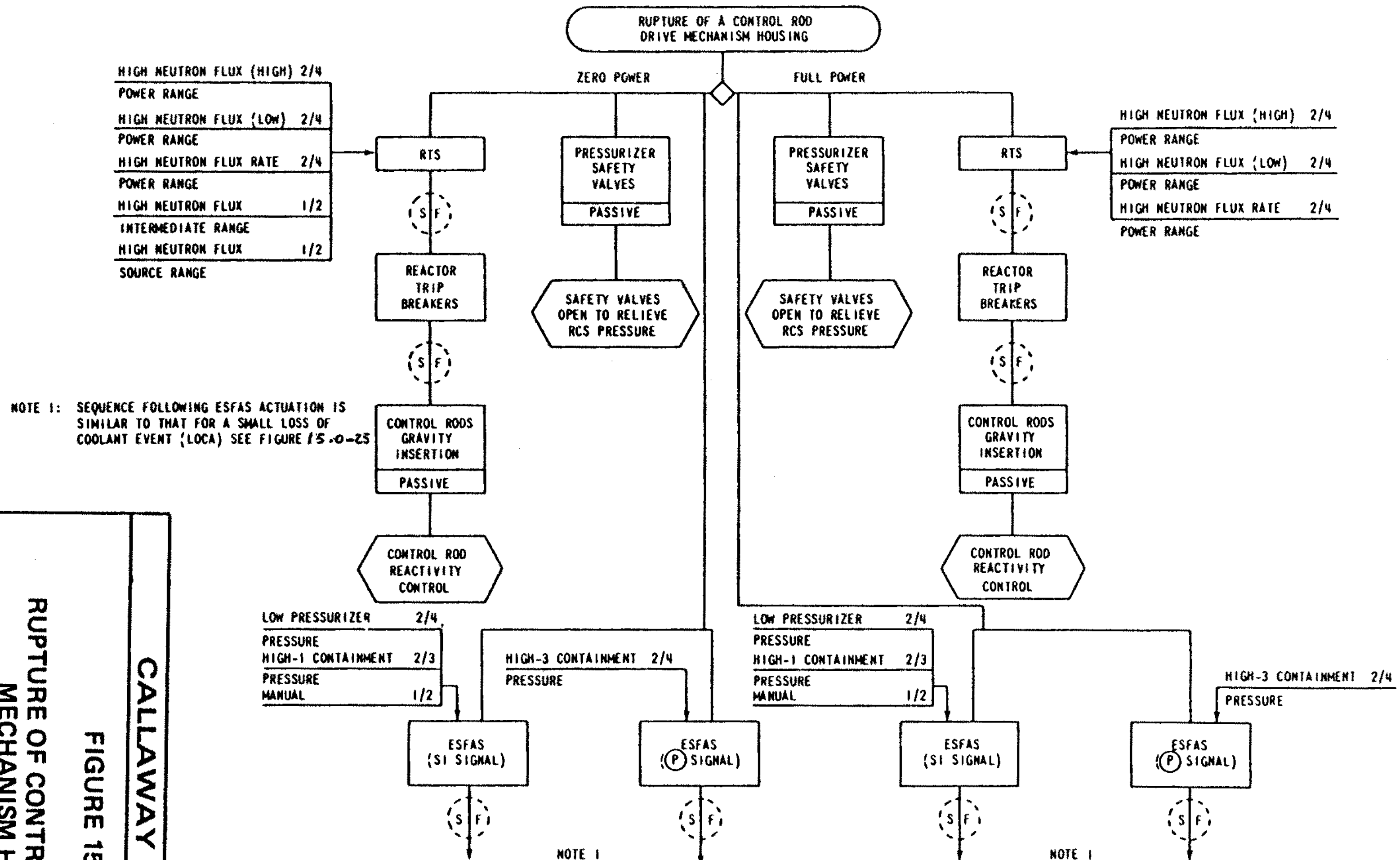
STARTUP OF AN INACTIVE REACTOR COOLANT LOOP



REV. OL-15
5/06

CALLAWAY PLANT

FIGURE 15.0-20
BORON DILUTION



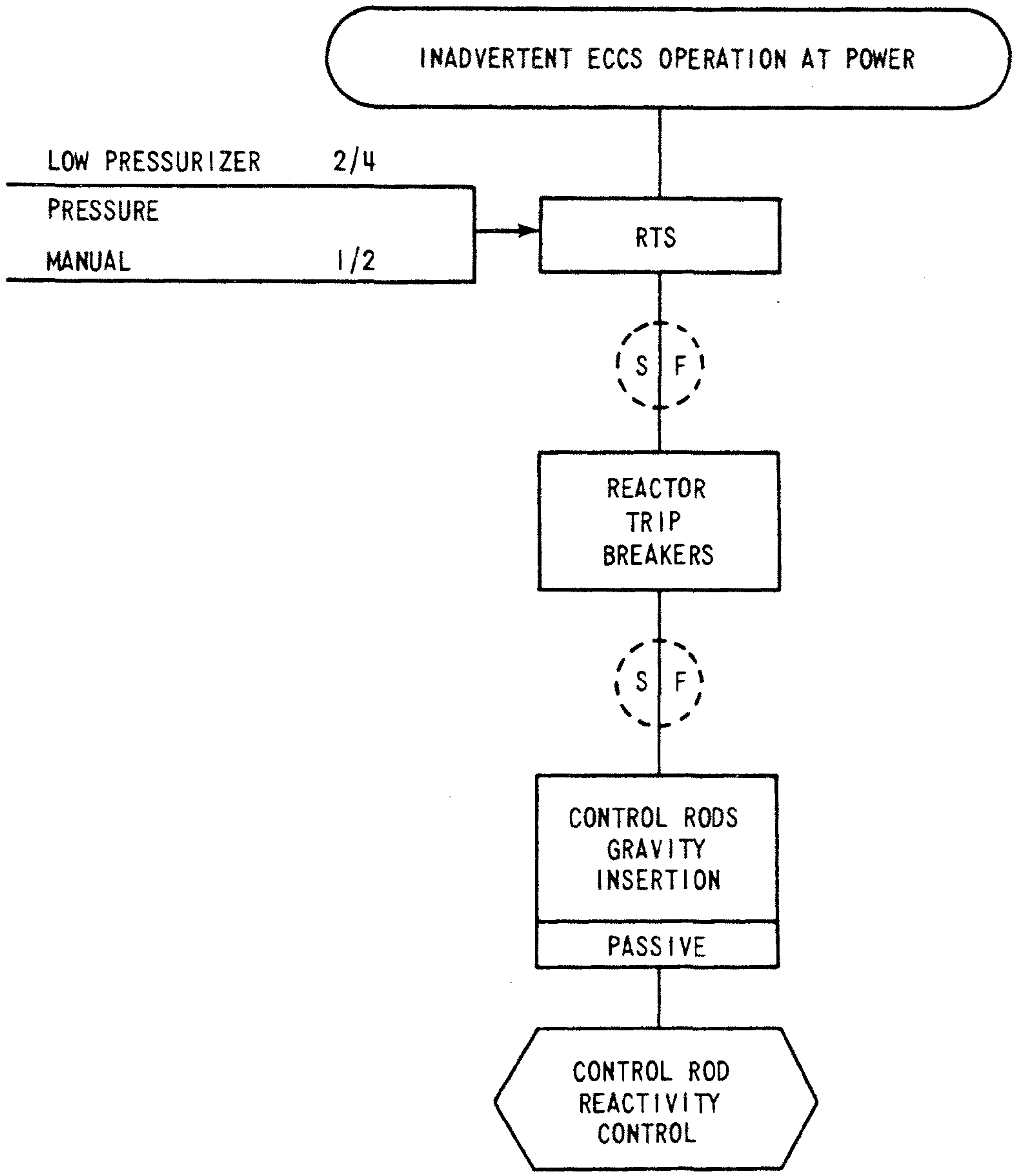
CALLAWAY PLANT

FIGURE 15.0-21

RUPTURE OF CONTROL ROD DRIVE MECHANISM HOUSING

REV OL-8
11/95

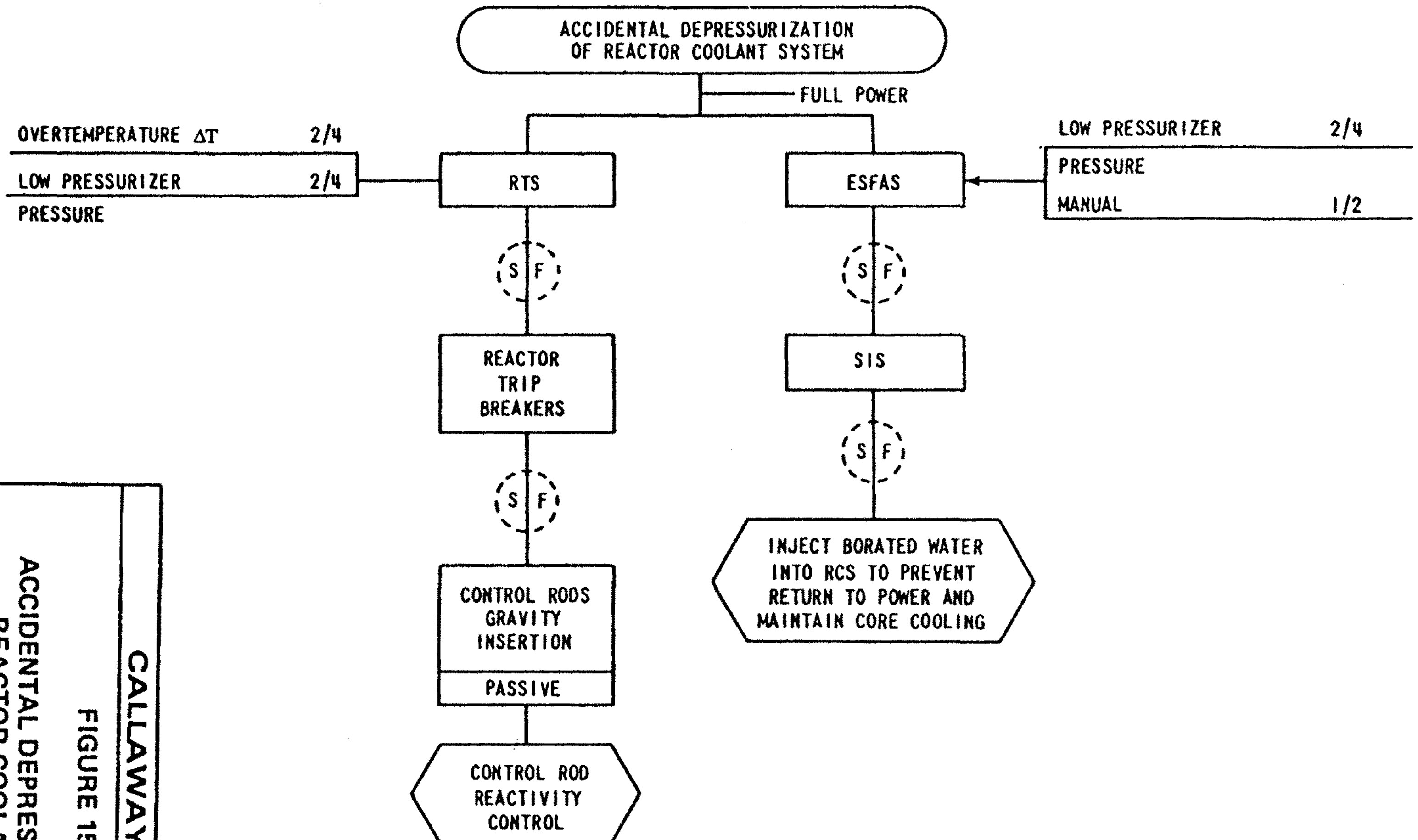
14,114-14



CALLAWAY PLANT

FIGURE 15.0-22

INADVERTENT ECCS OPERATION AT POWER



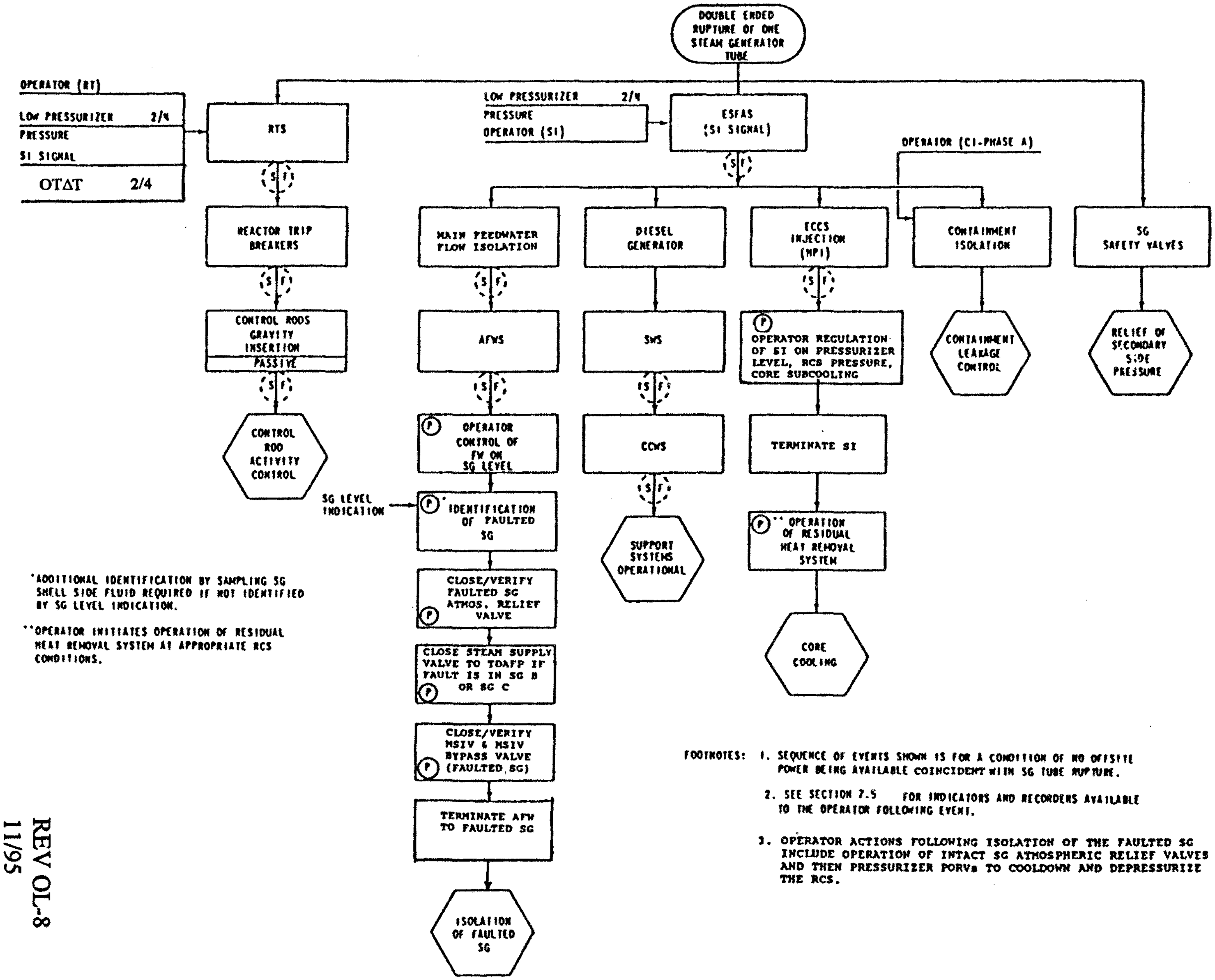
14,114-16

CALLAWAY PLANT

FIGURE 15.0-23

ACCIDENTAL DEPRESSURIZATION OF REACTOR COOLANT SYSTEM

REV OL-8
11/95



*ADDITIONAL IDENTIFICATION BY SAMPLING SG SHELL SIDE FLUID REQUIRED IF NOT IDENTIFIED BY SG LEVEL INDICATION.

**OPERATOR INITIATES OPERATION OF RESIDUAL HEAT REMOVAL SYSTEM AT APPROPRIATE RCS CONDITIONS.

FOOTNOTES:
1. SEQUENCE OF EVENTS SHOWN IS FOR A CONDITION OF NO OFFSITE POWER BEING AVAILABLE COINCIDENT WITH SG TUBE RUPTURE.
2. SEE SECTION 7.5 FOR INDICATORS AND RECORDERS AVAILABLE TO THE OPERATOR FOLLOWING EVENT.
3. OPERATOR ACTIONS FOLLOWING ISOLATION OF THE FAULTED SG INCLUDE OPERATION OF INTACT SG ATMOSPHERIC RELIEF VALVES AND THEN PRESSURIZER PORVs TO COOLDOWN AND DEPRESSURIZE THE RCS.

REV OL-8
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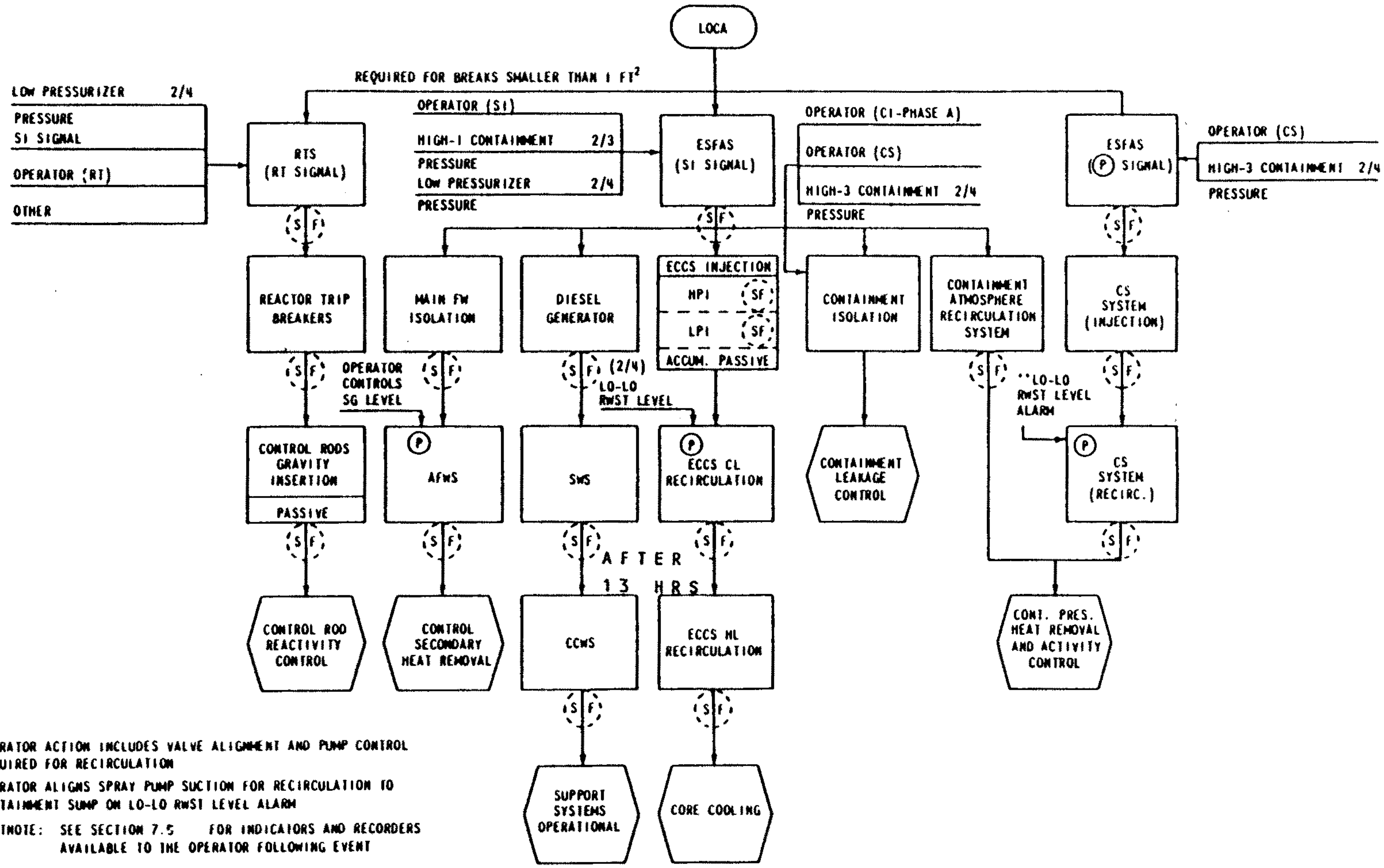
CALLAWAY PLANT

FIGURE 15.0-24
STEAM GENERATOR TUBE RUPTURE

14,114-17



*OPERATOR ACTION INCLUDES VALVE ALIGNMENT AND PUMP CONTROL REQUIRED FOR RECIRCULATION

**OPERATOR ALIGNS SPRAY PUMP SUCTION FOR RECIRCULATION TO CONTAINMENT SUMP ON LO-LO RWST LEVEL ALARM

FOOTNOTE: SEE SECTION 7.5 FOR INDICATORS AND RECORDERS AVAILABLE TO THE OPERATOR FOLLOWING EVENT

14,114-18

CALLAWAY PLANT

FIGURE 15.0-25

LOSS OF COOLANT ACCIDENT

REV OL-8
11/95

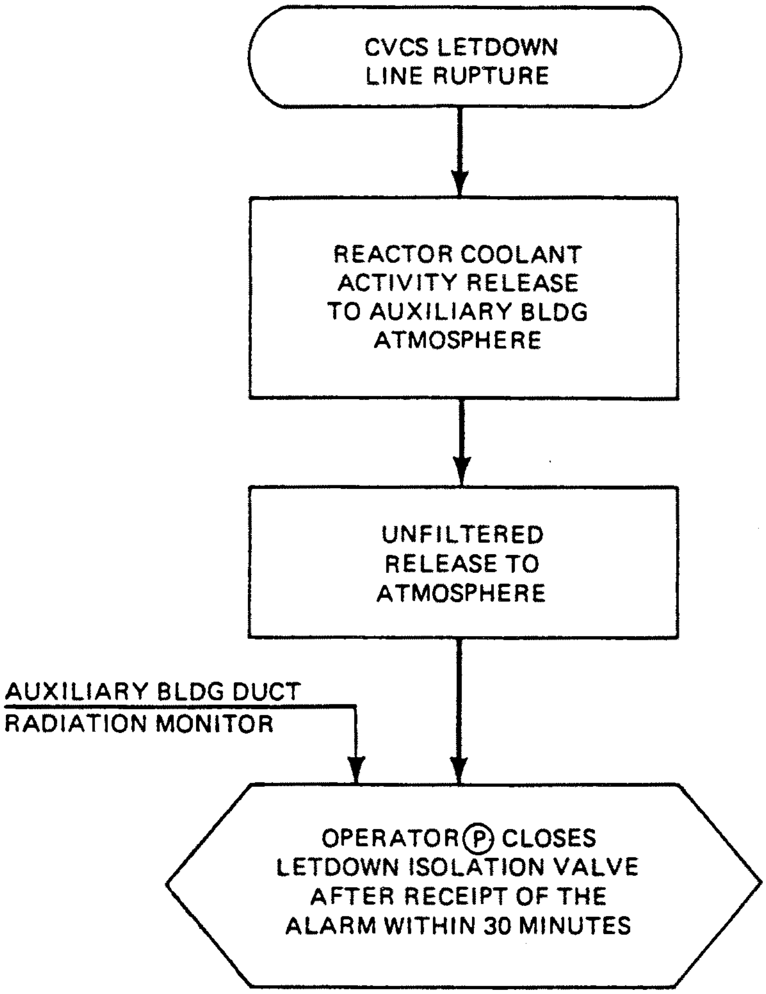


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FIGURE 15.0-26

CVCS LETDOWN LINE RUPTURE

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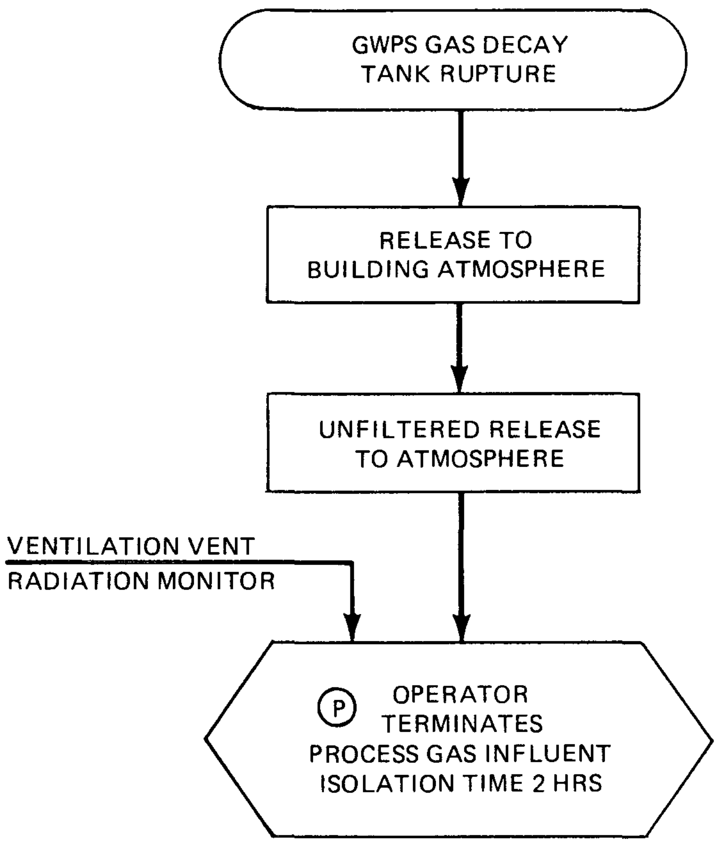
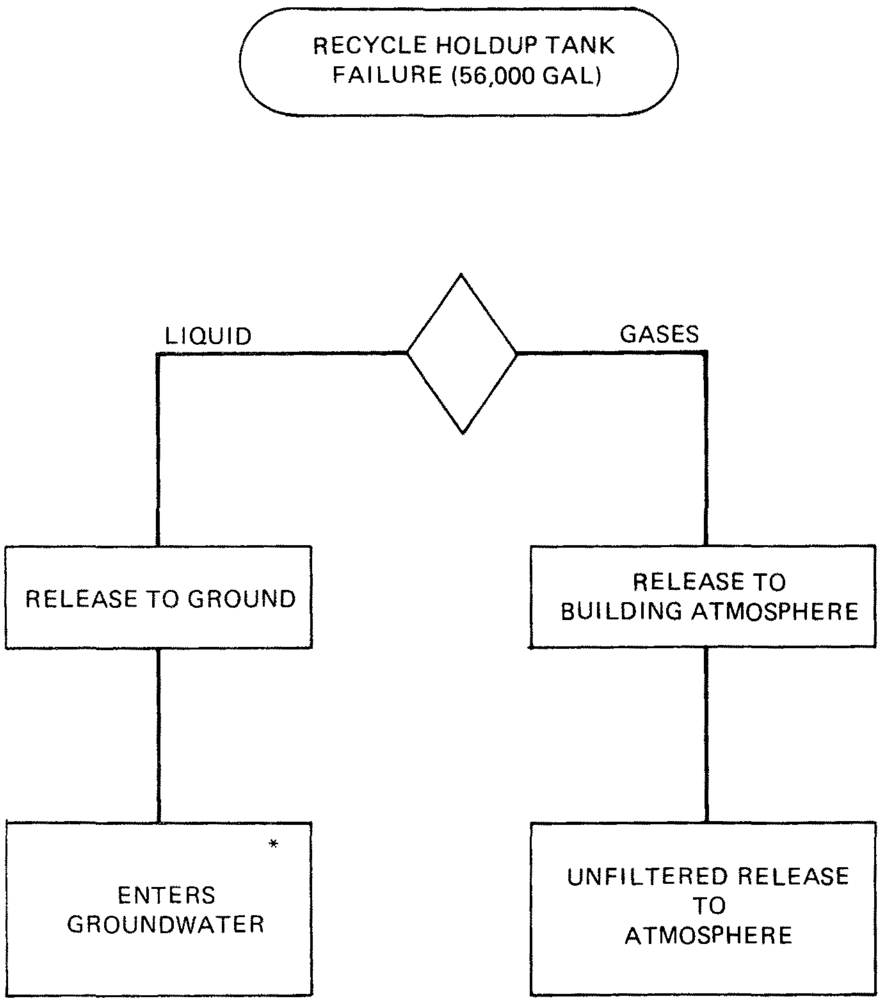
6/86



CALLAWAY PLANT

FIGURE 15.0-27

GWPS GAS DECAY TANK RUPTURE



*See Section 2.4.13 of the Site Addendum

CALLAWAY PLANT

FIGURE 15.0-28

FLOOR DRAIN TANK FAILURE

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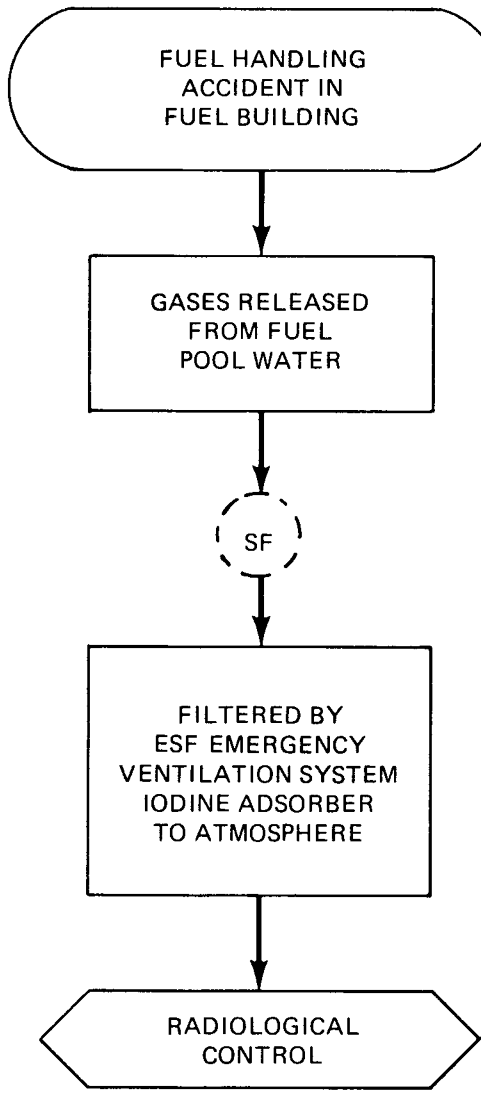
6/86



CALLAWAY PLANT

FIGURE 15.0-29

FUEL HANDLING ACCIDENT IN FUEL BUILDING

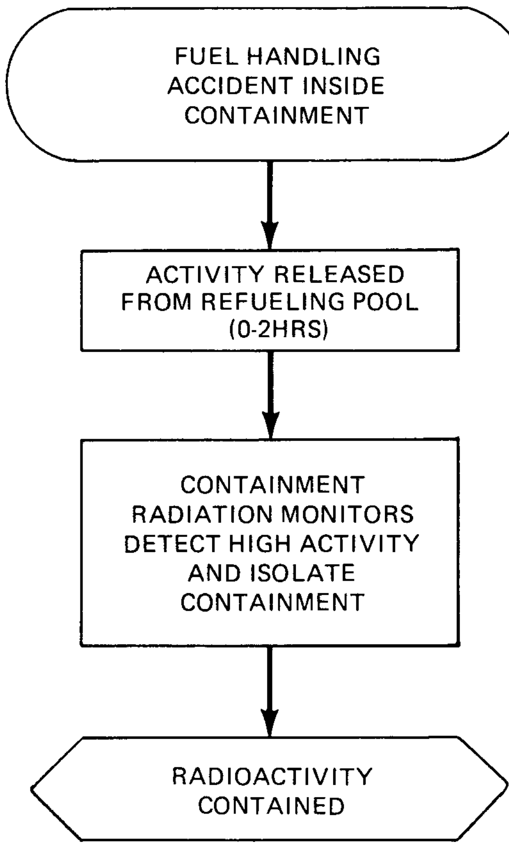


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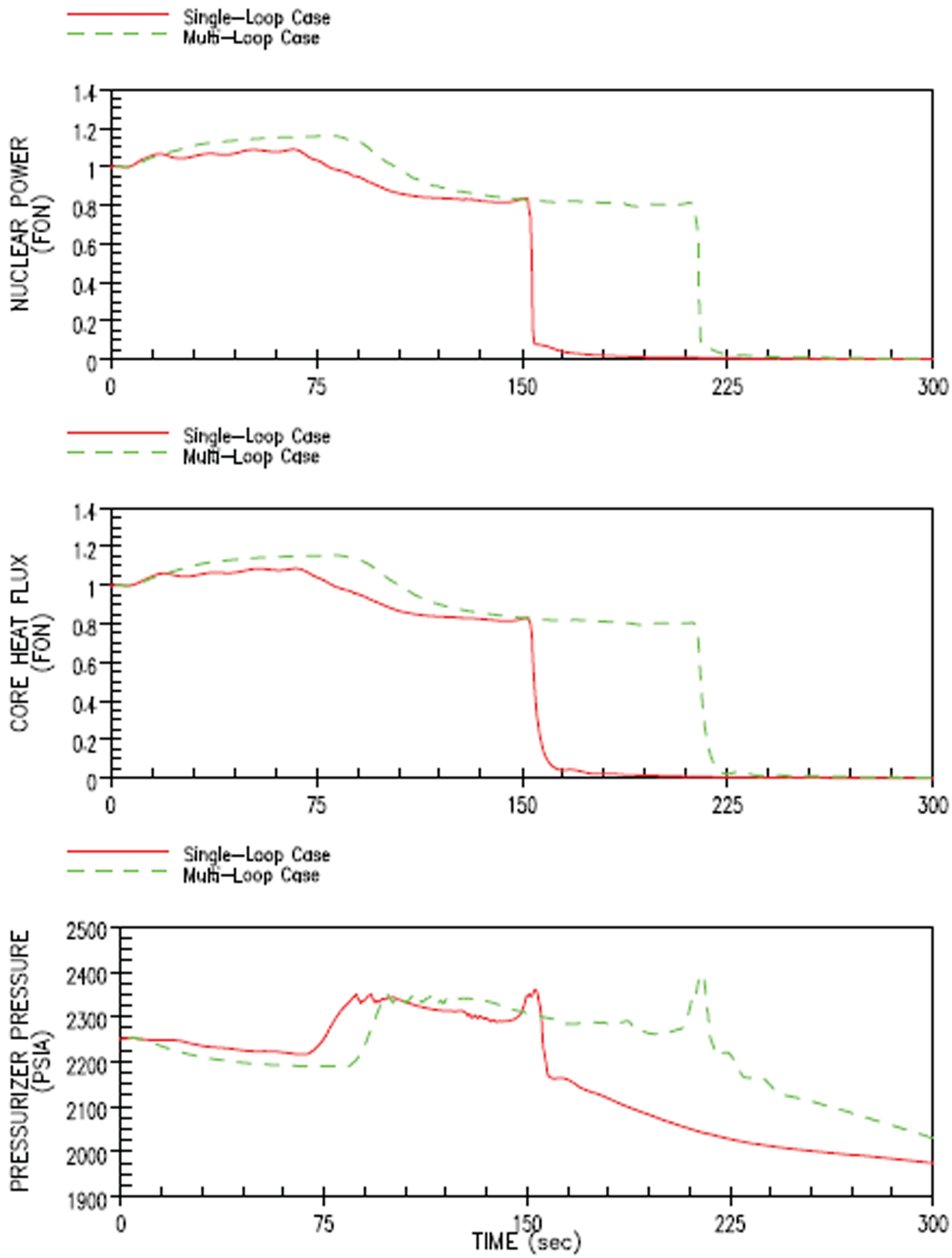
FIGURE 15.0-30

FUEL HANDLING ACCIDENT
INSIDE CONTAINMENT

Figure 15.0-31 has been deleted.



CALLAWAY PLANT

FIGURE 15.1-1

NUCLEAR POWER, CORE HEAT FLUX AND PRESSURIZER PRESSURE TRANSIENTS FOR HFP FEEDWATER MALFUNCTION FLOW INCREASE CASE

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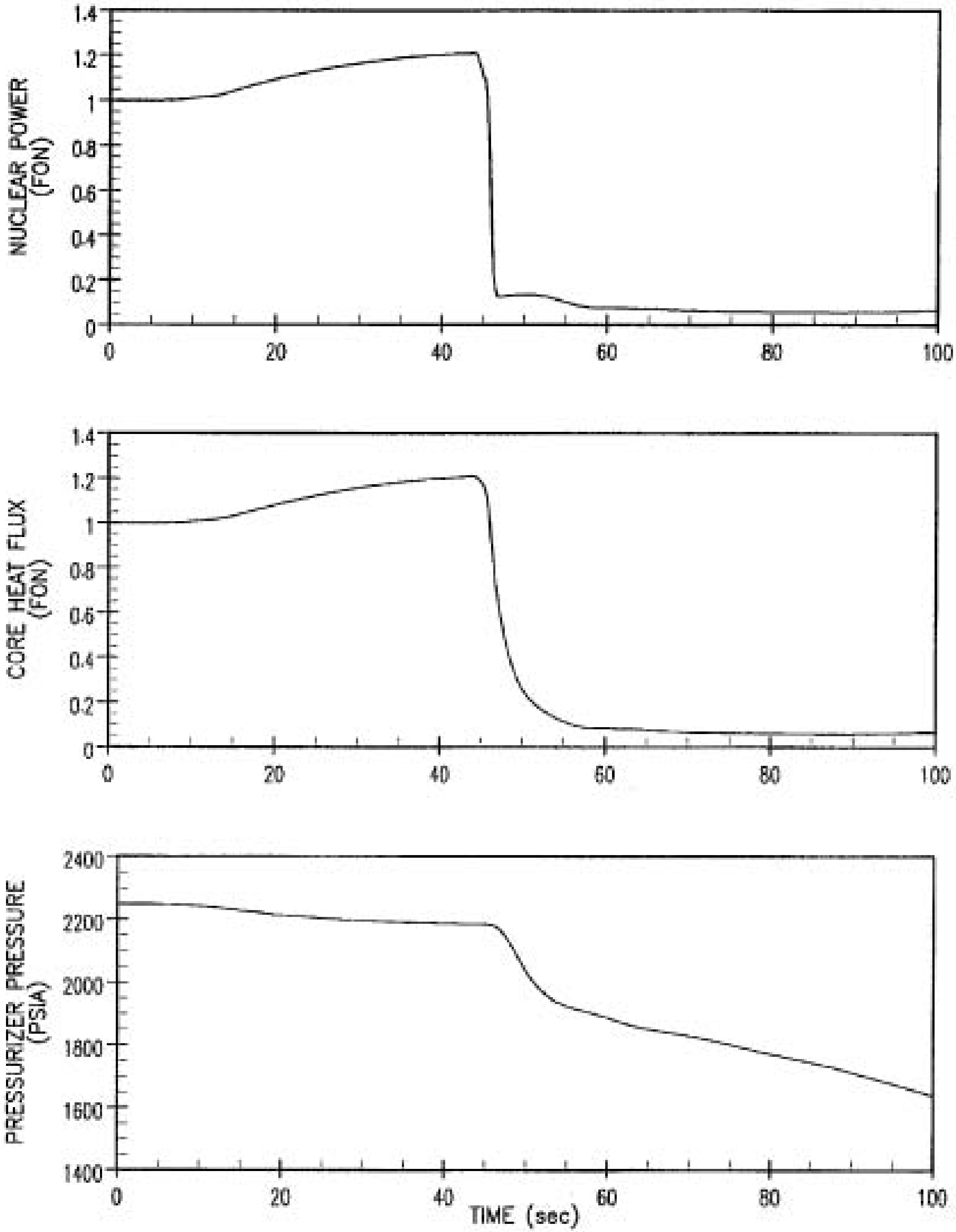


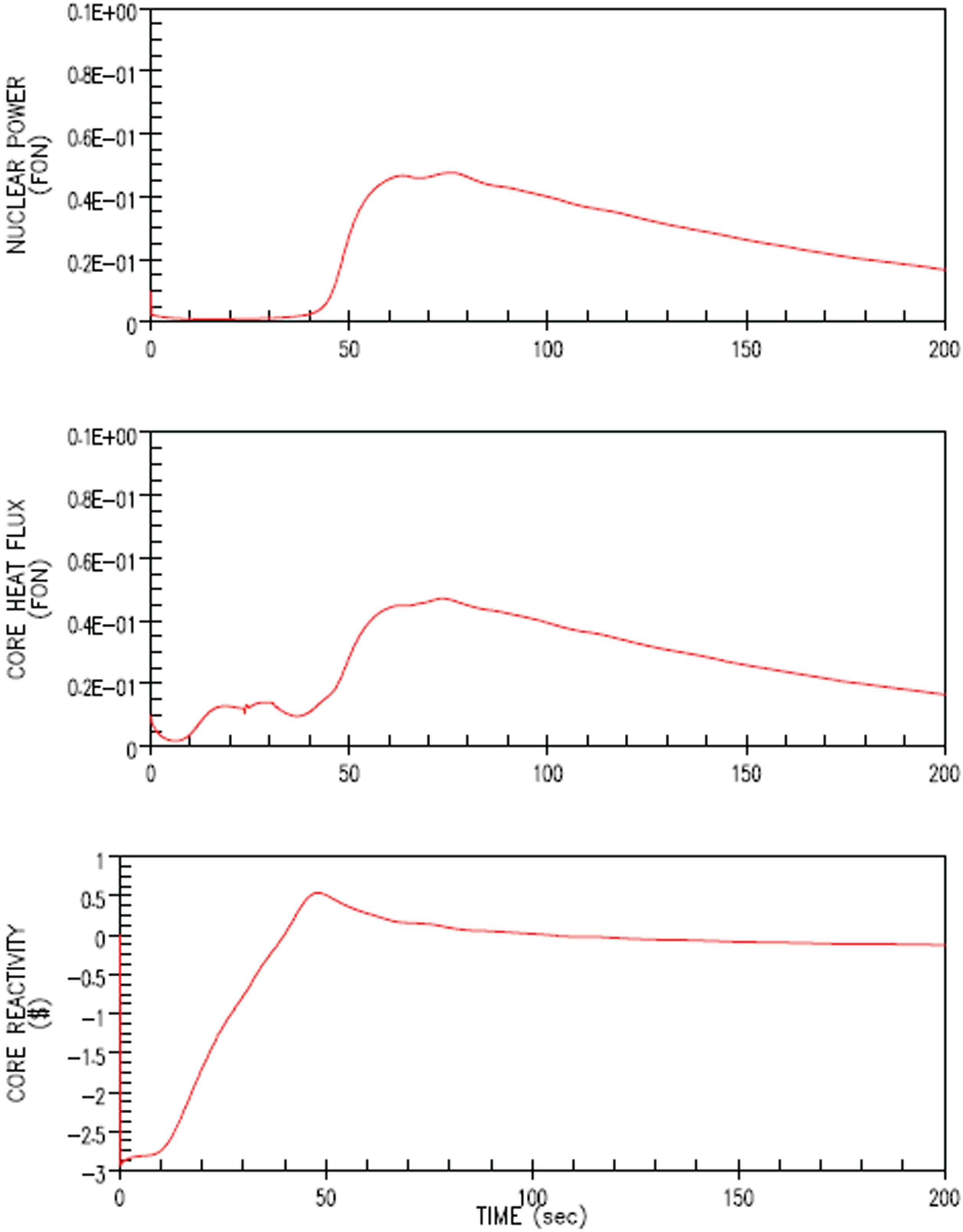
The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

CALLAWAY PLANT

FIGURE 15.1-1A

NUCLEAR POWER, CORE HEAT FLUX AND PRESSURIZER PRESSURE TRANSIENTS FOR HFP FEEDWATER TEMPERATURE REDUCTION INCIDENT

REV. 16 1/10



CALLAWAY PLANT

FIGURE 15.1-1B

NUCLEAR POWER, CORE HEAT FLUX AND CORE REACTIVITY TRANSIENTS FOR HZP FEEDWATER MALFUNCTION - FLOW INCREASE, MULTI-LOOP CASE

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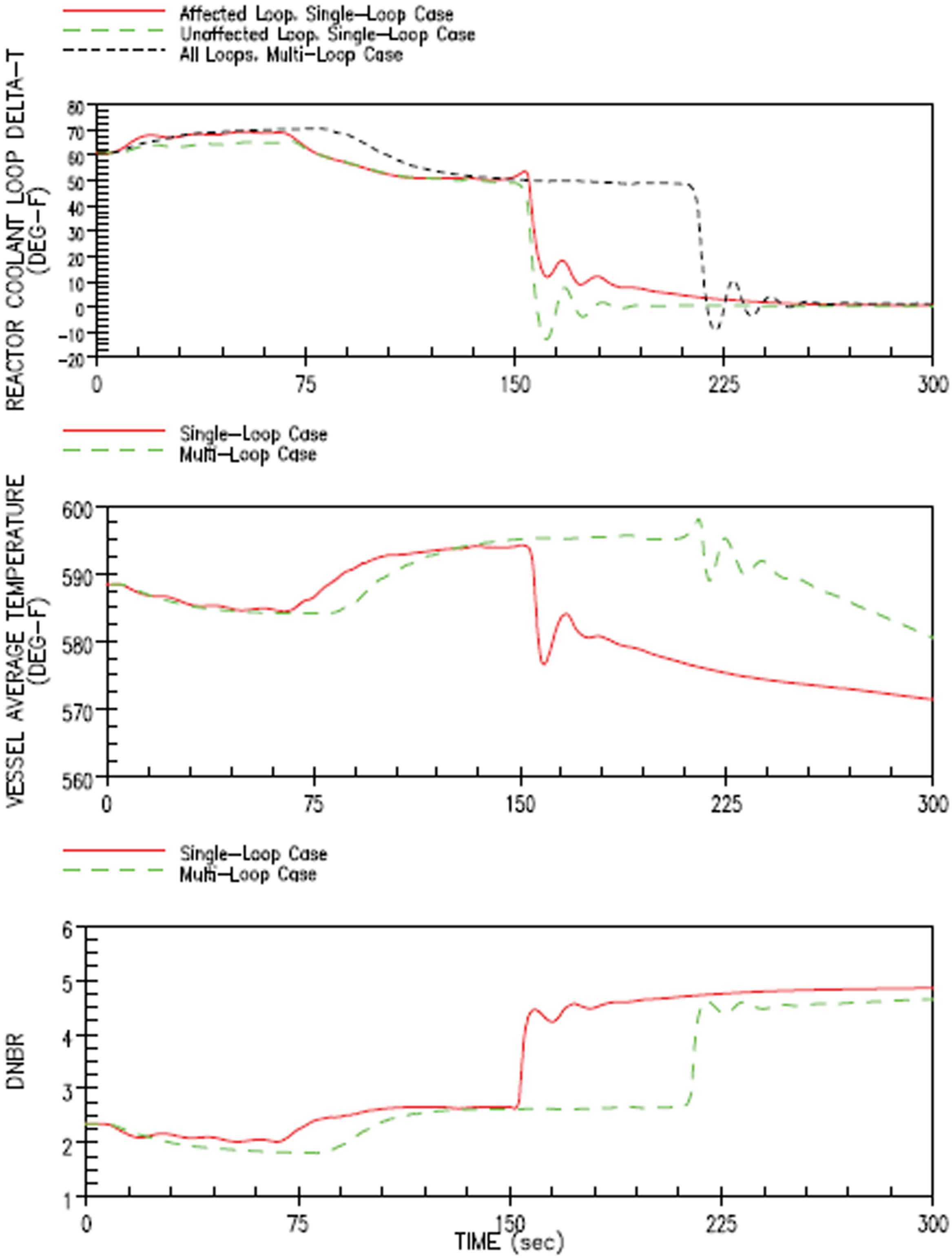

CALLAWAY PLANT

FIGURE 15.1-2

REACTOR COOLANT LOOP DELTA-T, VESSEL AVERAGE TEMP AND DNBR TRANSIENTS FOR HFP FEEDWATER MALFUNCTION - FLOW INCREASE CASE

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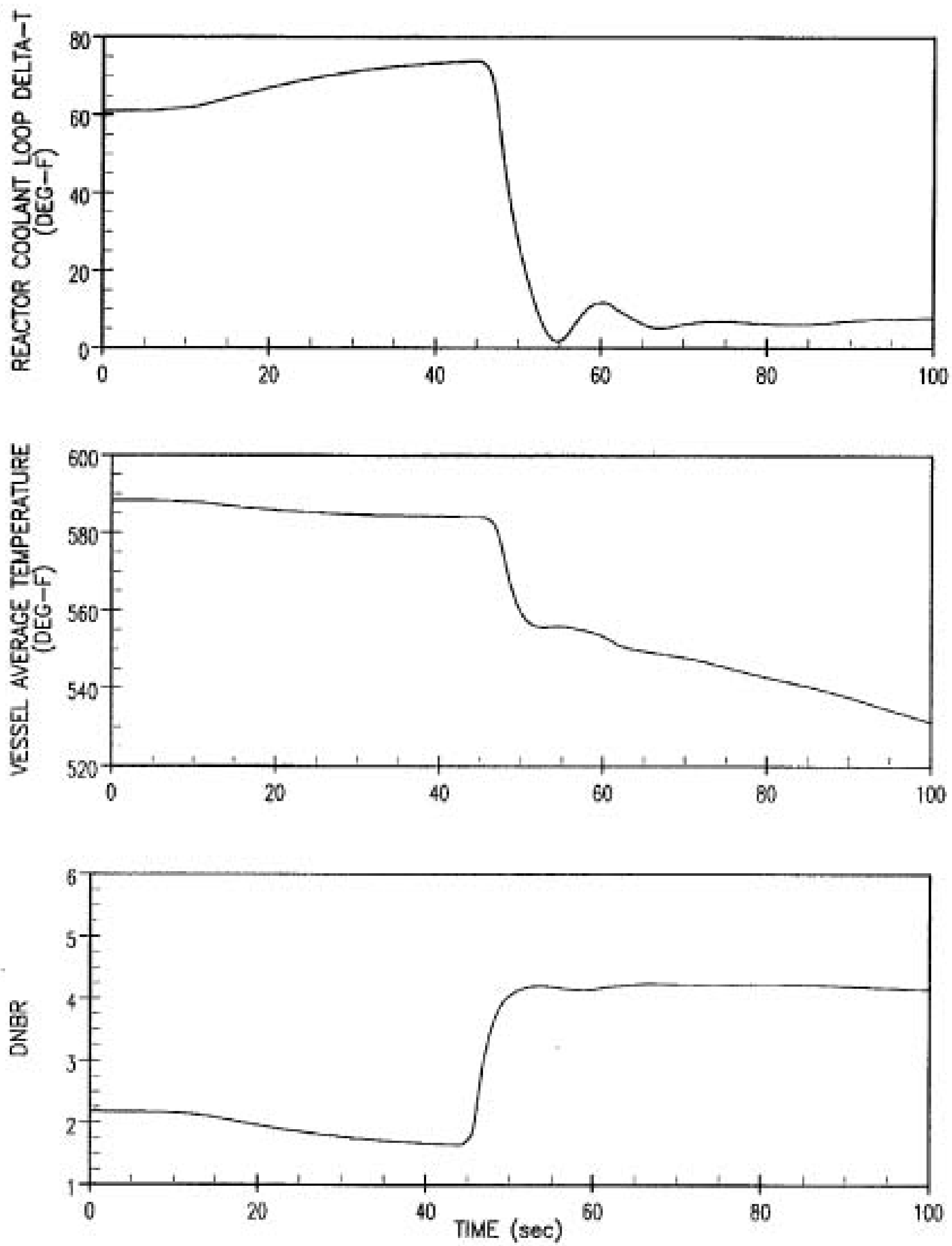


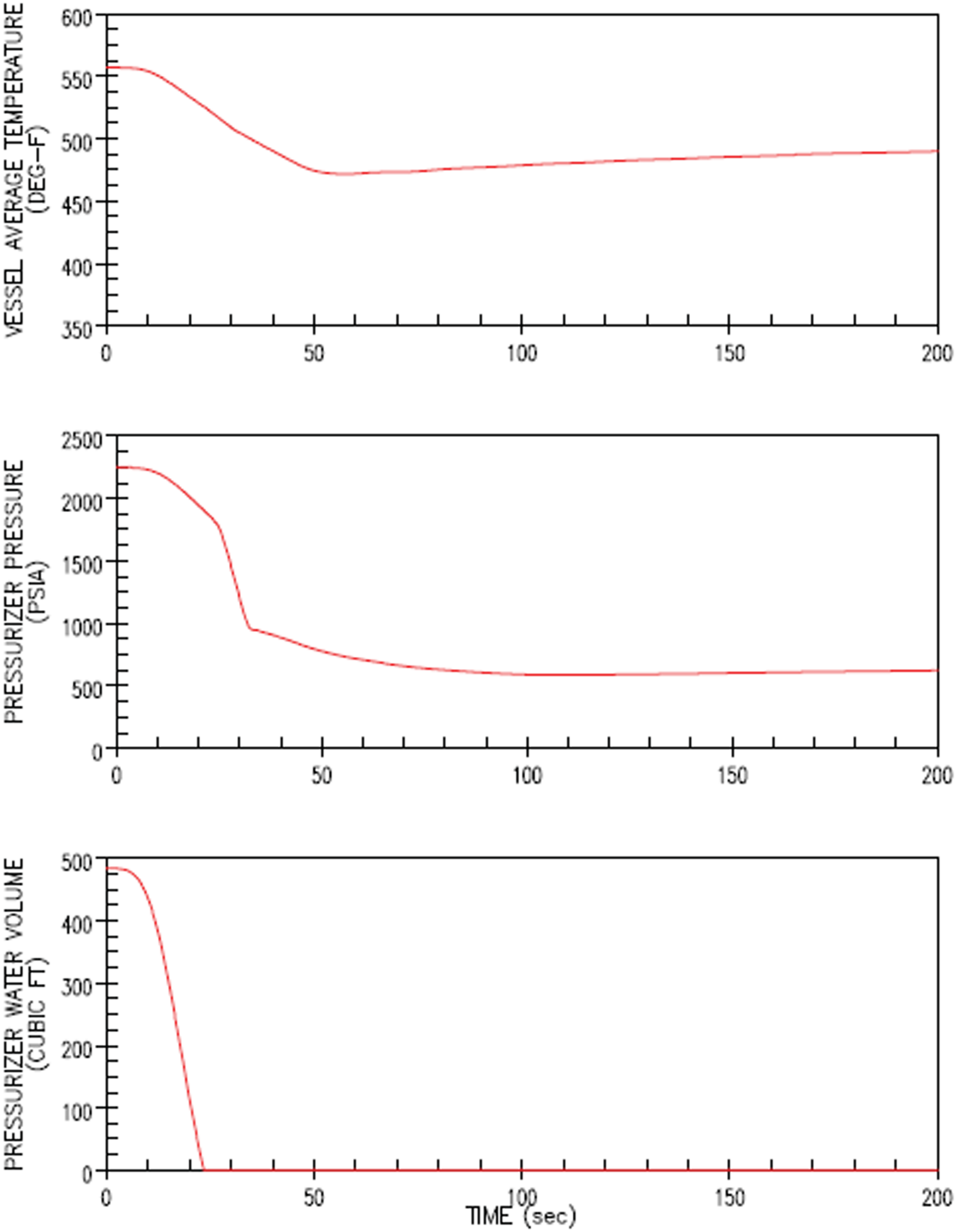
The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

CALLAWAY PLANT

FIGURE 15.1-2A

REACTOR COOLANT LOOP DELTA-T VESSEL AVERAGE TEMP AND DNBR TRANSIENTS FOR HFP FEEDWATER TEMPERATURE REDUCTION INCIDENT

REV. 18 1/10

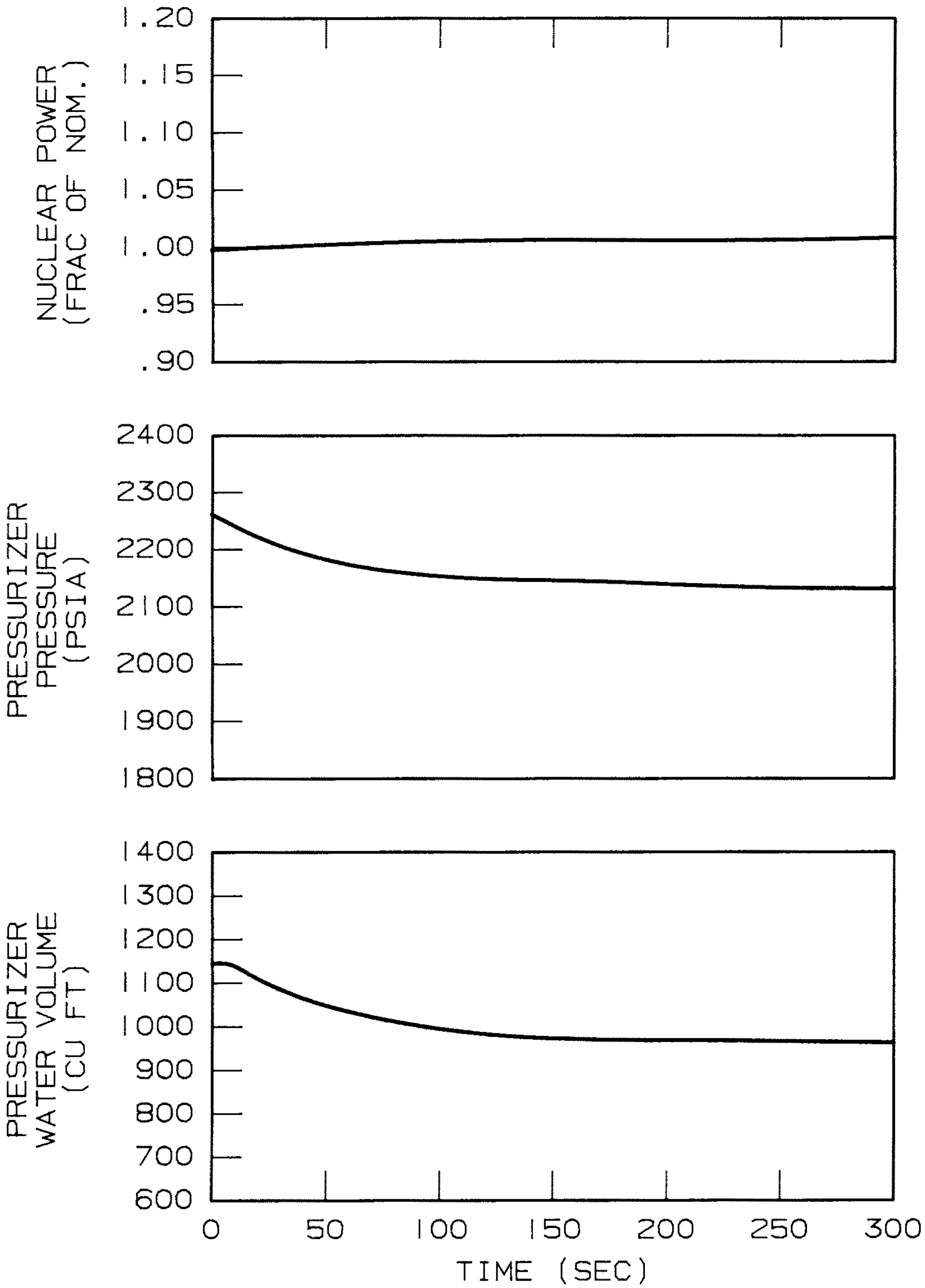


CALLAWAY PLANT

FIGURE 15.1-2B

VESSEL AVERAGE TEMP, PRESSURIZER PRESSURE AND WATER VOLUME TRANSIENTS FOR HZP FEEDWATER MALFUNCTION - FLOW INCREASE, MULTI-LOOP CASE

Rev. 0 11/13



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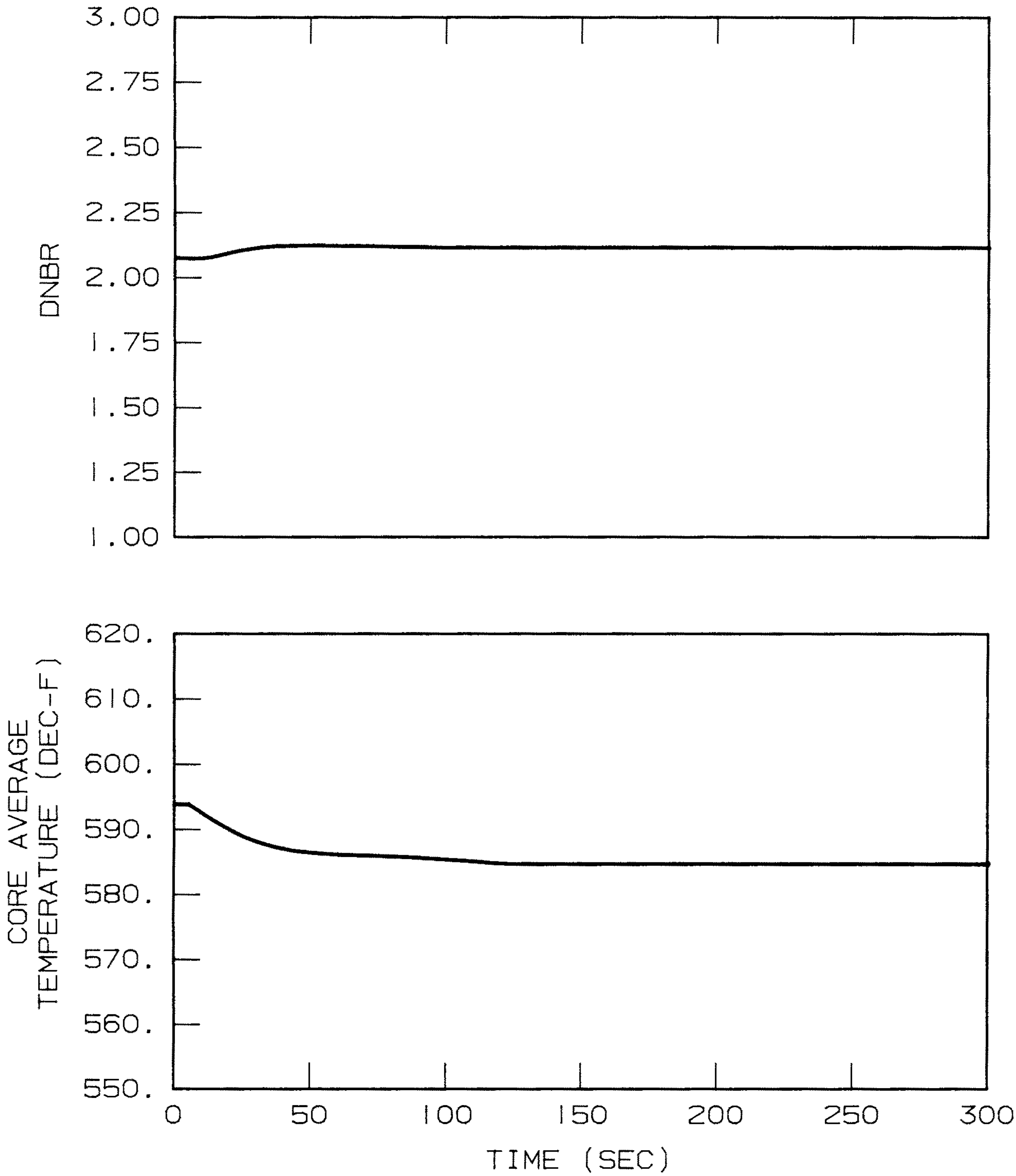
CALLAWAY PLANT

FIGURE 15.1-3
NUCLEAR POWER, PRESSURIZER PRES-SURE AND WATER VOLUME TRANSIENTS FOR TEN PERSCENT STEP LOAD INCREASE, MINIMUM REACTIVITY FEEDBACK, MANUAL REACTOR CONTROL

014-A-20766-7



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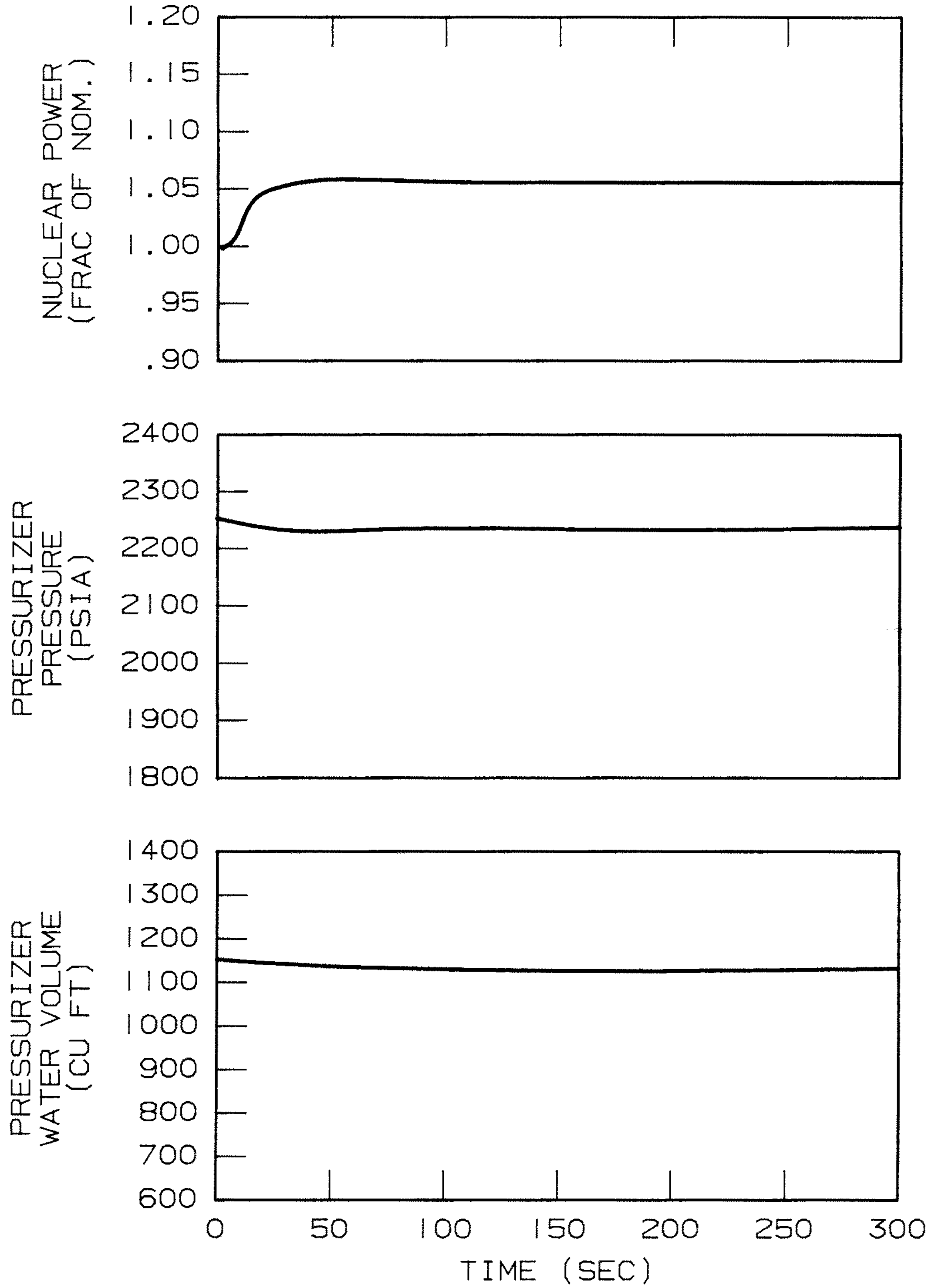
CALLAWAY PLANT

FIGURE 15.1-4
DNBR AND VESSEL AVERAGE TEMPERATURE TRANSIENTS FOR TEN PERCENT STEP LOAD INCREASE, MINIMUM REACTIVITY FEEDBACK, MANUAL REACTOR CONTROL

014-A-20766-8



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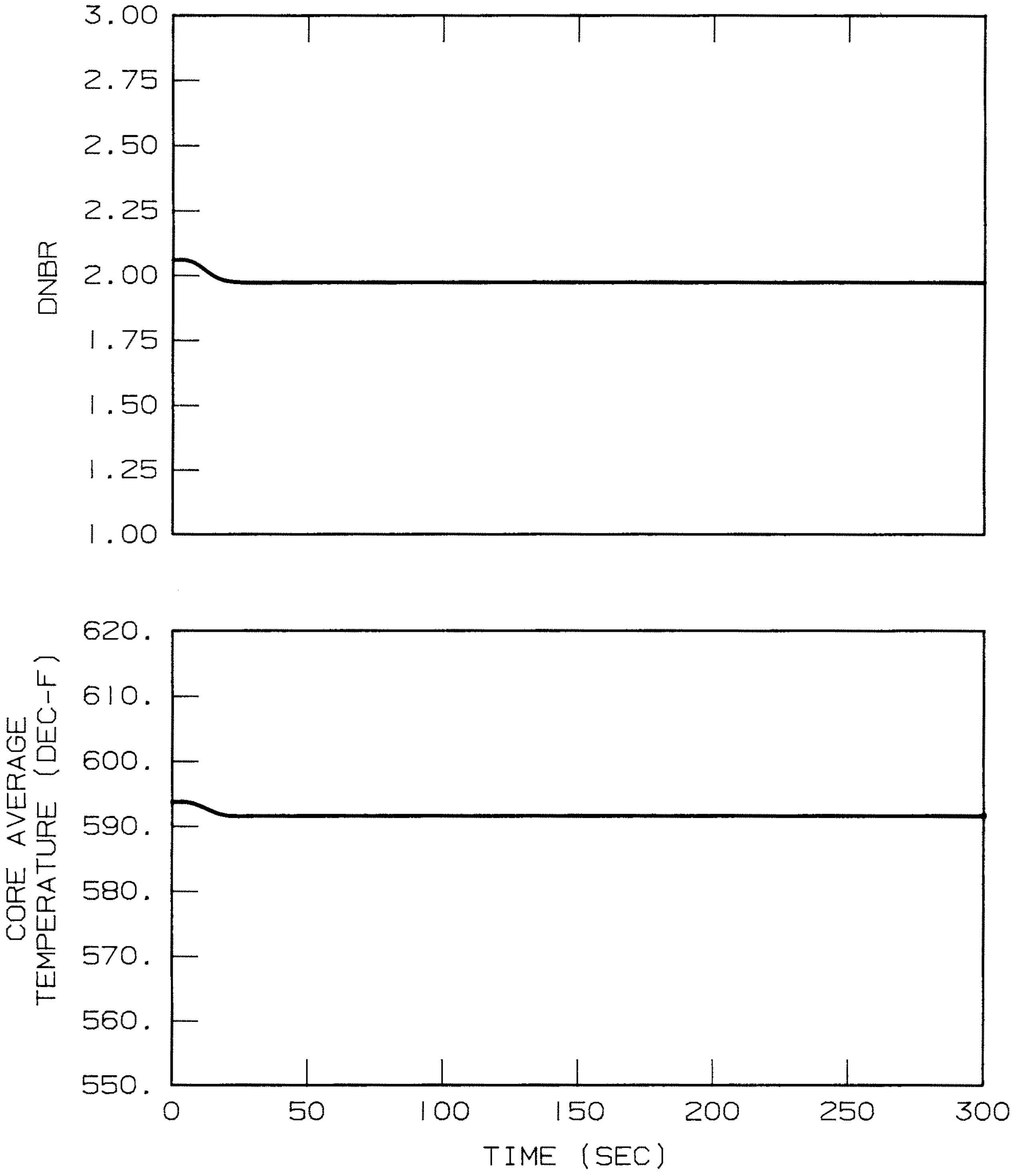
CALLAWAY PLANT

FIGURE 15.1-5
NUCLEAR POWER, PRESSURIZER PRESSURE AND WATER VOLUME TRANSIENTS FOR TEN PERCENT STEP LOAD INCREASE, MAXIMUM REACTIVITY FEEDBACK, MANUAL REACTOR CONTROL

014-A-20766-9



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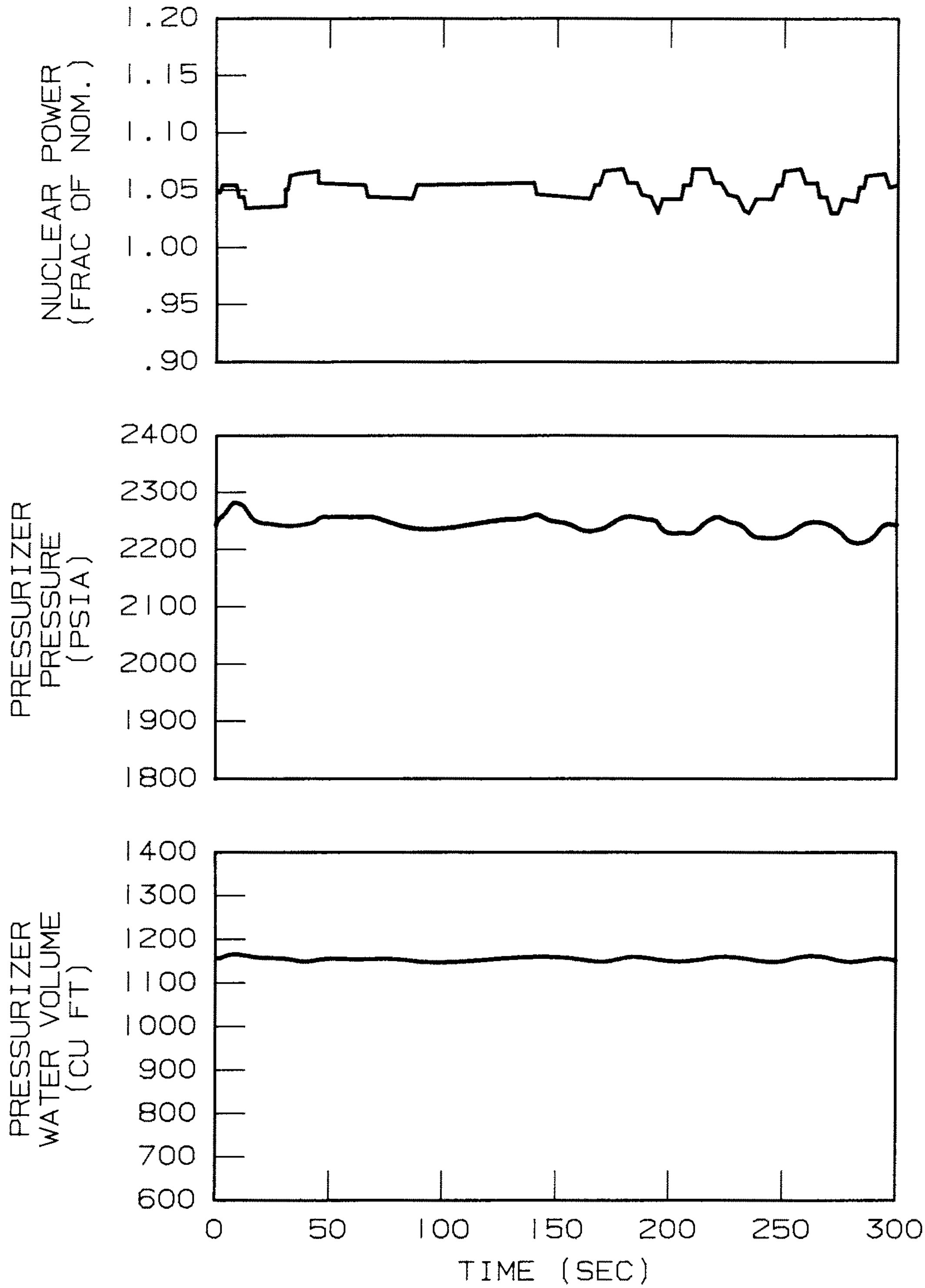
CALLAWAY PLANT

**FIGURE 15.1-6
DNBR AND VESSEL AVERAGE TEMPERATURE TRANSIENTS FOR TEN PERCENT STEP LOAD INCREASE, MAXIMUM REACTIVITY FEEDBACK, MANUAL REACTOR CONTROL**

014-A-20766-10



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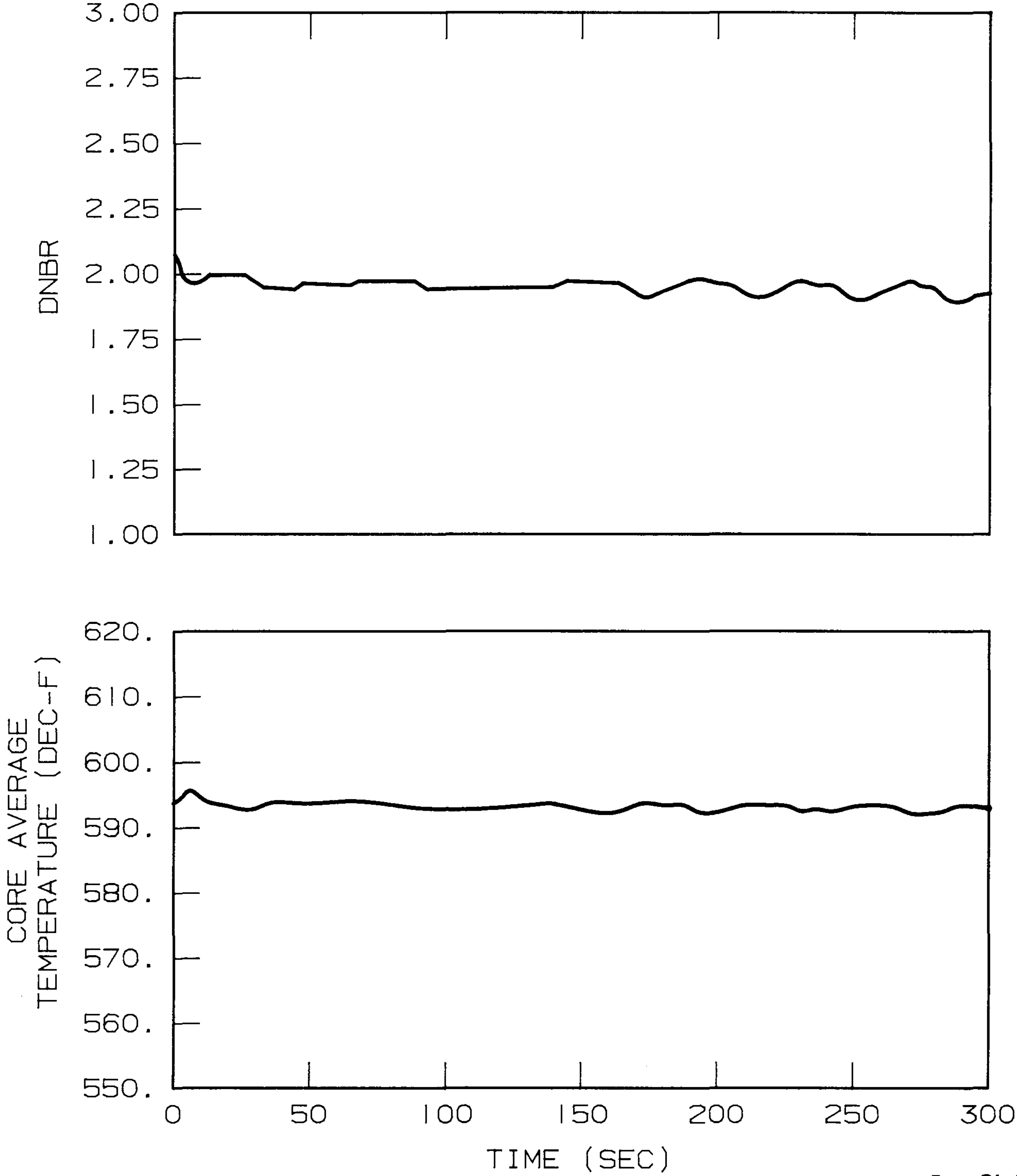
CALLAWAY PLANT

FIGURE 15.1-7
NUCLEAR POWER, PRESSURIZER PRESSURE AND WATER VOLUME TRANSIENTS FOR TEN PERCENT STEP LOAD INCREASE, MINIMUM REACTIVITY FEEDBACK, AUTOMATIC REACTOR CONTROL

014-A-20766-11



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CALLAWAY PLANT

FIGURE 15.1-8
DNBR AND VESSEL AVERAGE TEMPERATURE TRANSIENTS FOR TEN PERCENT STEP LOAD INCREASE, MINIMUM REACTIVITY FEEDBACK, AUTOMATIC REACTOR CONTROL

014-A-20766-12

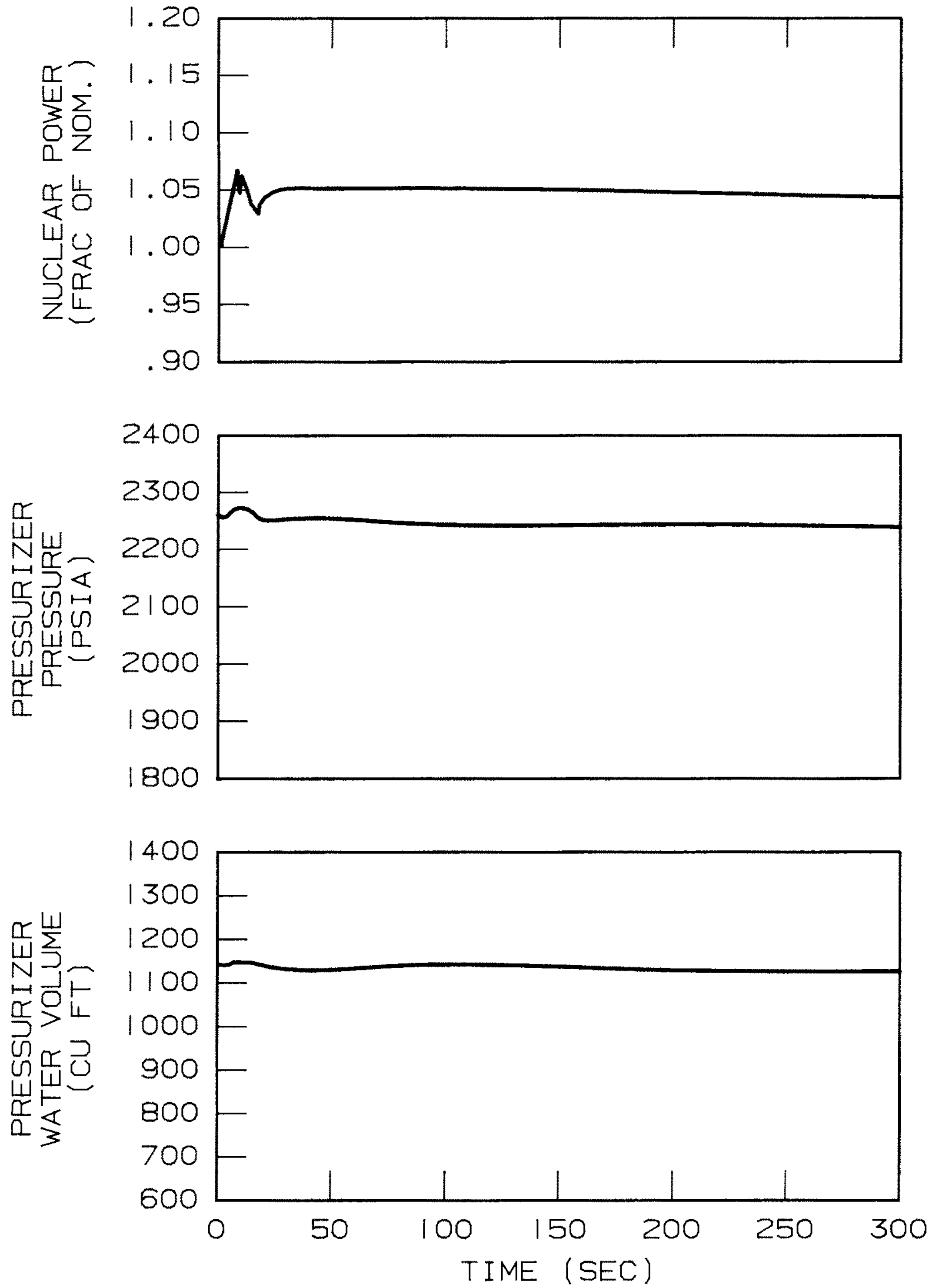

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FIGURE 15.1-9
NUCLEAR POWER, PRESSURIZER PRESSURE AND WATER VOLUME TRANSIENTS FOR TEN PERCENT STEP LOAD INCREASE, MAXIMUM REACTIVITY FEEDBACK, AUTOMATIC REACTOR CONTROL

014-A-20766-13

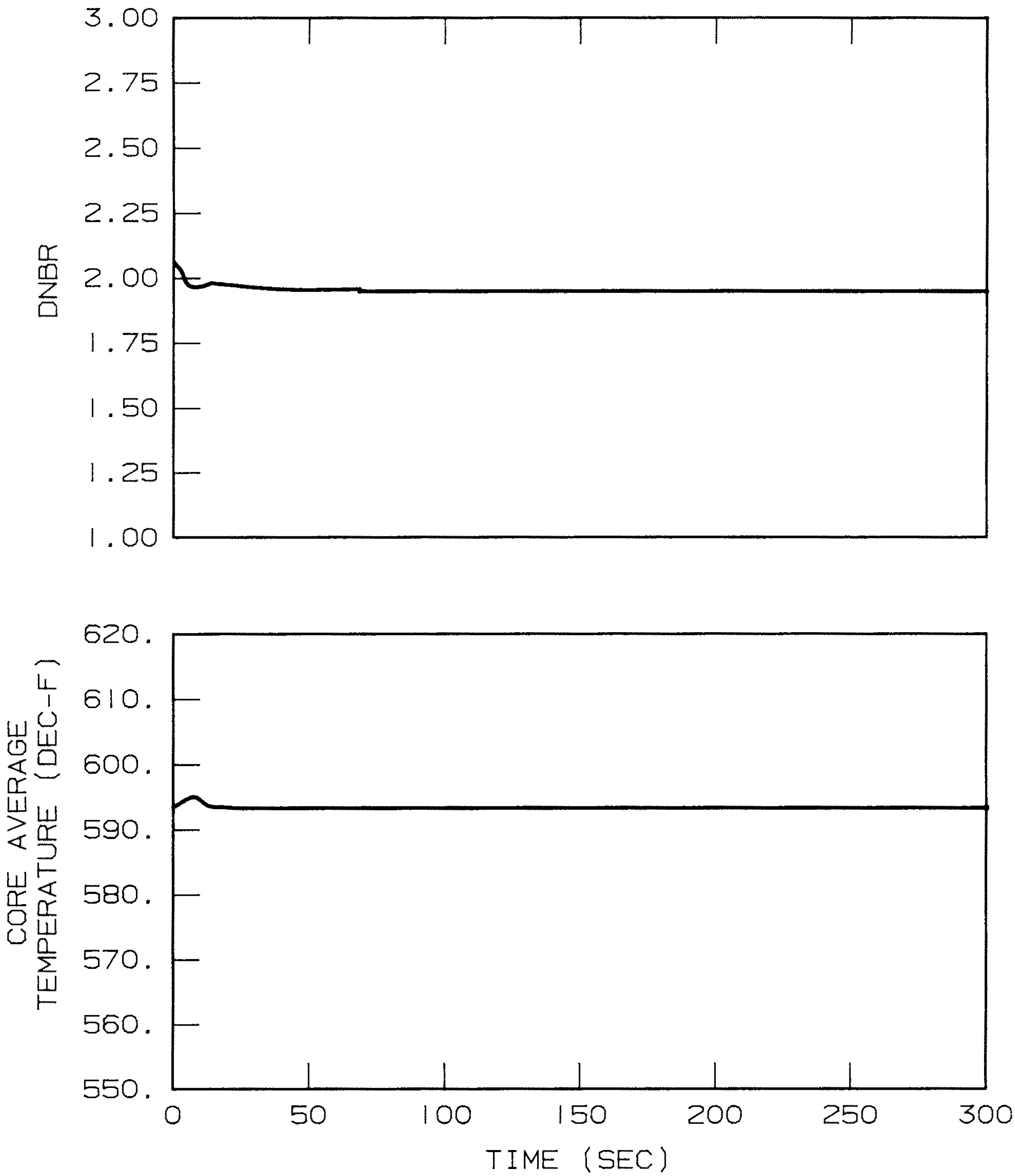

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FIGURE 15.1-10
DNBR AND VESSEL AVERAGE TEMPERATURE TRANSIENTS FOR TEN PERCENT STEP LOAD INCREASE, MAXIMUM REACTIVITY FEEDBACK, AUTOMATIC REACTOR CONTROL

014-A-20766-14

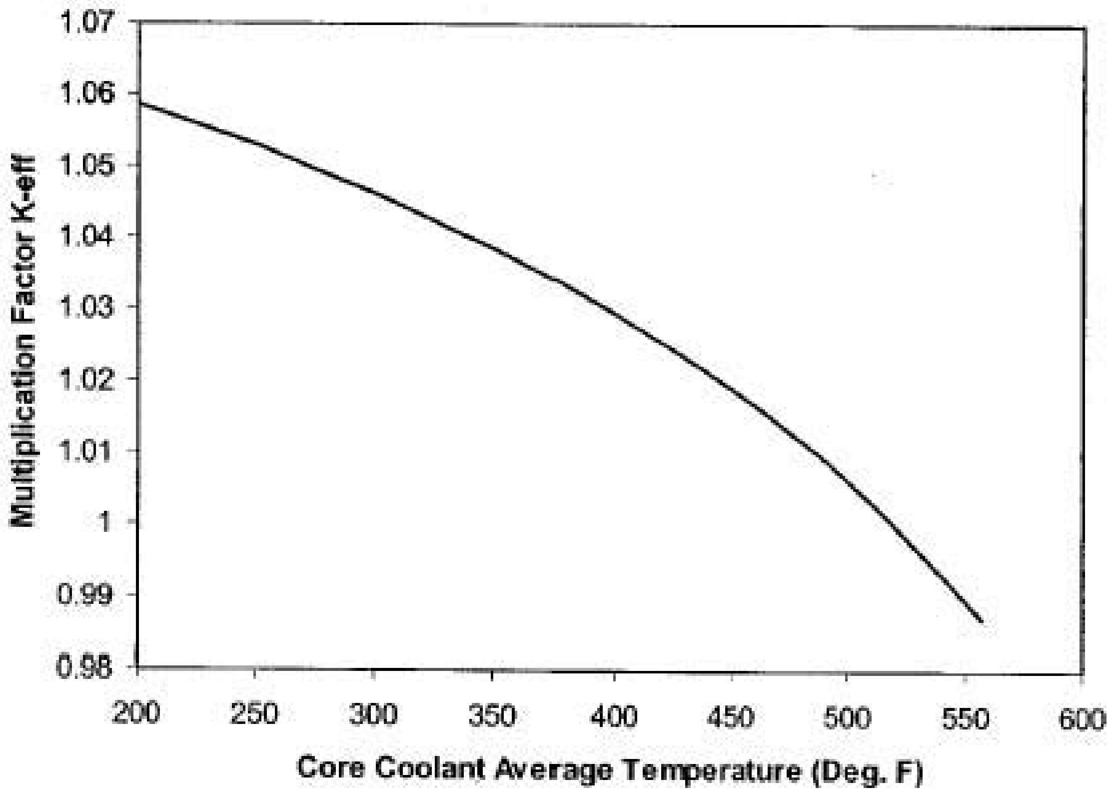

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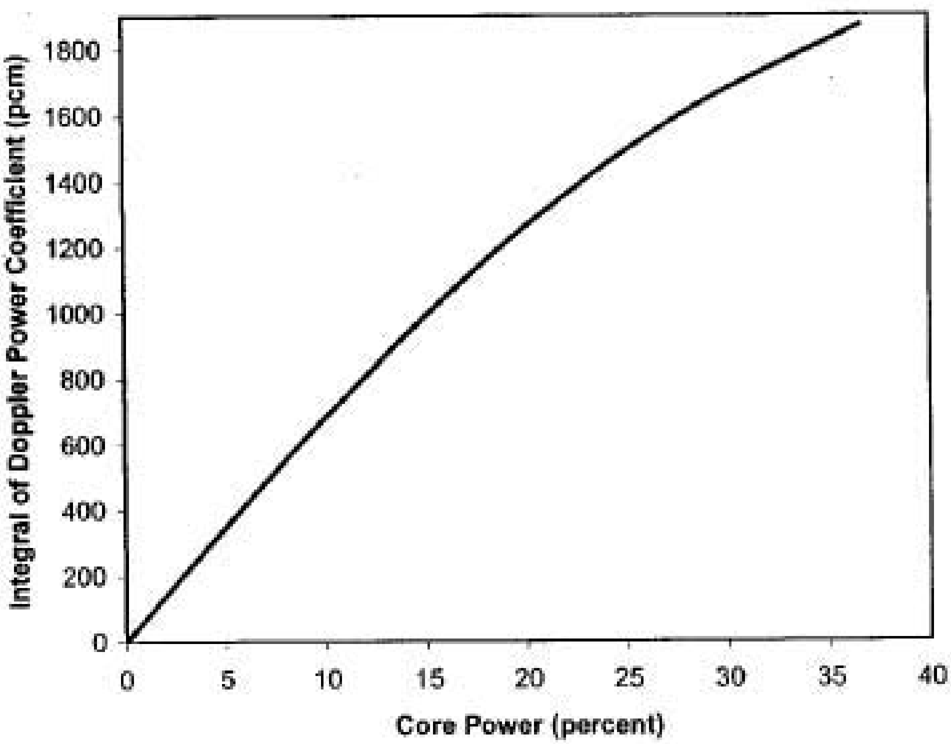
FIGURE 15.1-11

K_{eff} VERSUS TEMPERATURE

Figure 15.1-12 Deleted

Figure 15.1-13 Deleted



REV. OL-16
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FIGURE 15.1-14

DOPPLER POWER FEEDBACK

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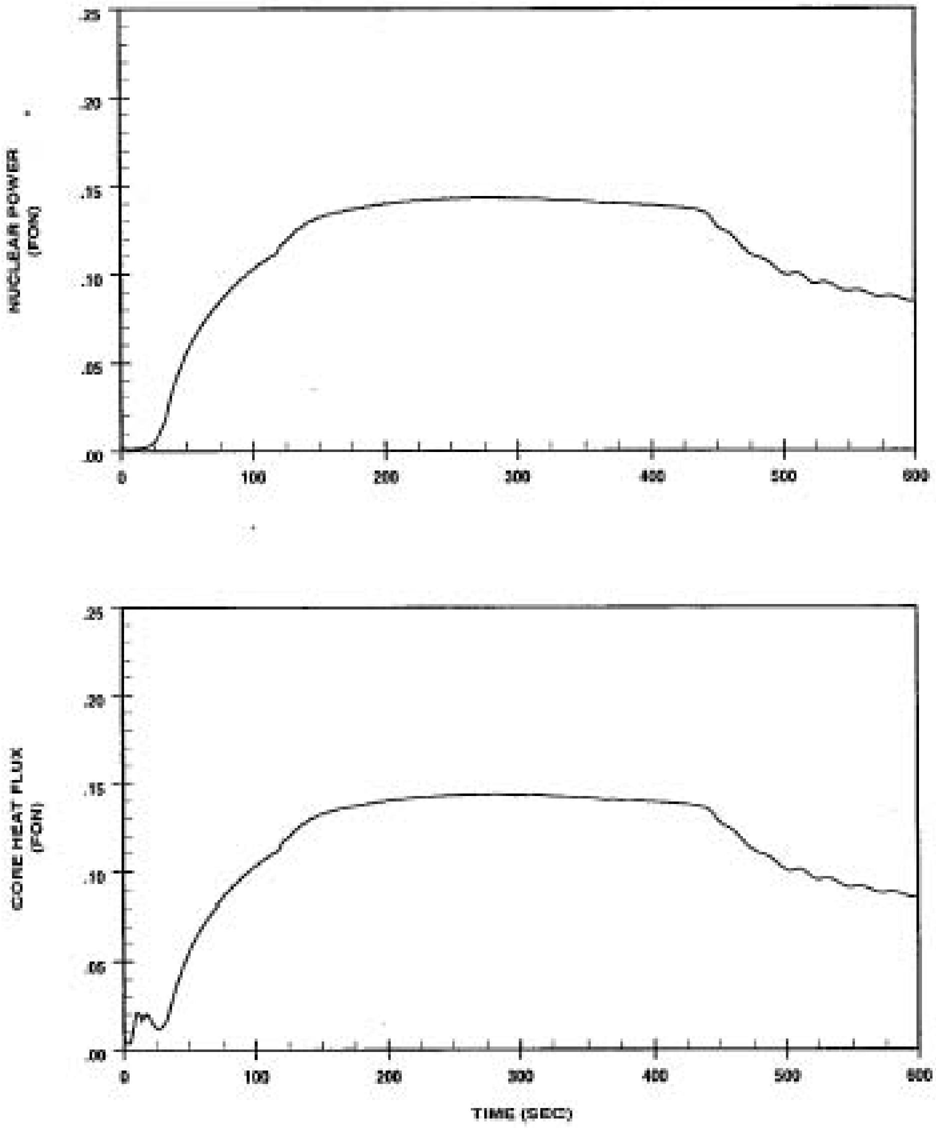

REV. OL-16
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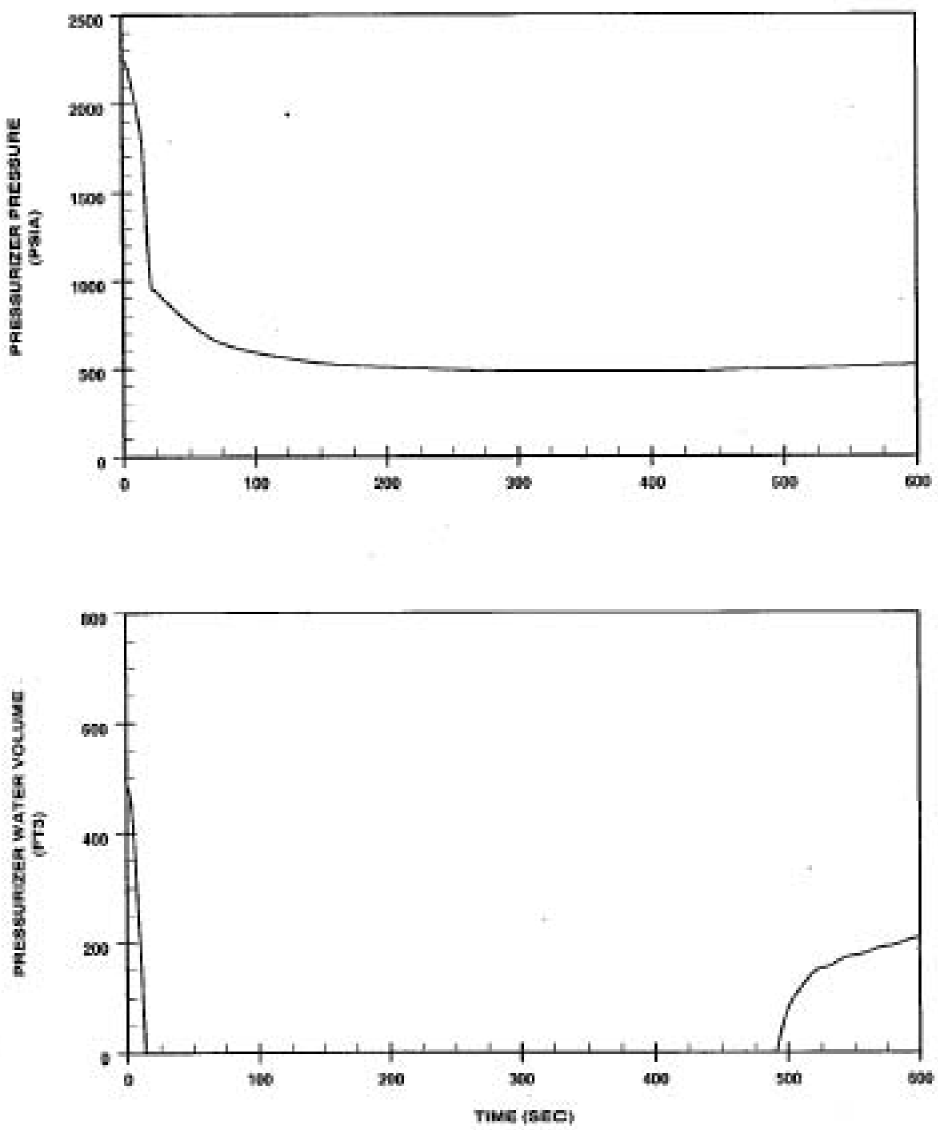
FIGURE 15.1-15A

NUCLEAR POWER AND CORE HEAT FLUX
TRANSIENTS FOR A STEAM LINE DER,
OFFSITE POWER AVAILABLE



REV. OL-15
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FIGURE 15.1-15B

PRESSURIZER PRESSURE AND PRESSURIZER WATER VOLUME TRANSIENTS FOR A STEAM LINE DER, OFFSITE POWER AVAILABLE

Figure 15.1-16 Deleted

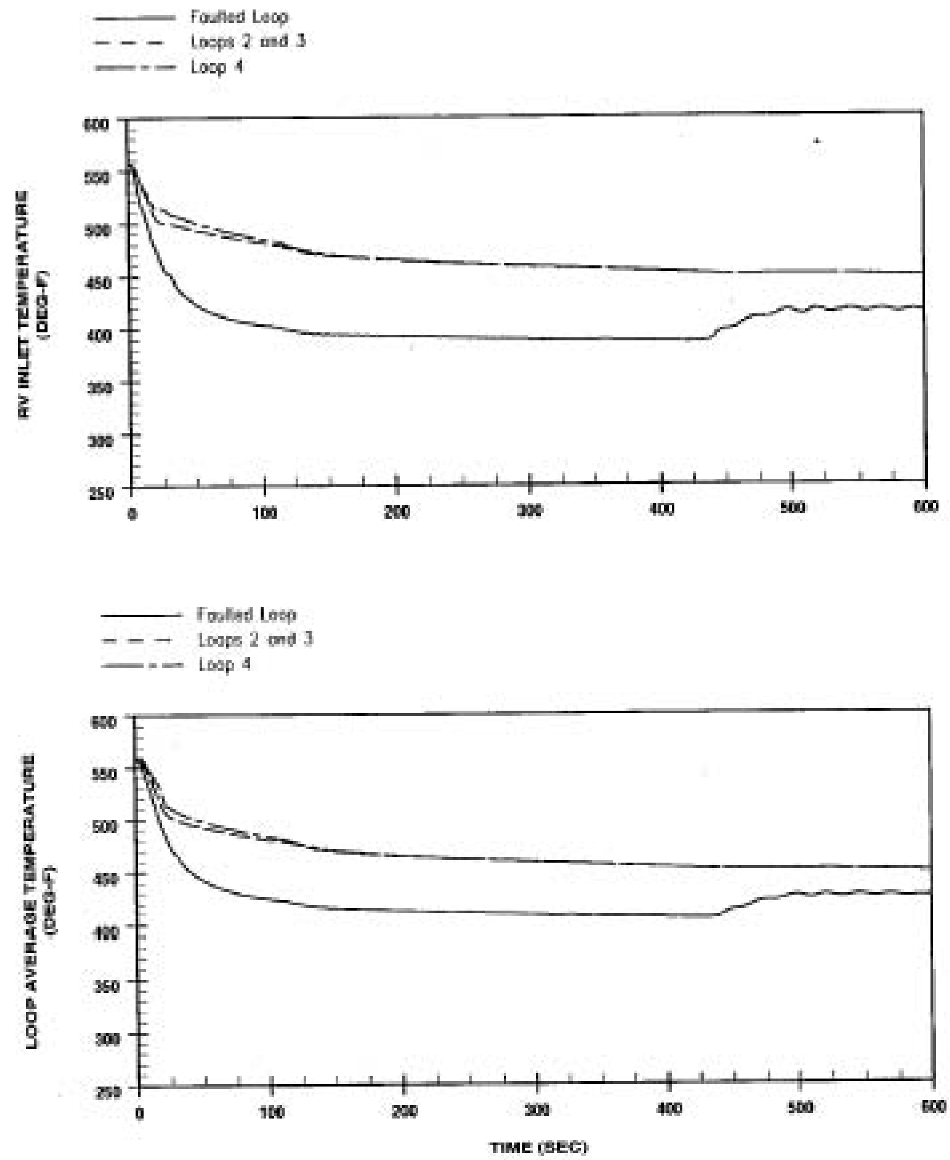

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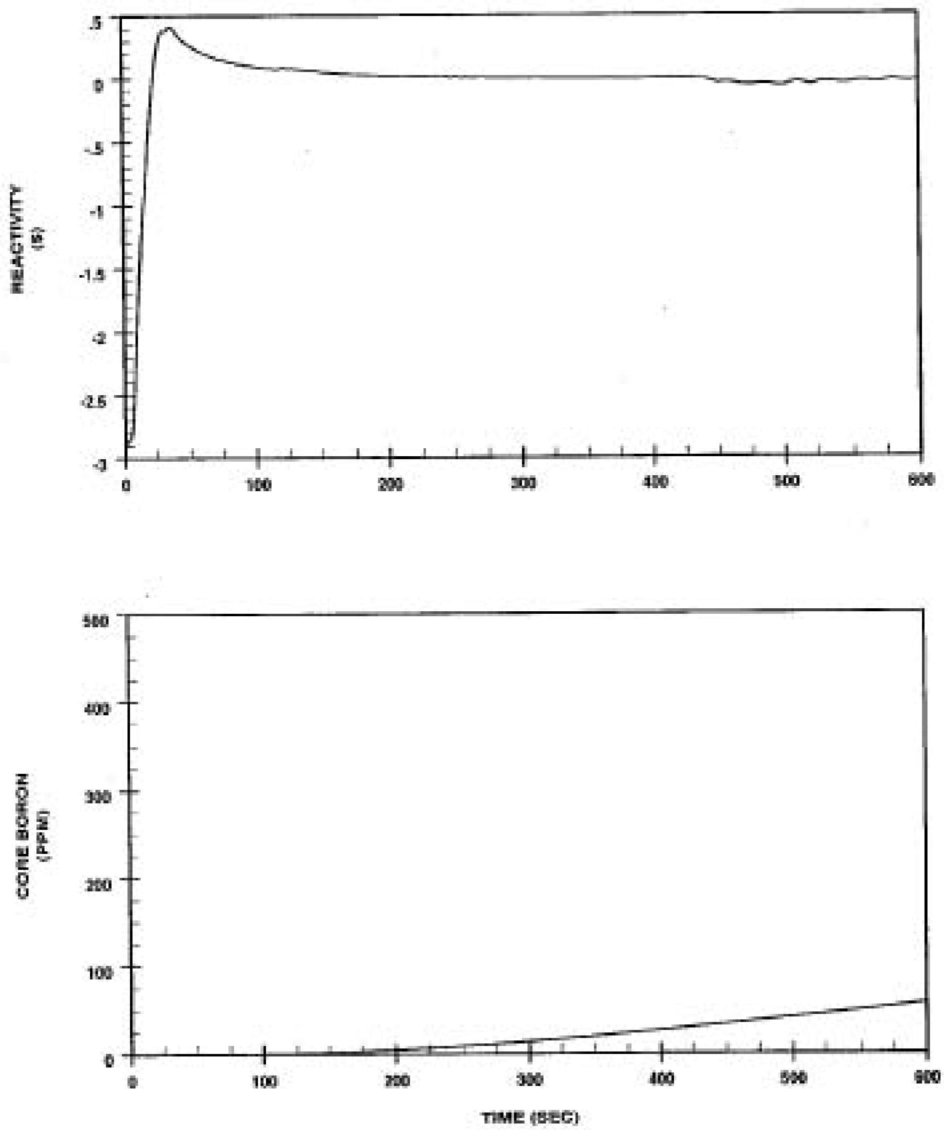
FIGURE 15.1-16A

VESSEL INLET AND LOOP AVERAGE TEMPERATURE TRANSIENTS FOR A STEAM LINE DER, OFFSITE POWER AVAILABLE



REV. OL-15
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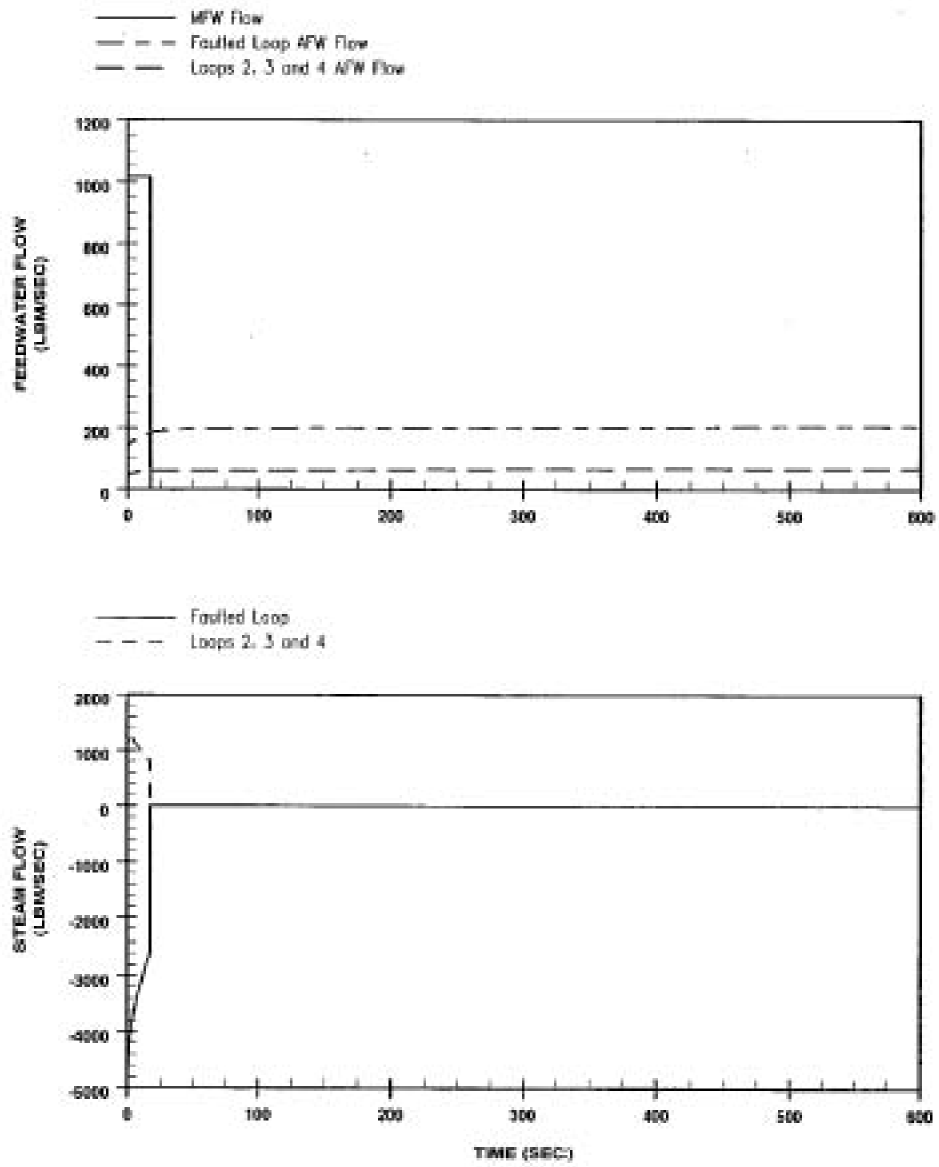
FIGURE 15.1-16B

REACTIVITY AND CORE BORON TRANSIENTS FOR A STEAM LINE DER, OFFSITE POWER AVAILABLE

Figure 15.1-17 Deleted



REV. OL-15
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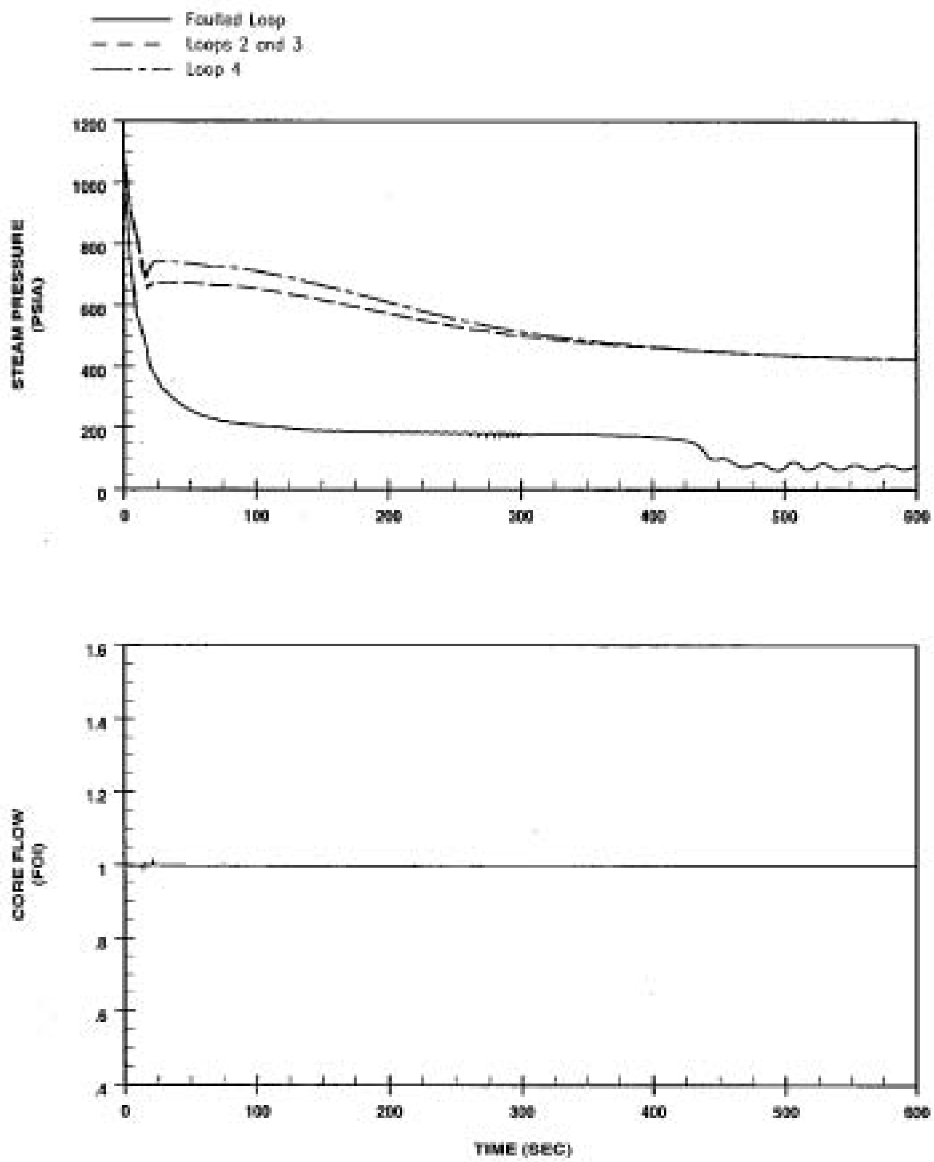
CALLAWAY PLANT

FIGURE 15.1-17A

FEEDWATER FLOW AND STEAM
FLOW TRANSIENTS FOR A STEAM LINE DER,
OFFSITE POWER AVAILABLE



REV. OL-16
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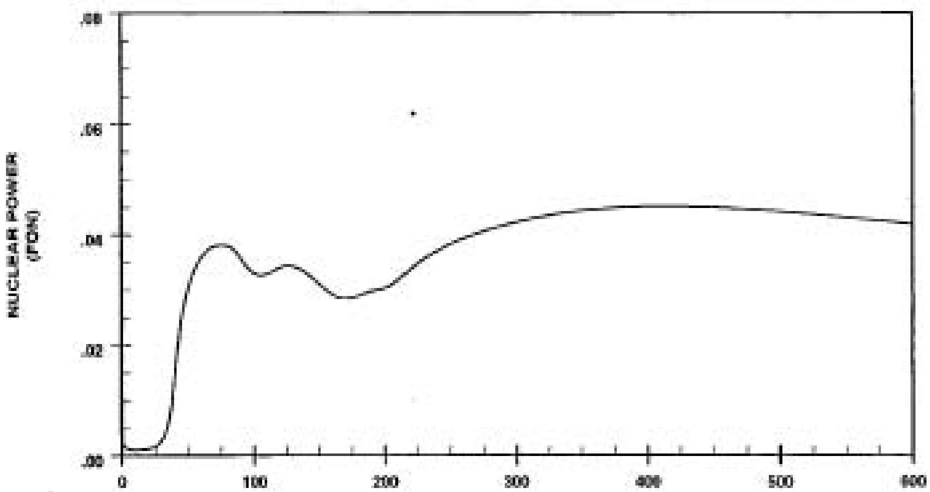
FIGURE 15.1-17B

STEAM PRESSURE AND CORE FLOW TRANSIENTS FOR A STEAM LINE DER, OFFSITE POWER AVAILABLE

Figure 15.1-18 Deleted



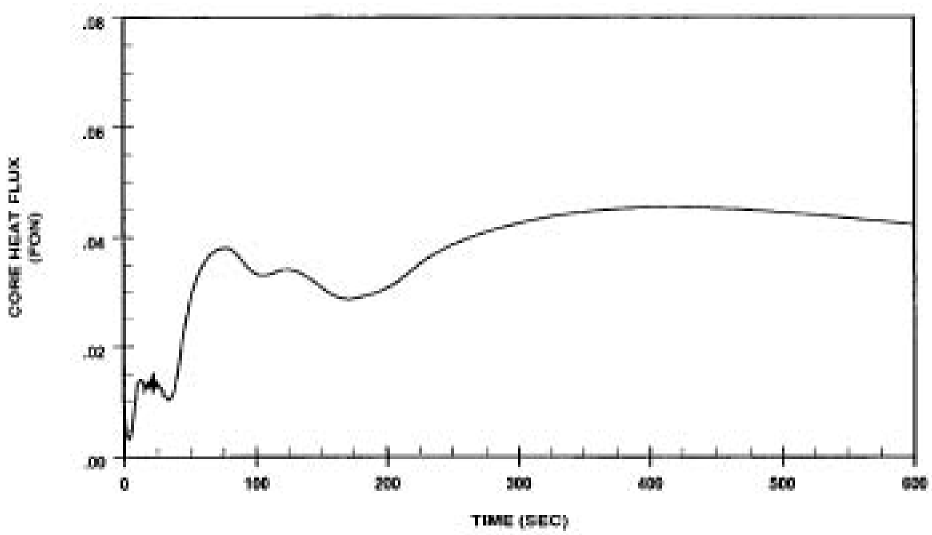


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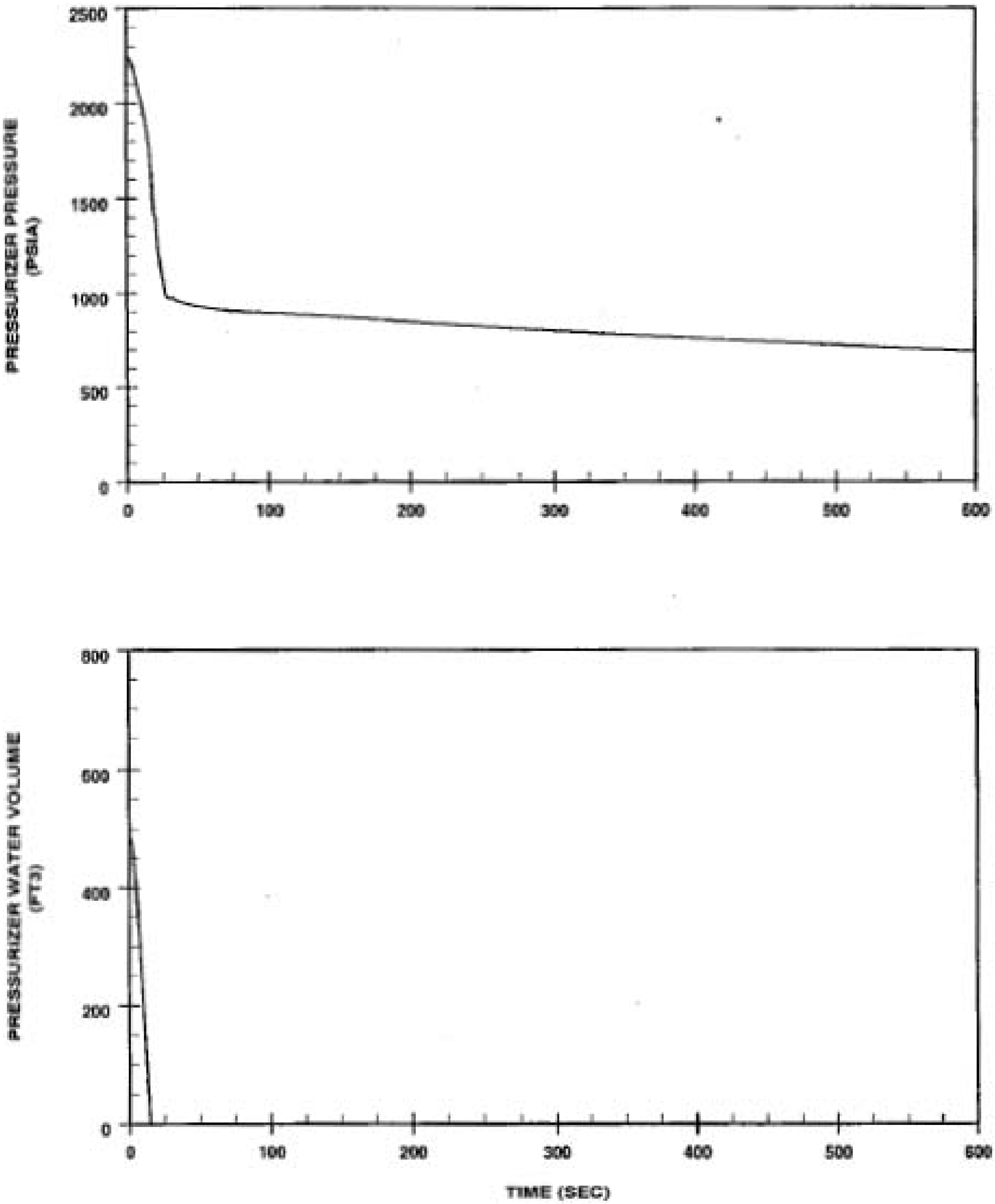
FIGURE 15.1-10A

NUCLEAR POWER AND CORE HEAT FLUX
TRANSIENTS FOR STEAM LINE DER,
NO OFFSITE POWER AVAILABLE



REV. OL-16
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FIGURE 15.1-18B

PRESSURIZER PRESSURE AND PRESSURIZER WATER VOLUME TRANSIENTS FOR A STEAM LINE DER, NO OFFSITE POWER AVAILABLE

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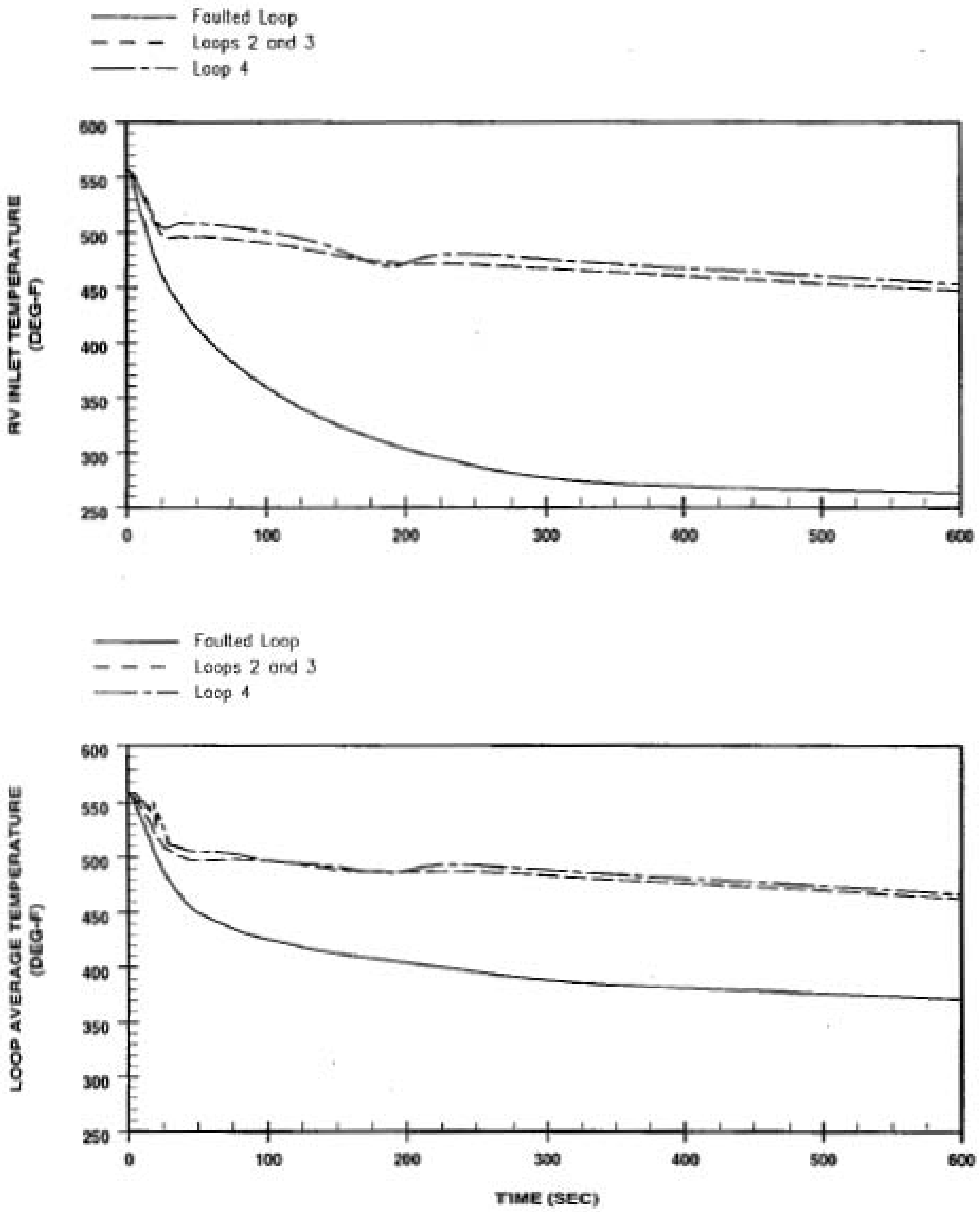
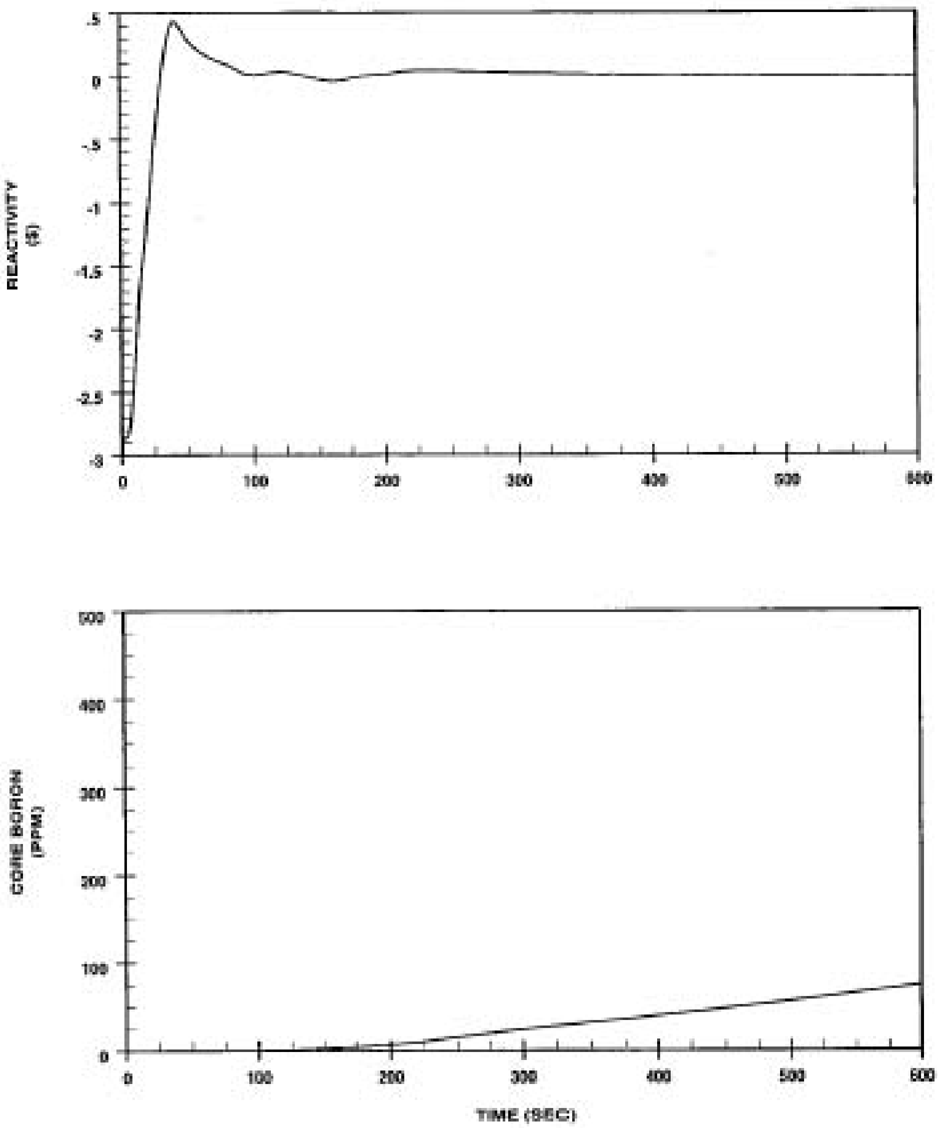


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.1-19A

VESSEL INLET AND LOOP AVERAGE TEMPERATURE TRANSIENTS FOR A STEAM LINE DER, NO OFFSITE POWER AVAILABLE



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5/06

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FIGURE 15.1-19B

REACTIVITY AND CORE BORON
TRANSIENTS FOR A STEAM LINE DER,
NO OFFSITE POWER AVAILABLE

Figure 15.1-20 Deleted

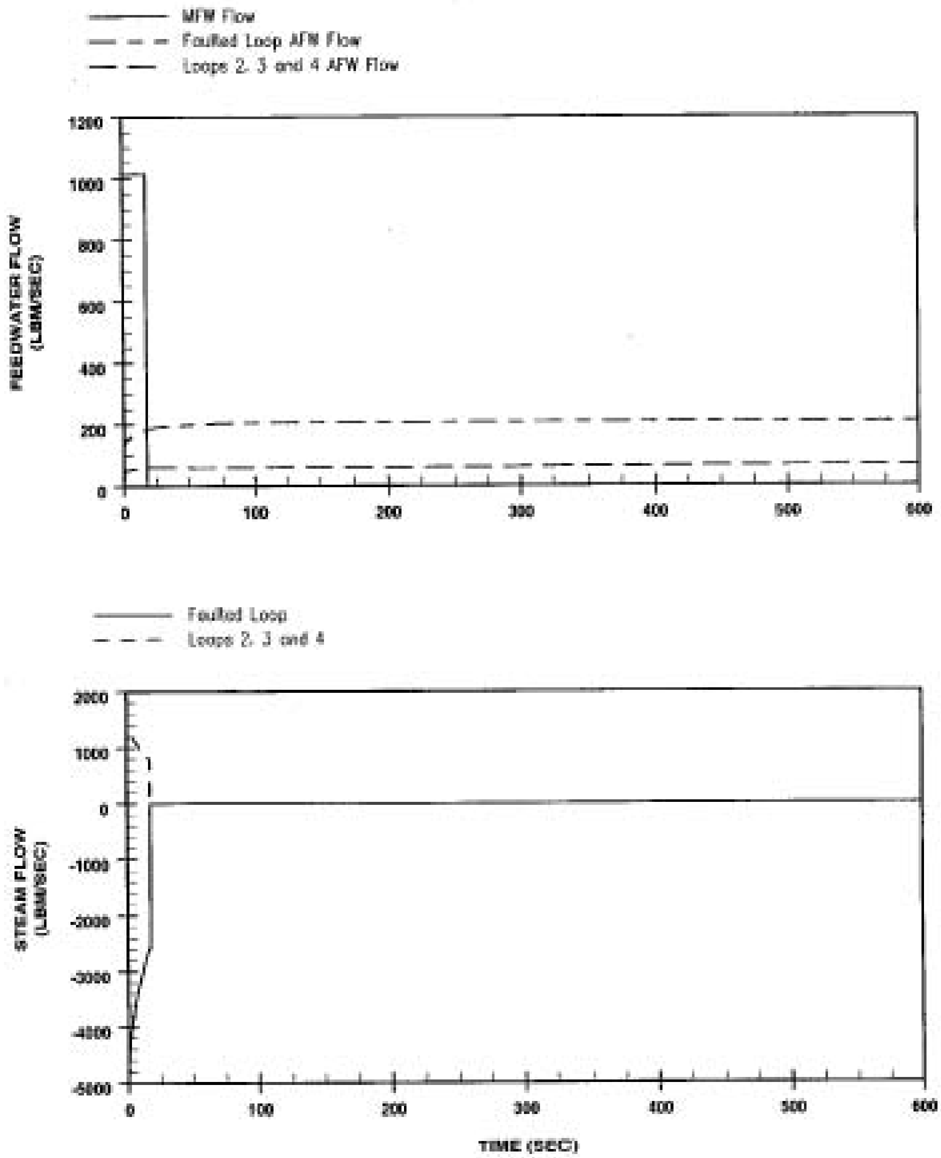

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FIGURE 15.1-20A

FEEDWATER FLOW AND STEAM FLOW
TRANSIENTS FOR A STEAM LINE DER,
NO OFFSITE POWER AVAILABLE

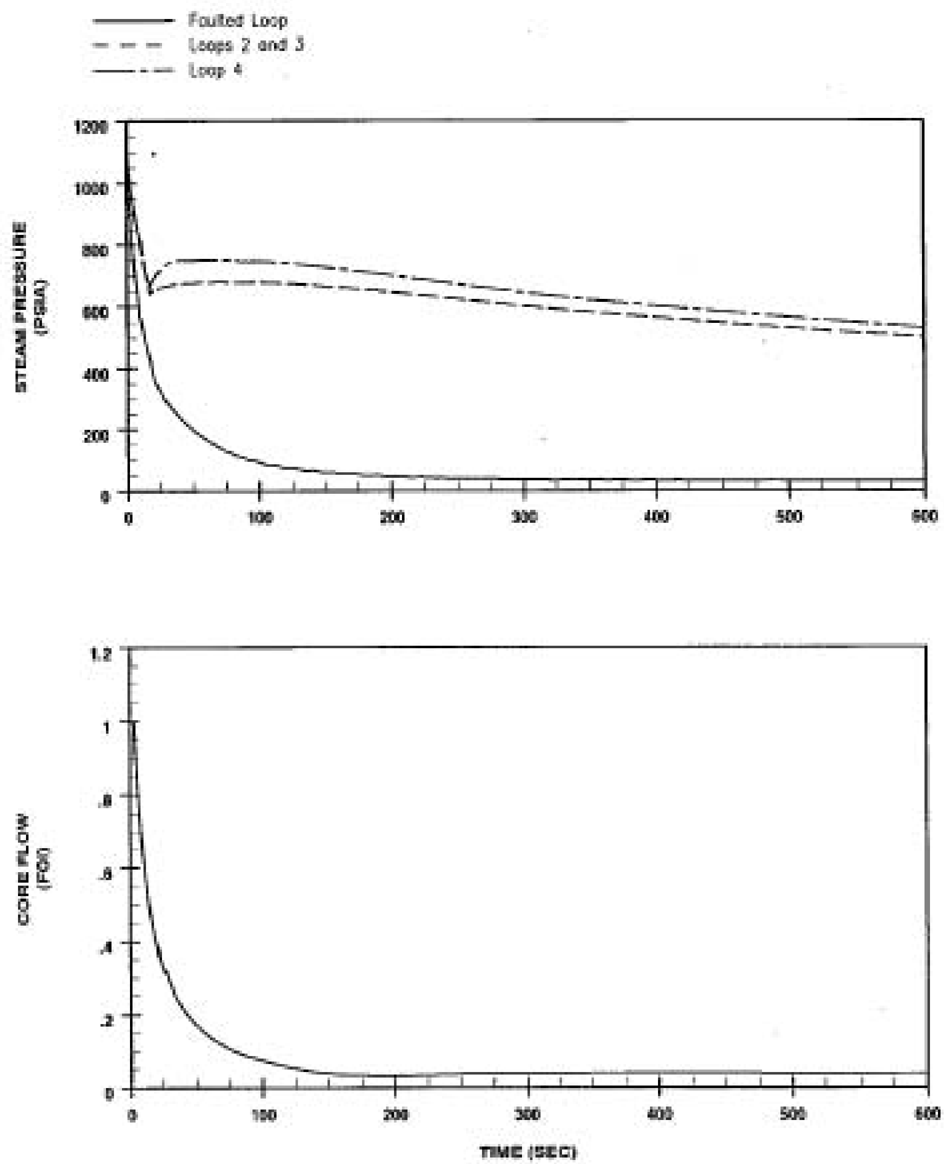

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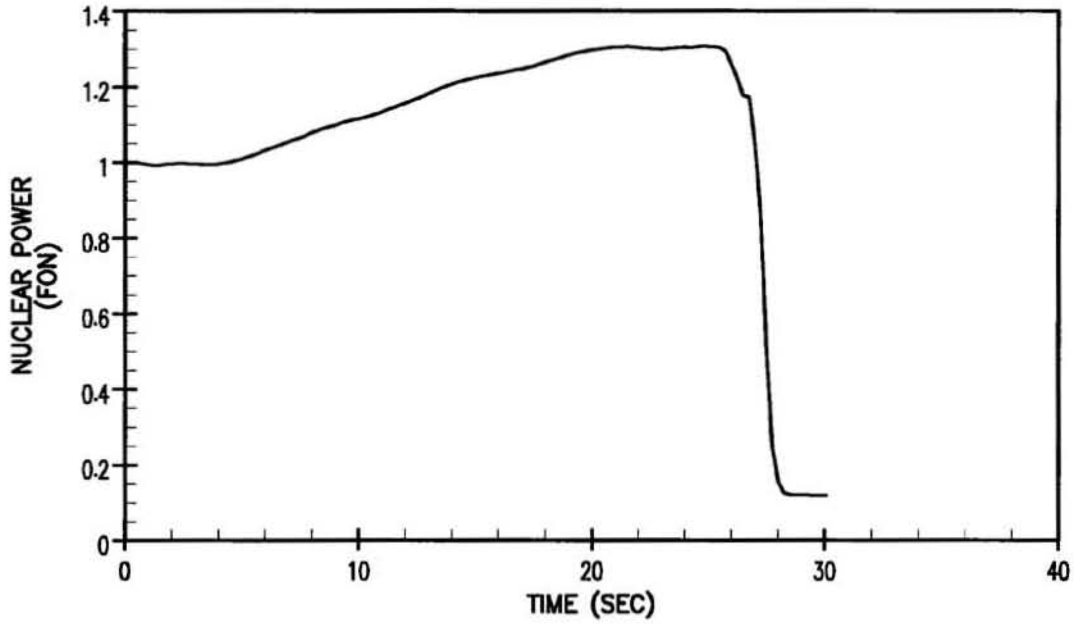
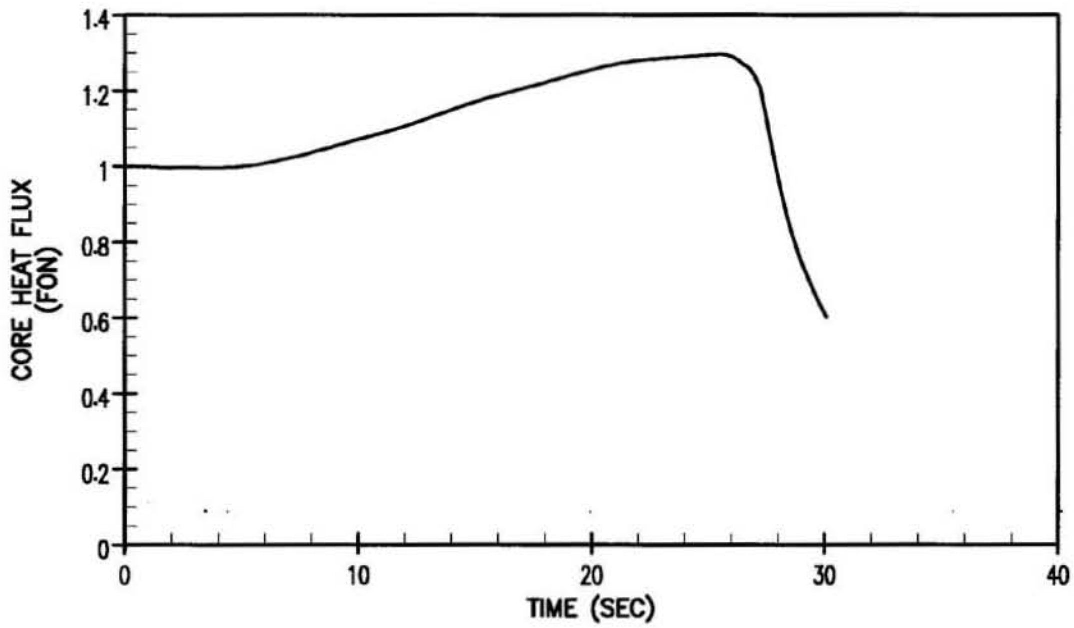
FIGURE 15.1-20B

STEAM PRESSURE AND CORE FLOW TRANSIENTS FOR A STEAM LINE DER, NO OFFSITE POWER AVAILABLE





The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

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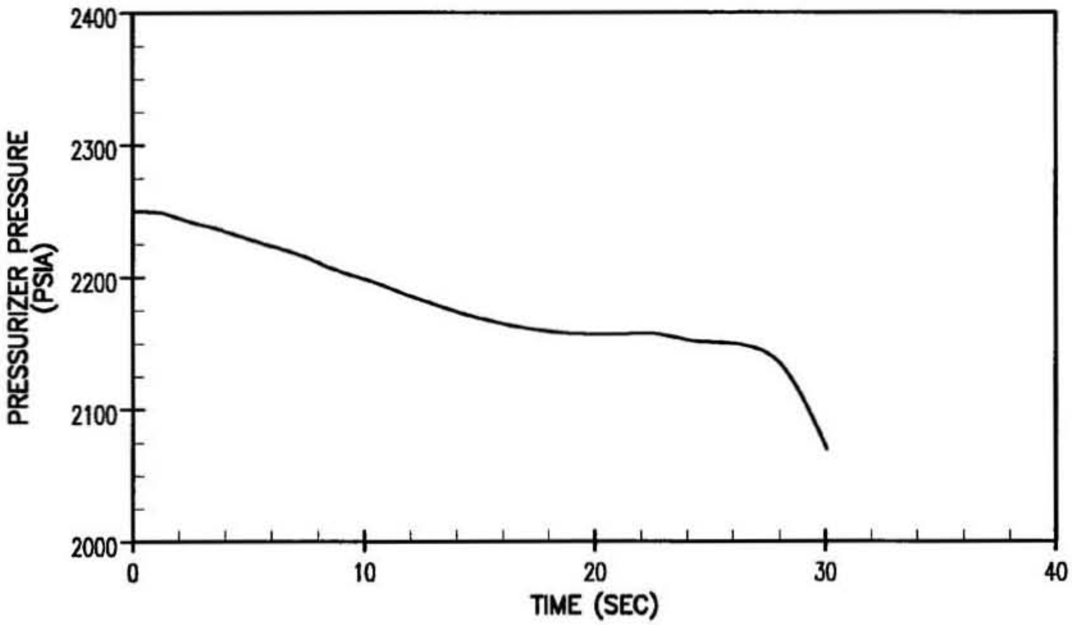
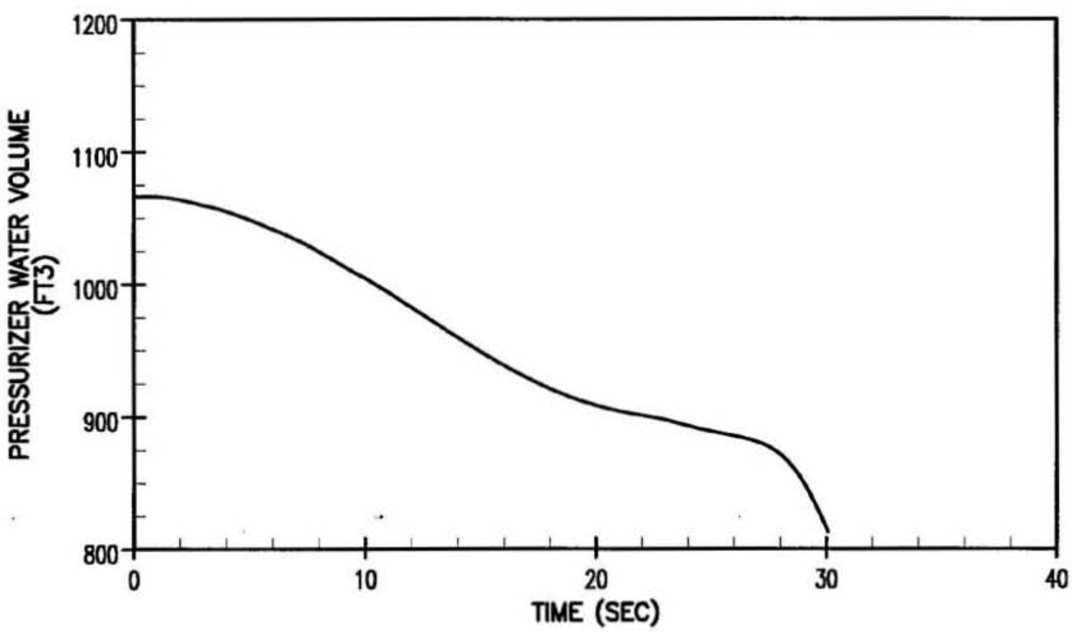
FIGURE 15.1-21

STEAMLINE RUPTURE FULL POWER CORE RESPONSE

REV. 12 1/10





The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

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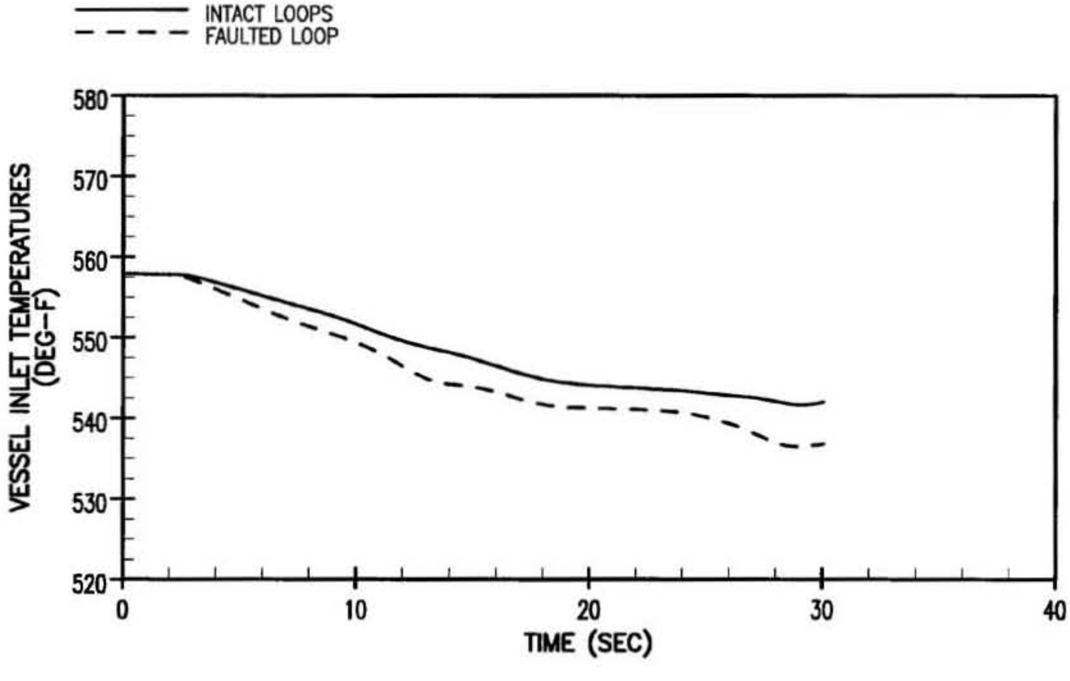
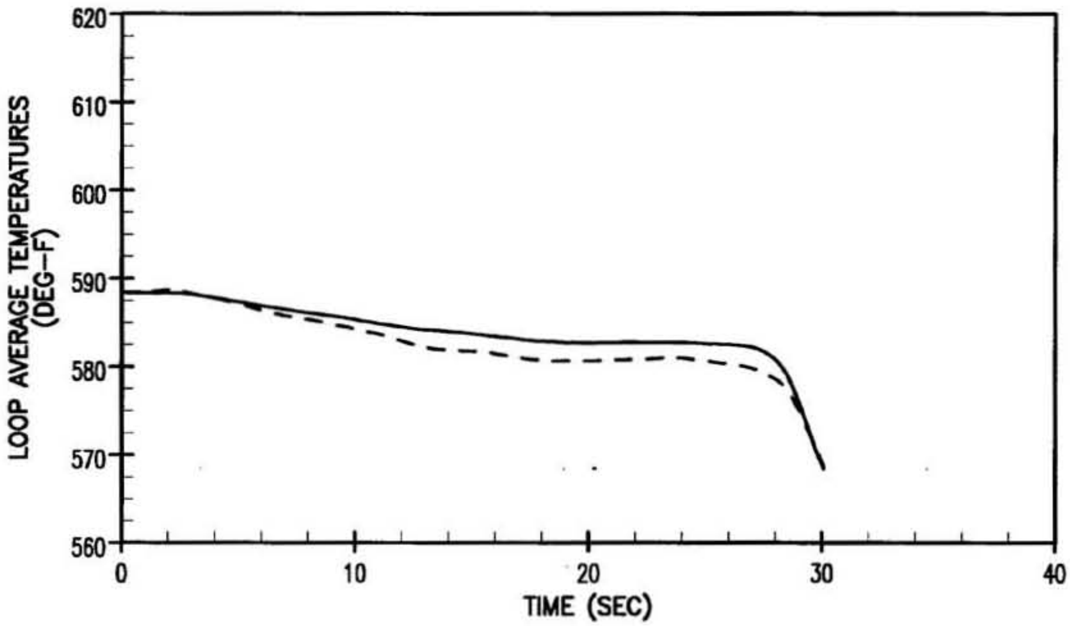
FIGURE 15.1-22

STEAMLINE RUPTURE FULL POWER CORE RESPONSE

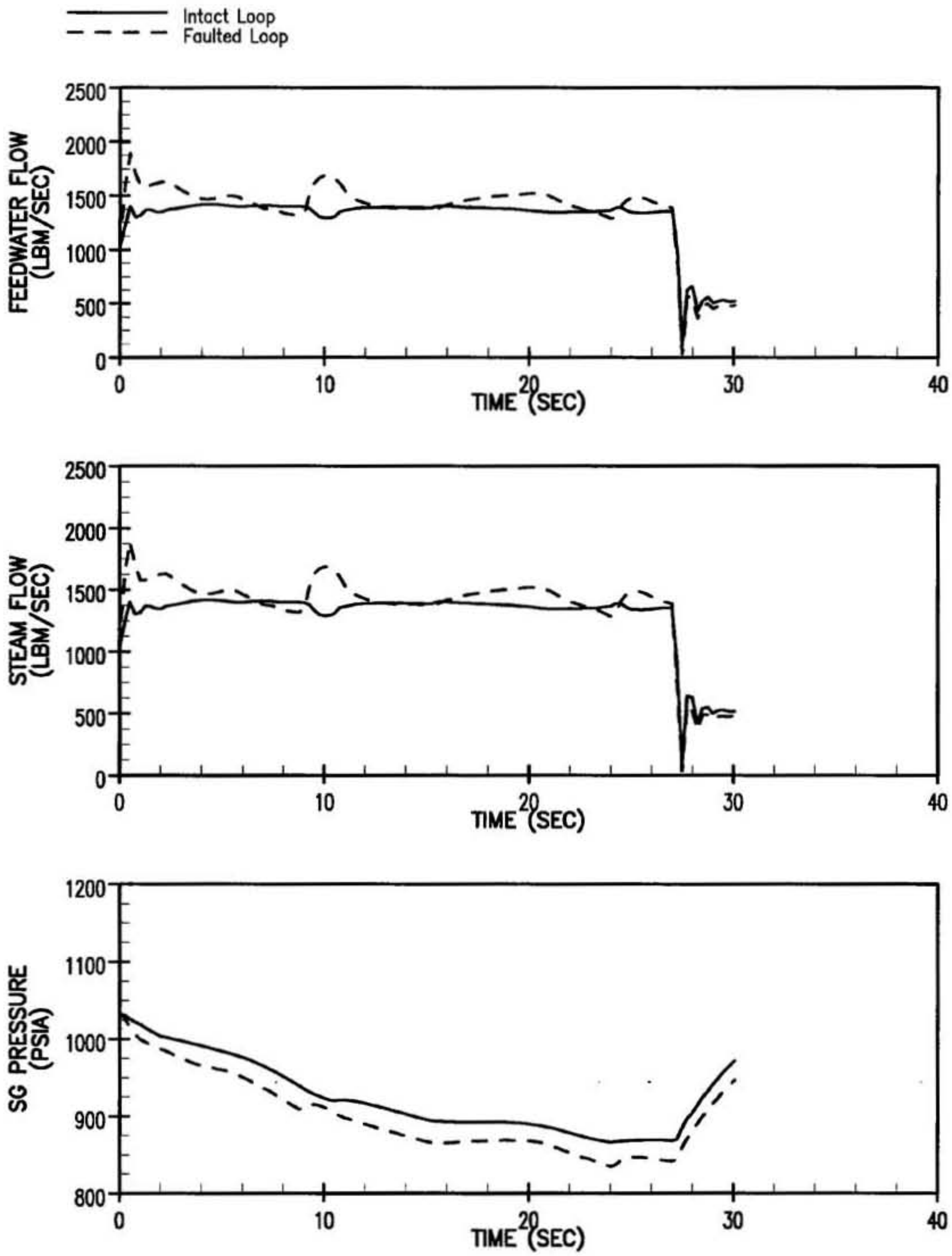
REV. 12 1/10





The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

CALLAWAY PLANT
FIGURE 15.1-23 STEAMLINE RUPTURE FULL POWER CORE RESPONSE REV. 0 1/10



The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

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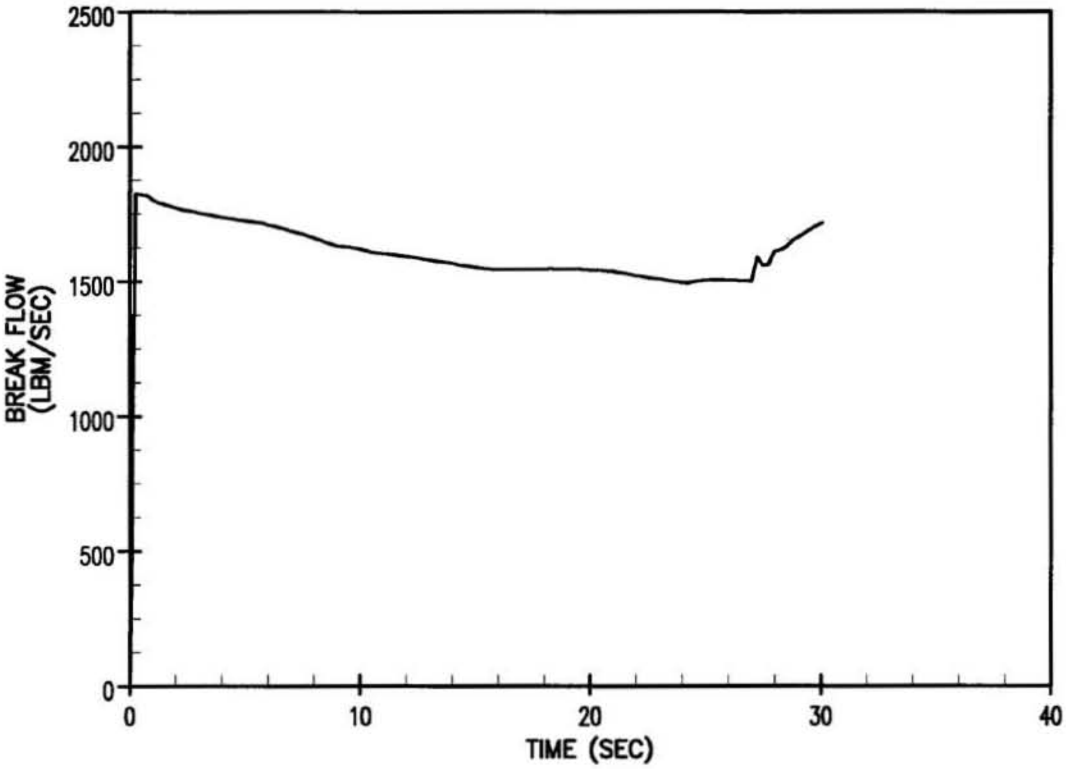
FIGURE 15.1-24

STEAMLINE RUPTURE FULL POWER CORE RESPONSE

REV. 0 1/10



The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

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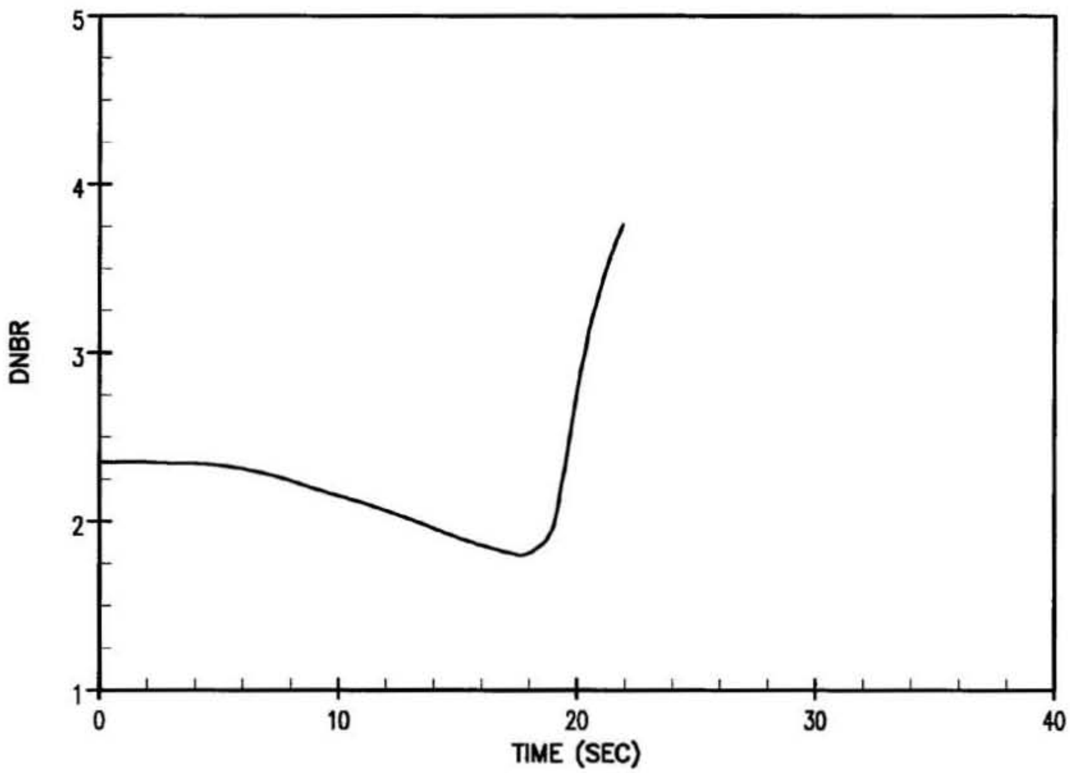
FIGURE 15.1-25

STEAMLINE RUPTURE FULL POWER CORE RESPONSE

REV. 0 1/10



The analysis that produced the above figures conservatively bounds the actual plant configuration. This analysis uses different setpoint coefficients in the OPΔT reactor trip setpoint from what is currently configured. The effect of the differences between the analysis inputs and the plant configuration is that the analysis inputs result in delayed protection and more limiting results.

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FIGURE 15.1-26

STEAMLINE RUPTURE FULL POWER CORE RESPONSE

REV. 0 1/10

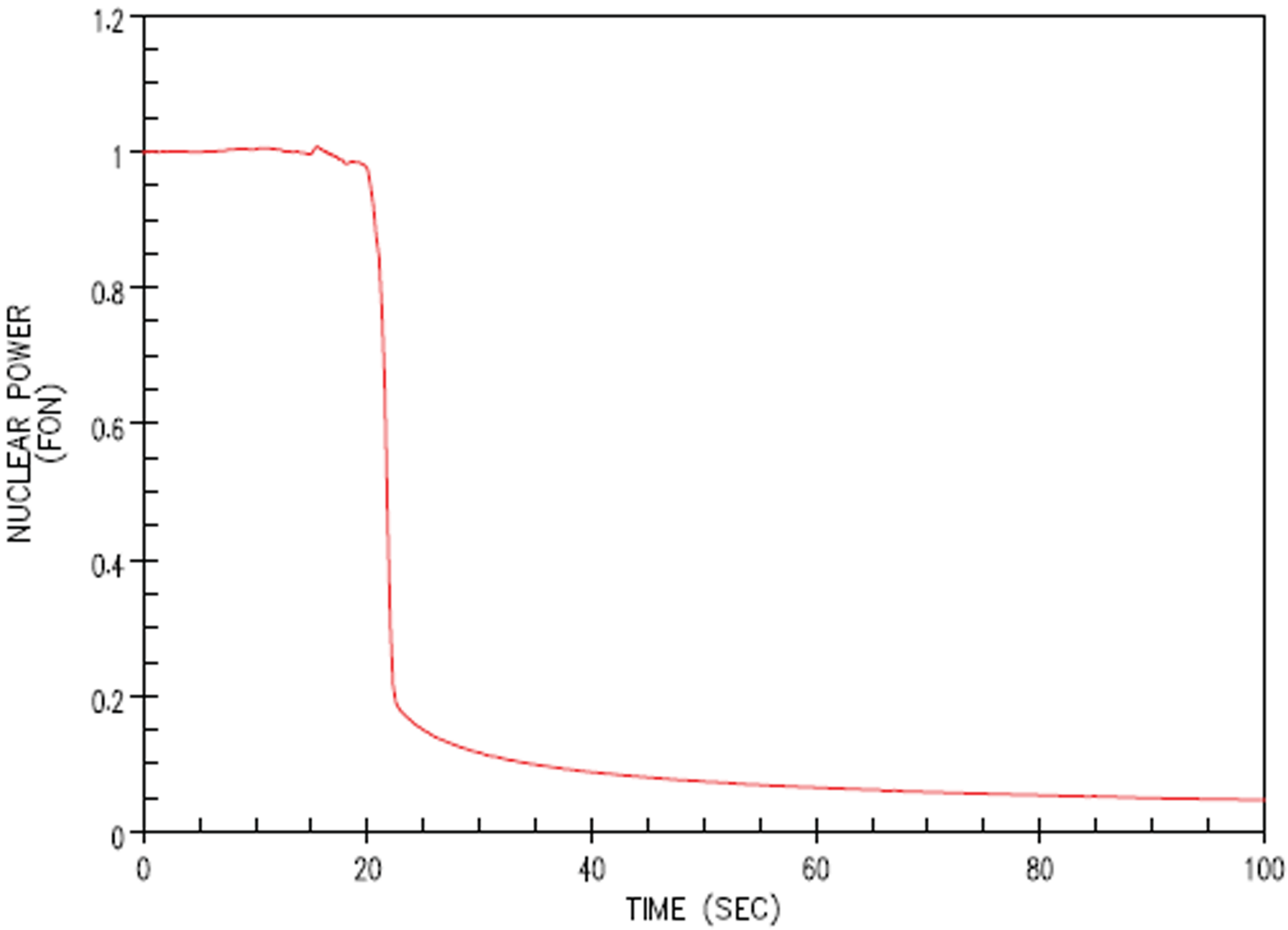

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FIGURE 15.2-1

TURBINE TRIP EVENT WITH PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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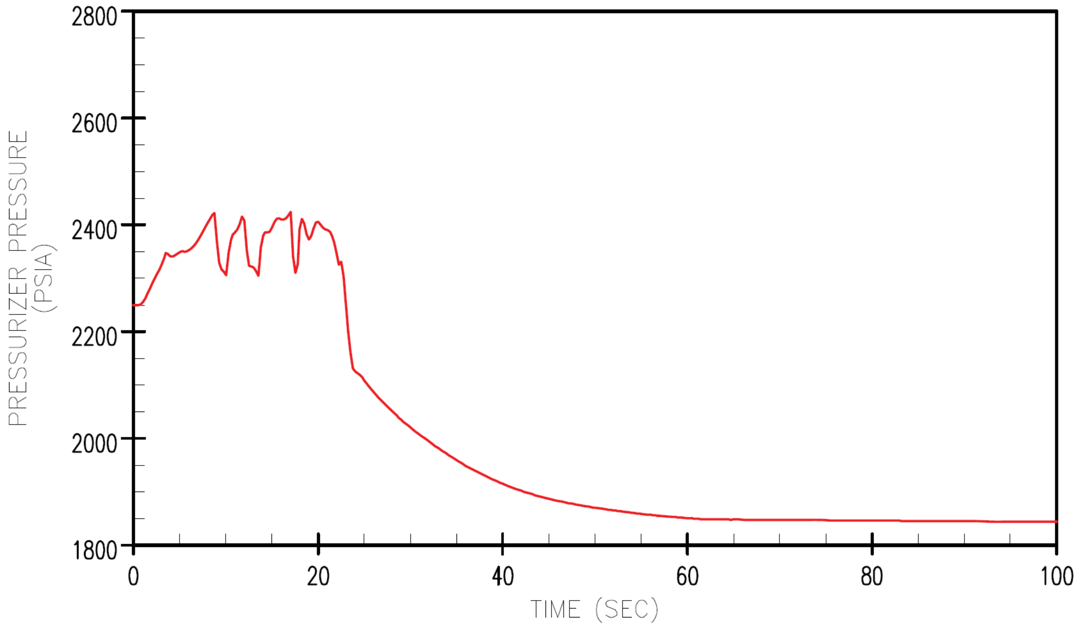

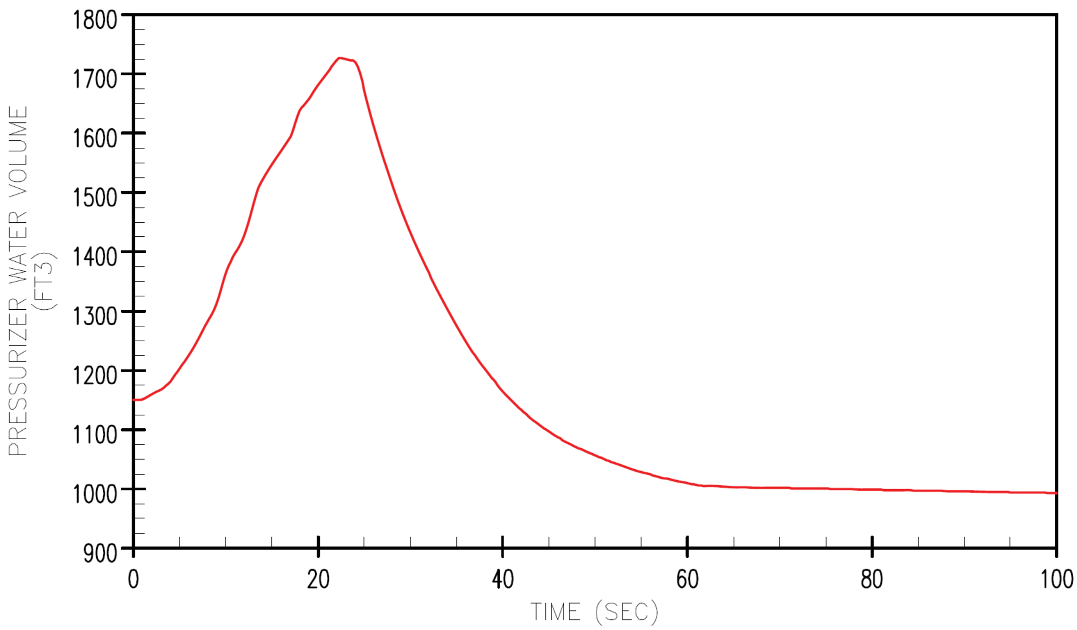

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FIGURE 15.2-2

TURBINE TRIP EVENT WITH PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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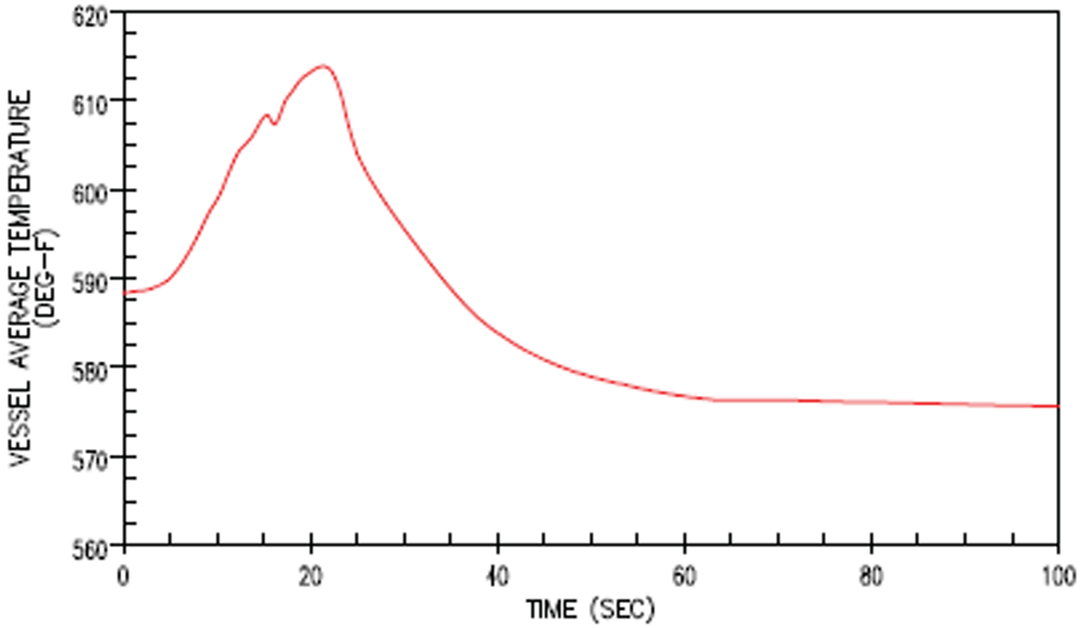

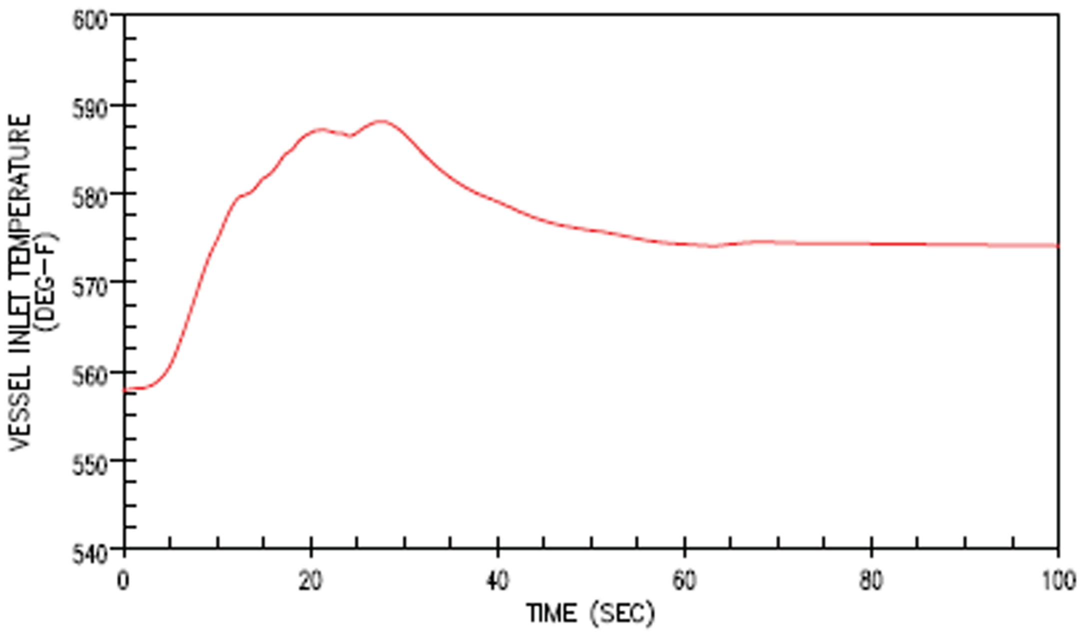

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FIGURE 15.2-3

TURBINE TRIP EVENT WITH PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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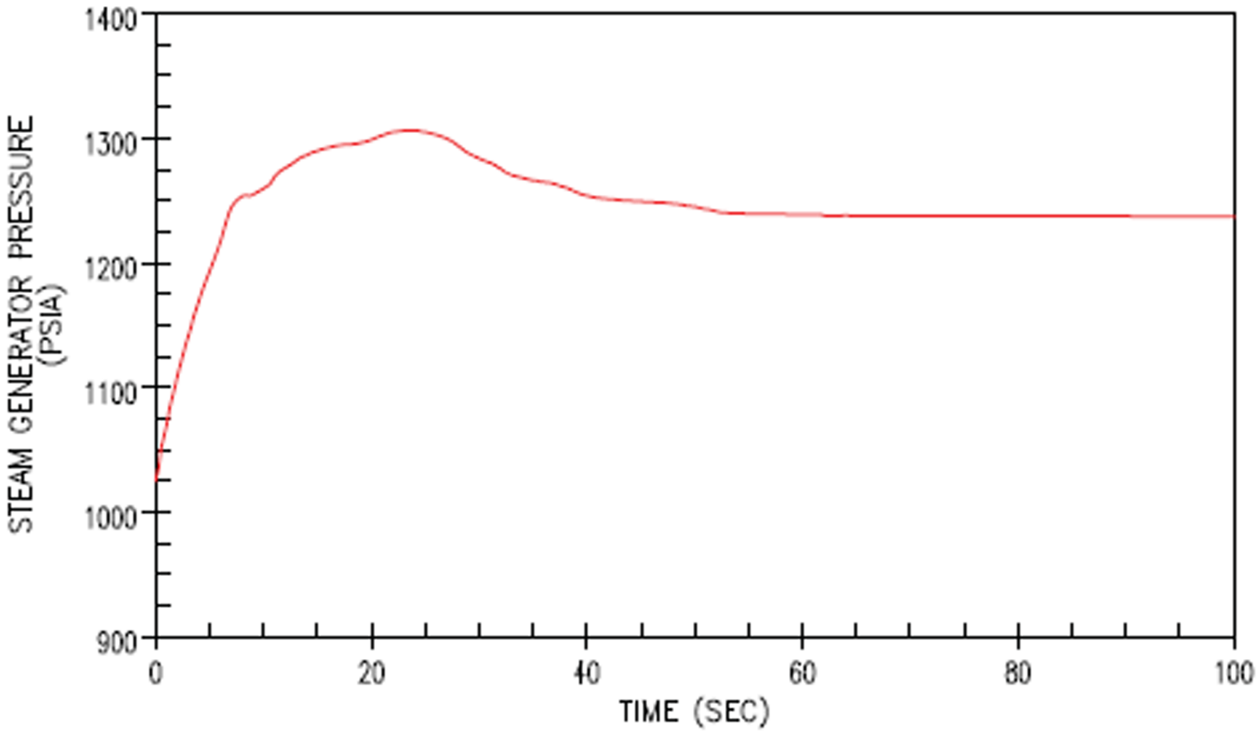

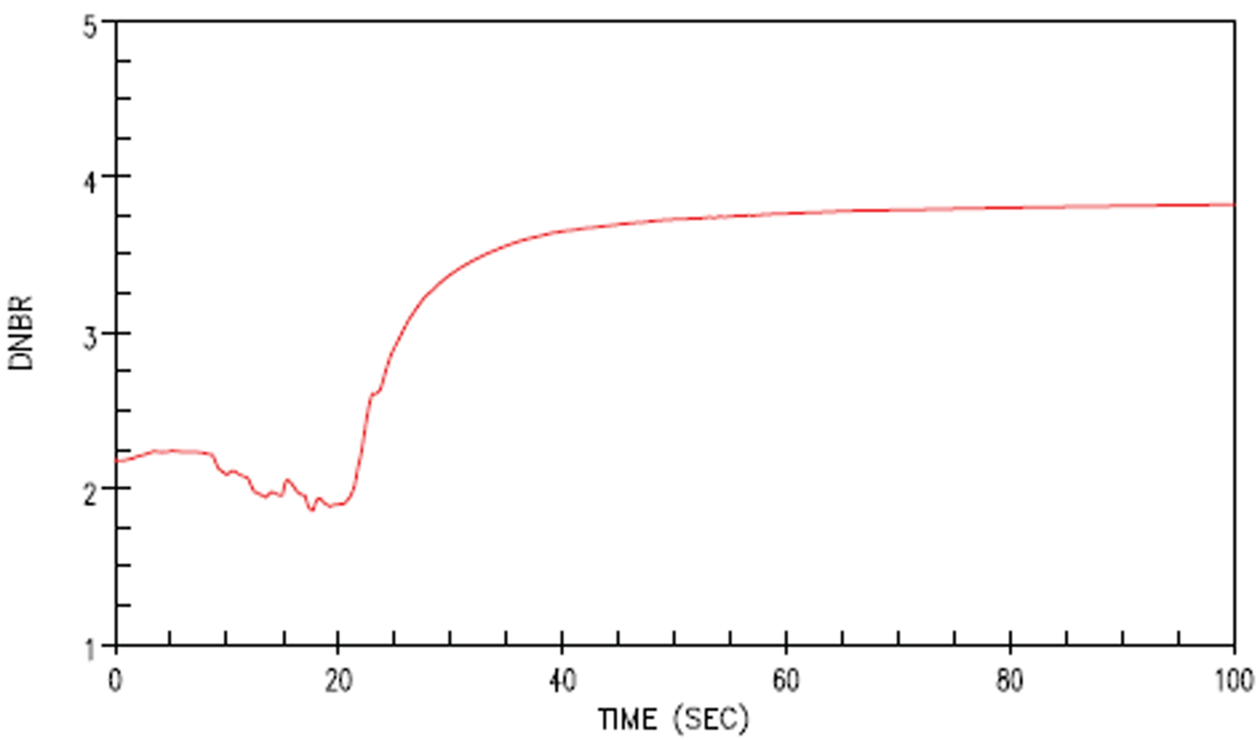

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FIGURE 15.2-4

TURBINE TRIP EVENT WITH PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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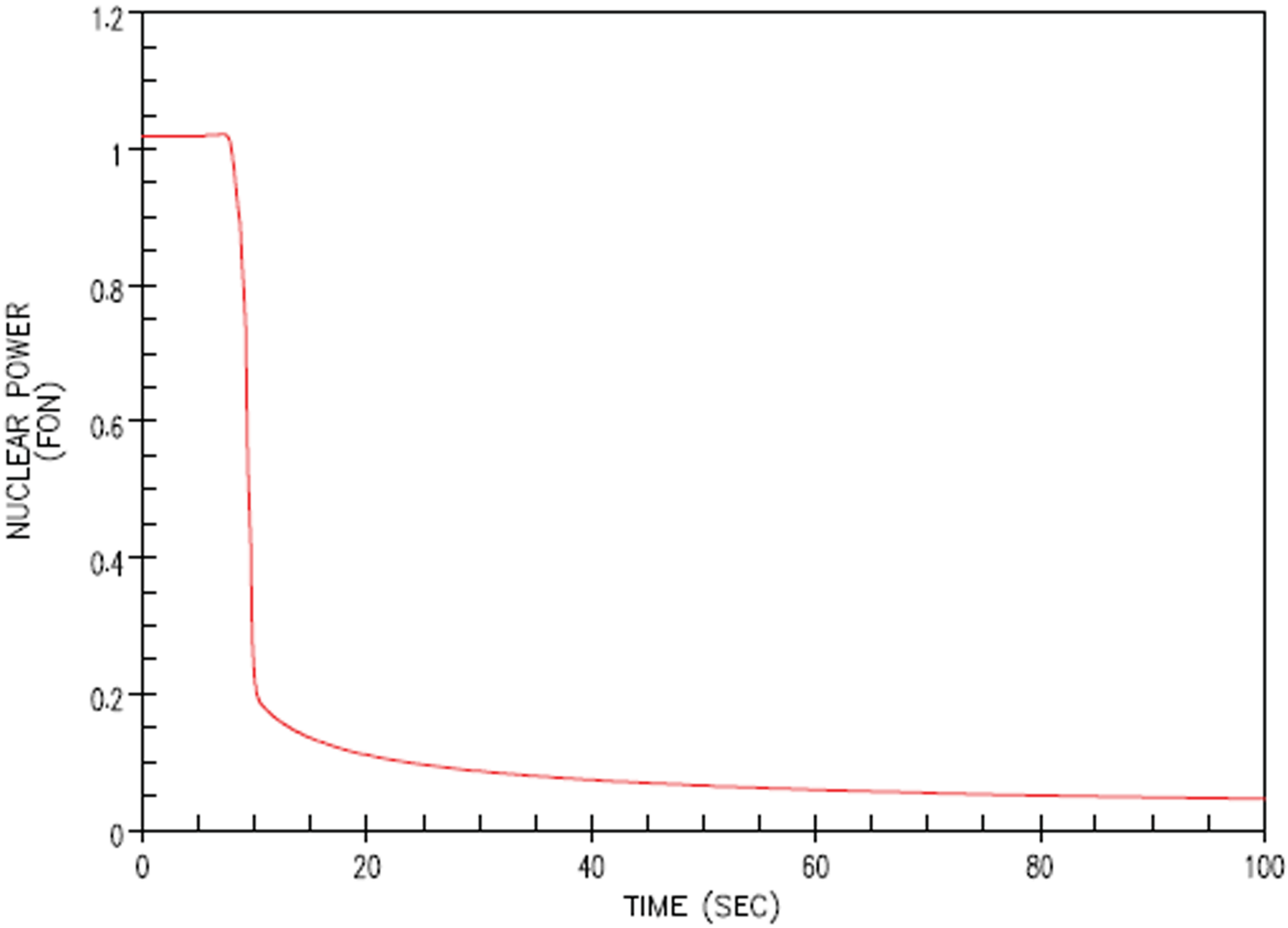

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FIGURE 15.2-5

TURBINE TRIP EVENT WITHOUT PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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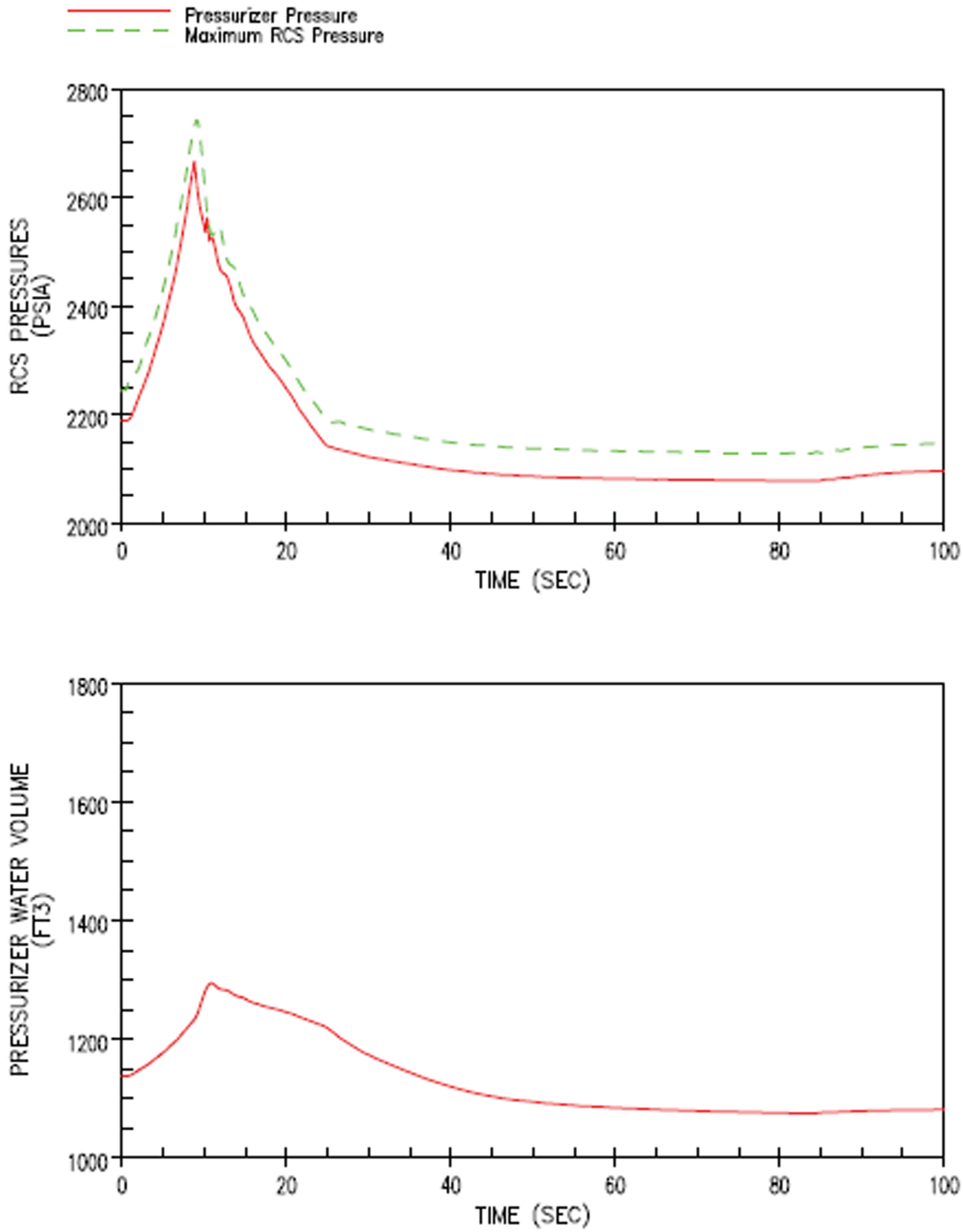

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FIGURE 15.2-6

TURBINE TRIP EVENT WITHOUT PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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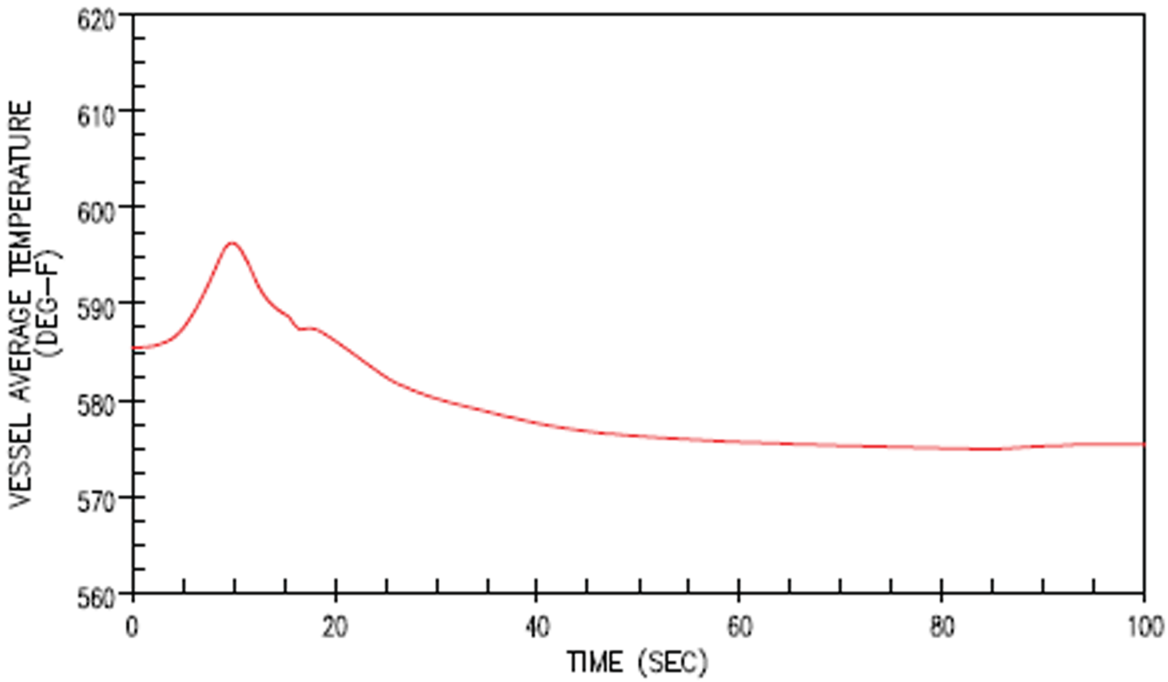

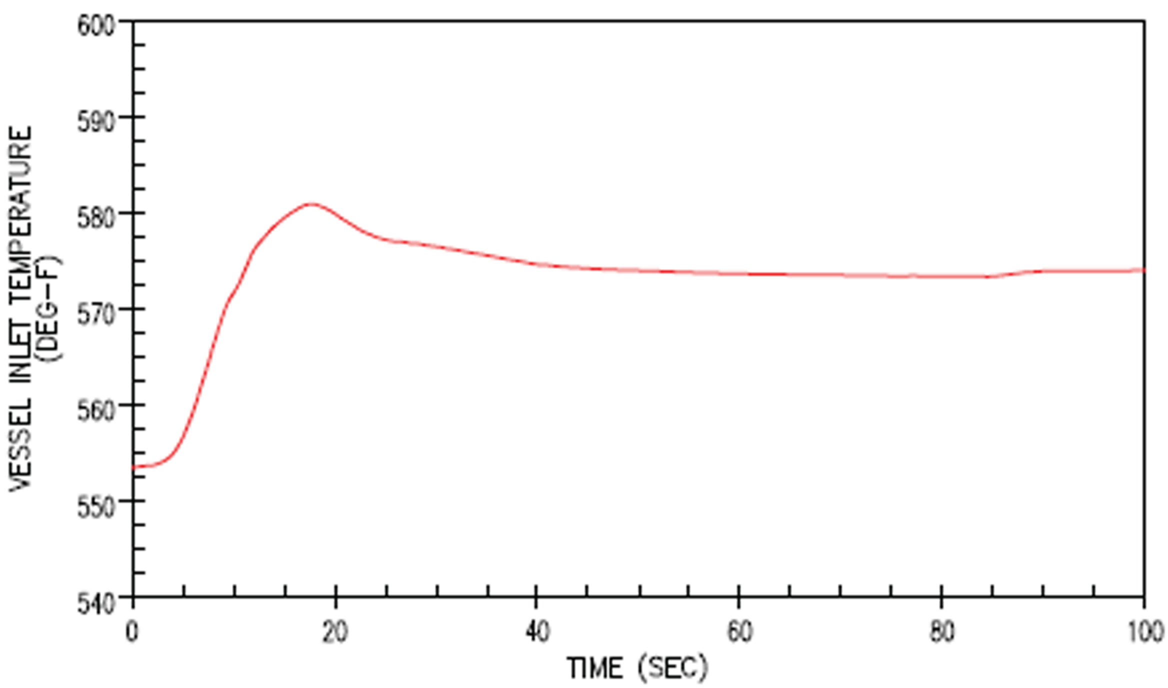

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FIGURE 15.2-7

TURBINE TRIP EVENT WITHOUT PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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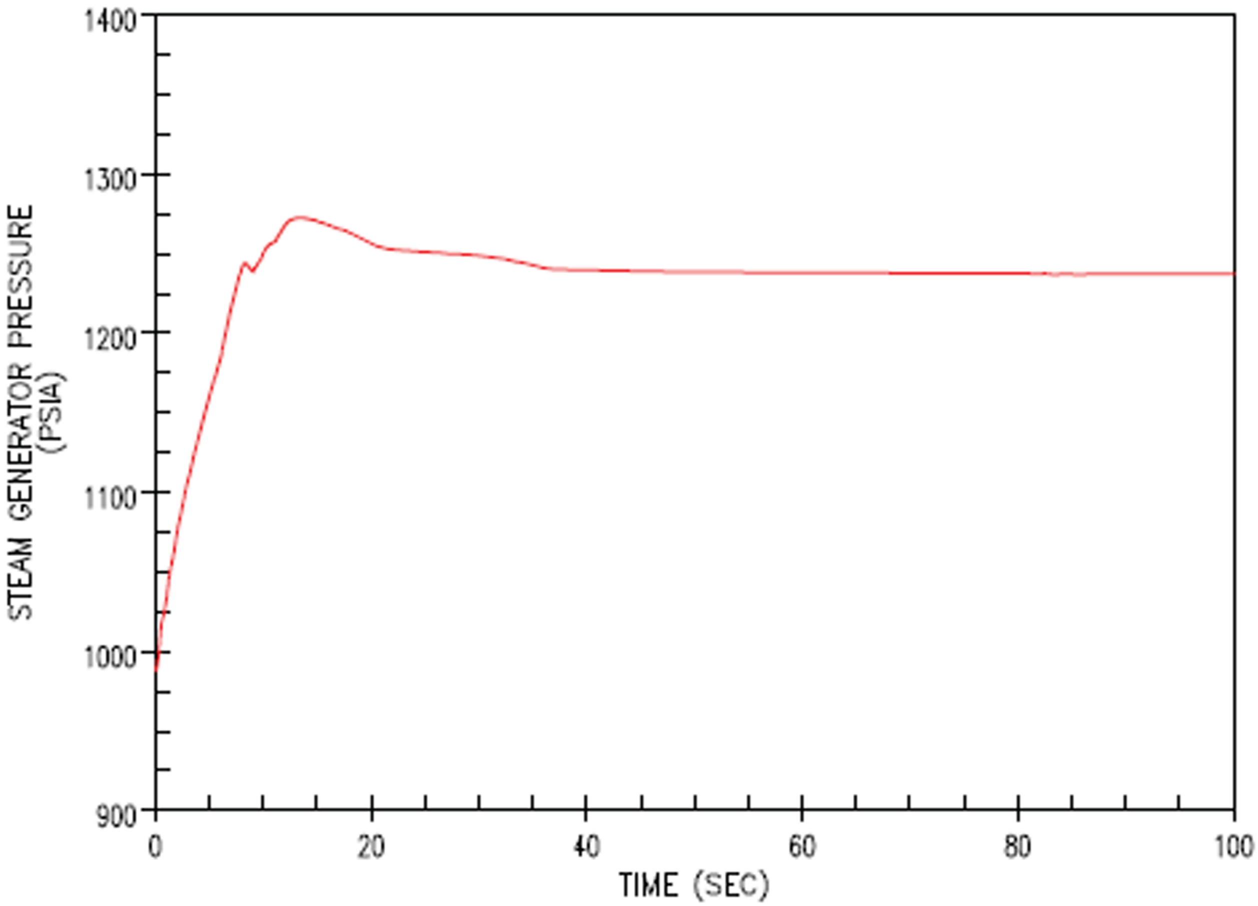

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FIGURE 15.2-8

TURBINE TRIP EVENT WITHOUT PRESSURIZER SPRAY AND POWER OPERATED RELIEF VALVES

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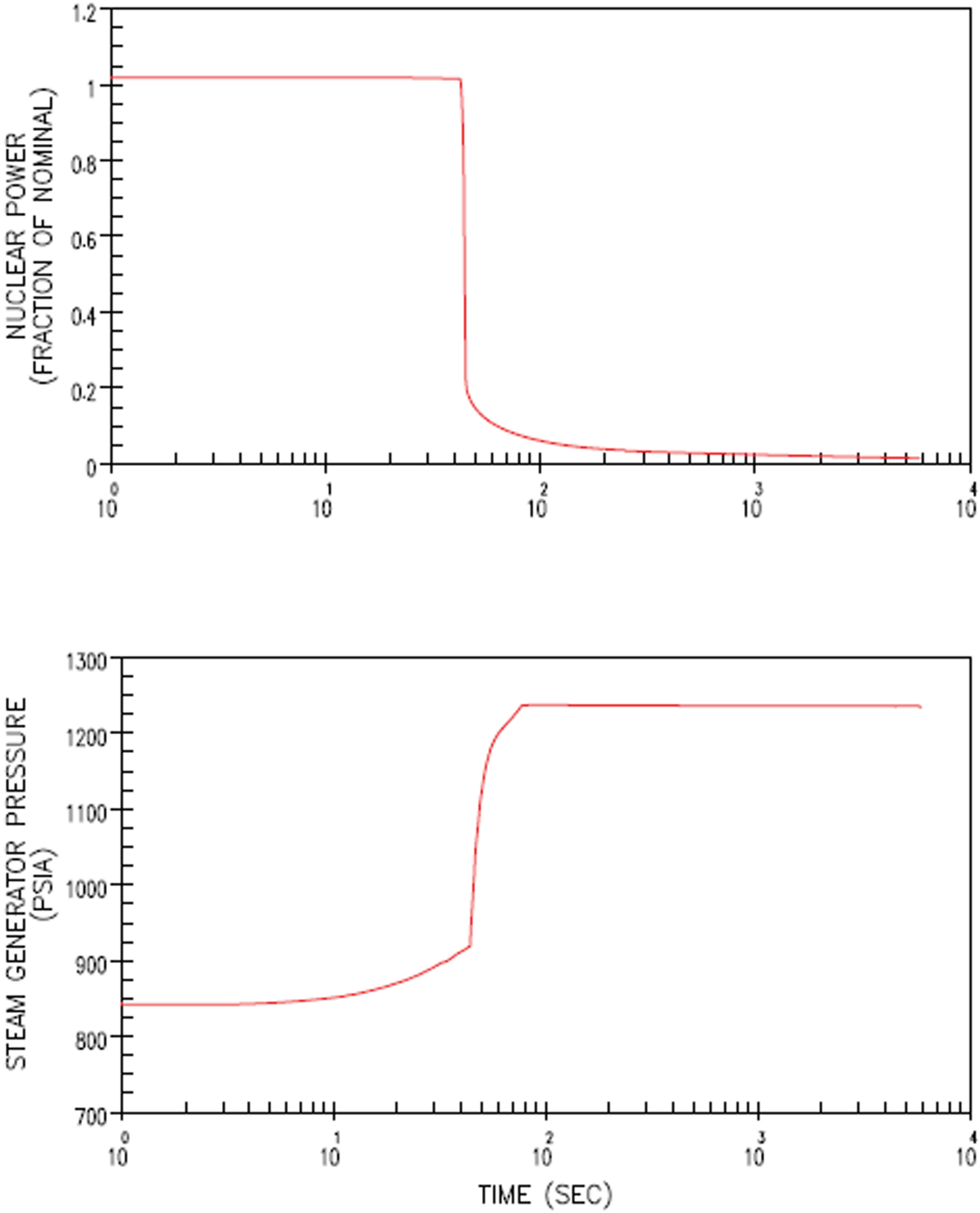

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FIGURE 15.2-9

NUCLEAR POWER AND STEAM GENERATOR PRESSURE TRANSIENTS FOR LOSS OF AC POWER

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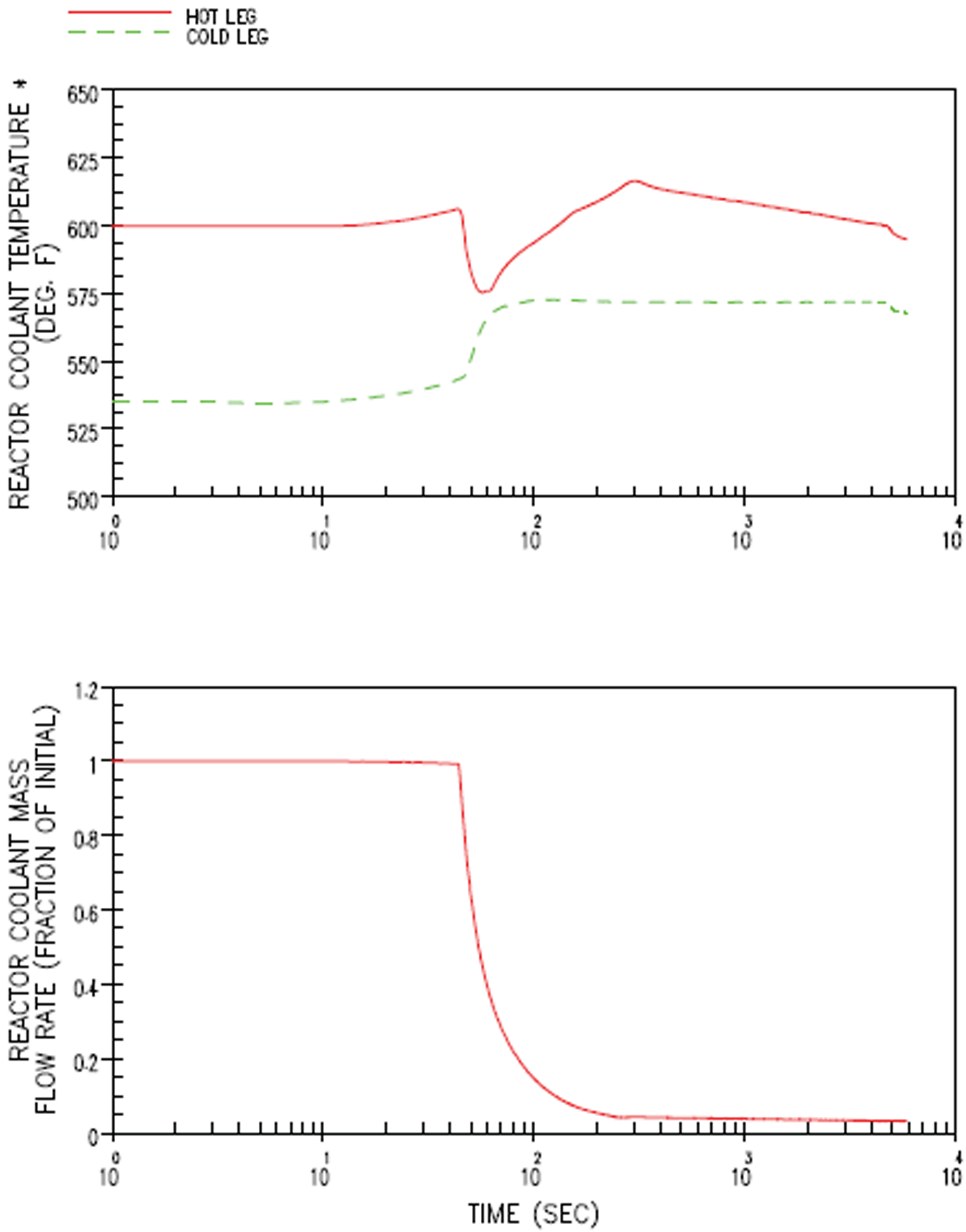

* All loops

CALLAWAY PLANT

FIGURE 15.2-10

REACTOR COOLANT TEMPERATURE
AND MASS FLOW RATE TRANSIENTS
FOR LOSS OF AC POWER

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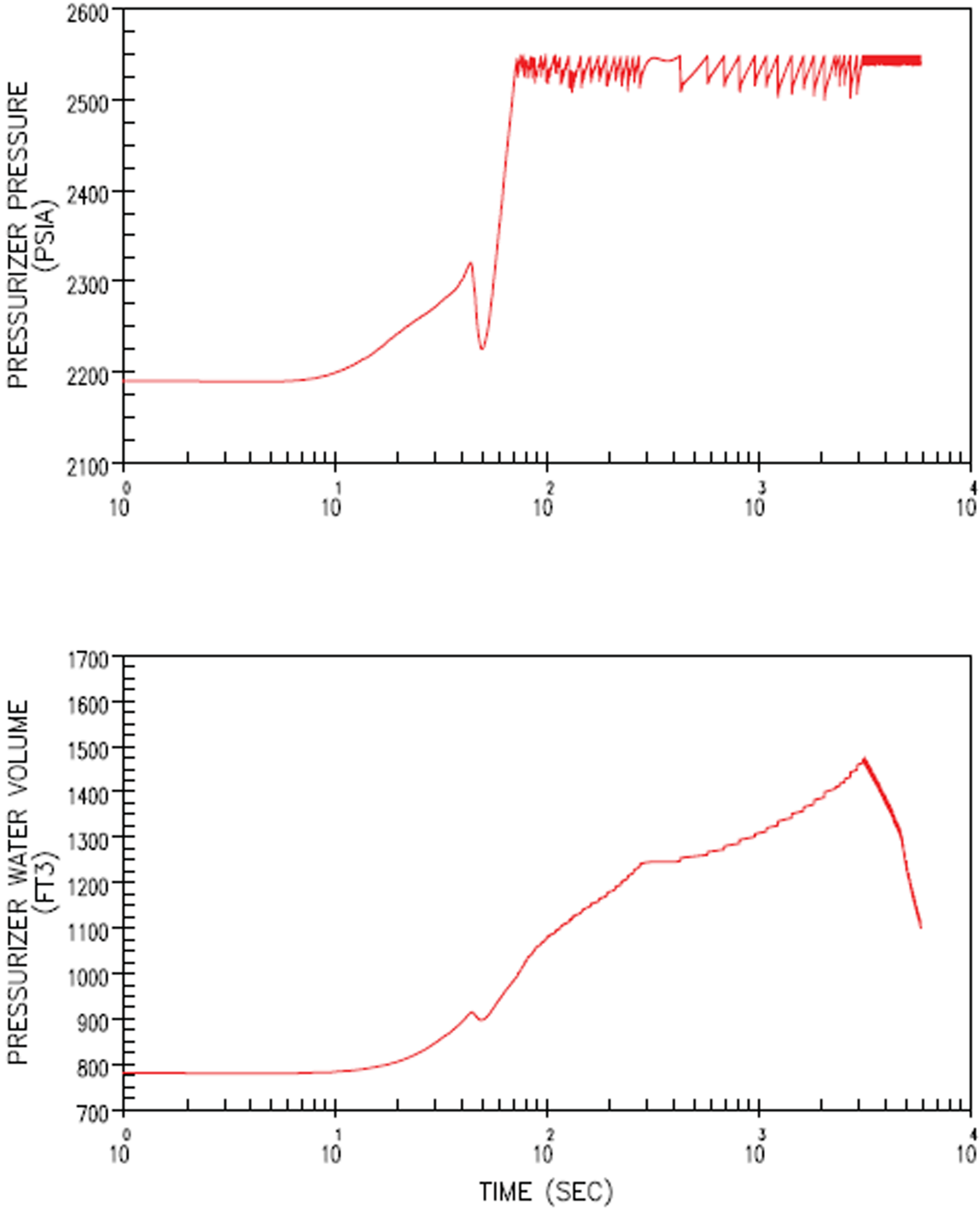

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FIGURE 15.2-11

PRESSURIZER PRESSURE AND WATER VOLUME TRANSIENTS FOR LOSS OF AC POWER

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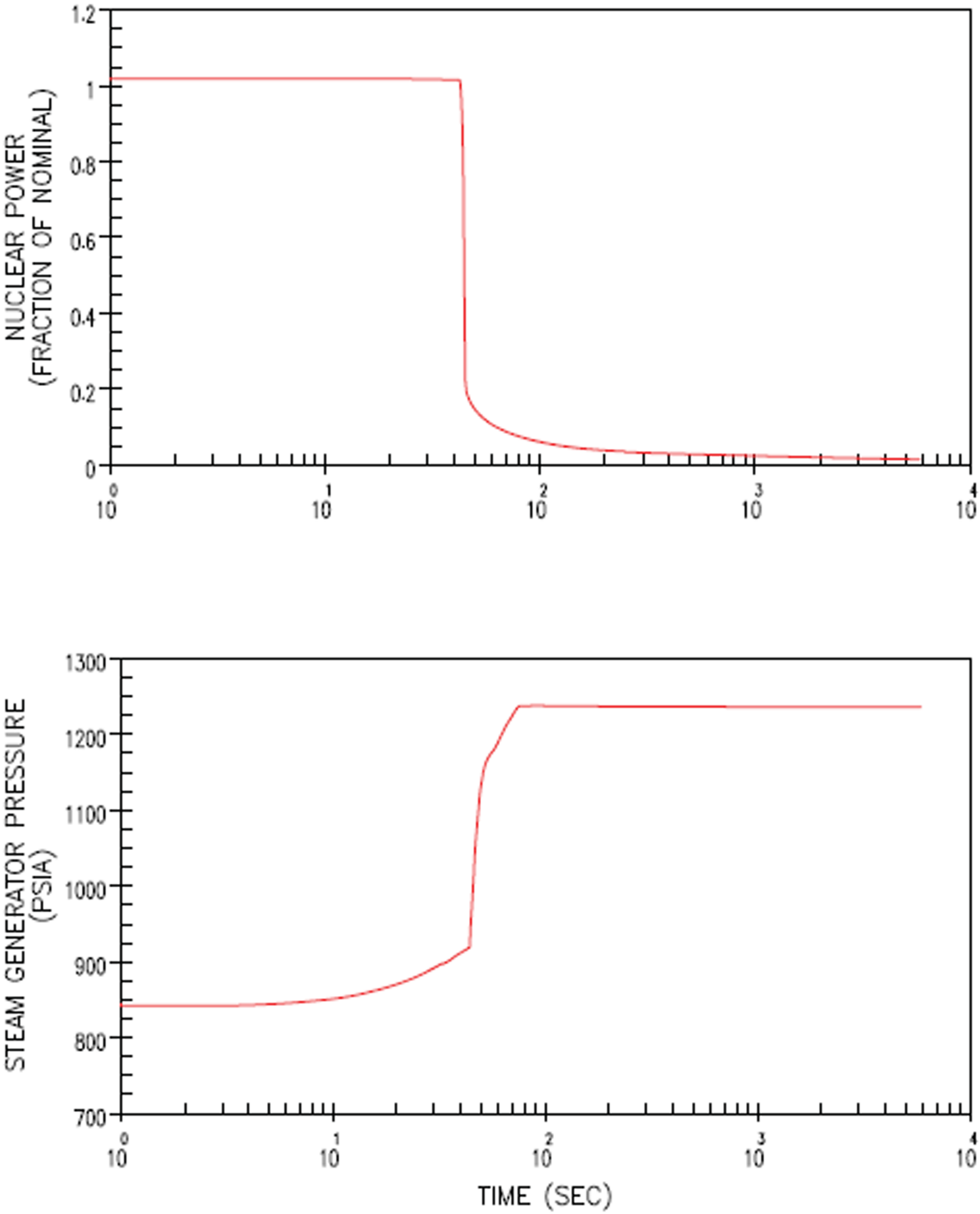

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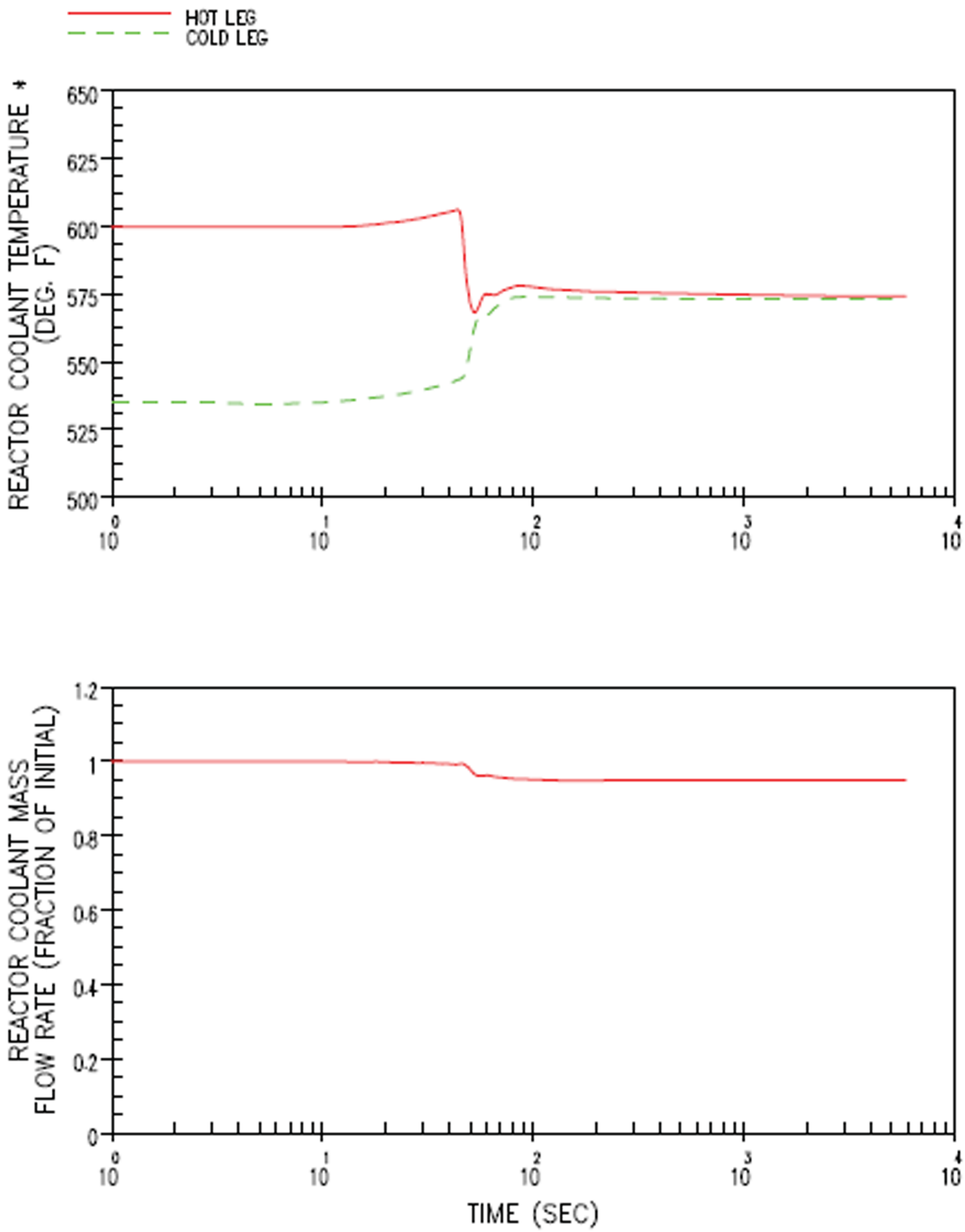
FIGURE 15.2-12

NUCLEAR POWER AND STEAM
GENERATOR PRESSURE TRANSIENTS
FOR LOSS OF NORMAL FEEDWATER
TO ALL STEAM GENERATORS
Rev. 17 11/13



* All loops

CALLAWAY PLANT

FIGURE 15.2-13

REACTOR COOLANT TEMPERATURE
AND MASS FLOW RATE TRANSIENTS
FOR LOSS OF NORMAL FEEDWATER
TO ALL STEAM GENERATORS
Rev. 17 11/13

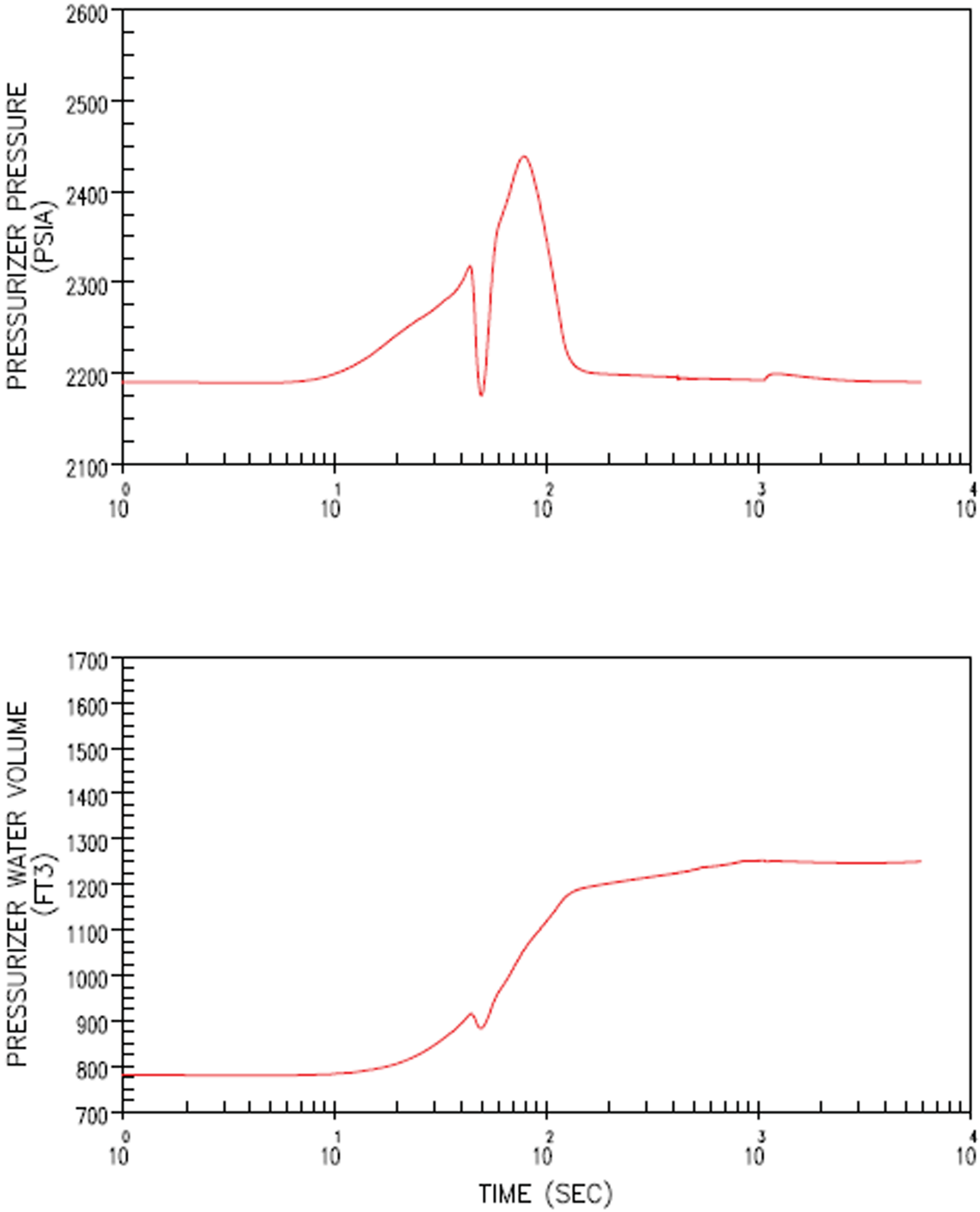


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FIGURE 15.2-14

PRESSURIZER PRESSURE AND WATER VOLUME TRANSIENTS FOR LOSS OF NORMAL FEEDWATER TO ALL STEAM GENERATORS

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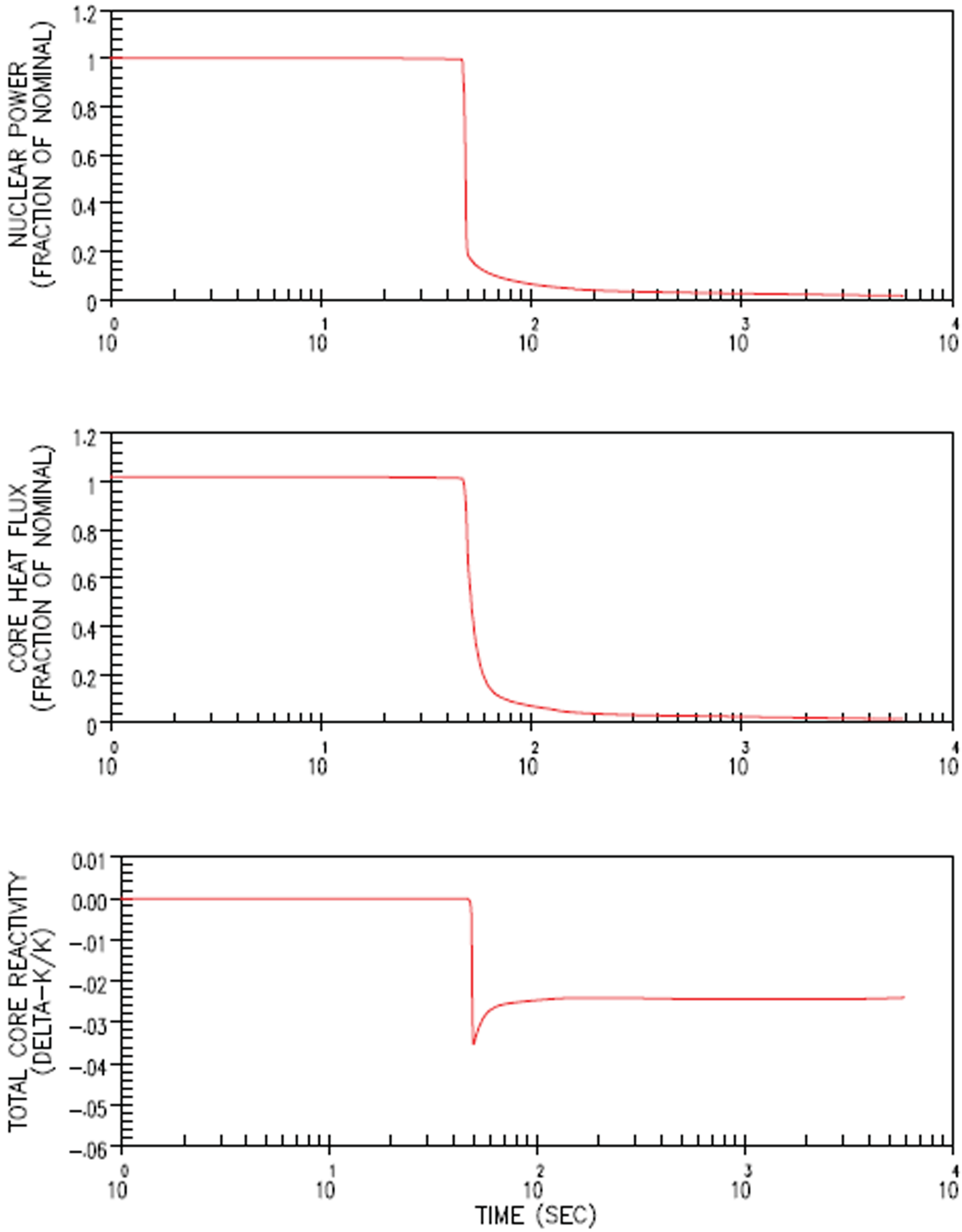

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FIGURE 15.2-15

NUCLEAR POWER, CORE HEAT FLUX AND TOTAL CORE REACTIVITY TRANSIENTS FOR MAIN FEEDLINE RUPTURE WITH OFFSITE POWER AVAILABLE

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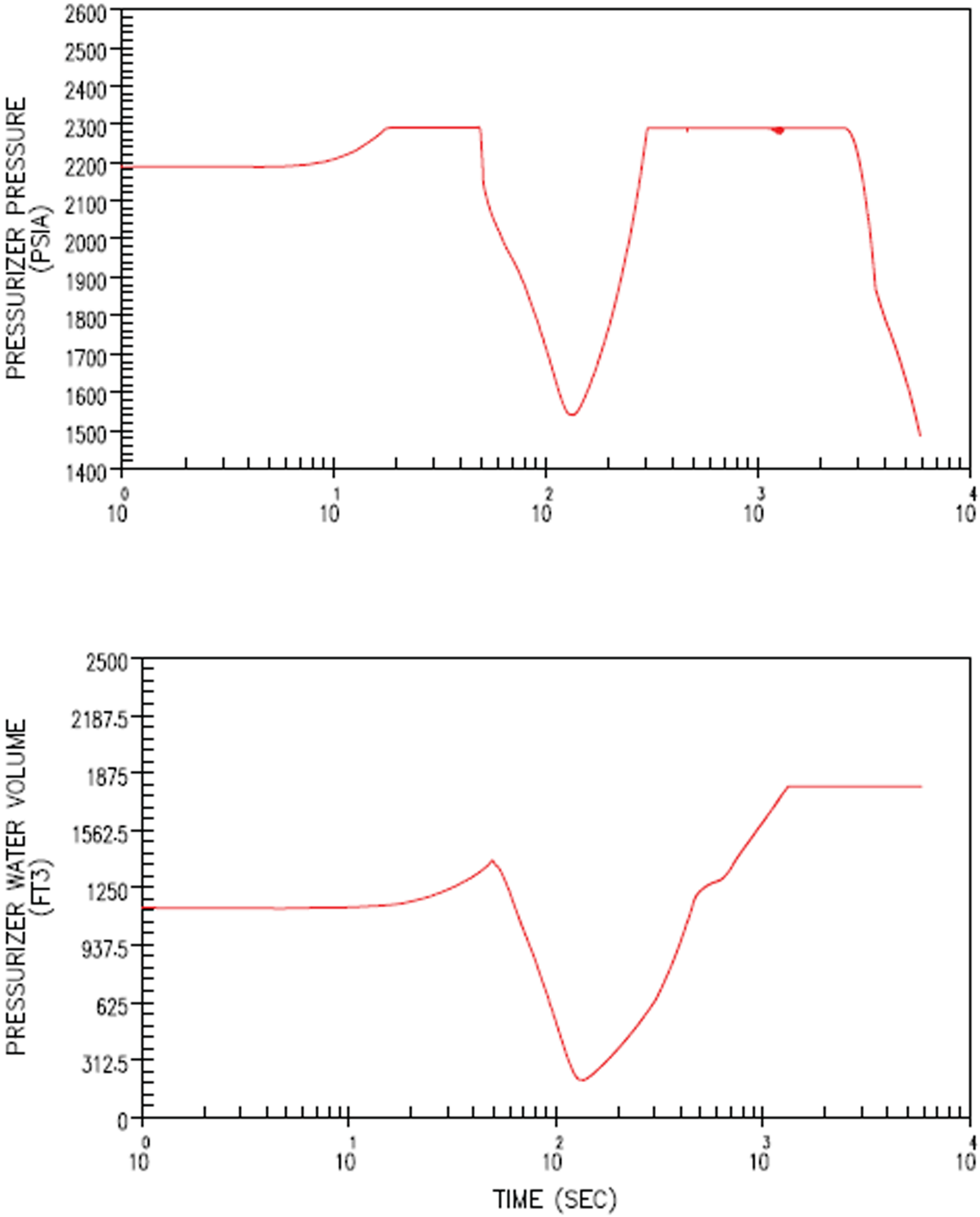

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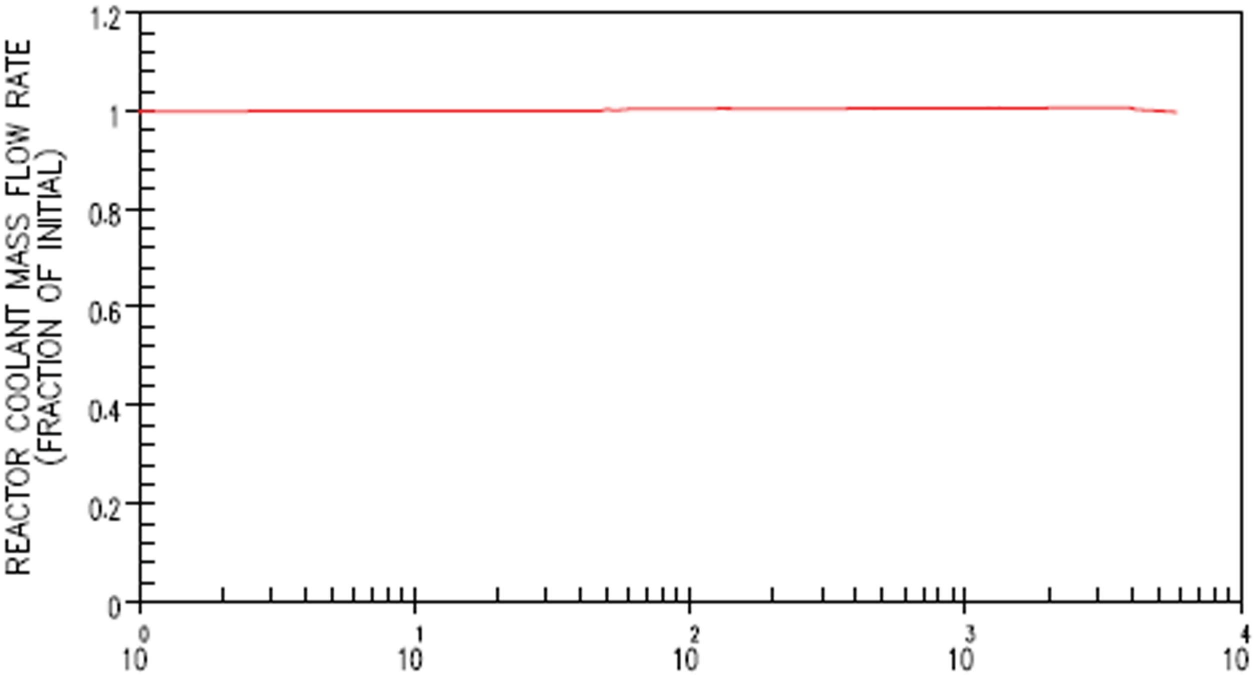
FIGURE 15.2-16

PRESSURIZER PRESSURE AND
WATER VOLUME TRANSIENTS
FOR MAIN FEEDLINE RUPTURE
WITH OFFSITE POWER AVAILABLE
Rev. 17 11/13



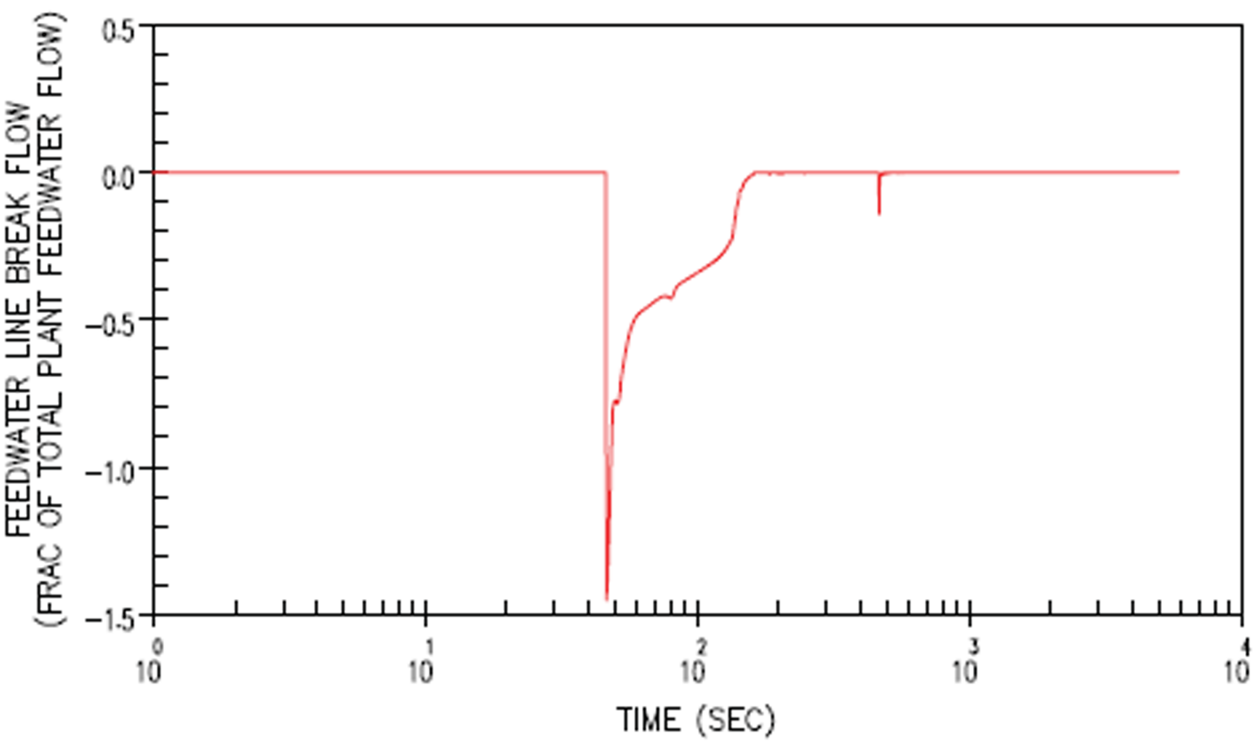


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FIGURE 15.2-17

REACTOR COLLANT MASS FLOW FATE
AND REEDWATER LINE BREAK TRANSIENTS
FOR MAIN FEEDLINE RUPTURE
WITH OFFSITE POWER AVAILABLE

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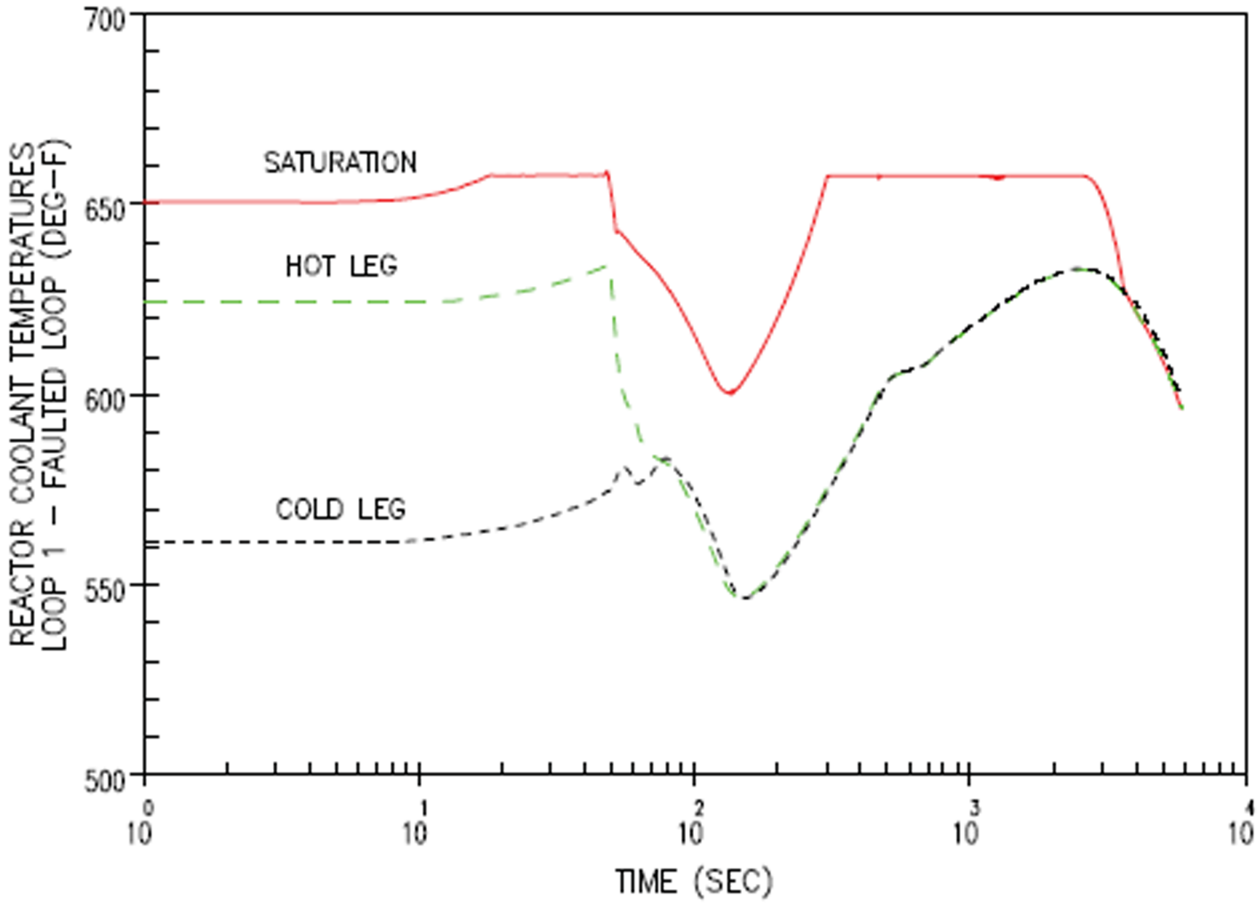

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FIGURE 15.2-18

TEMPERATURE TRANSIENT
IN FAULTED LOOP
FOR MAIN FEEDLINE RUPTURE
WITH OFFSITE POWER AVAILABLE
Rev. 17 11/13

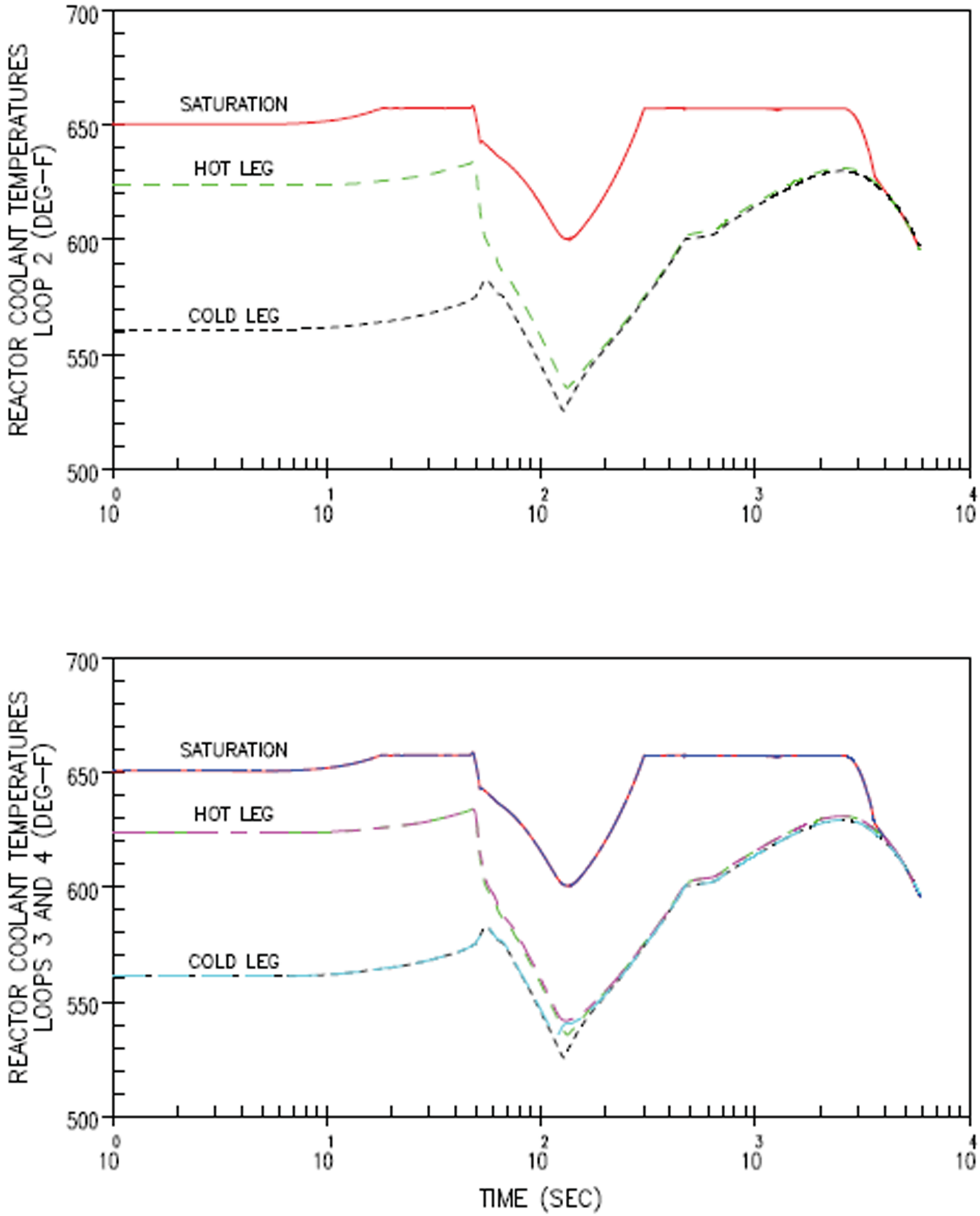

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FIGURE 15.2-19

TEMPERATURE TRANSIENT
IN INTACT LOOPS
FOR MAIN FEEDLINE RUPTURE
WITH OFFSITE POWER AVAILABLE
Rev. 17 11/13

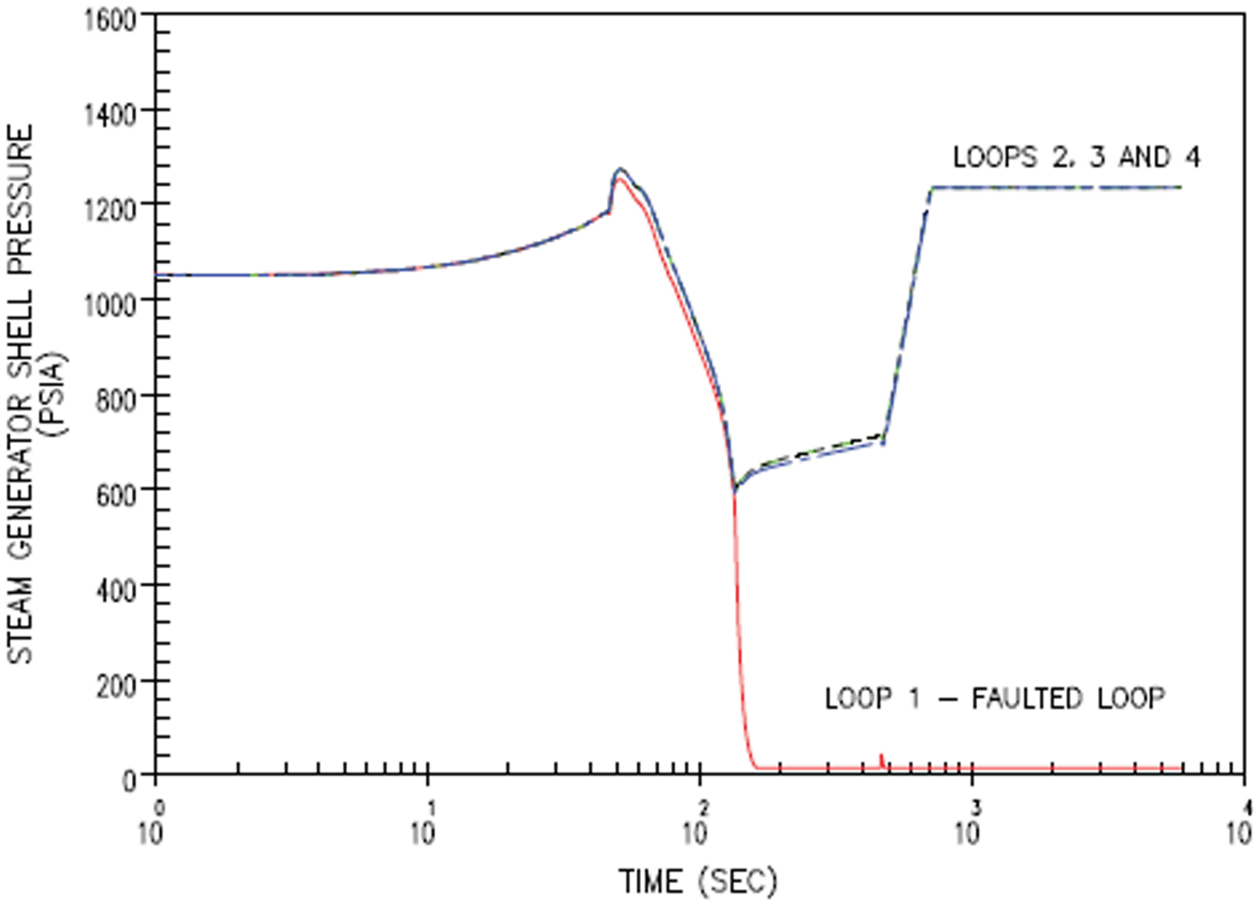

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FIGURE 15.2-20

STEAM GENERATOR SHELL
PRESSURE TRANSIENT
FOR MAIN FEEDLINE RUPTURE
WITH OFFSITE POWER AVAILABLE

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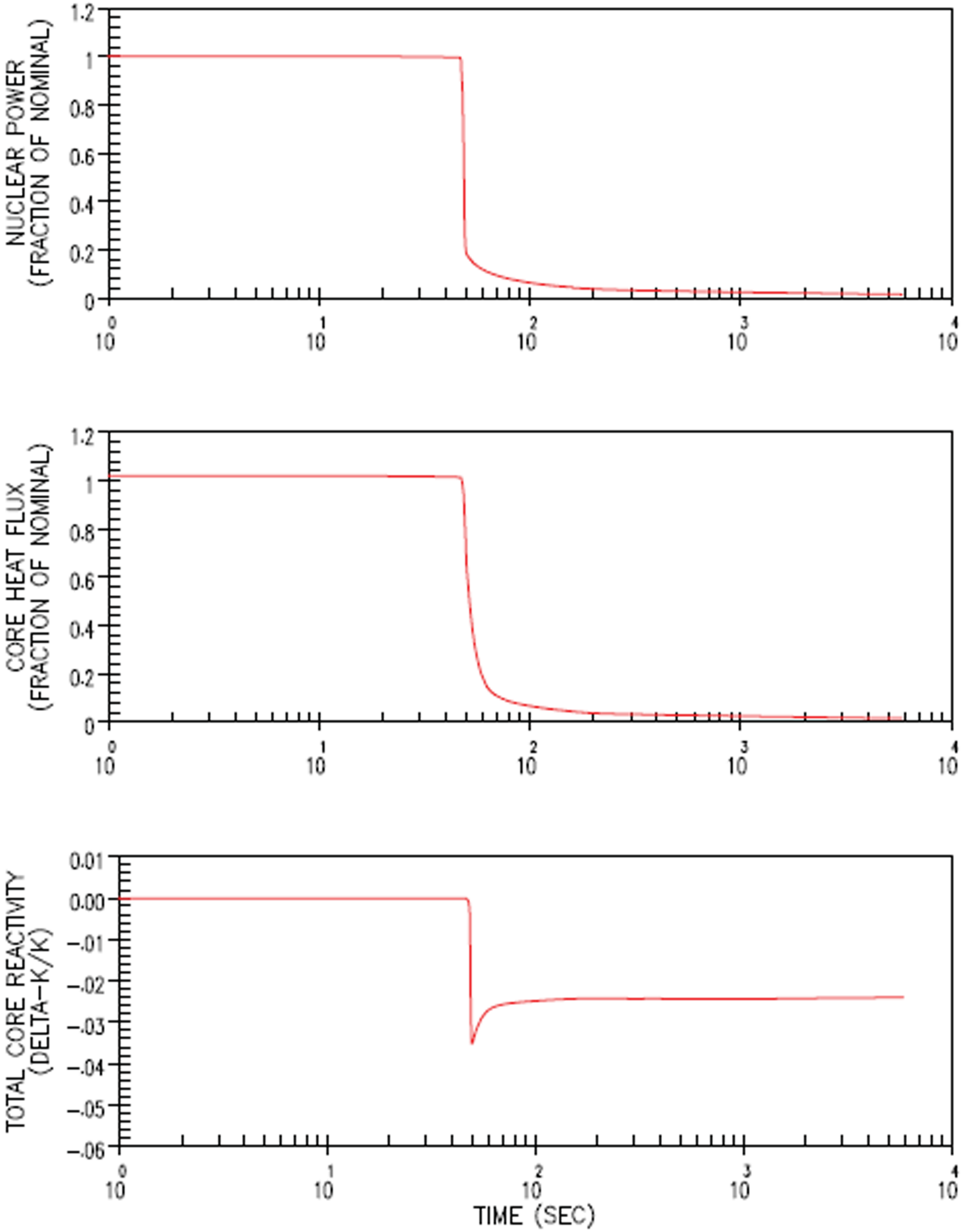

CALLAWAY PLANT

FIGURE 15.2-21

NUCLEAR POWER CORE HEAT FLUX AND
TOTAL CORE REACTIVITY TRANSIENTS
FOR MAIN FEEDLINE RUPTURE
WITHOUT OFFSITE POWER

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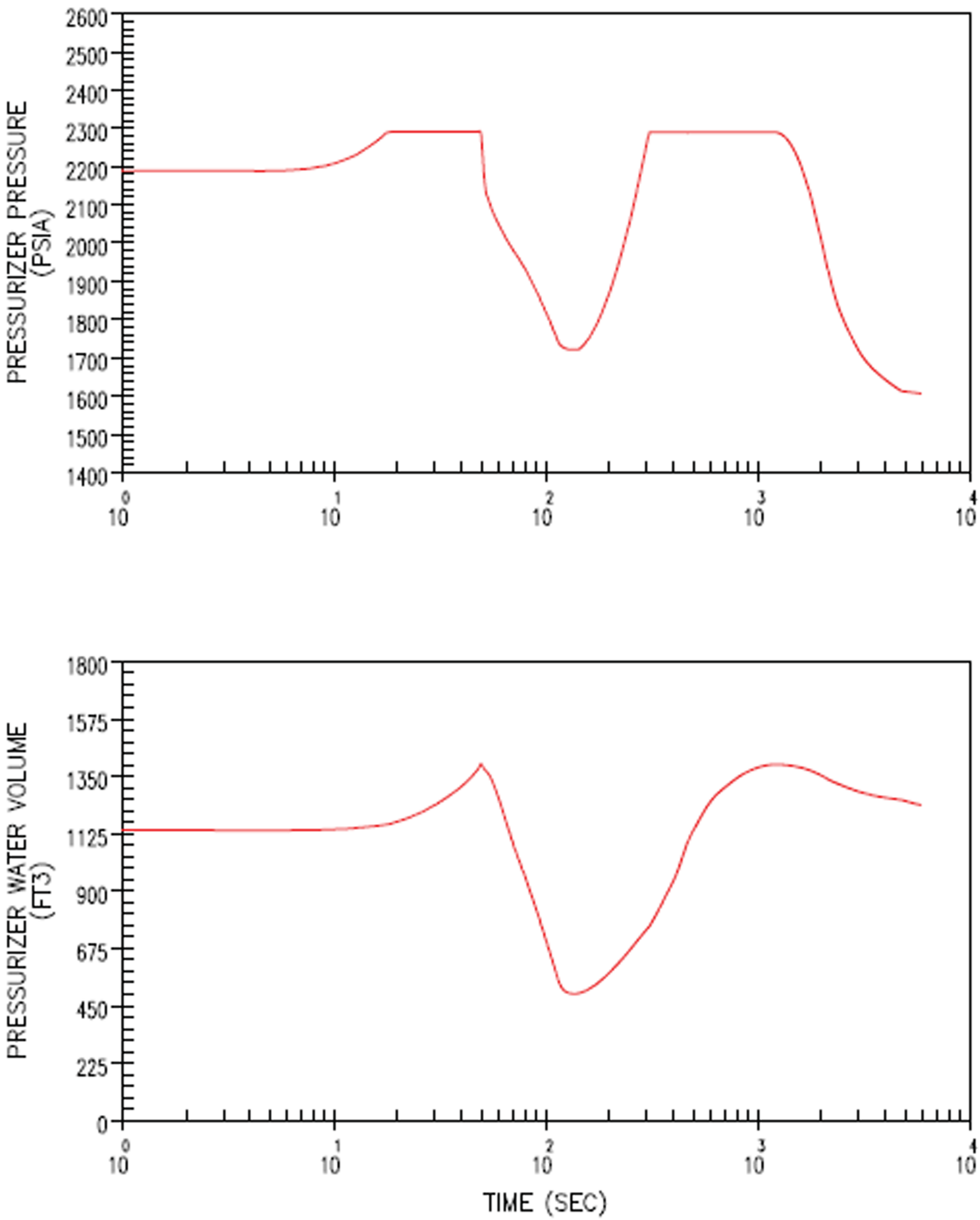

CALLAWAY PLANT

FIGURE 15.2-22

PRESSURIZER PRESSURE AND
WATER VOLUME TRANSIENTS
FOR MAIN FEEDLINE RUPTURE
WITHOUT OFFSITE POWER

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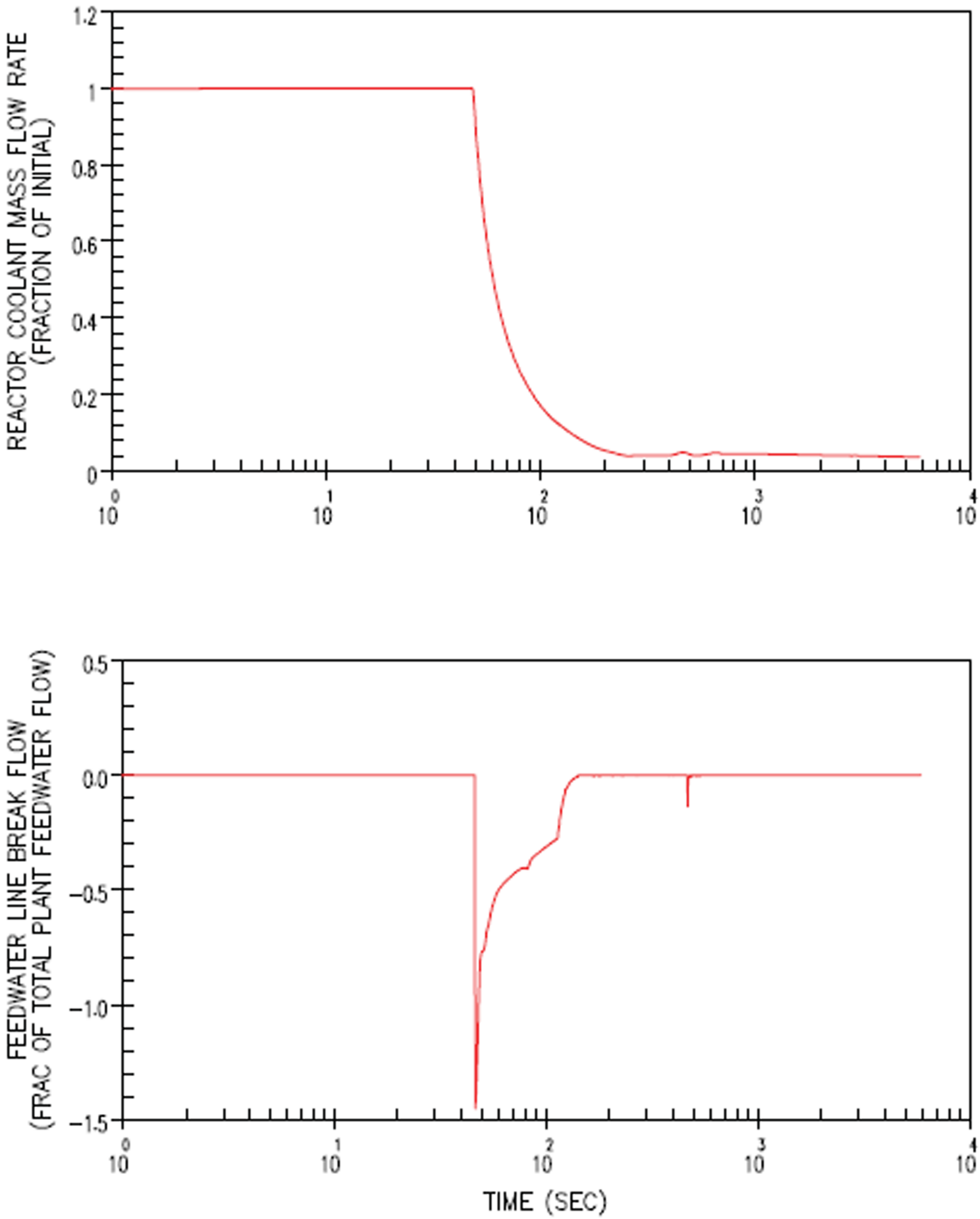

CALLAWAY PLANT

FIGURE 15.2-23

REACTOR COOLANT MASS FLOW RATE
AND FEEDWATER LINE BREAK TRANSIENTS
FOR MAIN FEEDLINE RUPTURE
WITHOUT OFFSITE POWER
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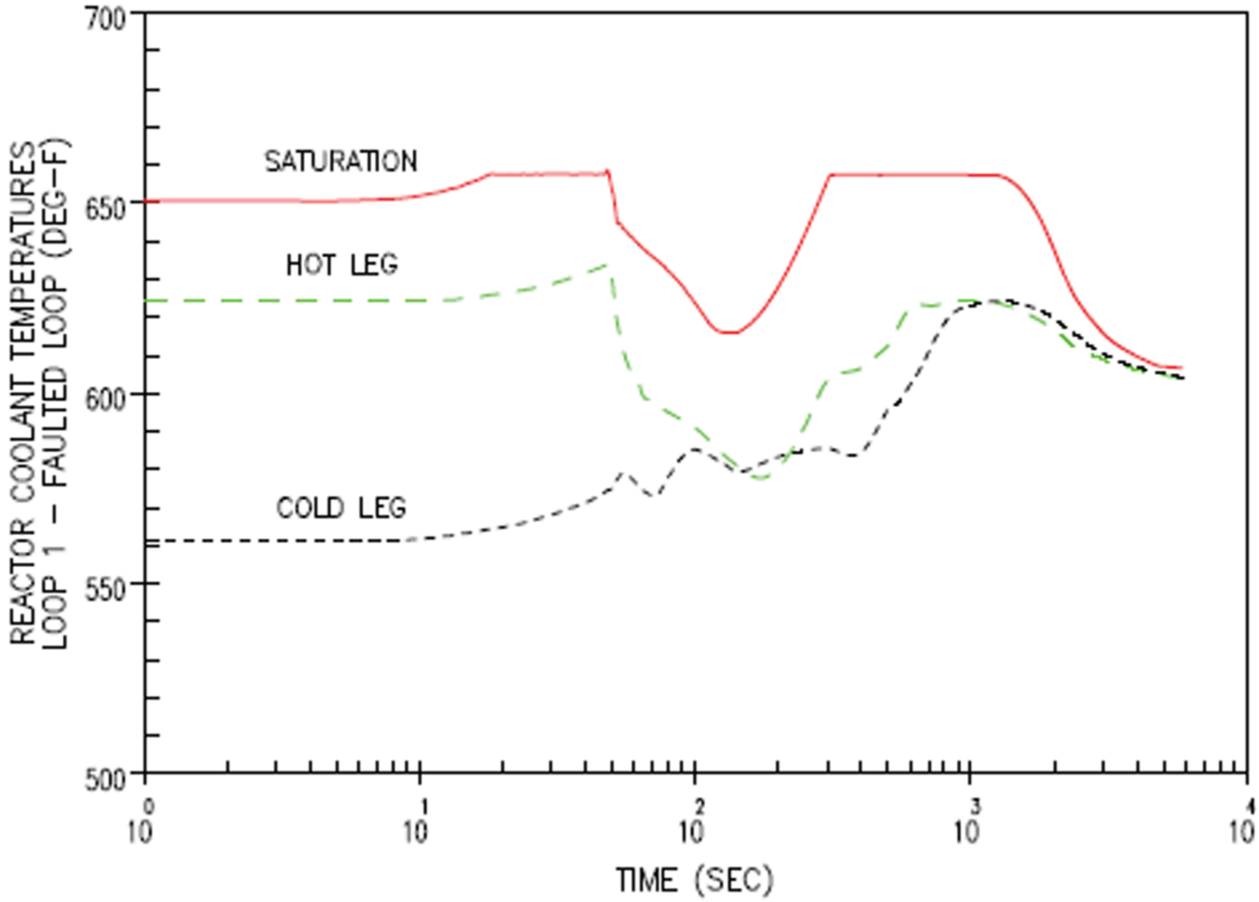

CALLAWAY PLANT

FIGURE 15.2-24

TEMPERATURE TRANSIENT
IN FAULTED LOOP
FOR MAIN FEEDLINE RUPTURE
WITHOUT OFFSITE POWER

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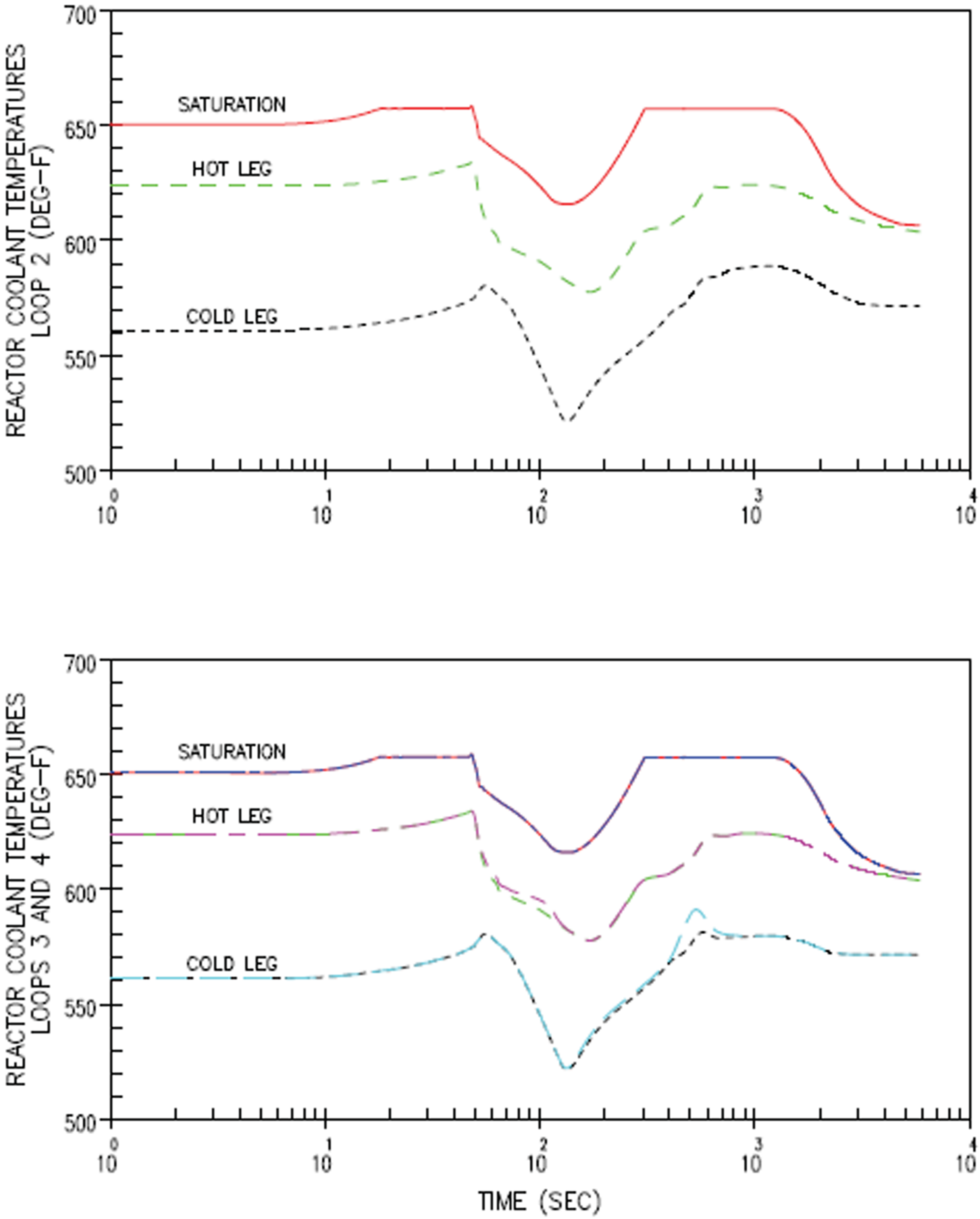

CALLAWAY PLANT

FIGURE 15.2-25

TEMPERATURE TRANSIENT
IN INTACT LOOPS
FOR MAIN FEEDLINE RUPTURE
WITHOUT OFFSITE POWER

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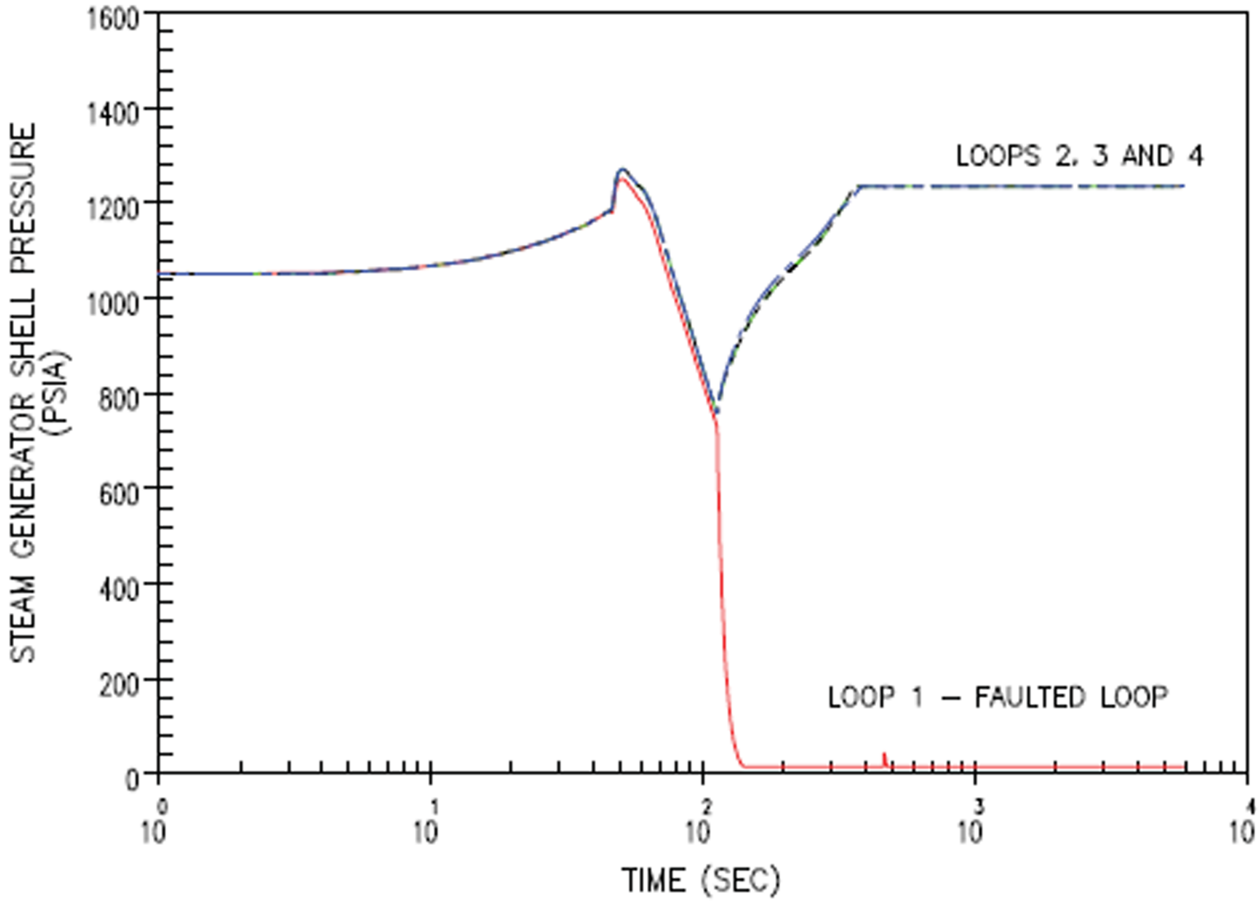

CALLAWAY PLANT

FIGURE 15.2-26

STEAM GENERATOR SHELL
PRESSURE TRANSIENT
FOR MAIN FEEDLINE RUPTURE
WITHOUT OFFSITE POWER
Rev. 17 11/13

Figure 15.2-27 Deleted

Figure 15.2-28 Deleted

Figure 15.2-29 Deleted

Figure 15.2-30 Deleted

Figure 15.2-31 Deleted

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Figure 15.2-39 Deleted

Figure 15.2-40 Deleted

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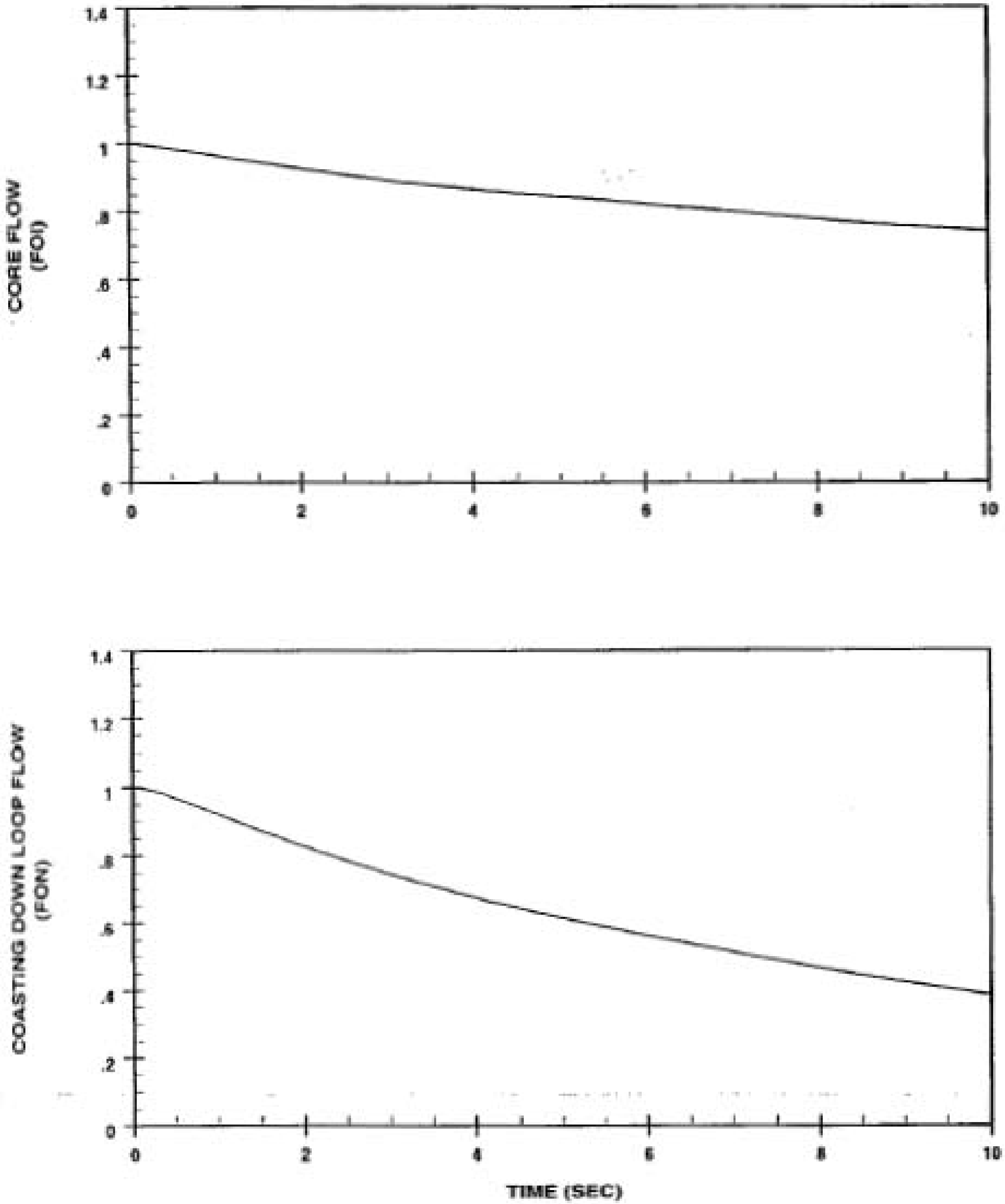
Figure 15.2-44 Deleted

Figure 15.2-45 Deleted

Figure 15.2-46 Deleted

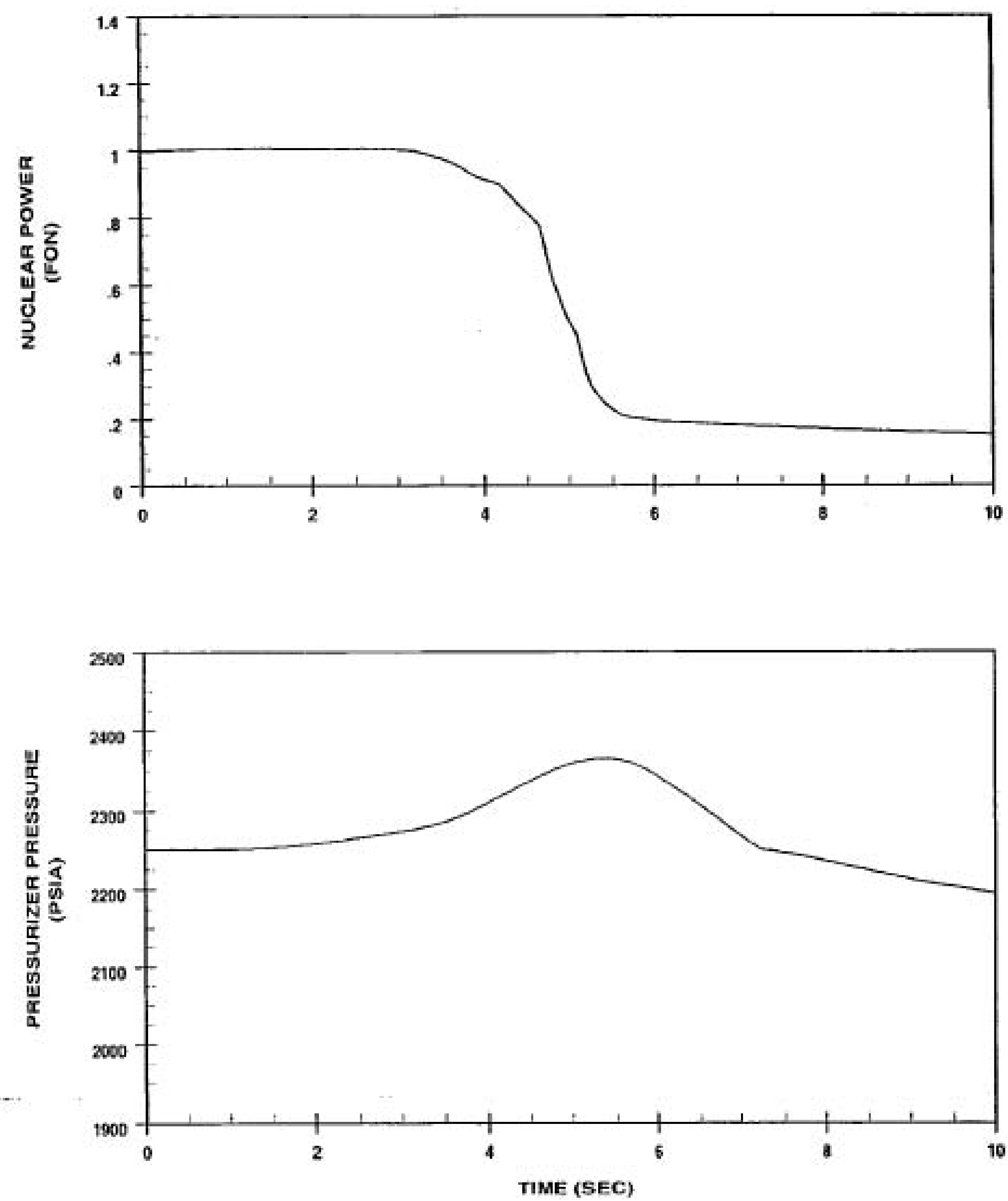


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.3-1

FLOW TRANSIENTS FOR FOUR LOOPS IN OPERATION, TWO PUMPS COASTING DOWN

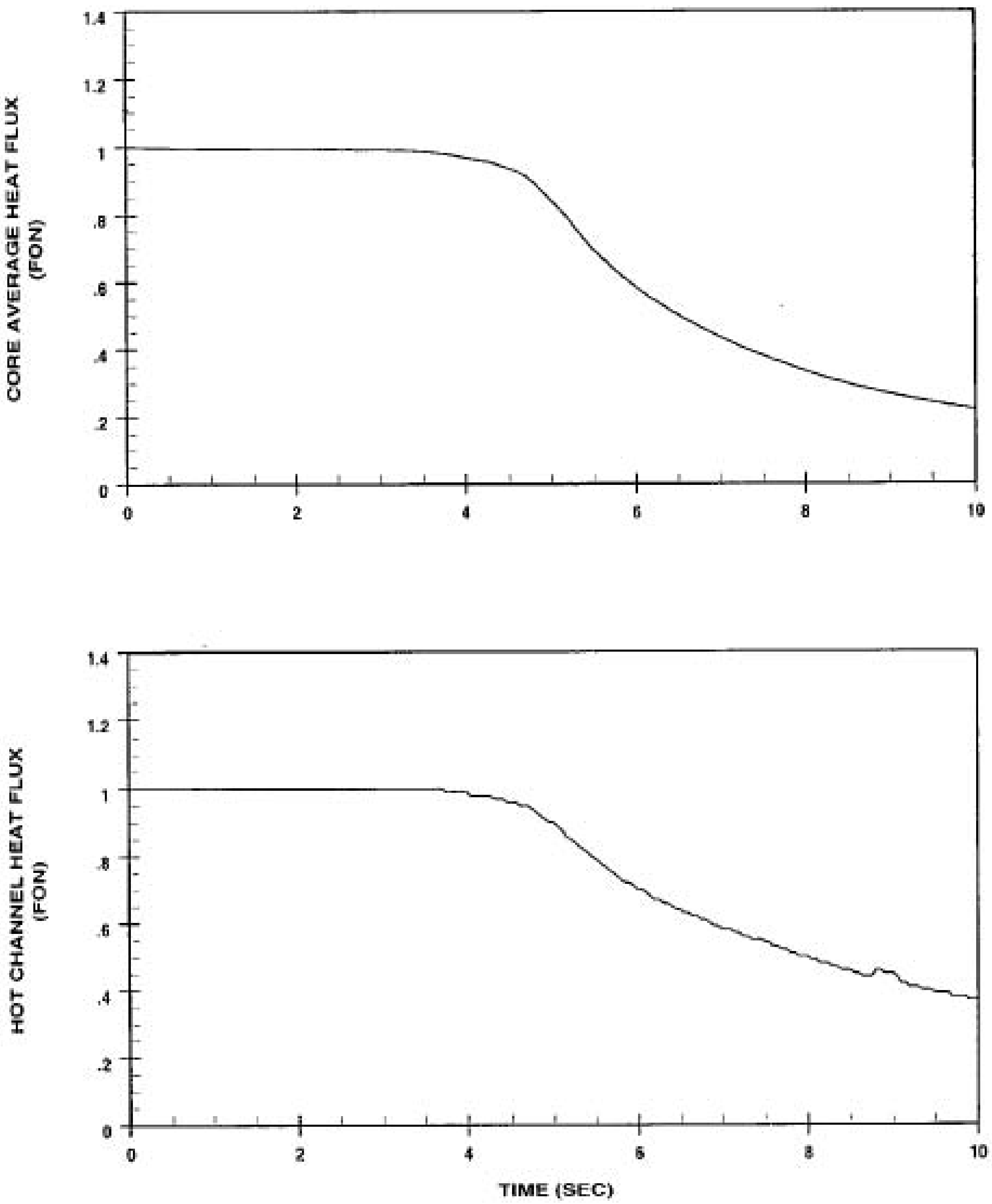


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.3-2

NUCLEAR POWER AND PRESSURIZER PRESSURE TRANSIENTS FOR FOUR LOOPS IN OPERATION, TWO PUMPS COASTING DOWN

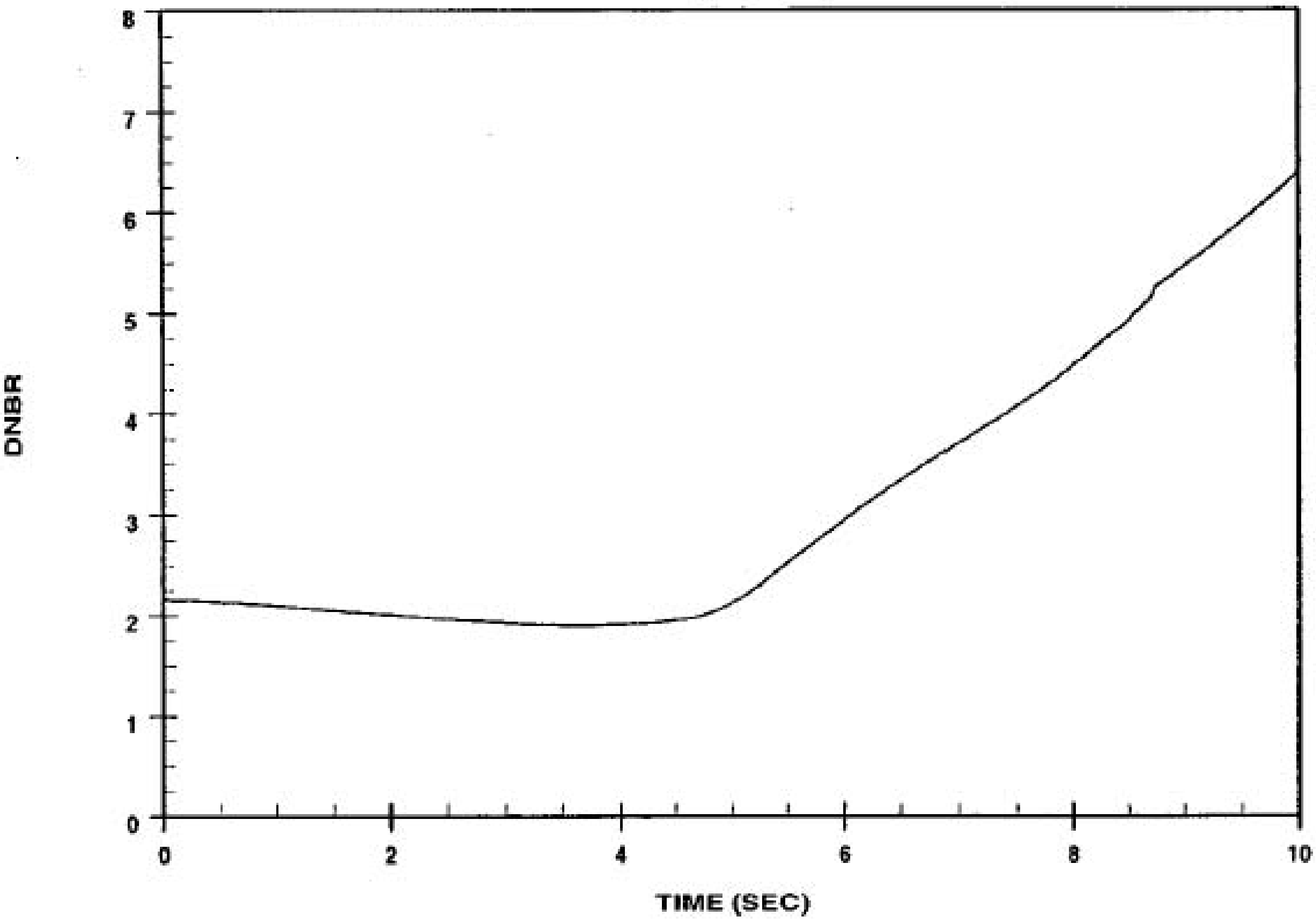


REV. OL-15
5/06

CALLAWAY PLANT

FIGURE 15.3-3

CORE AVERAGE AND HOT CHANNEL HEAT FLUX TRANSIENTS FOR FOUR LOOPS IN OPERATION, TWO PUMPS COASTING DOWN



REV. OL-16
5/06

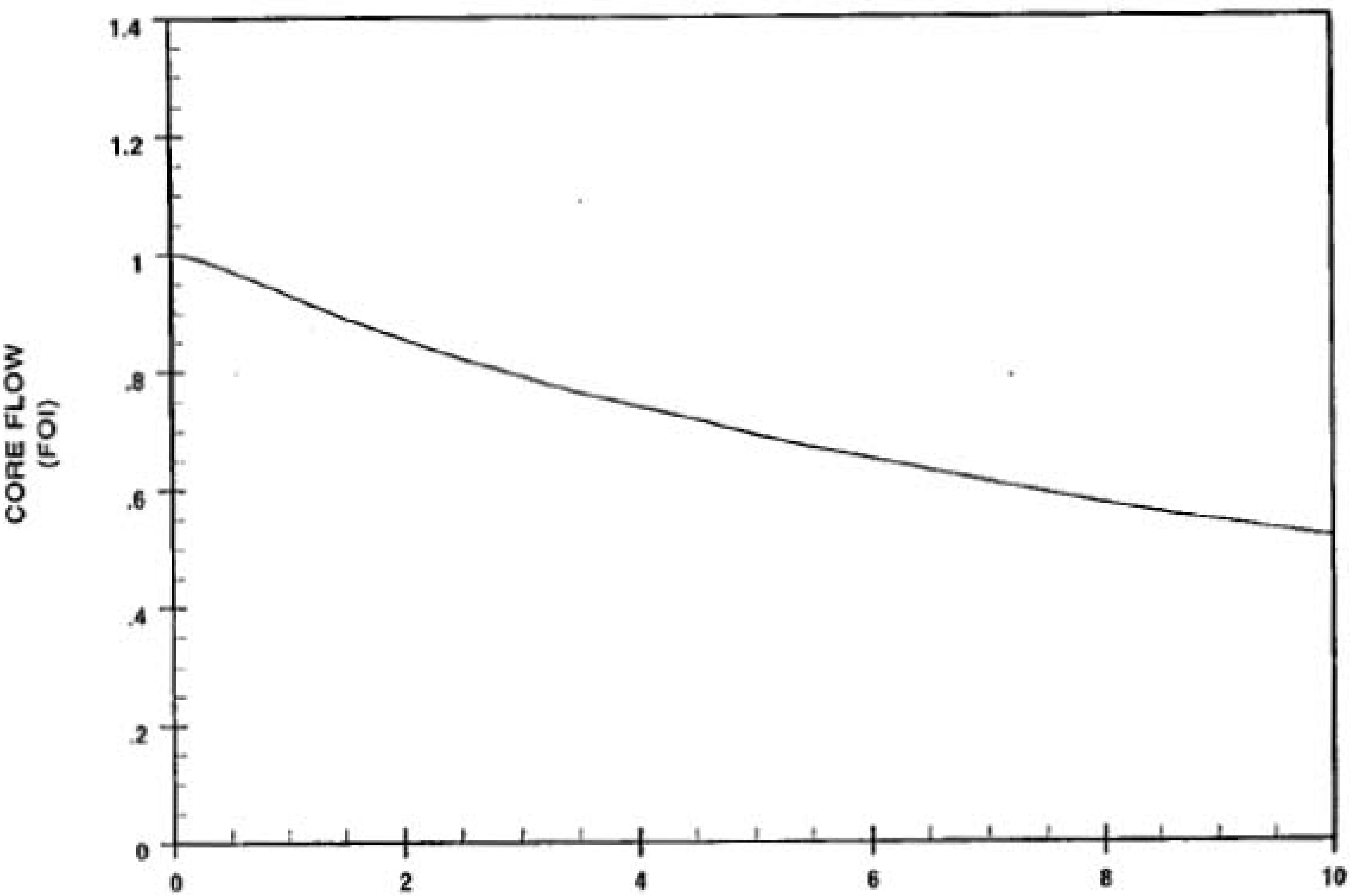
CALLAWAY PLANT

FIGURE 15.3-4

DNBR TRANSIENT FOR FOUR
LOOPS IN OPERATION,
TWO PUMPS COASTING DOWN

Figure 15.3-4A Deleted

Figure 15.3-4B Deleted

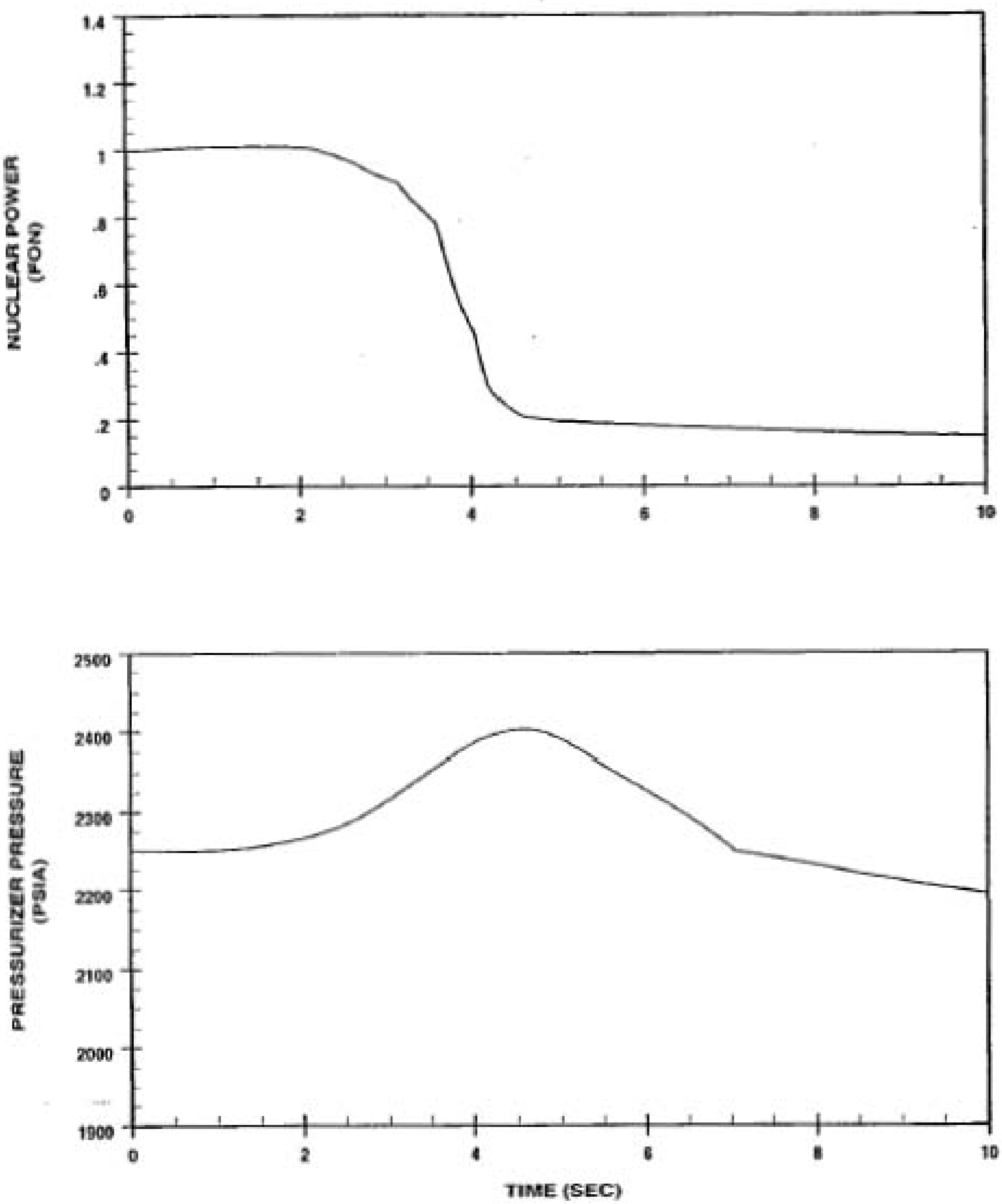


REV. OL-16
5/08

CALLAWAY PLANT

FIGURE 15.3-6

CORE FLOW TRANSIENT FOR
FOUR LOOPS IN OPERATION,
FOUR PUMPS COASTING DOWN

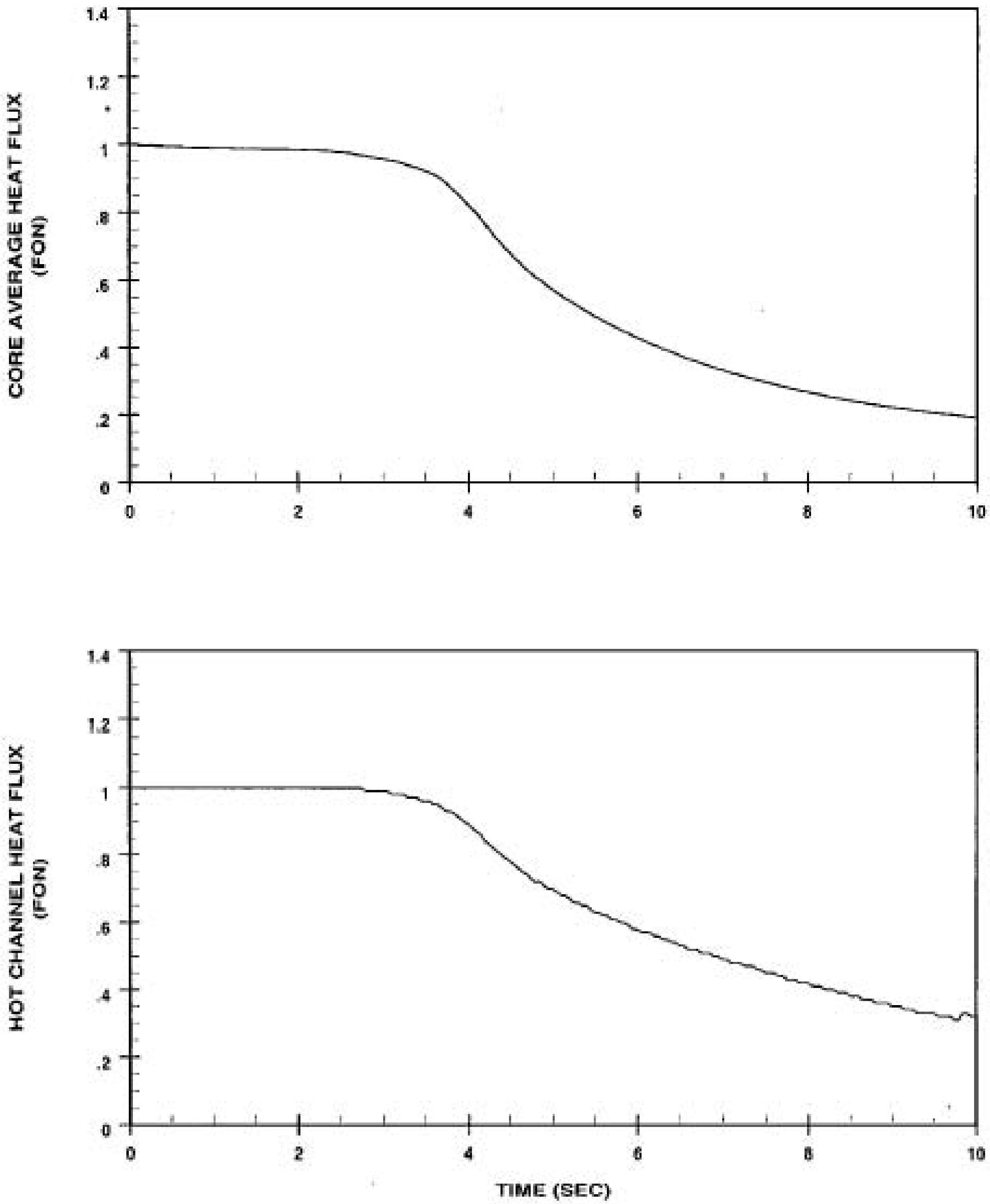


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.3-6

NUCLEAR POWER AND PRESSURIZER PRESSURE TRANSIENTS FOR FOUR LOOPS IN OPERATION, FOUR PUMPS COASTING DOWN

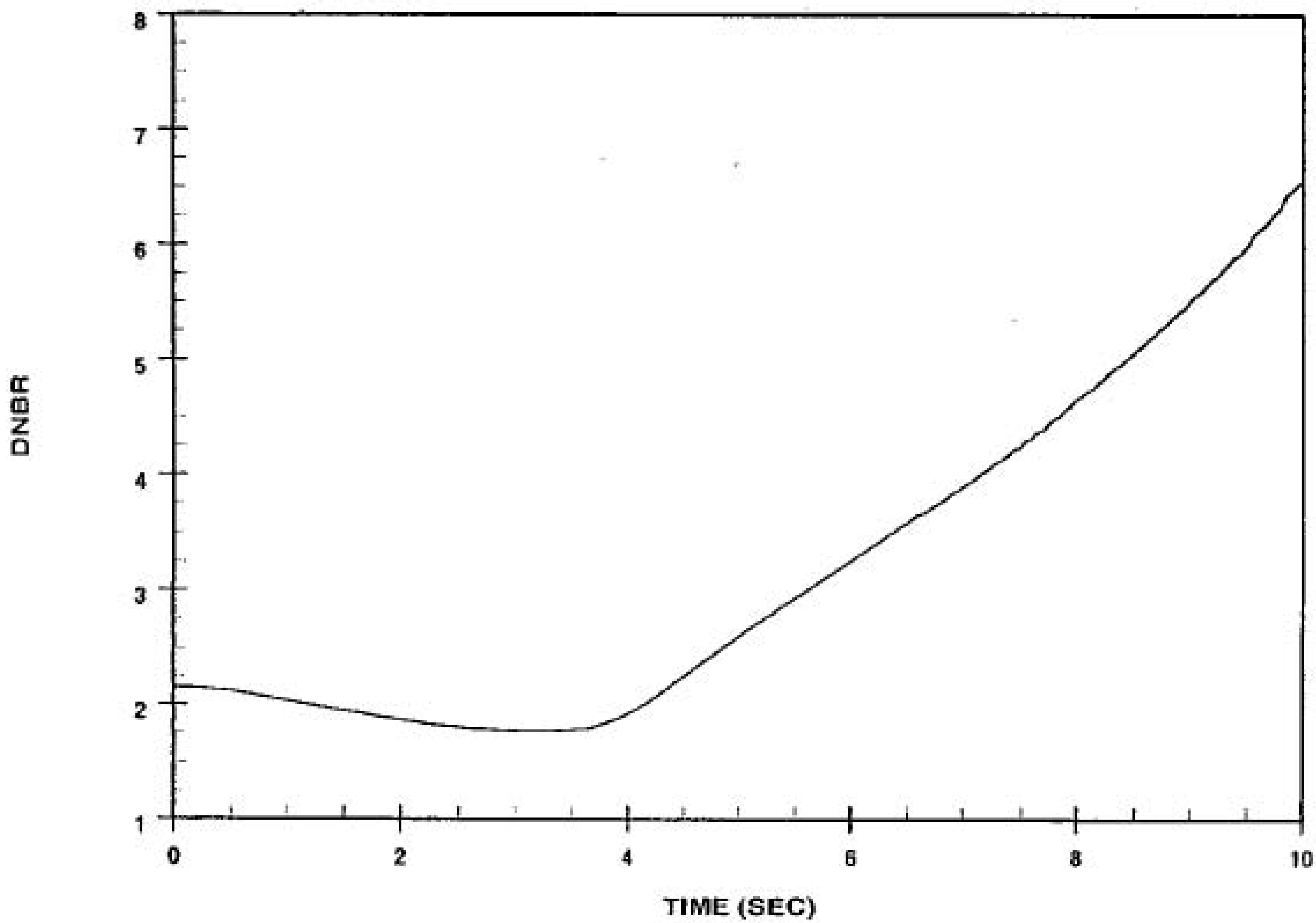


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.3-7

CORE AVERAGE AND HOT CHANNEL HEAT FLUX TRANSIENTS FOR FOUR LOOPS IN OPERATION, FOUR PUMPS COASTING DOWN



REV. OL-15
5/06

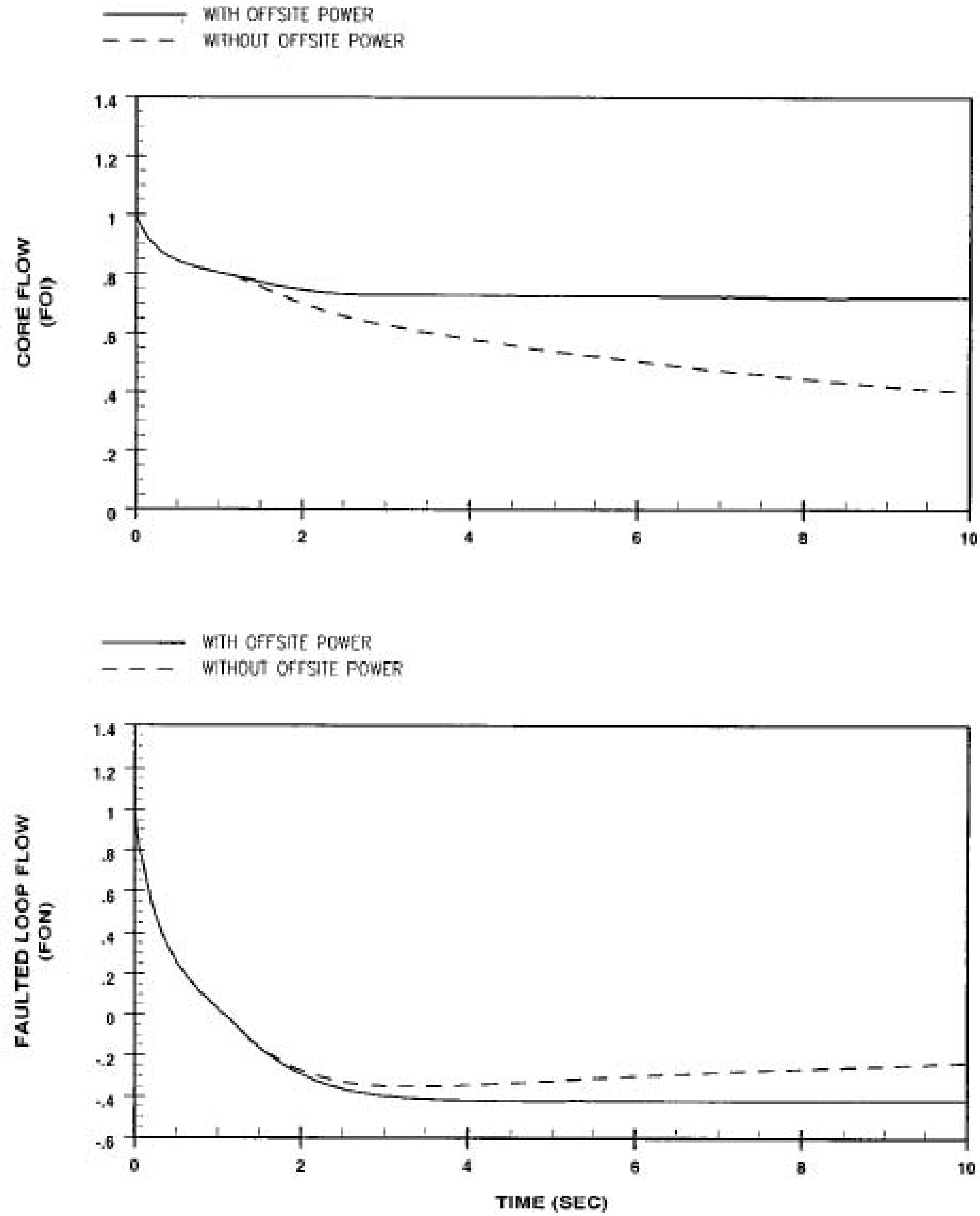
CALLAWAY PLANT

FIGURE 15.3-6

DNBR TRANSIENT FOR
FOUR LOOPS IN OPERATION,
FOUR PUMPS COASTING DOWN

Figure 15.3-8A Deleted

Figure 15.3-8B Deleted

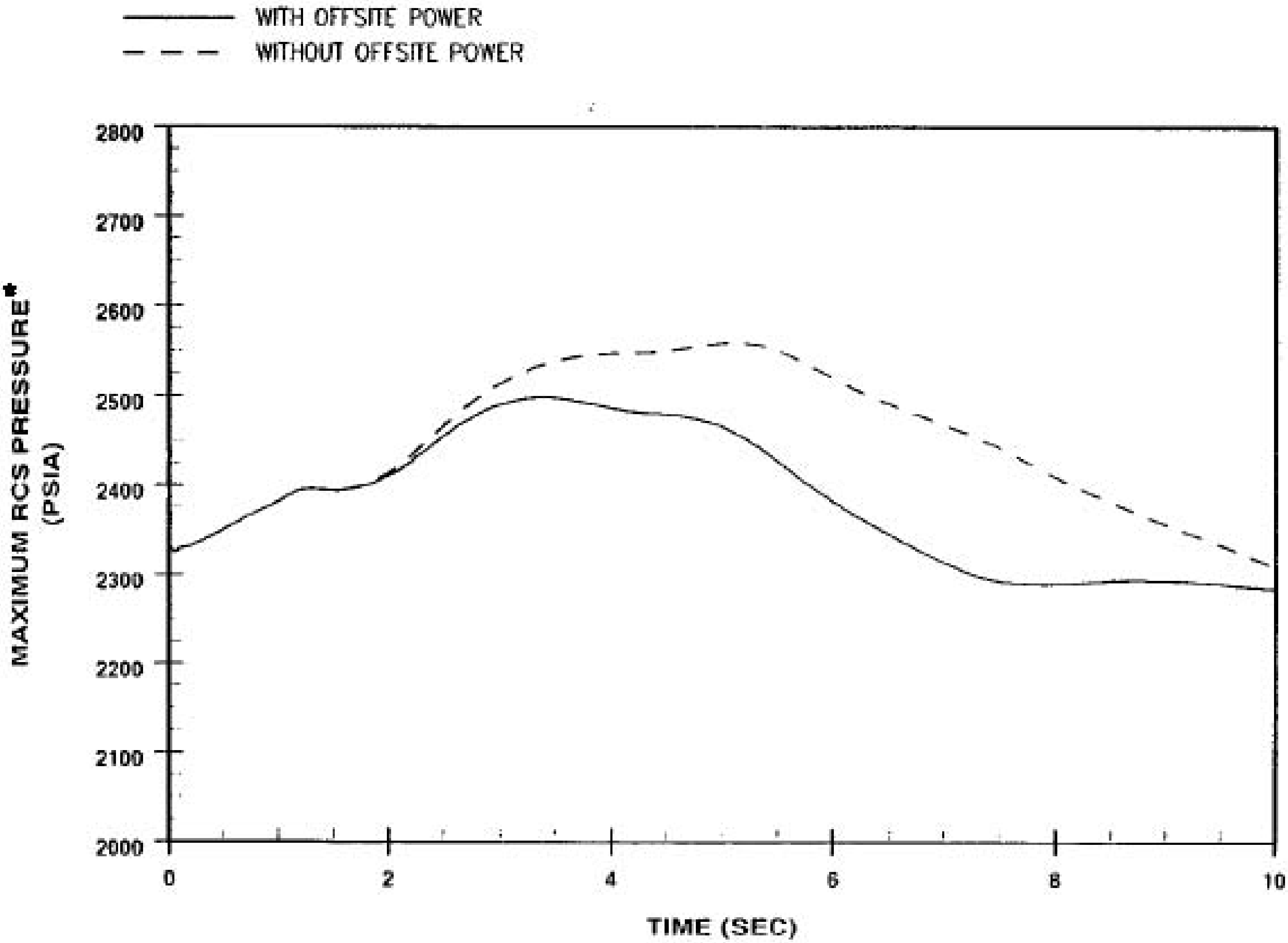


REV. OL-16
5/08

CALLAWAY PLANT

FIGURE 15.3-9

FLOW TRANSIENTS FOR
FOUR LOOPS IN OPERATION,
ONE LOCKED ROTOR



NOTES:

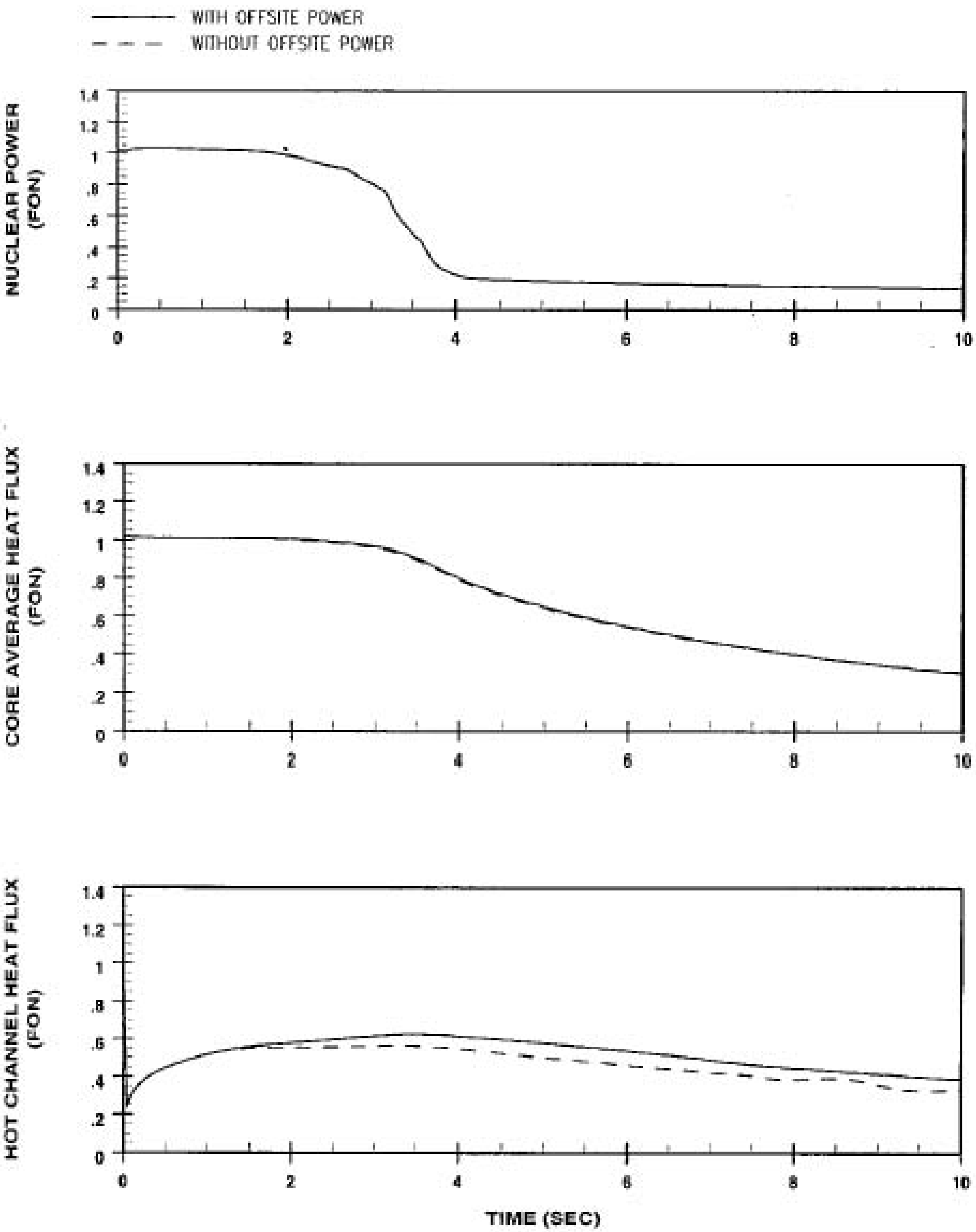
* Per NSAL-09-2, a 45 psi penalty has been added to the calculated peak RCS pressure following a locked rotor accident. See Table 15.3-2.

CALLAWAY PLANT

FIGURE 15.3-10

PEAK REACTOR COOLANT PRESSURE FOR FOUR LOOPS IN OPERATION, ONE LOCKED ROTOR

REV. 18 1/10

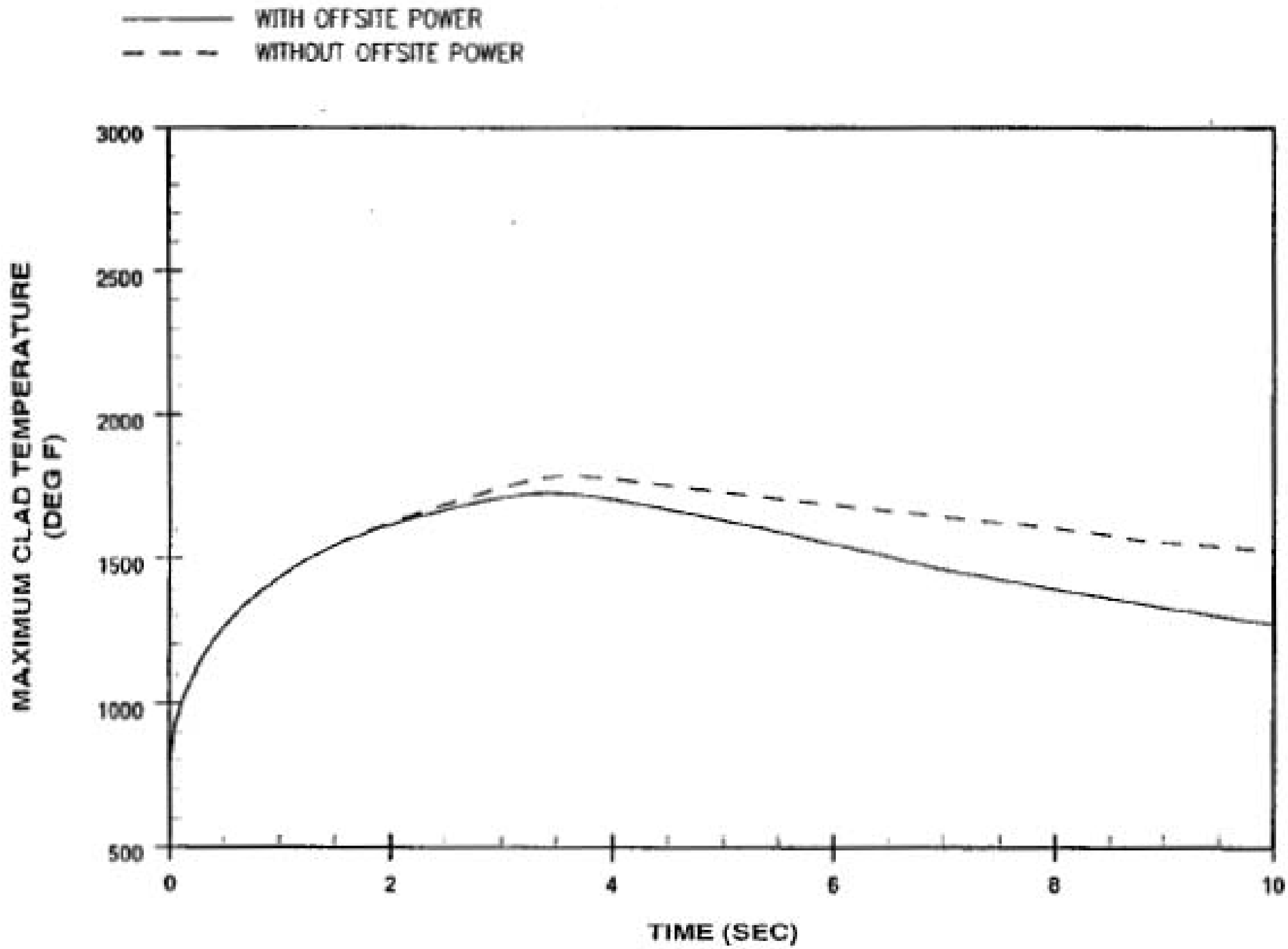


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.3-11

NUCLEAR POWER, CORE AVERAGE AND HOT CHANNEL HEAT FLUX TRANSIENTS FOR FOUR LOOPS IN OPERATION, ONE LOCKED ROTOR



REV. OL-15
5/06

CALLAWAY PLANT

FIGURE 15.3-12

MAXIMUM CLAD TEMPERATURE AT HOT SPOT FOR FOUR LOOPS IN OPERATION, ONE LOCKED ROTOR

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Figures 15.3-13 thru 15.3-24 have been deleted.

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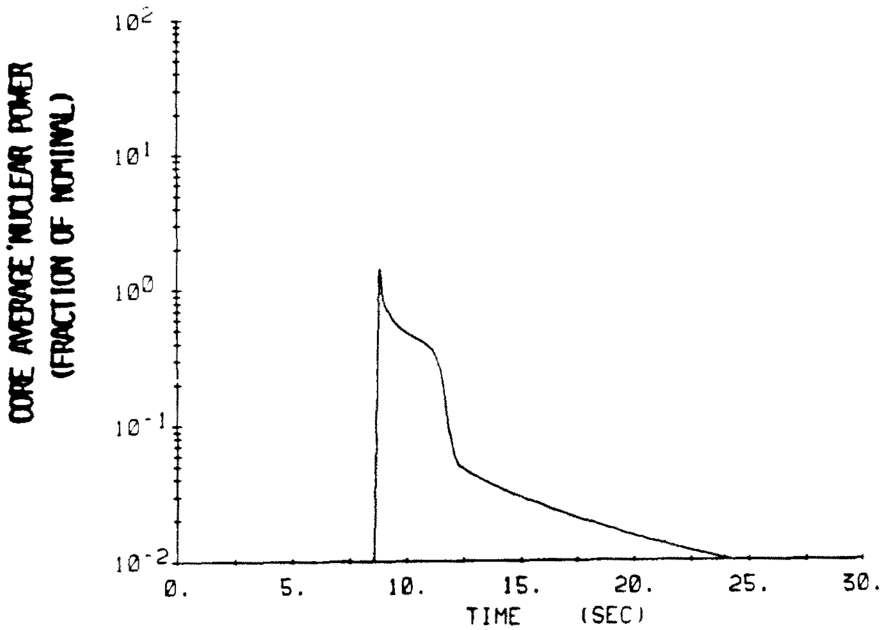
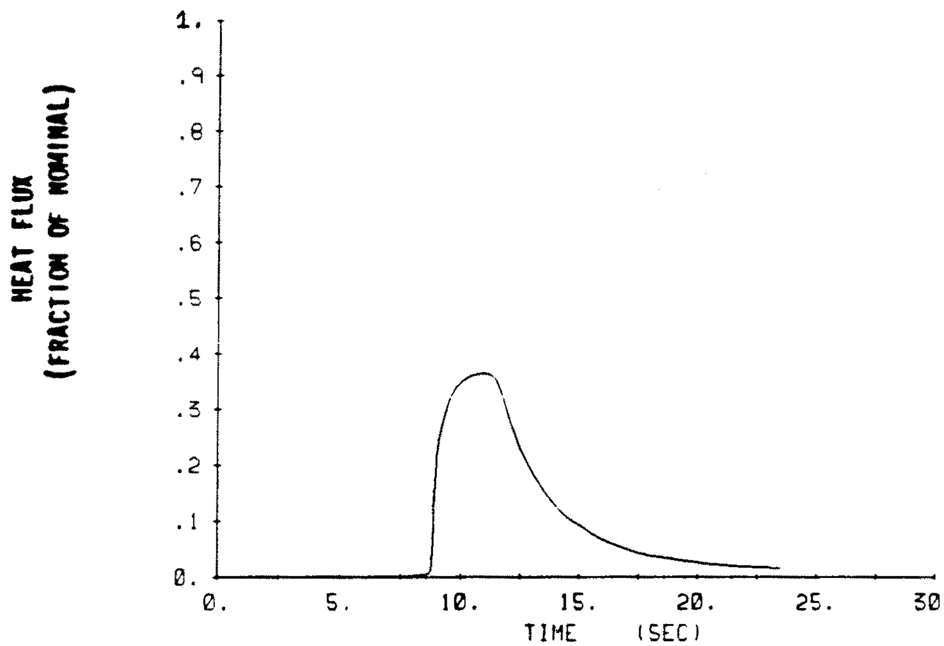


REV. OL-5
6/91

CALLAWAY PLANT

FIGURE 15.4-1

CORE AVERAGE NUCLEAR POWER TRANSIENT FOR UNCONTROLLED ROD WITHDRAWAL FROM A SUBCRITICAL CONDITION

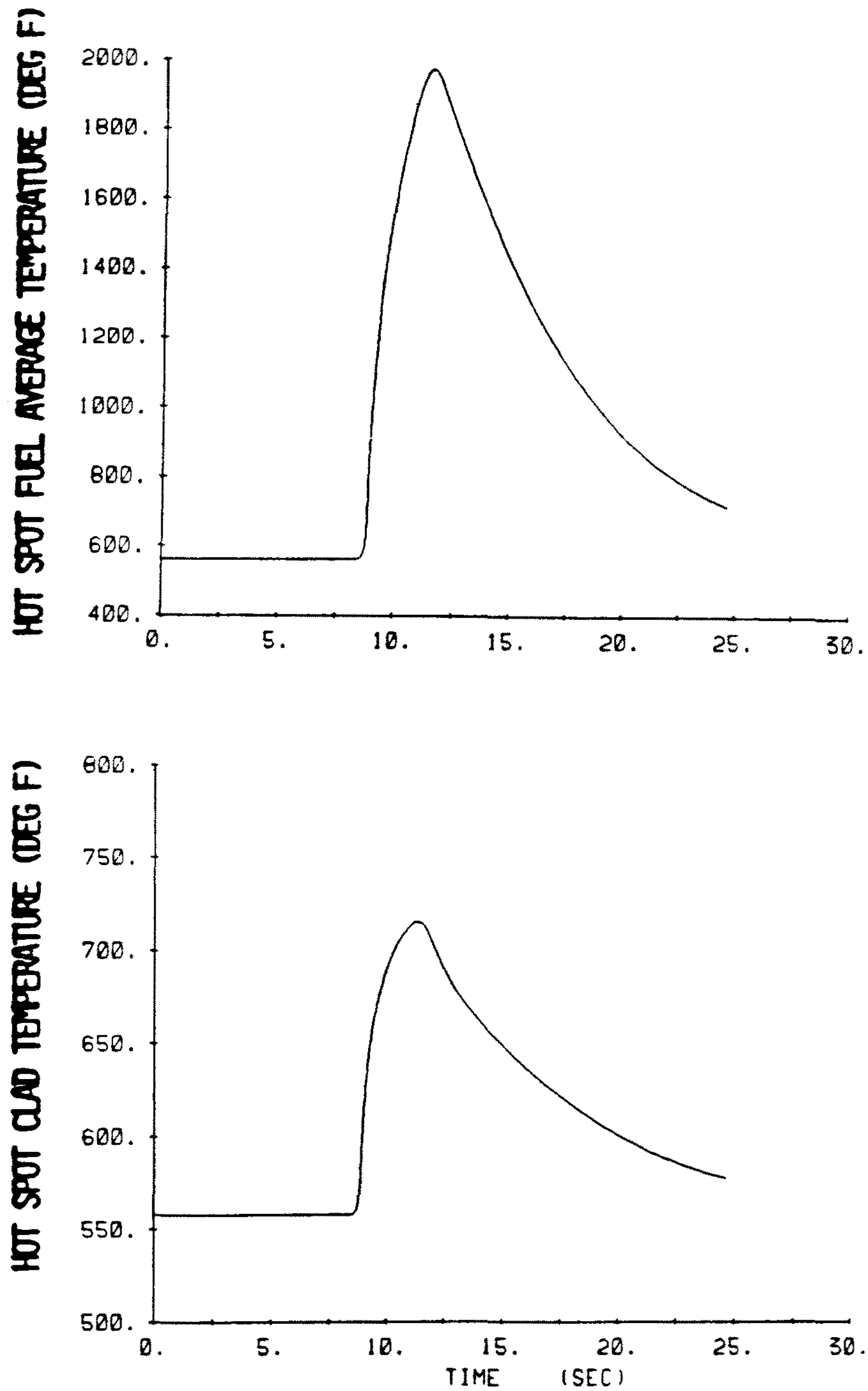


REV. OL-5
6/91

CALLAWAY PLANT

FIGURE 15.4-2

THERMAL FLUX TRANSIENT FOR UNCONTROLLED ROD WITHDRAWAL FROM A SUBCRITICAL CONDITION

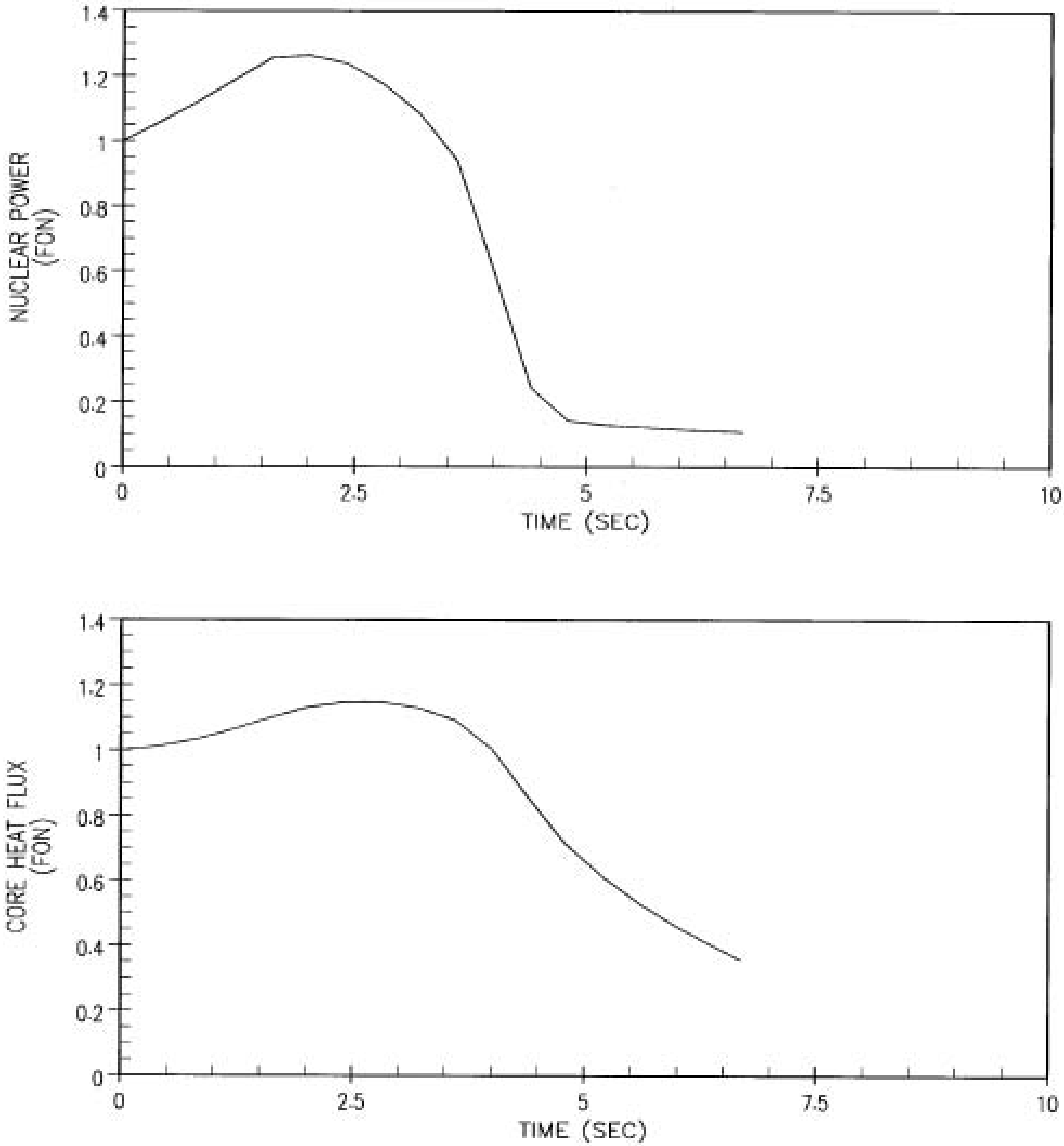


REV. OL-5
6/91

CALLAWAY PLANT

FIGURE 15.4-3

FUEL AND CLAD TEMPERATURE TRANSIENTS FOR UNCONTROLLED ROD WITHDRAWAL FROM A SUB-CRITICAL CONDITION

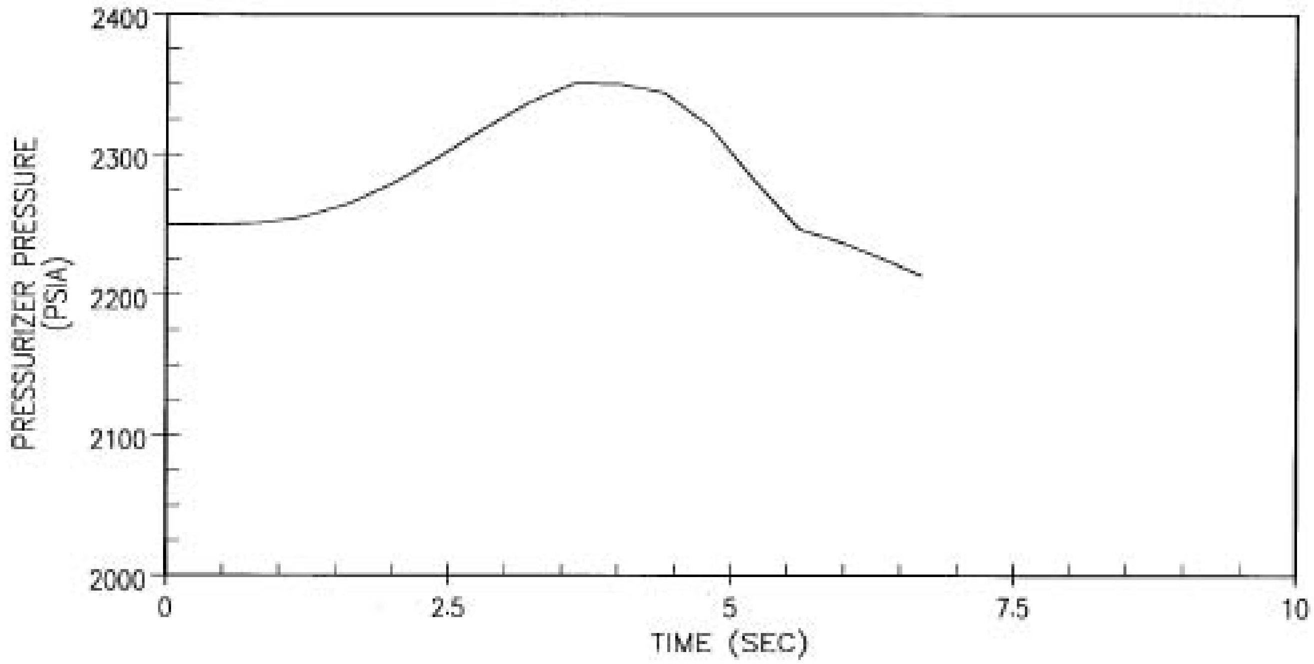


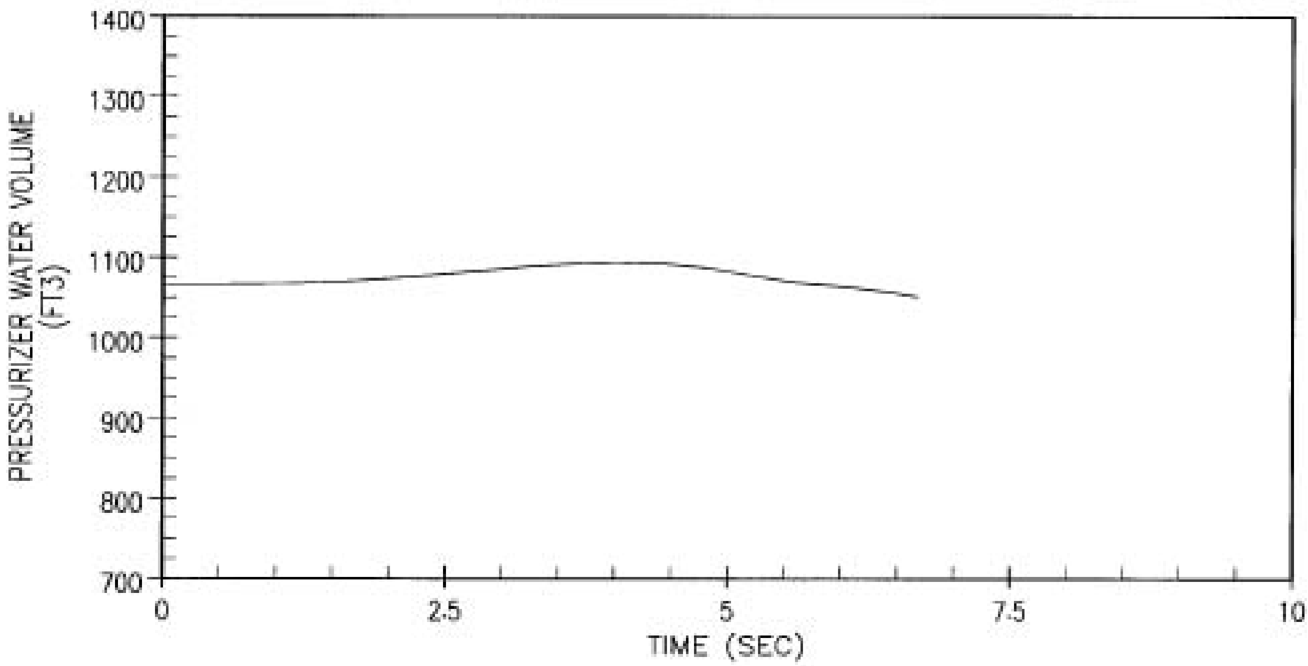
CALLAWAY PLANT

FIGURE 15.4-4

UNCONTROLLED RCCA BANK WITHDRAWAL
FROM FULL POWER WITH MINIMUM
REACTIVITY FEEDBACK
(110 PCM/SEC WITHDRAWAL RATE)

REV. 10 1/10



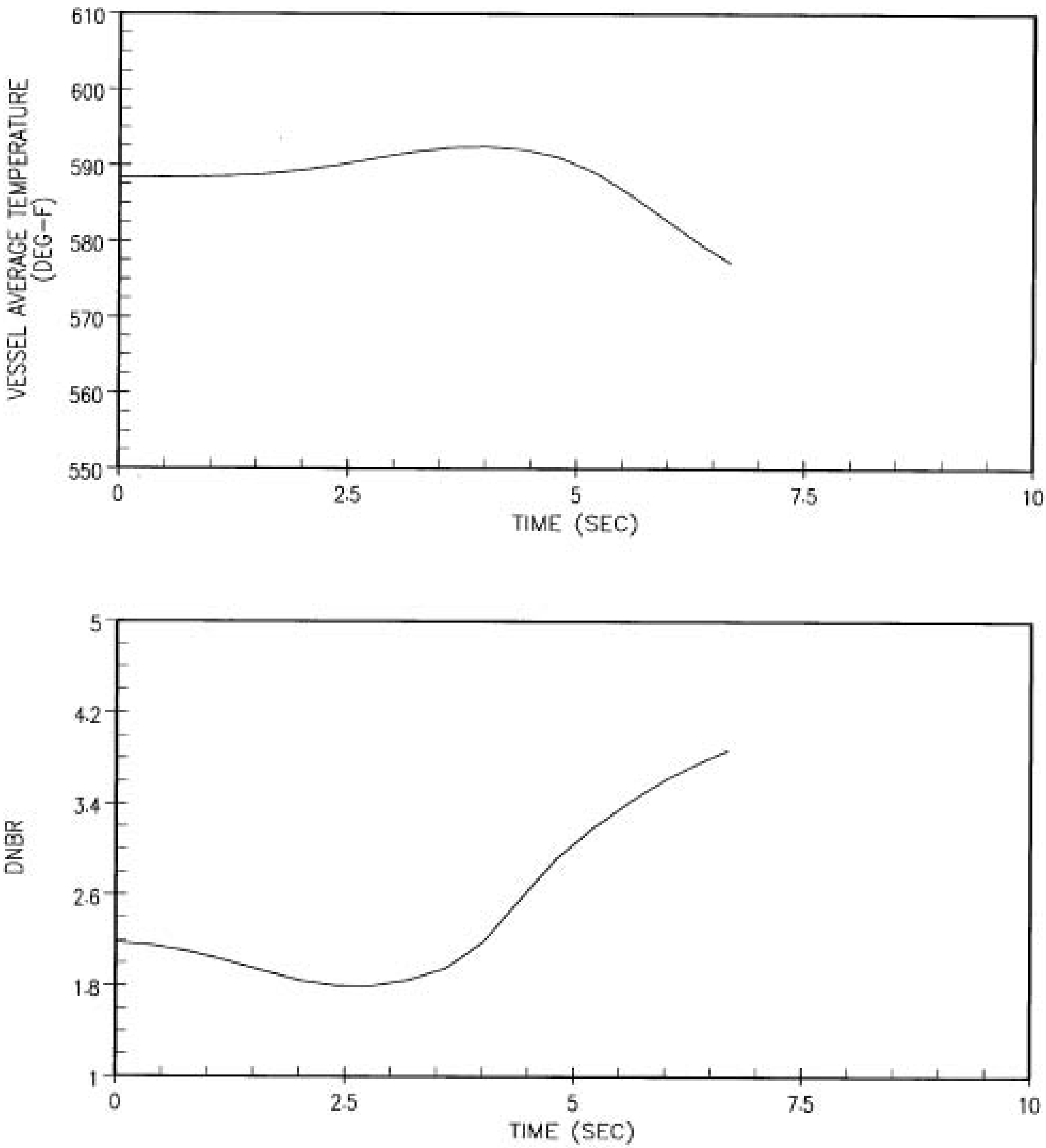


CALLAWAY PLANT

FIGURE 15.4-5

UNCONTROLLED RCCA BANK
WITHDRAWAL FROM FULL POWER WITH
MINIMUM REACTIVITY FEEDBACK
(110 PCM/SEC WITHDRAWAL RATE)

REV. 16 1/10

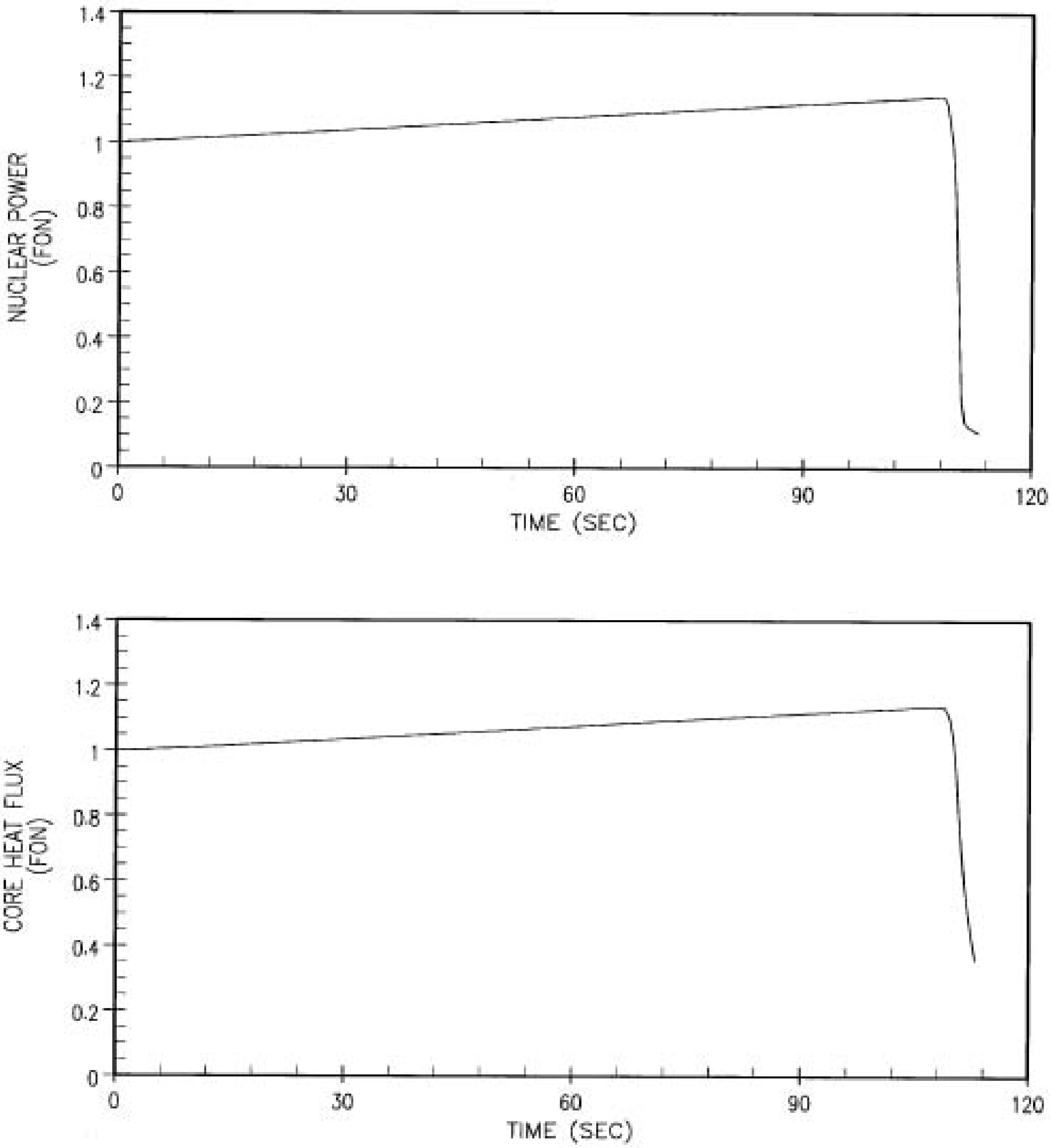


CALLAWAY PLANT

FIGURE 15.4-6

UNCONTROLLED RCCA BANK WITHDRAWAL FROM FULL POWER WITH MINIMUM REACTIVITY FEEDBACK (110 PCM/SEC WITHDRAWAL RATE)

REV. 16 1/16

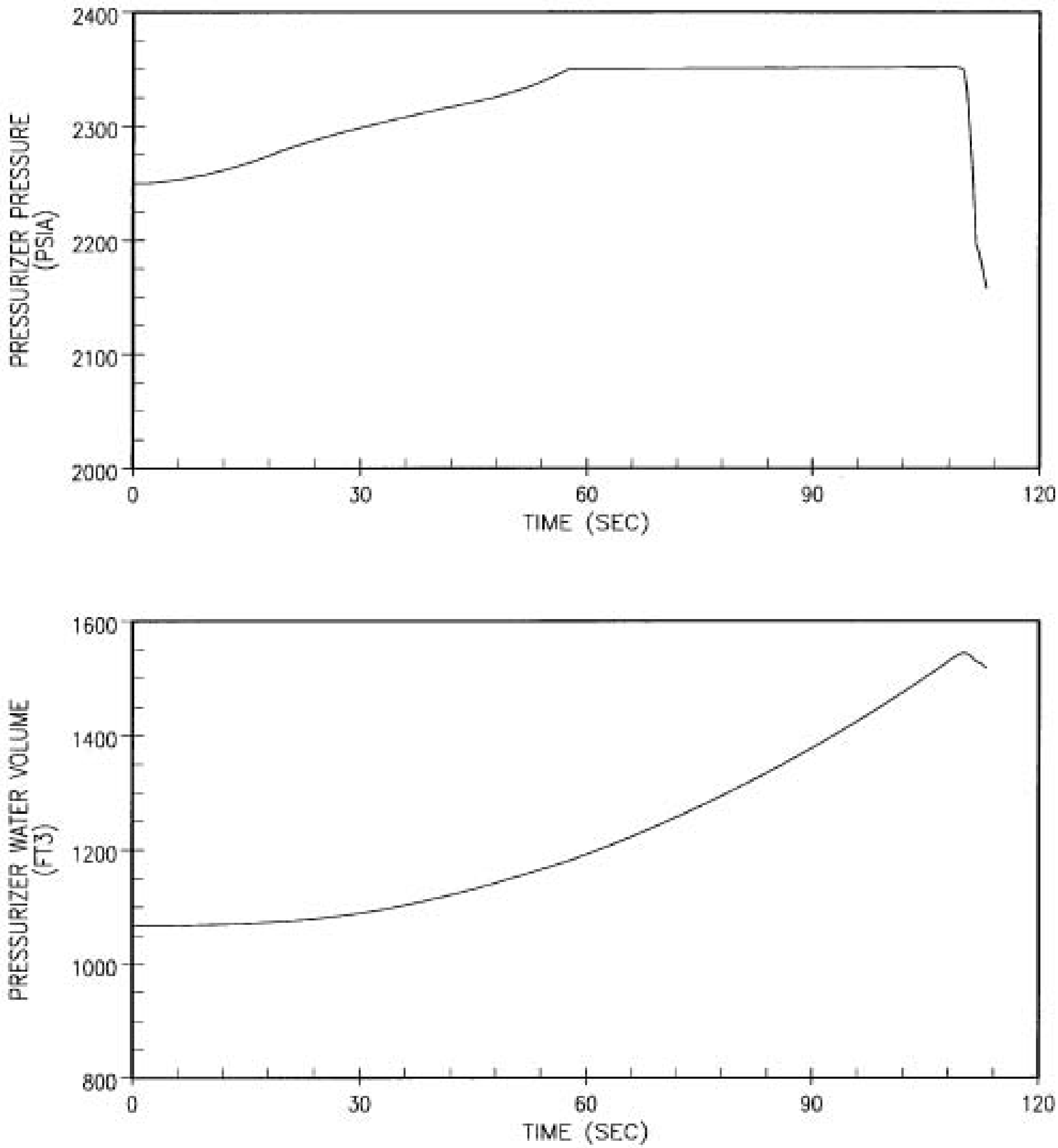


CALLAWAY PLANT

FIGURE 15.4-7

UNCONTROLLED RCCA BANK
WITHDRAWAL FROM FULL POWER
WITH MINIMUM REACTIVITY FEEDBACK
(1 PCM/SEC WITHDRAWAL RATE)

REV. 16 1/10

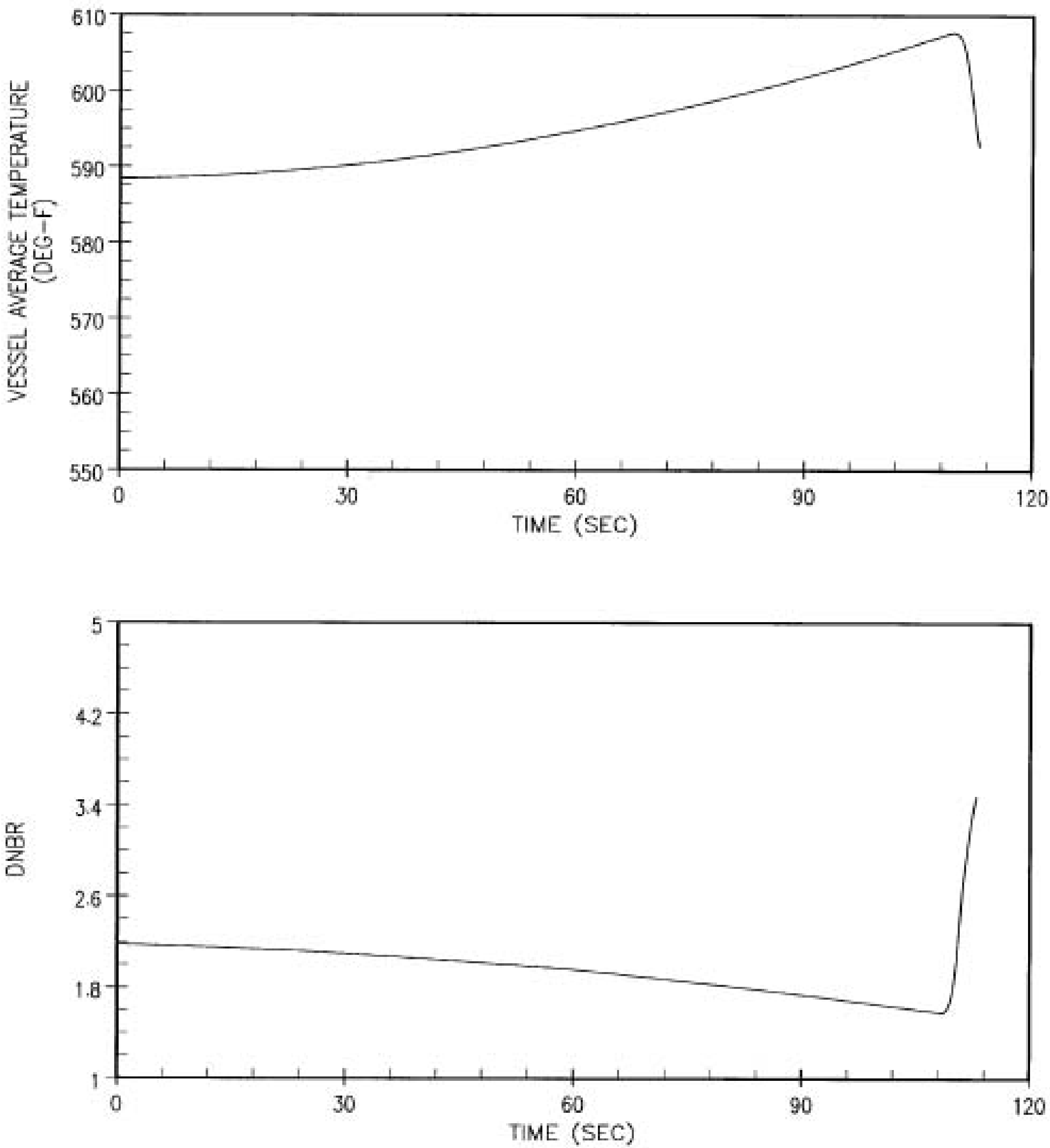


CALLAWAY PLANT

FIGURE 15.4-6

UNCONTROLLED RCCA BANK
WITHDRAWAL FROM FULL POWER
WITH MINIMUM REACTIVITY FEEDBACK
(1 PCM/SEC WITHDRAWAL RATE)

REV. 16 1/10

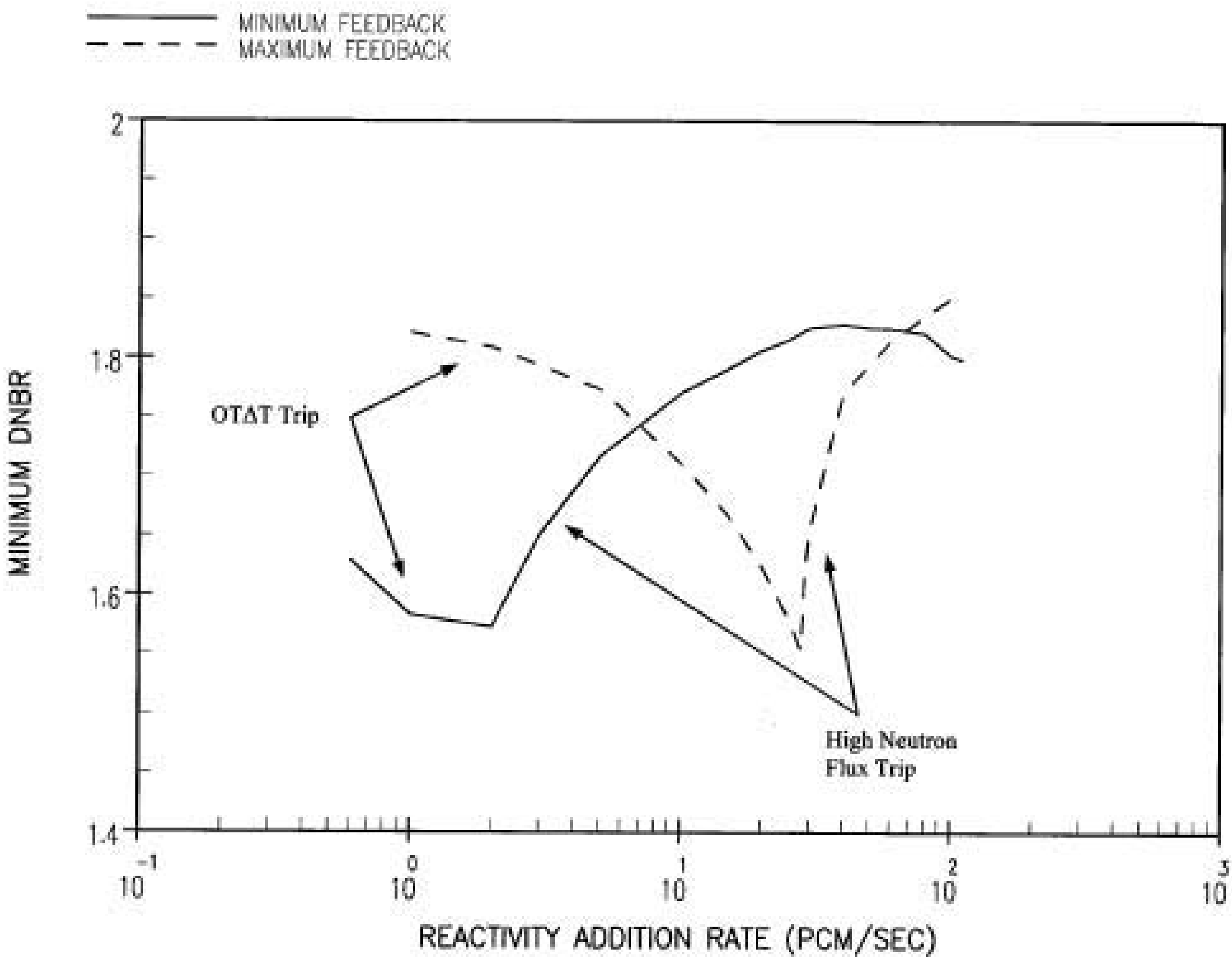


CALLAWAY PLANT

FIGURE 15.4-9

UNCONTROLLED RCCA BANK WITHDRAWAL FROM FULL POWER WITH MINIMUM REACTIVITY FEEDBACK (1 PCM/SEC WITHDRAWAL RATE)

REV. 16 1/16

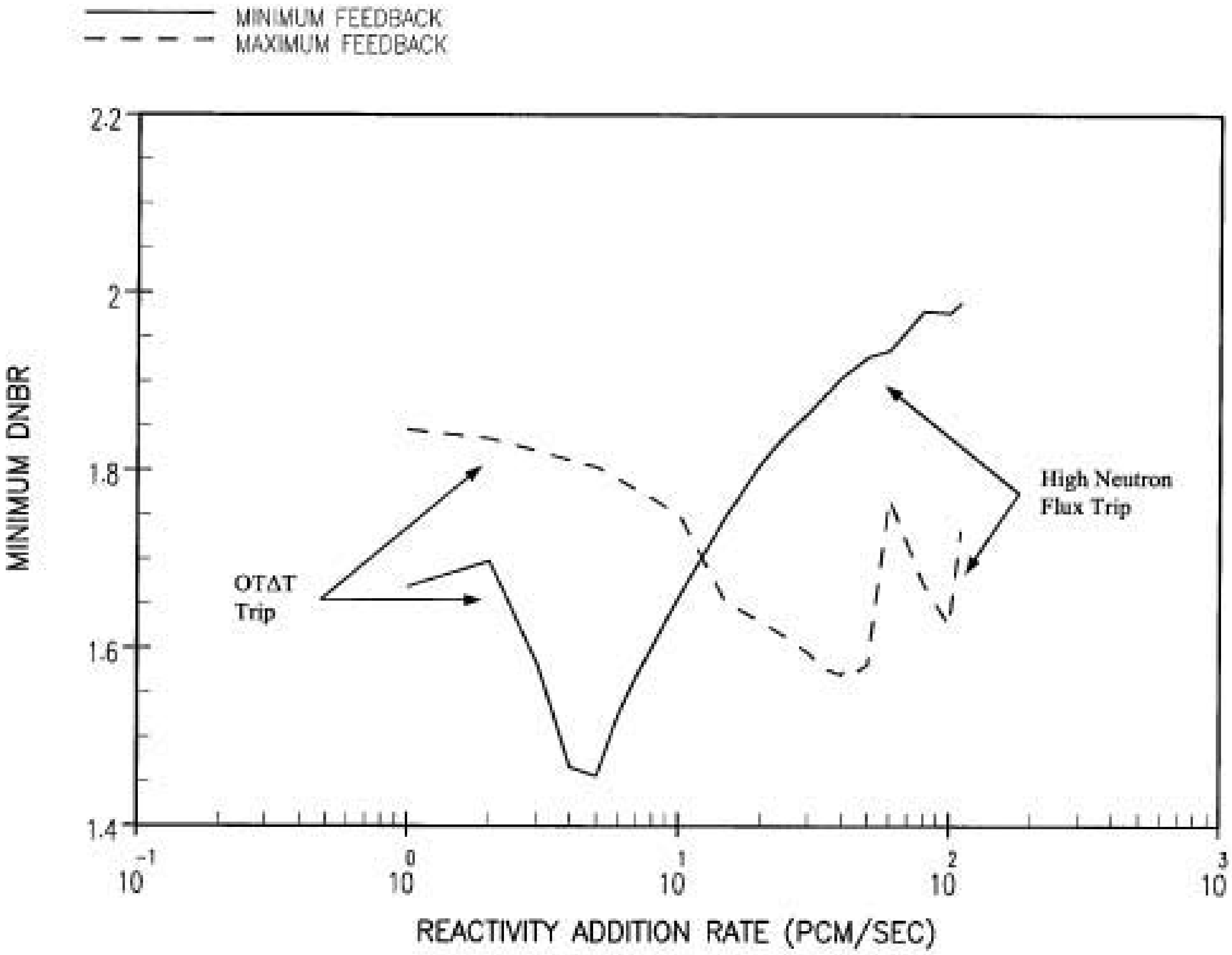


CALLAWAY PLANT

FIGURE 15.4-10

MINIMUM DNBR VERSUS REACTIVITY INSERTION RATE, ROD WITHDRAWAL FROM 100 PERCENT POWER

REV. 18 1/10

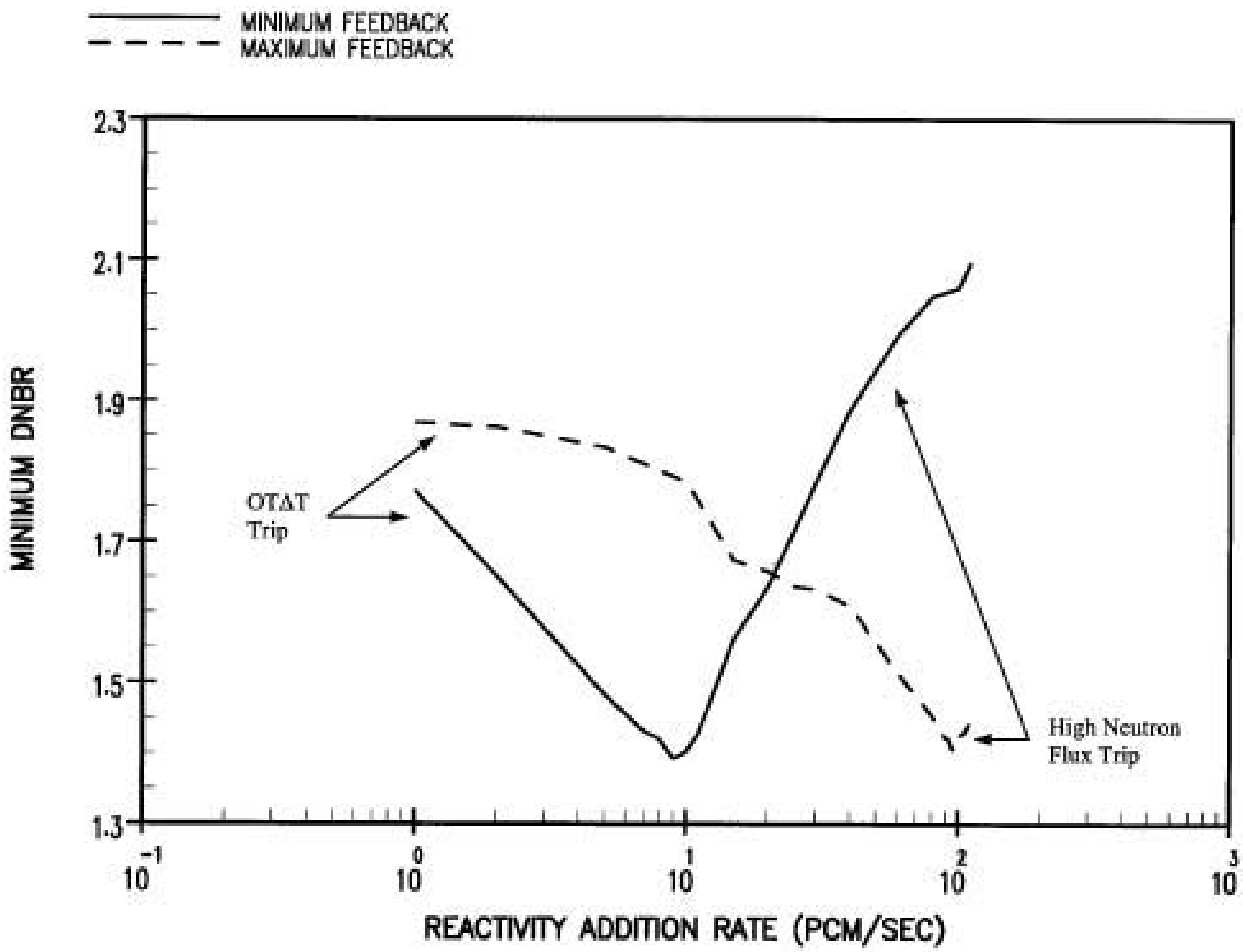


CALLAWAY PLANT

FIGURE 15.4-11

MINIMUM DNBR VERSUS REACTIVITY INSERTION RATE, ROD WITHDRAWAL FROM 60 PERCENT POWER

REV. 16 1/10

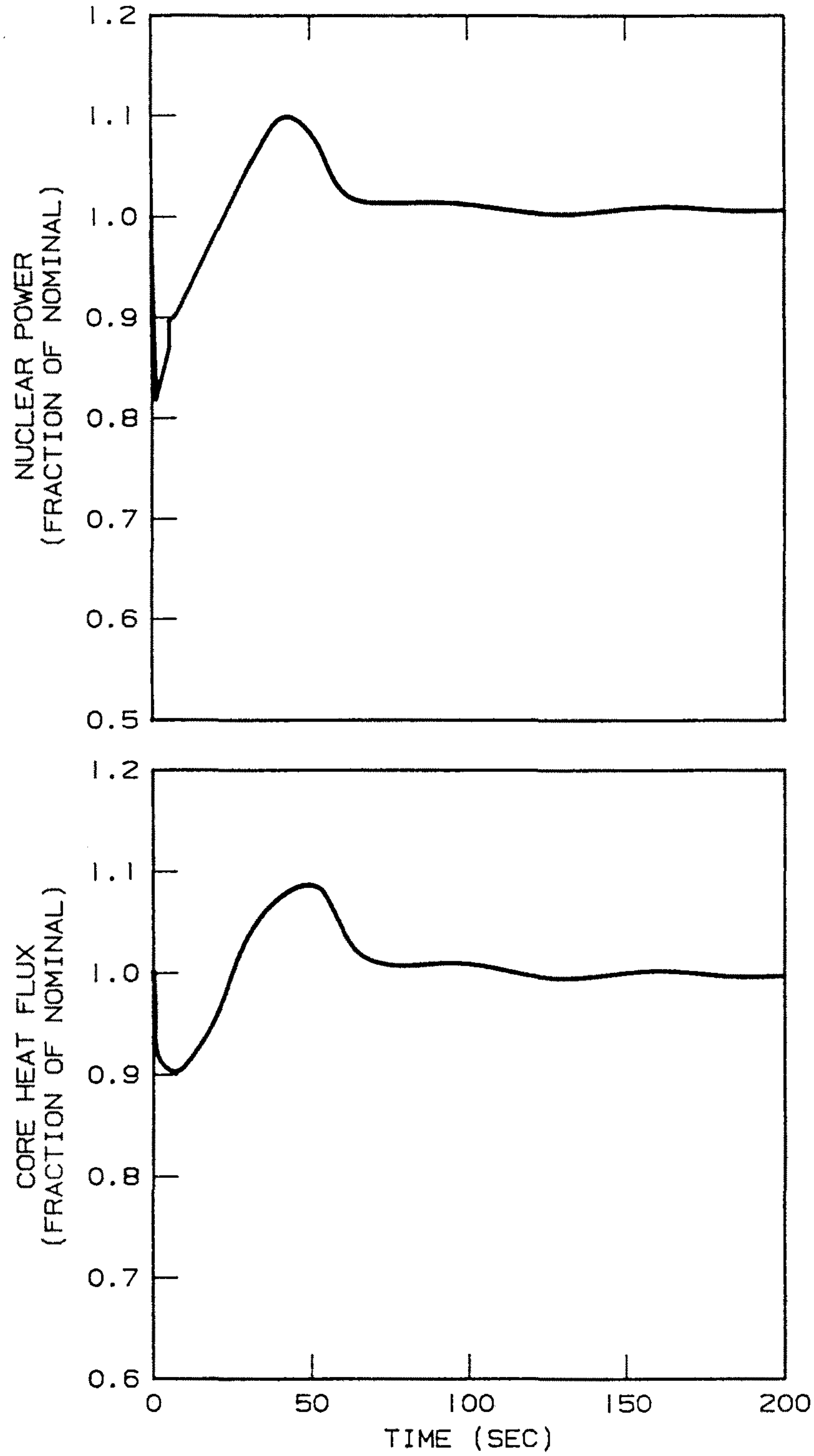


CALLAWAY PLANT

FIGURE 15.4-12

MINIMUM DNBR VERSUS REACTIVITY INSERTION RATE, ROD WITHDRAWAL FROM 10 PERCENT POWER

REV. 16 1/10



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10/06

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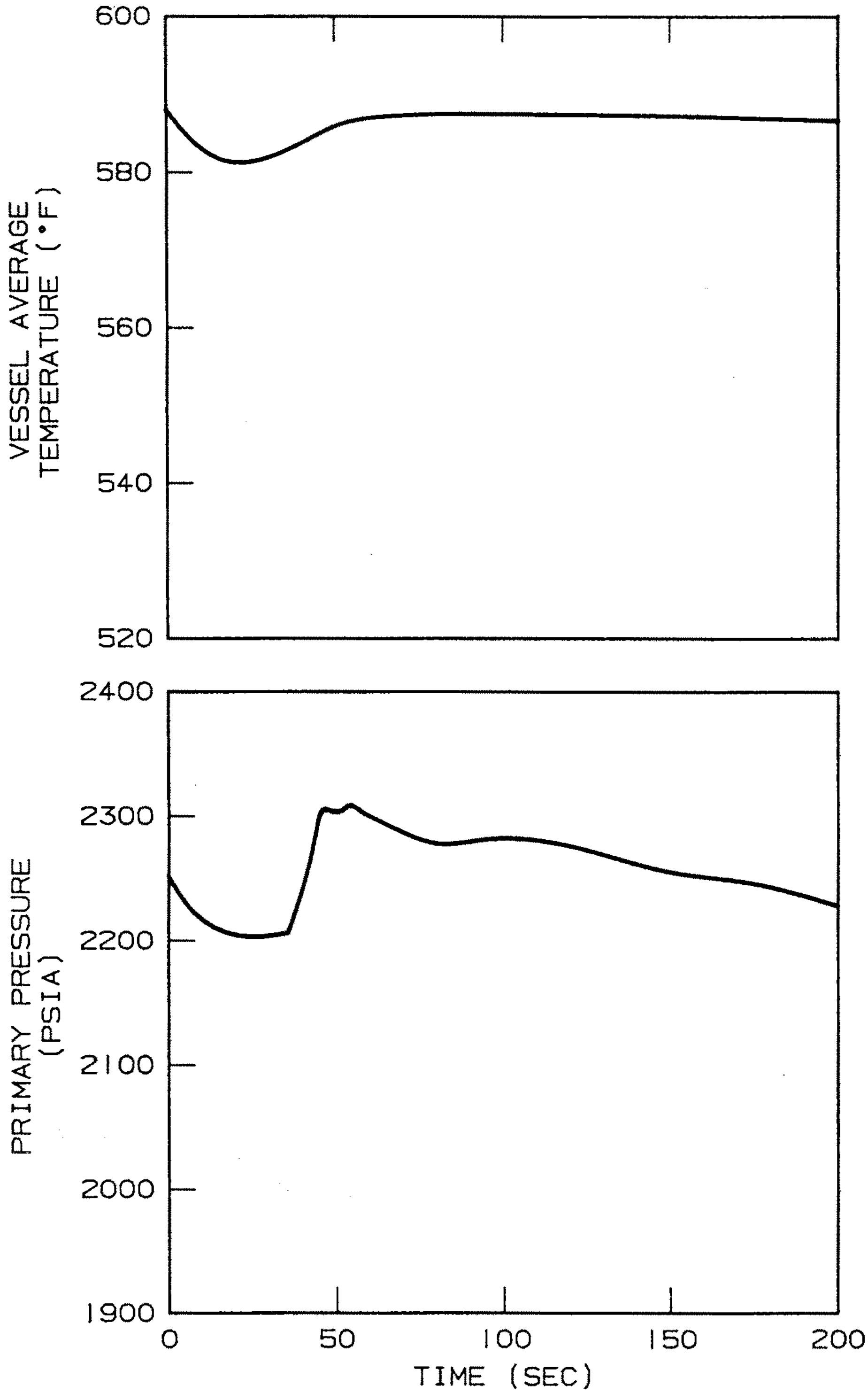
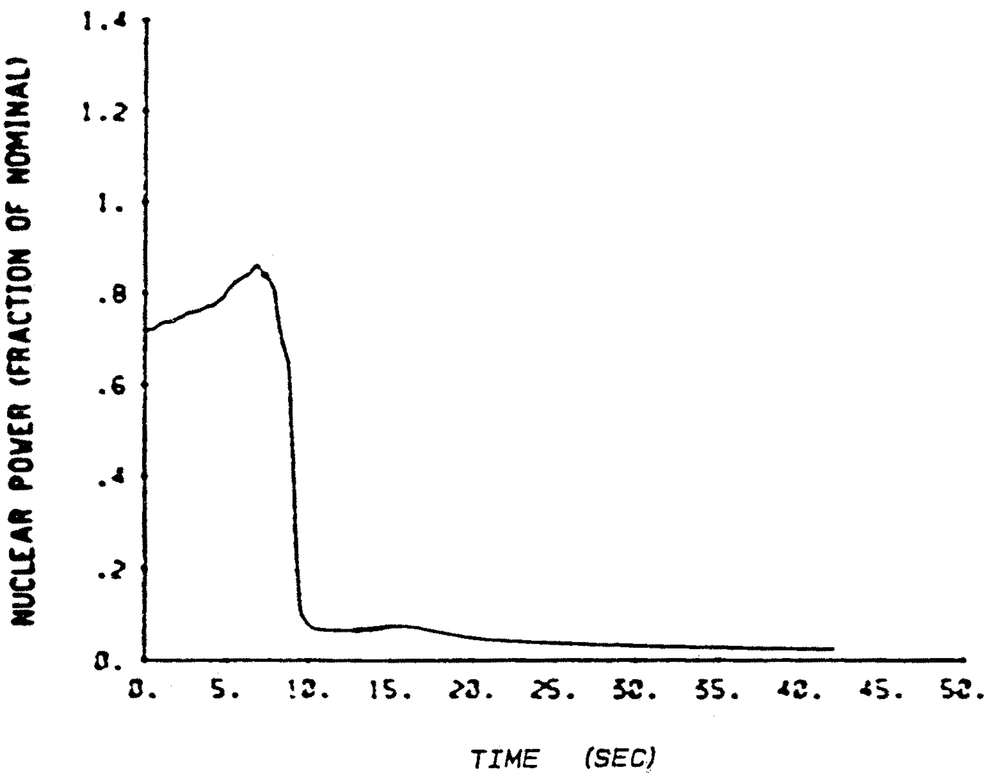
FIGURE 15.4-12a
NUCLEAR POWER TRANSIENT AND
CORE HEAT FLUX TRANSIENT FOR
DROPPED ROD CLUSTER
CONTROL ASSEMBLY



REV. 16
10/06

CALLAWAY PLANT

FIGURE 15.4-12b
PRESSURIZER PRESSURE TRANSIENT AND CORE AVERAGE TEMPERATURE TRANSIENT FOR DROPPED ROD CLUSTER CONTROL ASSEMBLY



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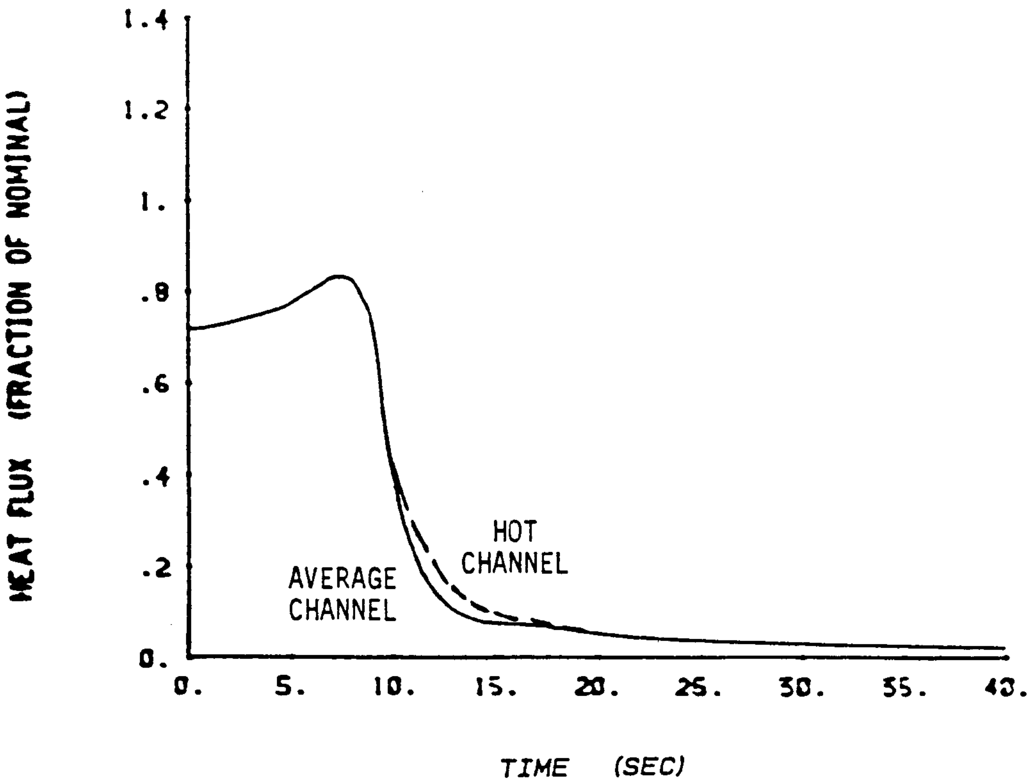
CALLAWAY PLANT

FIGURE 15.4-13

NUCLEAR POWER TRANSIENT
FOR STARTUP OF AN INACTIVE
REACTOR COOLANT LOOP



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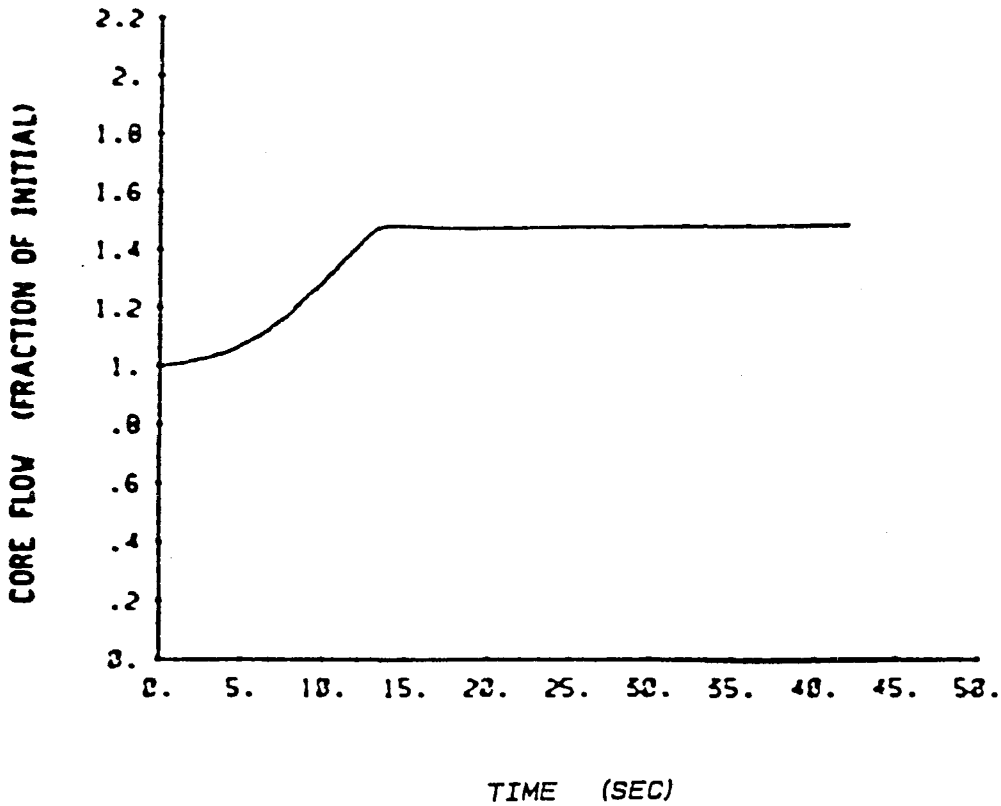
6/88

CALLAWAY PLANT

FIGURE 15.4-14

HEAT FLUX TRANSIENT
FOR STARTUP OF AN INACTIVE
REACTOR COOLANT LOOP



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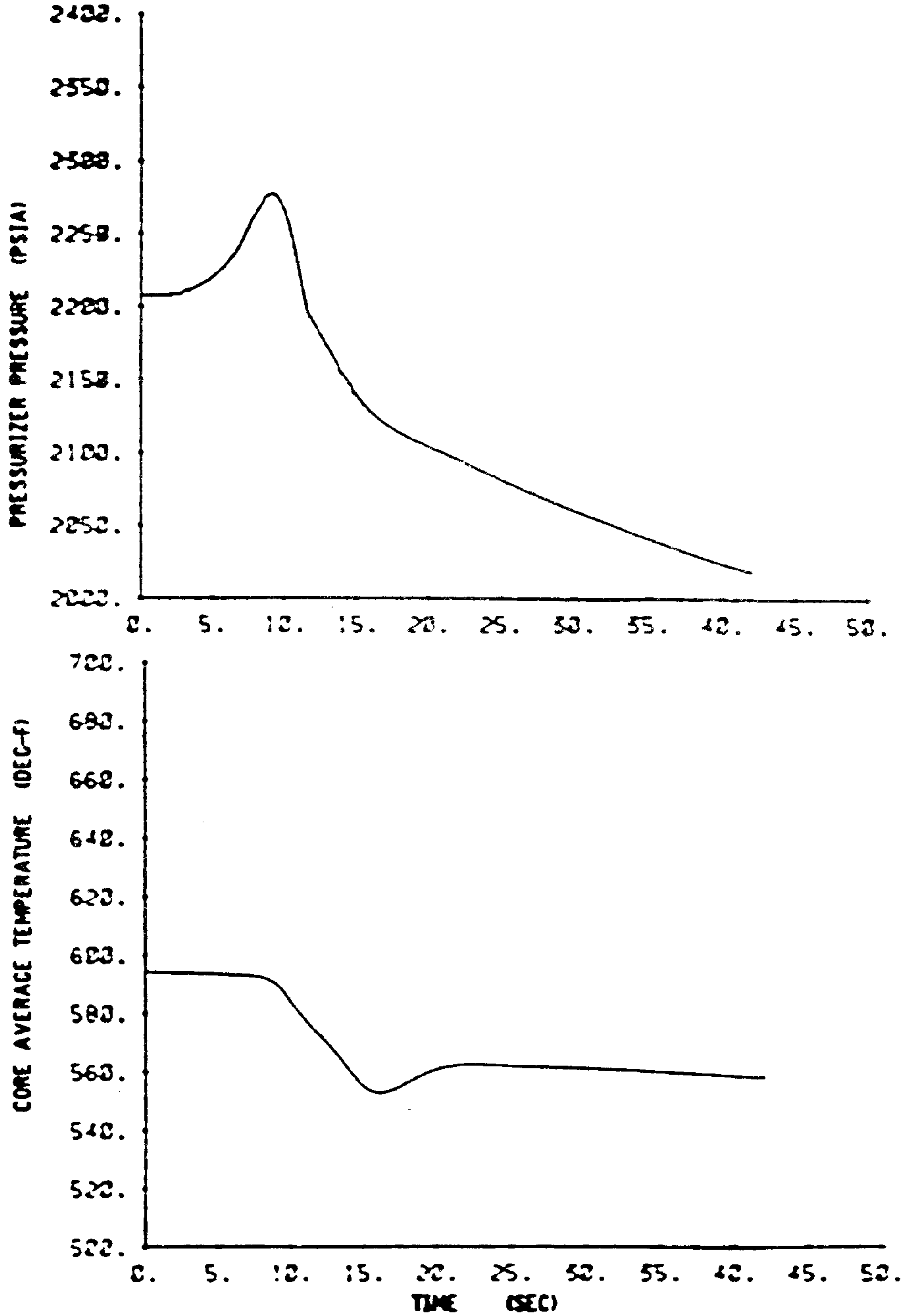
CALLAWAY PLANT

FIGURE 15.4-15

CORE FLOW TRANSIENT
FOR STARTUP OF AN INACTIVE
REACTOR COOLANT LOOP



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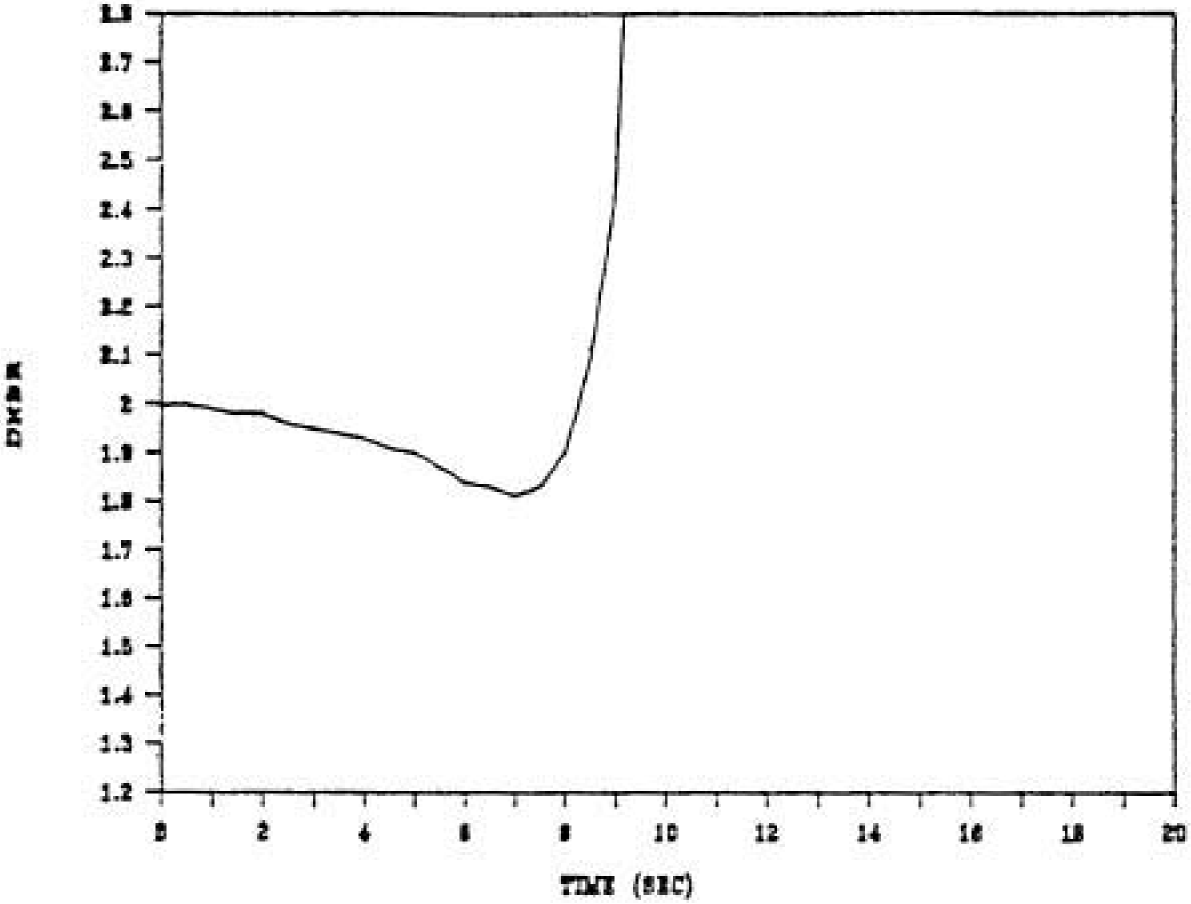
CALLAWAY PLANT

FIGURE 15.4-16

CORE AVERAGE TEMPERATURE AND PRESSURIZER PRESSURE TRANSIENTS FOR STARTUP OF AN INACTIVE REACTOR COOLANT LOOP



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5/06

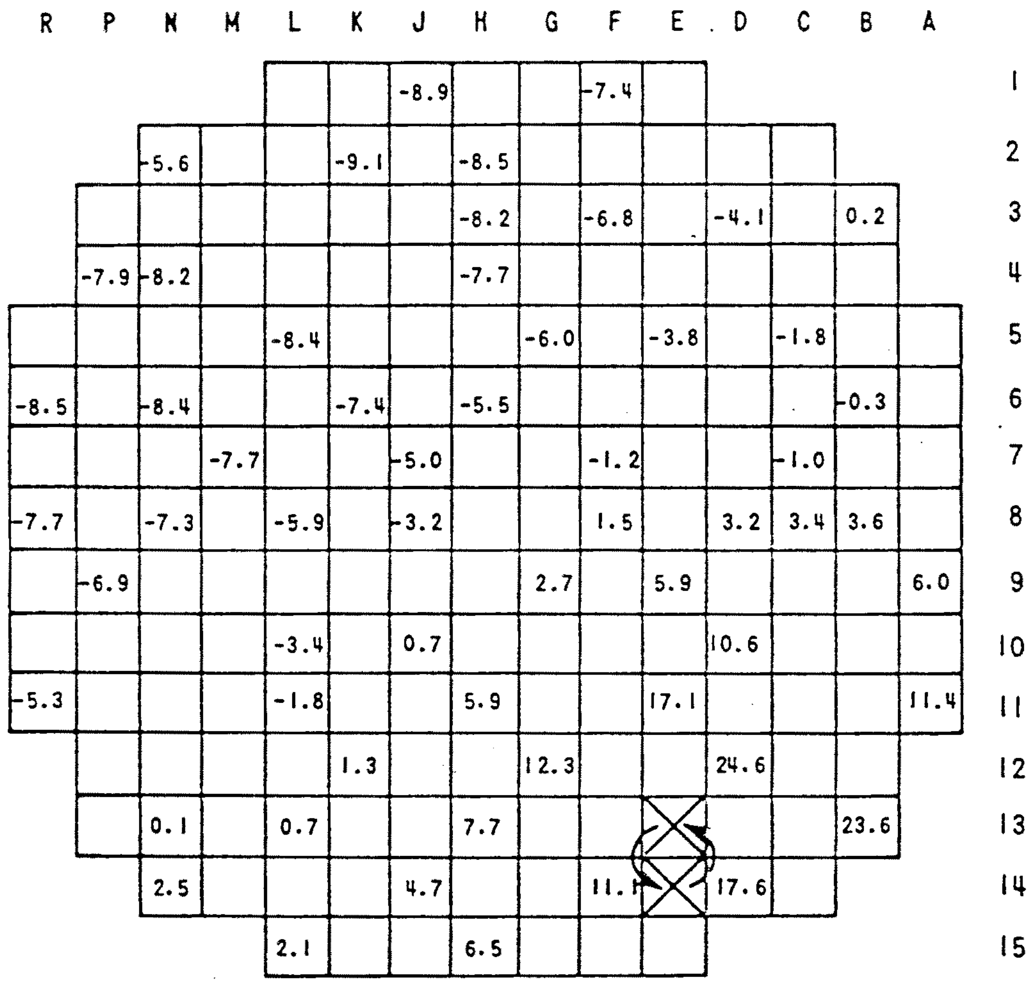
CALLAWAY PLANT

FIGURE 15.4-17

DNBR TRANSIENT FOR
STARTUP OF AN INACTIVE
REACTOR COOLANT LOOP

Figure 15.4-17A Deleted

Figure 15.4-17B Deleted



CASE A

Rev. OL-0
6/86

CALLAWAY PLANT

FIGURE 15.4-18
REPRESENTATIVE PERCENT CHANGE IN LOCAL ASSEMBLY AVERAGE POWER FOR AN INTERCHANGE BETWEEN A REGION 1 AND A REGION 3 ASSEMBLY

18094-1

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							-4.8			-4.5					
2			-0.4			-4.8		-4.8							
3								-4.8		-4.4		-2.6		1.4	
4		-2.8	-3.1					-4.5							
5					-3.9				-4.3		-4.6		-1.5		
6	-3.8		-3.8			-3.6		-2.9						0.5	
7				-3.6			-2.0			-2.3	X		2.2		
8	-3.5		-3.4		-2.6		-0.7			11.4	X	11.3	5.8	4.4	
9		-3.2							5.2		16.7				5.4
10					-1.7		0.5					8.8			
11	-2.2				-1.0			2.2			6.9				6.6
12						0.0			2.9			6.5			
13			1.2		0.0			1.6						10.3	
14			3.2				0.8			3.2		6.0			
15					0.3				1.5						

CASE B-1

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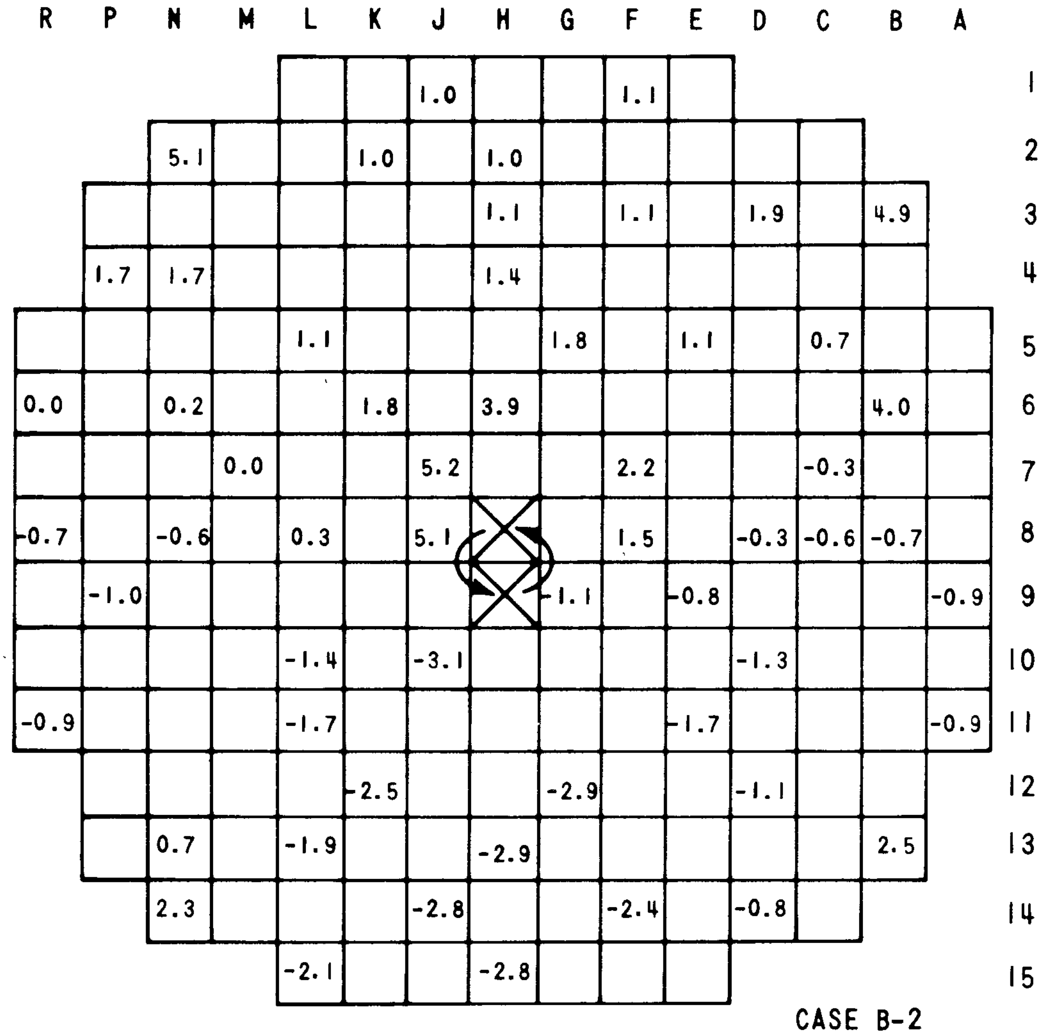
6/86

CALLAWAY PLANT

FIGURE 15.4-19
REPRESENTATIVE PERCENT CHANGE IN LOCAL ASSBLY. AVG. POWER FOR AN INTERCHANGE BETWEEN A REGION 1 AND A REGION 2 ASSBLY. WITH THE BURN. POISON RODS BEING RETAINED BY THE REGION 2 ASSEMBLY



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6/86

CALLAWAY PLANT

FIGURE 15.4-20
REPRESENTATIVE PERCENT CHANGE IN LOCAL ASSBLY. AVG. POWER FOR AN INTERCHANGE BETWEEN A REGION 1 AND A REGION 2 ASSBLY. WITH THE BURN. POISON RODS BEING TRANSFERRED TO THE REGION 1 ASSEMBLY.

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							-2.2			-2.1					
2			2.0			-2.0		-2.1							
3								-1.5		-1.6		-1.0		2.0	
4		-0.9	-1.0					-0.4							
5					-0.4				1.2		-0.5		-1.4		
6	-2.1		-1.6			2.3		5.7						-2.0	
7				-3.2			9.7			4.4			-1.7		
8	-2.3		-1.6		1.8		13.6	X		5.6		-0.4	-1.6	-2.1	
9		-2.2							9.7		1.1				-2.2
10					0.3		4.5					-0.9			
11	-1.9				-0.4			1.8			-0.5				-1.9
12						-0.9			-0.6			-1.1			
13			0.4		-1.4			-1.5						2.0	
14			2.0				-2.1			-2.0		-0.9			
15					-1.9			-2.2							

CASE C

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FIGURE 15.4-21
REPRESENTATIVE PERCENT CHANGE IN LOCAL ASSEMBLY AVERAGE POWER FOR AN ENRICHMENT ERROR (A REGION 2 ASSEMBLY LOADED INTO THE CORE CENTRAL POSITION)

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							-11			-14					
2			0.4			-9.2		-12							
3								-12		-14		-15		-13	
4		3.2	1.2					-11							
5					-1.5				-12		-15		-16		
6	9.8		7.1			-1.6		-8.0						-16	
7				9.2			-2.3			-12			-14		
8	20.0		17.8		10.8		0.8			-10		-14	-15	-16	
9		27.2							-5.5		-11				-15
10					20.7		5.8					-12			
11	42.0		X		23.6			1.9			-8.6				-13
12						14.0			-1.7			-8.9			
13			38.6		20.4			2.8						-7.0	
14			35.9				7.0			-3.3		-6.3			
15					15.3			2.9							

CASE D

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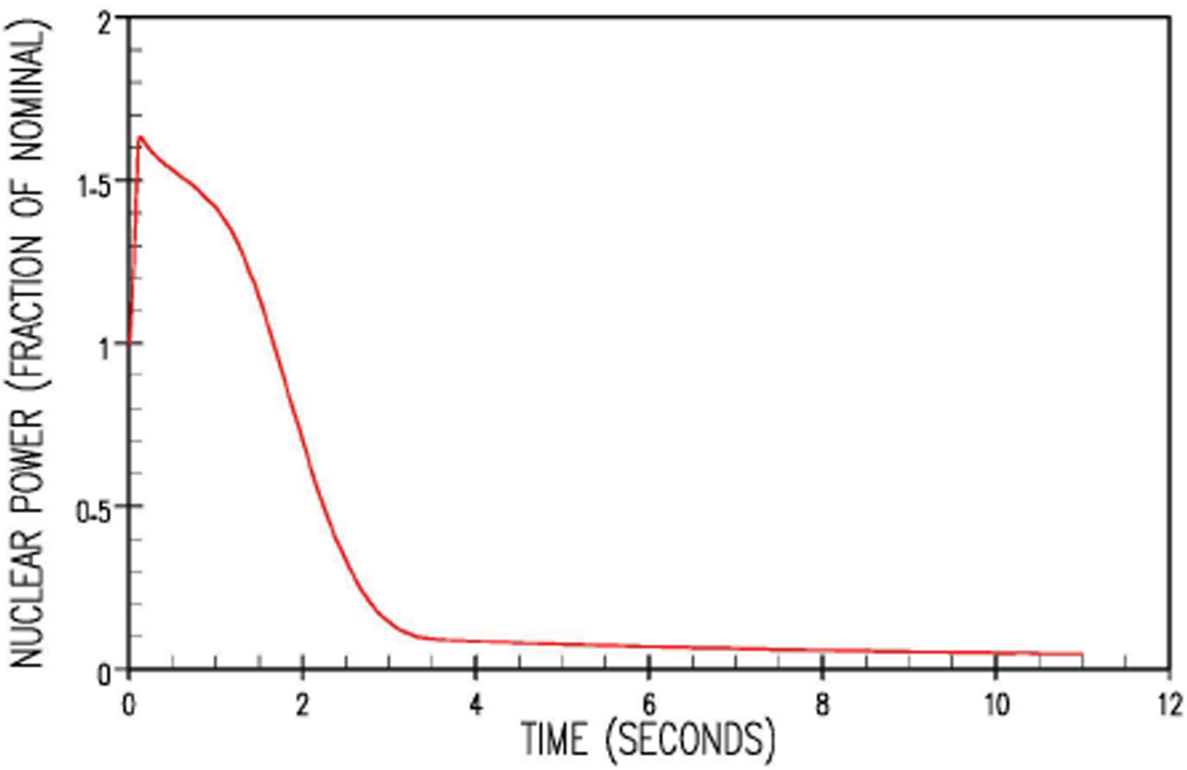
CALLAWAY PLANT

FIGURE 15.4-22
REPRESENTATIVE PERCENT CHANGE IN LOCAL ASSEMBLY AVERAGE POWER FOR LOADING A REGION 2 ASSEMBLY INTO A REGION 1 POSITION NEAR THE CORE PERIPHERY

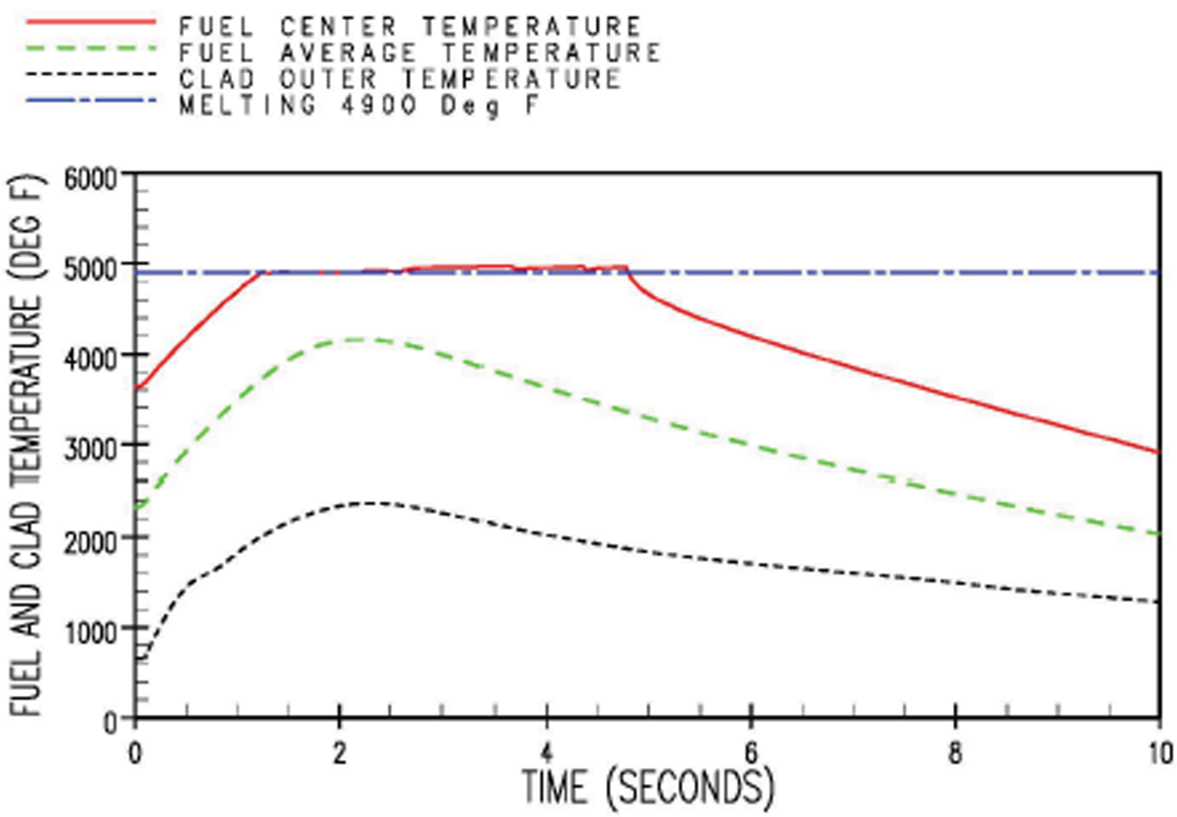


CALLAWAY PLANT

FIGURE 15.4-23

NUCLEAR POWER TRANSIENT, BOL, HFP, ROD EJECTION ACCIDENT

Rev. 12 11/13

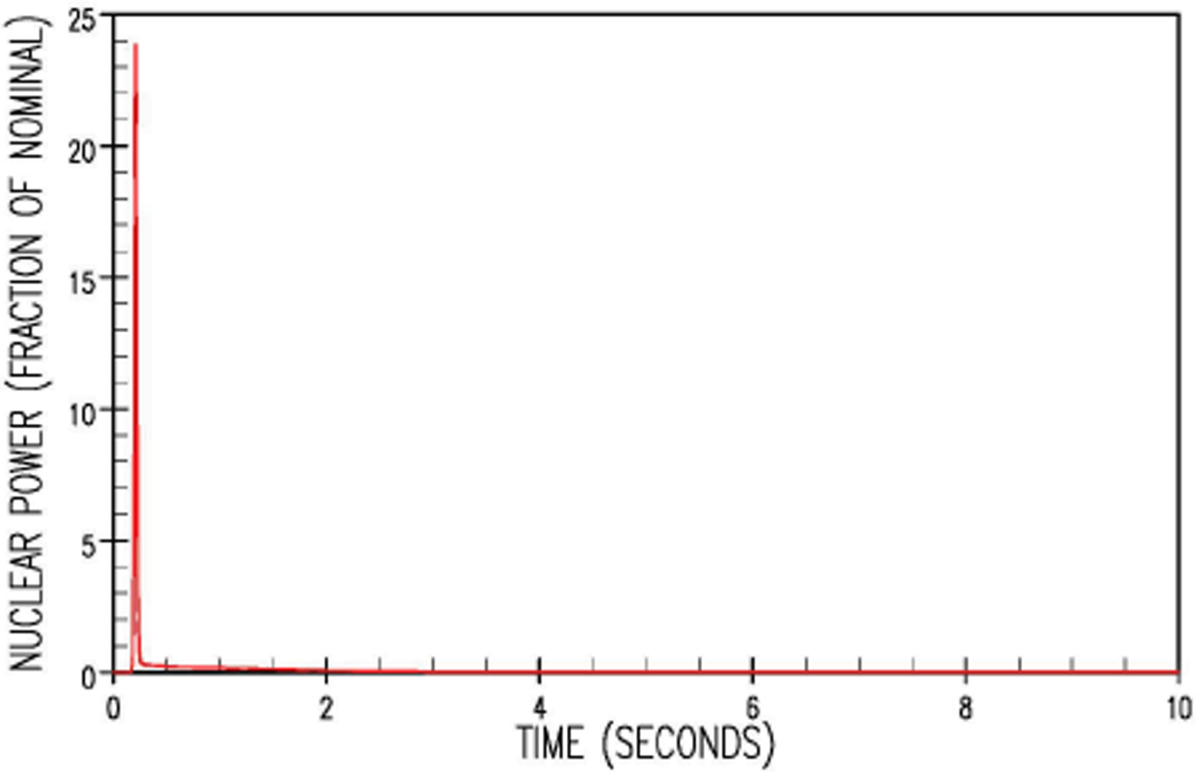


CALLAWAY PLANT

FIGURE 15.4-24

HOT SPOT FUEL AND CLAD TEMPERATURES VERSUS TIME, BOL, HFP, ROD EJECTION ACCIDENT

Rev. 12 11/13

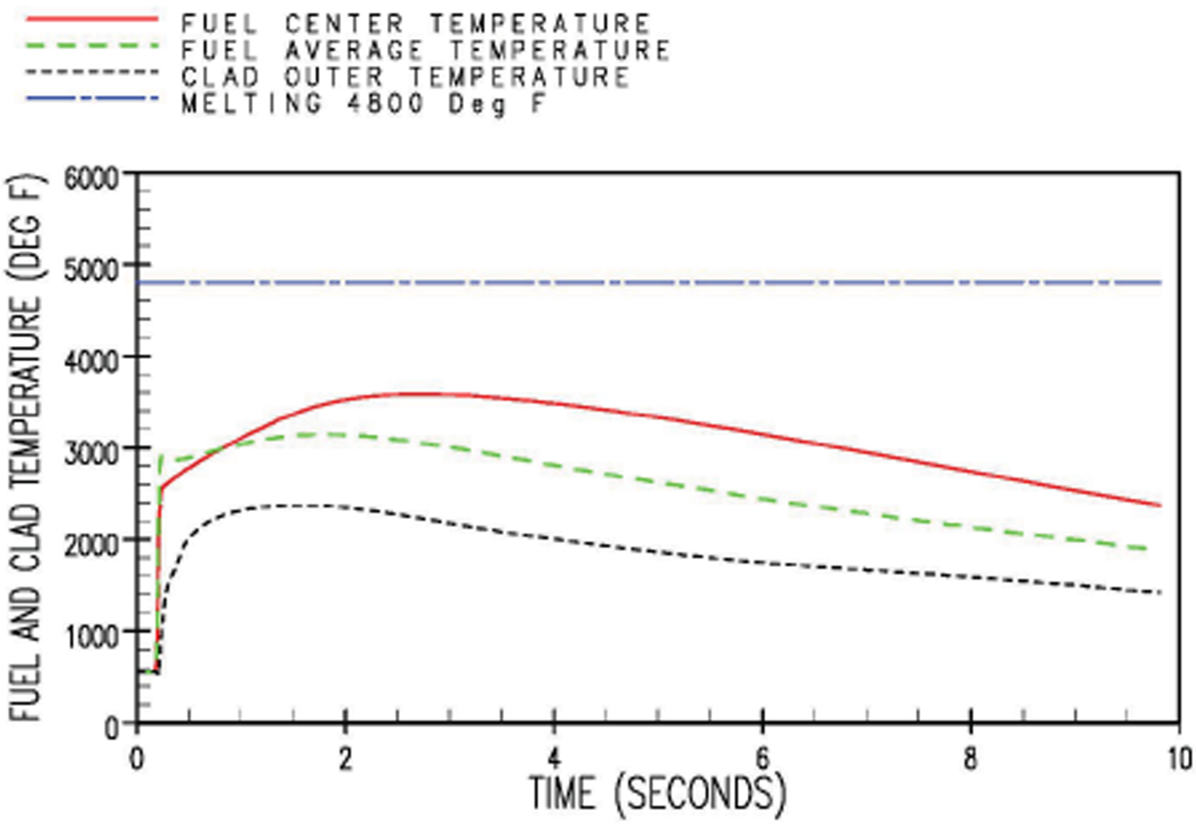


CALLAWAY PLANT

FIGURE 15.4-25

NUCLEAR POWER TRANSIENT, EOL, HZP, ROD EJECTION ACCIDENT

Rev. 12 11/13



CALLAWAY PLANT

FIGURE 15.4-26

HOT SPOT FUEL AND CLAD TEMPERATURES VERSUS TIME, EOL, HZP, ROD EJECTION ACCIDENT

Rev. 12 11/13

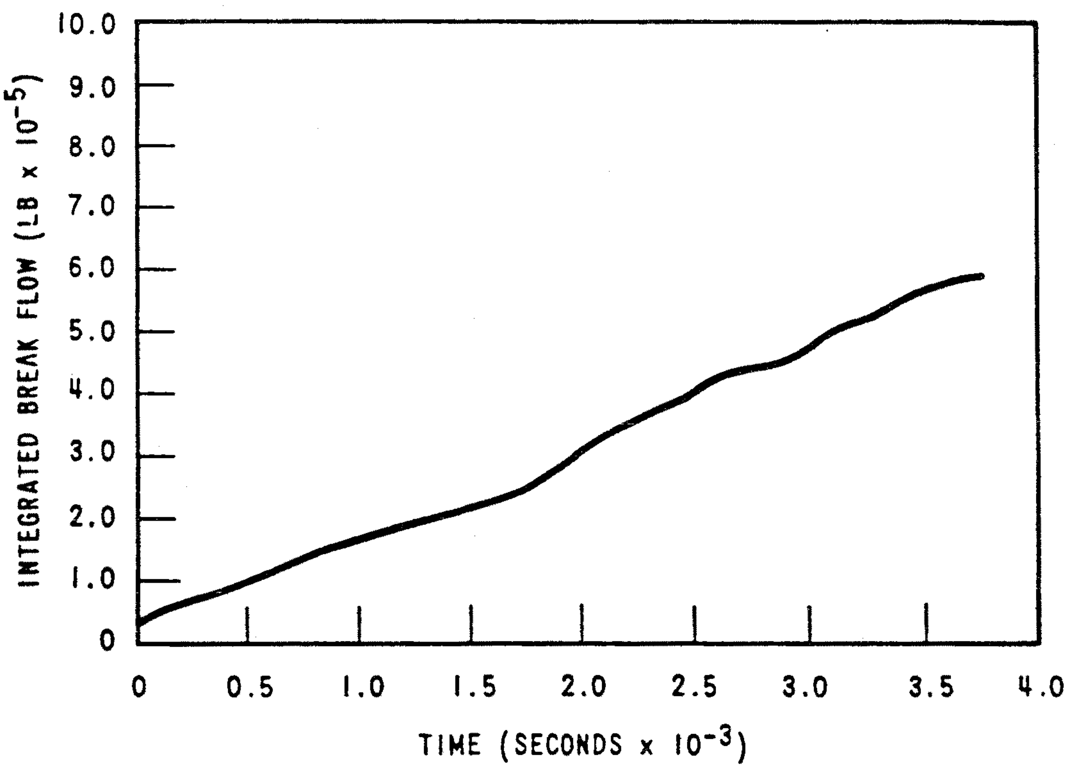


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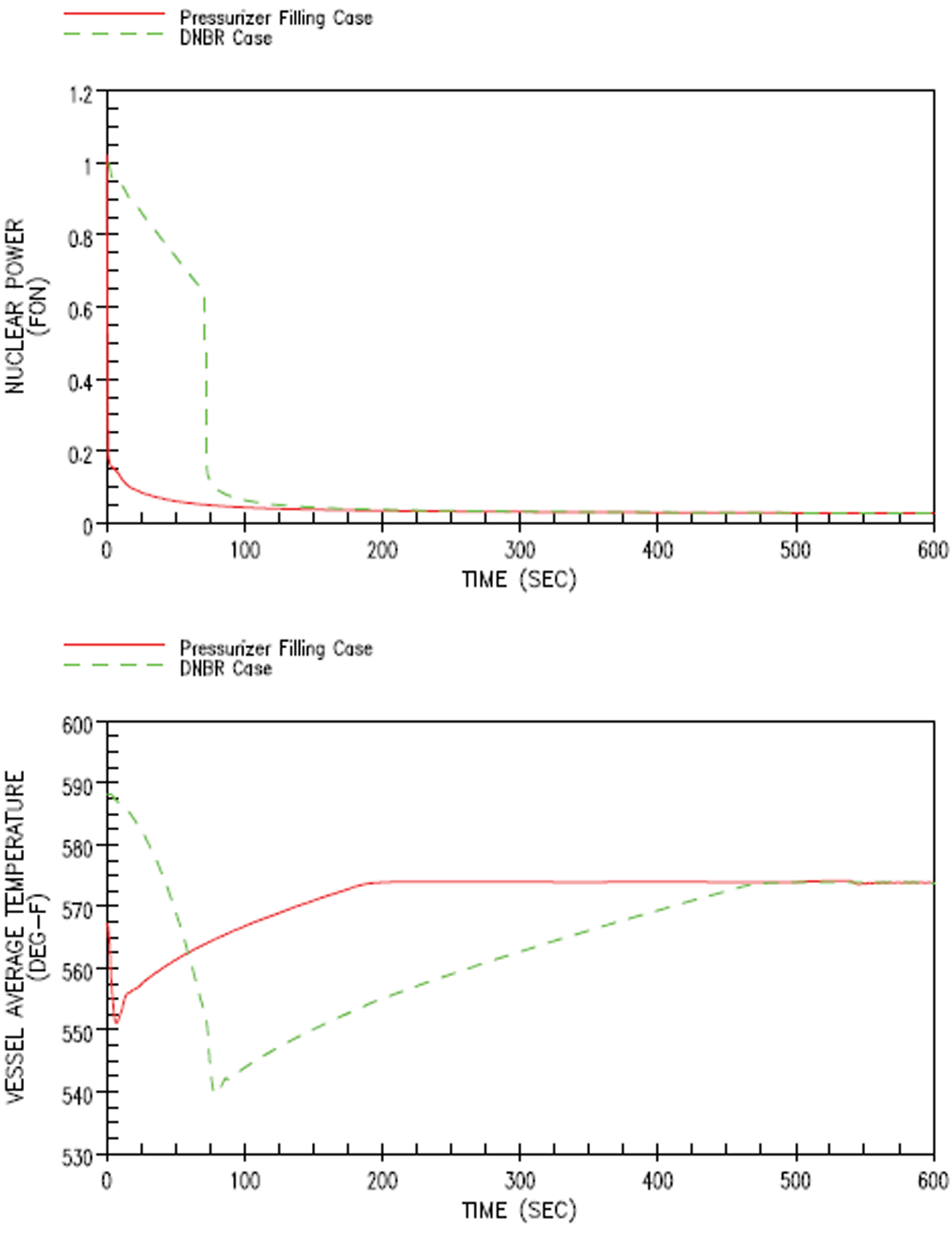
FIGURE 15.4-27

REACTOR COOLANT SYSTEM INTEGRATED BREAK FLOW ROD EJECTION ACCIDENT

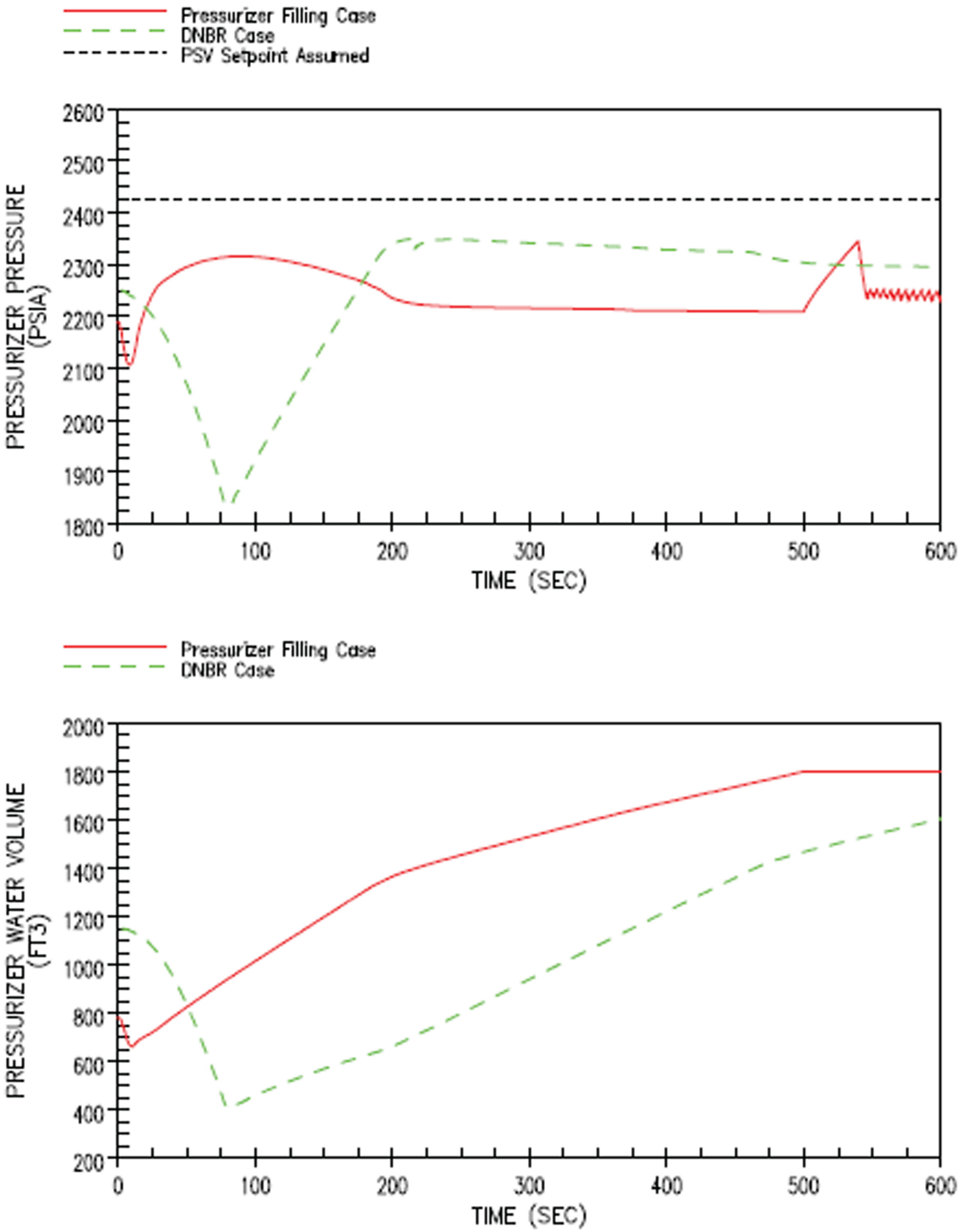


CALLAWAY PLANT

FIGURE 15.5-1

INADVERTENT OPERATION OF ECCS
DURING POWER OPERATION

Rev. 16 11/13

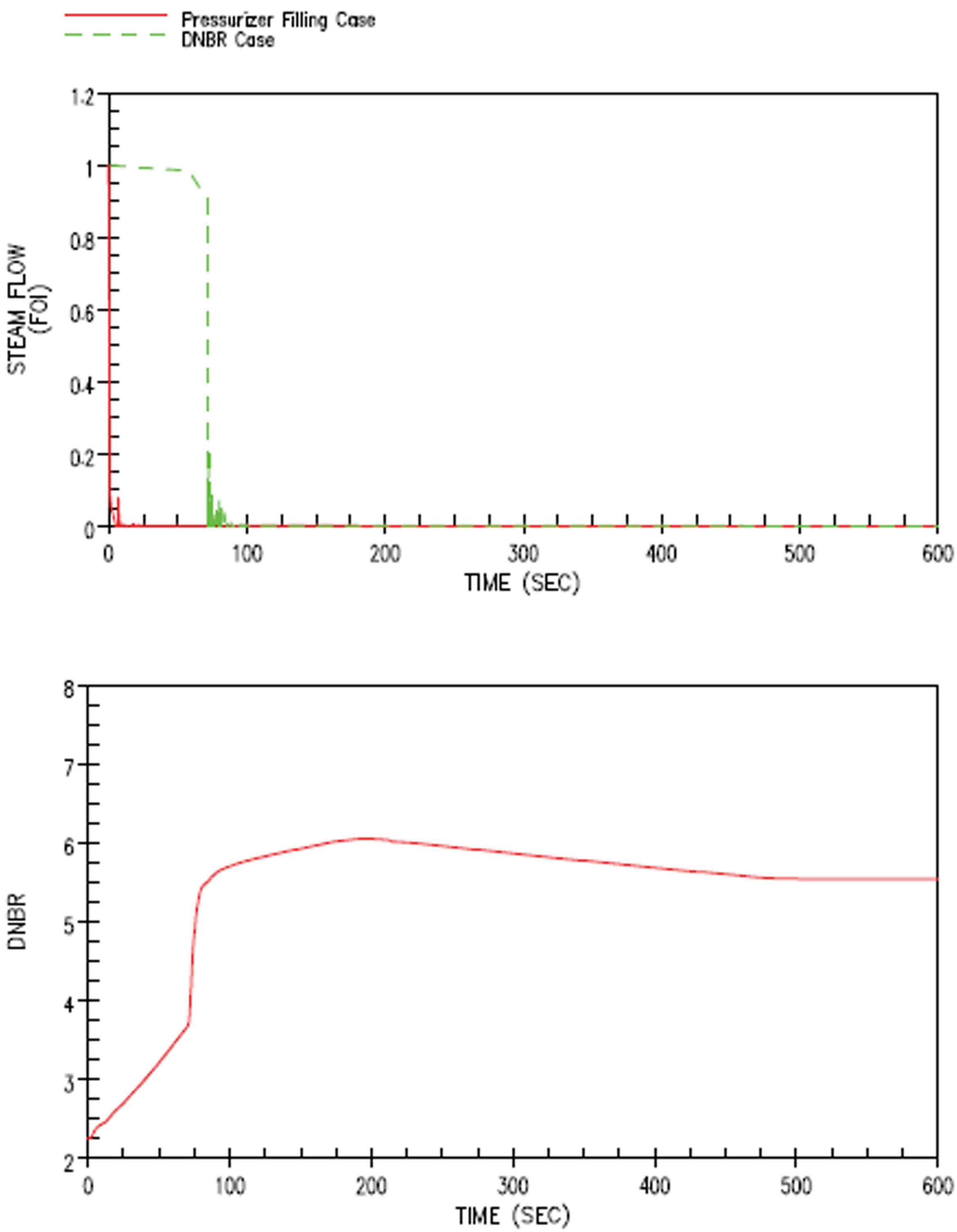


CALLAWAY PLANT

FIGURE 15.5-2

INADVERTENT OPERATION OF ECCS
DURING POWER OPERATION

Rev. 16 11/13

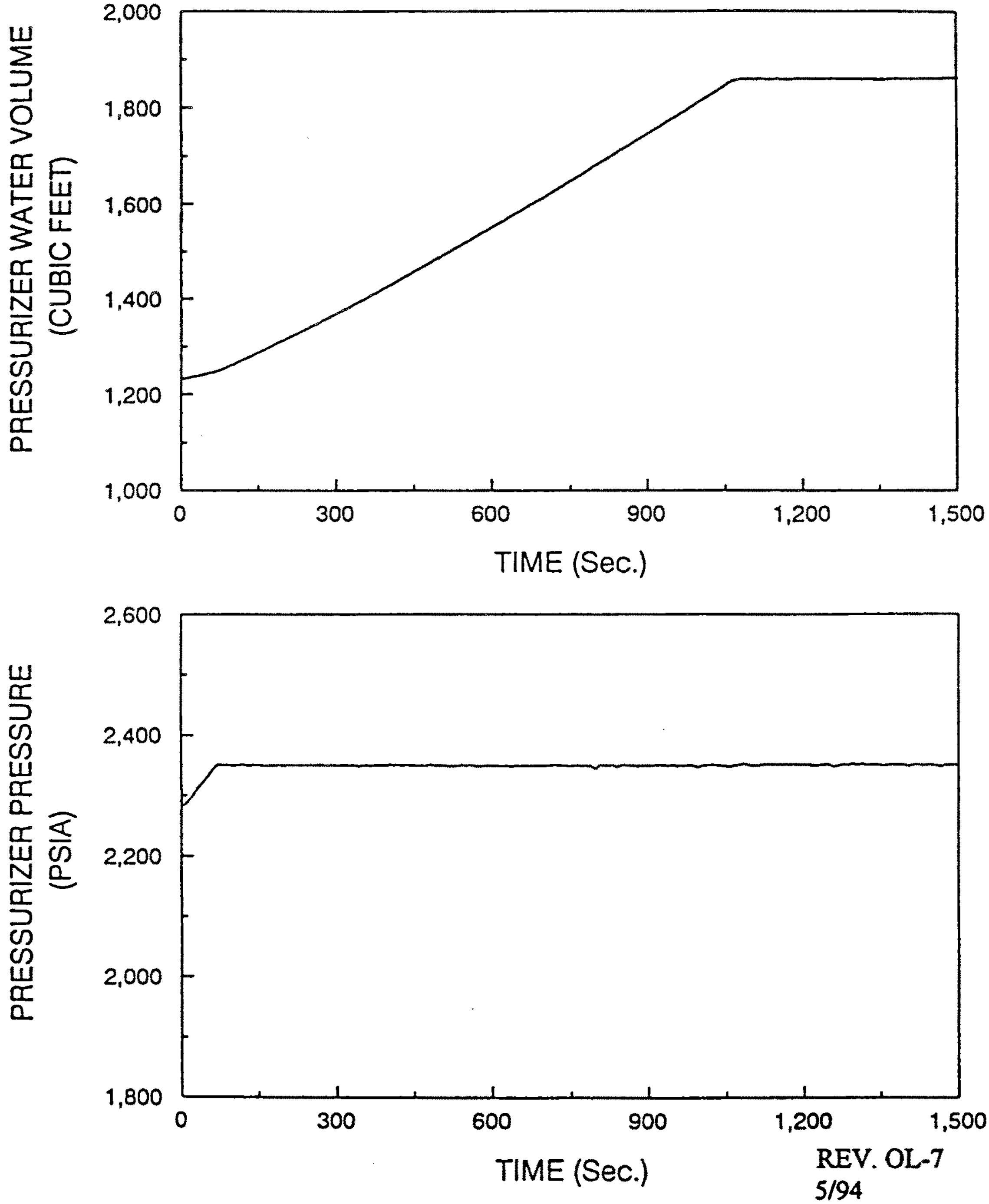


CALLAWAY PLANT

FIGURE 15.5-3

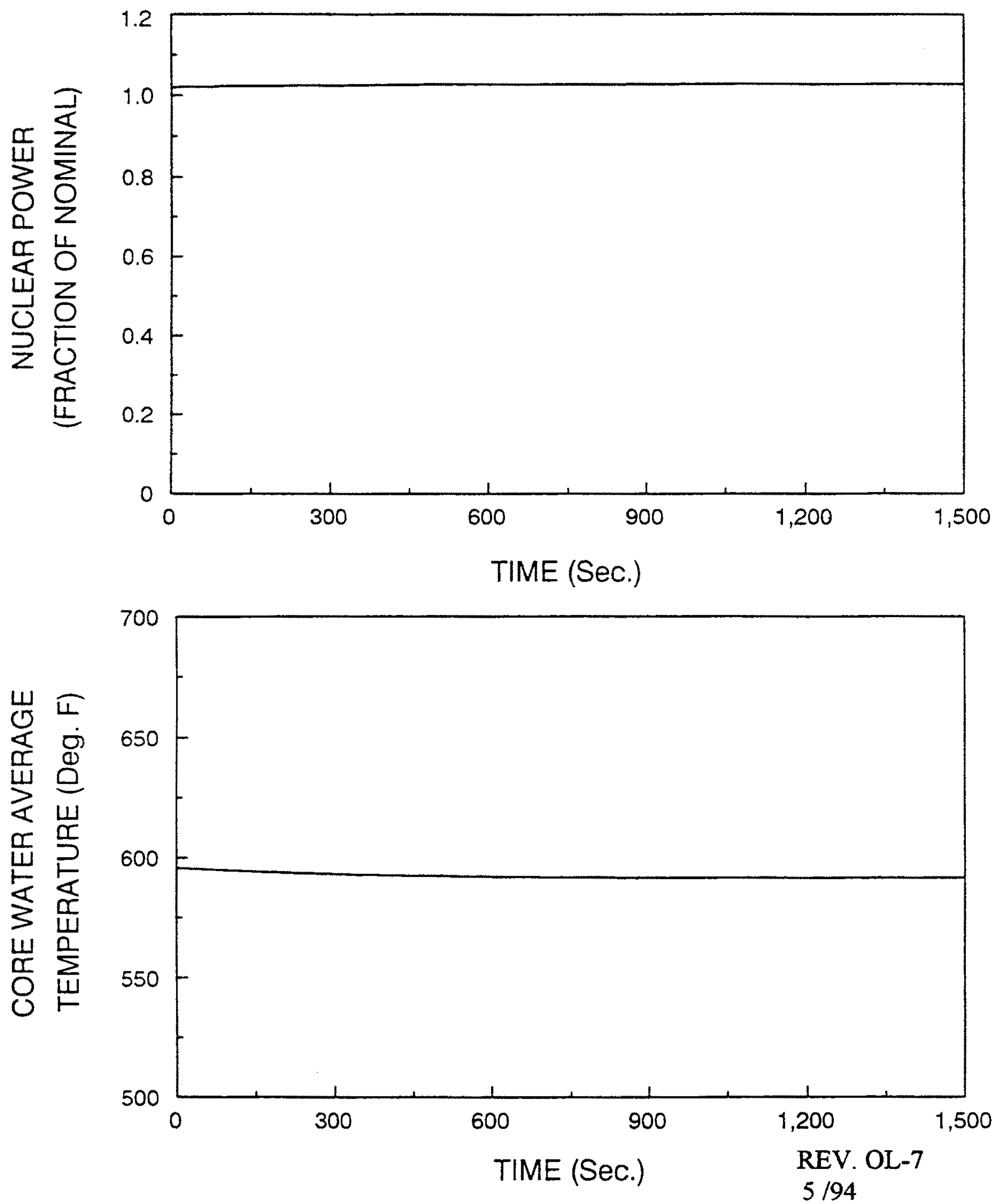
INADVERTENT OPERATION OF ECCS
DURING POWER OPERATION

Rev 16 11/13



REV. OL-7
5/94

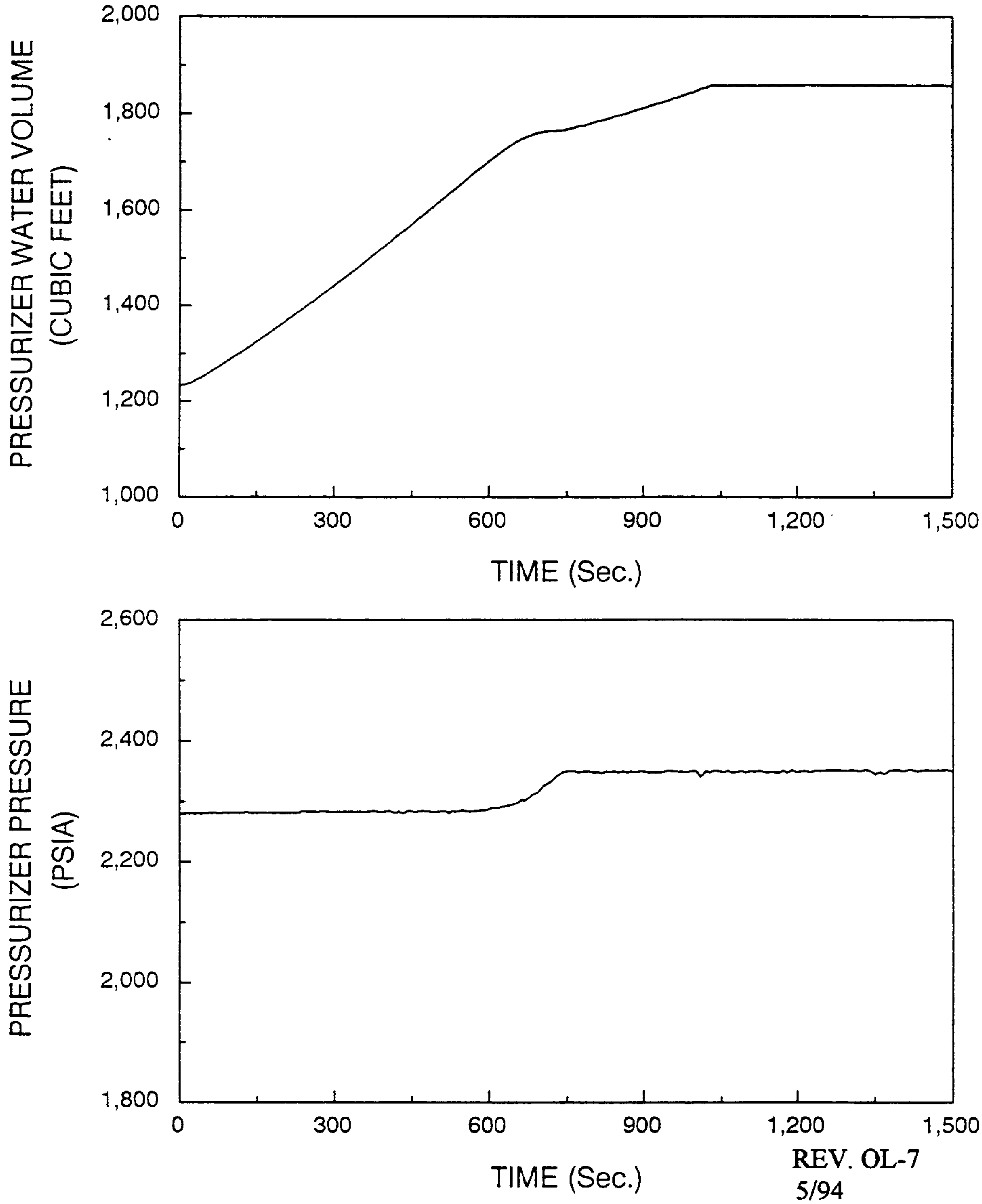
CALLAWAY PLANT
FIGURE 15.5-4 CHEMICAL AND VOLUME CONTROL SYSTEM MALFUNCTION MINIMUM REACTIVITY FEEDBACK, WITHOUT PRESSURIZER SPRAY



REV. OL-7
5 /94

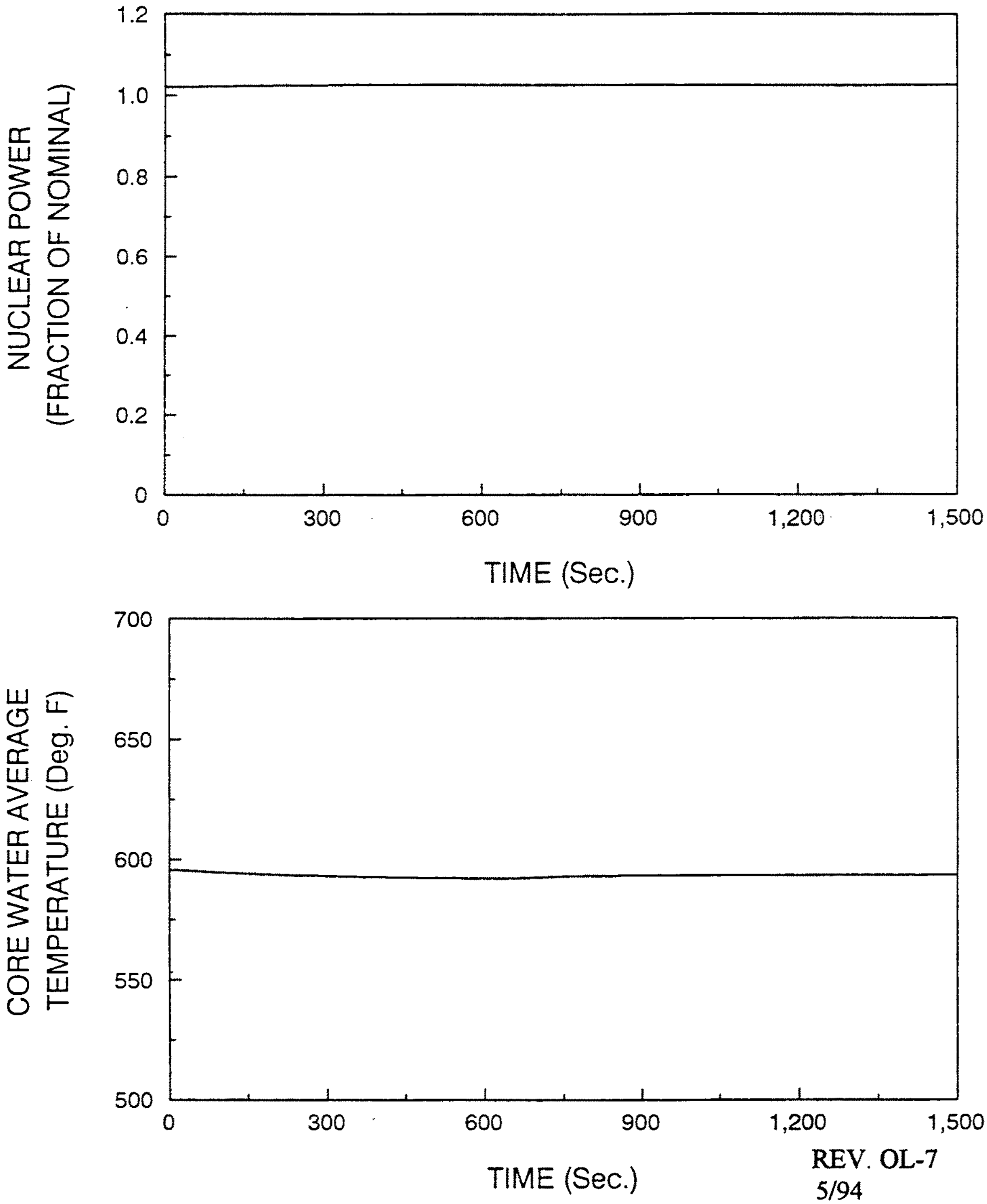
CALLAWAY PLANT

FIGURE 15.5-5
CHEMICAL AND VOLUME CONTROL SYSTEM MALFUNCTION MINIMUM REACTIVITY FEEDBACK, WITHOUT PRESSURIZER SPRAY



REV. OL-7
5/94

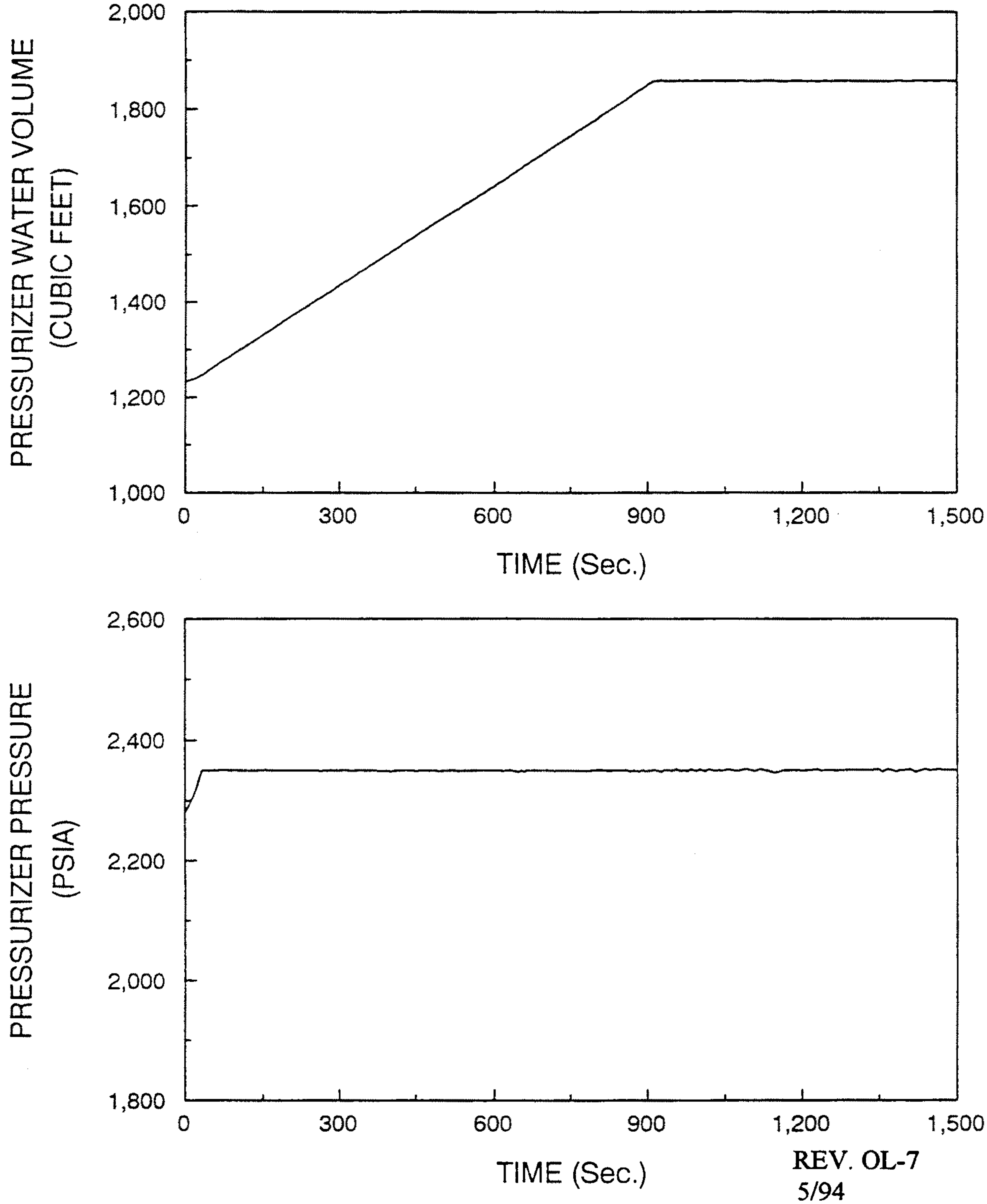
CALLAWAY PLANT
FIGURE 15.5-6 CHEMICAL AND VOLUME CONTROL SYSTEM MALFUNCTION MINIMUM REACTIVITY FEEDBACK, WITH PRESSURIZER SPRAY



REV. OL-7
5/94

CALLAWAY PLANT

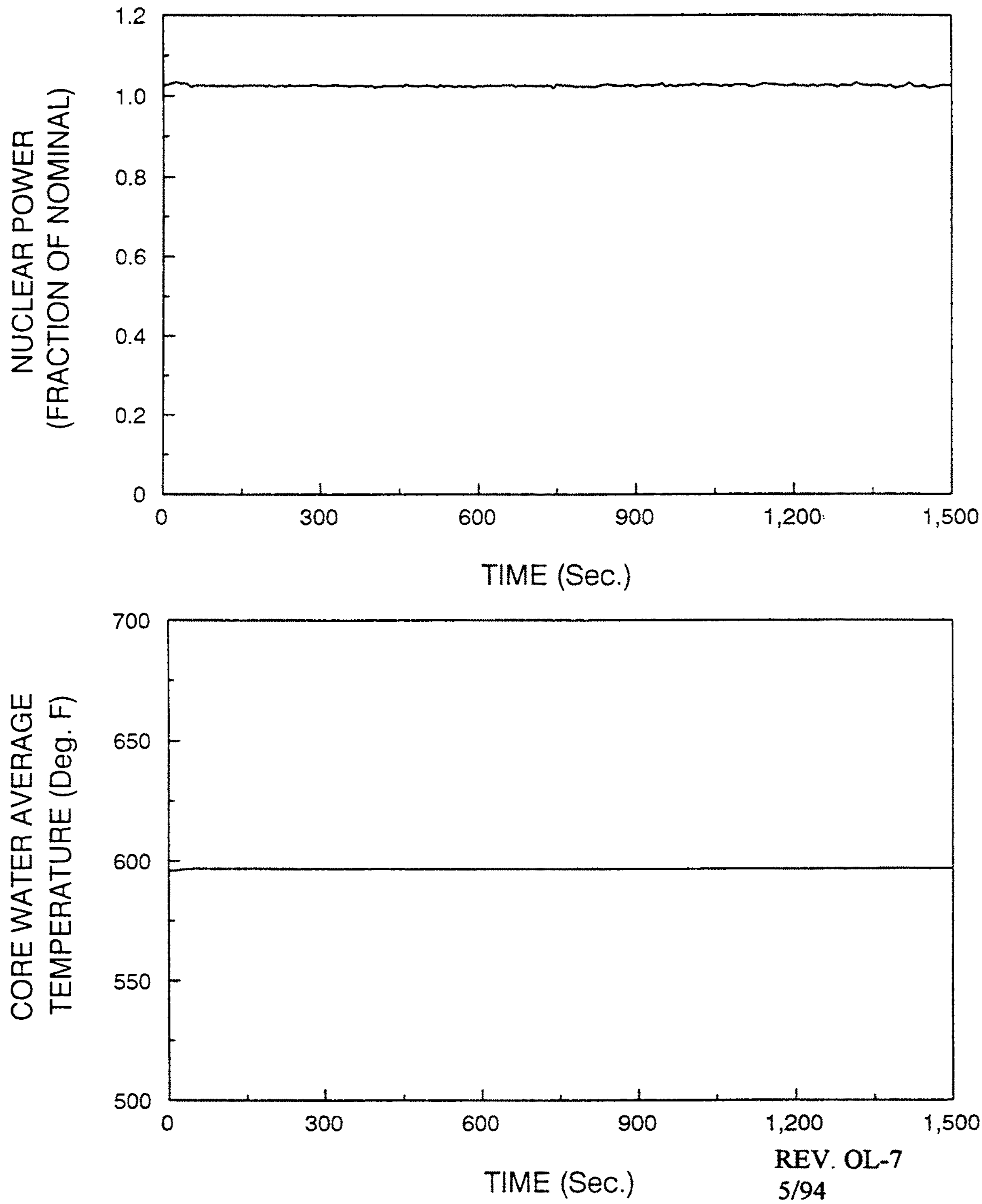
FIGURE 15.5-7
CHEMICAL AND VOLUME CONTROL
SYSTEM MALFUNCTION MINIMUM
REACTIVITY FEEDBACK, WITH
PRESSURIZER SPRAY



REV. OL-7
5/94

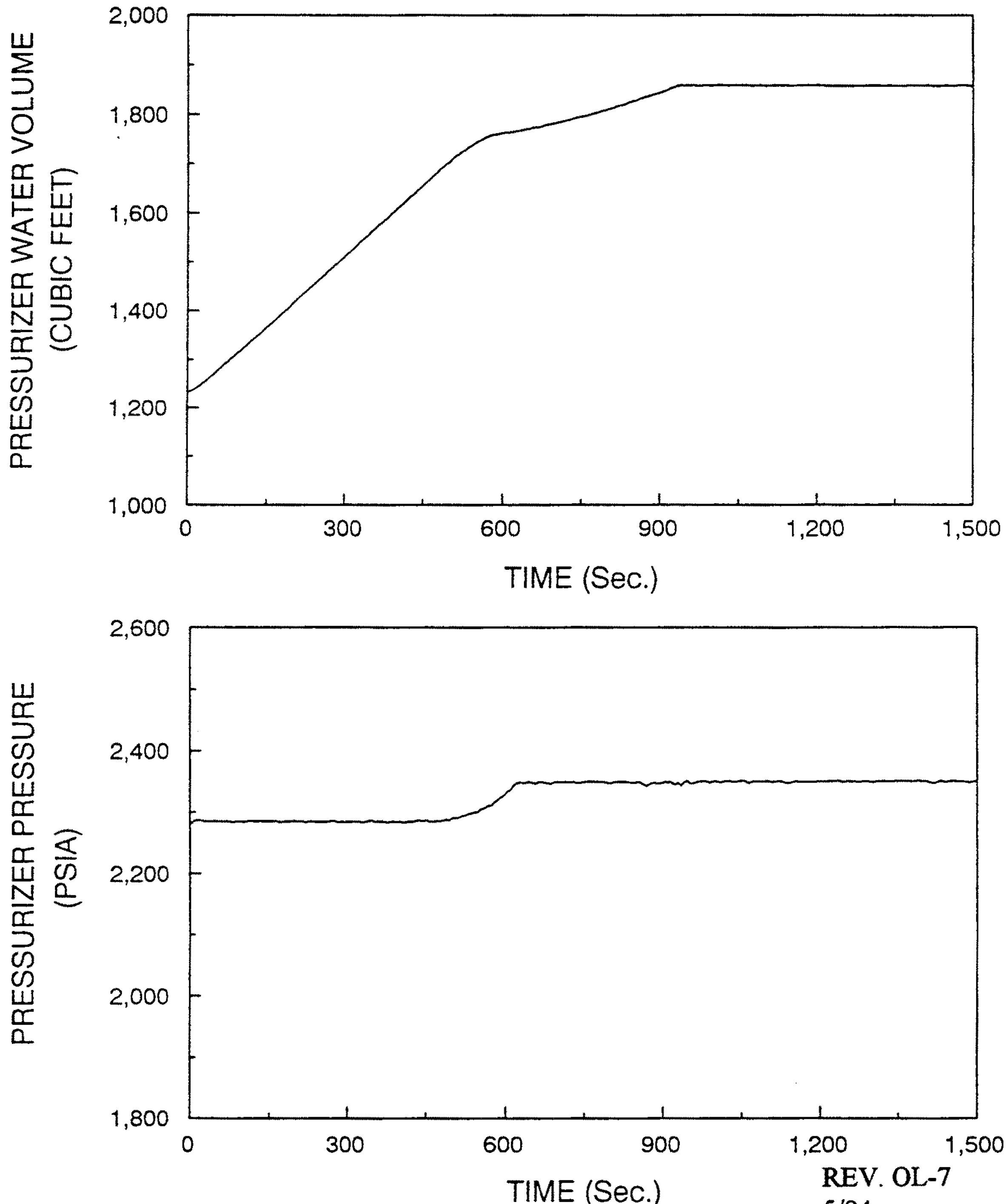
CALLAWAY PLANT

FIGURE 15.5-8
CHEMICAL AND VOLUME CONTROL SYSTEM MALFUNCTION MAXIMUM REACTIVITY FEEDBACK, WITHOUT PRESSURIZER SPRAY



REV. OL-7
5/94

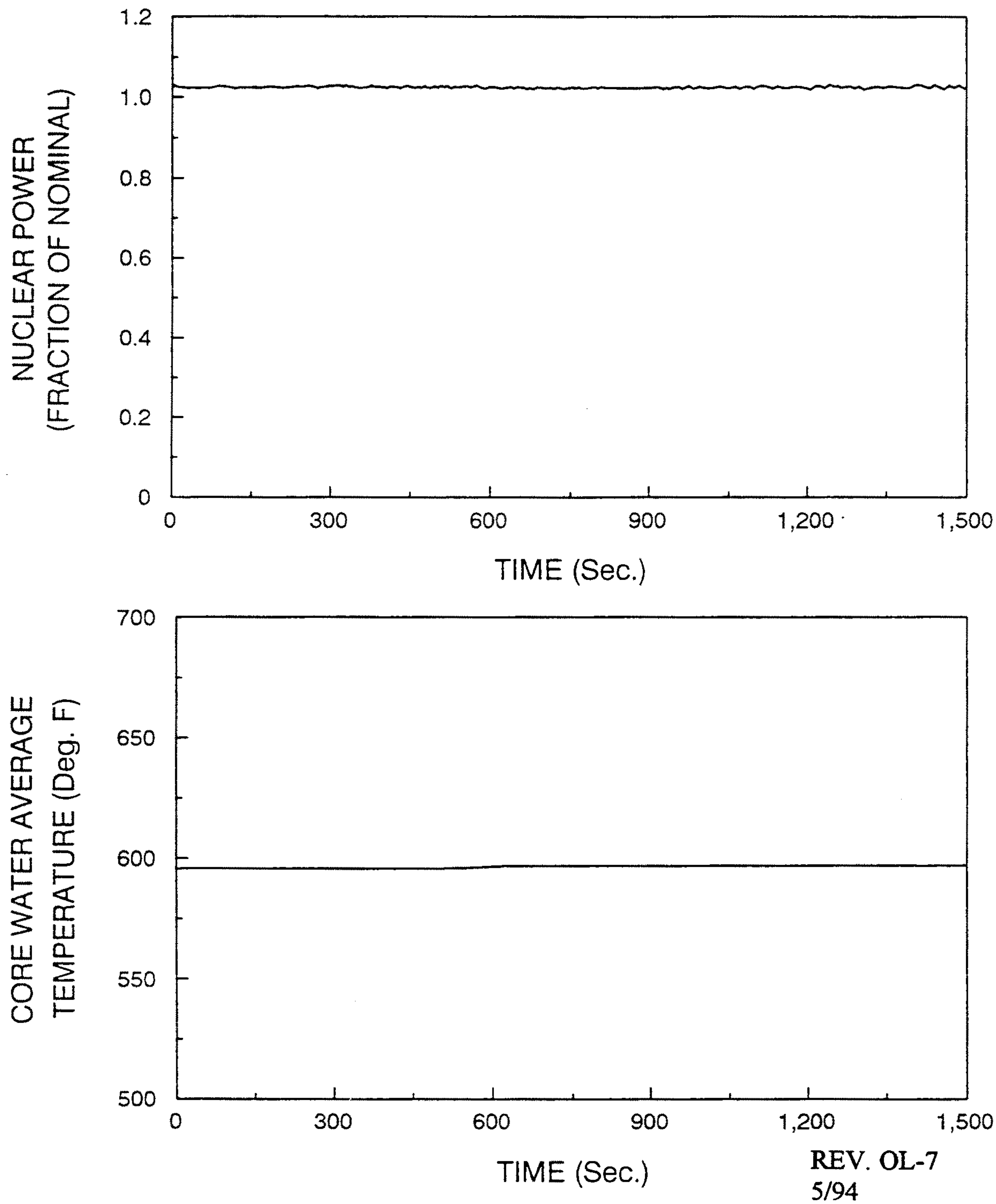
CALLAWAY PLANT
FIGURE 15.5-9 CHEMICAL AND VOLUME CONTROL SYSTEM MALFUNCTION MAXIMUM REACTIVITY FEEDBACK, WITHOUT PRESSURIZER SPRAY



REV. OL-7
5/94

CALLAWAY PLANT

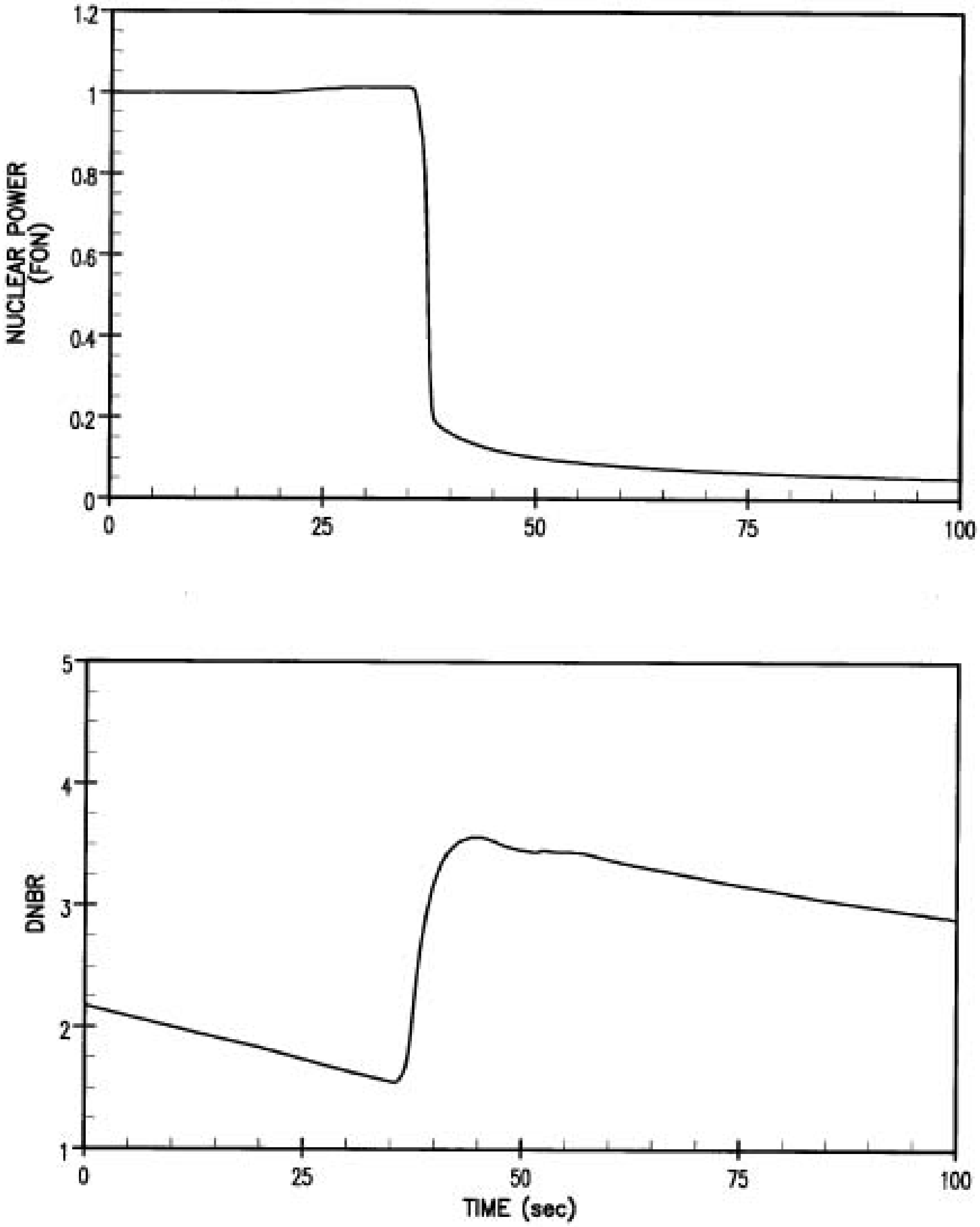
FIGURE 15.5-10
CHEMICAL AND VOLUME CONTROL
SYSTEM MALFUNCTION MAXIMUM
REACTIVITY FEEDBACK, WITH
PRESSURIZER SPRAY



REV. OL-7
5/94

CALLAWAY PLANT

FIGURE15.5-11
CHEMICAL AND VOLUME CONTROL
SYSTEM MALFUNCTION MAXIMUM
REACTIVITY FEEDBACK, WITH
PRESSURIZER SPRAY

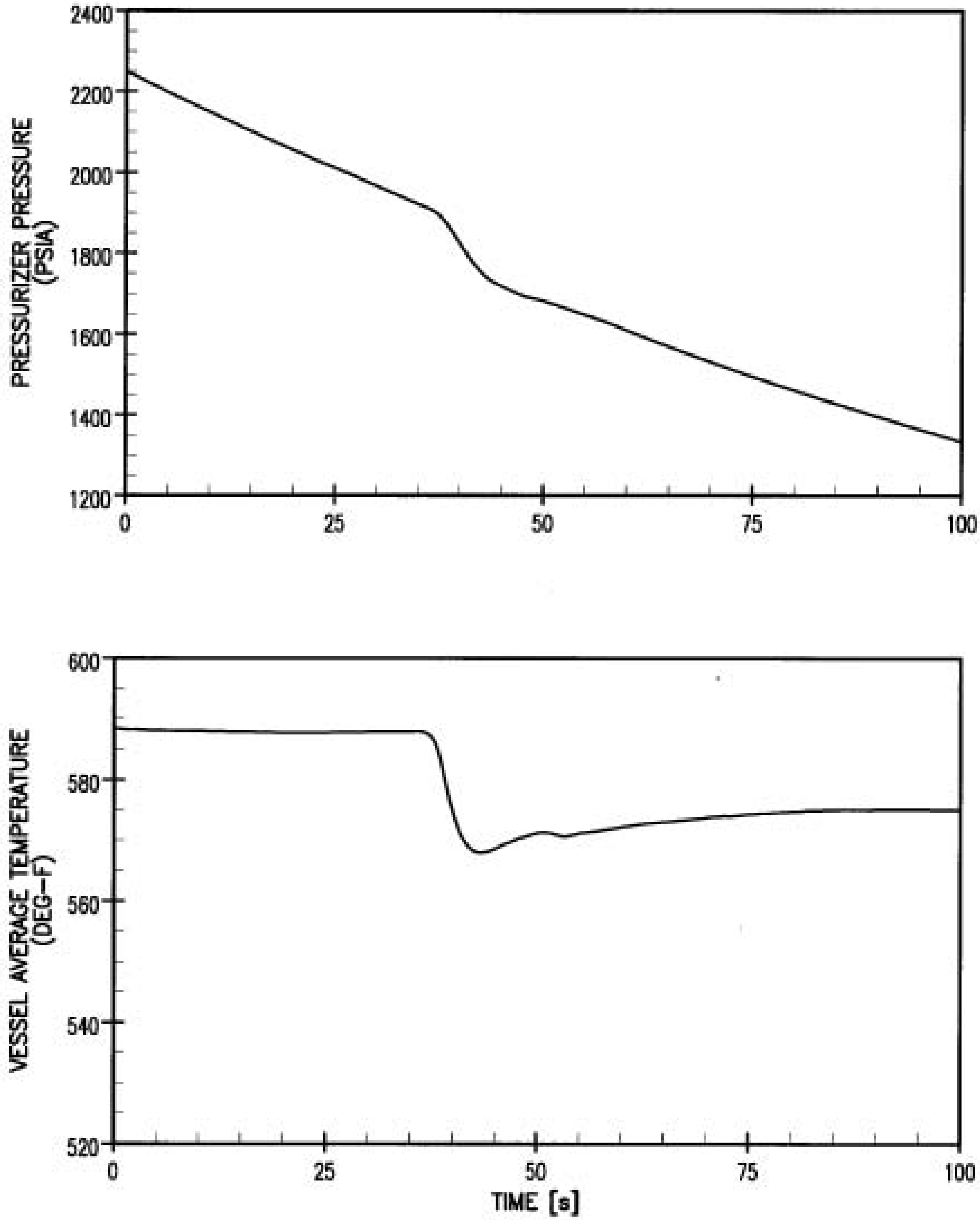


CALLAWAY PLANT

FIGURE 15.6-1

NUCLEAR POWER AND DNBR TRANSIENTS FOR INADVERTENT OPENING OF A PRESSURIZER SAFETY VALVE

REV. 16 1/10

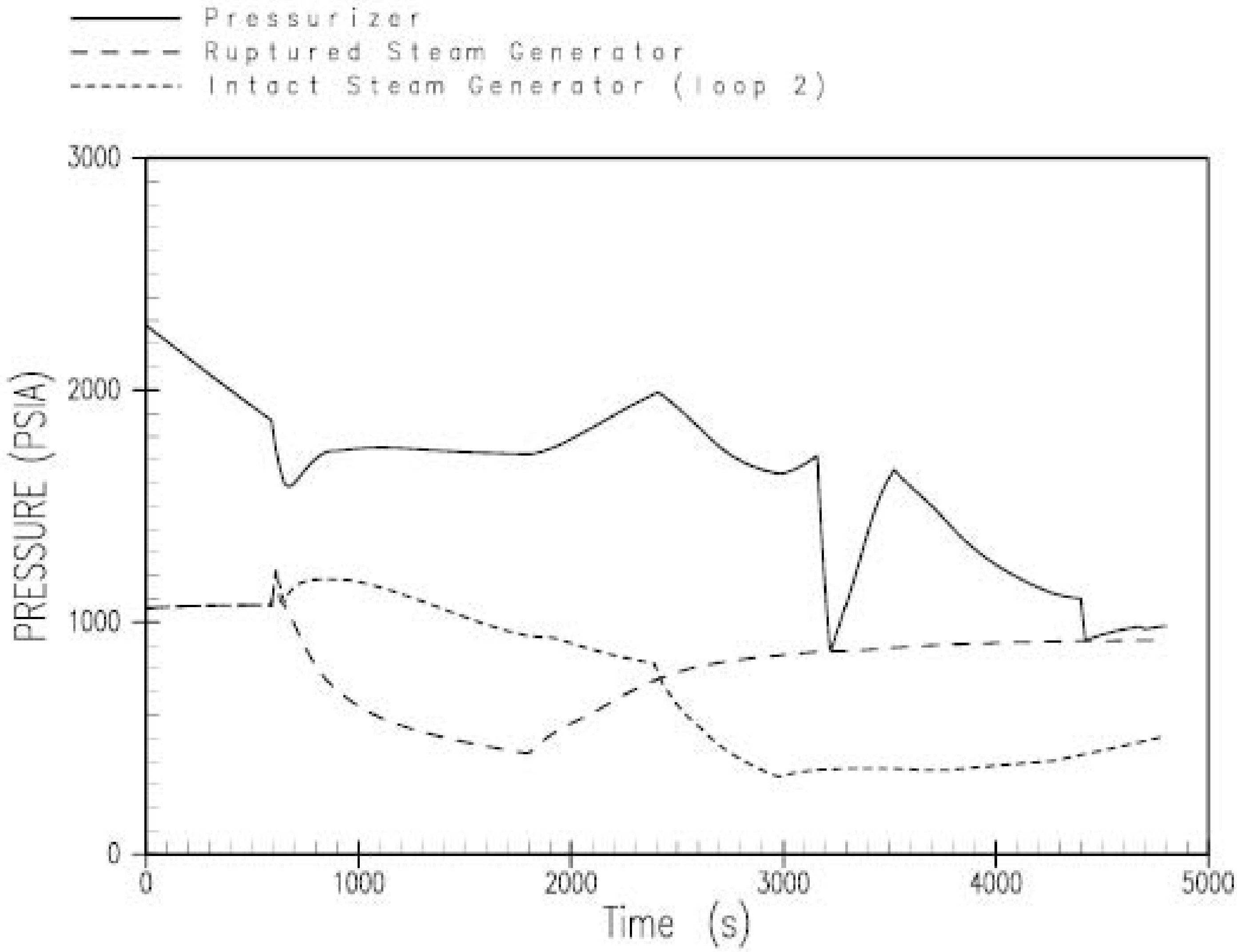


CALLAWAY PLANT

FIGURE 15.6-2

PRESSURIZER PRESSURE AND VESSEL AVERAGE TEMPERATURE TRANSIENTS FOR INADVERTENT OPENING OF A PRESSURIZER SAFETY VALVE

REV. 16 1/10



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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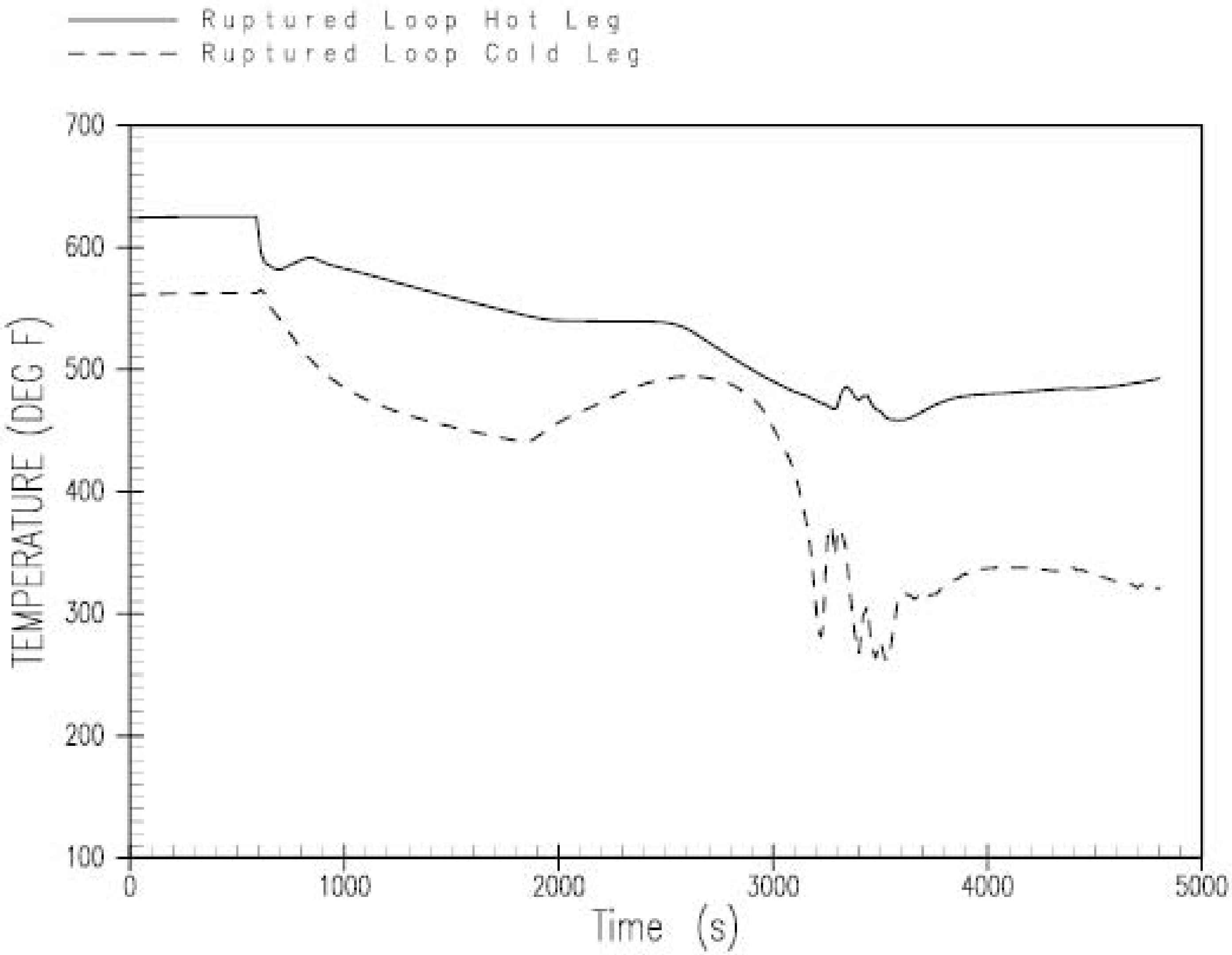
FIGURE 15.6-3A

PRESSURIZER AND STEAM GENERATOR (RUPTURED AND INTACT GENERATORS) PRESSURE TRANSIENTS FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 6/11

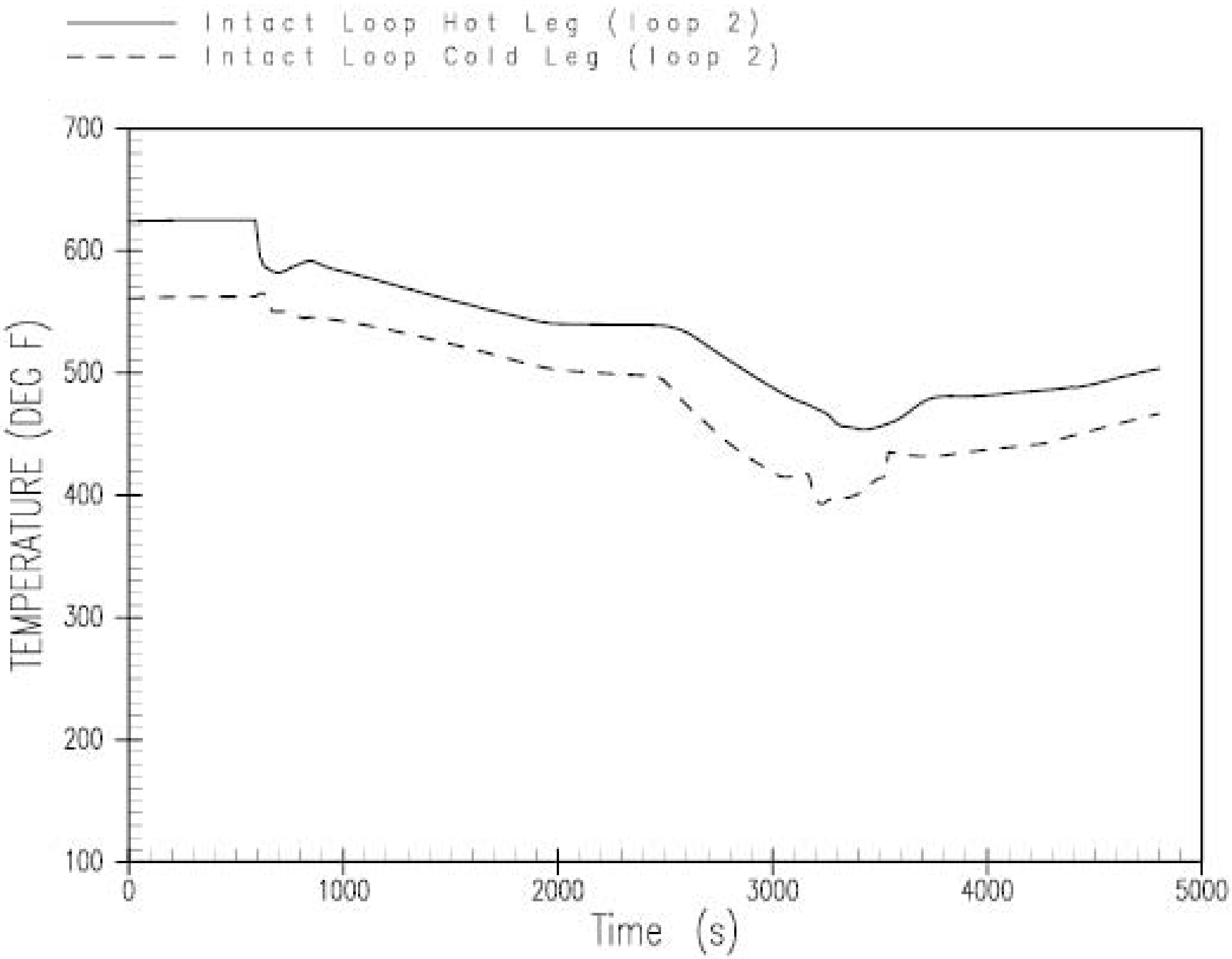


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-3B **REACTOR COOLANT SYSTEM TEMPERATURE (RUPTURED LOOP) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT** **REV. 16 6/11**



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

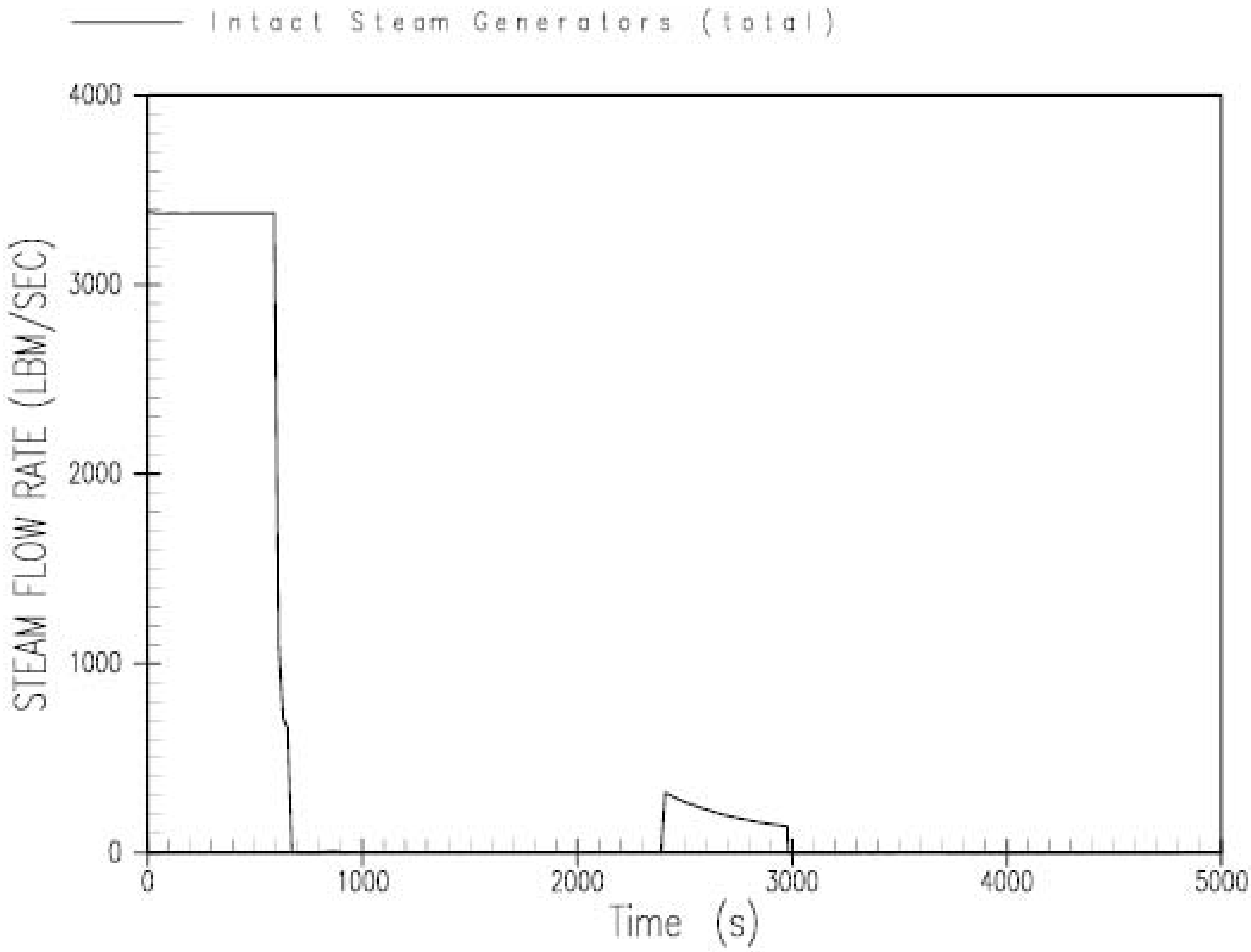
Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT

FIGURE 15.6-3C

REACTOR COOLANT SYSTEM TEMPERATURE (INTACT LOOPS) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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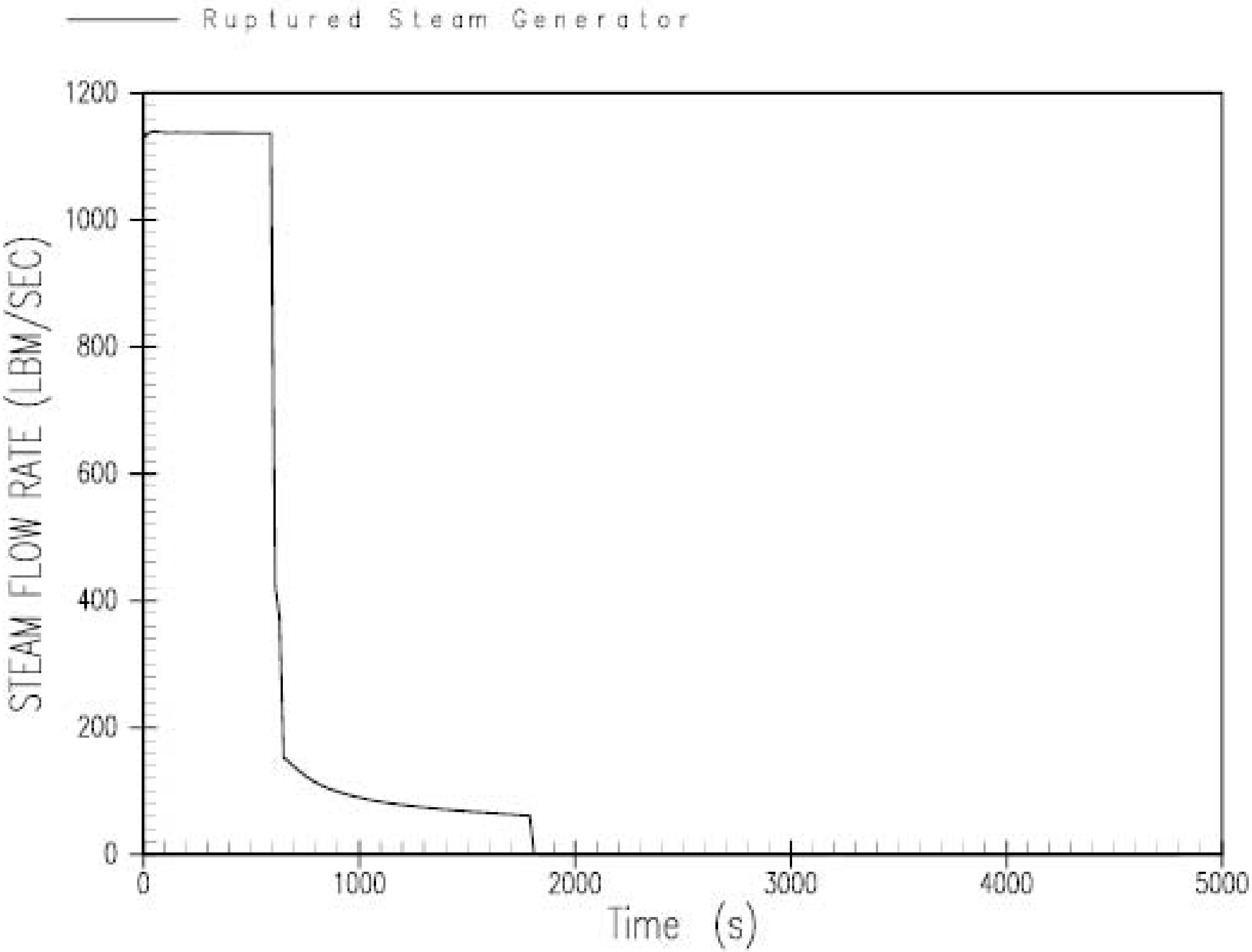
FIGURE 15.6-3D

STEAM FLOW RATE (INTACT GENERATORS) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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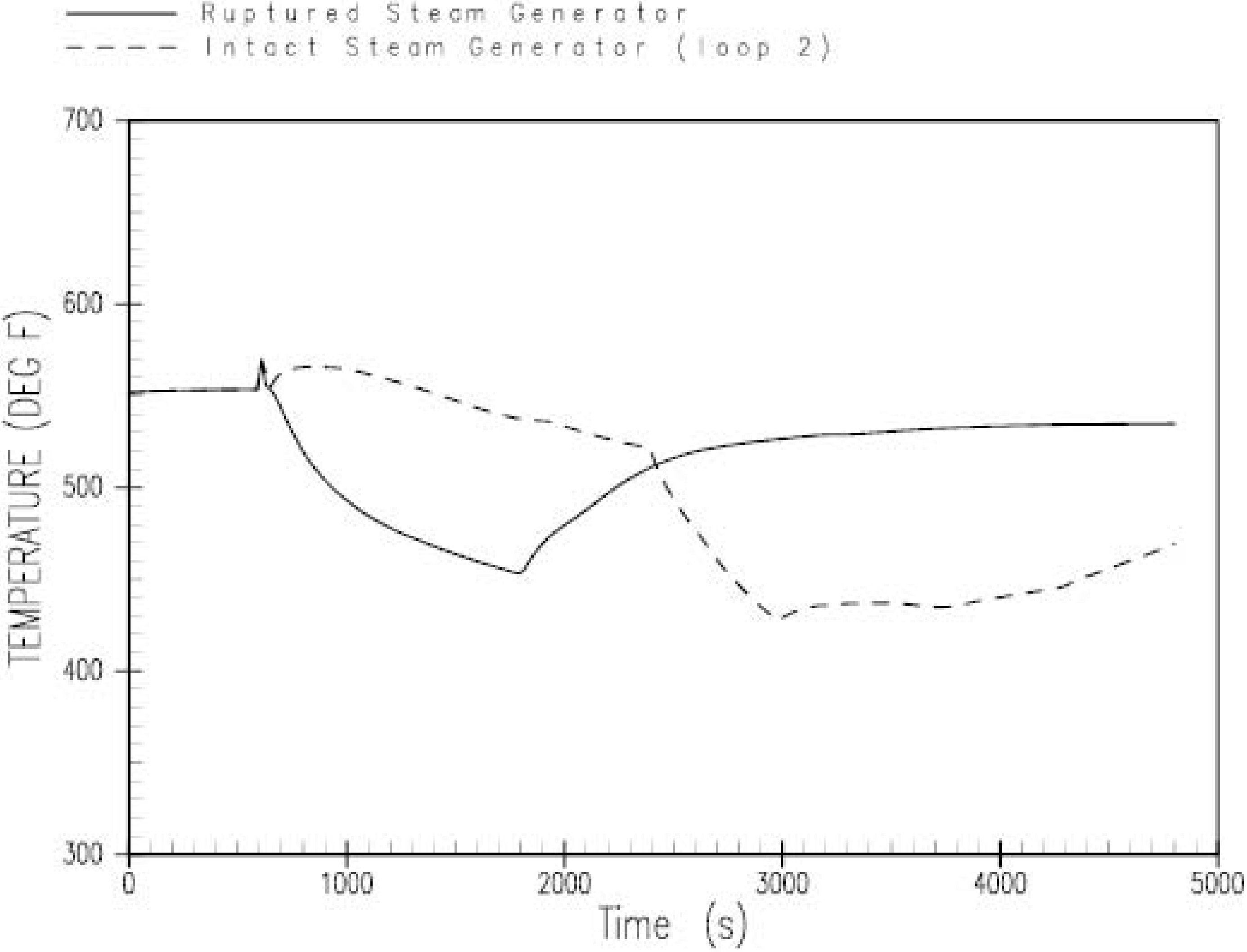
FIGURE 15.6-3E

STEAM FLOW RATE (RUPTURED GENERATOR) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 18 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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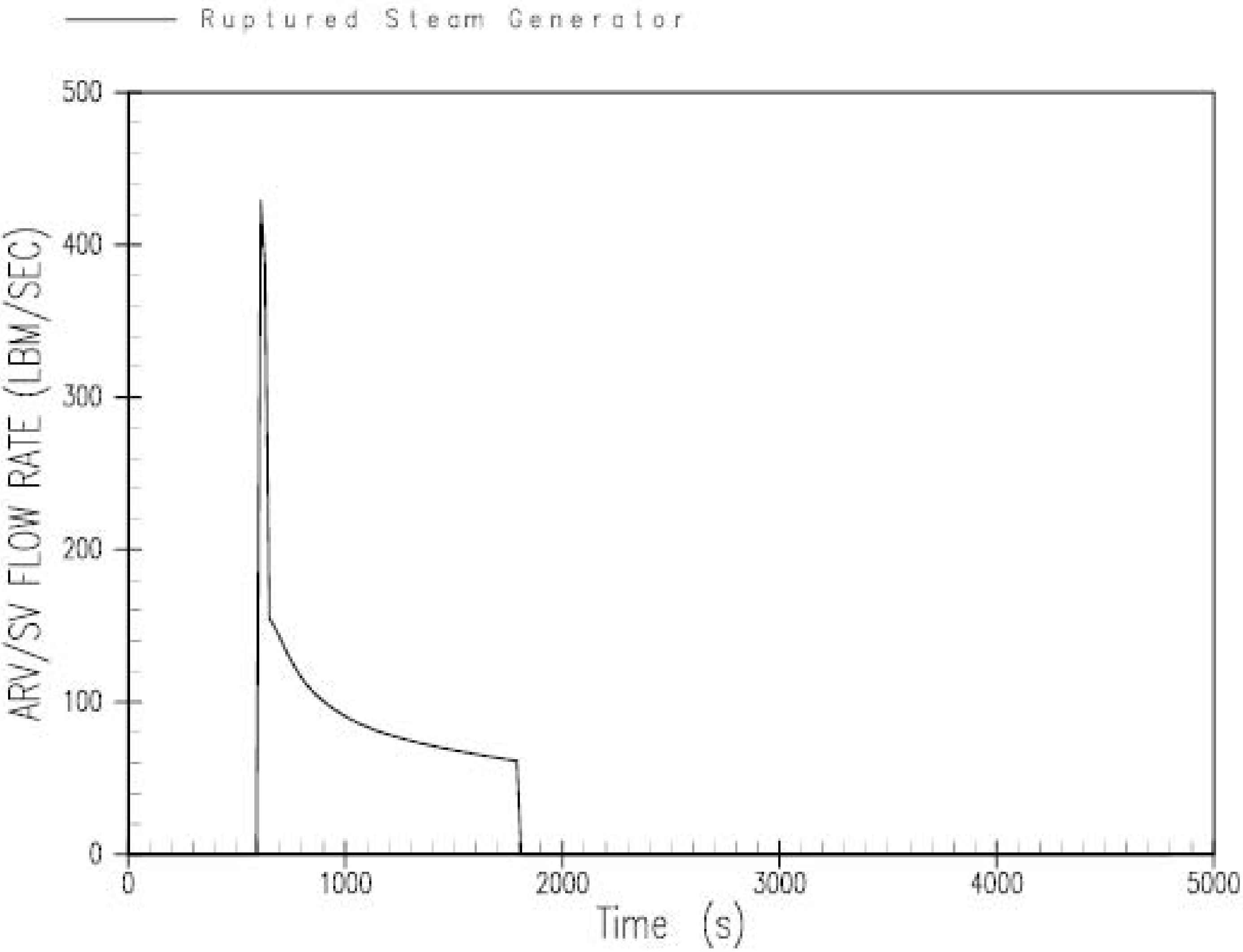
FIGURE 15.6-3F

STEAM GENERATOR TEMPERATURE (RUPTURED AND INTACT GENERATORS) TRANSIENTS FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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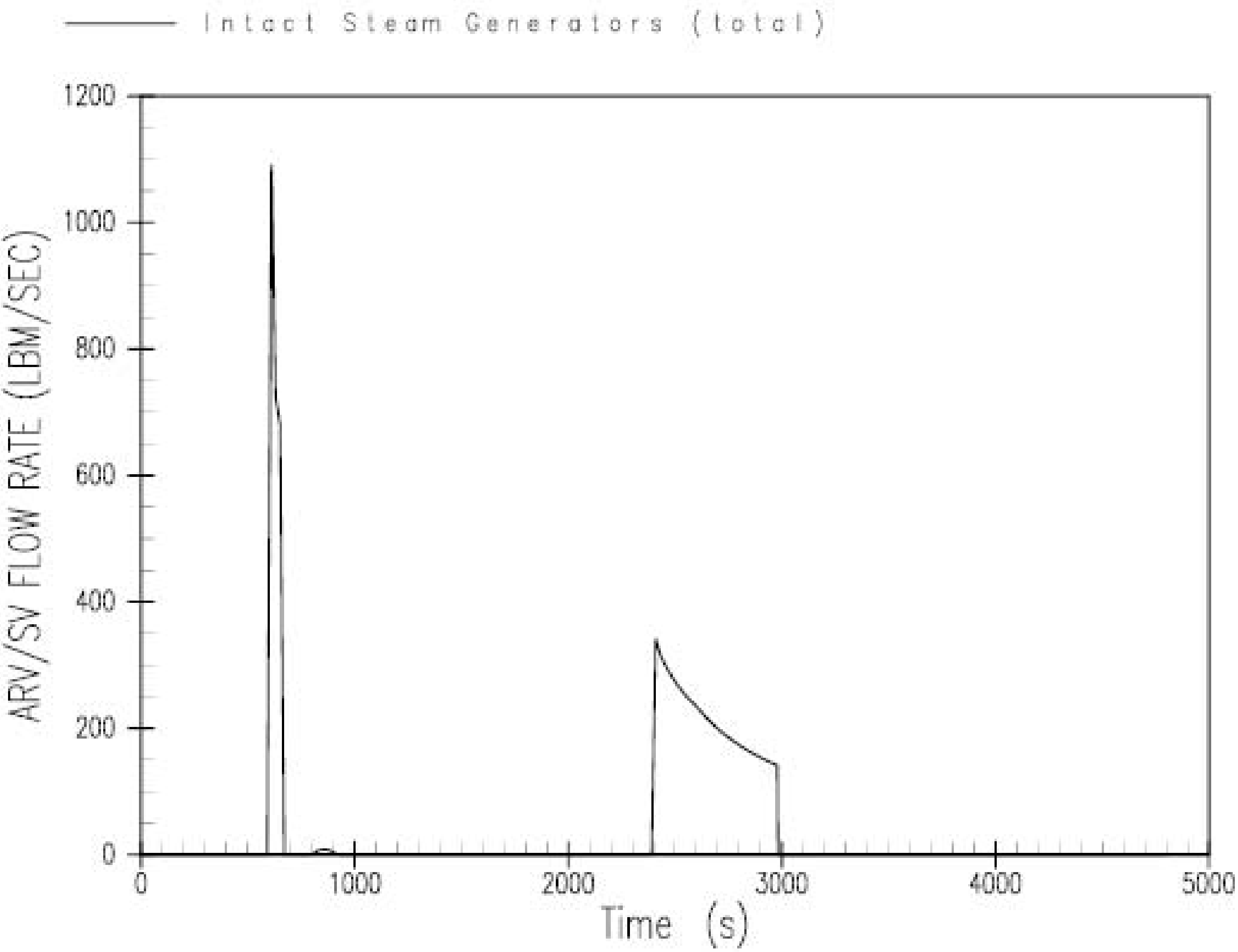
FIGURE 15.6-36

STEAM GENERATOR ATMOSPHERIC RELIEF VALVE FLOW RATE (RUPTURED GENERATOR) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 5/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

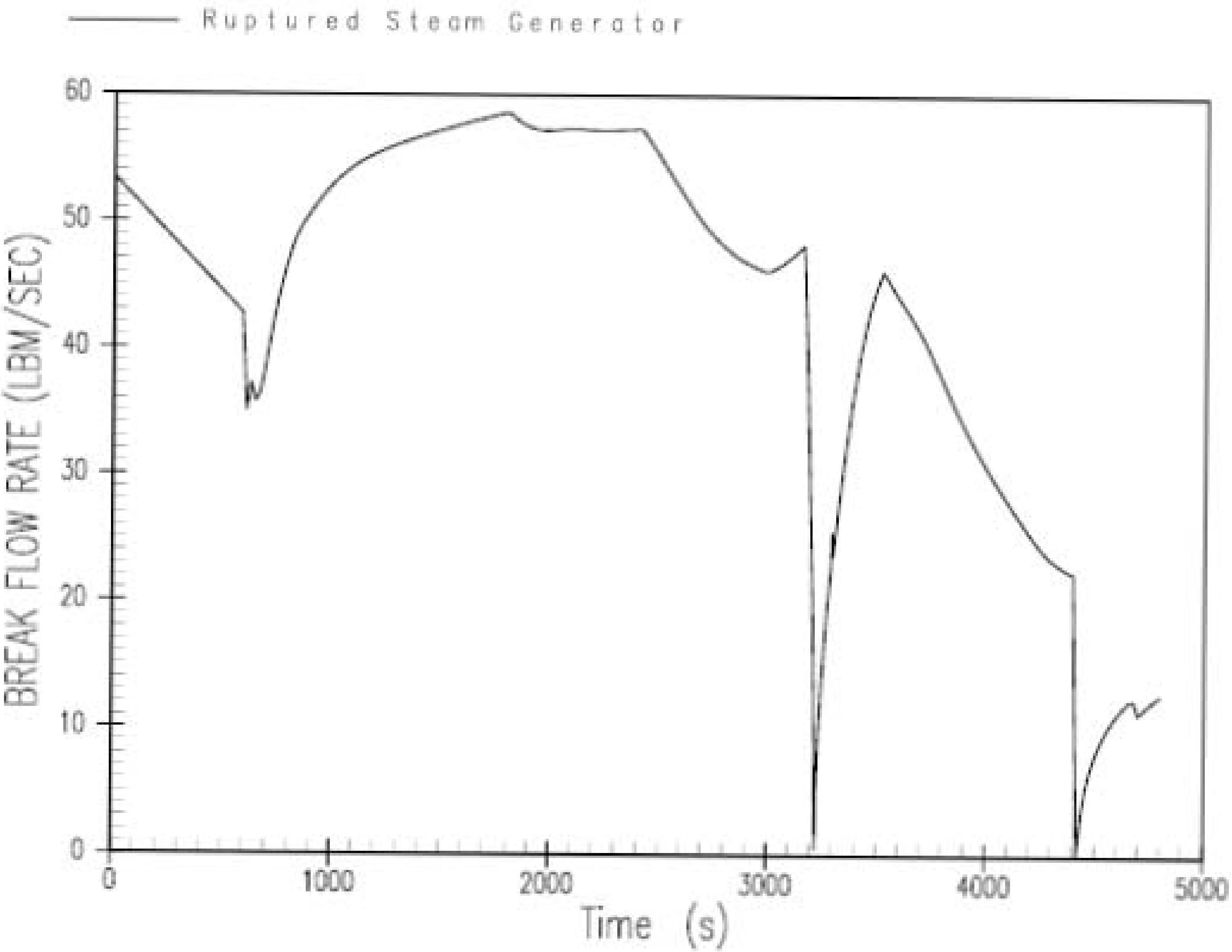
Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT

FIGURE 15.6-3H

STEAM GENERATOR ATOSPHERIC RELIEF VALVE FLOW RATE (INTACT GENERATOR) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 18 5/11

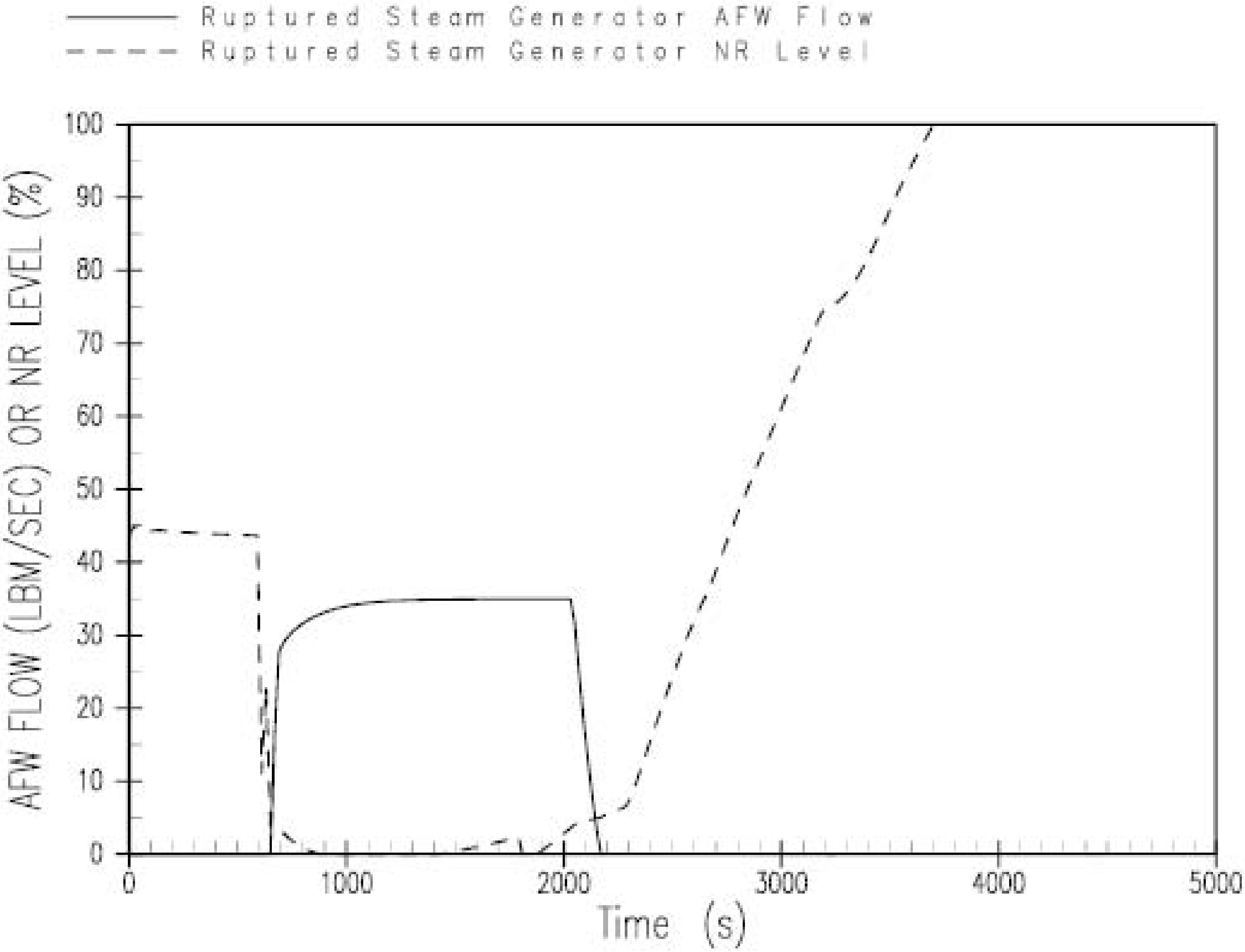


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-3I **RUPTURED STEAM GENERATOR BREAK FLOW TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT** **REV. 18 5/11**



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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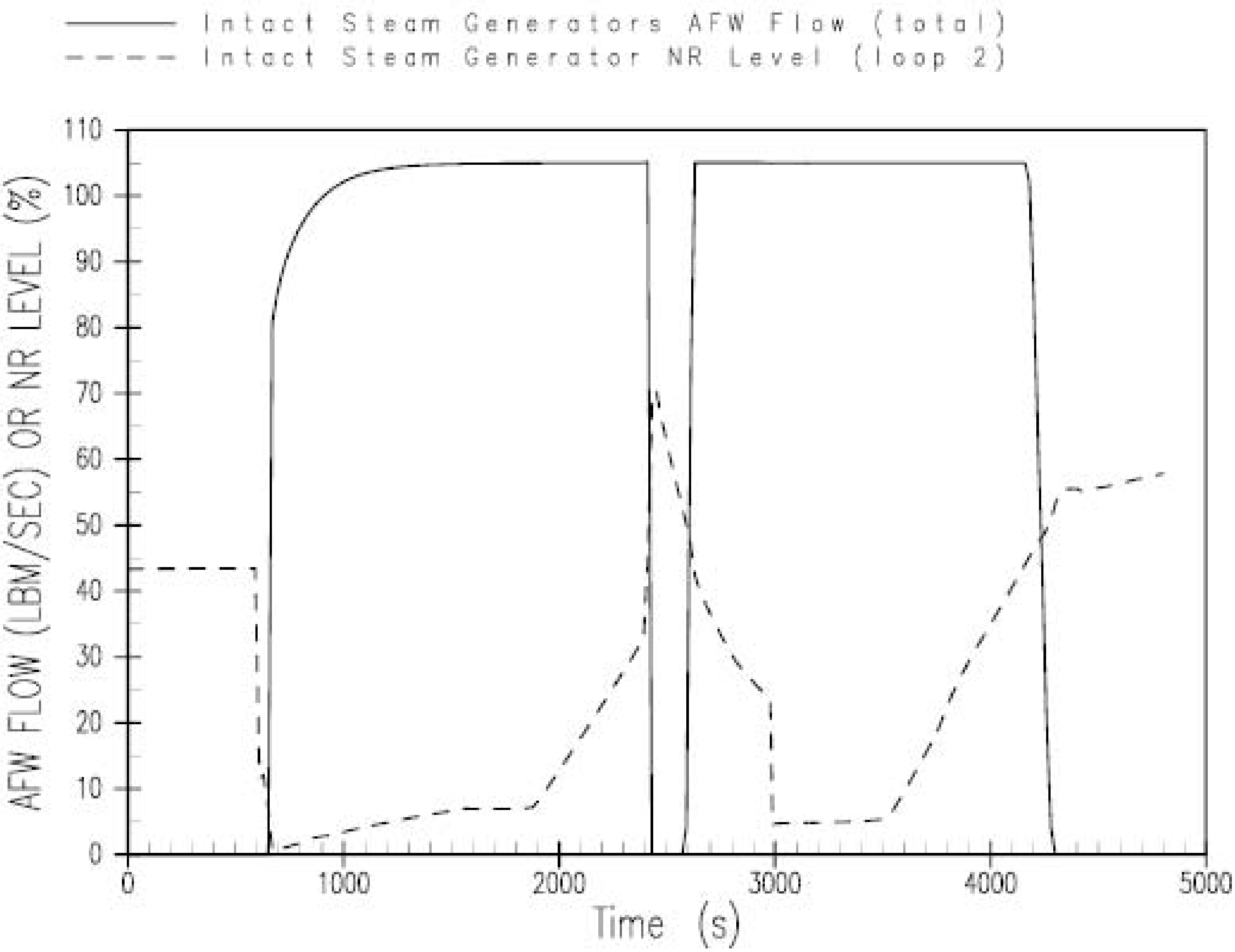
FIGURE 15.6-3J

AUXILIARY FEEDWATER FLOW RATE AND NARROW RANGE LEVEL (RUPTURED GENERATOR) TRANSIENTS FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 5/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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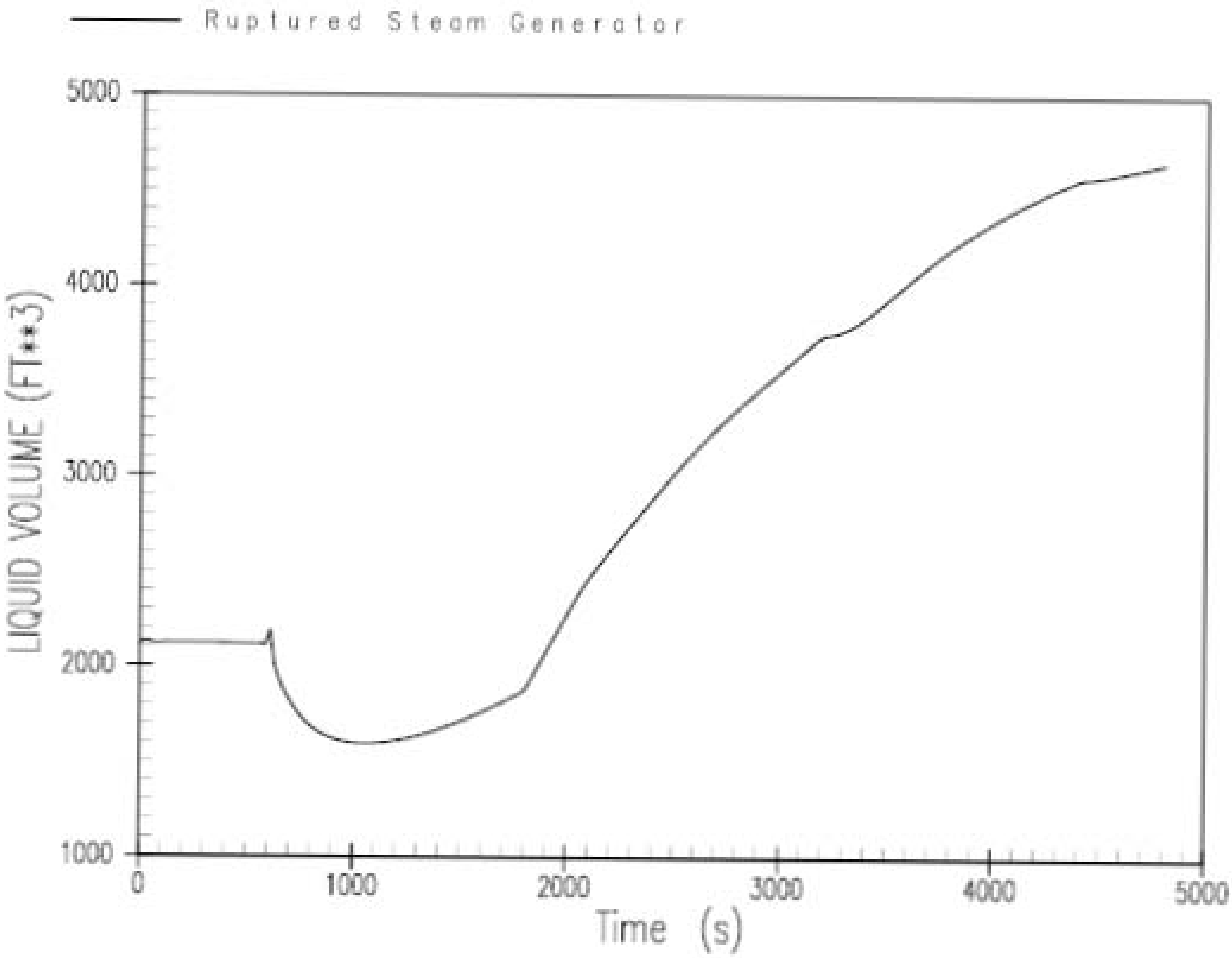
FIGURE 15.6-3K

AUXILIARY FEEDWATER FLOW RATE AND NARROW RANGE LEVEL (INTACT GENERATOR) TRANSIENTS FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 5/11

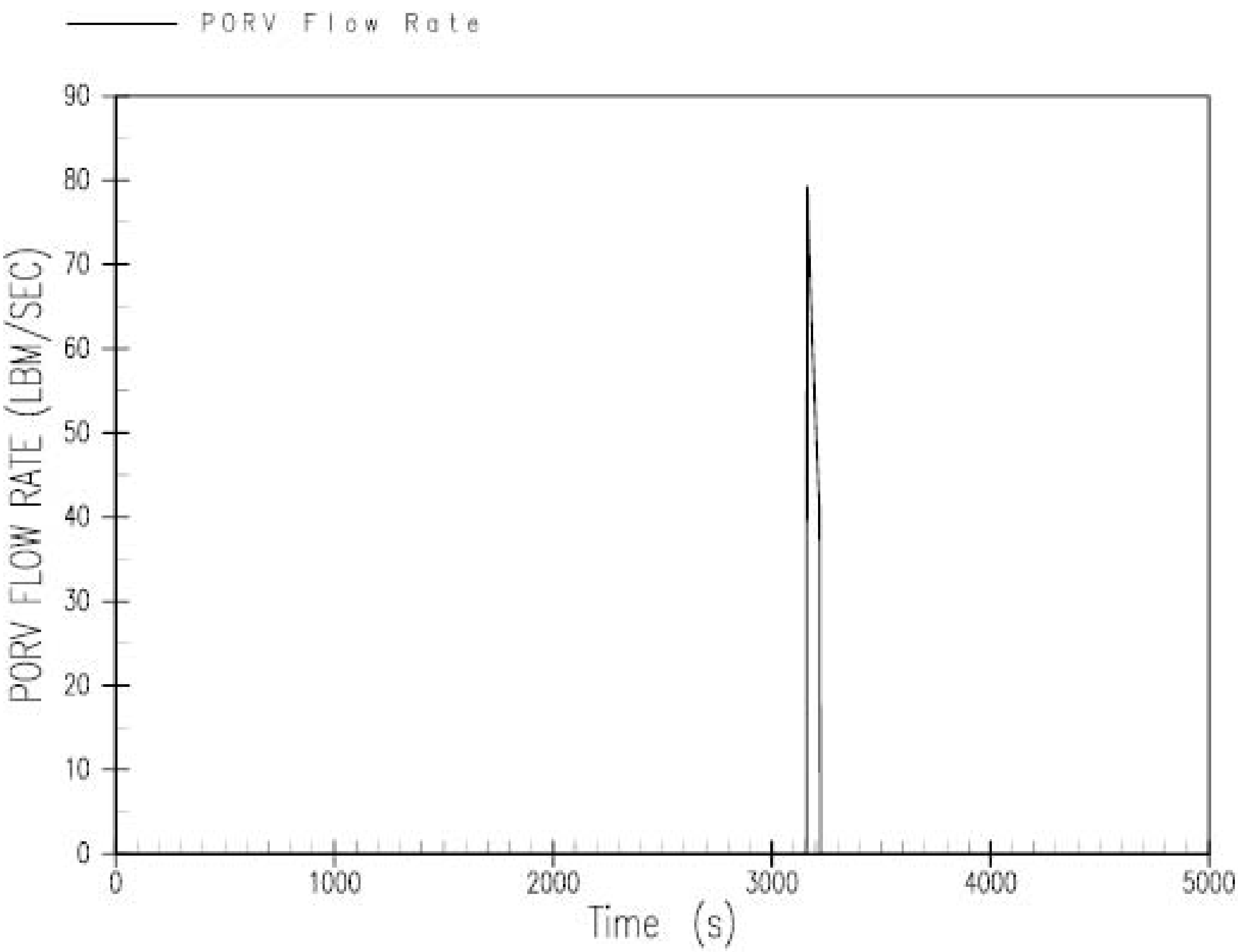


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-3L **STEAM GENERATOR LIQUID VOLUME (RUPTURED GENERATOR) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT** **REV. 16 6/11**



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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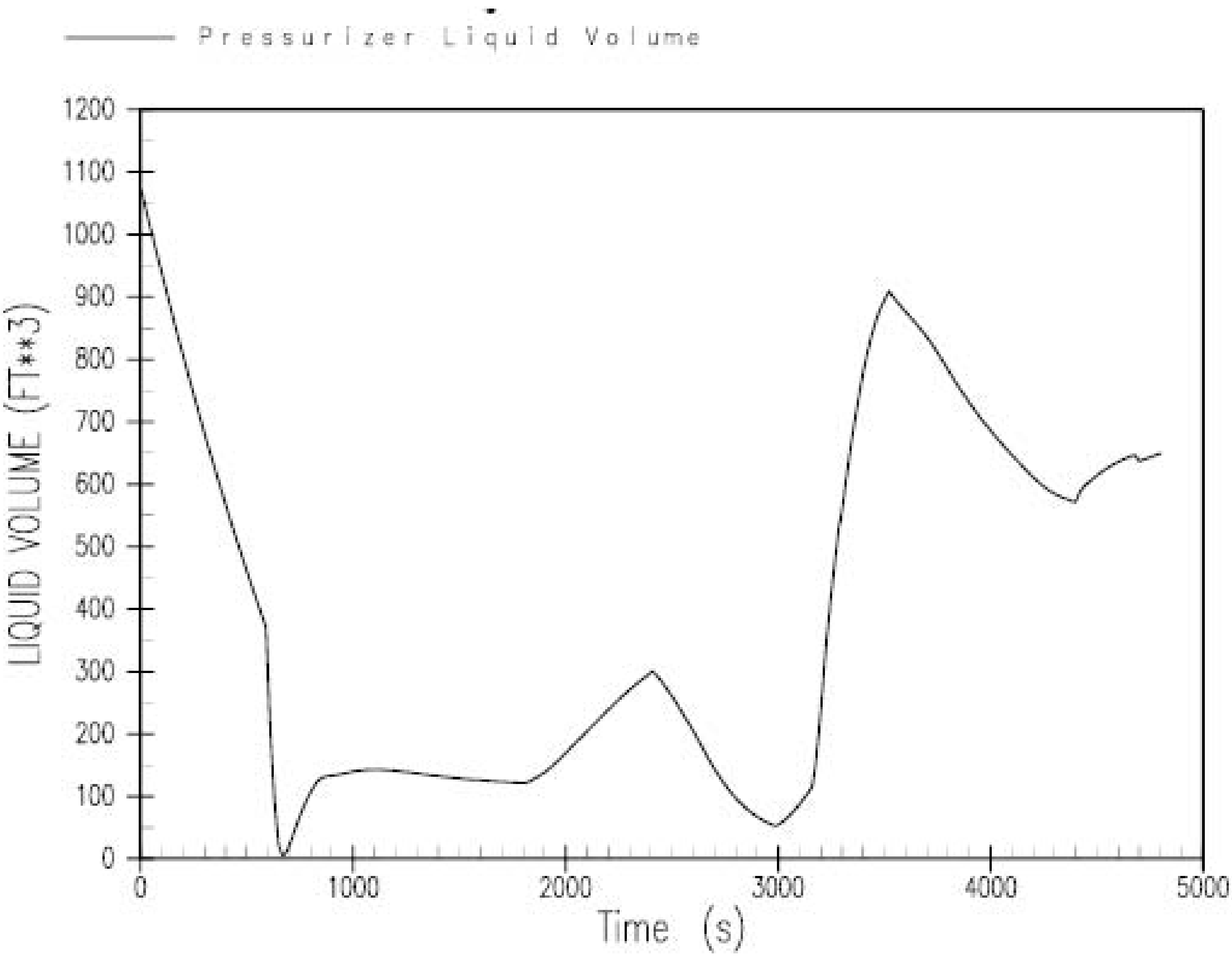
FIGURE 15.6-3M

PRESSURIZER PORV FLOW RATE TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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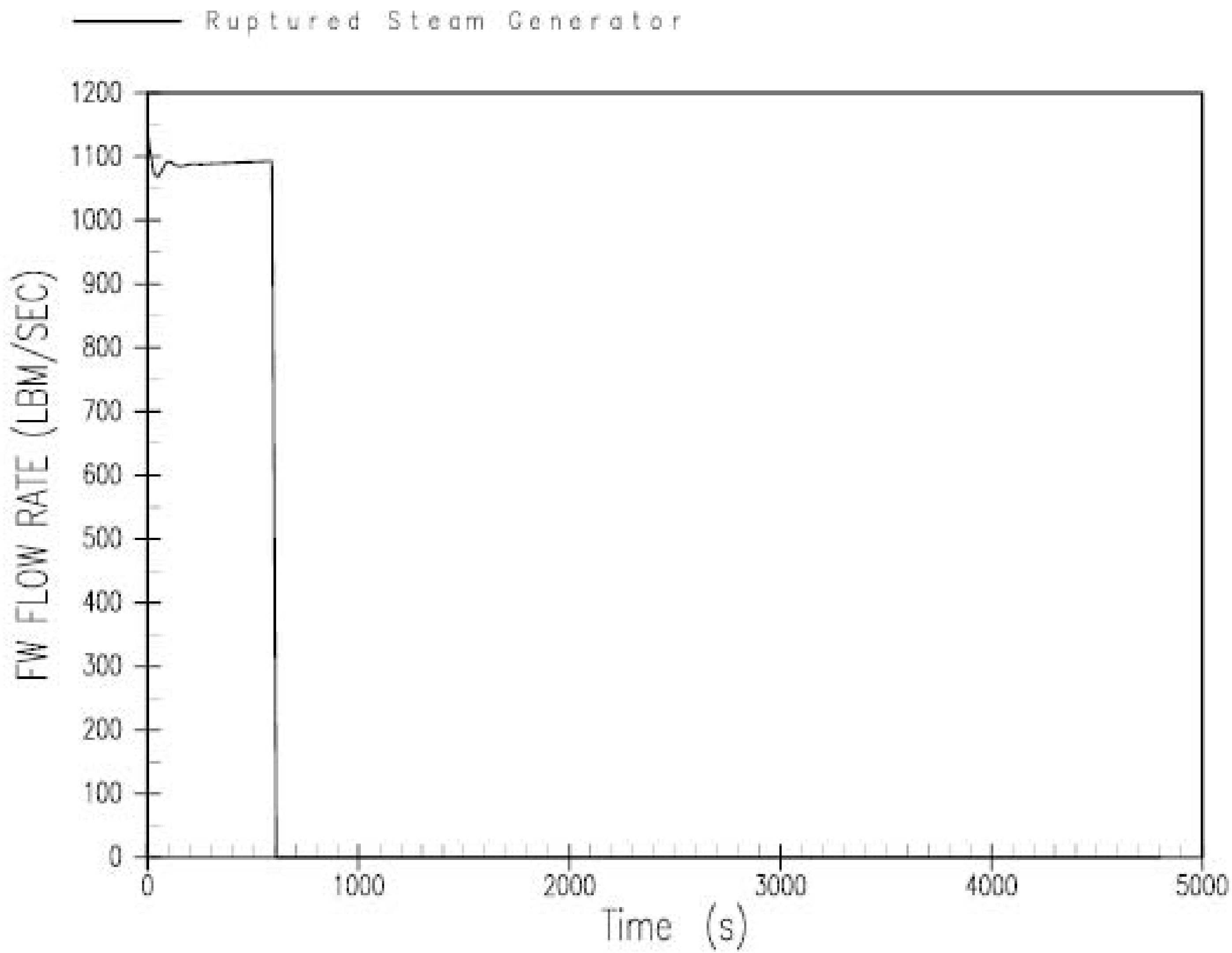
FIGURE 15.6-3N

PRESSURIZER LIQUID VOLUME TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

REV. 16 5/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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FIGURE 15.6-30

FEEDWATER FLOW RATE (RUPTURED GENERATOR) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

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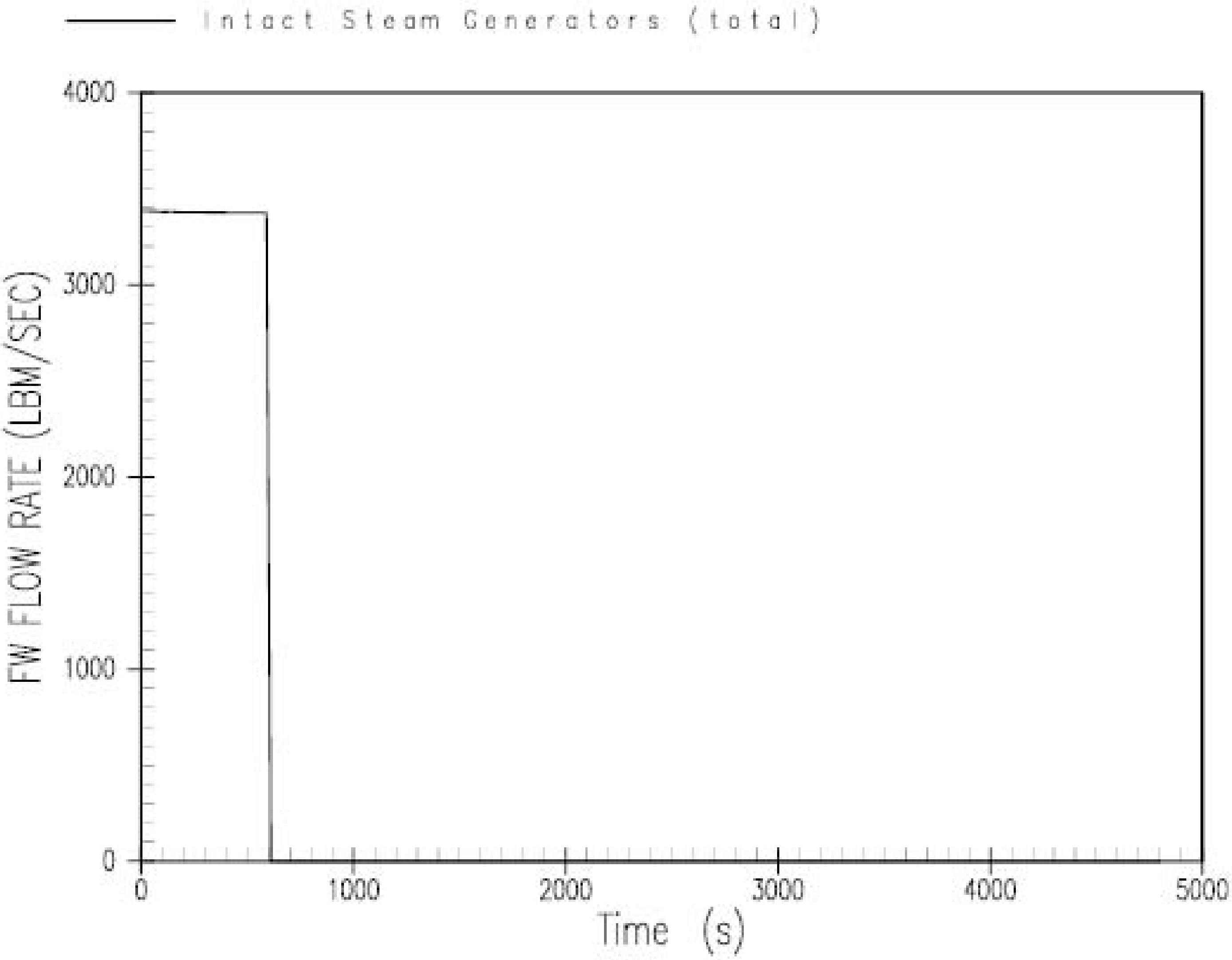

Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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FIGURE 15.6-3P

FEEDWATER FLOW RATE (INTACT GENERATORS) TRANSIENT FOR STEAM GENERATOR TUBE RUPTURE EVENT

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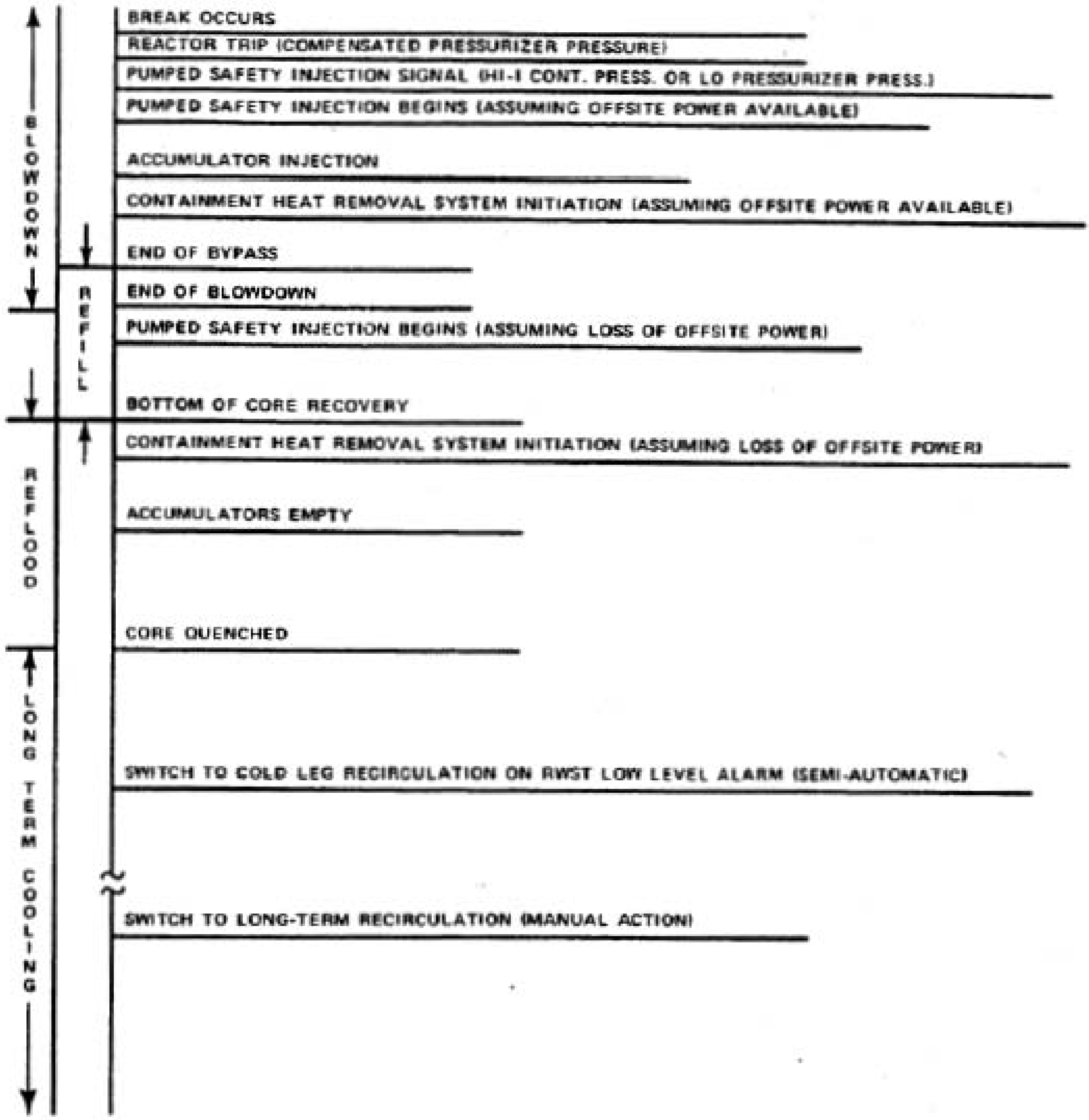

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FIGURE 15.6-4

SEQUENCE OF EVENTS FOR LARGE BREAK LOCA ANALYSIS

Figure 15.6-4A Deleted

Figure 15.6-4B Deleted

Figure 15.6-5 Deleted

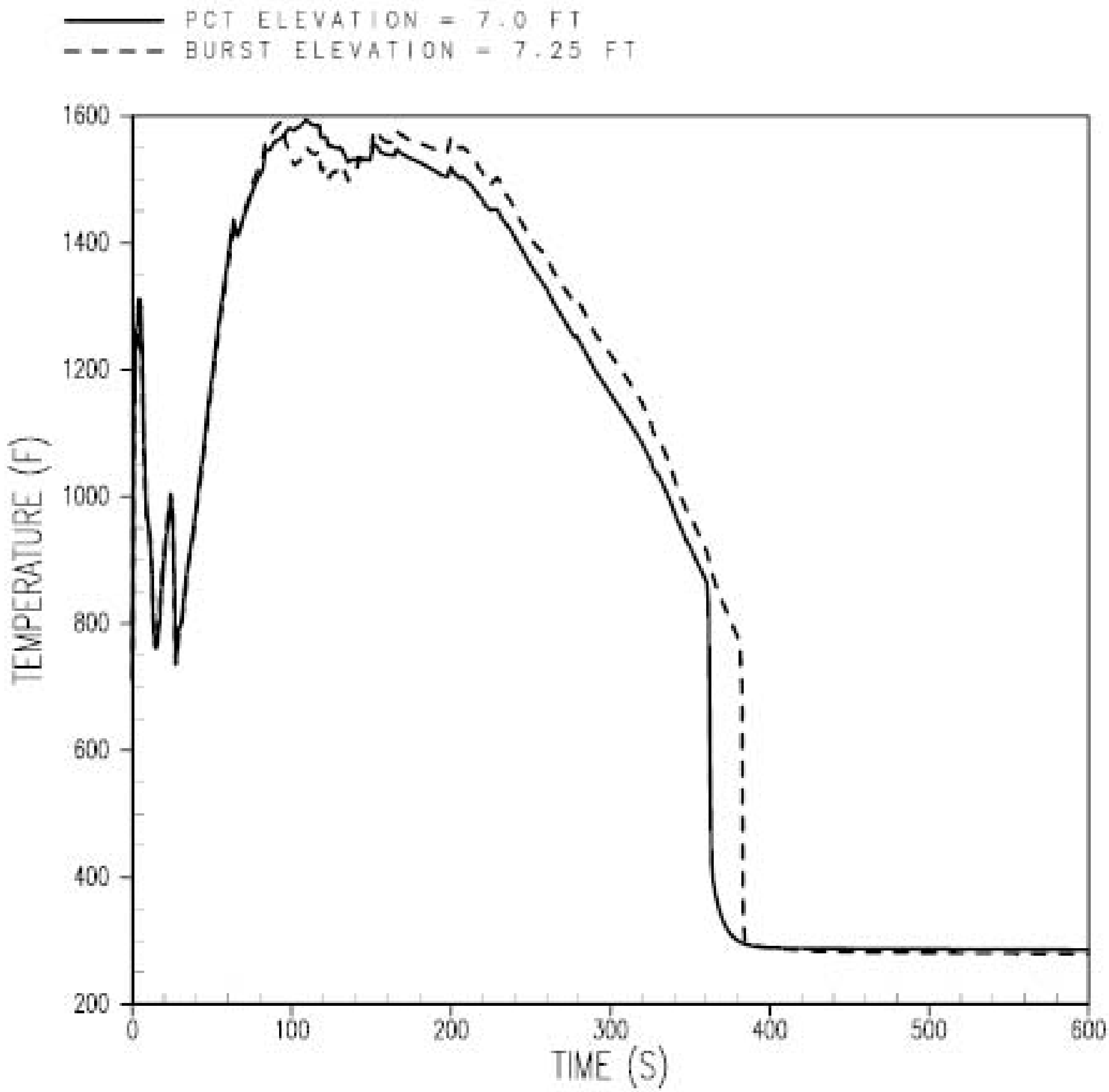

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FIGURE 15.6-5A

CLADDING TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.4, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA

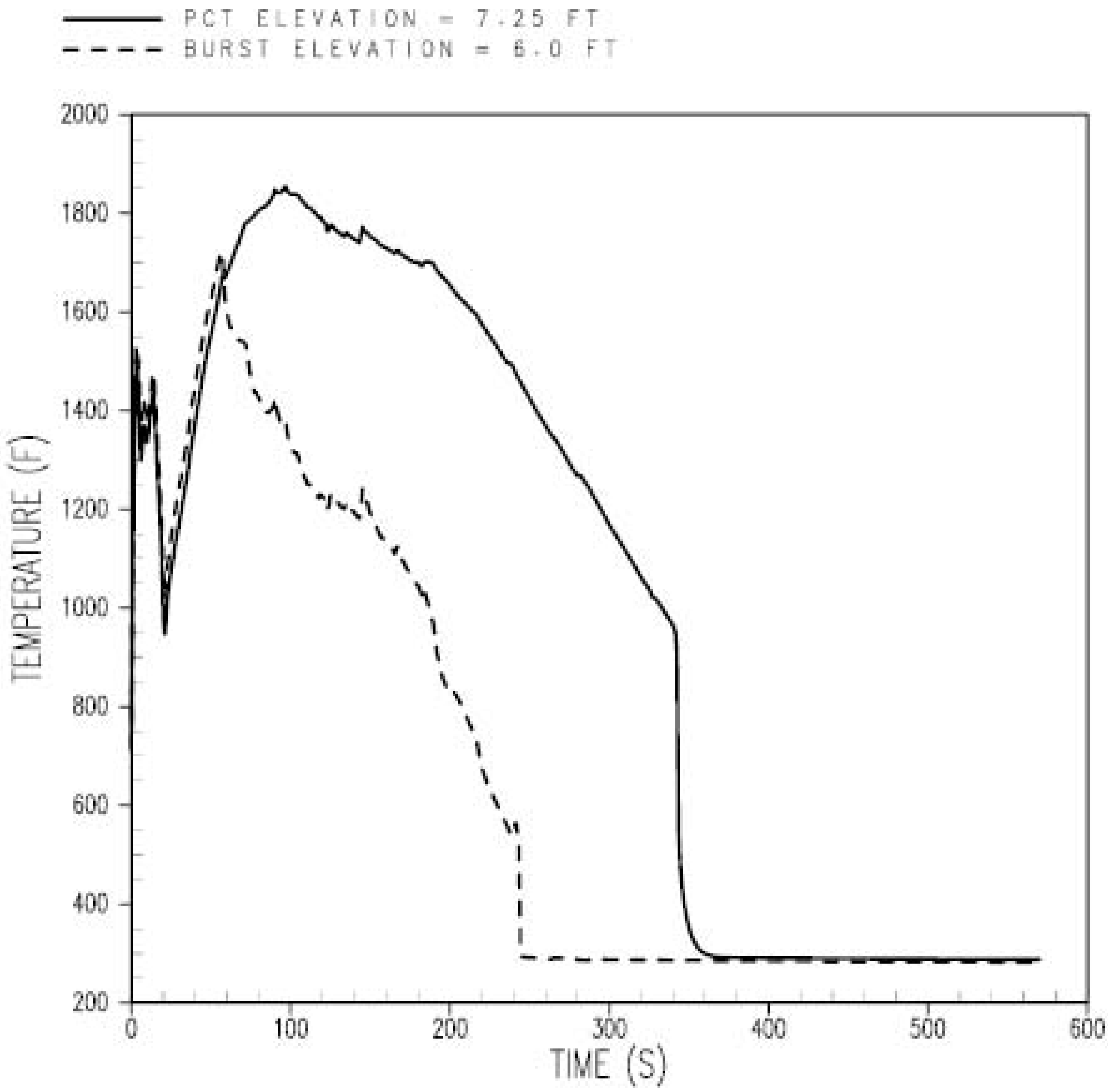

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FIGURE 15.6-6B

CLADDING TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA

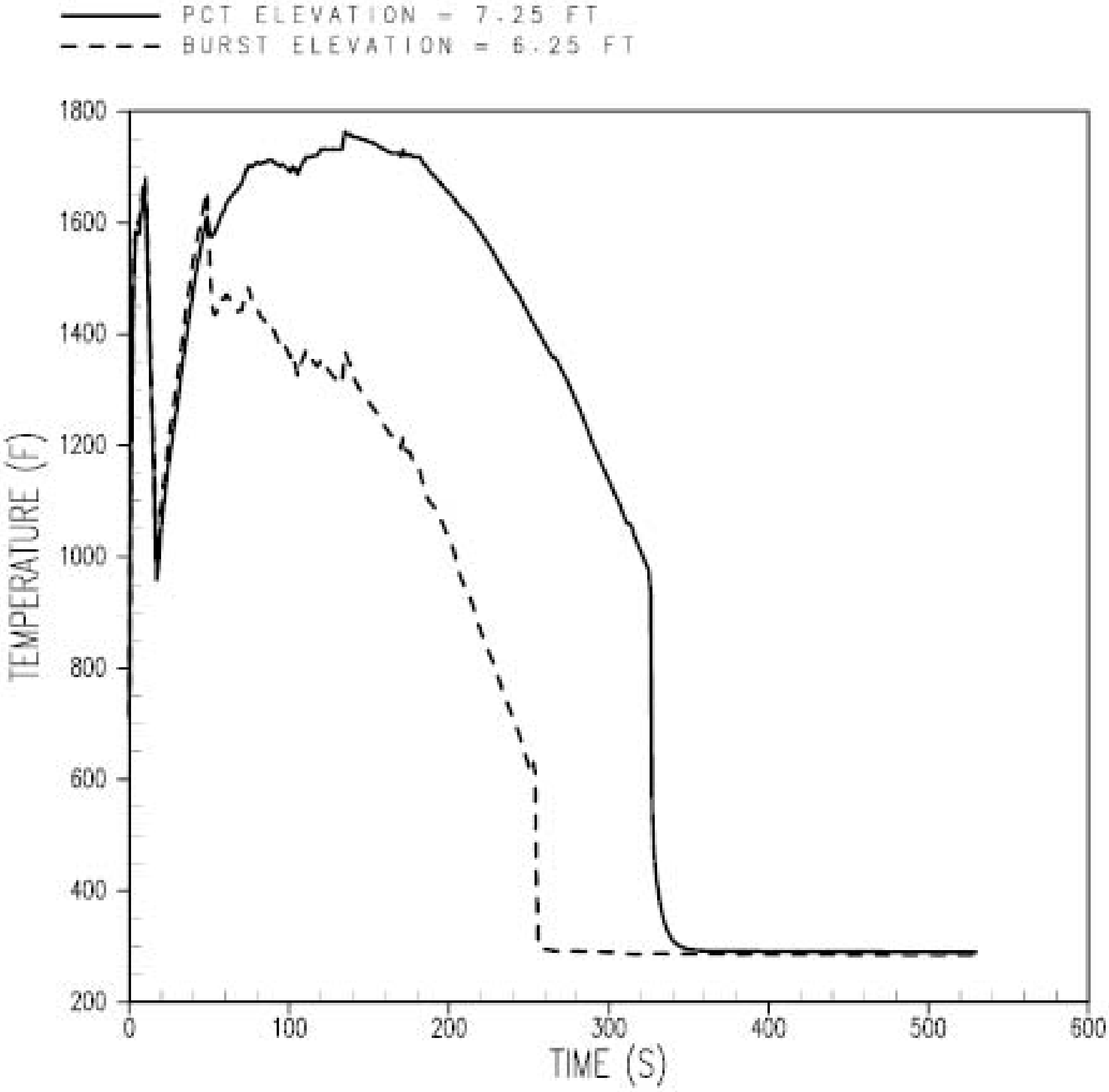

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FIGURE 15.6-5C

CLADDING TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.8, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

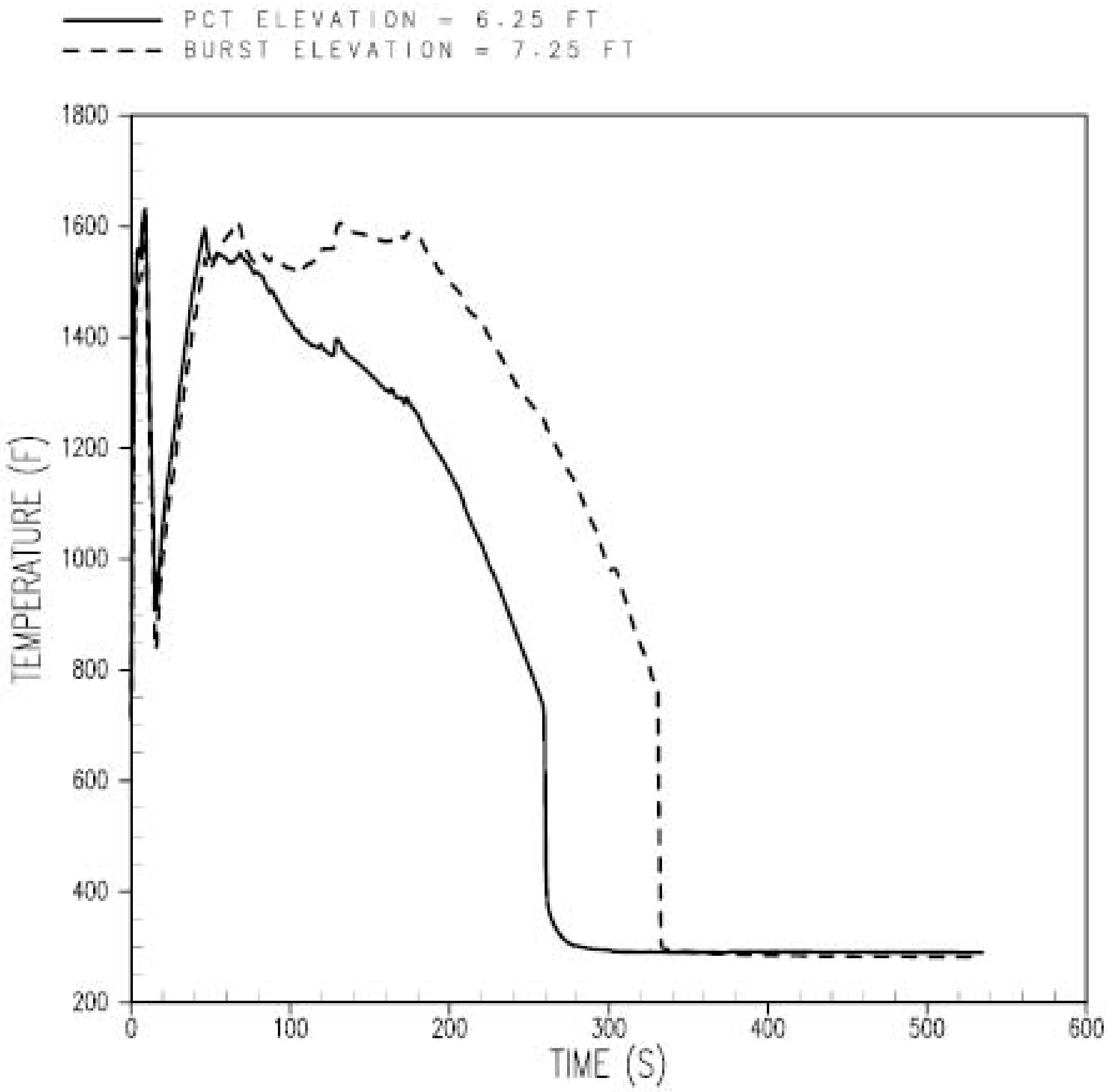

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FIGURE 15.6-6D

CLADDING TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=1.0, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

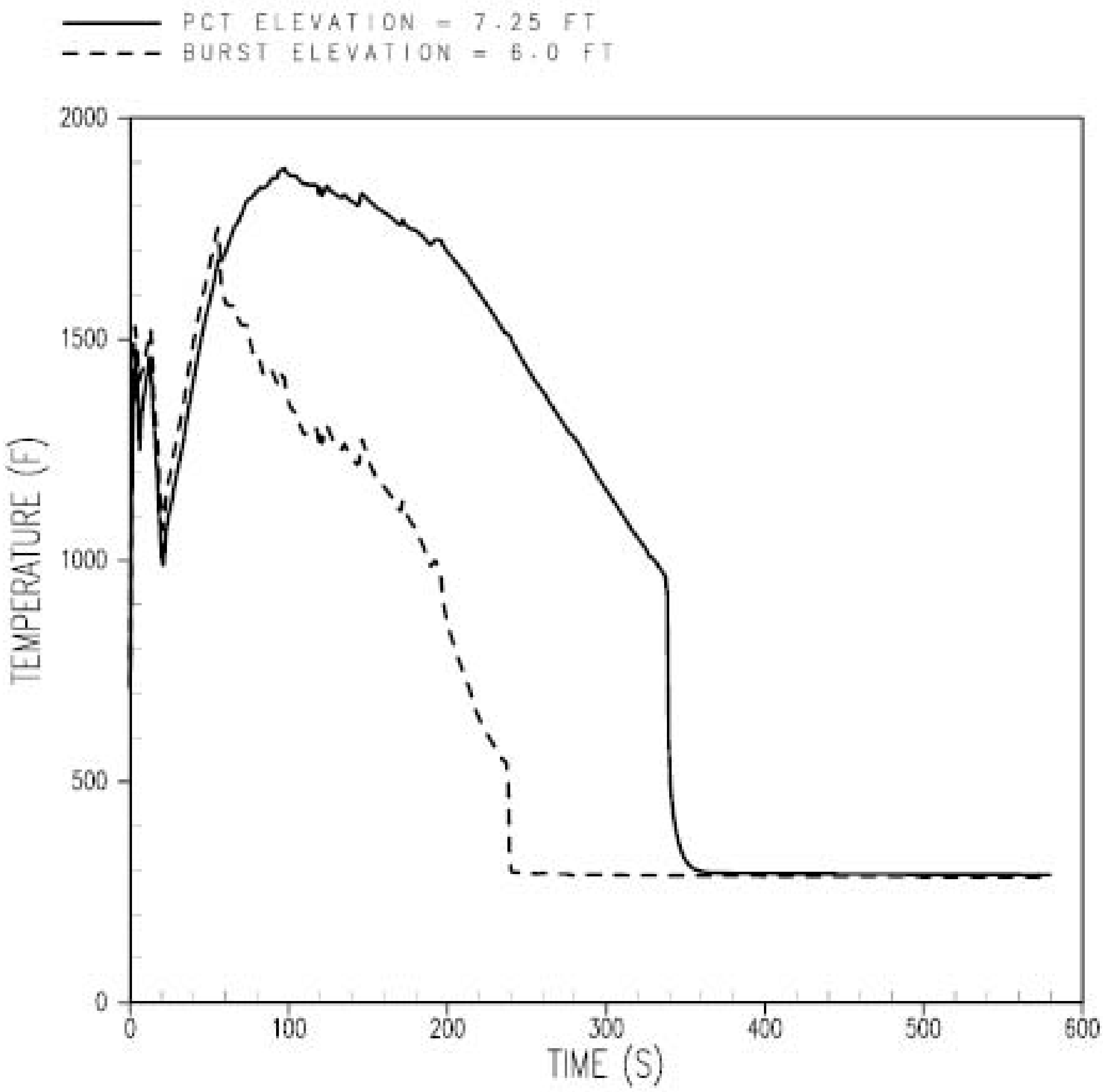

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FIGURE 15.6-5E

CLADDING TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{avg}, MAX SG, COSINE POWER SHAPE, NON-IFBA)

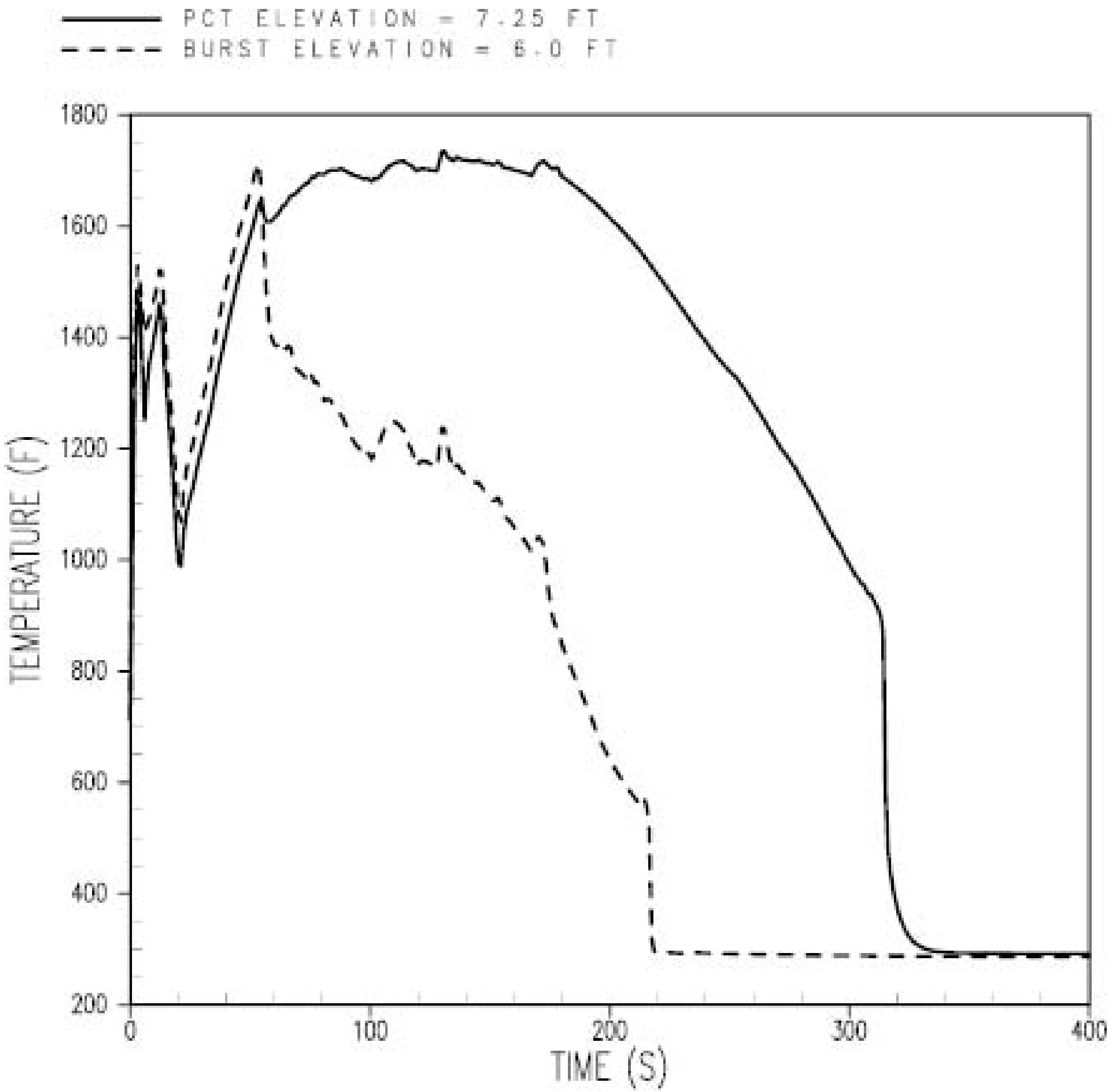

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FIGURE 15.6-5F

CLADDING TEMPERATURE AT PCT AND BURST ELEVATION (C_D=0.6, HIGH T_{avg}, MAX SG, COSINE POWER SHAPE, NON-IFBA)

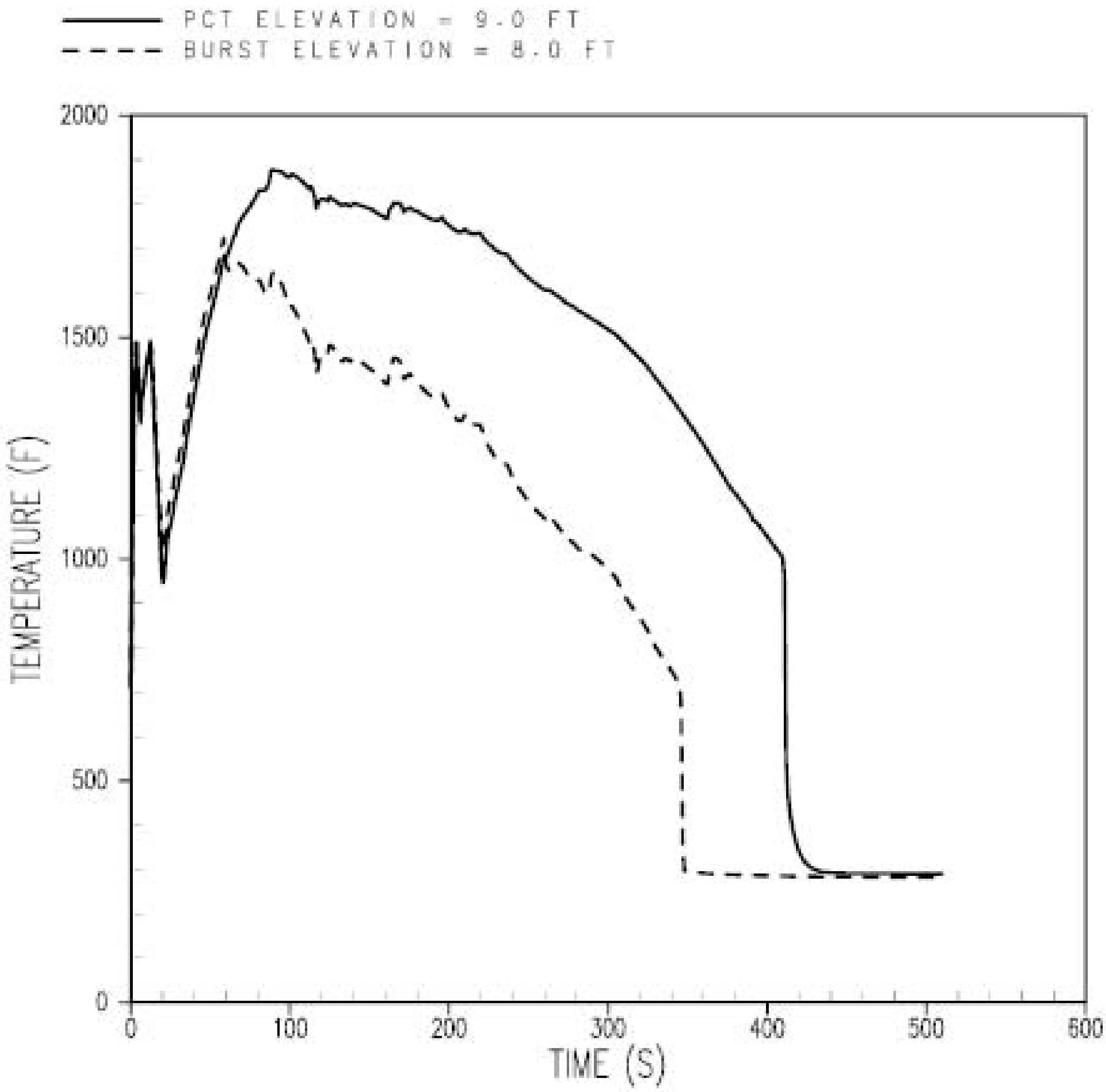

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FIGURE 15.6-60

CLADDING TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{avg}, MIN SI, 9.5' POWER SHAPE, NON-IFBA)

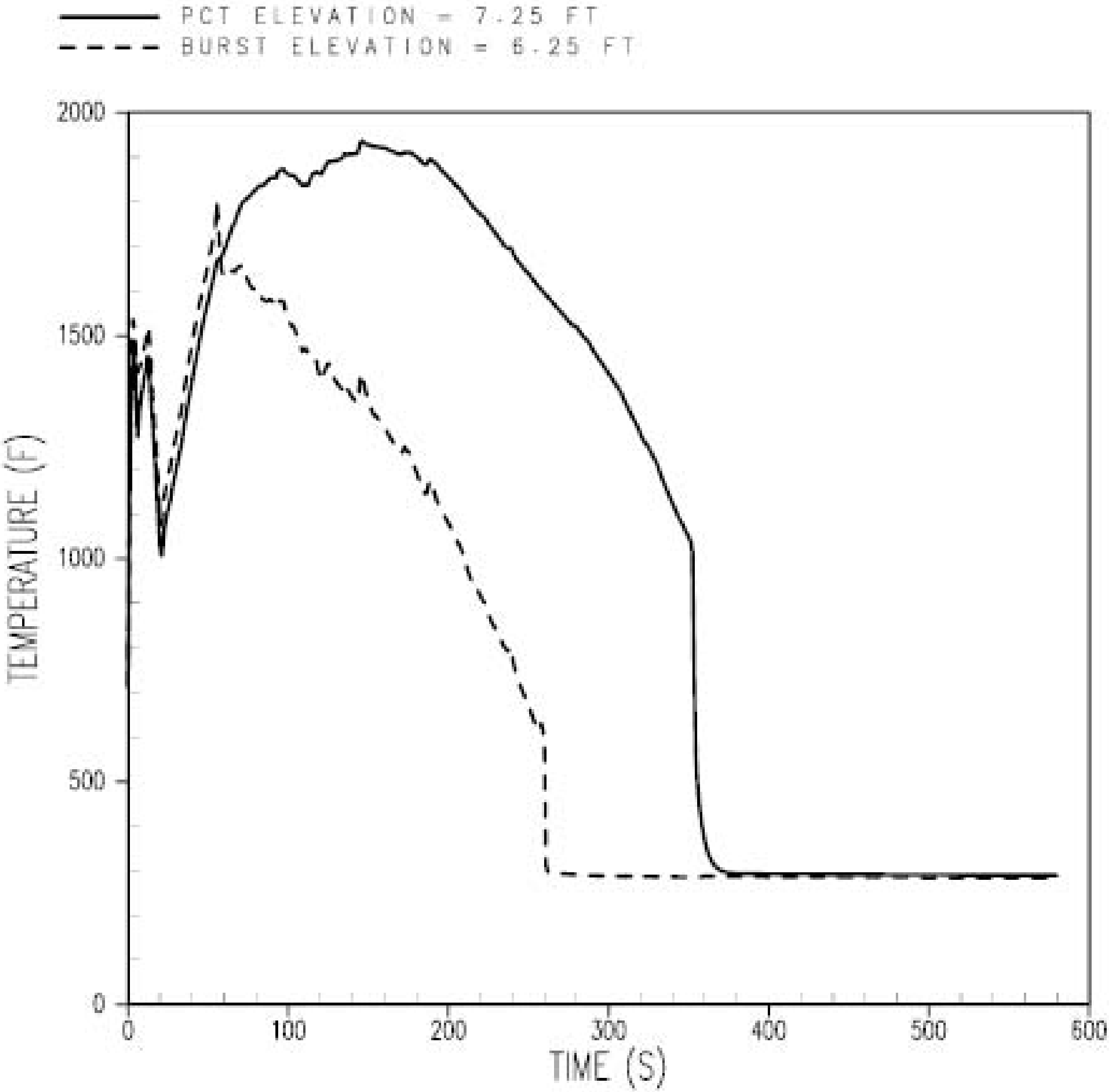

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FIGURE 15.6-5H

CLADDING TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{avg}, MIN SI, COSINE POWER SHAPE, IFBA)

Figure 15.6-6 Deleted

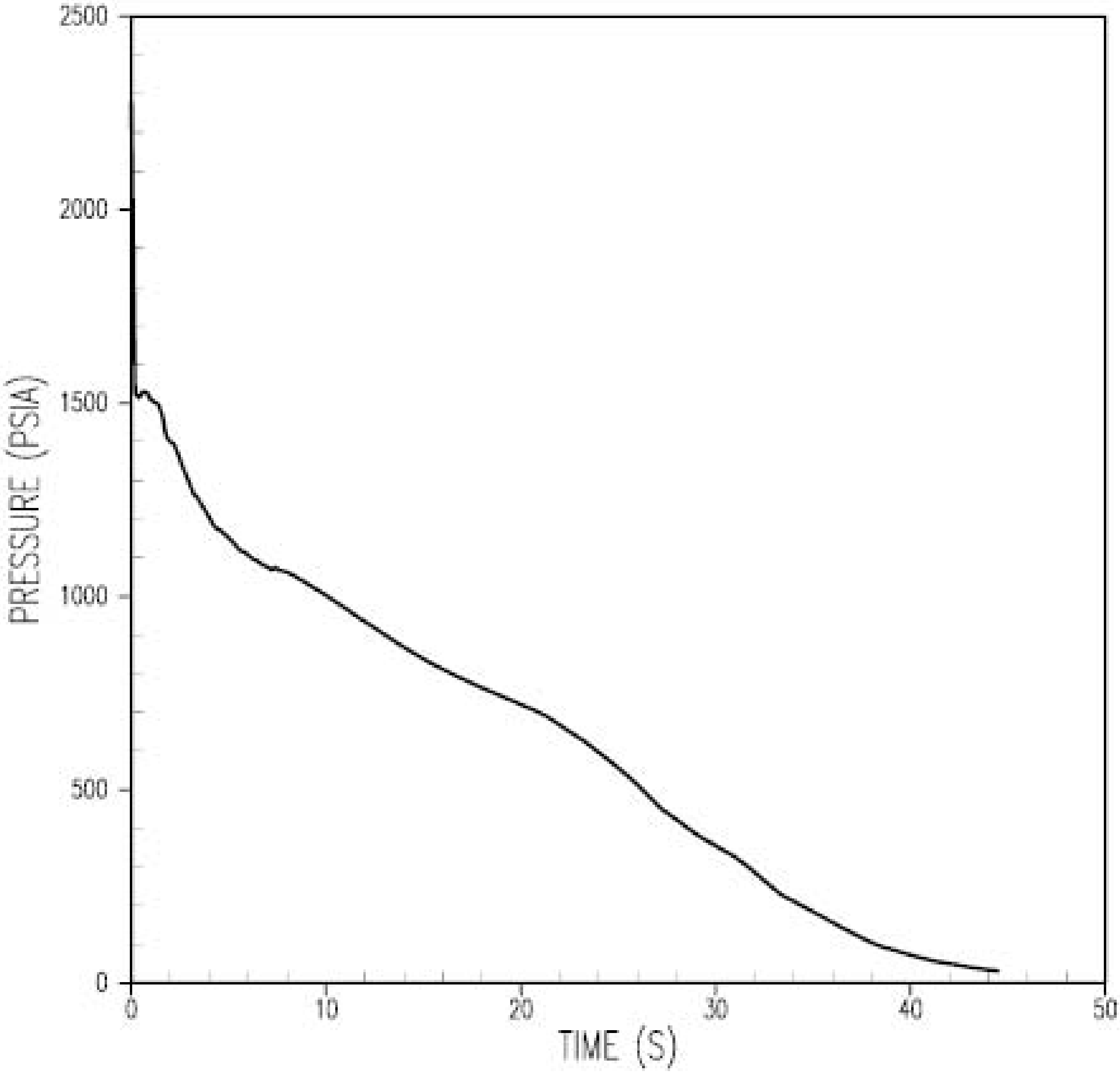

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FIGURE 15.6-6A

CORE PRESSURE DURING BLOWDOWN
(C_D=0.4, LOW T_{avg}, MIN SI, COSINE
POWER SHAPE, NON-IFBA)

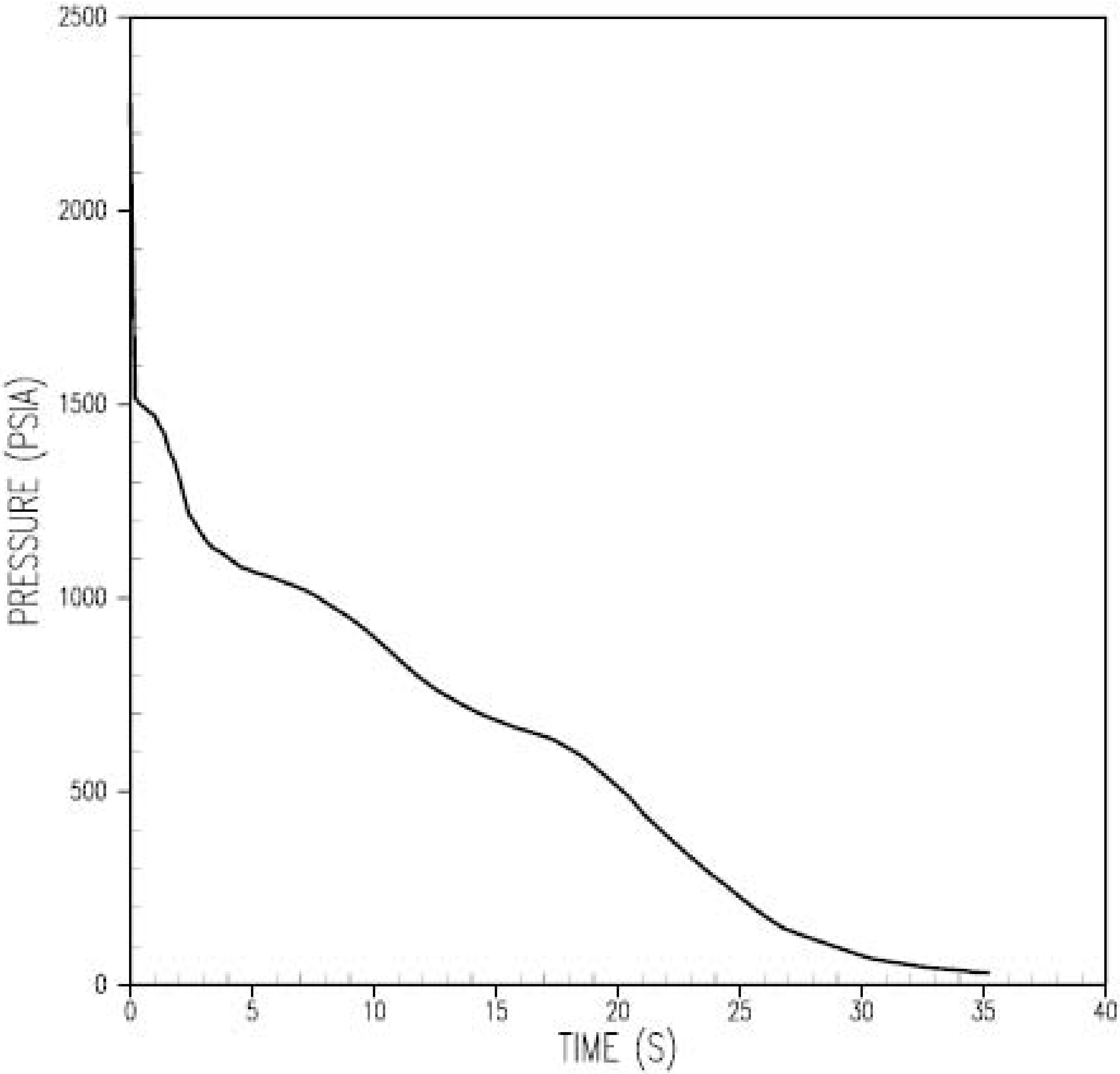

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FIGURE 15.6-6B

CORE PRESSURE DURING BLOWDOWN
(C_D=0.6, LOW T_{avg}, MIN SI, COSINE
POWER SHAPE, NON-IFBA)

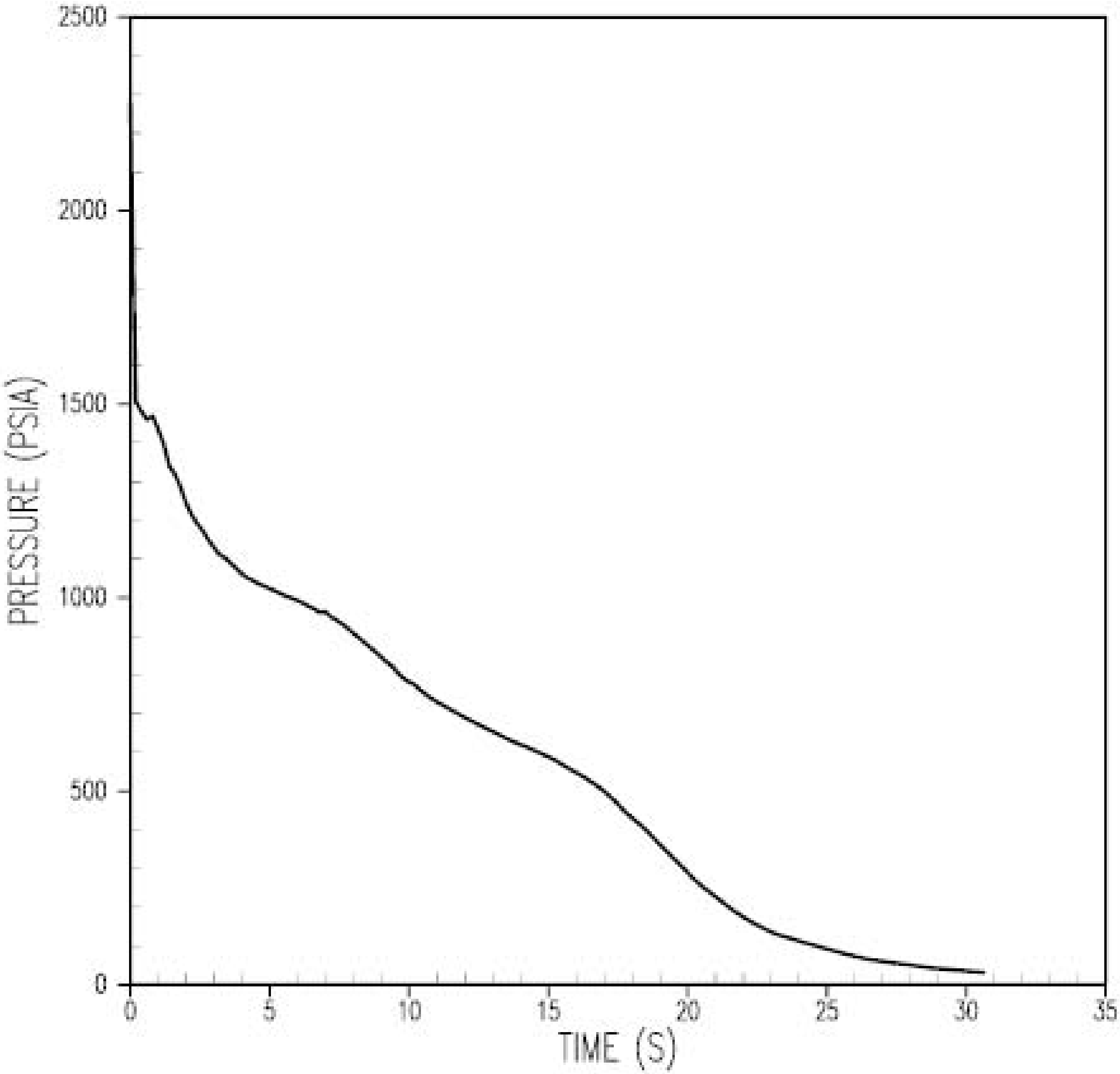

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FIGURE 15.6-5C

CORE PRESSURE DURING BLOWDOWN (C_D=0.8, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

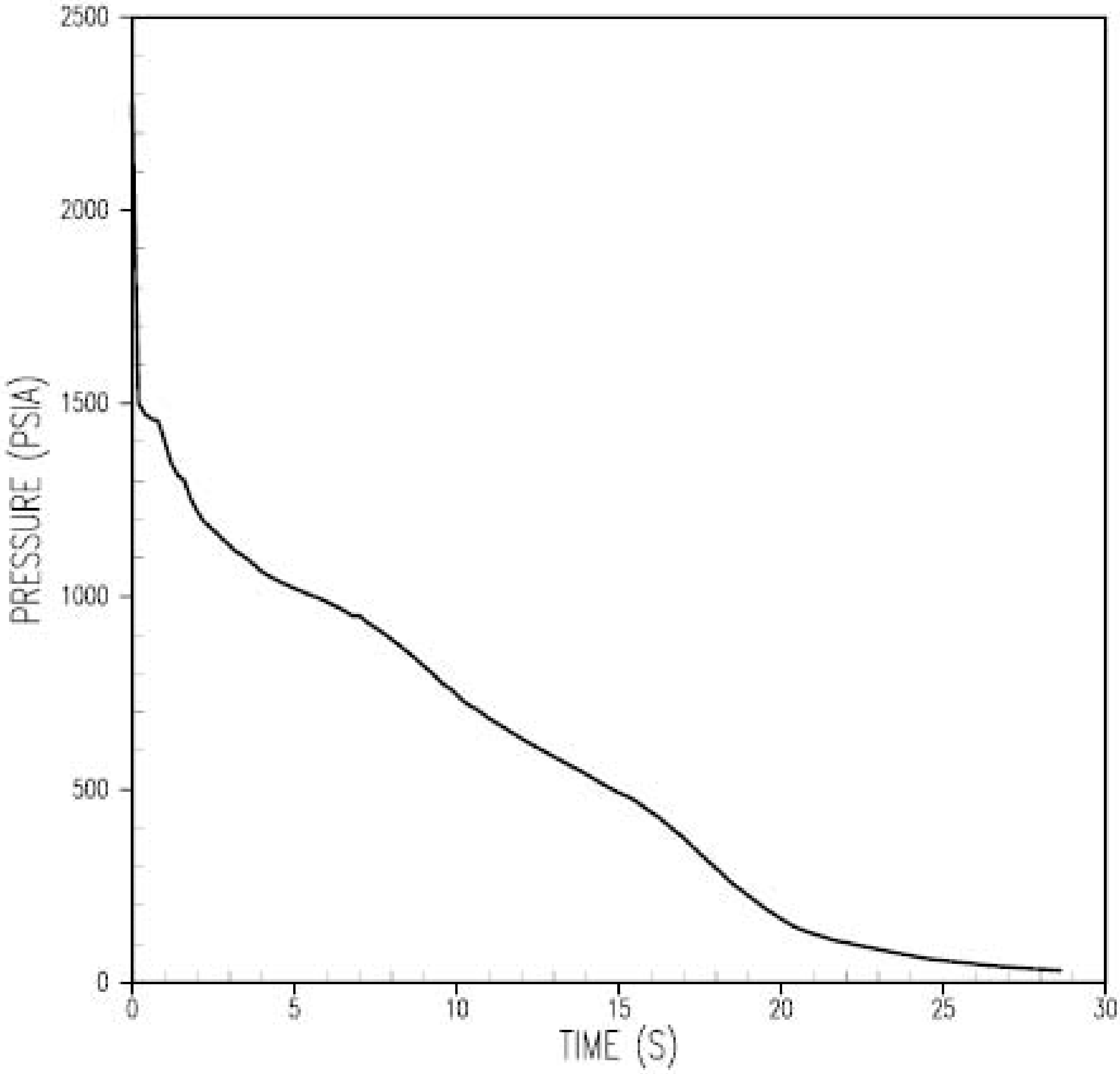

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FIGURE 15.6-6D

CORE PRESSURE DURING BLOWDOWN (C_D=1.0, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

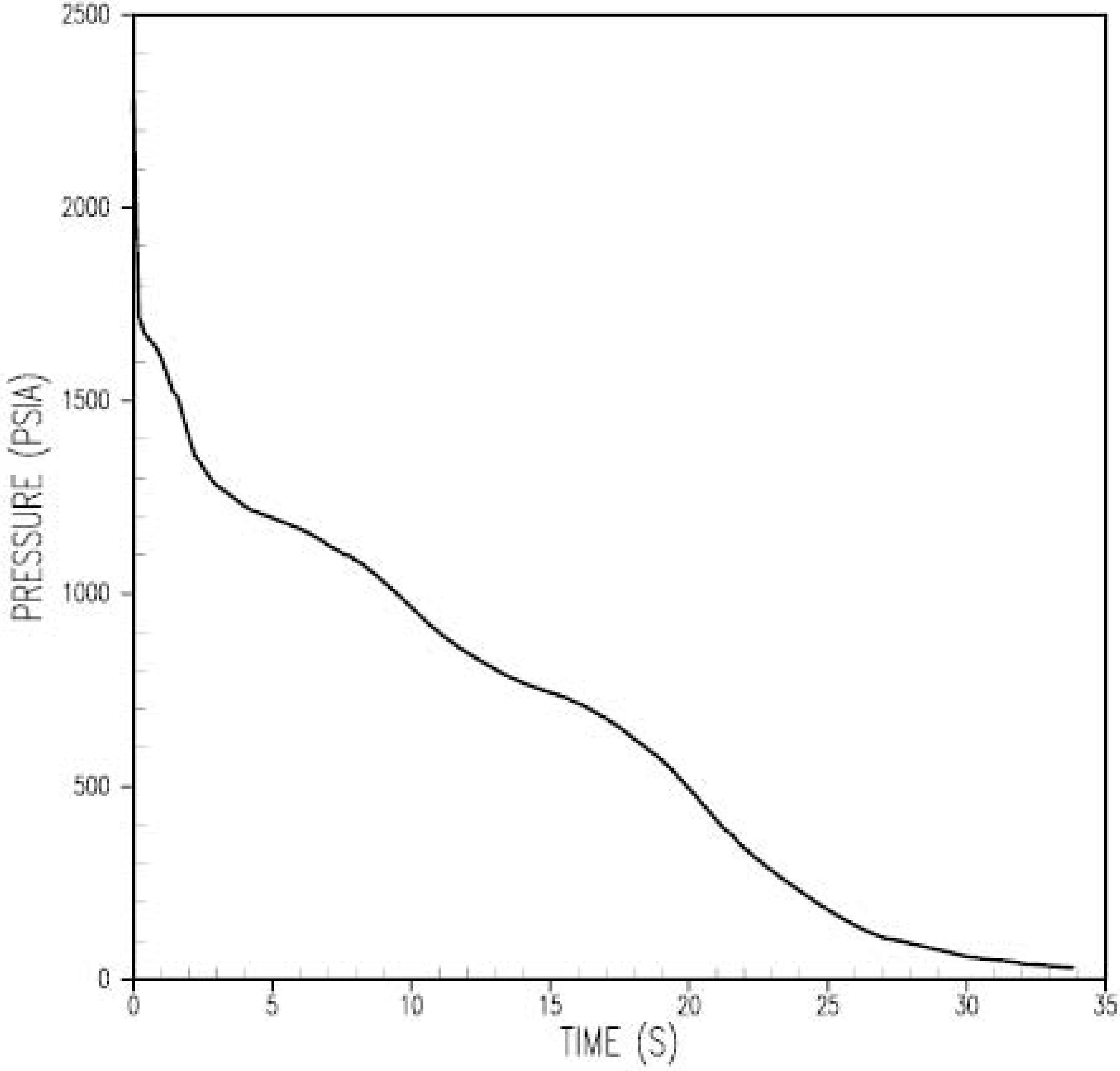

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FIGURE 15.6-5E

CORE PRESSURE DURING BLOWDOWN (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

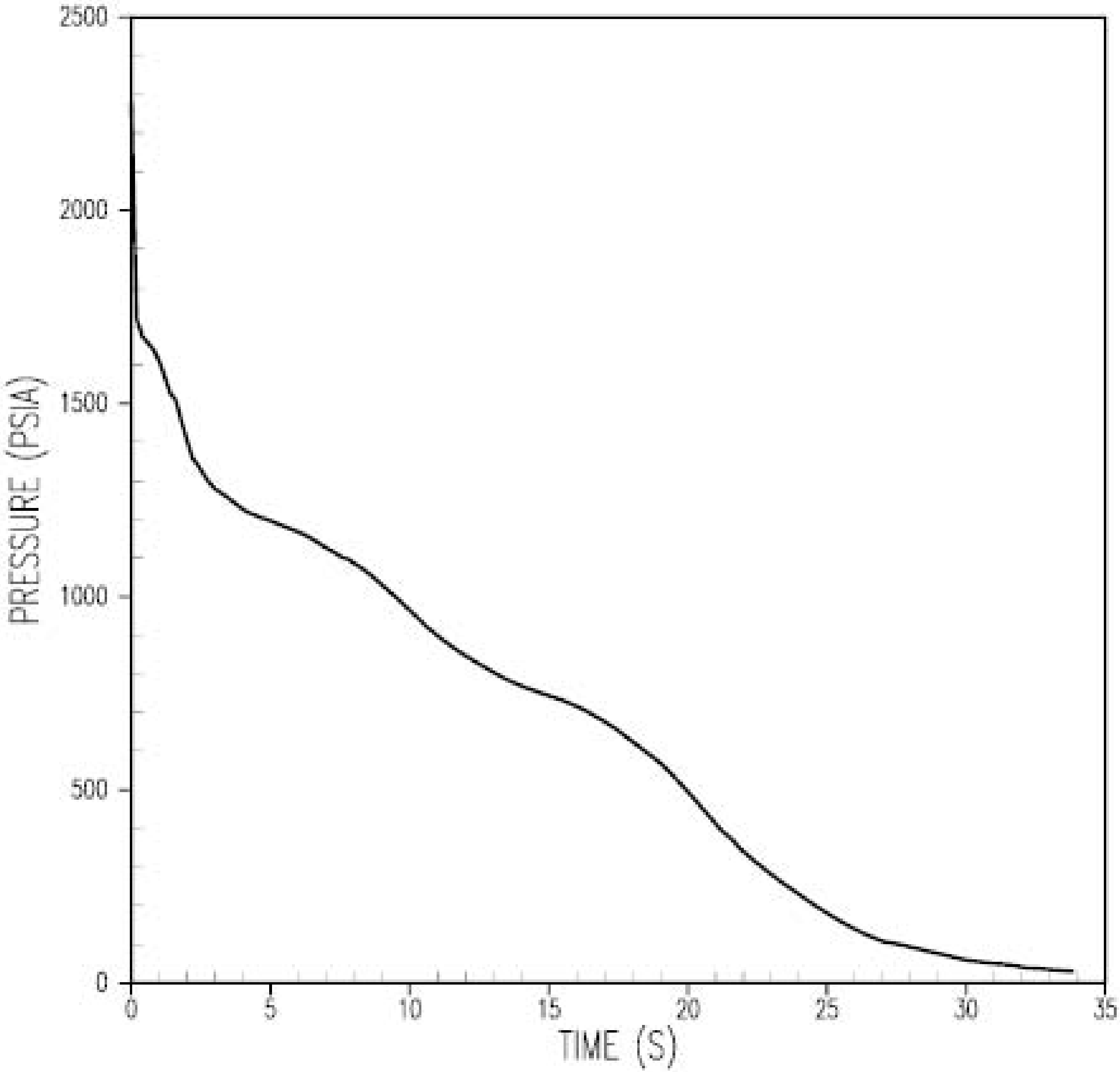

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FIGURE 15.6-5F

CORE PRESSURE DURING BLOWDOWN
(C_D=0.6, HIGH T_{avg}, MAX SI, COSINE
POWER SHAPE, NON-IFBA)

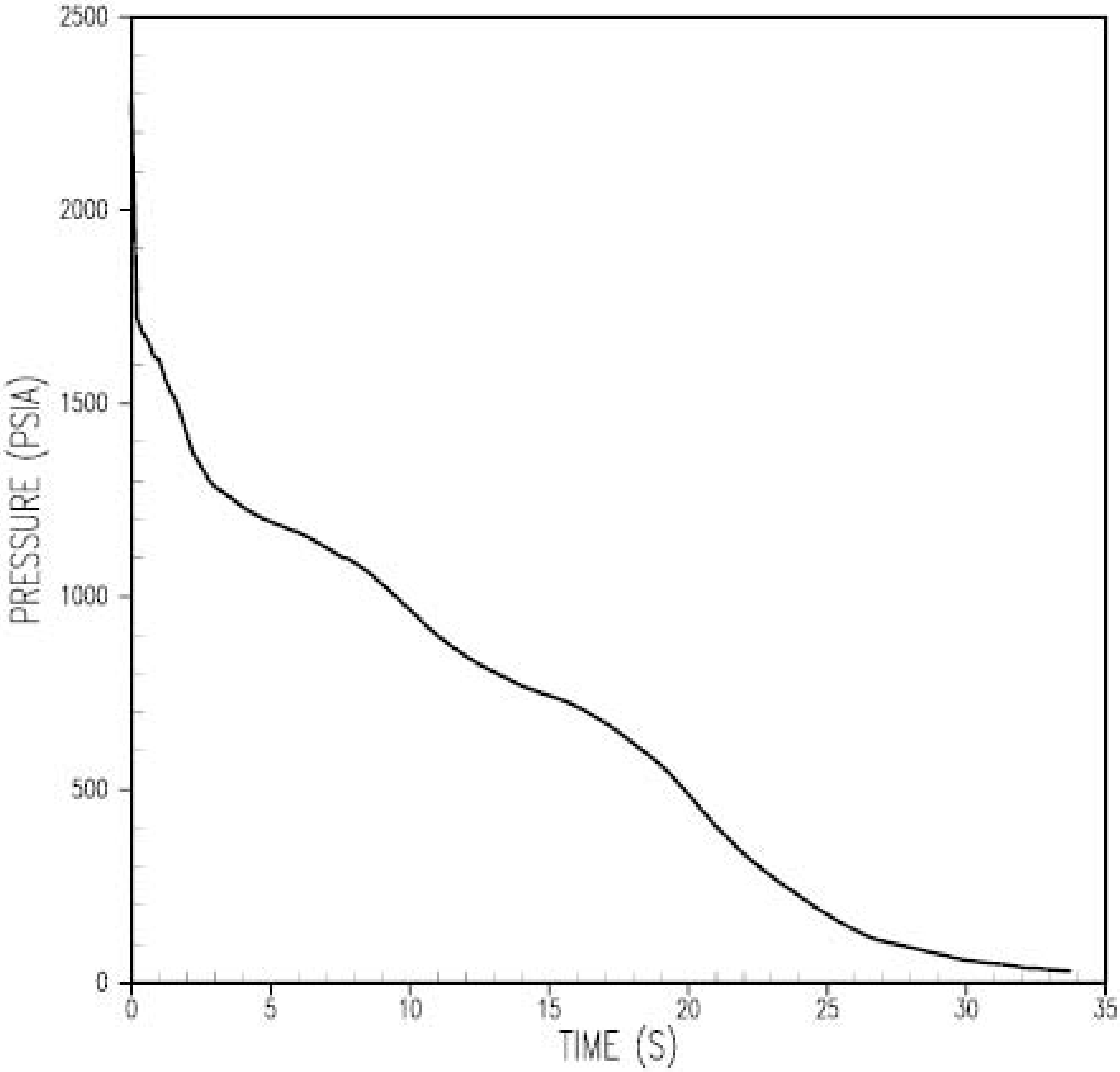

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FIGURE 15.6-59

CORE PRESSURE DURING BLOWDOWN
(C_D=0.6, HIGH T_{avg}, MIN SI, 0.5' POWER SHAPE, NON-IFBA)

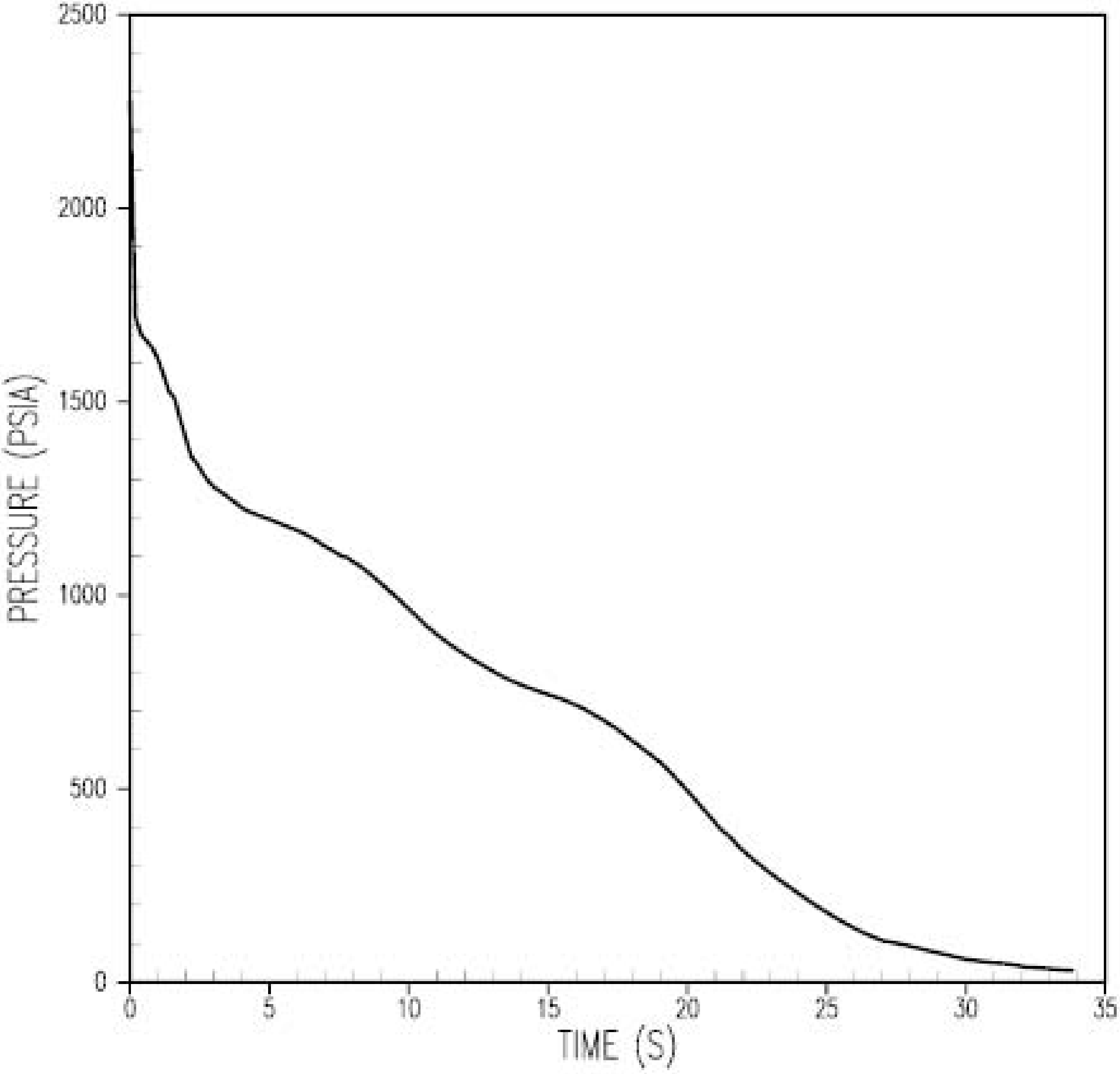

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FIGURE 15.6-6H

CORE PRESSURE DURING BLOWDOWN
(C_D=0.6, HIGH T_{avg}, MIN SI, COSINE POWER SHAPE, IFBA)

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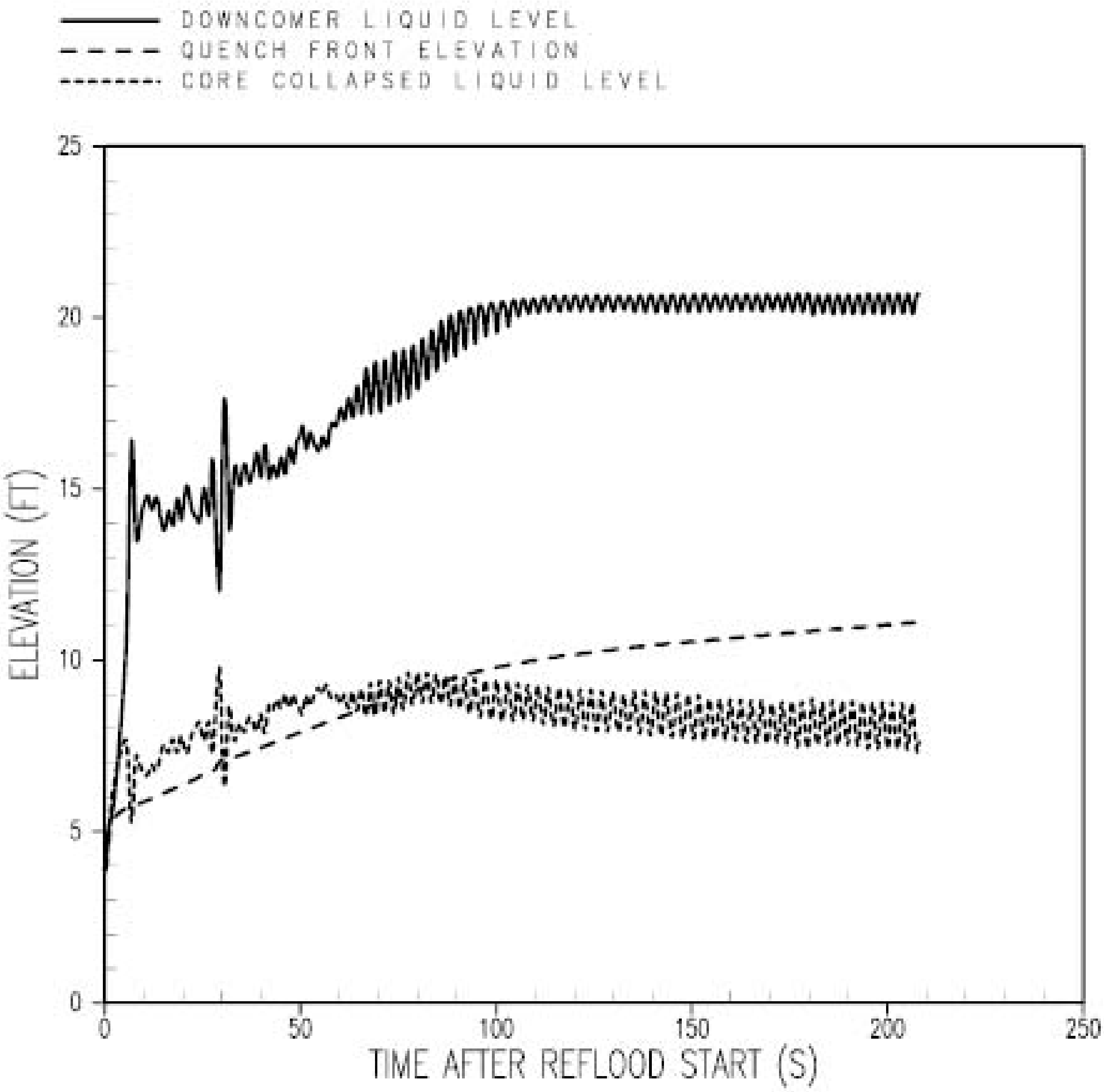

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FIGURE 15.6-7A

VESSEL LIQUID LEVELS DURING REFLOOD (C_D=0.4, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

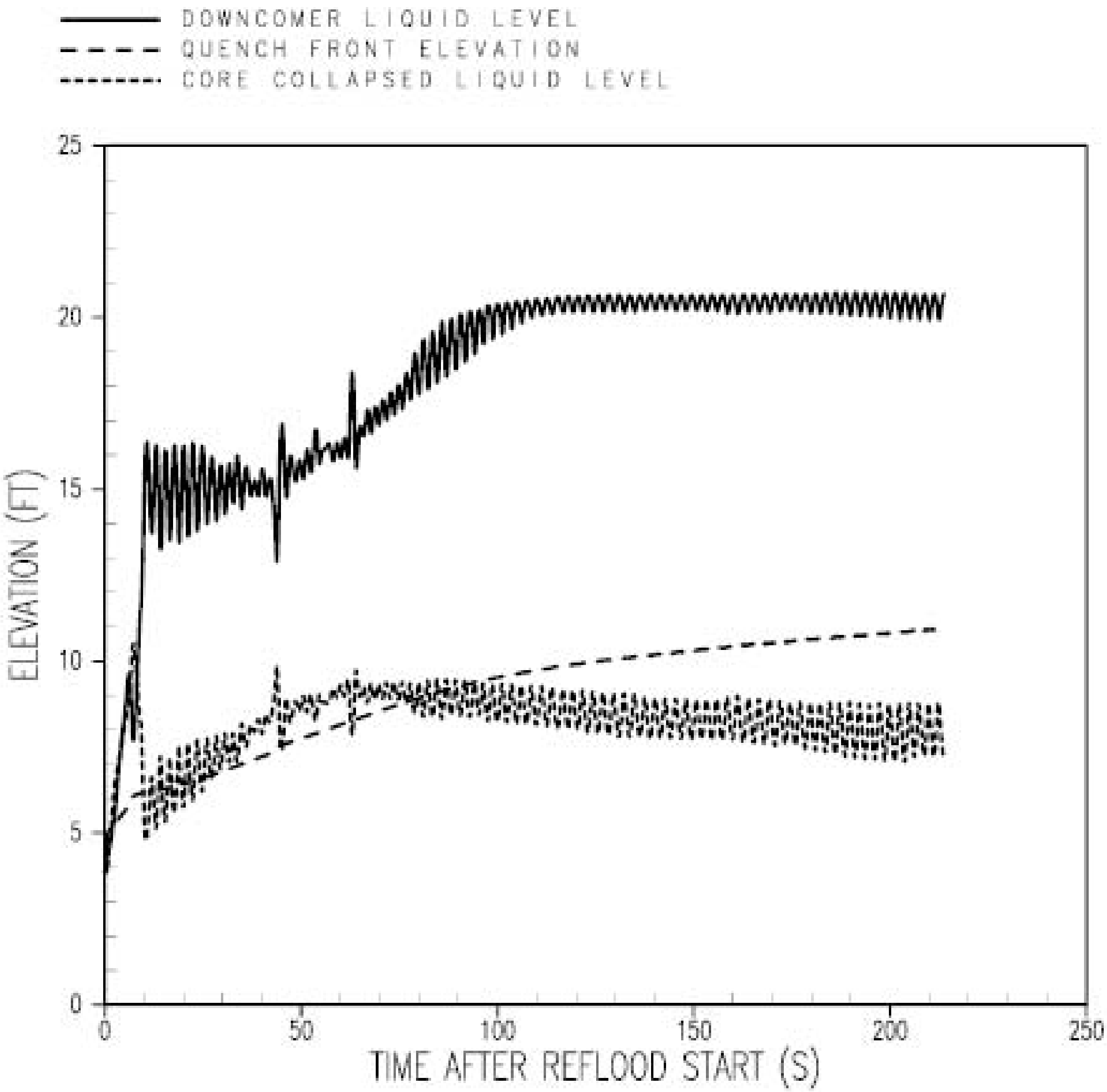

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FIGURE 15.6-7B

VESSEL LIQUID LEVELS DURING REFLOOD
(C_D=0.6, LOW T_{AVG}, MIN SI, COSINE
POWER SHAPE, ONO-IFBA)

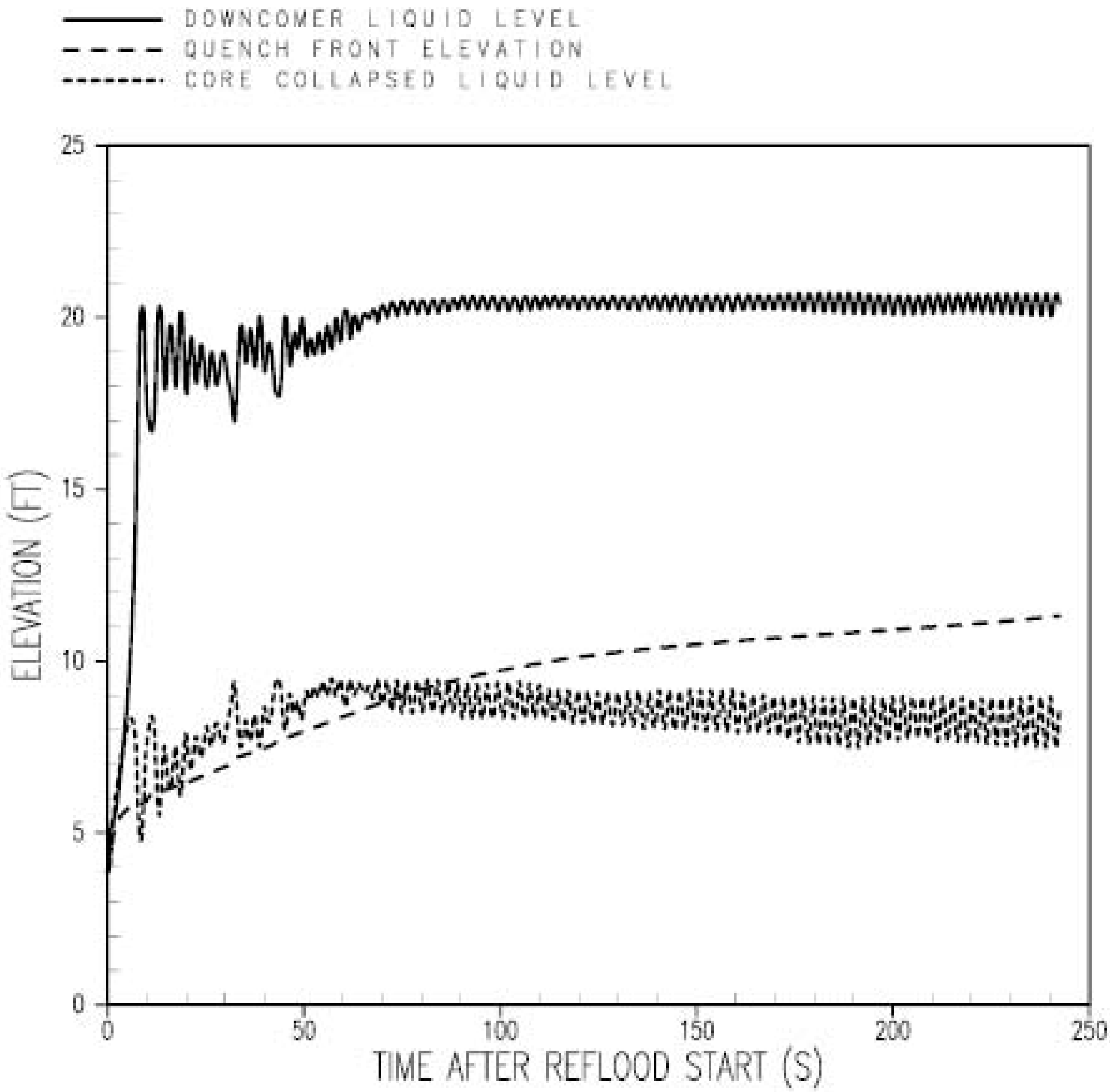

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FIGURE 15.6-7C

VESSEL LIQUID LEVELS DURING REFLOOD
(C_D=0.8, LOW T_{AVG}, MIN SI, COSINE
POWER SHAPE, NON-IFBA)

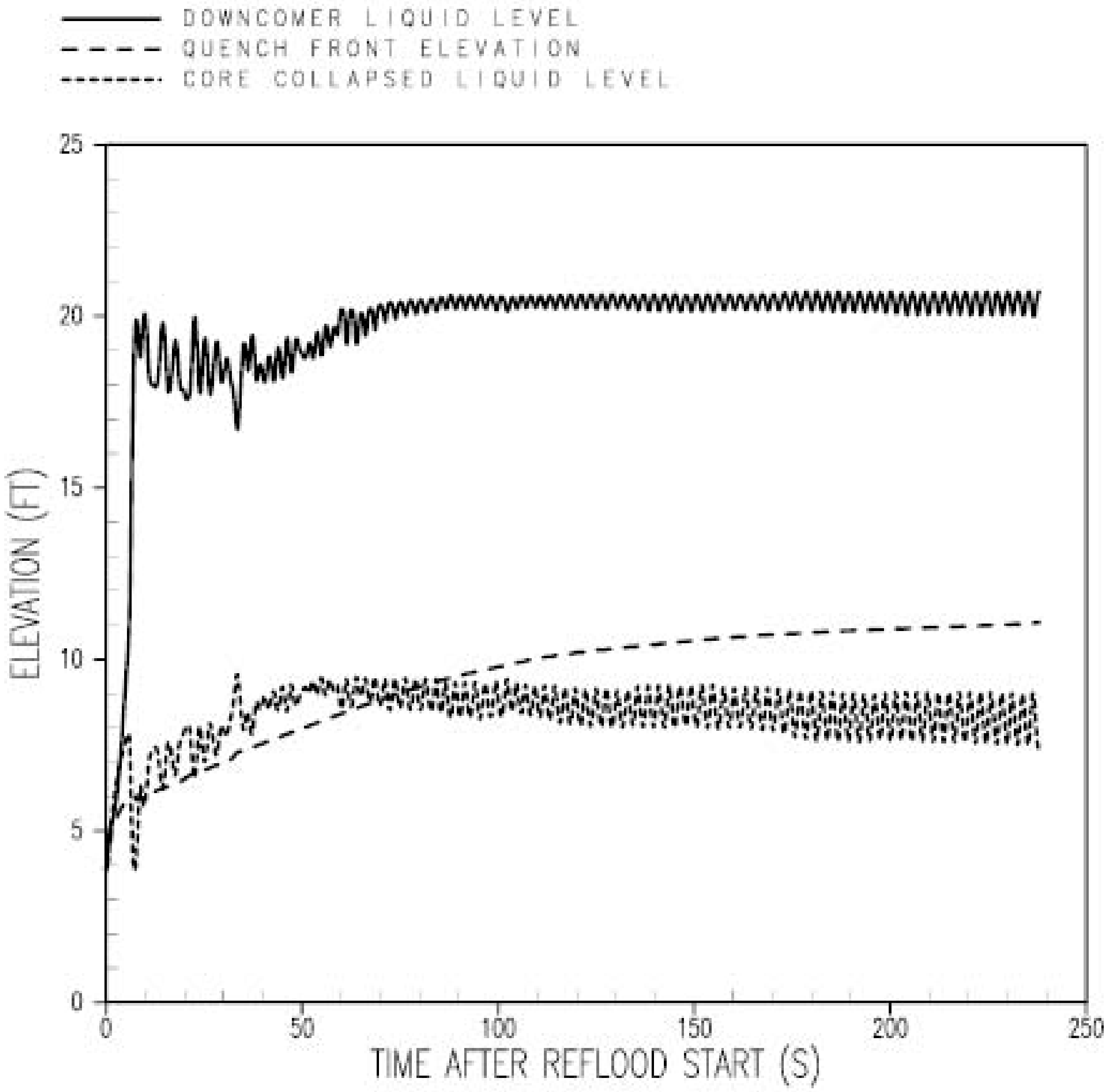

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FIGURE 15.6-7D

VESSEL LIQUID LEVELS DURING REFLOOD
(C_D=1.0, LOW T_{avg}, MIN SI, COSINE
POWER SHAPE, NON-IFBA)

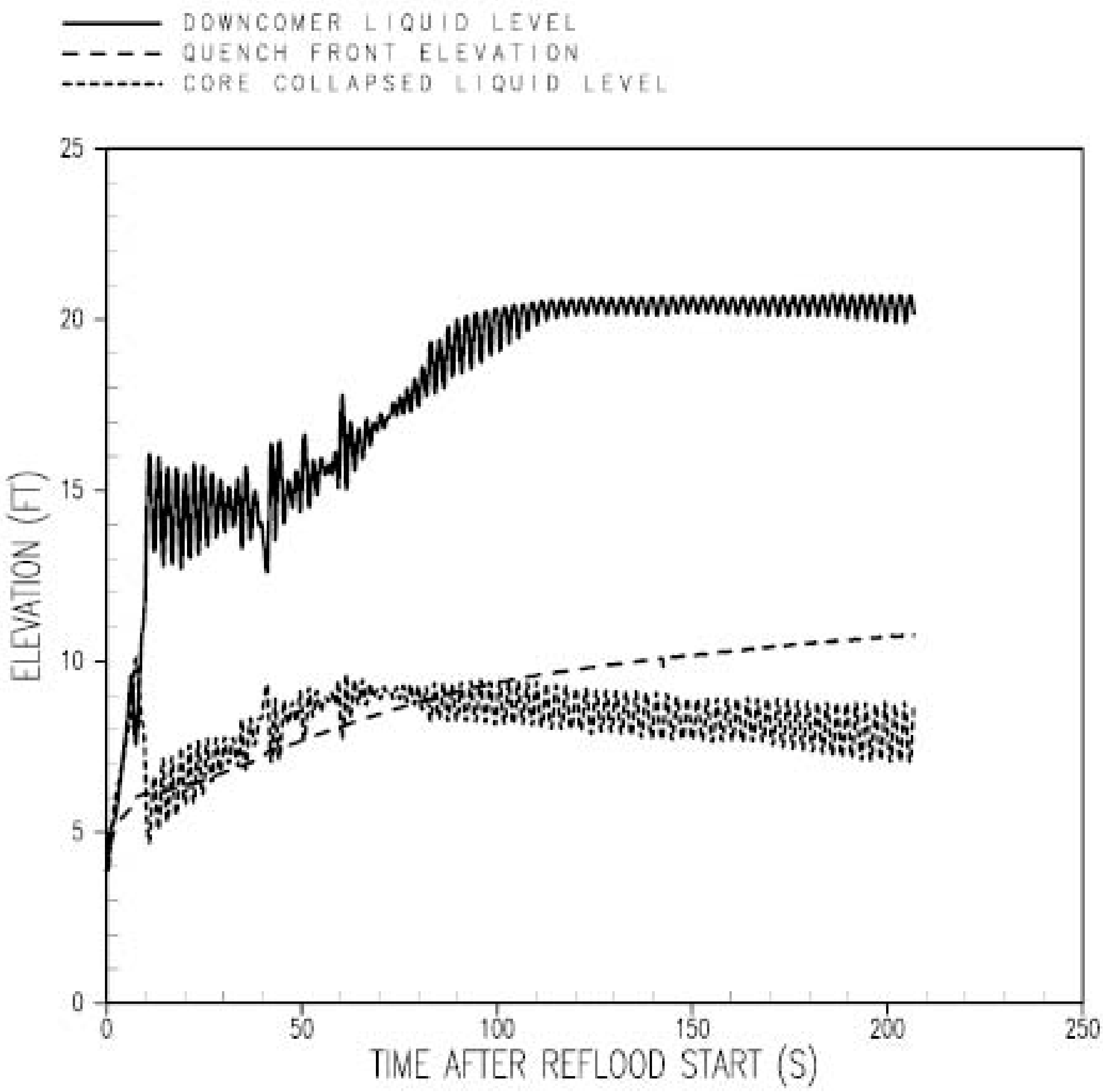

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FIGURE 15.6-7E

VESSEL LIQUID LEVELS DURING REFLOOD
(C_D=0.8, HIGH T_{AVG}, MIN SI, COSINE
POWER SHAPE, NON-IFBA)

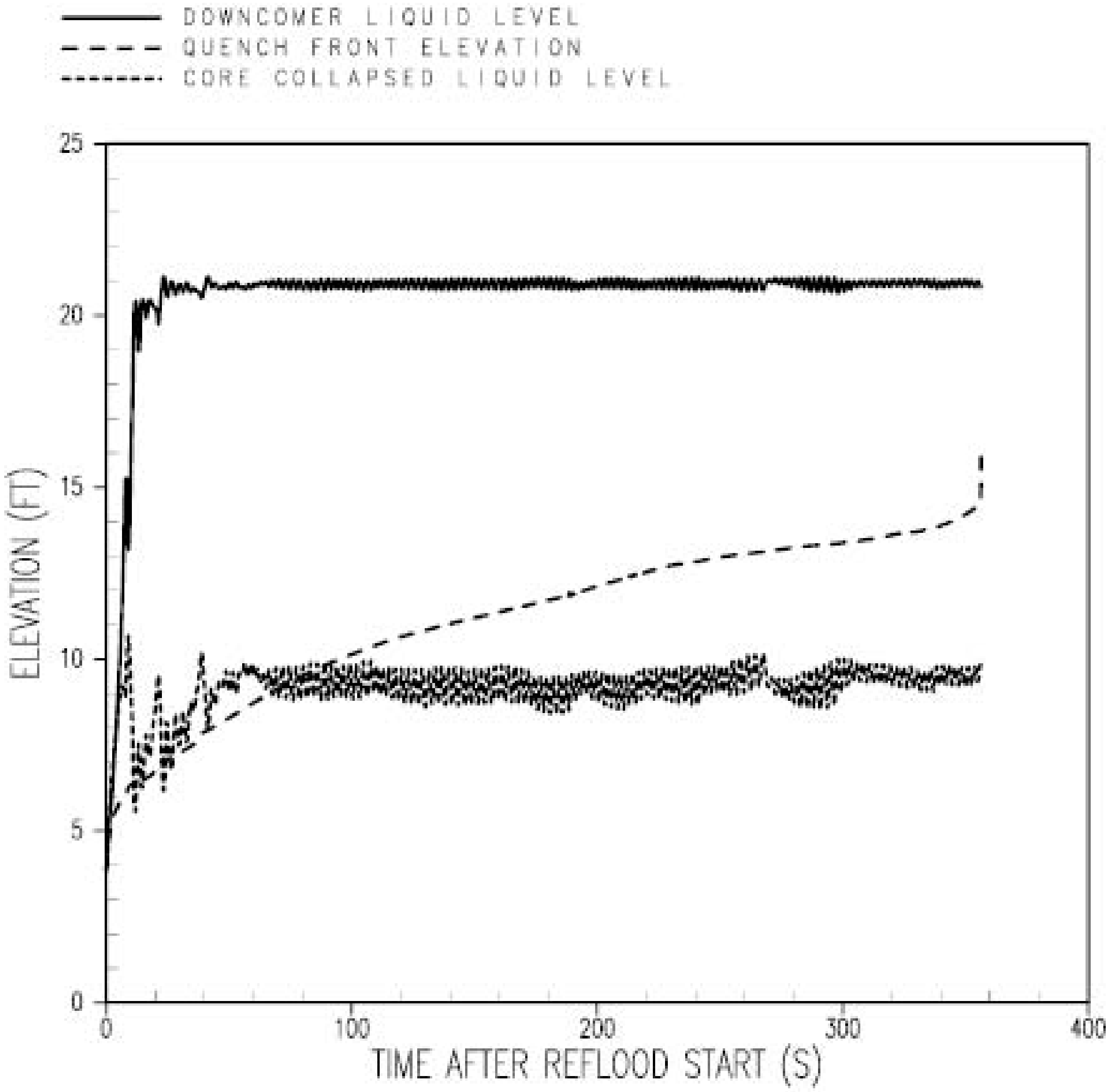

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FIGURE 15.6-7F

VESSEL LIQUID LEVELS DURING REFLOOD
(C_D=0.6, HIGH T_{AVG}, MAX SI, COSINE
POWER SHAPE, NON-IFBA)

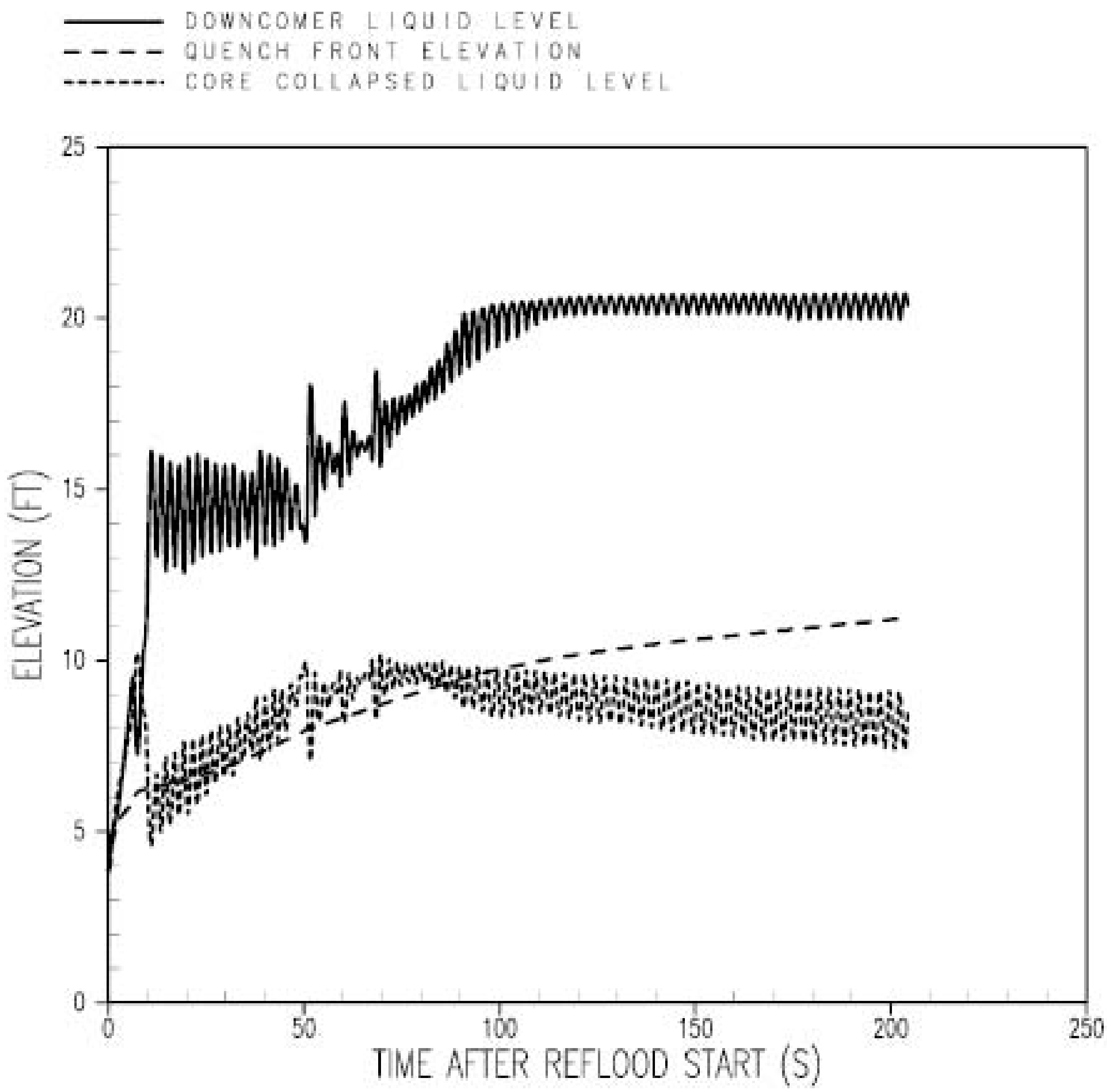

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FIGURE 15.6-70

VESSEL LIQUID LEVELS DURING REFLOOD (C_D=0.6, HIGH T_{avg}, MIN SI, 0.5' POWER SHAPE, NON-IFBA)

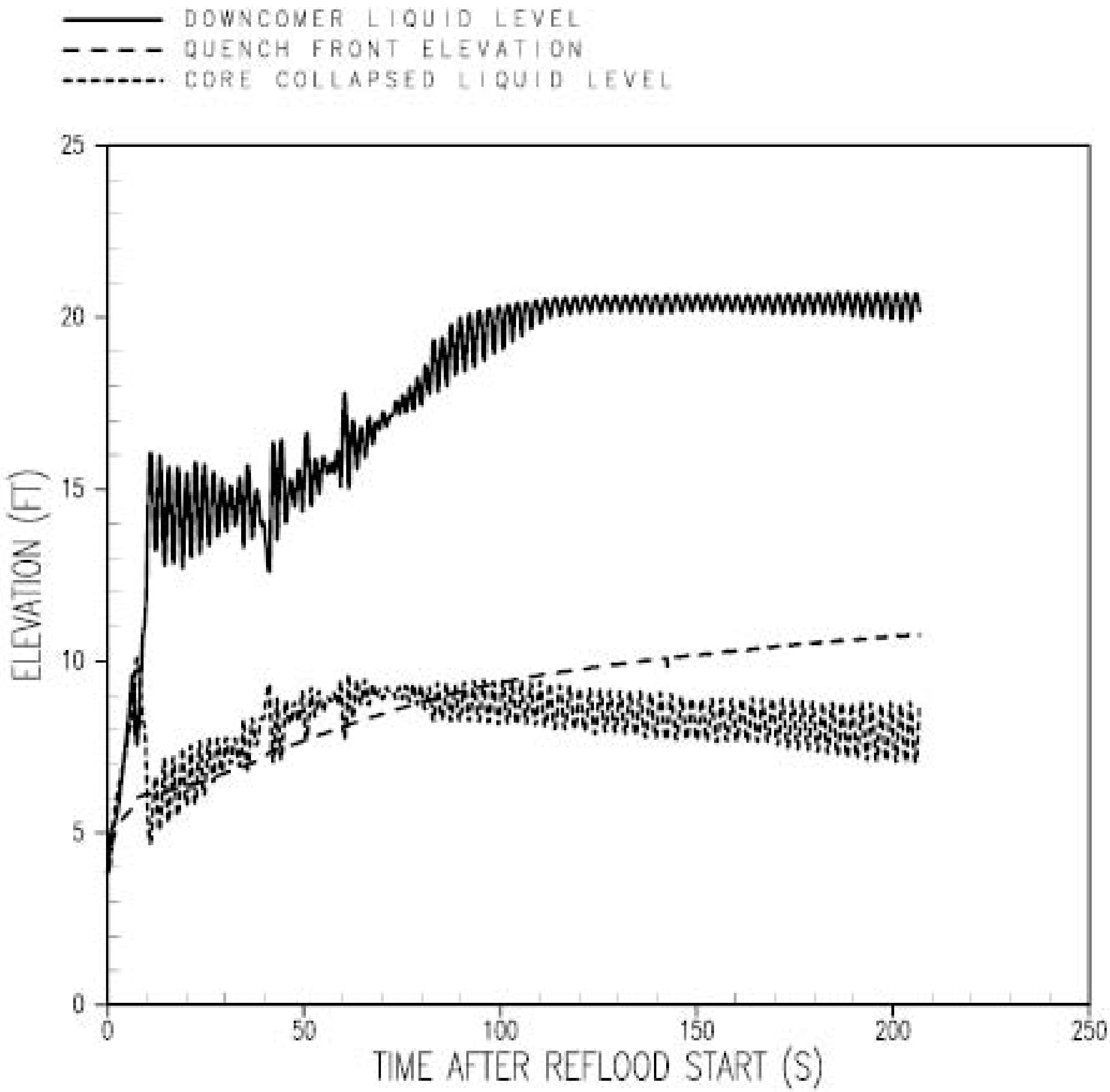

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FIGURE 15.6-7H

VESSEL LIQUID LEVELS DURING REFLOOD
(C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE
POWER SHAPE, IFBA)

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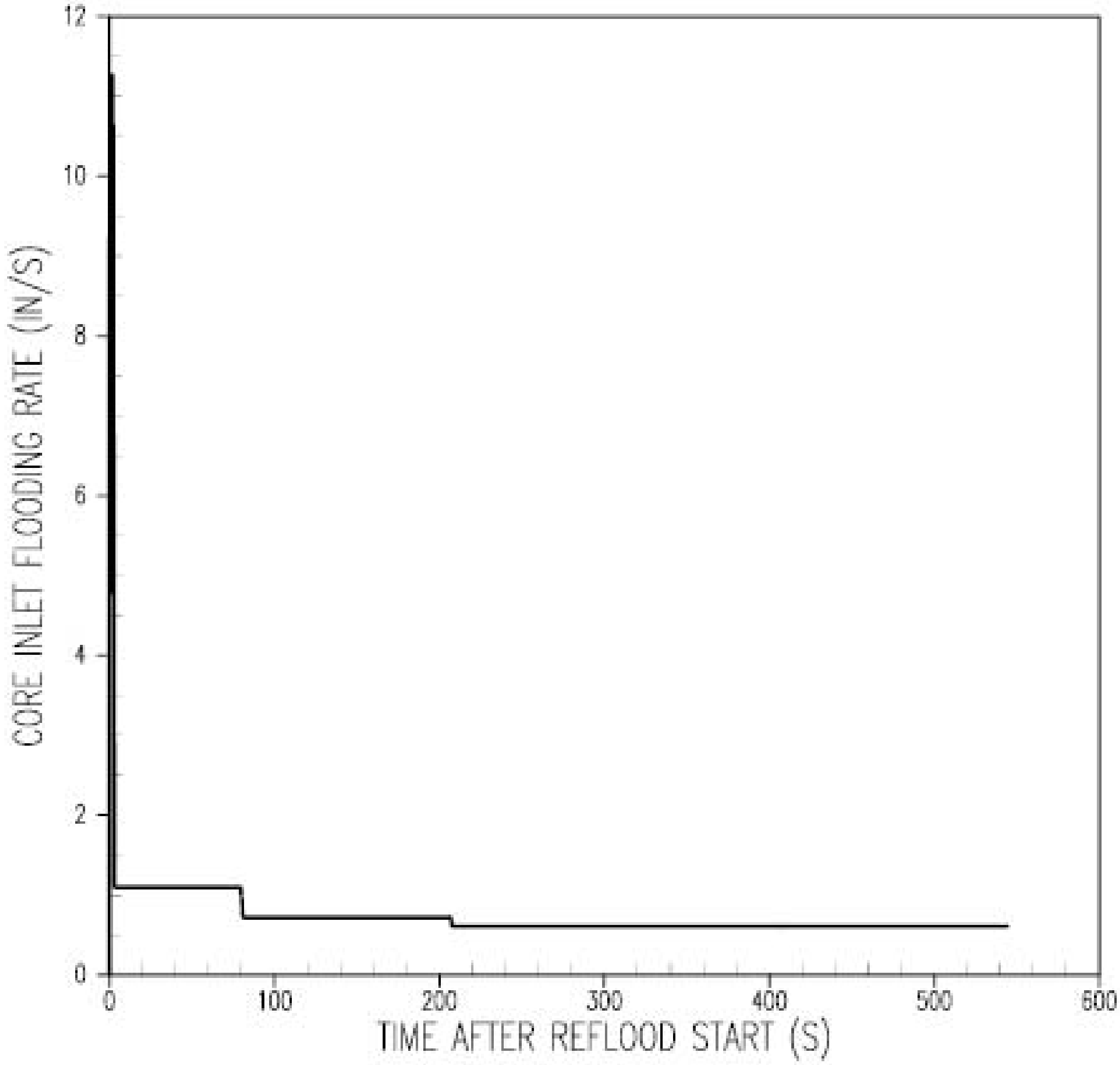

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FIGURE 15.6-8A

CORE INLET FLOODING RATE DURING REFLOOD (C_D=0.4, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

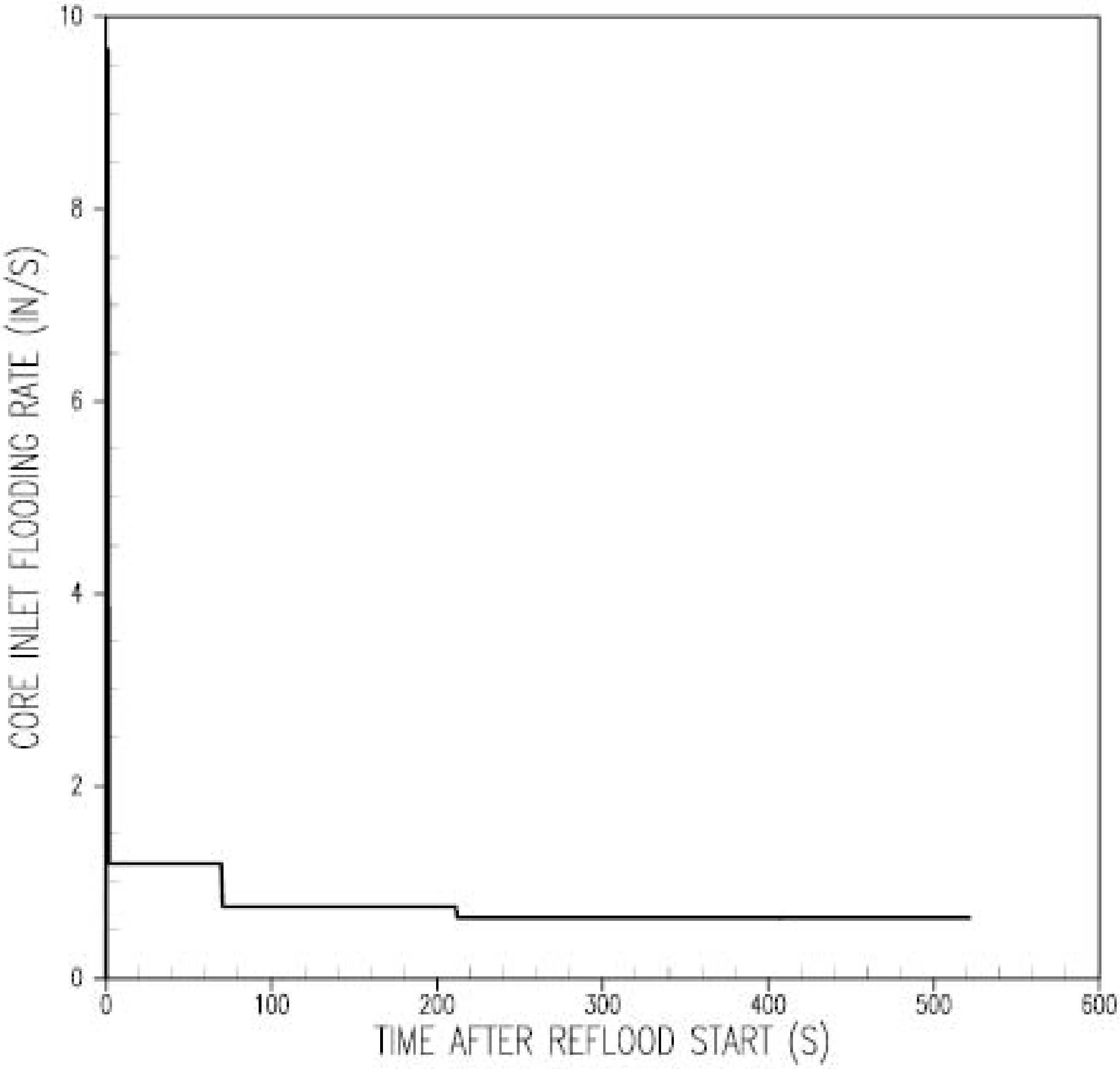

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FIGURE 15.6-8B

CORE INLET FLOODING RATE DURING REFLOOD (C_D=0.6, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA

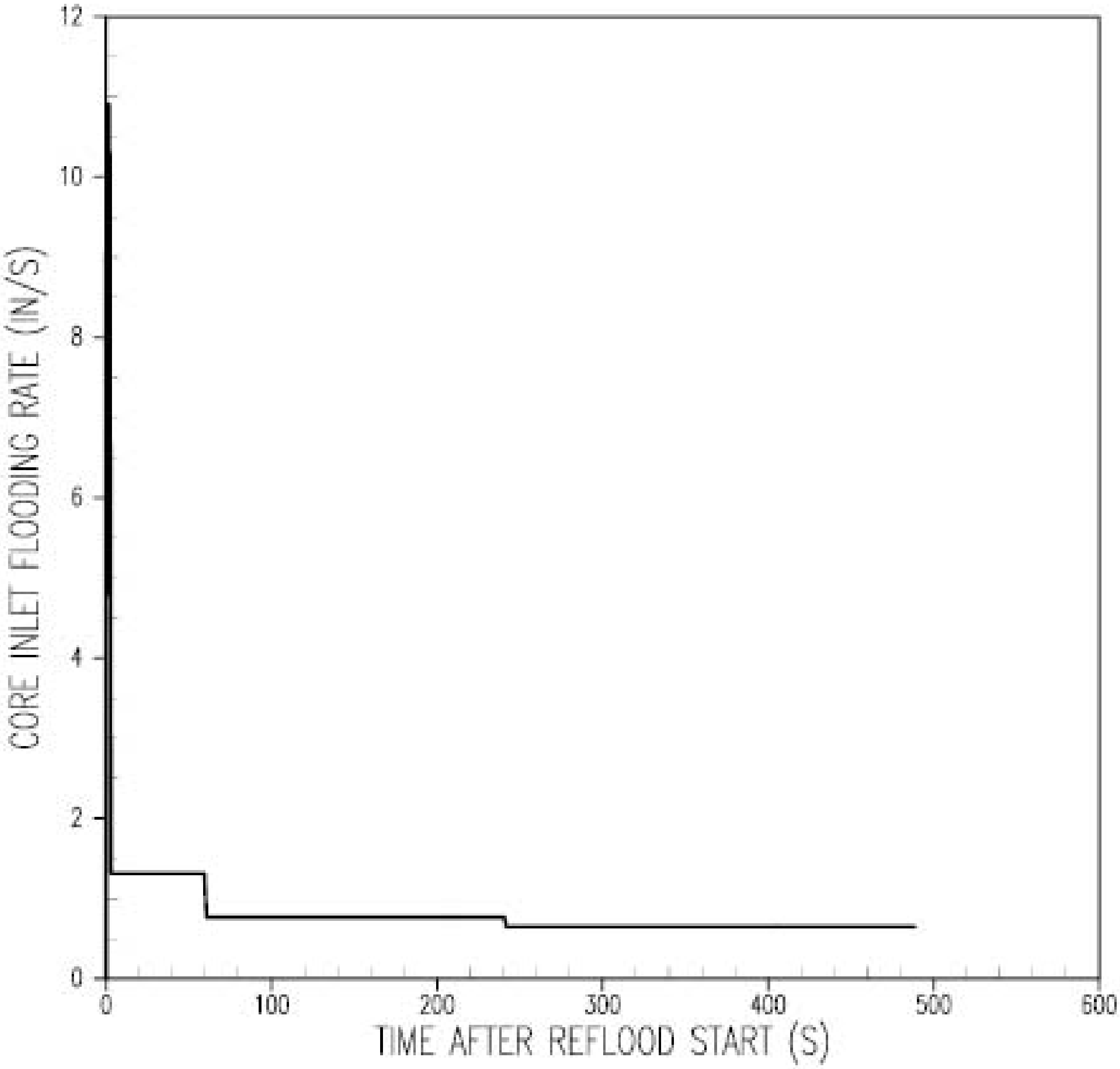

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FIGURE 15.6-8C

CORE INLET FLOODING RATE DURING REFLOOD (C_D=0.8, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

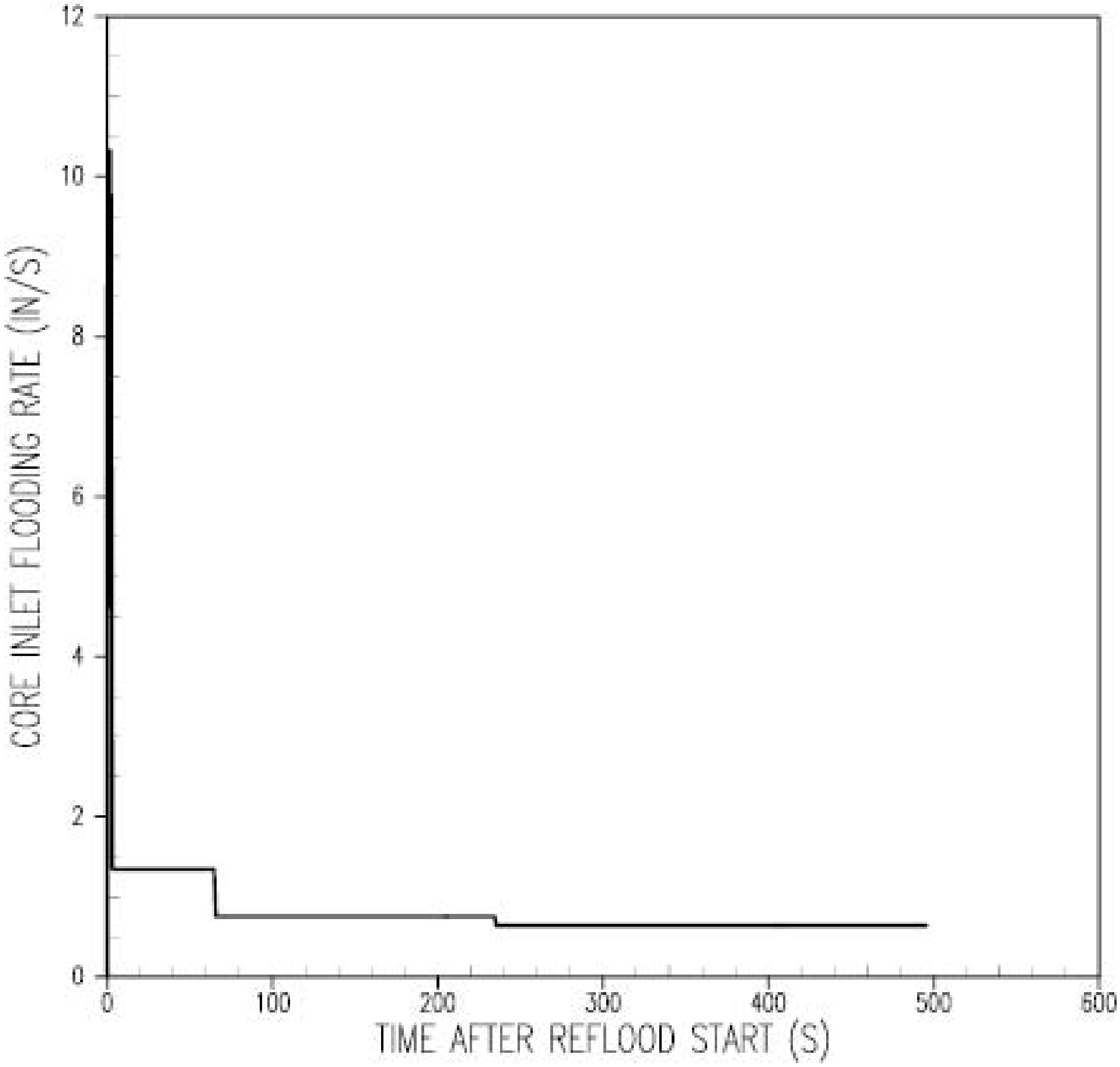

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FIGURE 15.6-6D

CORE INLET FLOODING RATE DURING REFLOOD (C_D=1.0, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

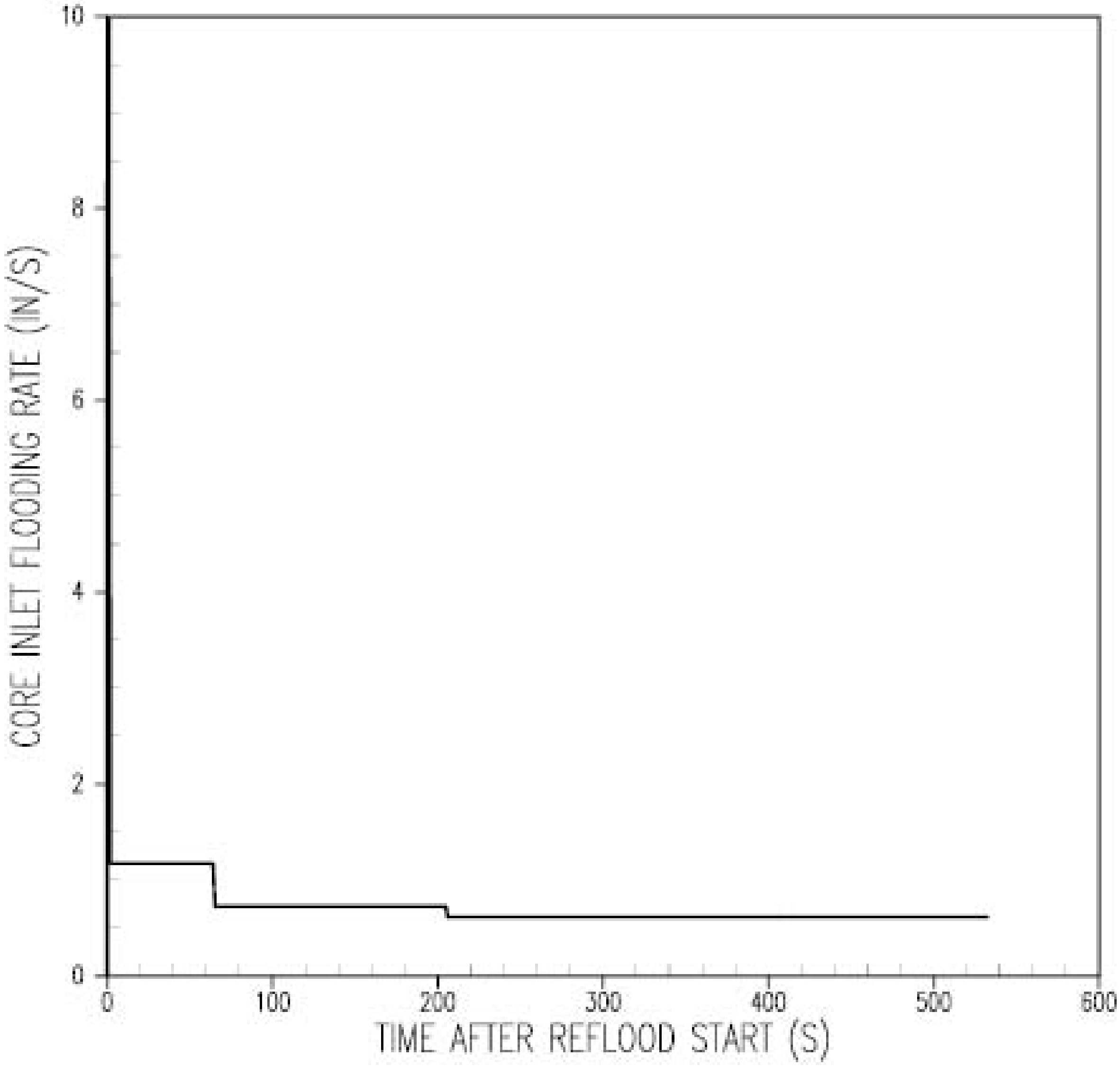

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FIGURE 15.6-5E

CORE INLET FLOODING RATE DURING REFLOOD (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

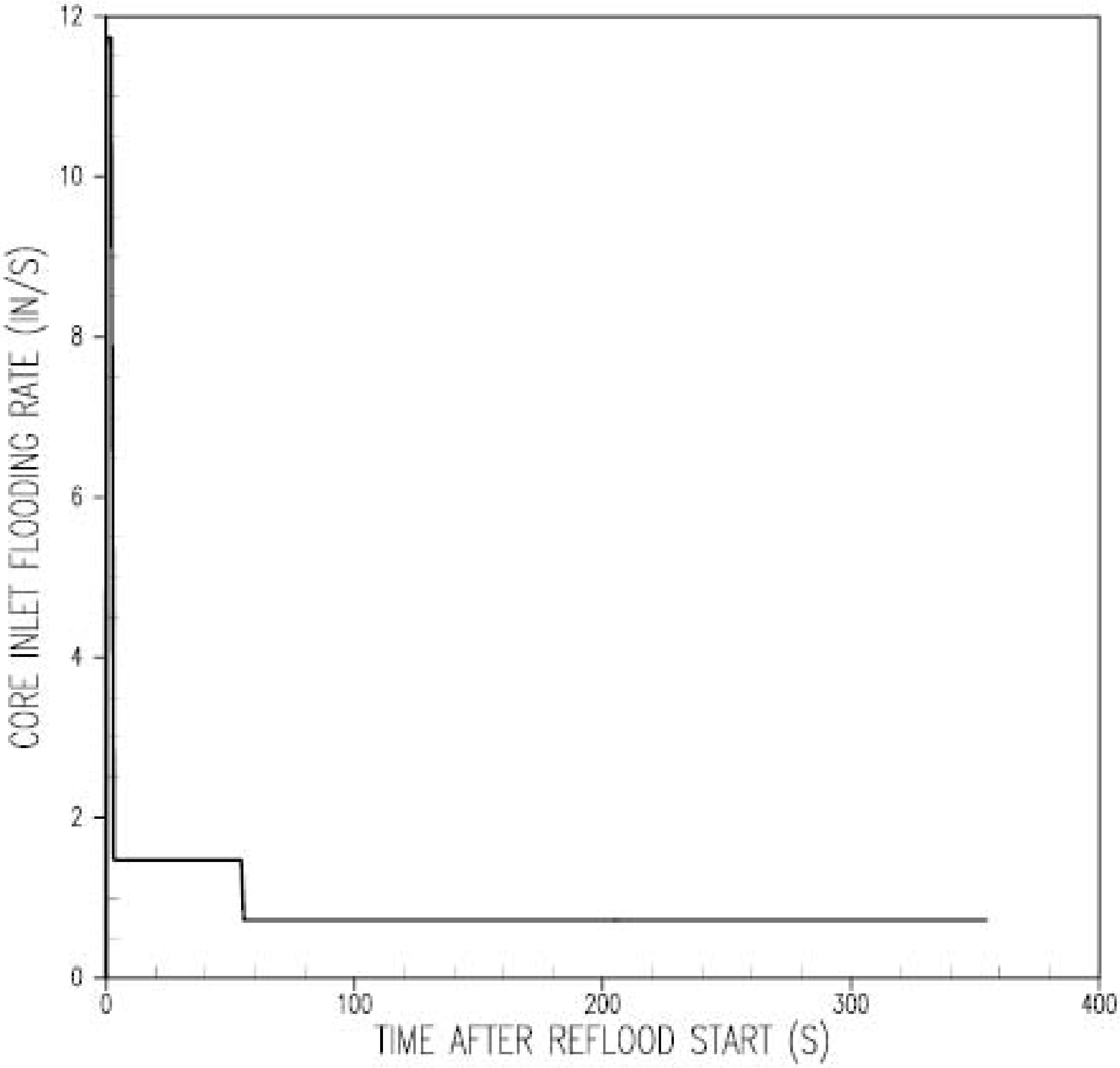

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FIGURE 15.6-5F

CORE INLET FLOODING RATE DURING REFLOOD (C_D=0.6, HIGH T_{avg}, MAX SI, COSINE POWER SHAPE, NON-IFBA)

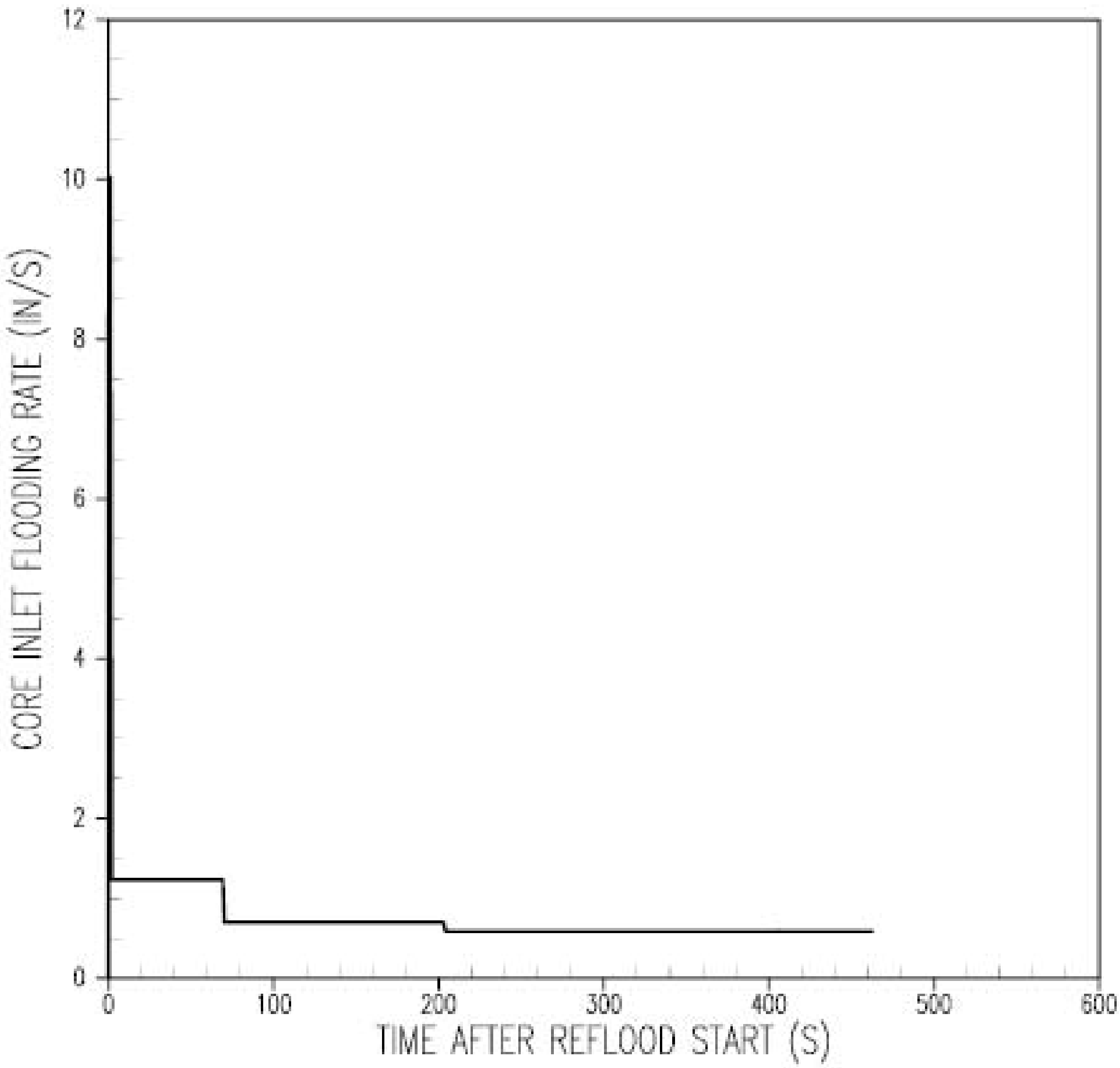

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FIGURE 15.6-8Q

CORE INLET FLOODING RATE DURING REFLOOD (C_D=0.6, HIGH T_{AVG}, MIN SI, 8.5' POWER SHAPE, NON-IFBA)

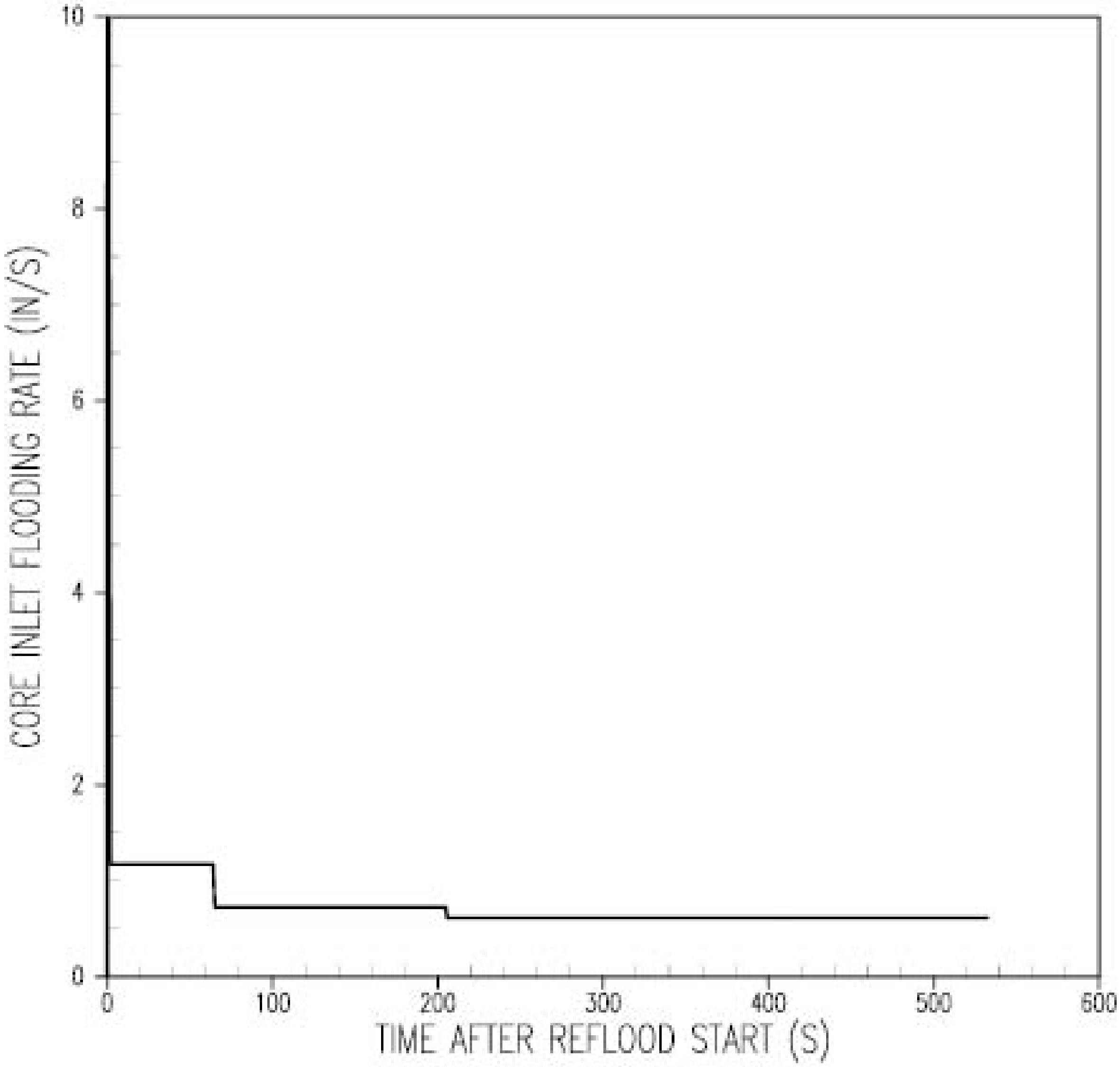

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FIGURE 15.6-6H

CORE INLET FLOODING RATE DURING REFLOOD (C_D=0.6, HIGH T_{avg}, MIN SI, COSINE POWER SHAPE, IFBA)

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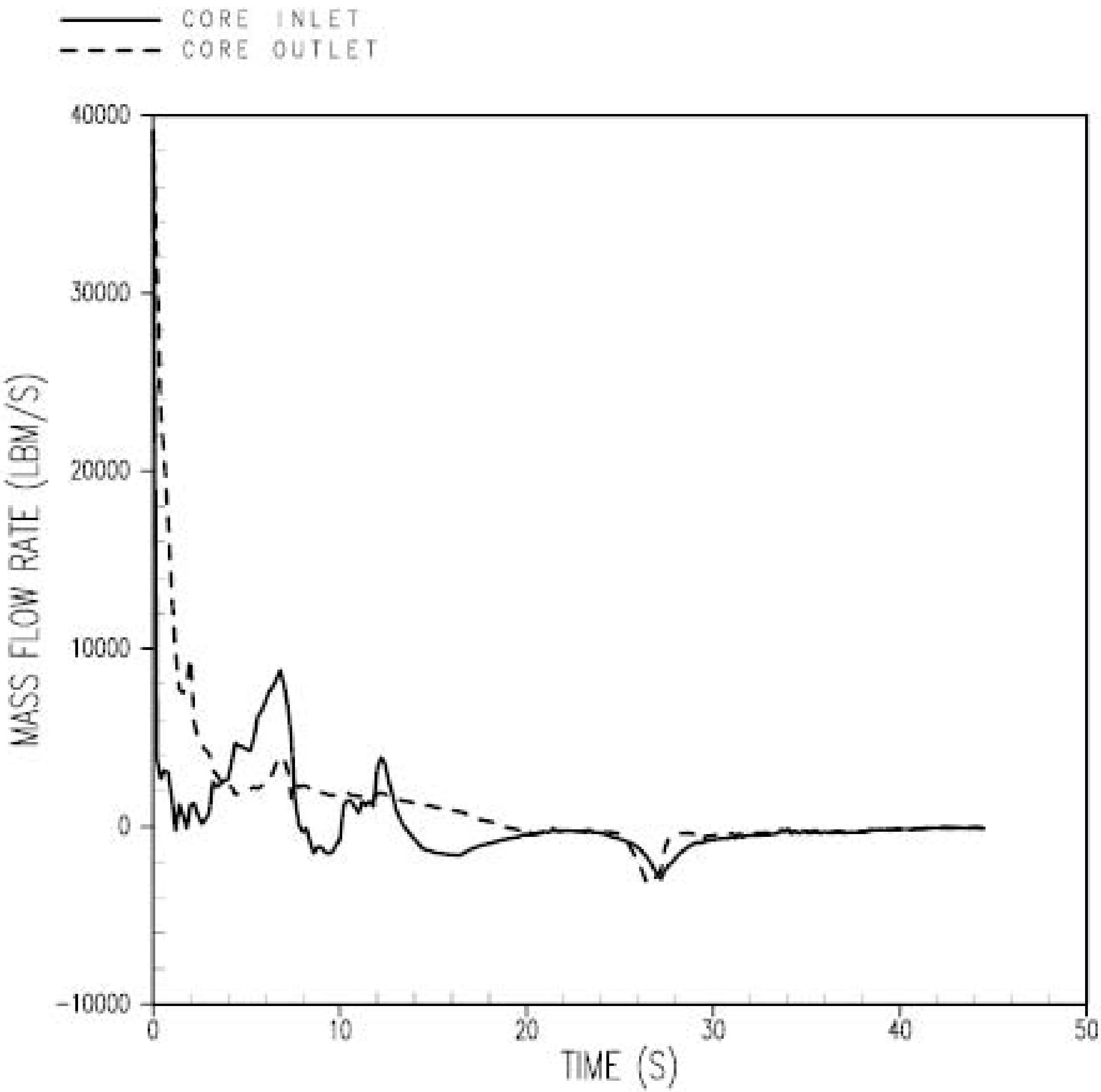

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FIGURE 15.6-9A

CORE INLET AND OUTLET MASS FLOW RATE DURING BLOWDOWN (C_D=0.4, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

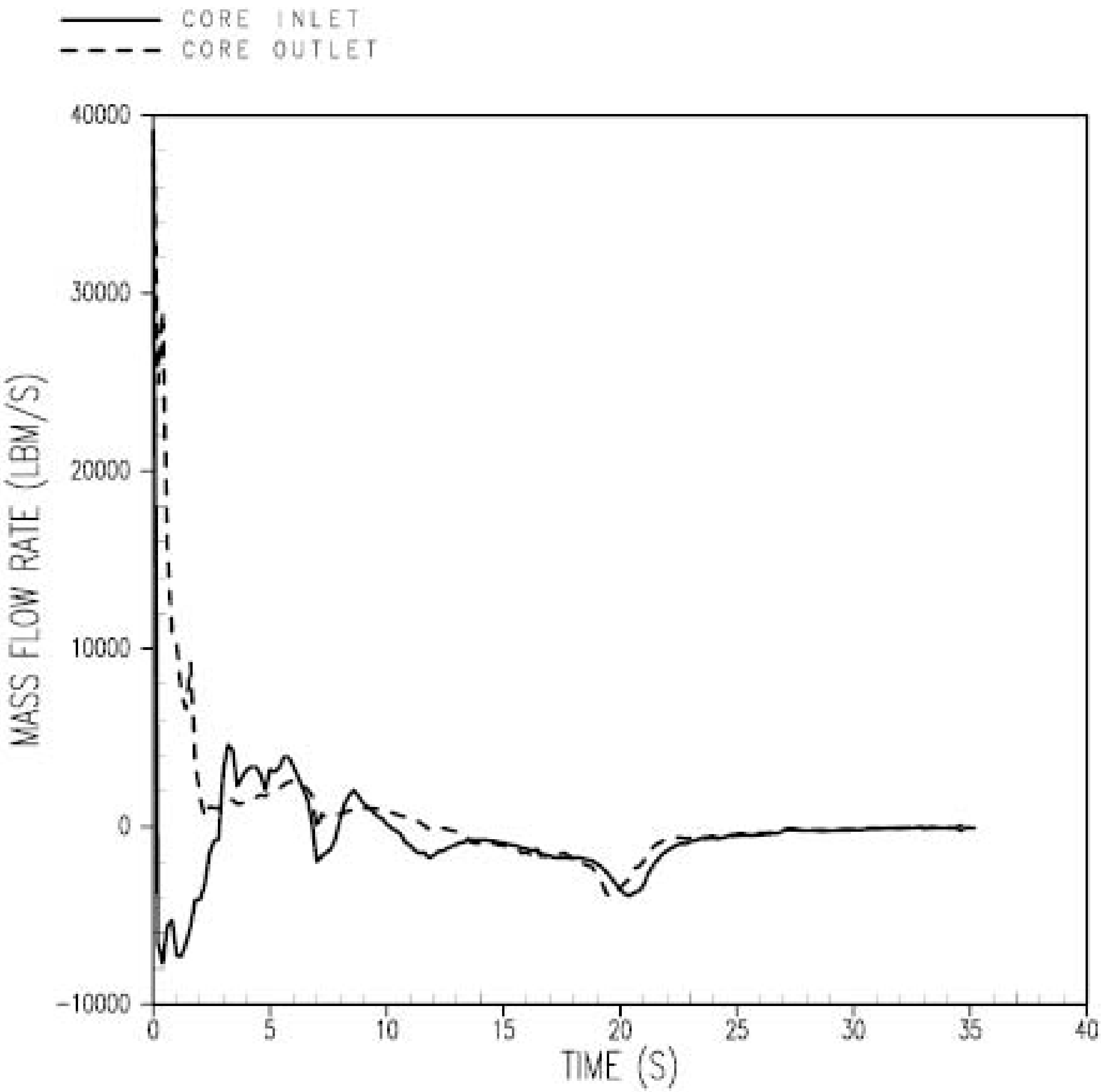

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FIGURE 15.6-9B

CORE INLET AND OUTLET MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

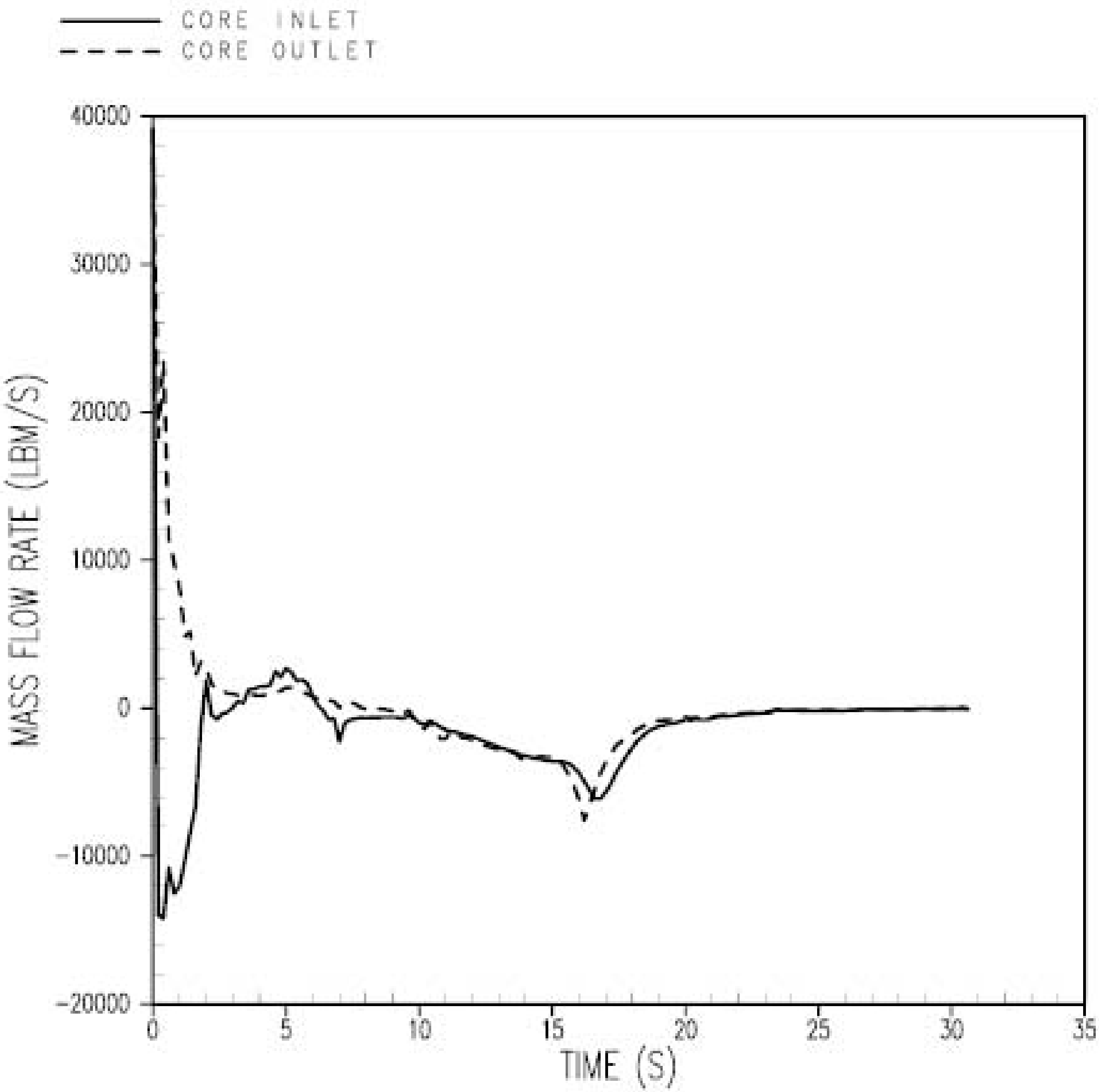

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FIGURE 15.6-9C

CORE INLET AND OUTLET MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

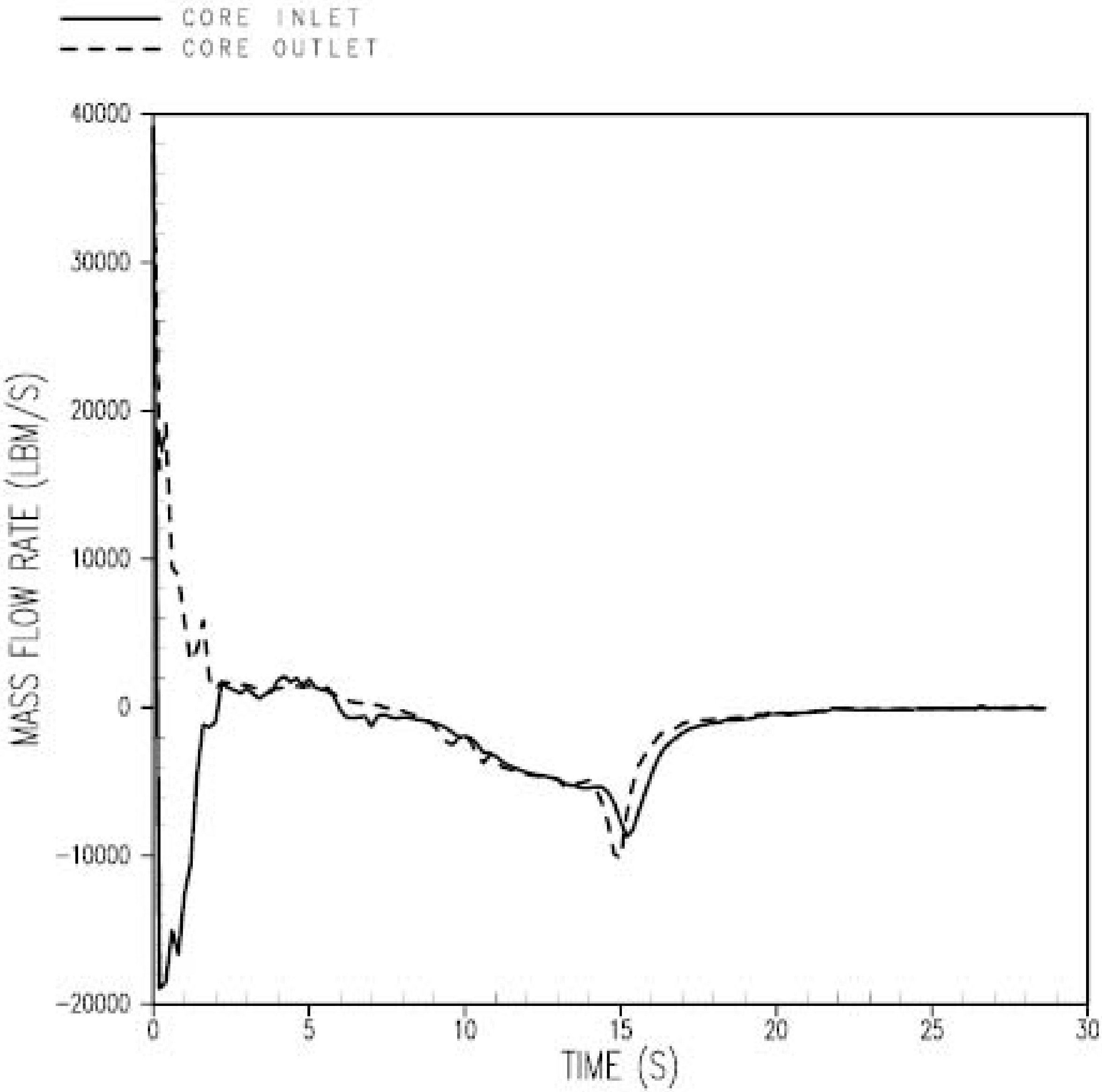

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FIGURE 15.6-9D

CORE INLET AND OUTLET MASS FLOW RATE DURING BLOWDOWN (C_D=1.0, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

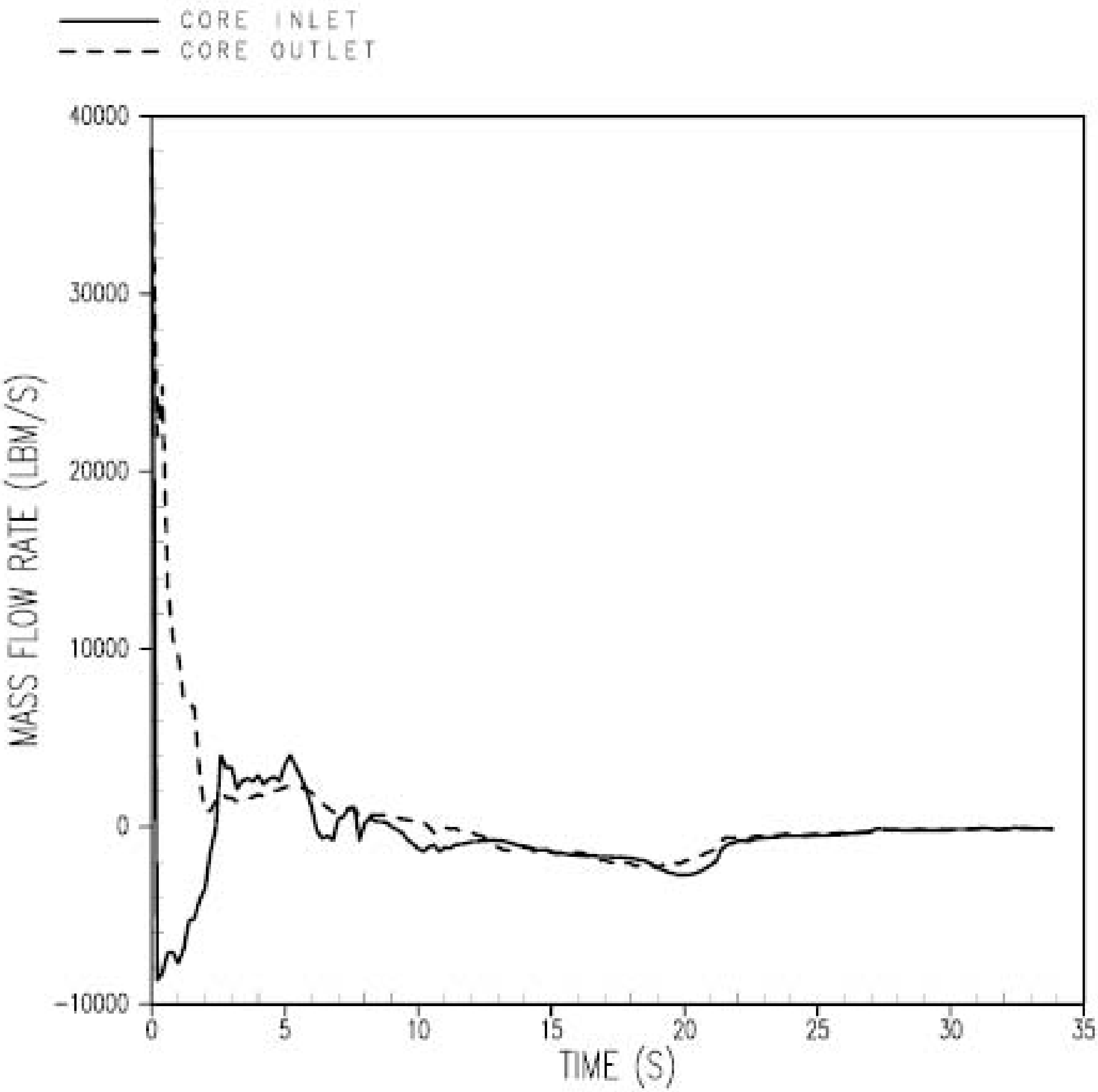

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FIGURE 15.6-9E

CORE INLET AND OUTLET MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

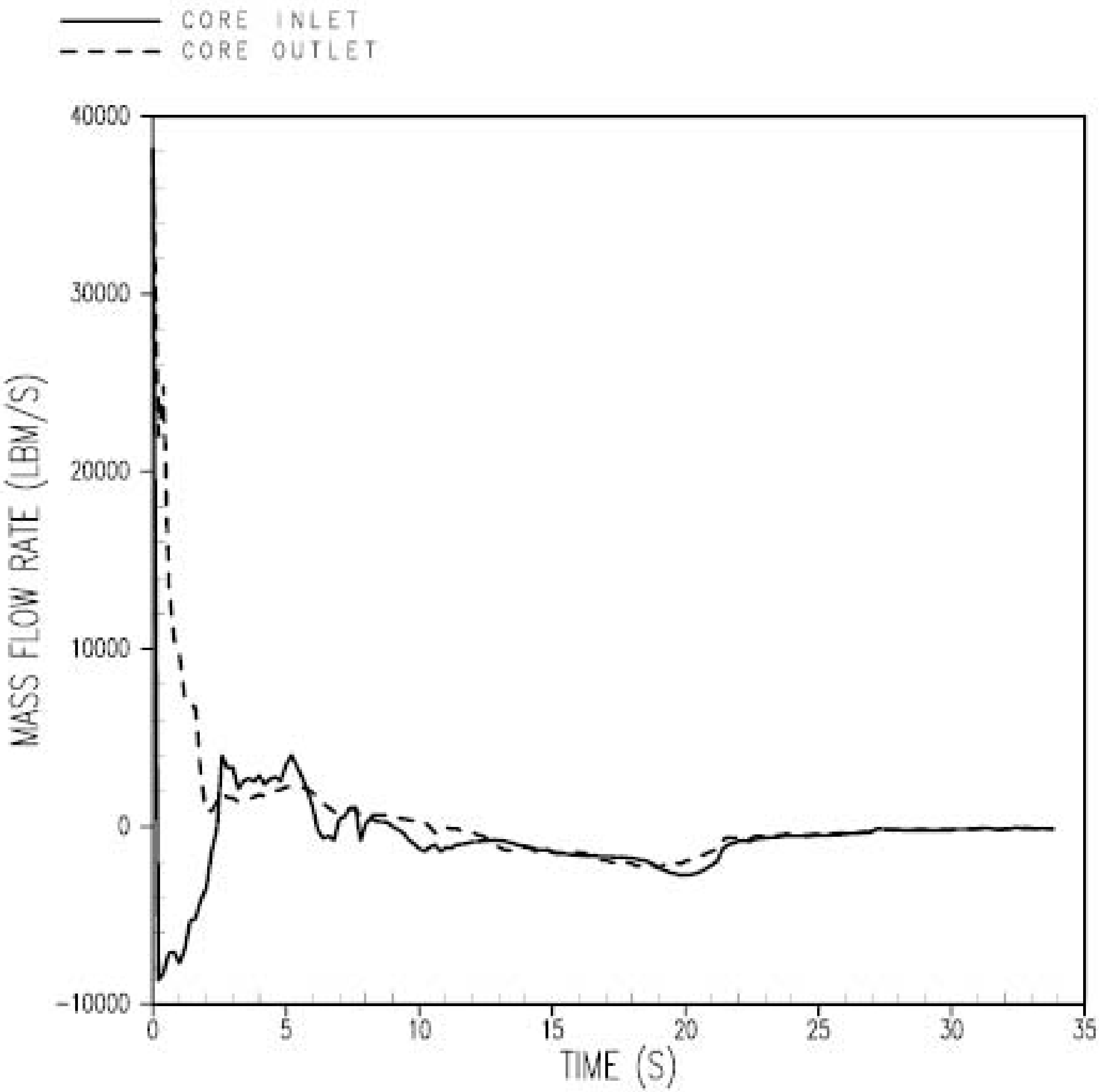

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FIGURE 15.6-9F

CORE INLET AND OUTLET MASS FLOW RATE
DURING BLOWDOWN (C_D=0.6, HIGH T_{AVG},
MAX SG, COSINE POWER SHAPE, NON-IFBA)

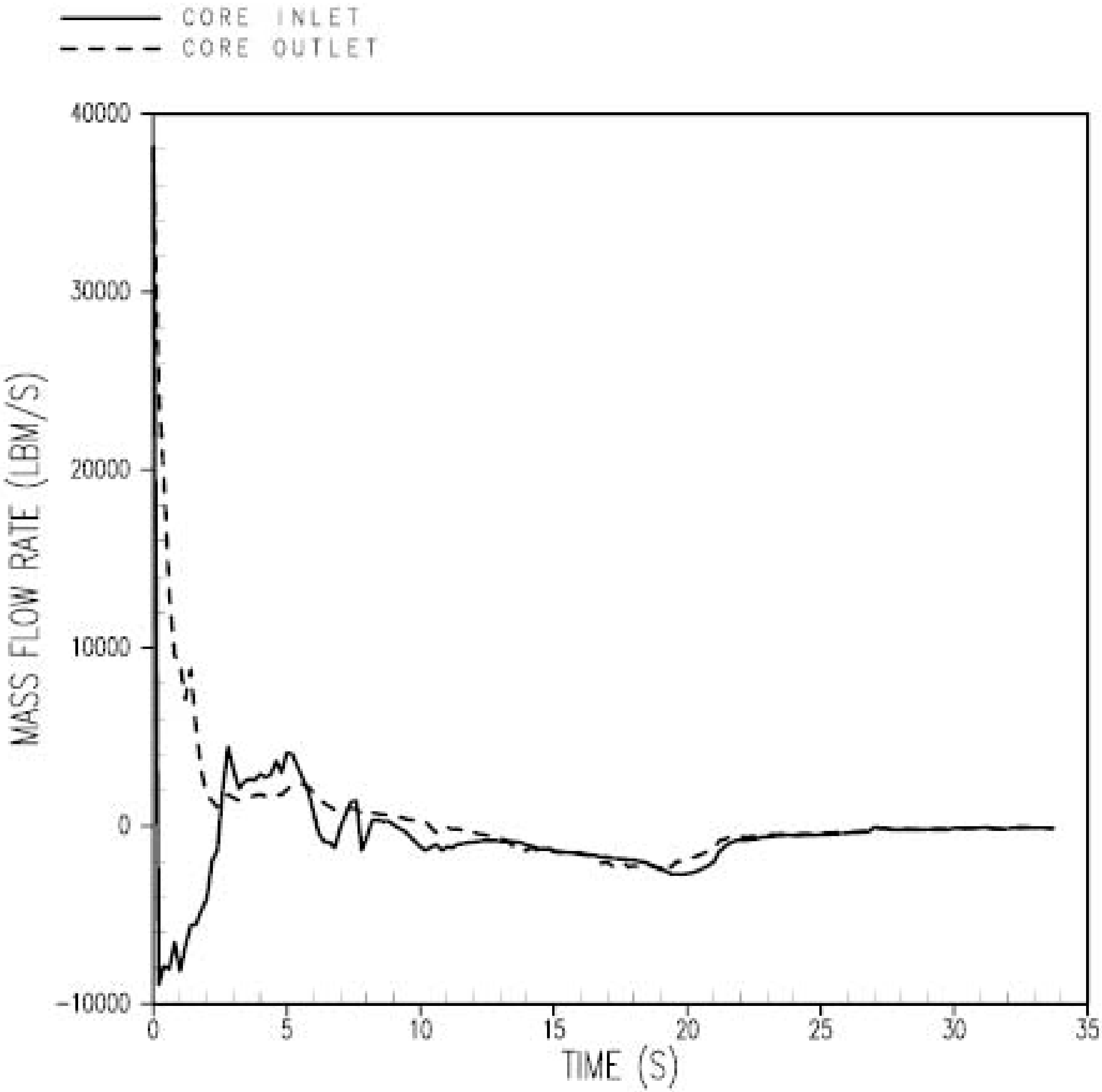

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FIGURE 15.6-90

CORE INLET AND OUTLET MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, HIGH T_{avg}, MIN SI, 8.5' POWER SHAPE, NON-IFBA)

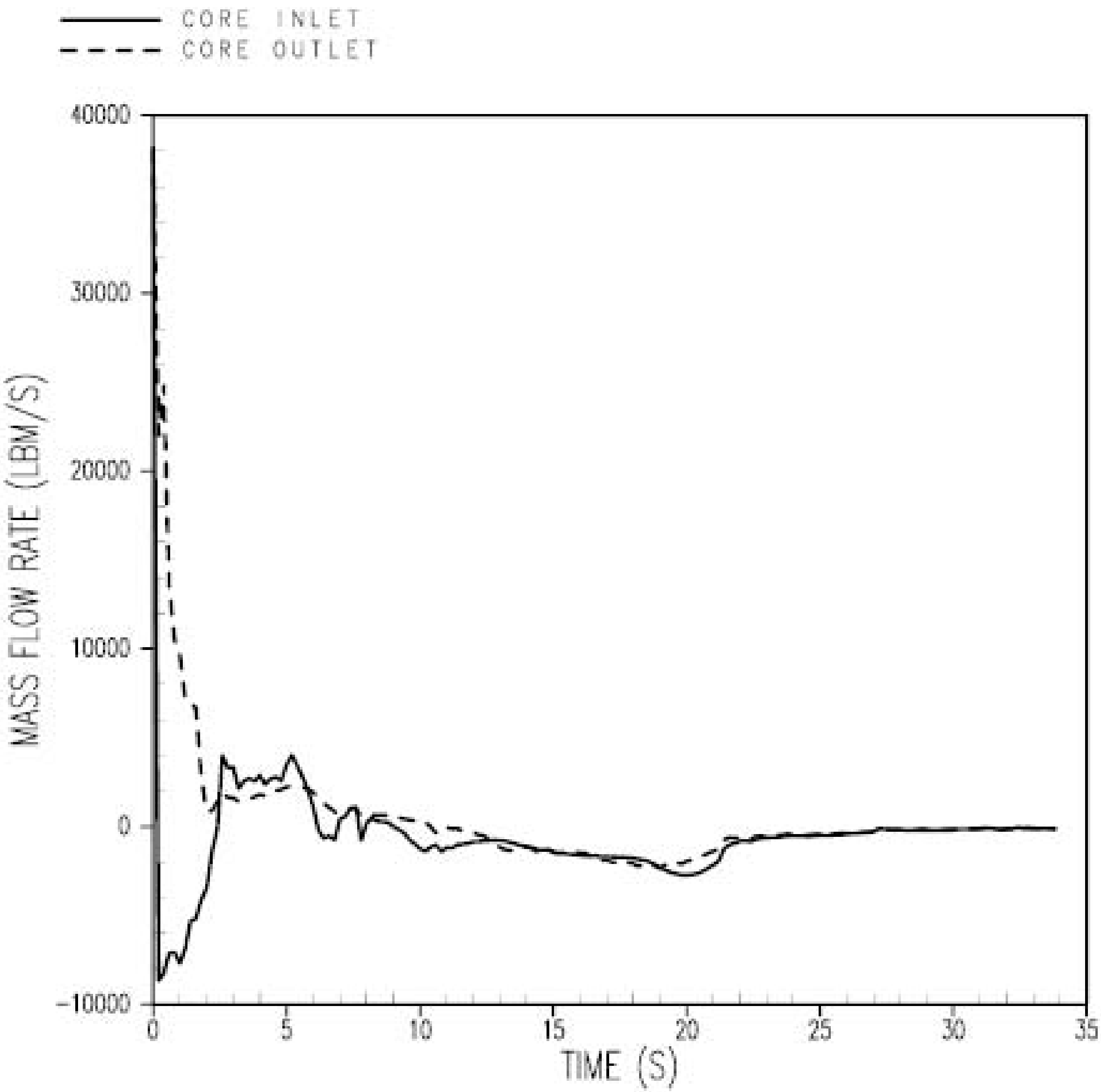

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FIGURE 15.6-5H

CORE INLET AND OUTLET MASS FLOW RATE
DURING BLOWDOWN (C_D=0.6, HIGH T_{avg},
MIN SI, COSINE POWER SHAPE, IFBA)

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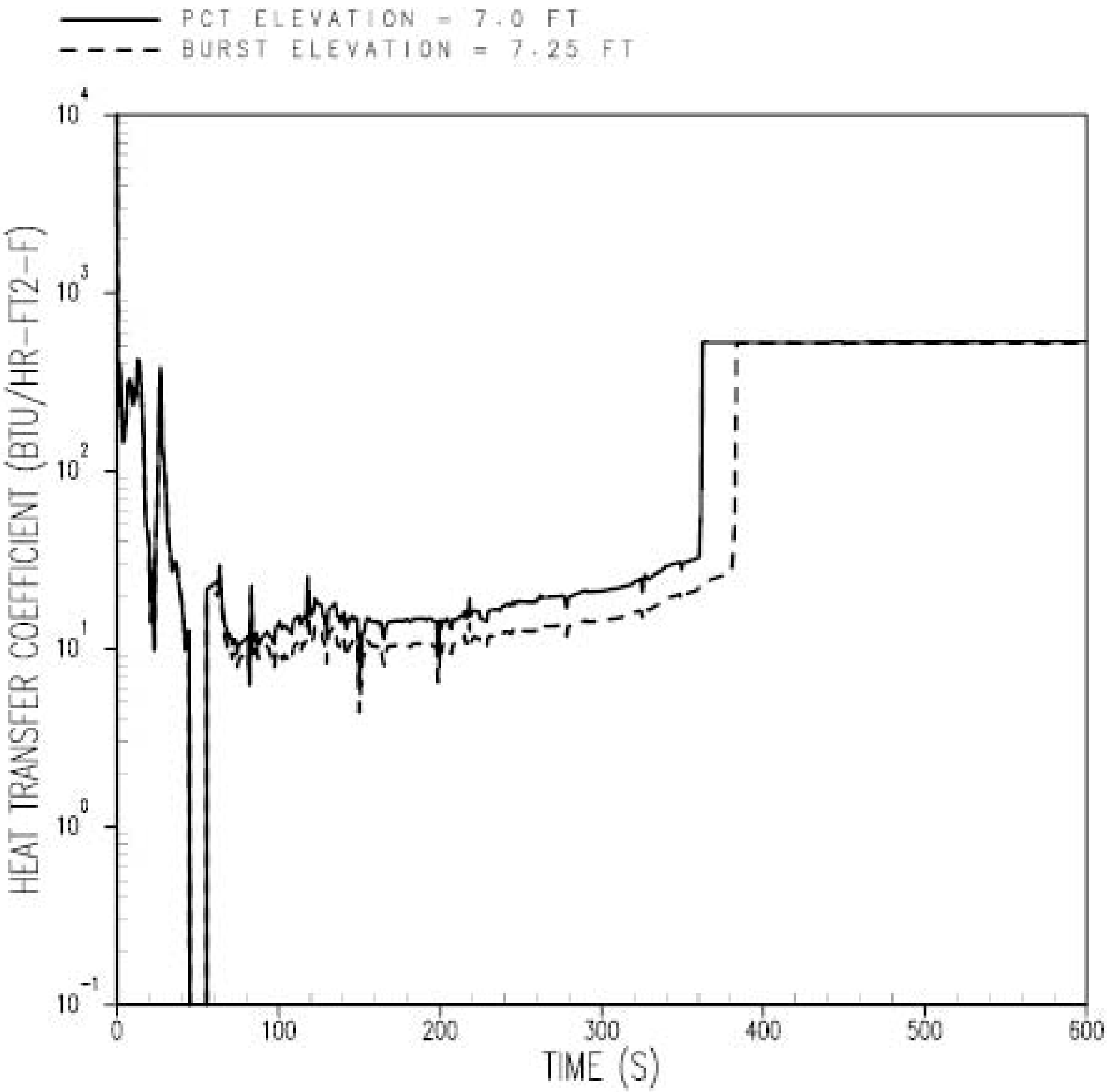

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FIGURE 15.6-10A

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=0.4, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

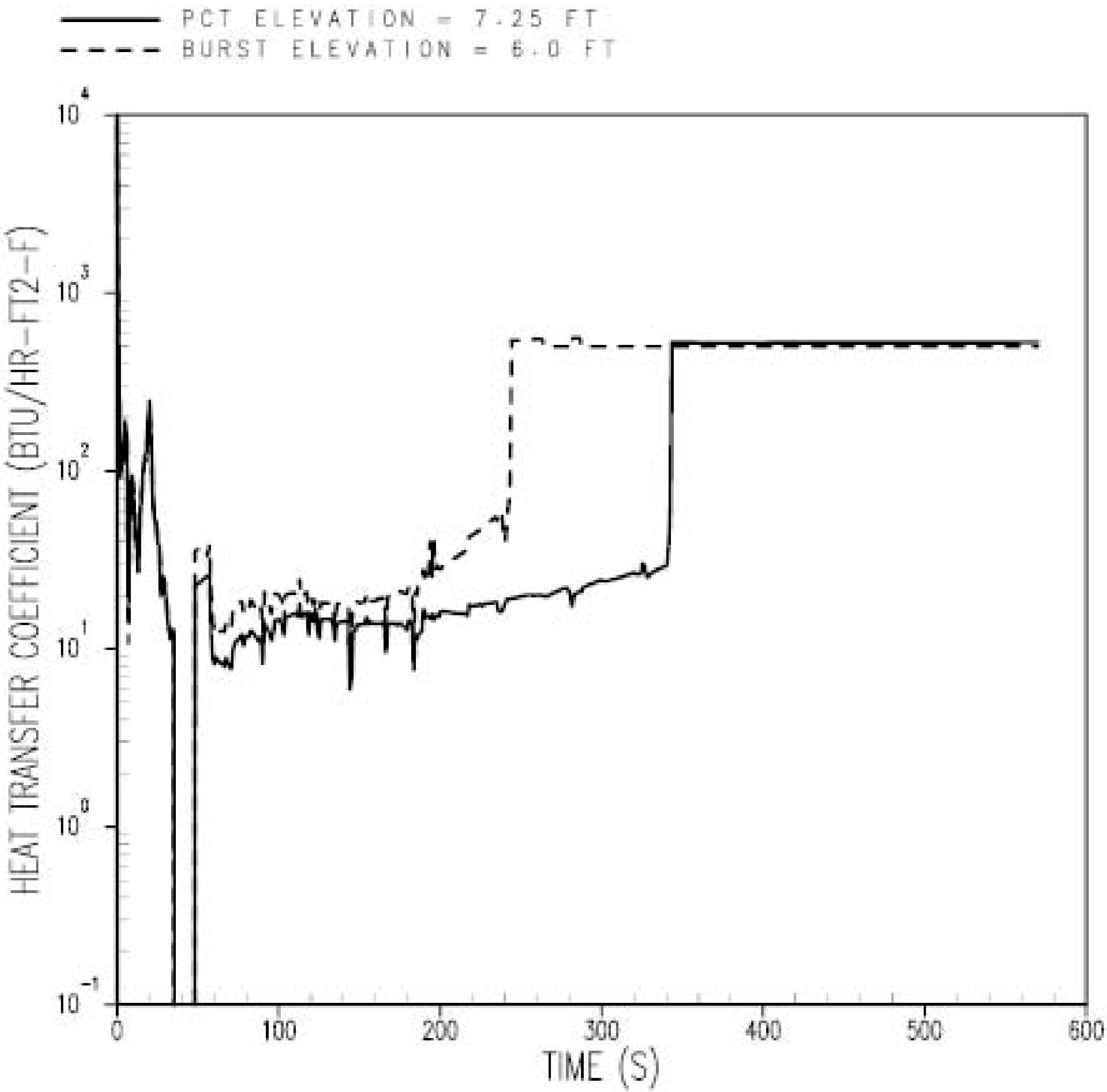

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FIGURE 15.6-105

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=0.8, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

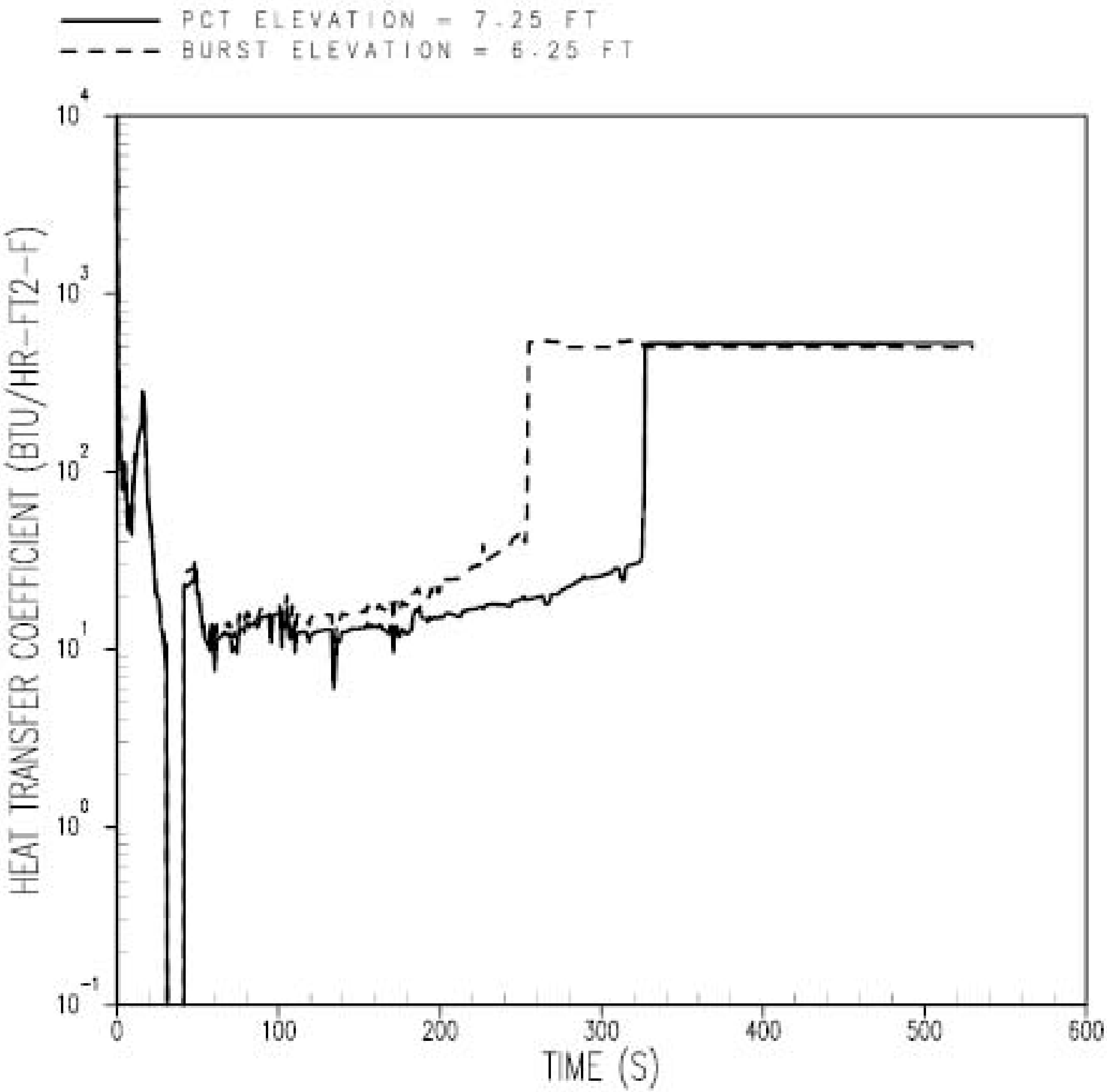

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FIGURE 15.6-10C

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=0.8, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

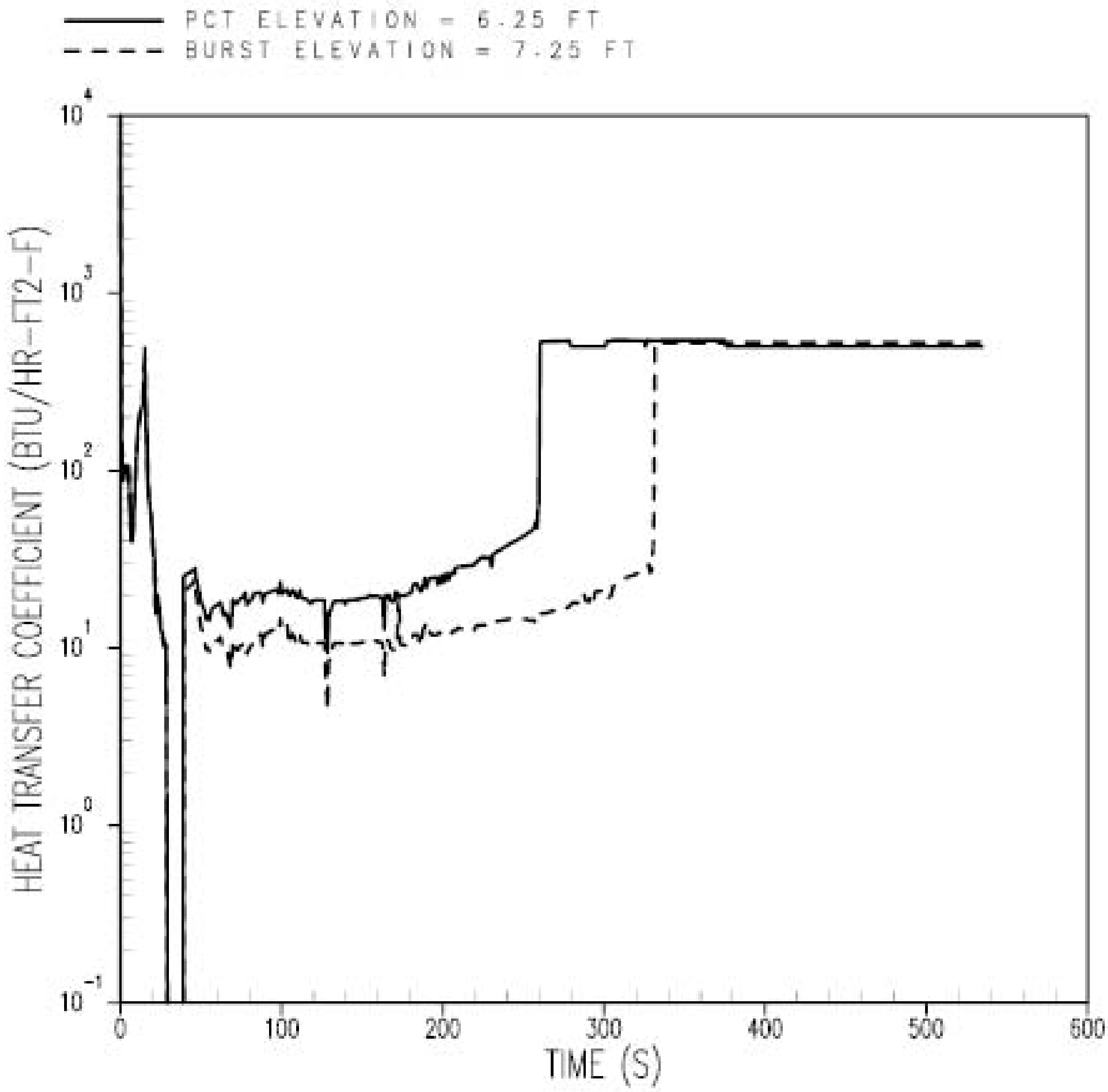

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FIGURE 15.6-10D

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=1.0,LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

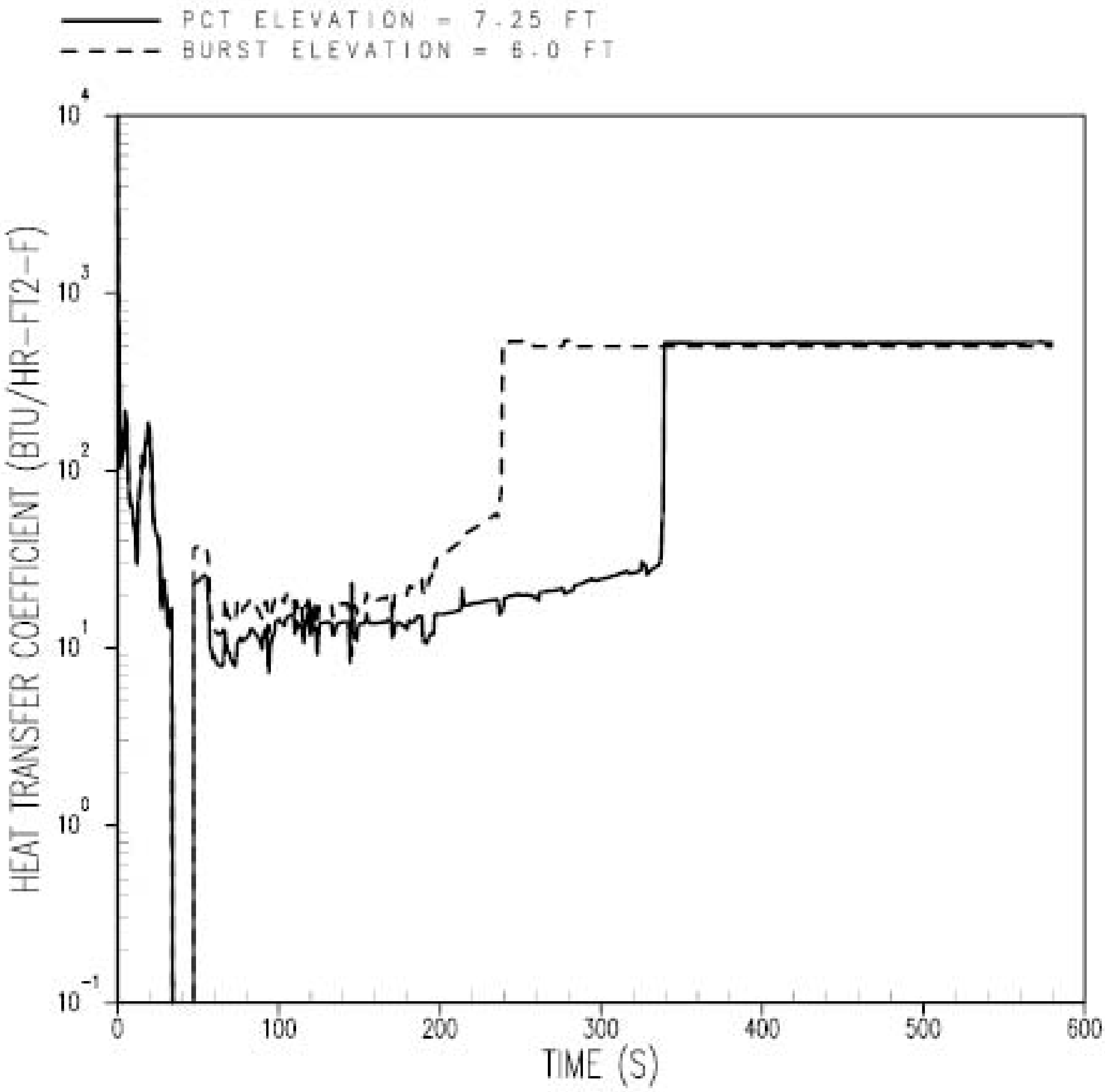

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FIGURE 15.6-10E

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=0.8, HIGH T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

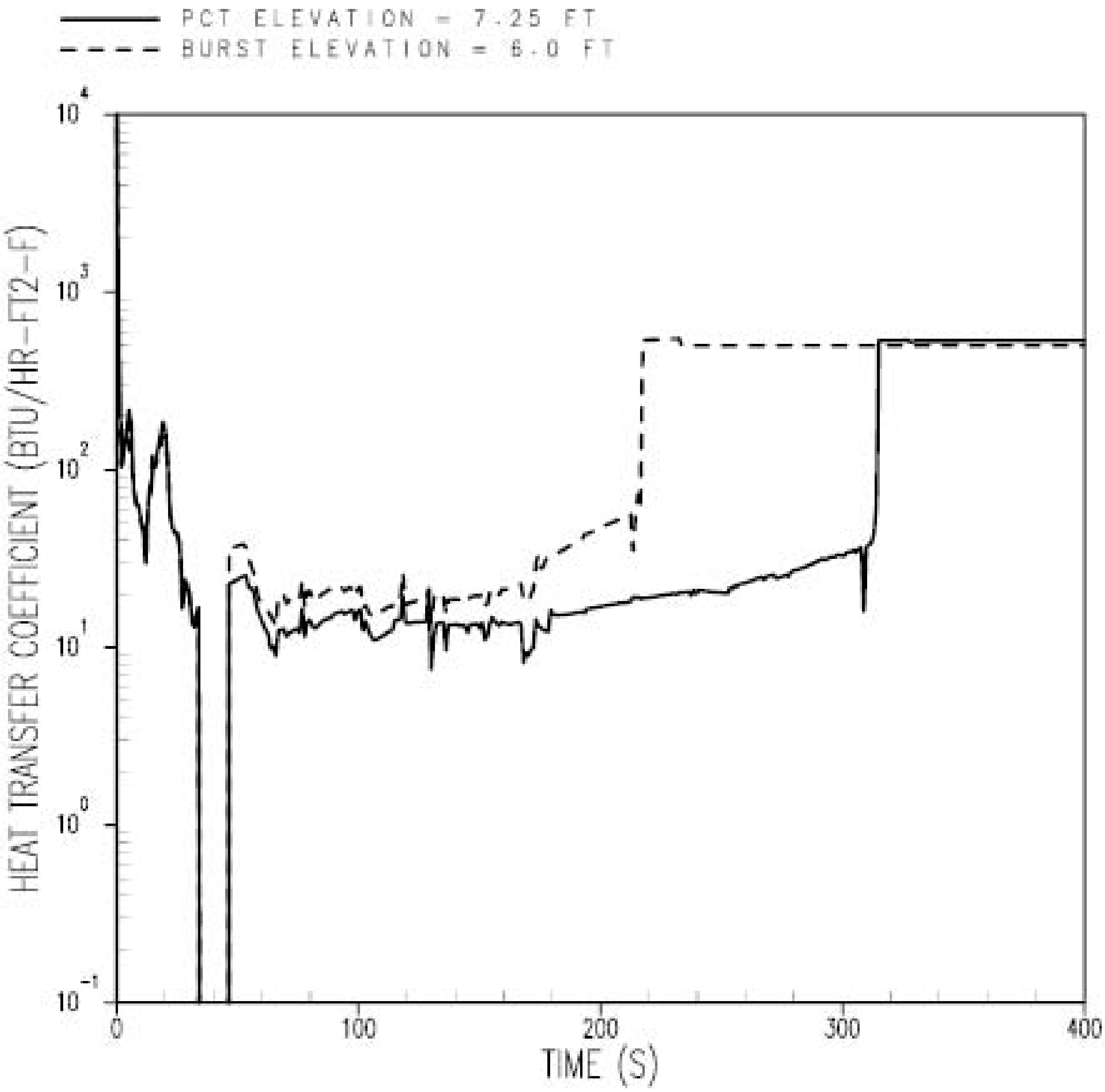

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FIGURE 15.6-10F

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MAX SI, COSINE POWER SHAPE, NON-IFBA)

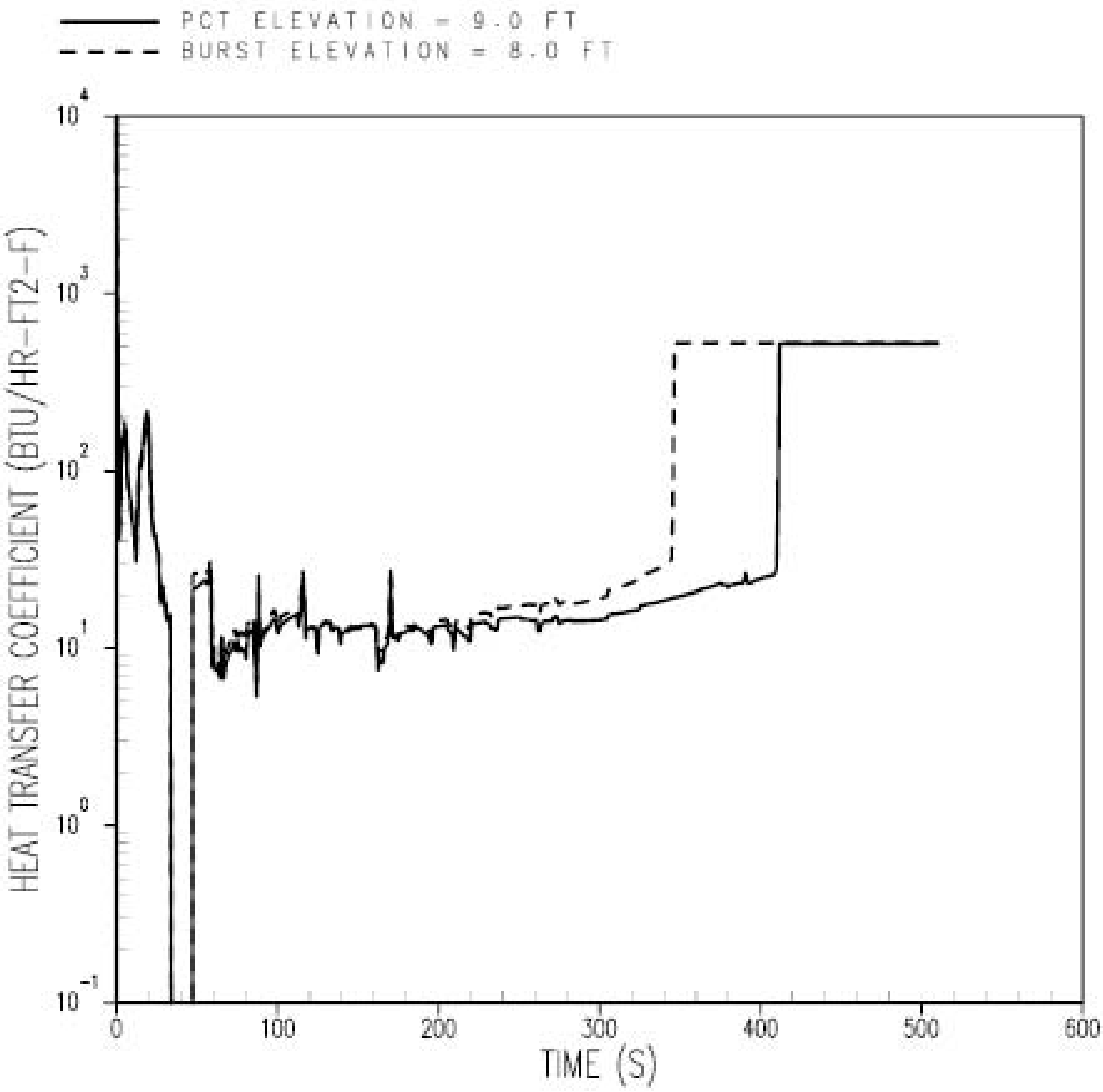

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FIGURE 15.6-100

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=0.8, HIGH T_{avg}, MIN SI, 8.5' POWER SHAPE, NON-IFBA)

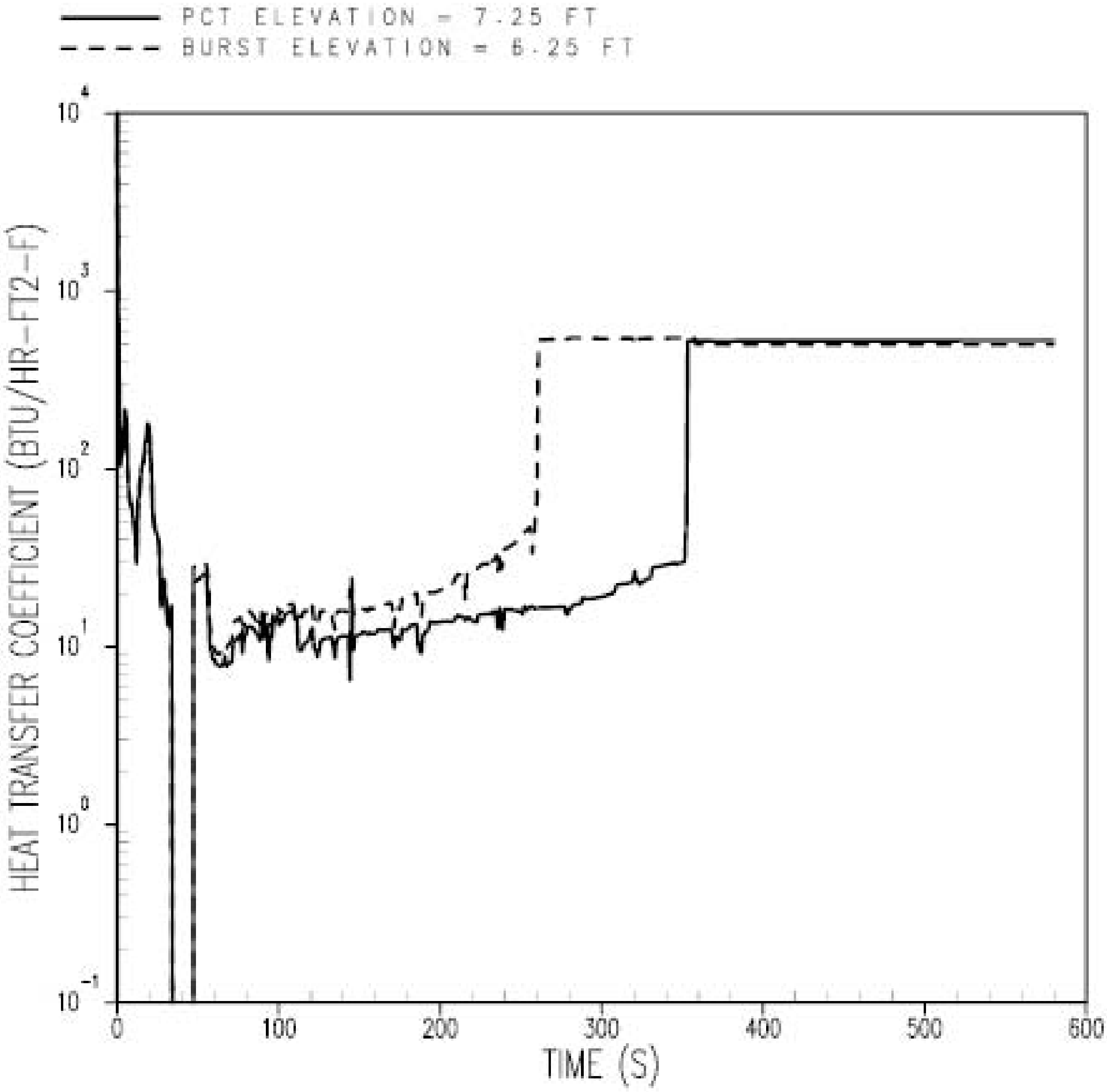

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FIGURE 15.6-10H

CLADDING SURFACE HEAT TRANSFER COEFFICIENT AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, IFBA)

Figure 15.6-11 Deleted

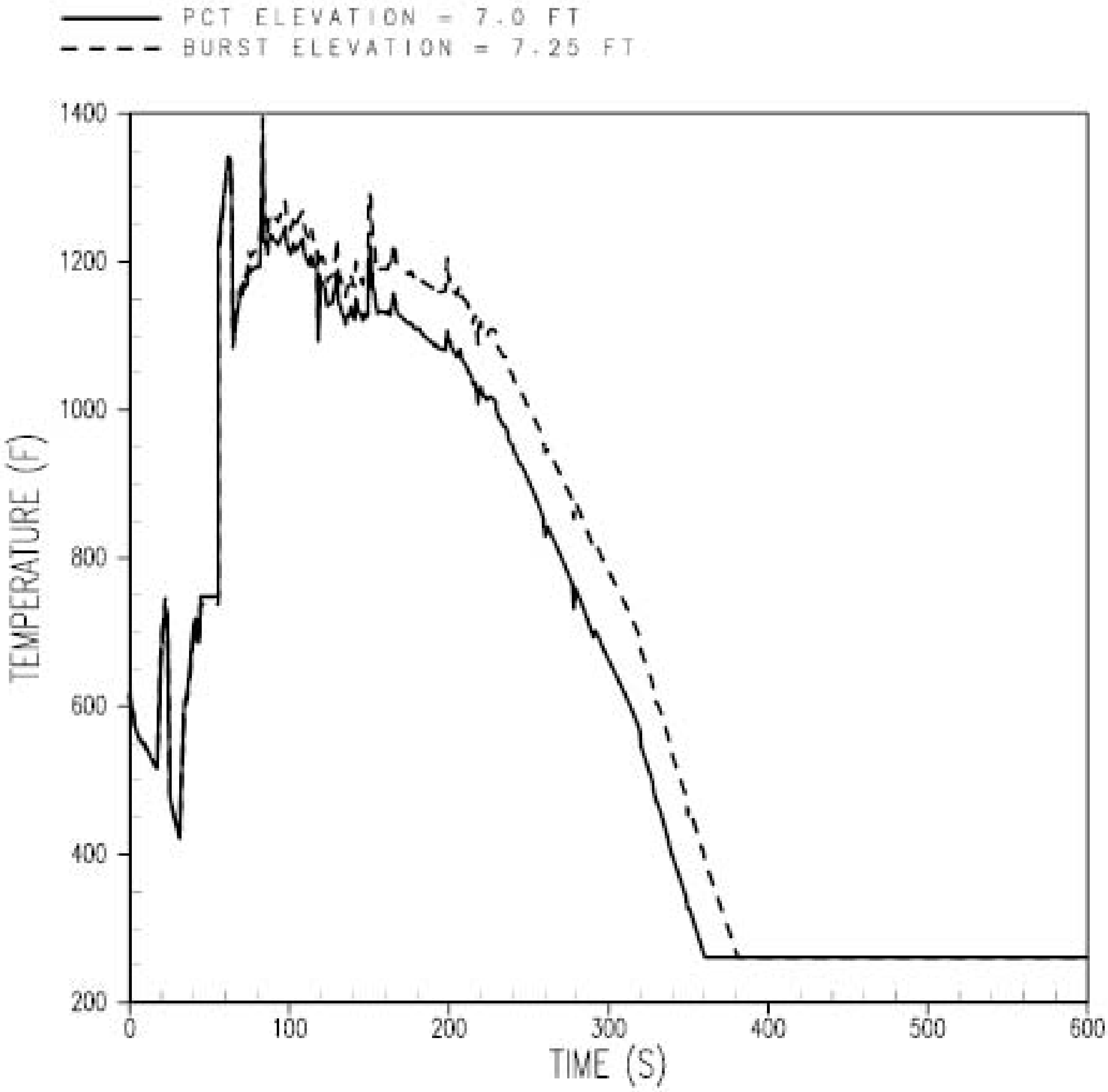

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FIGURE 15.6-11A

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.4, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA

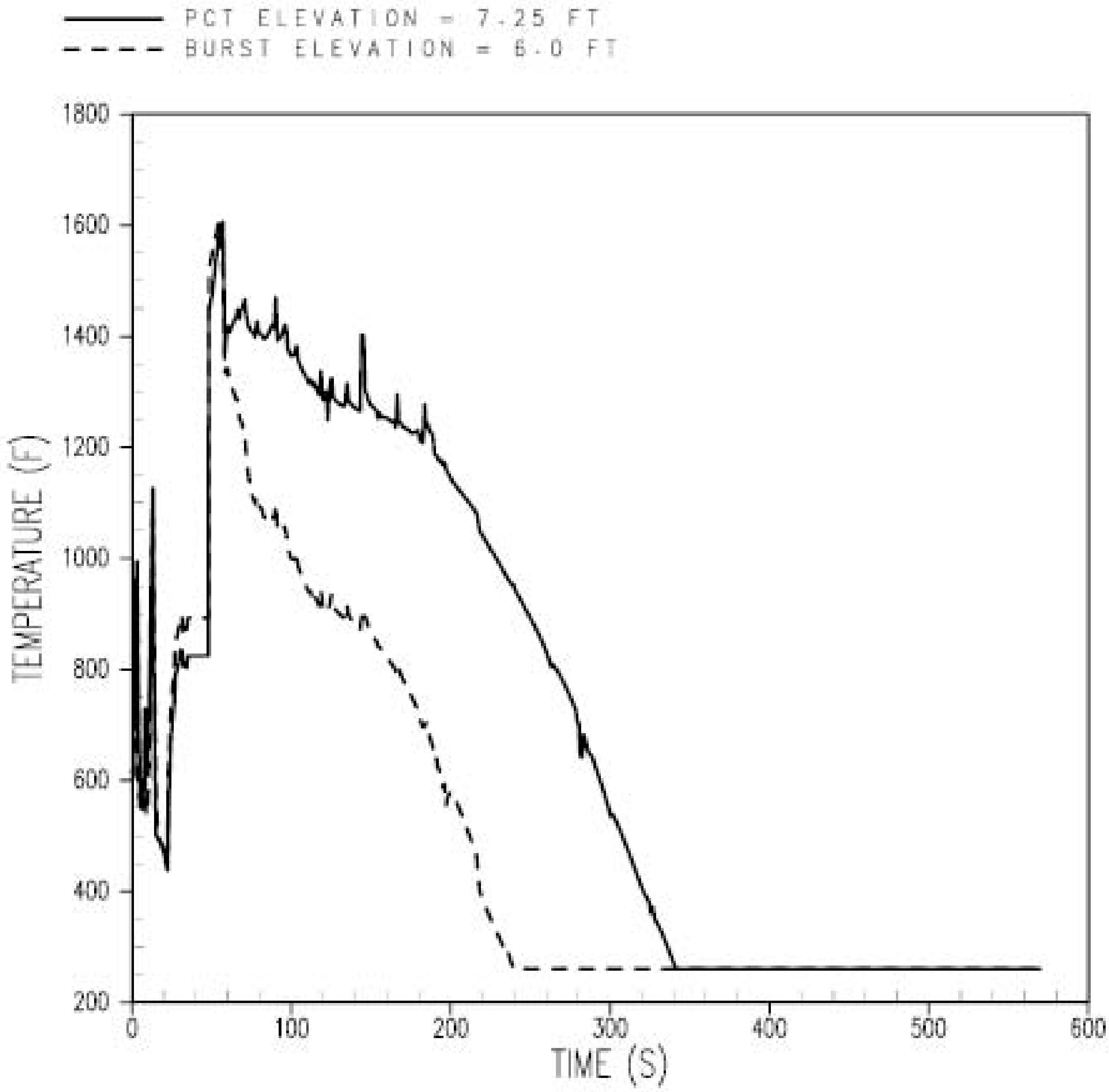

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FIGURE 15.6-11B

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA

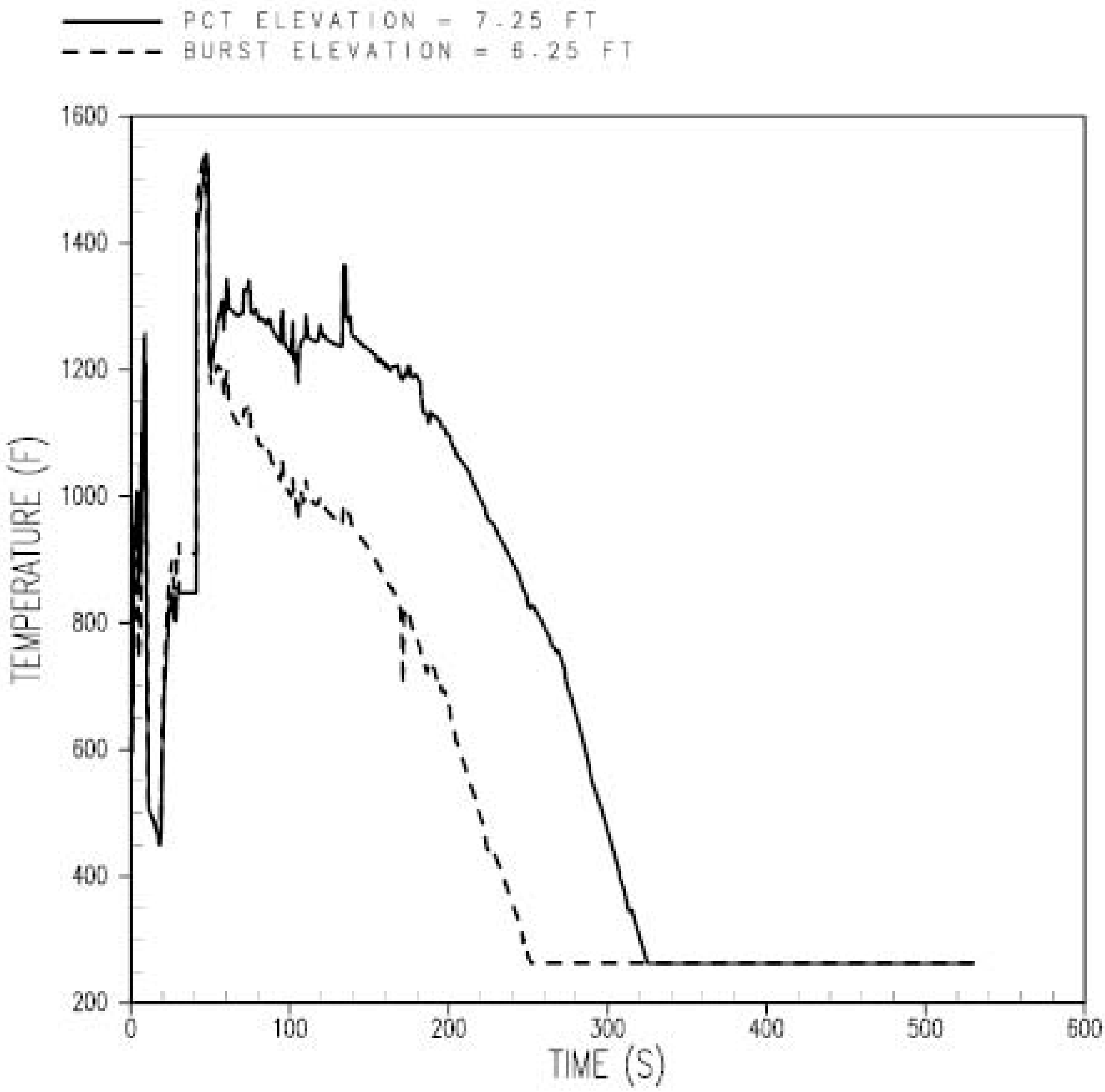

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FIGURE 15.6-11C

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.8, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA

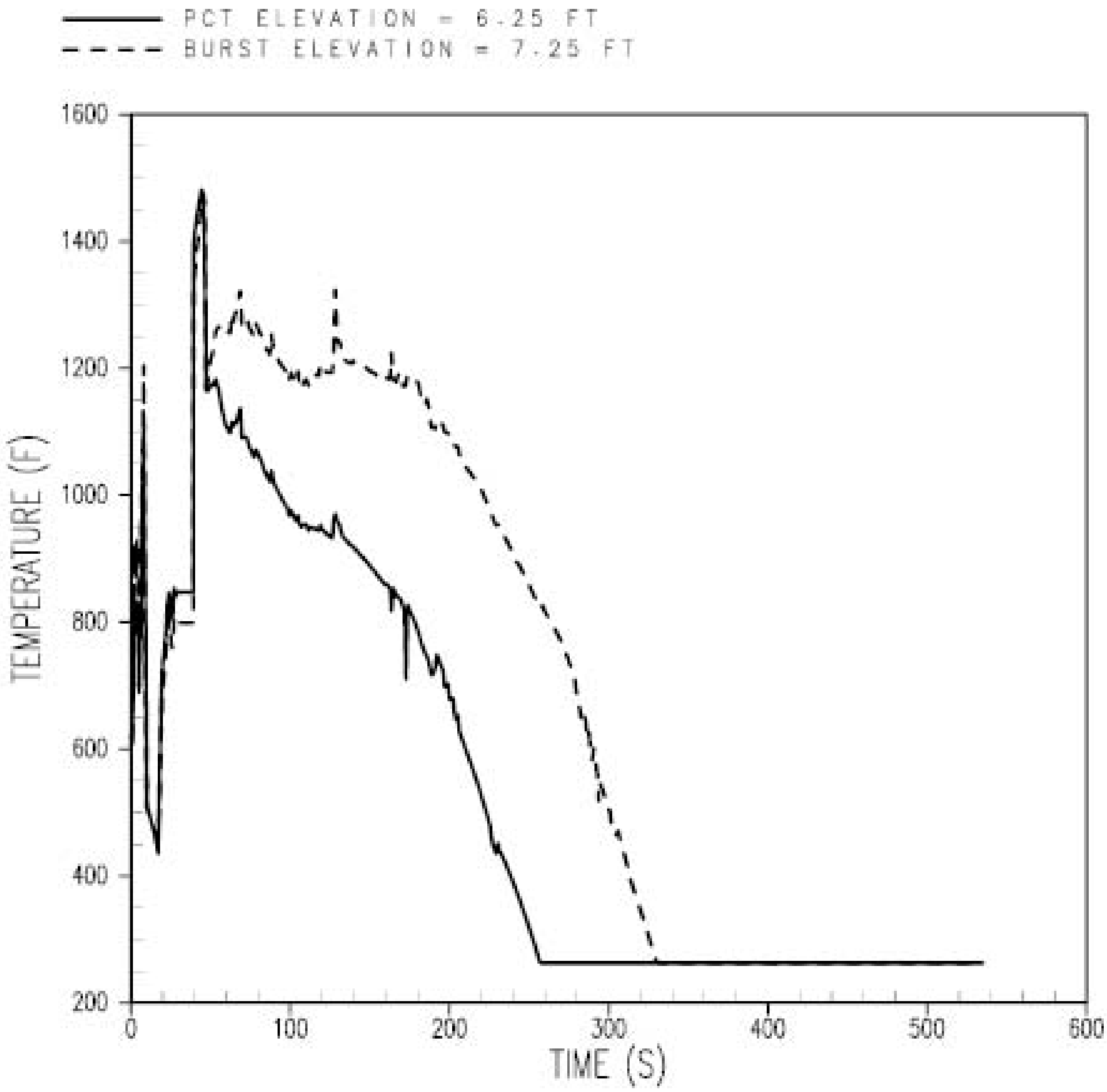

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FIGURE 15.6-11D

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=1.0, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

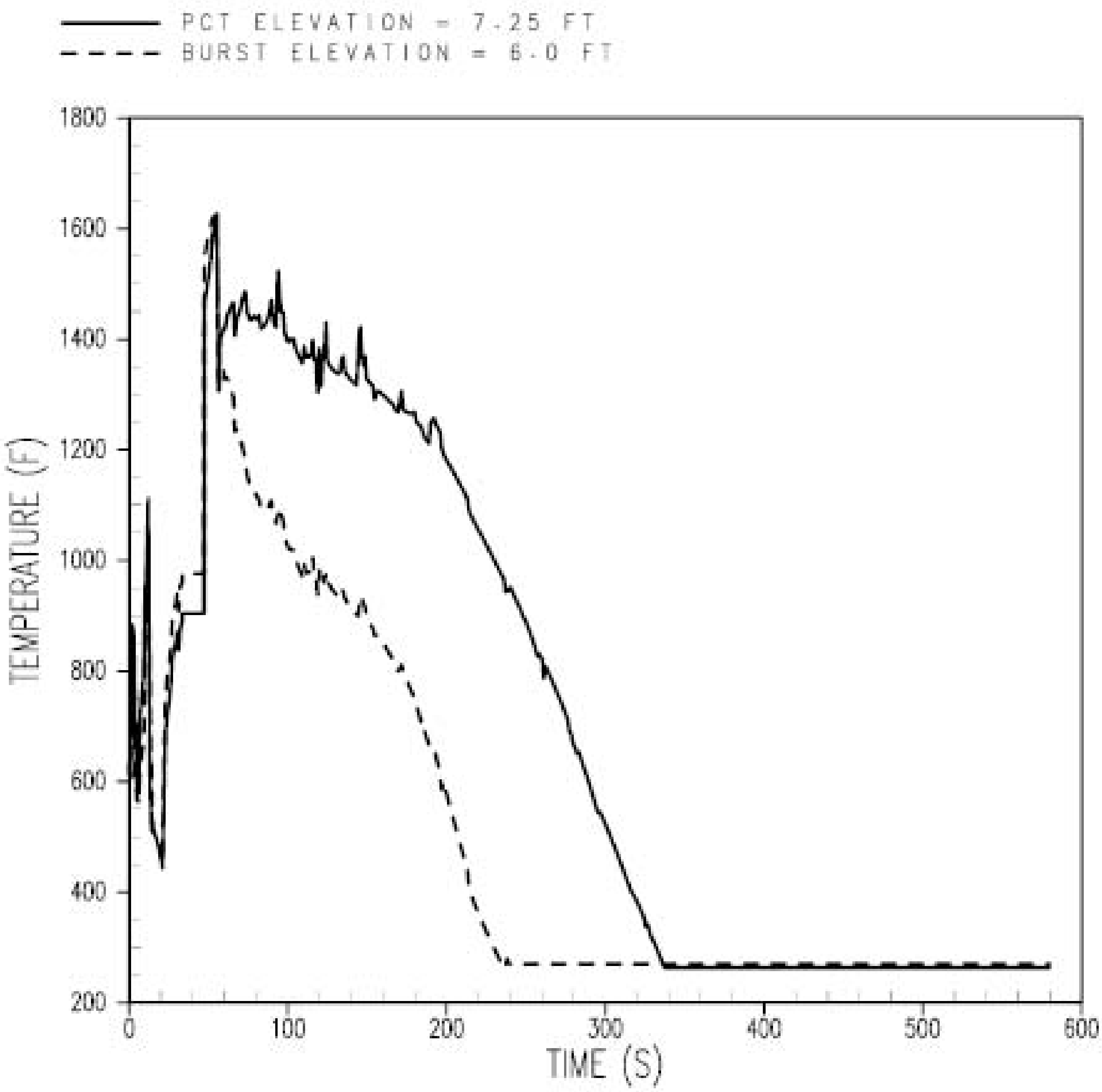

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FIGURE 15.6-11E

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

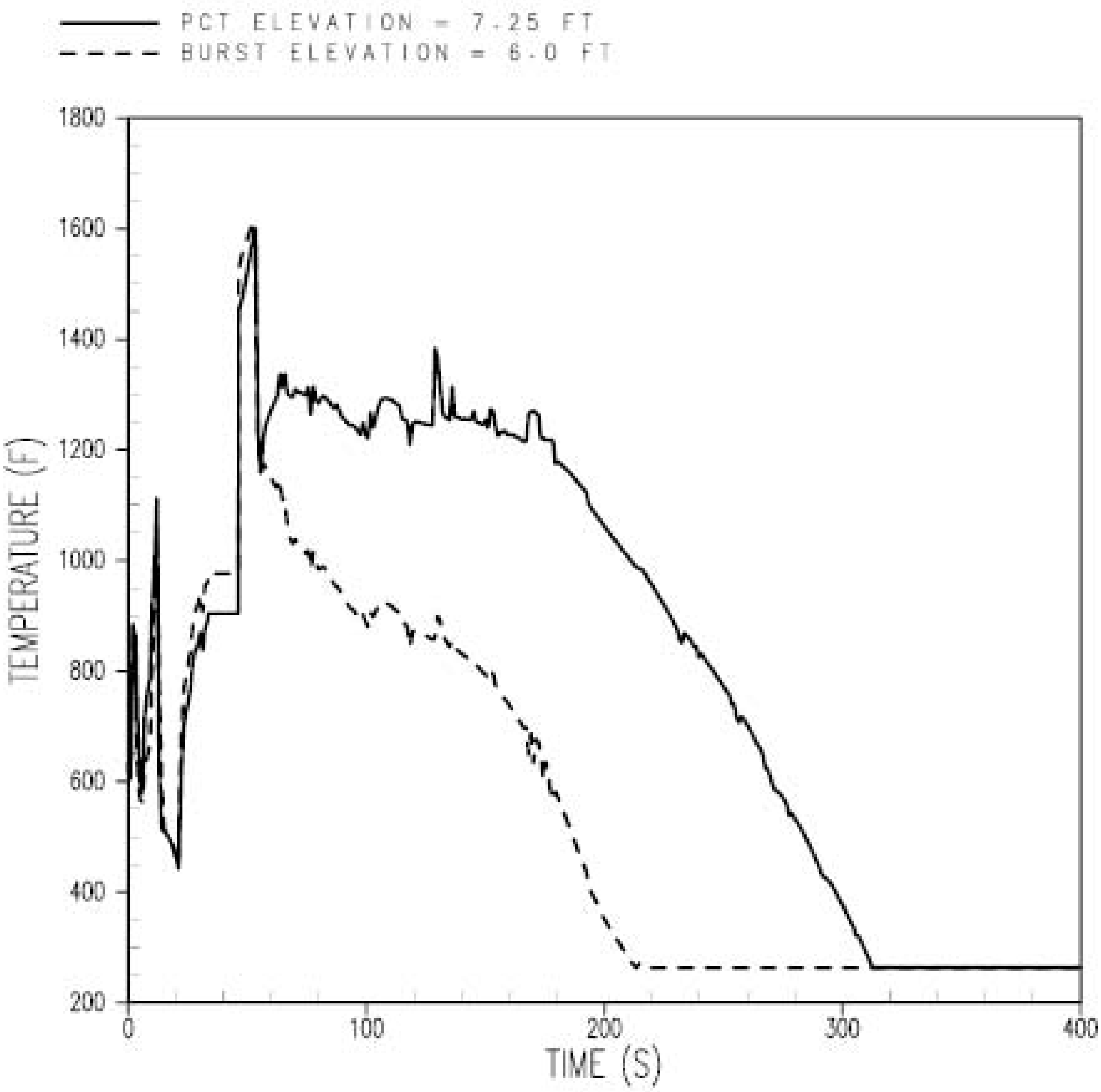

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FIGURE 15.6-11F

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MAX SI, COSINE POWER SHAPE, NON-IFBA)

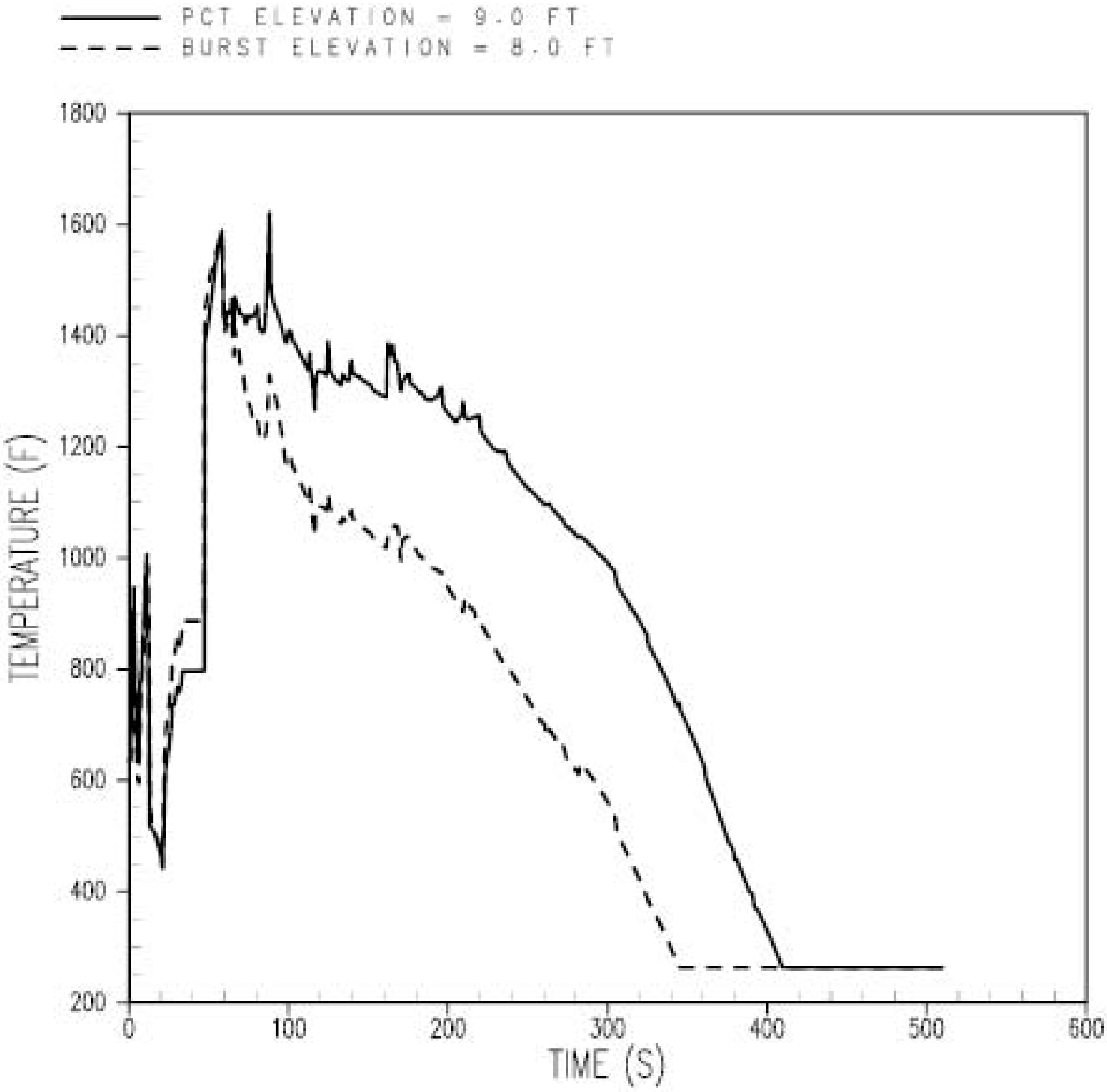

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FIGURE 15.6-110

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, 8.6' POWER SHAPE, NON-IFBA)

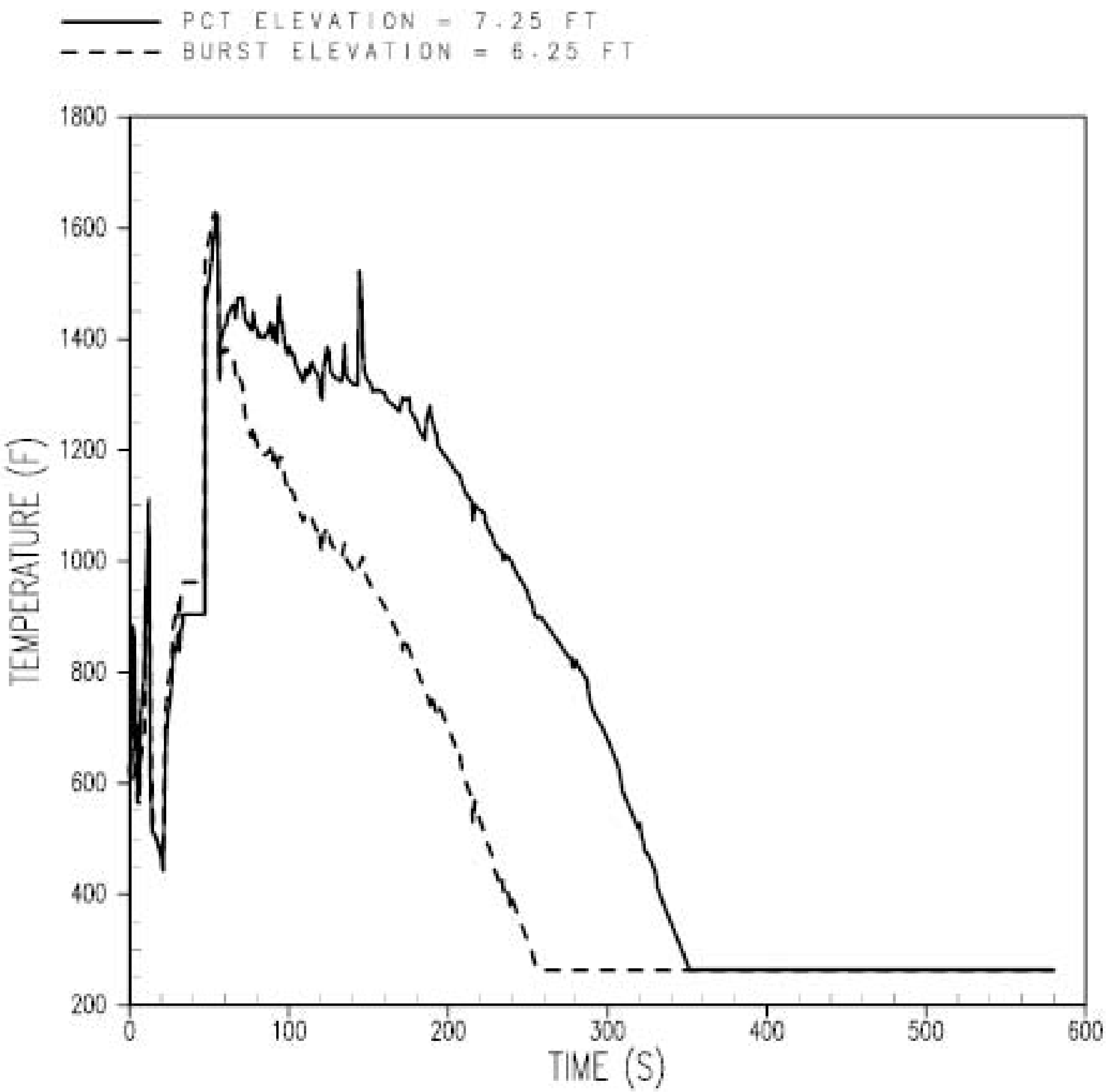

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FIGURE 15.6-11H

VAPOR TEMPERATURE AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, IFBA)

Figure 15.6-12 Deleted

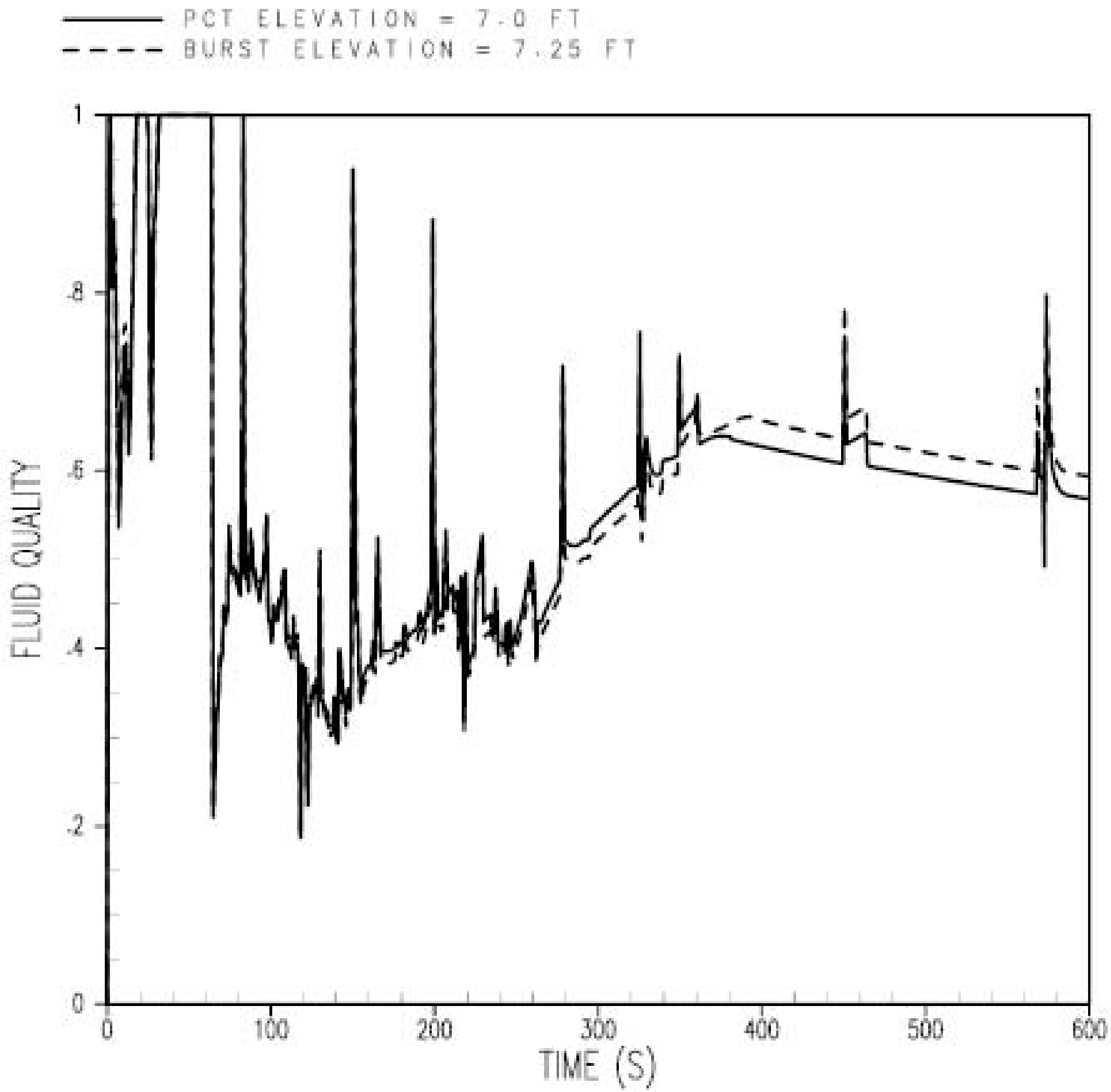

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FIGURE 15.6-12A

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=0.4, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

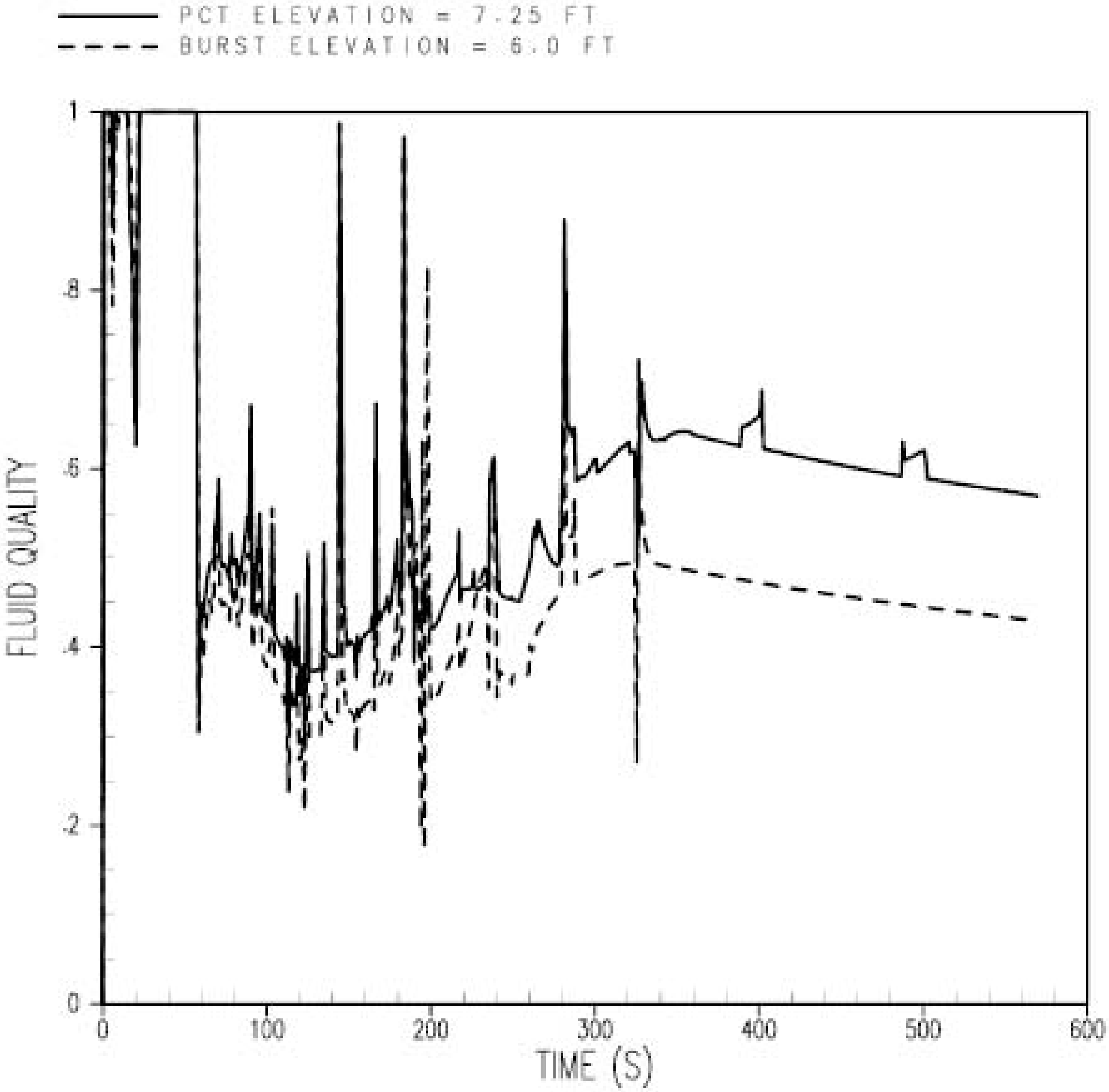

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FIGURE 15.6-12B

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=0.6, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

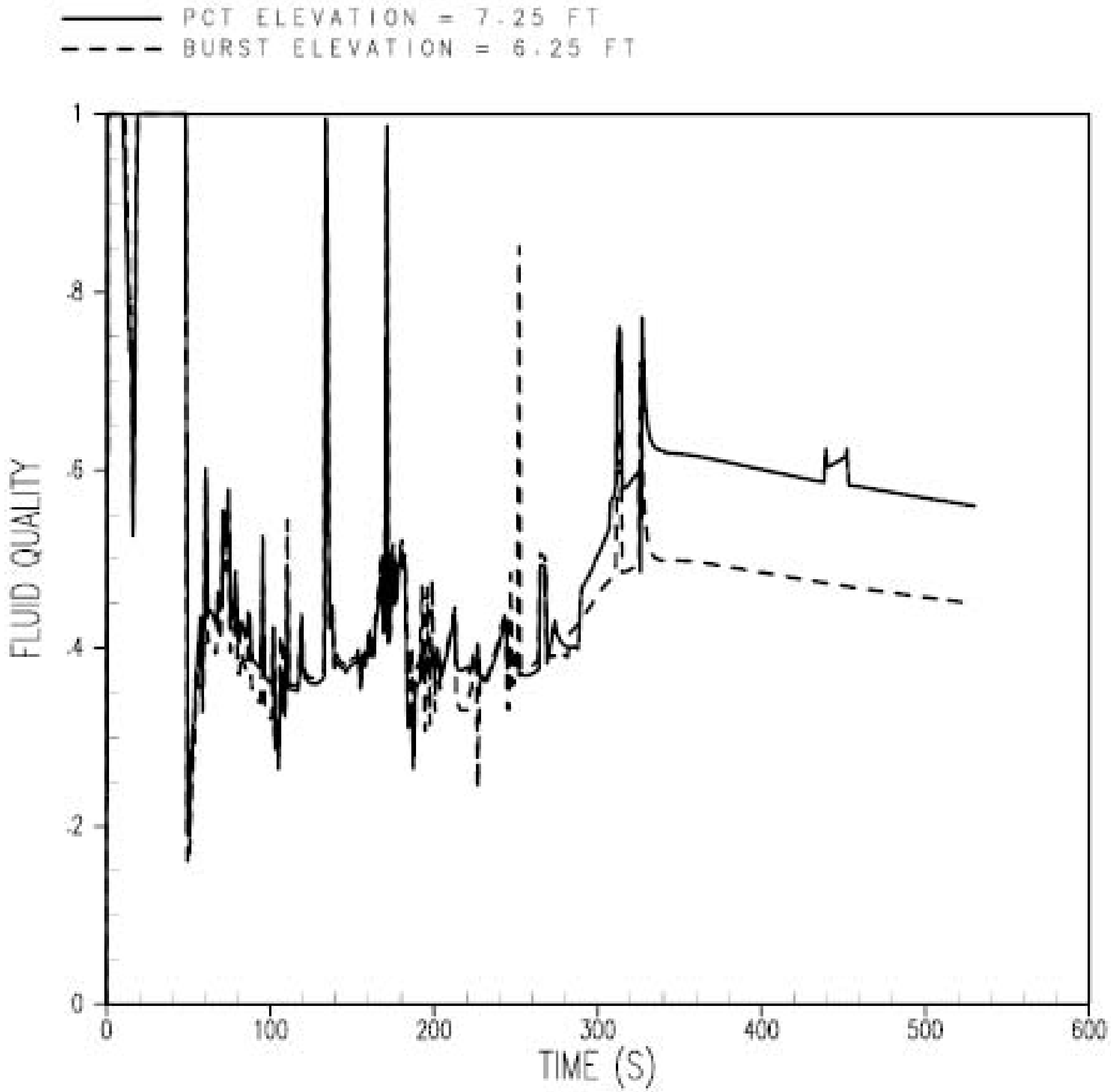

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FIGURE 15.6-12C

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=0.8, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

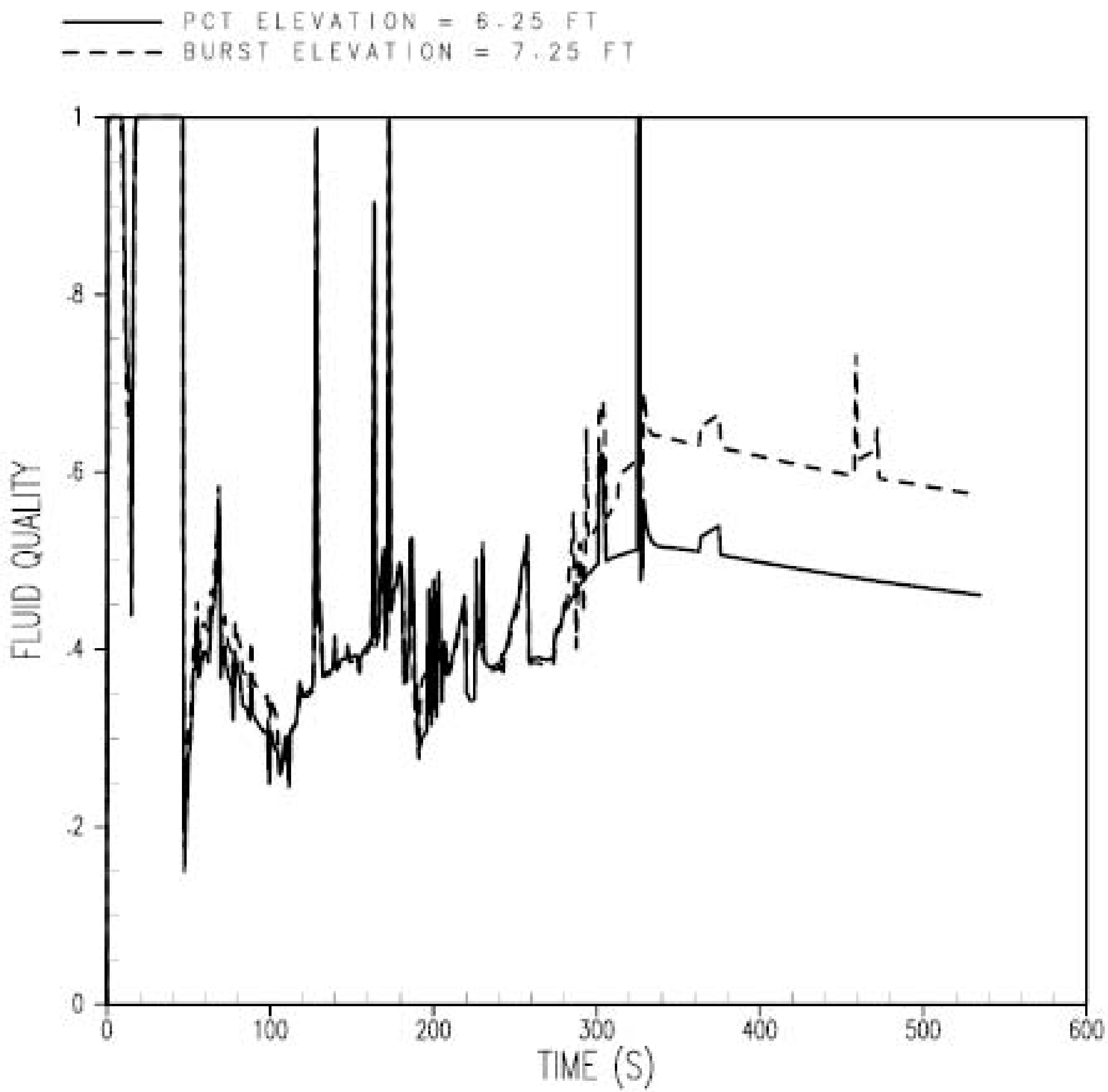

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FIGURE 15.6-12D

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=1.0, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

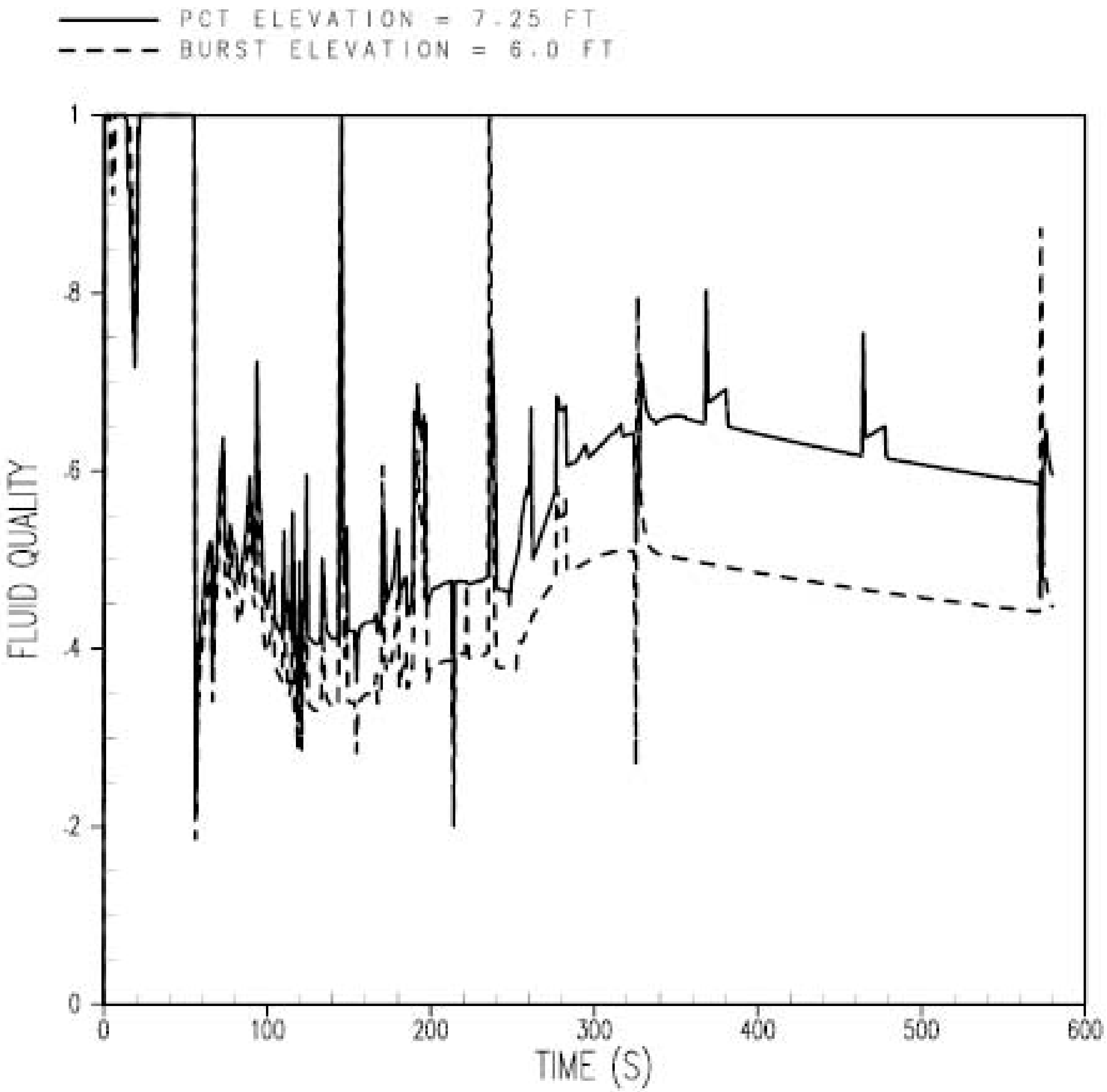

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FIGURE 15.6-12E

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

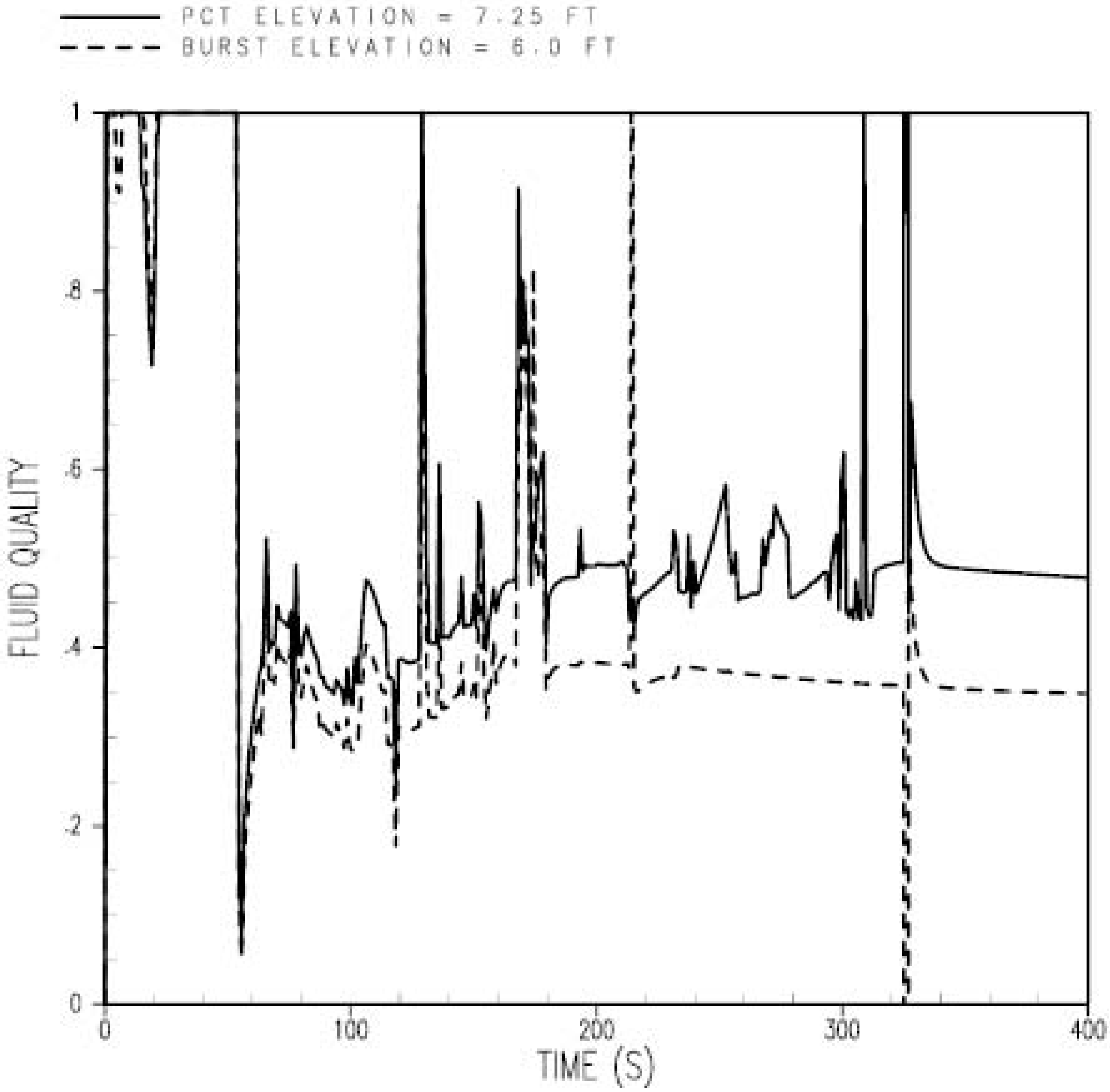

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FIGURE 15.6-12F

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MAX SI, COSINE POWER SHAPE, NON-IFBA)

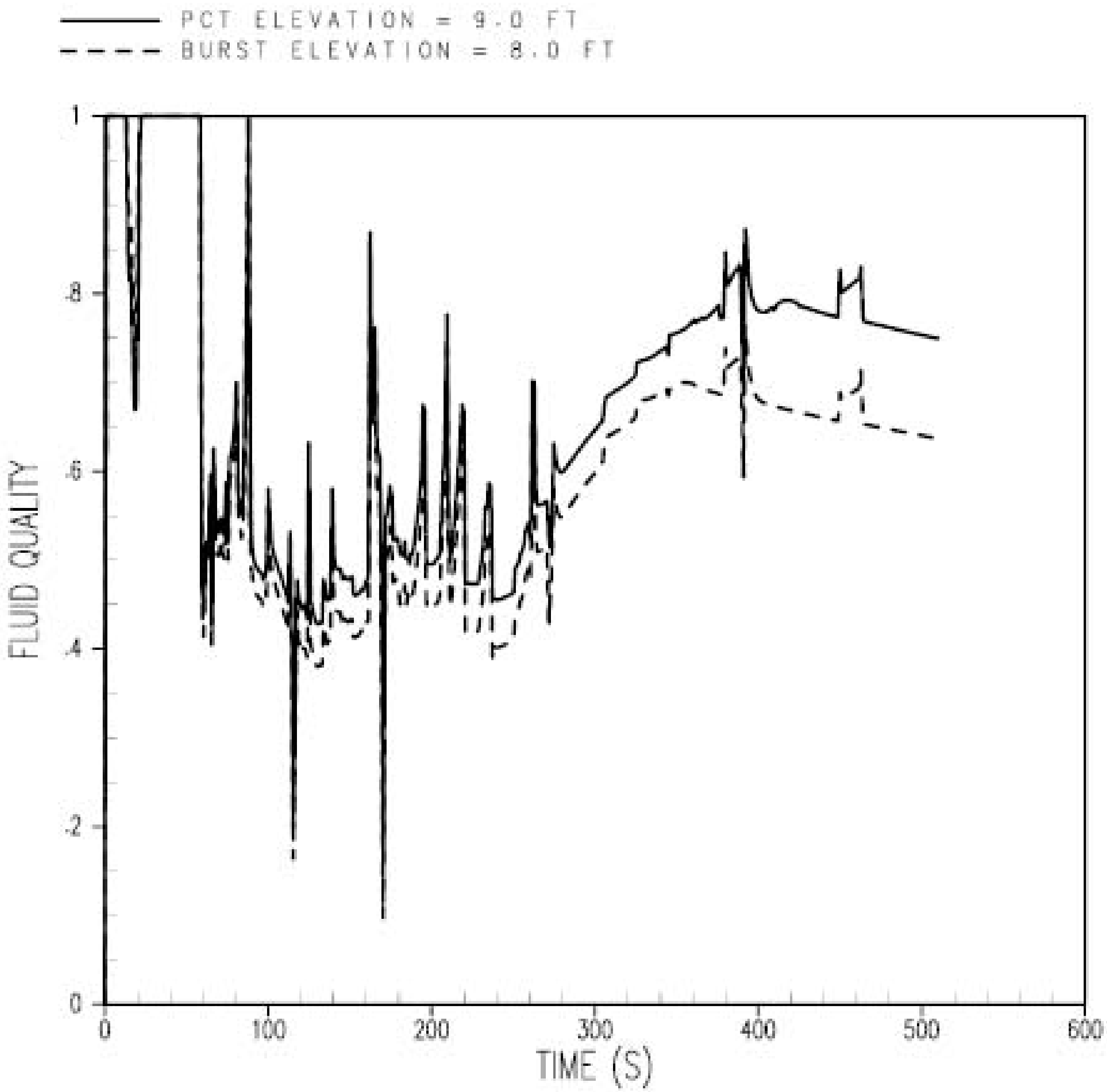

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FIGURE 15.6-12G

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, 8.5' POWER SHAPE, NON-IFBA)

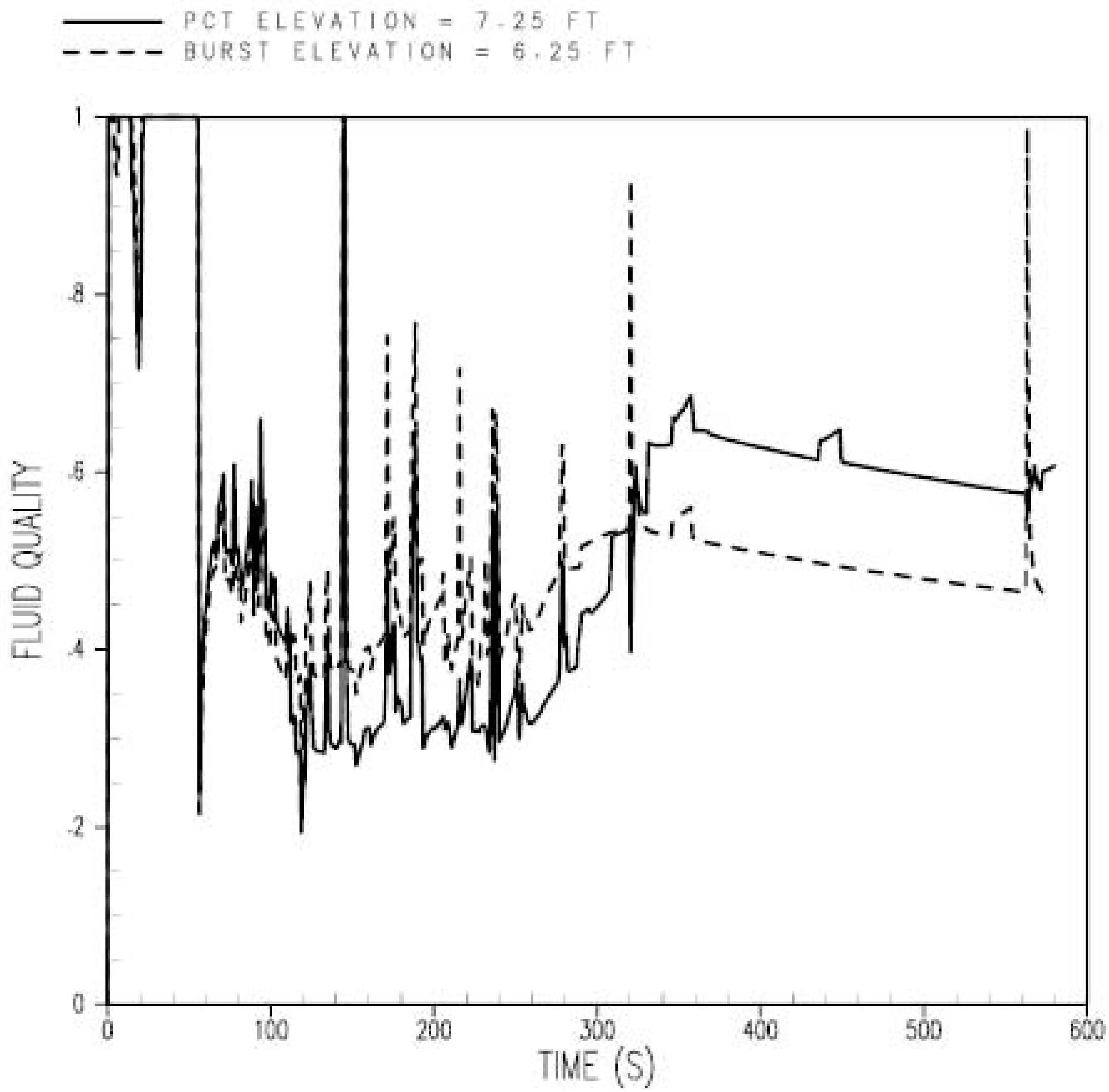

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FIGURE 15.6-12H

FLUID QUALITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, IFBA)

Figure 15.6-13 Deleted

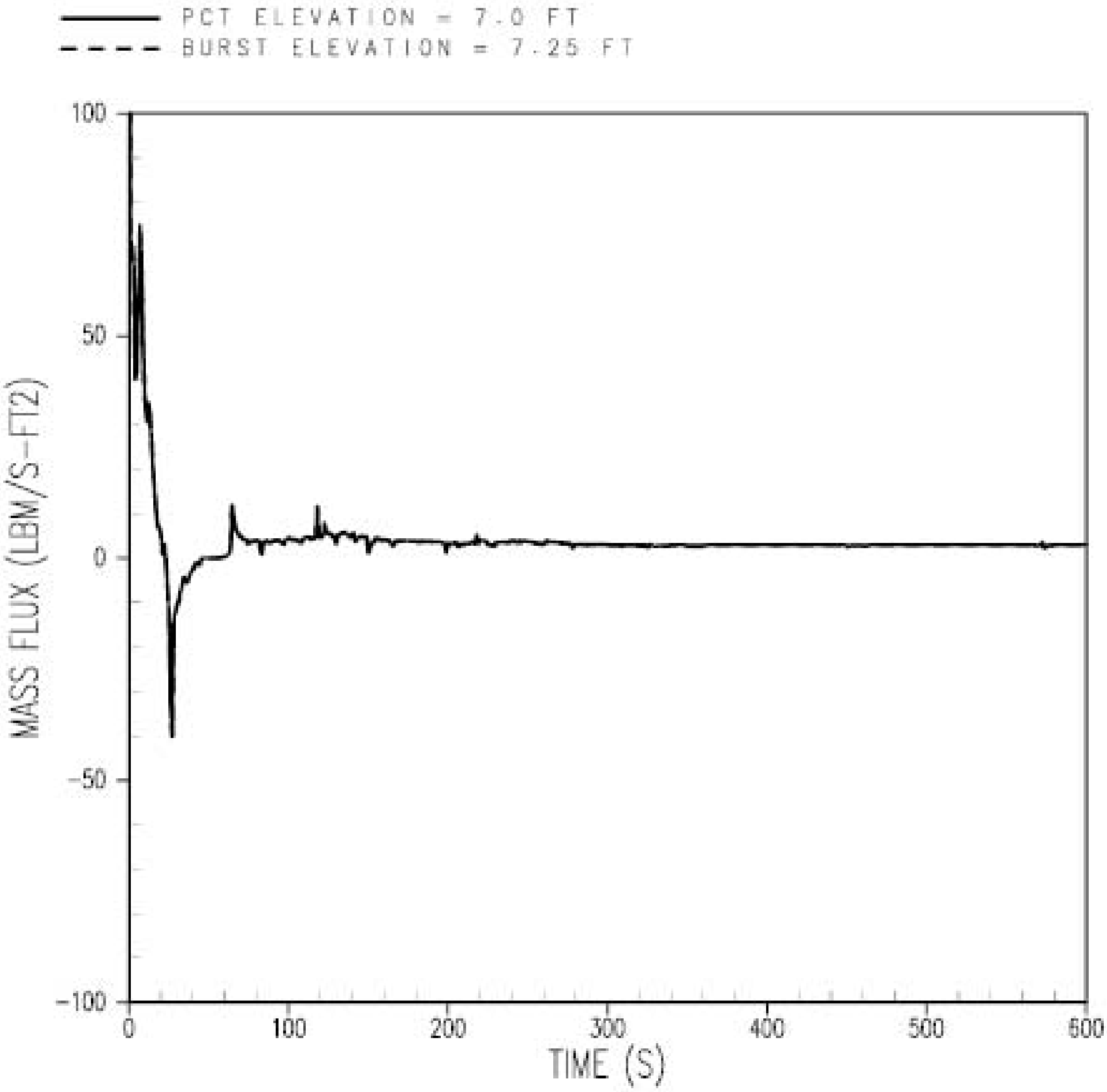

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FIGURE 15.6-13A

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=0.4, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

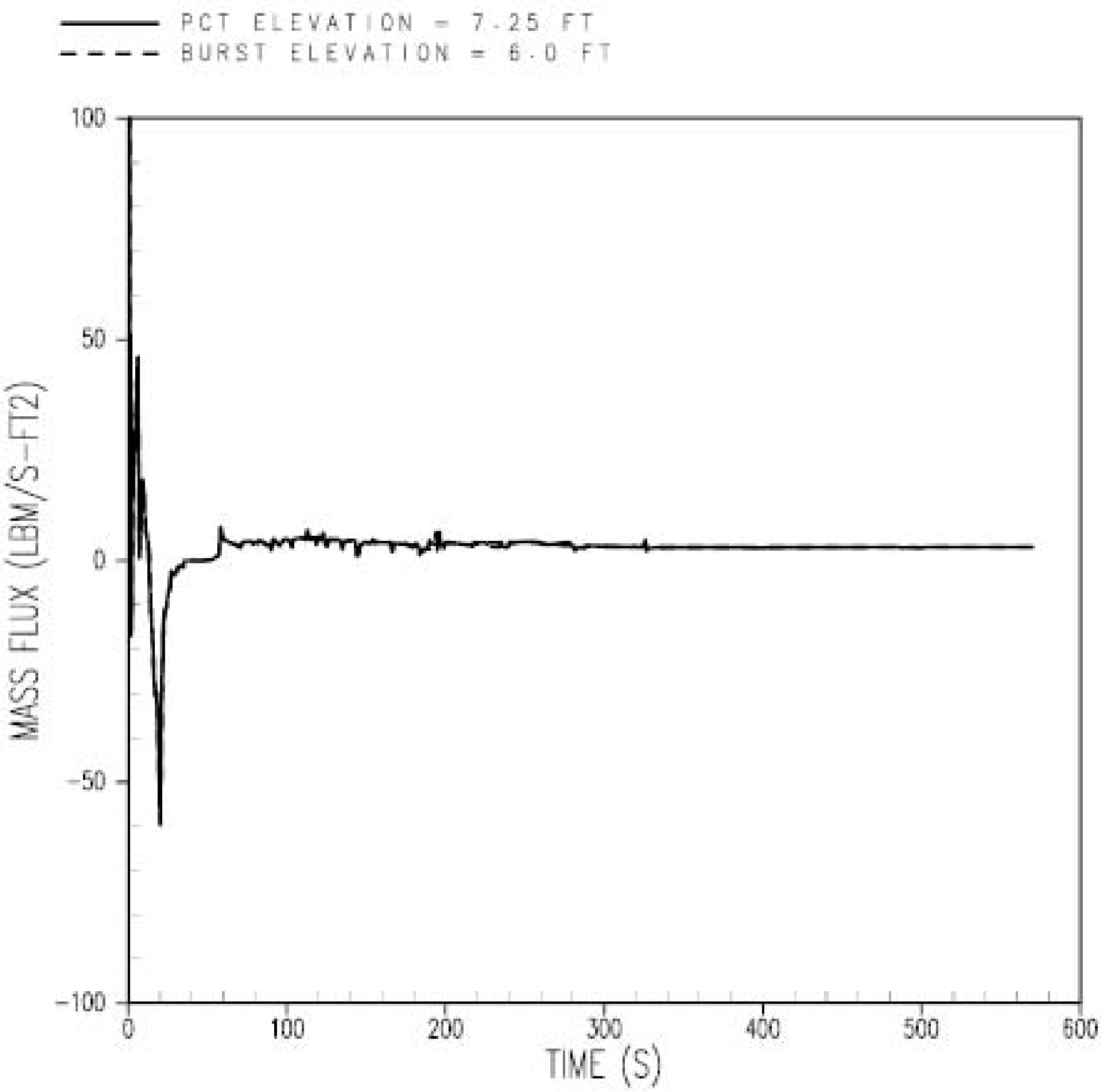

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FIGURE 15.6-13B

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=0.6, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

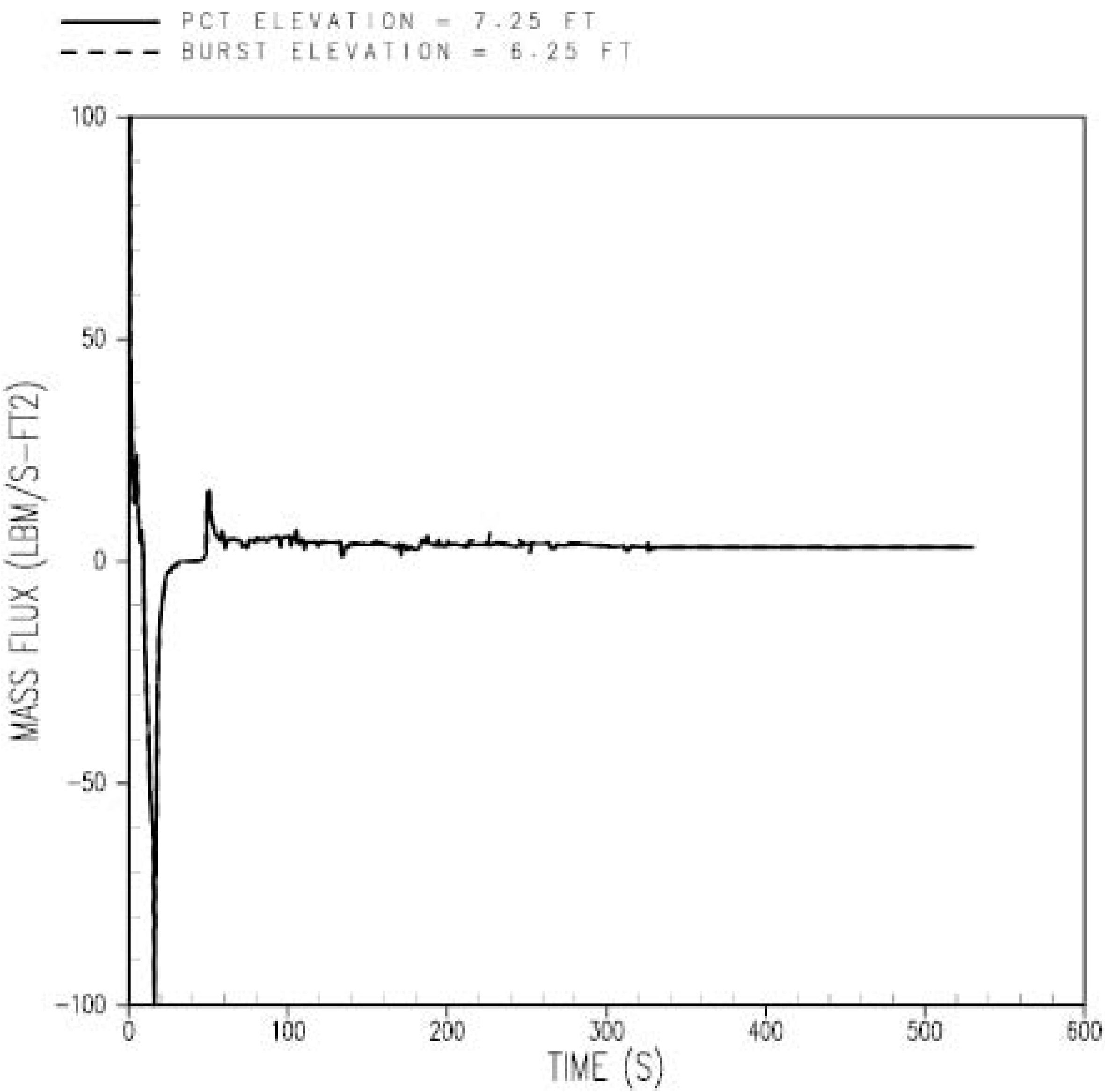

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FIGURE 15.6-13C

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=0.8, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

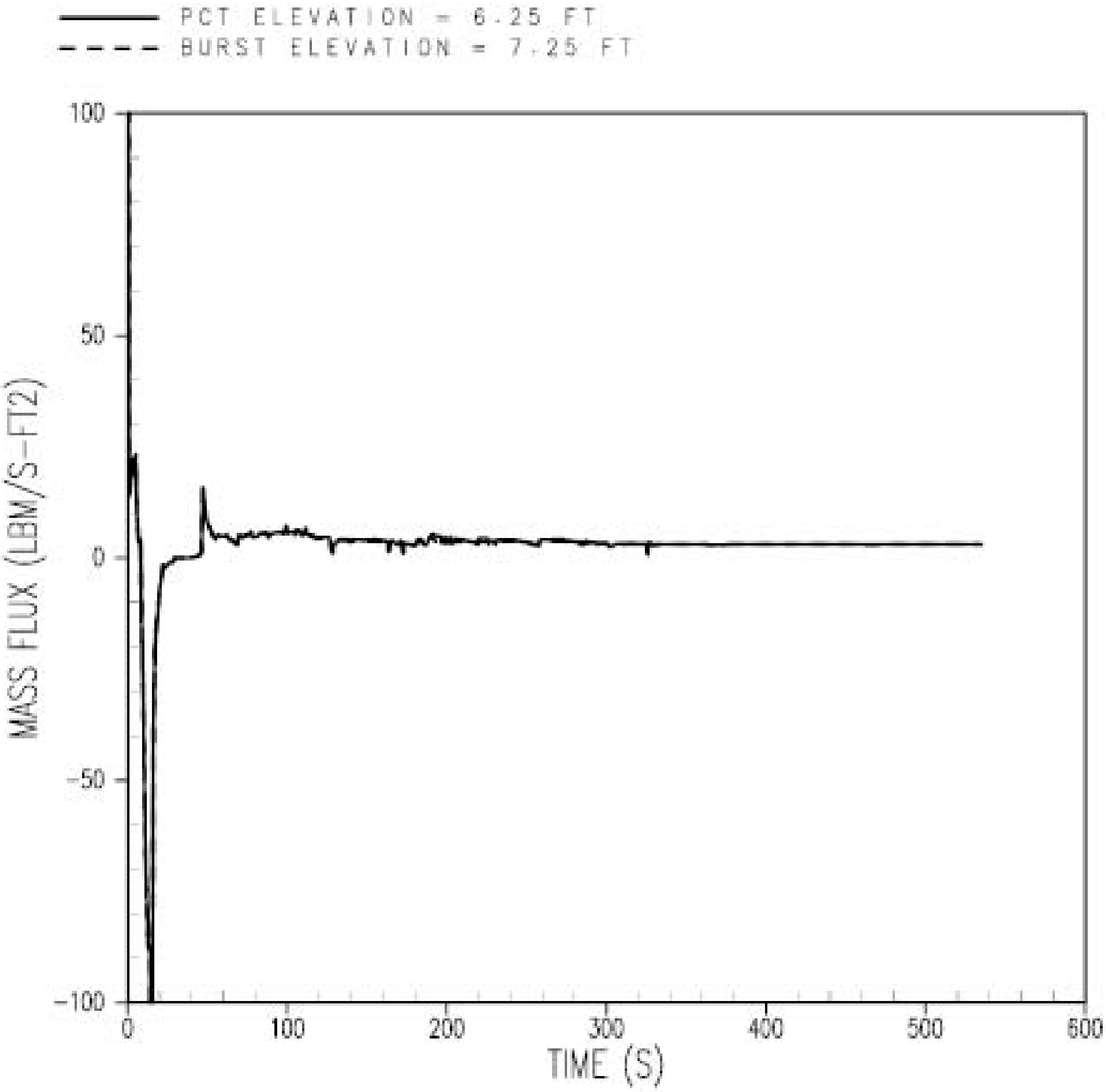

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FIGURE 15.6-13D

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=1.0, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

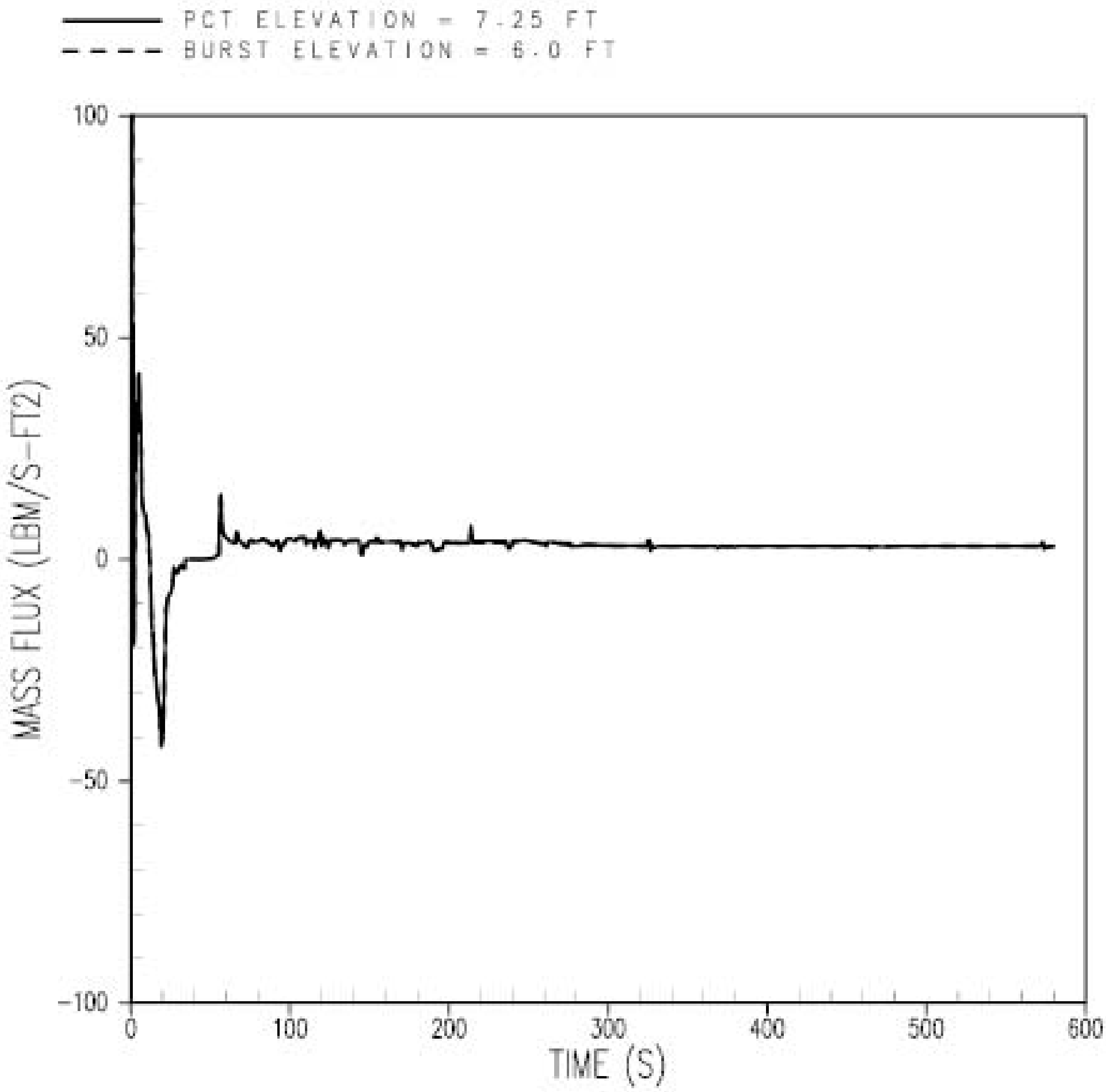

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FIGURE 15.6-13E

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

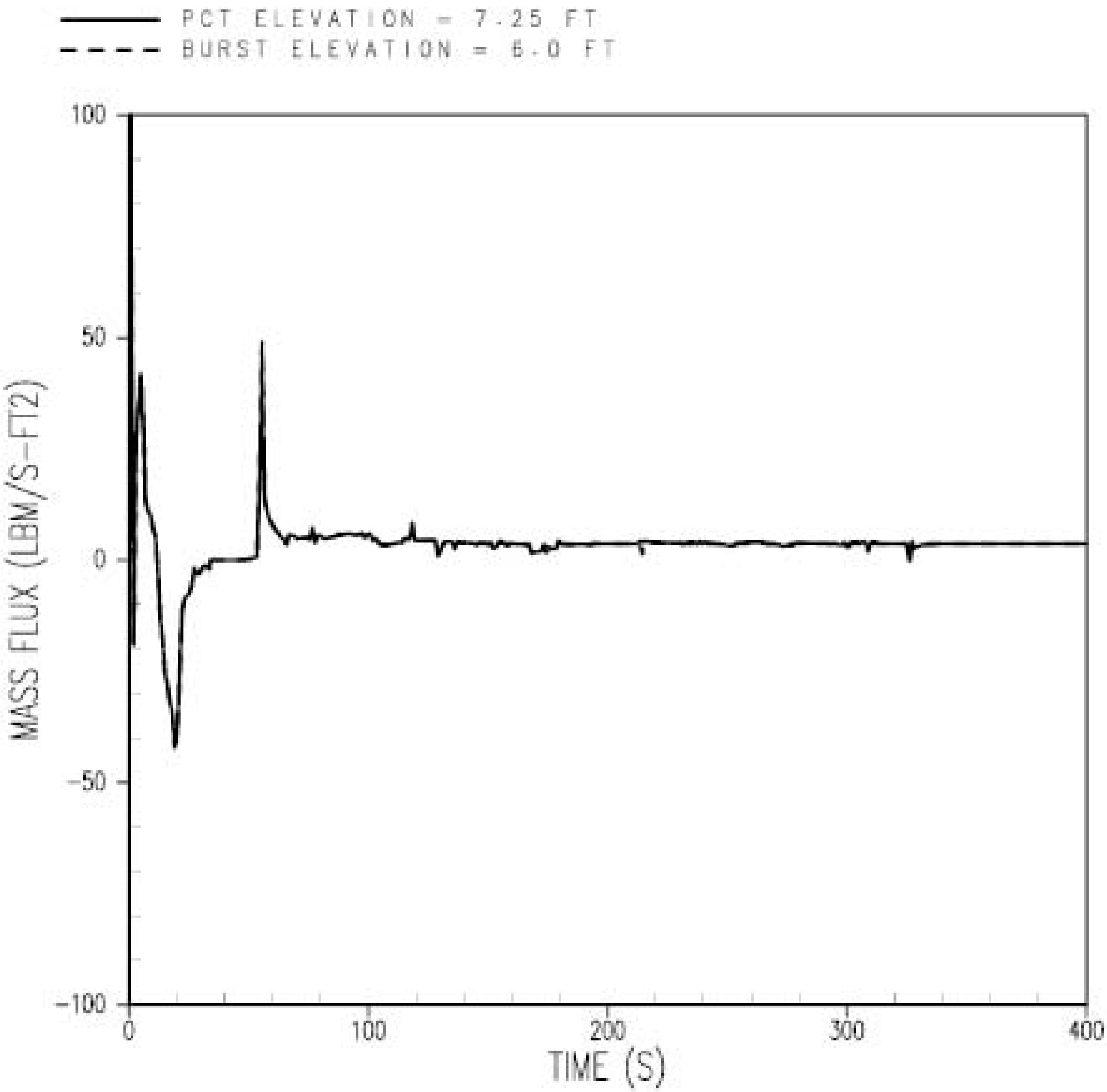

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FIGURE 15.6-13F

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MAX SI, COSINE POWER SHAPE, NON-IFBA)

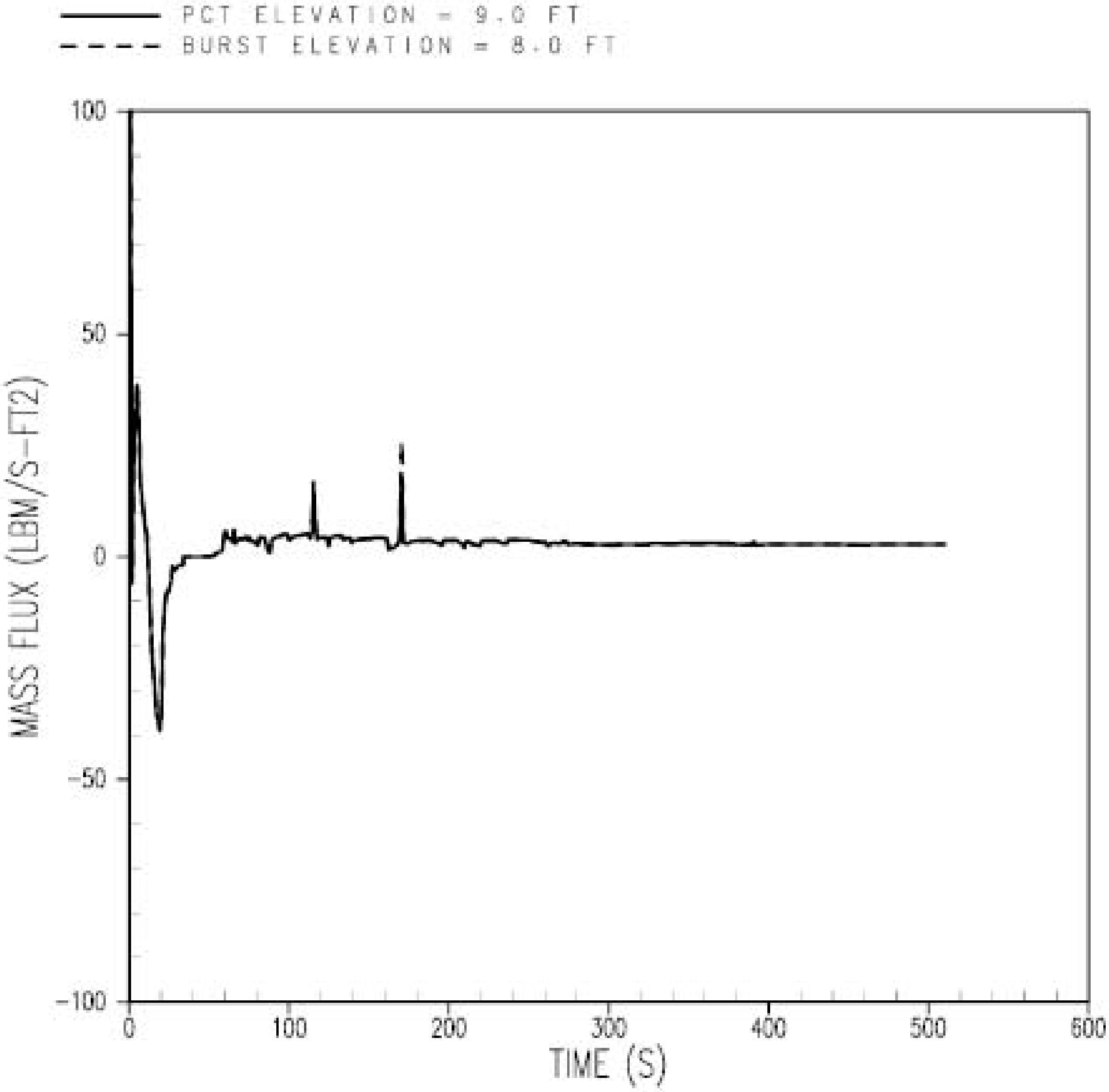

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FIGURE 15.6-13G

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, 8.5' POWER SHAPE, NON-IFBA)

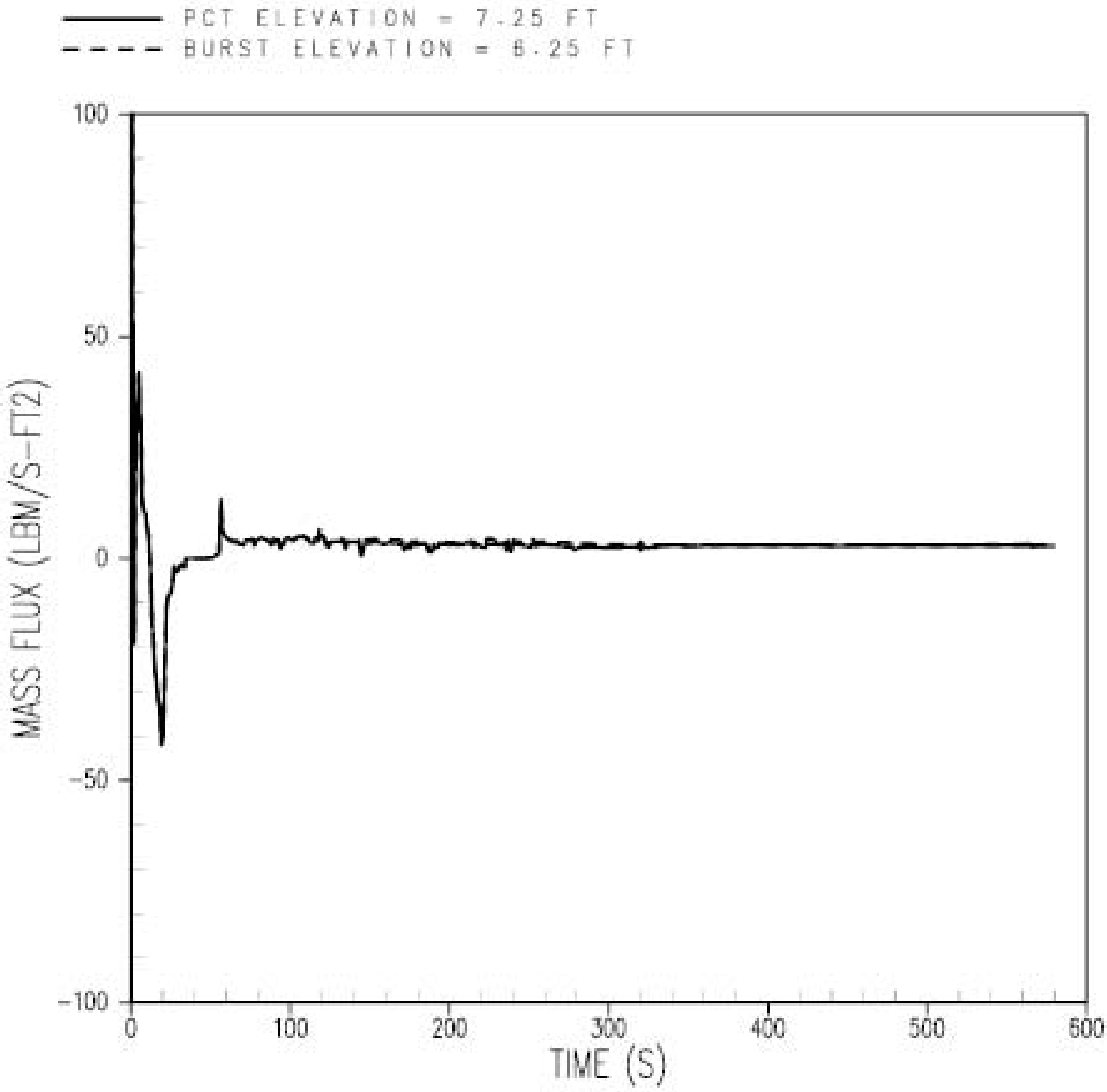

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FIGURE 15.6-13H

FLUID MASS VELOCITY AT PCT AND BURST ELEVATIONS (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, IFBA)

Figure 15.6-14 Deleted

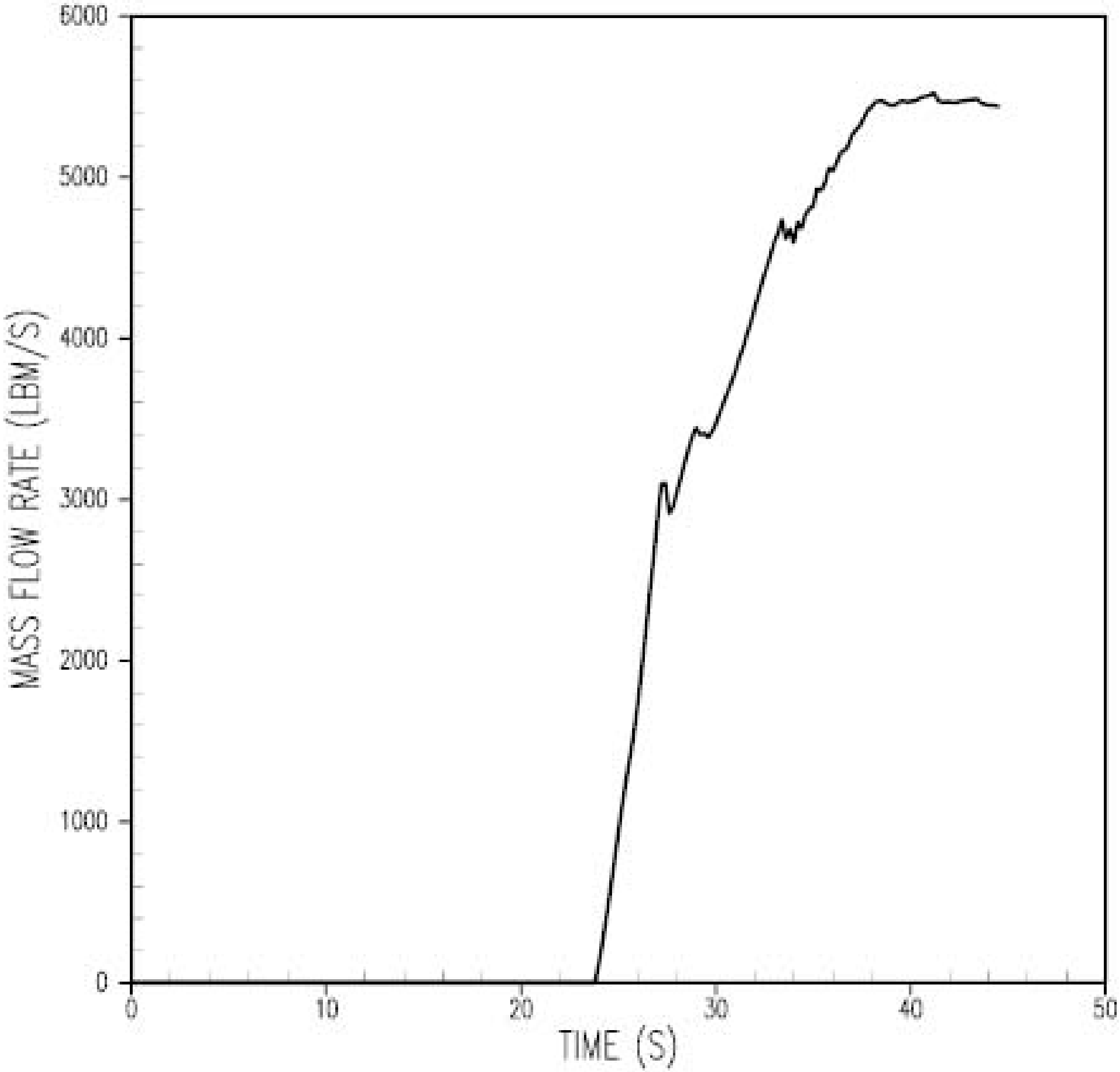

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FIGURE 15.6-14A

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=0.4, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

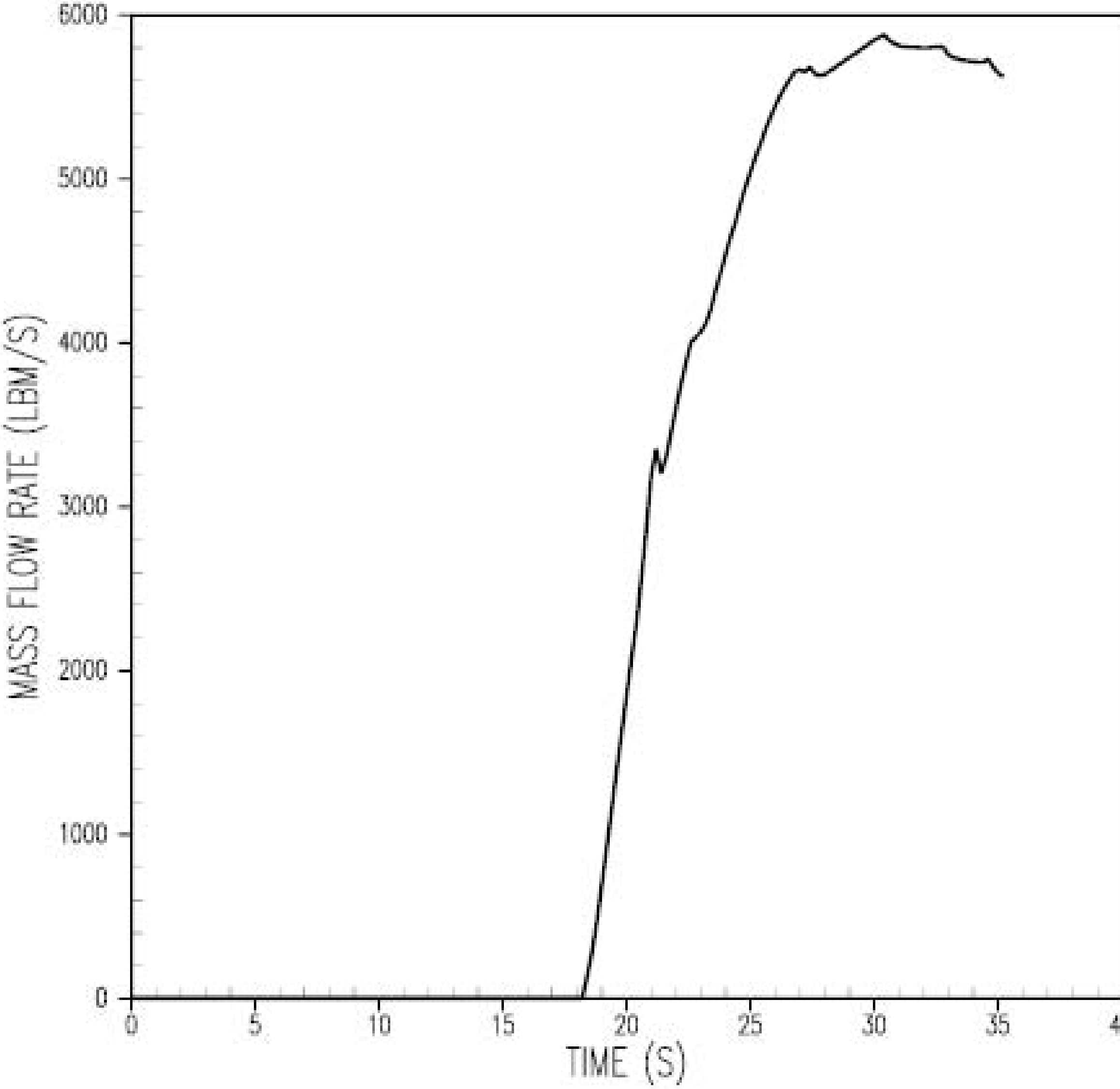

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FIGURE 15.6-14B

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

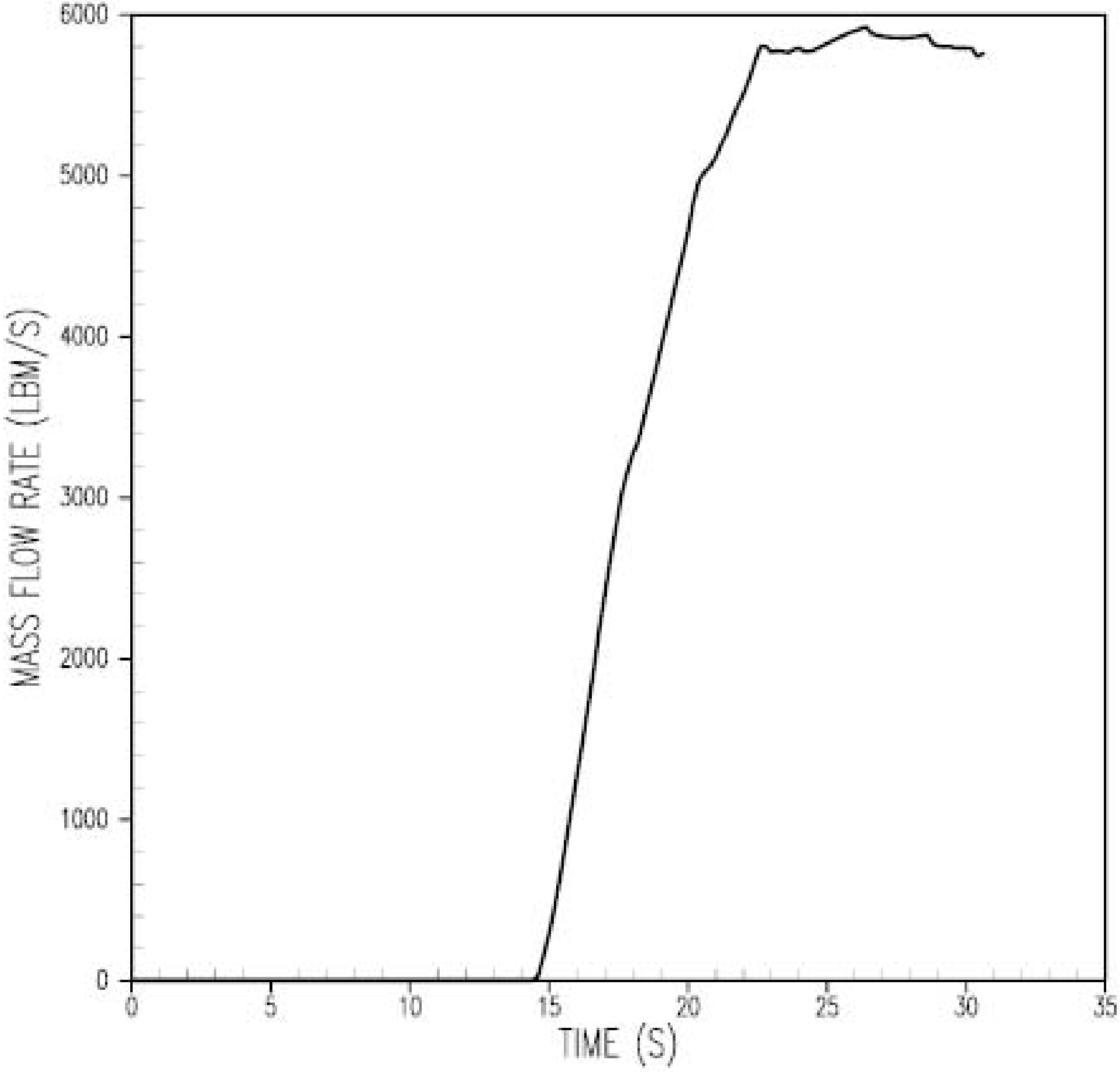

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FIGURE 15.6-14C

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=0.8, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

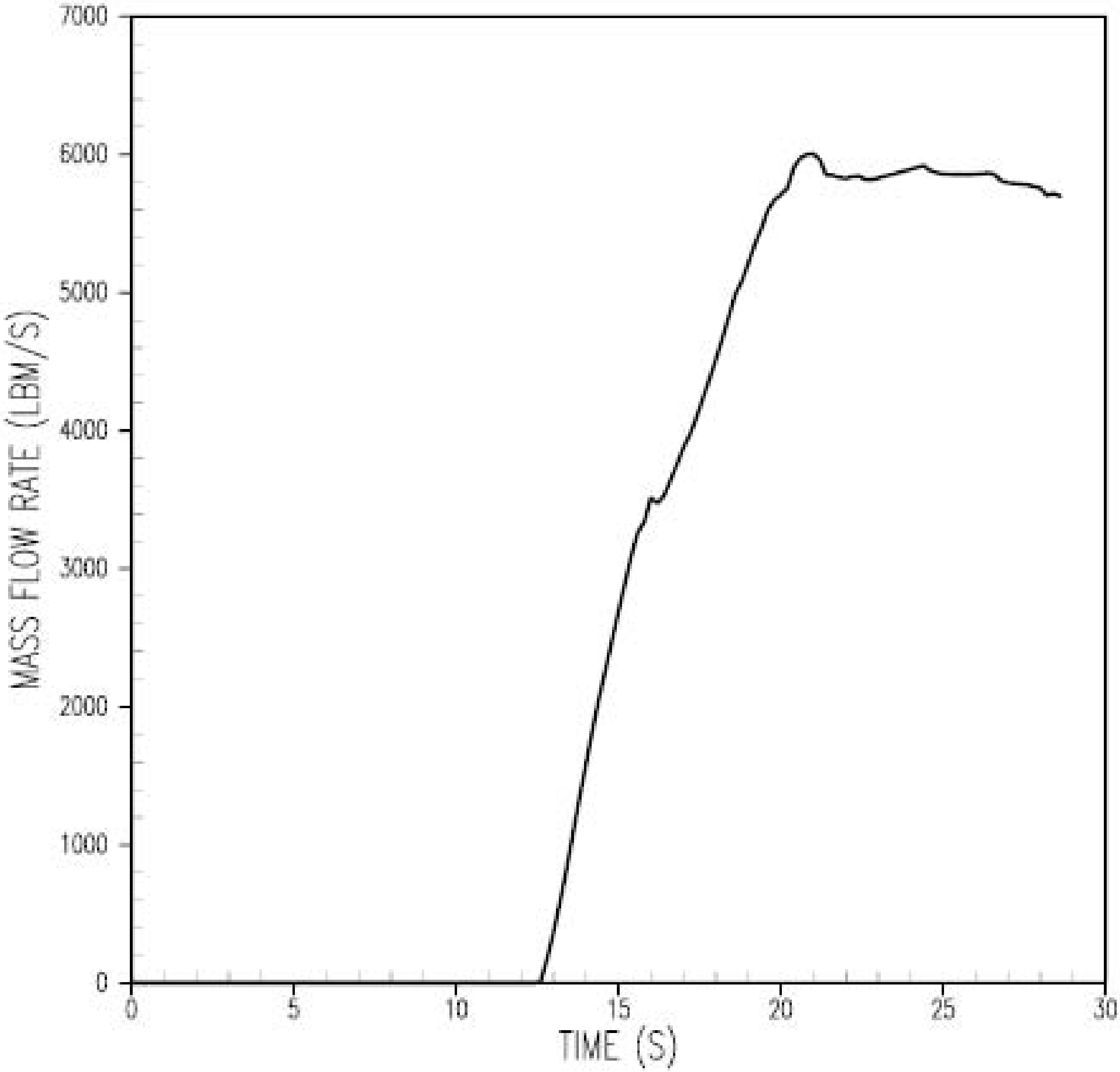

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FIGURE 15.6-14D

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=1.0, LOW T, MIN SI, COSINE POWER SHAPE, NON-IFBA)

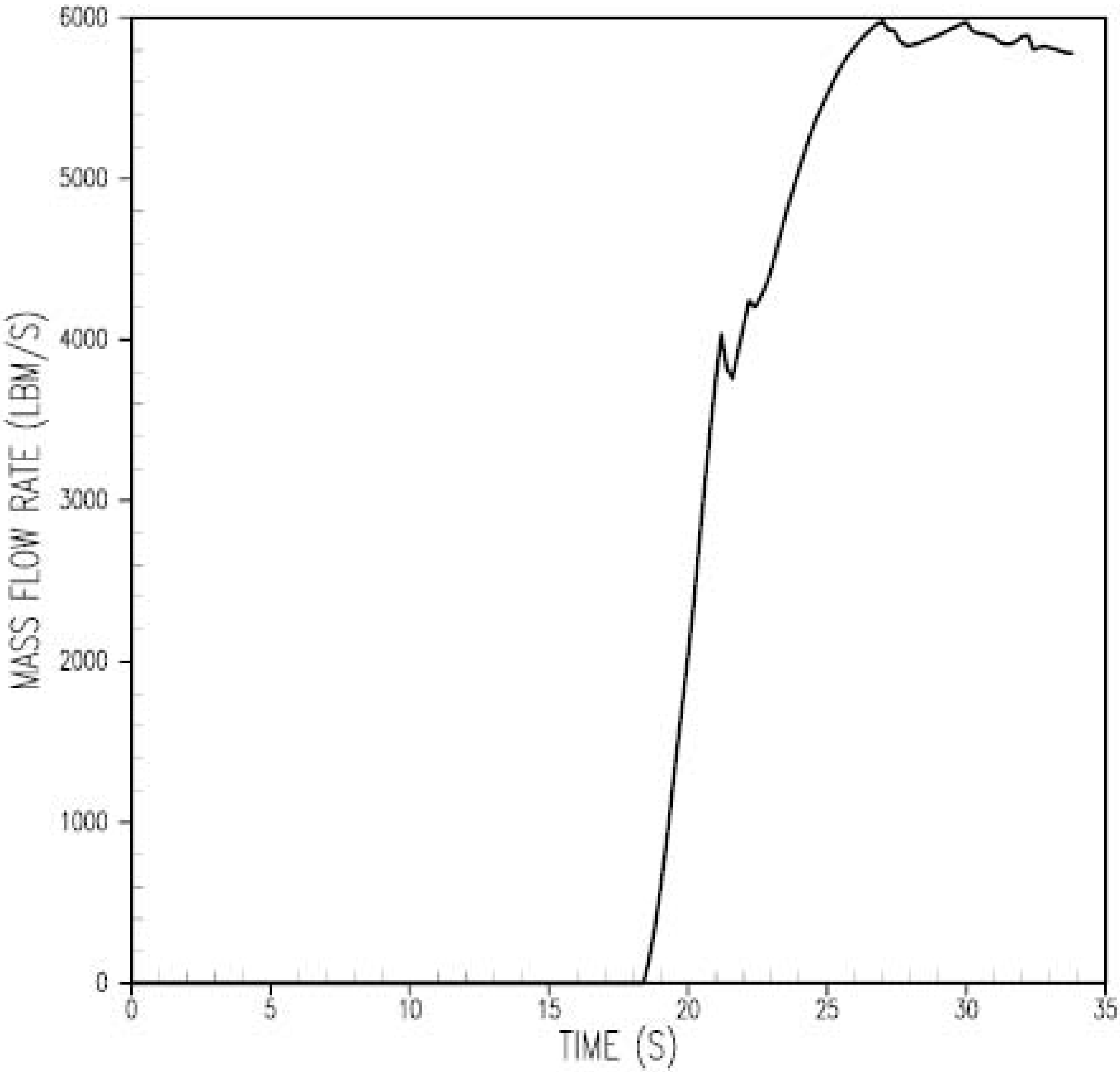

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FIGURE 15.6-14E

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

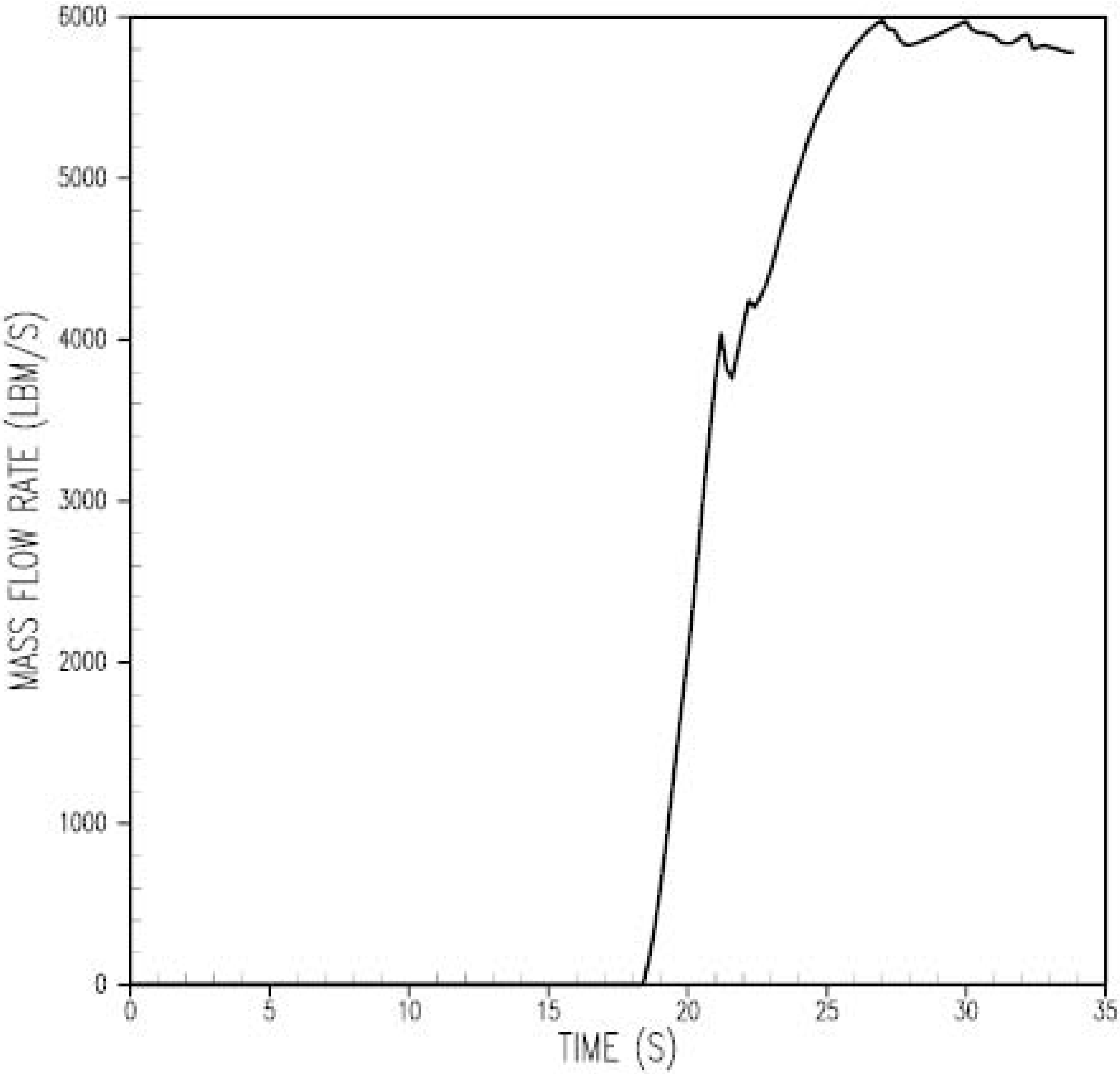

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FIGURE 15.6-14F

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, HIGH T_{AVG}, MAX SI, COSINE POWER SHAPE, NON-IFBA)

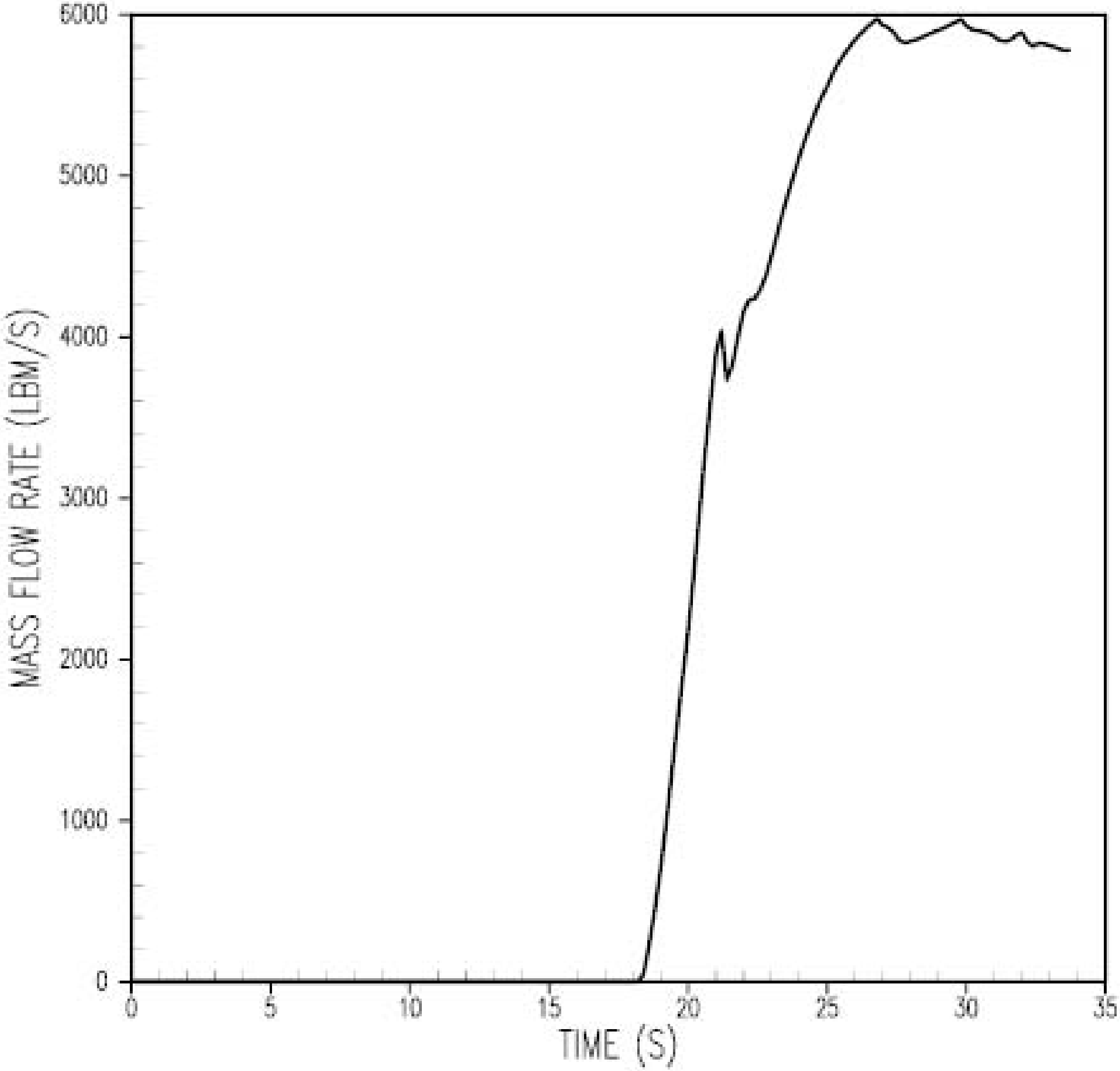

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FIGURE 15.6-14G

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, HIGH T_{avg}, MIN SI, 8.6' POWER SHAPE, NON-IFBA)

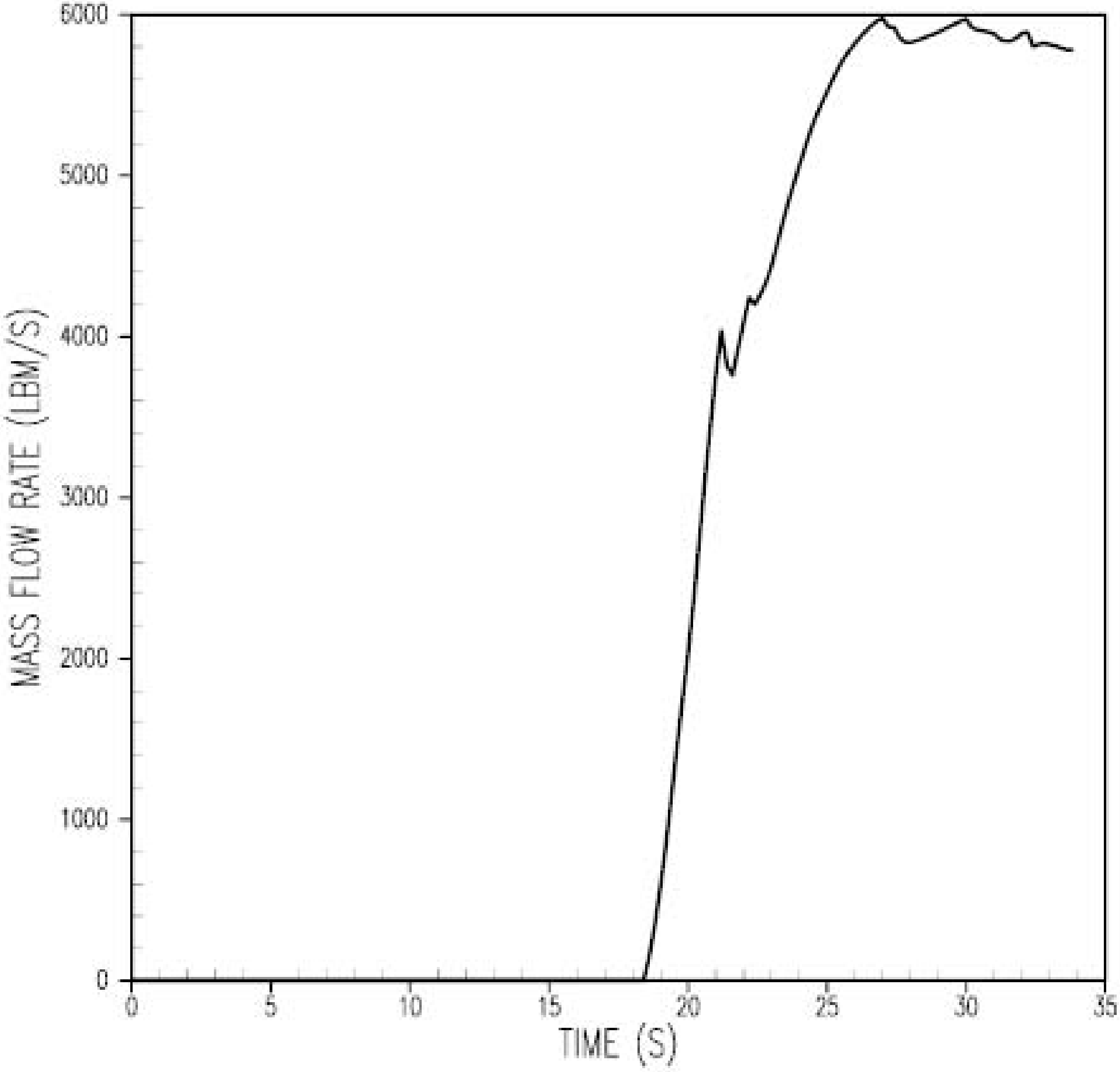

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FIGURE 15.6-14H

INTACT LOOP ACCUMULATOR MASS FLOW RATE DURING BLOWDOWN (C_D=0.6, HIGH T_{avg}, MIN SI, COSINE POWER SHAPE, IFBA)

Figure 15.6-15 Deleted

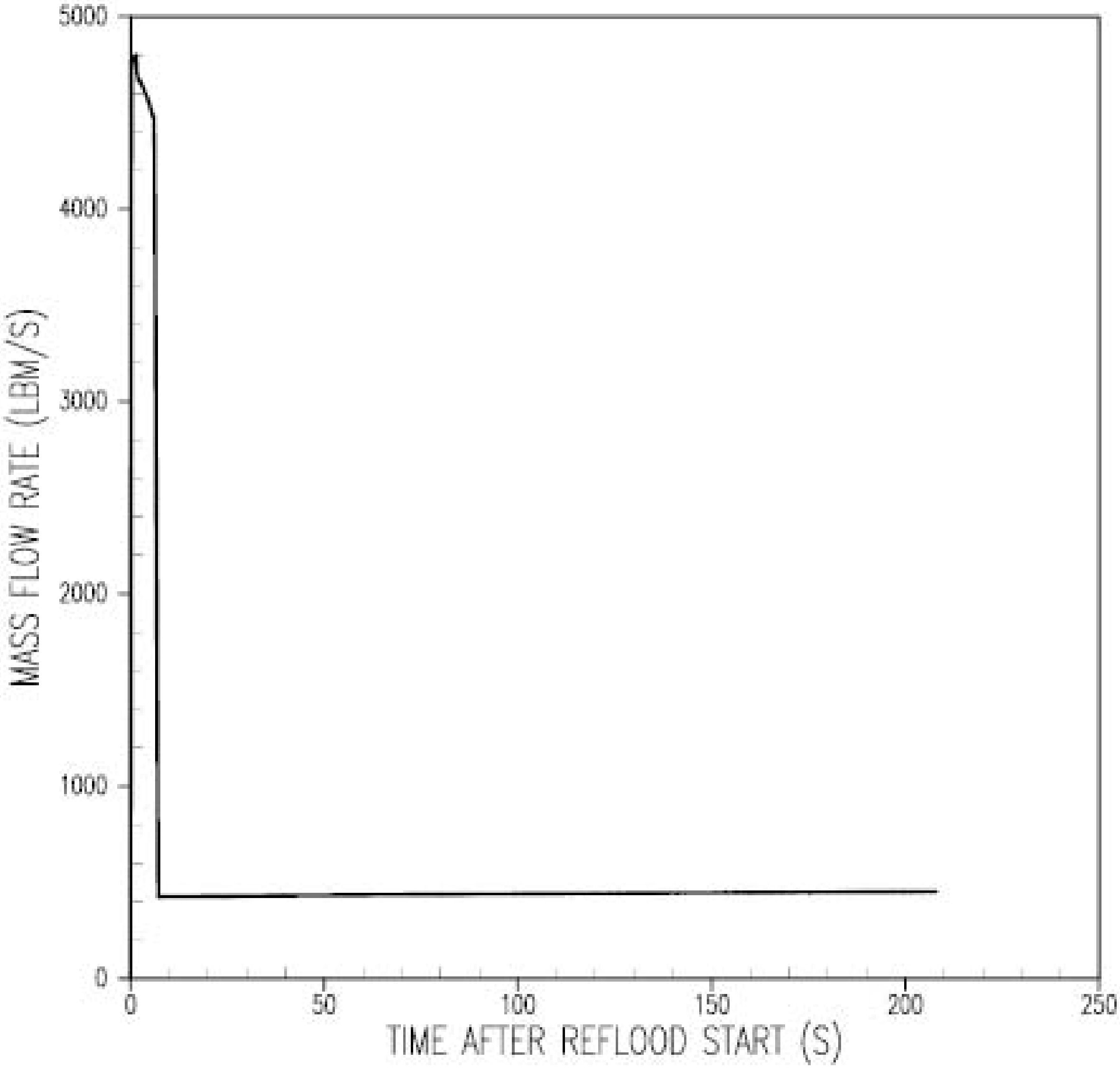

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FIGURE 15.6-15A

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.4, LOW T_{avg}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

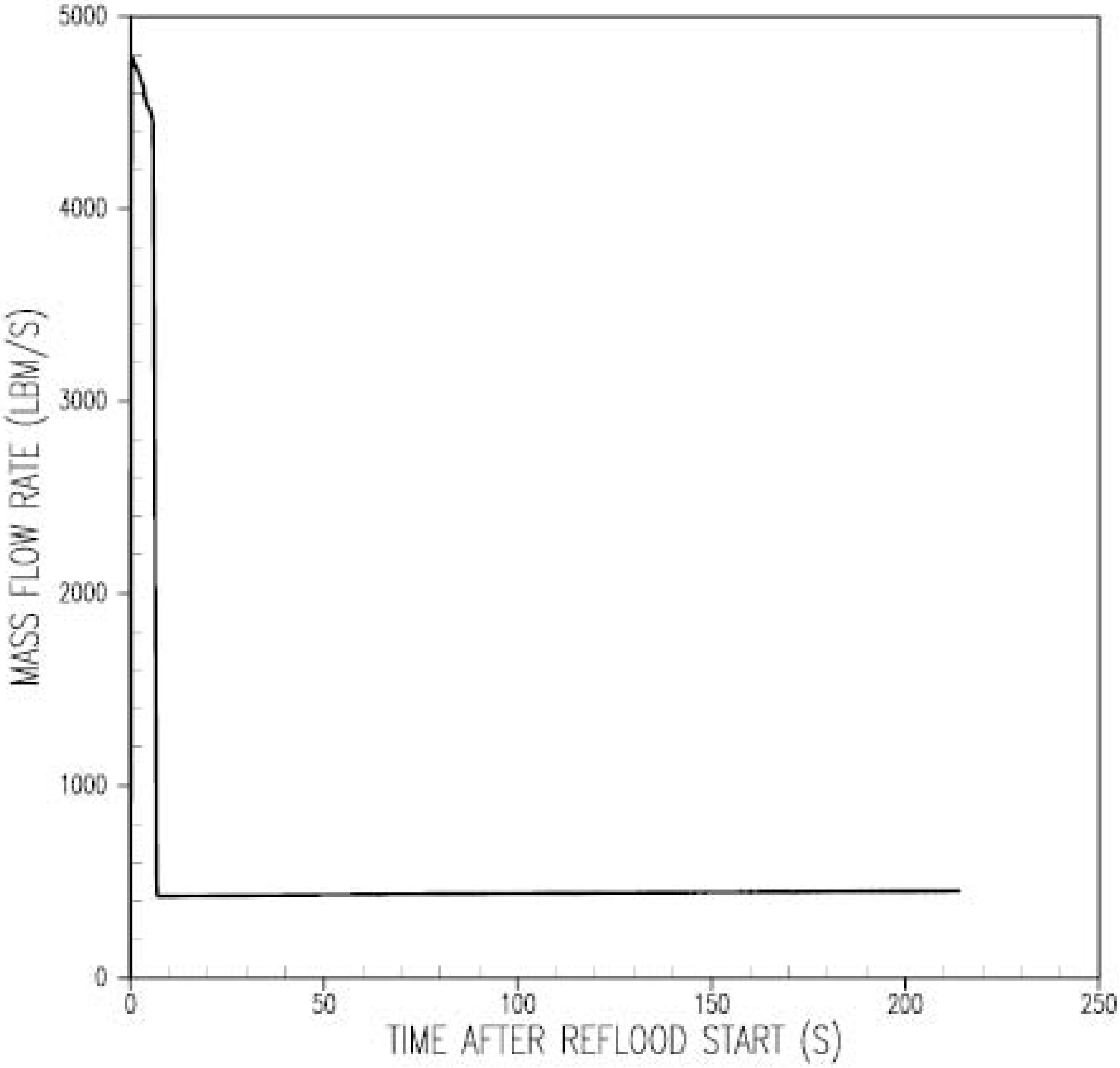

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FIGURE 15.6-16B

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.6, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

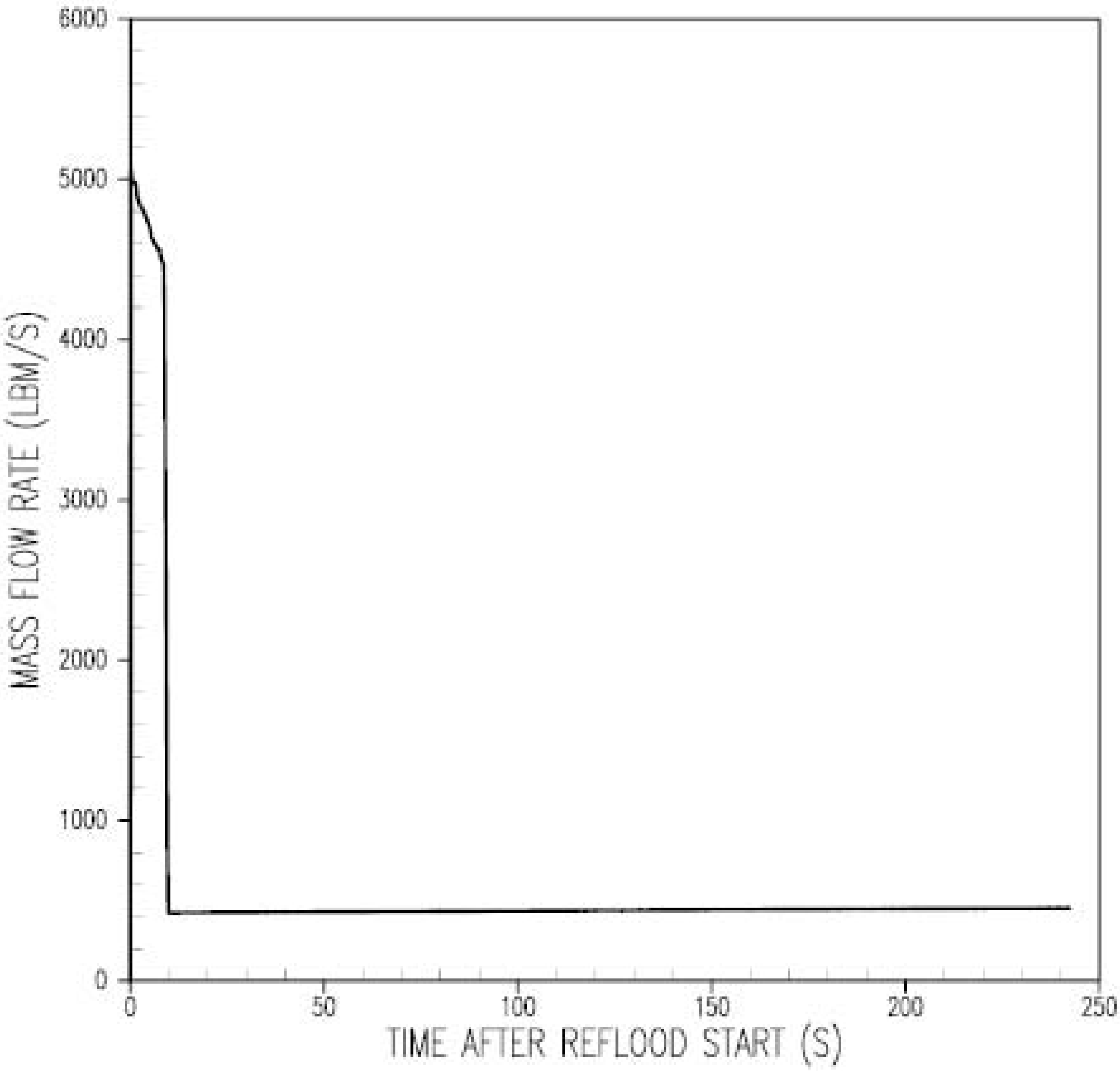

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FIGURE 15.6-15C

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.8, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

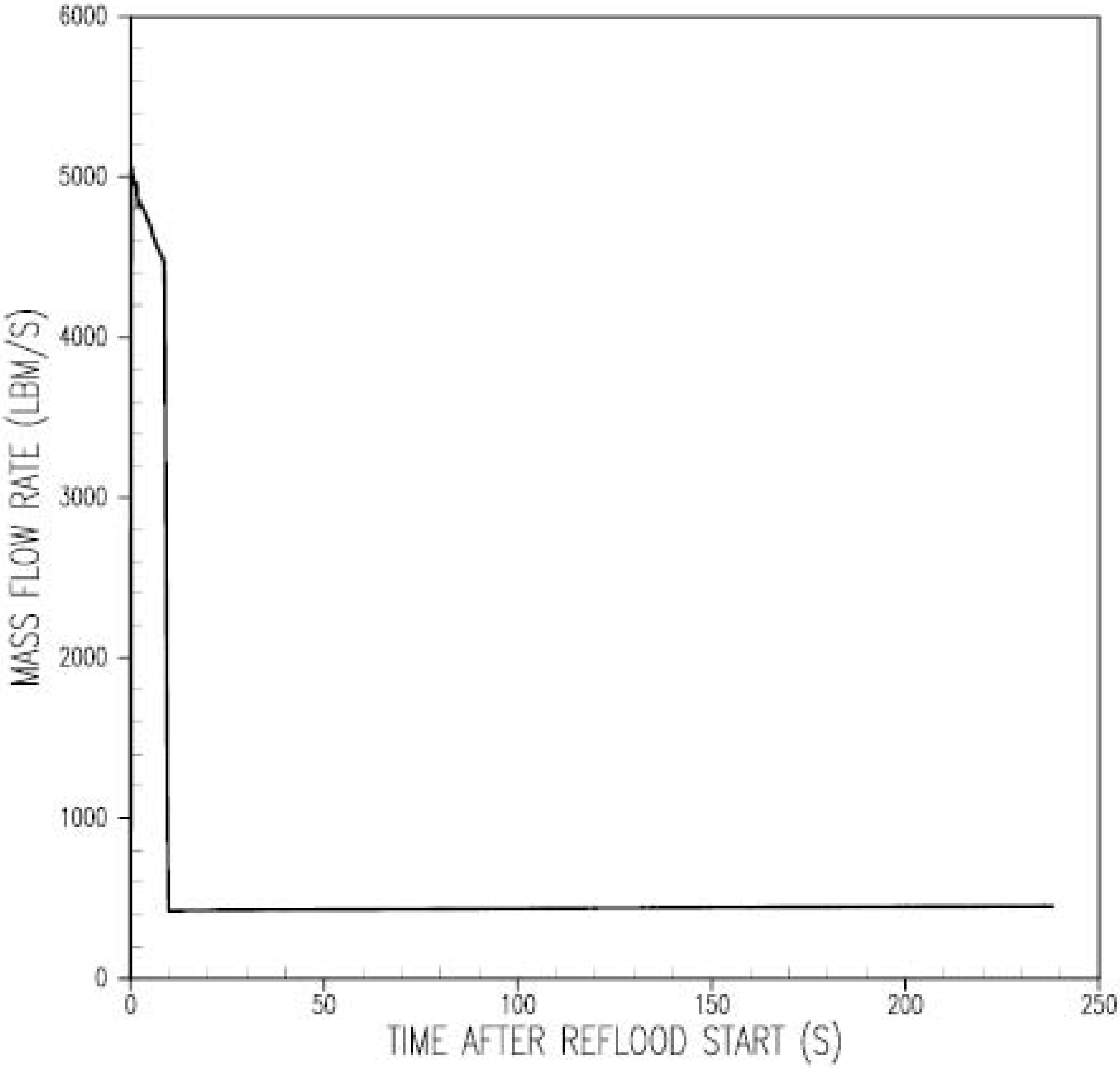

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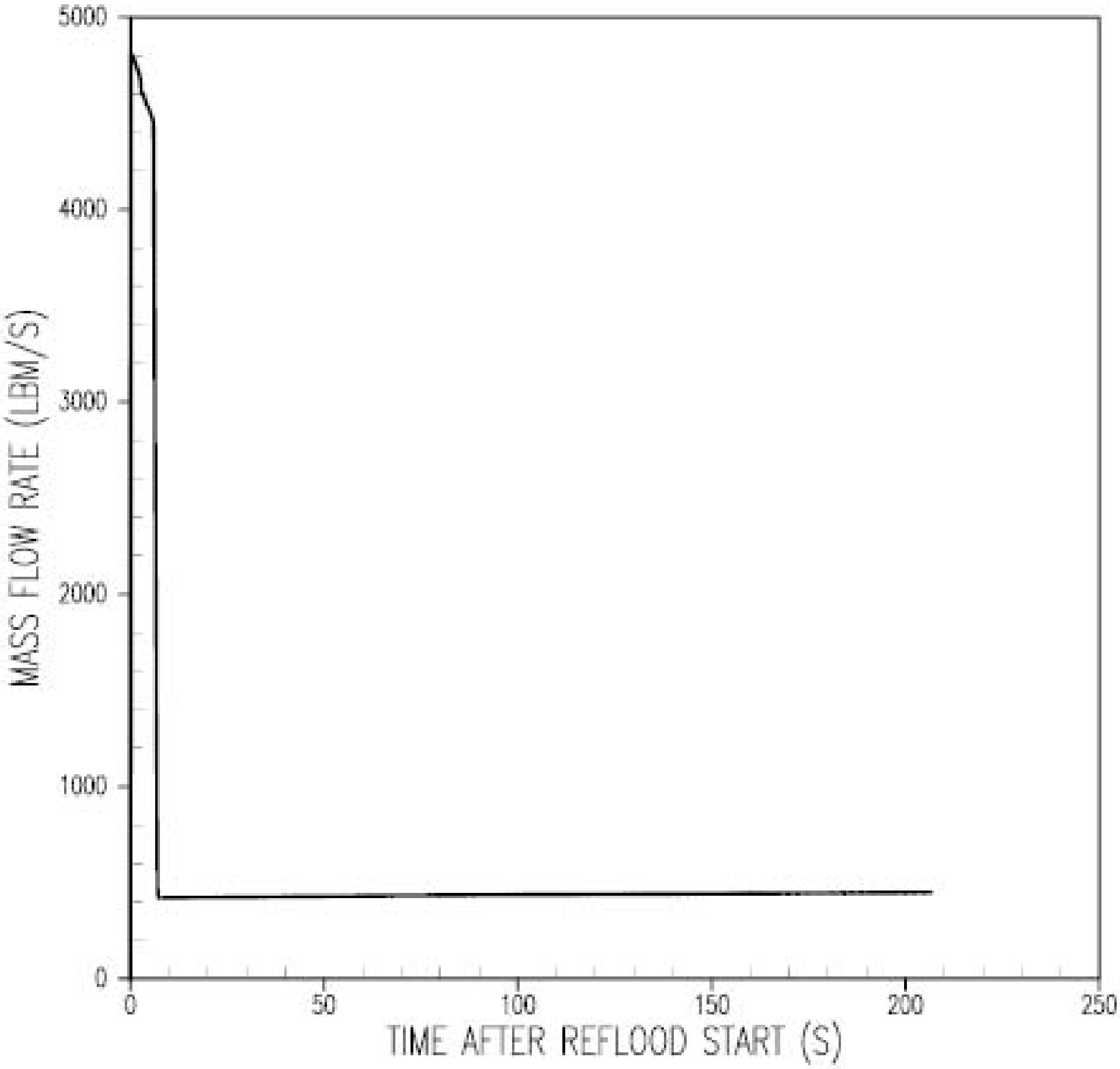
FIGURE 15.6-15D

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.8, LOW T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

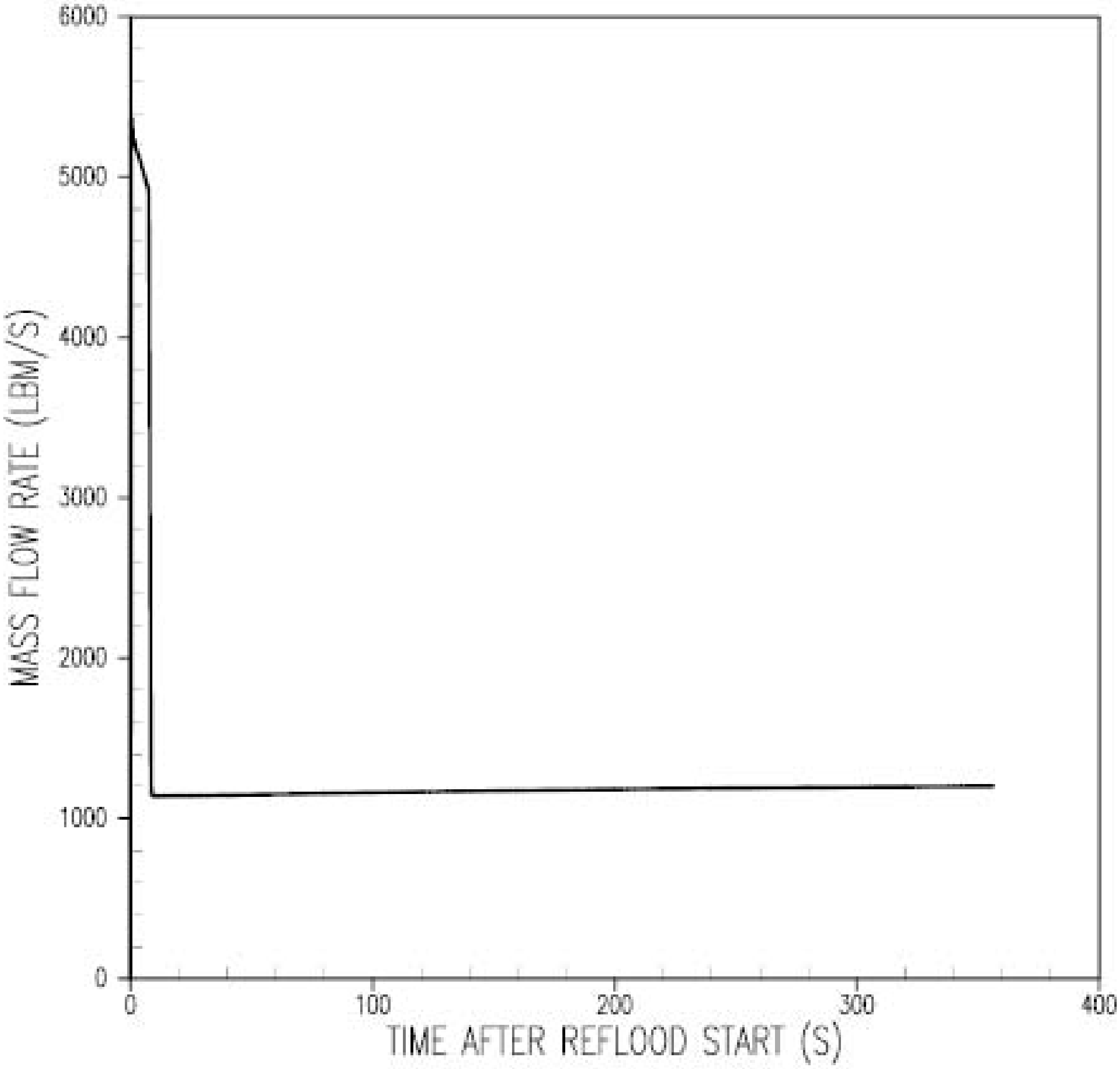


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-15E

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.6, HIGH T_{AVG}, MIN SI, COSINE POWER SHAPE, NON-IFBA)

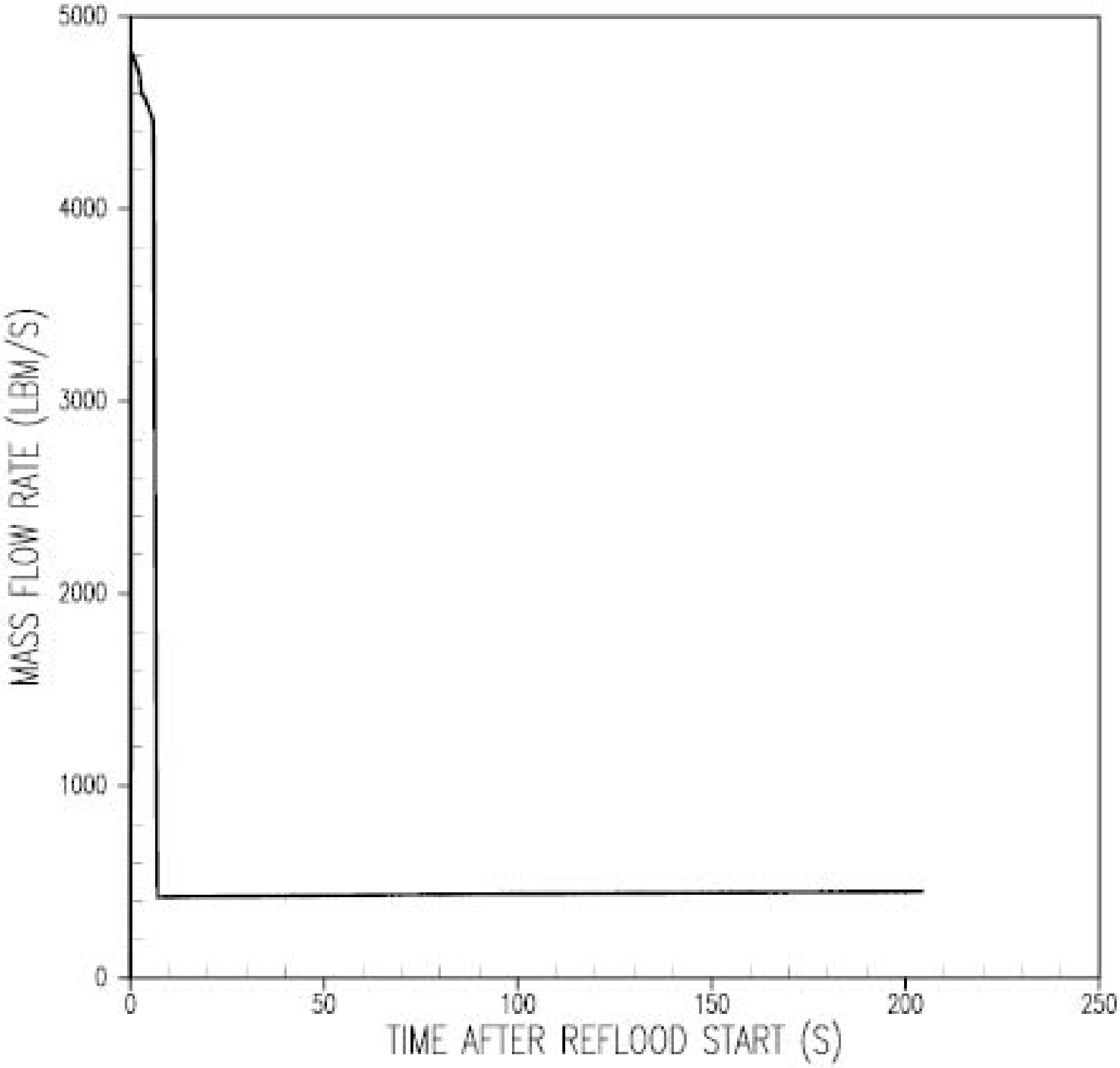


REV. OL-15
5/06

CALLAWAY PLANT

FIGURE 15.6-15F

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.6, HIGH T_{avg}, MAX SI, COSINE POWER SHAPE, NON-IFBA)



REV. OL-16
5/06

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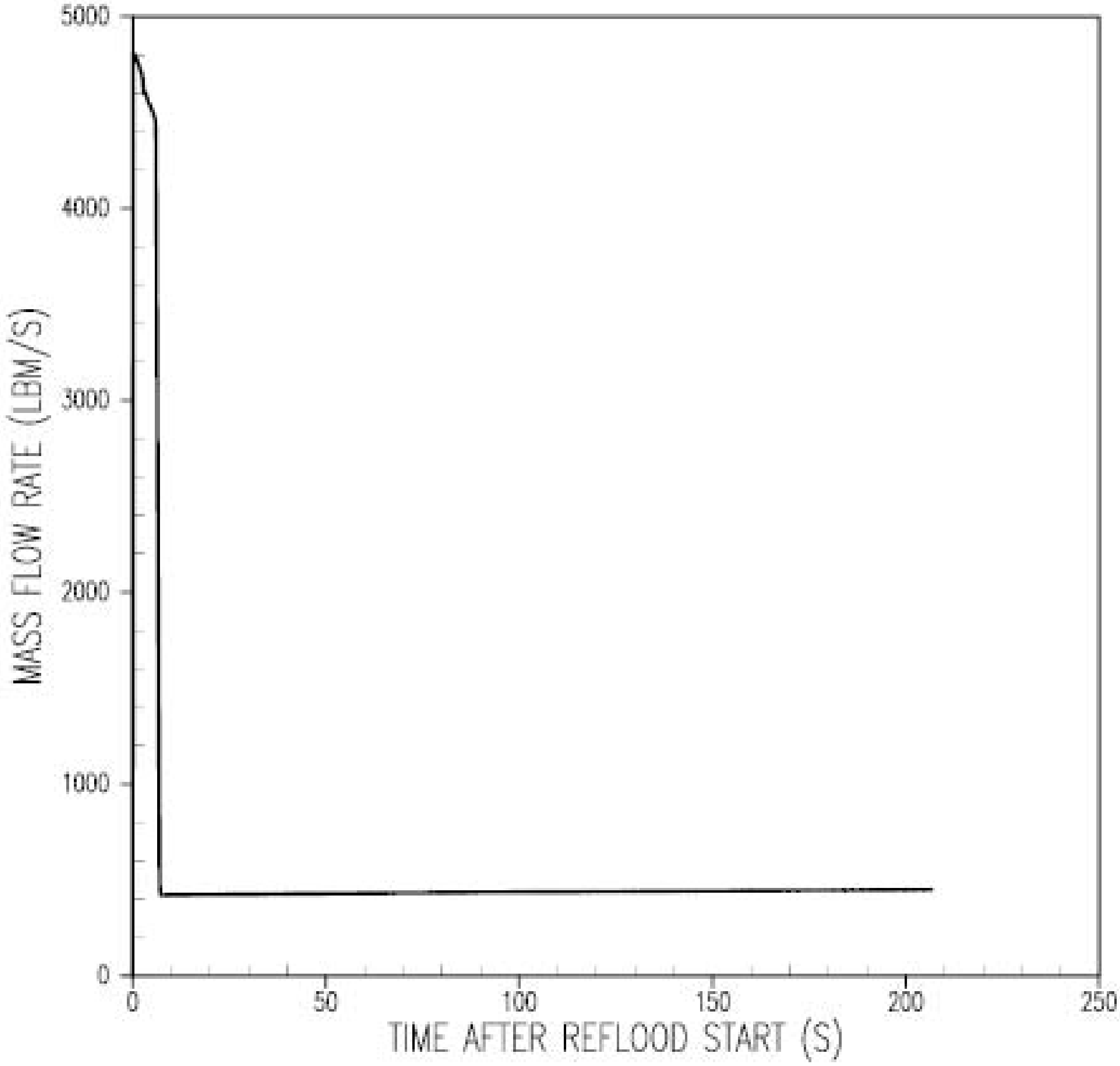
FIGURE 15.6-15G

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.6, HIGH T_{avg}, MIN SI, 8.6' POWER SHAPE, NON-IFBA)

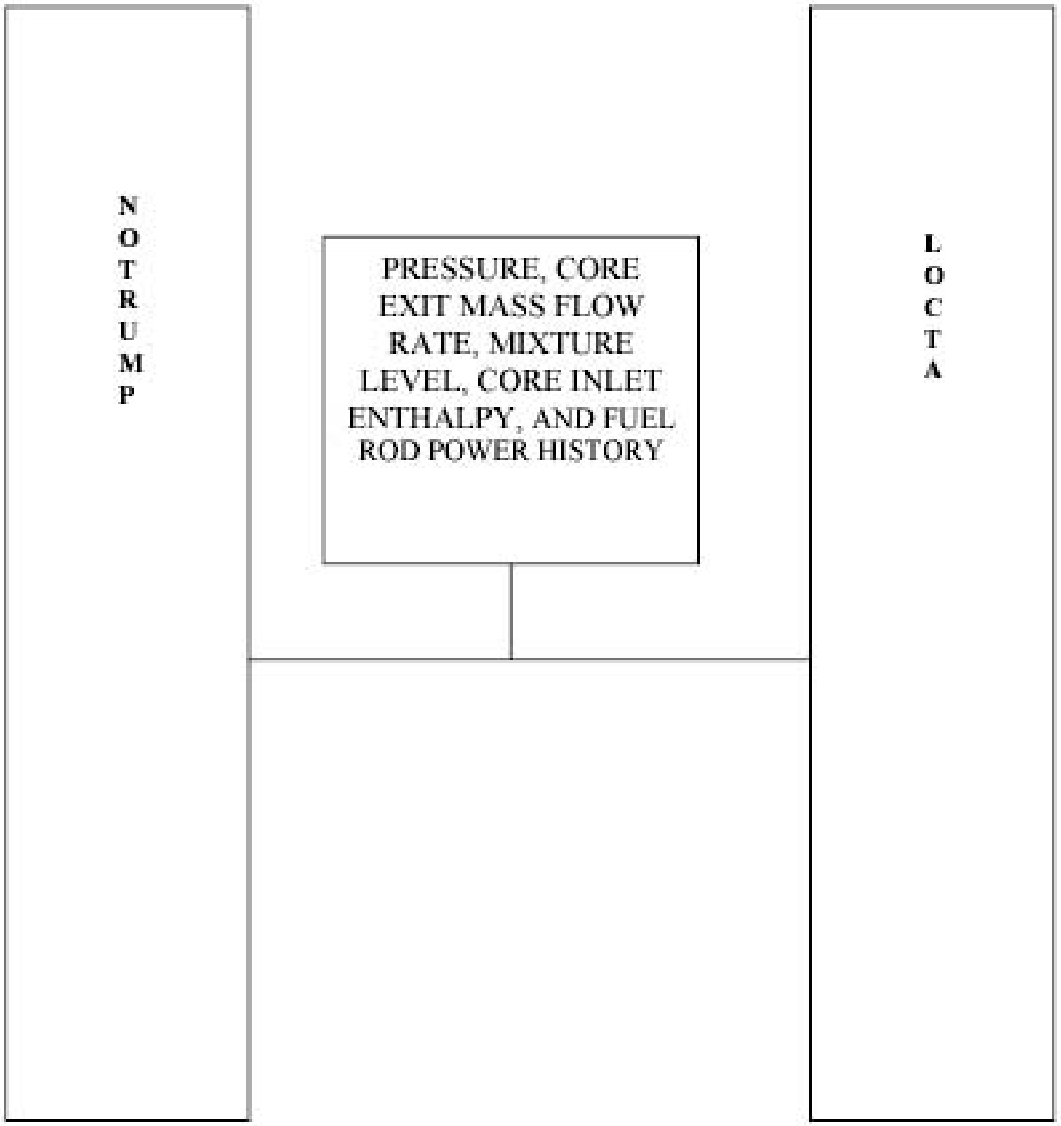


REV. OL-15
5/06

CALLAWAY PLANT

FIGURE 15.6-15H

INTACT LEG ACCUMULATOR AND SI MASS FLOW RATE DURING REFLOOD (C_D=0.6, HIGH T_{avg}, MIN SI, COSINE POWER SHAPE, IFBA)

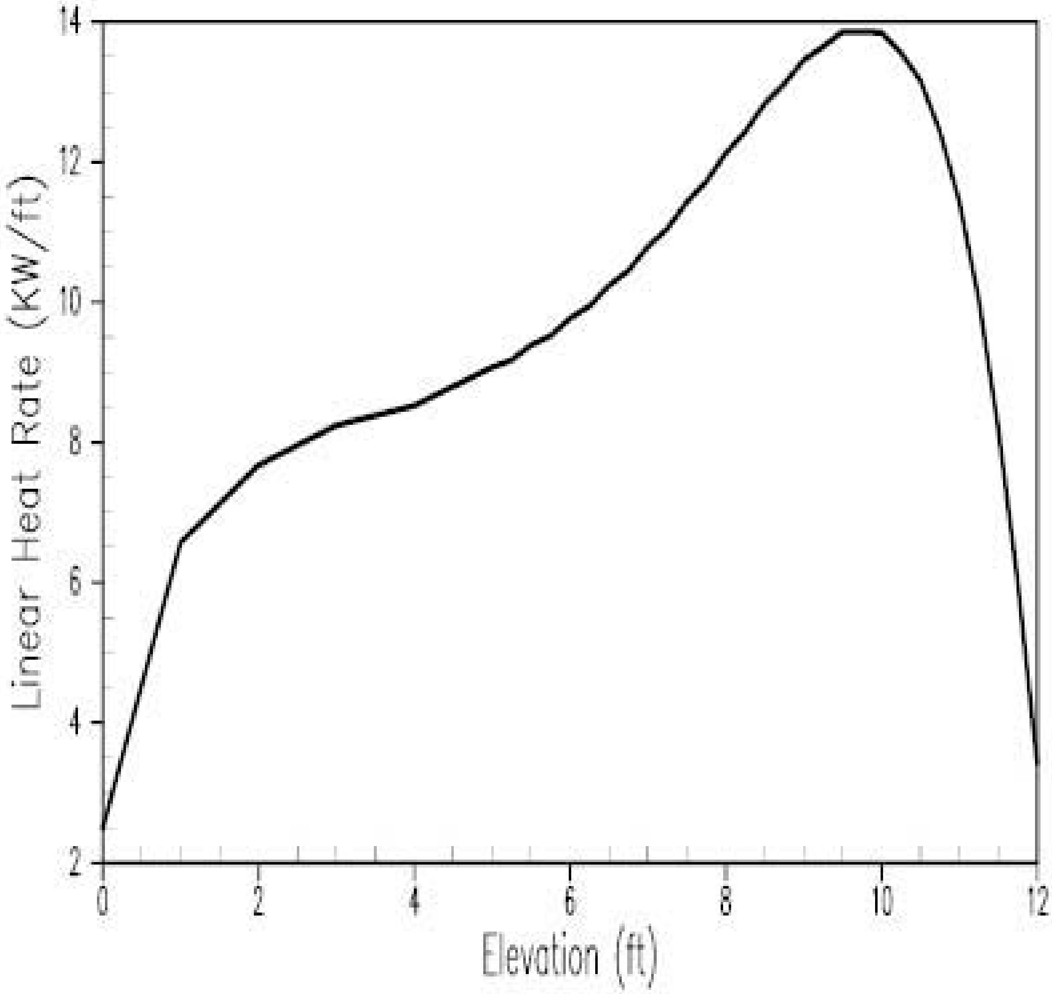


REV. OL-15
5/06

CALLAWAY PLANT

FIGURE 15.6-16

CODE INTERFACE DESCRIPTION FOR SMALL BREAK MODEL



REV. OL-16
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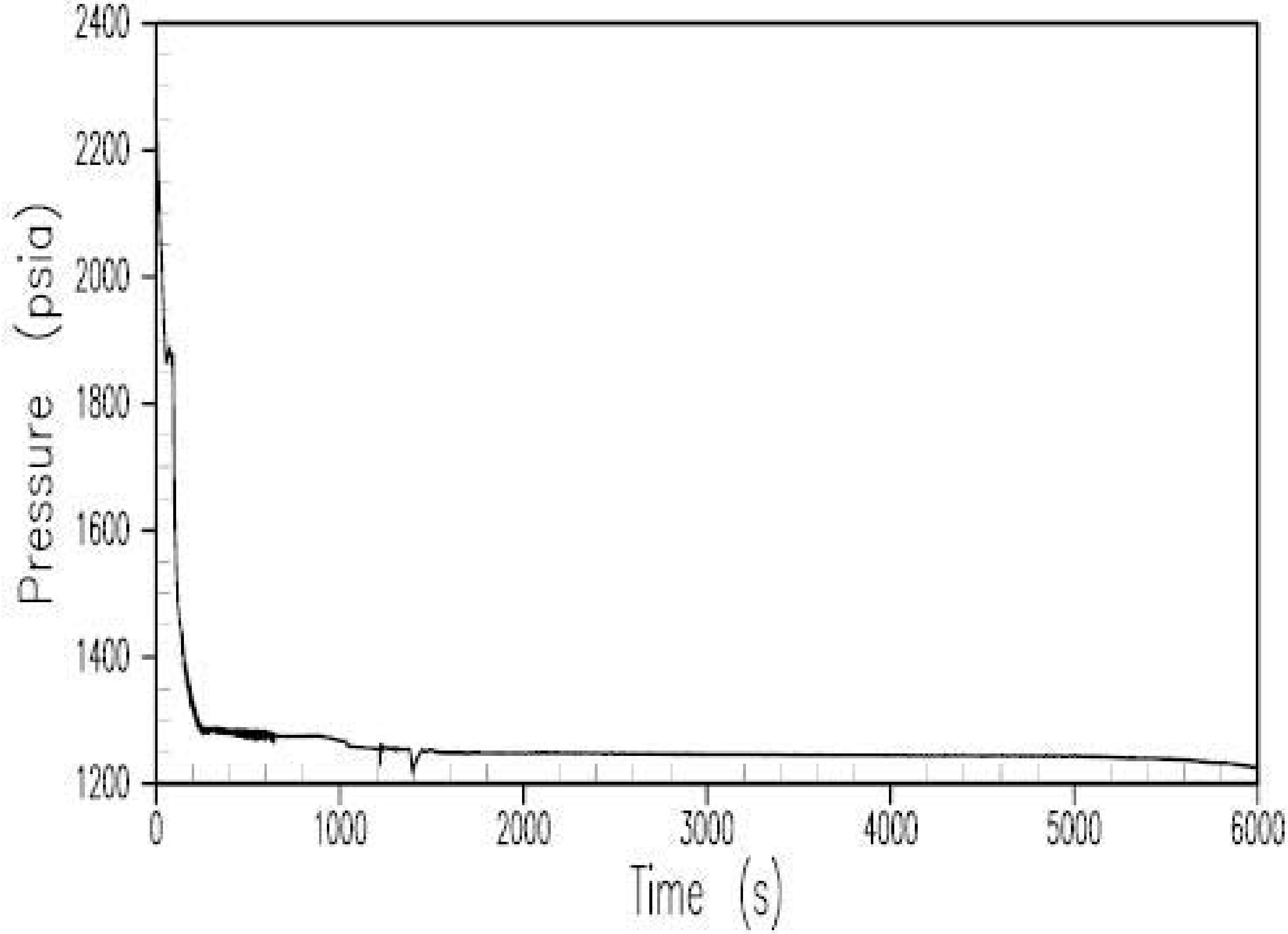
FIGURE 15.6-17

SMALL BREAK POWER SHAPE

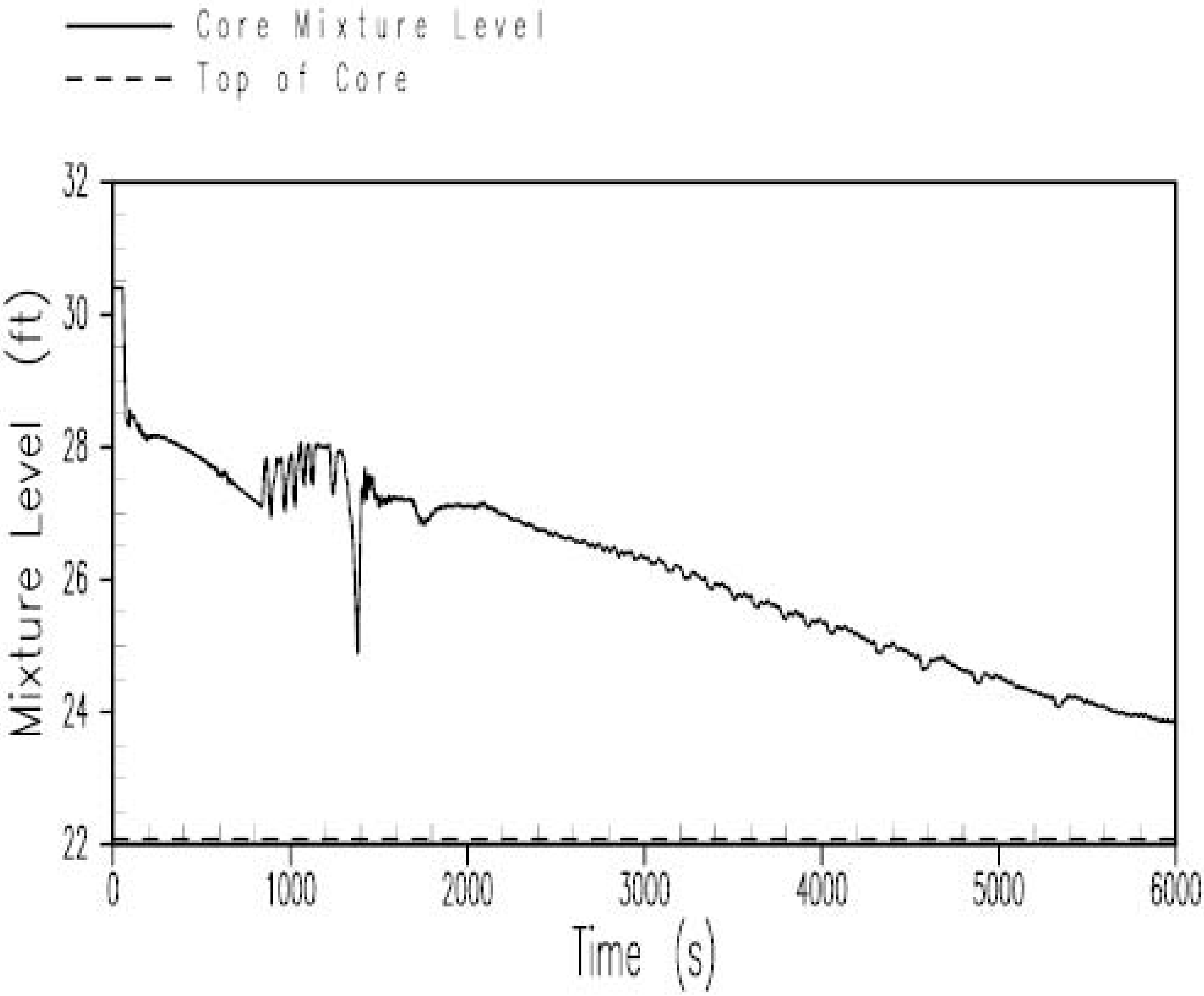


REV. OL-15
5/06

CALLAWAY PLANT

FIGURE 15.6-10

2 INCH COLD LEG BREAK
RCS PRESSURE VS. TIME



REV. OL-16
5/08

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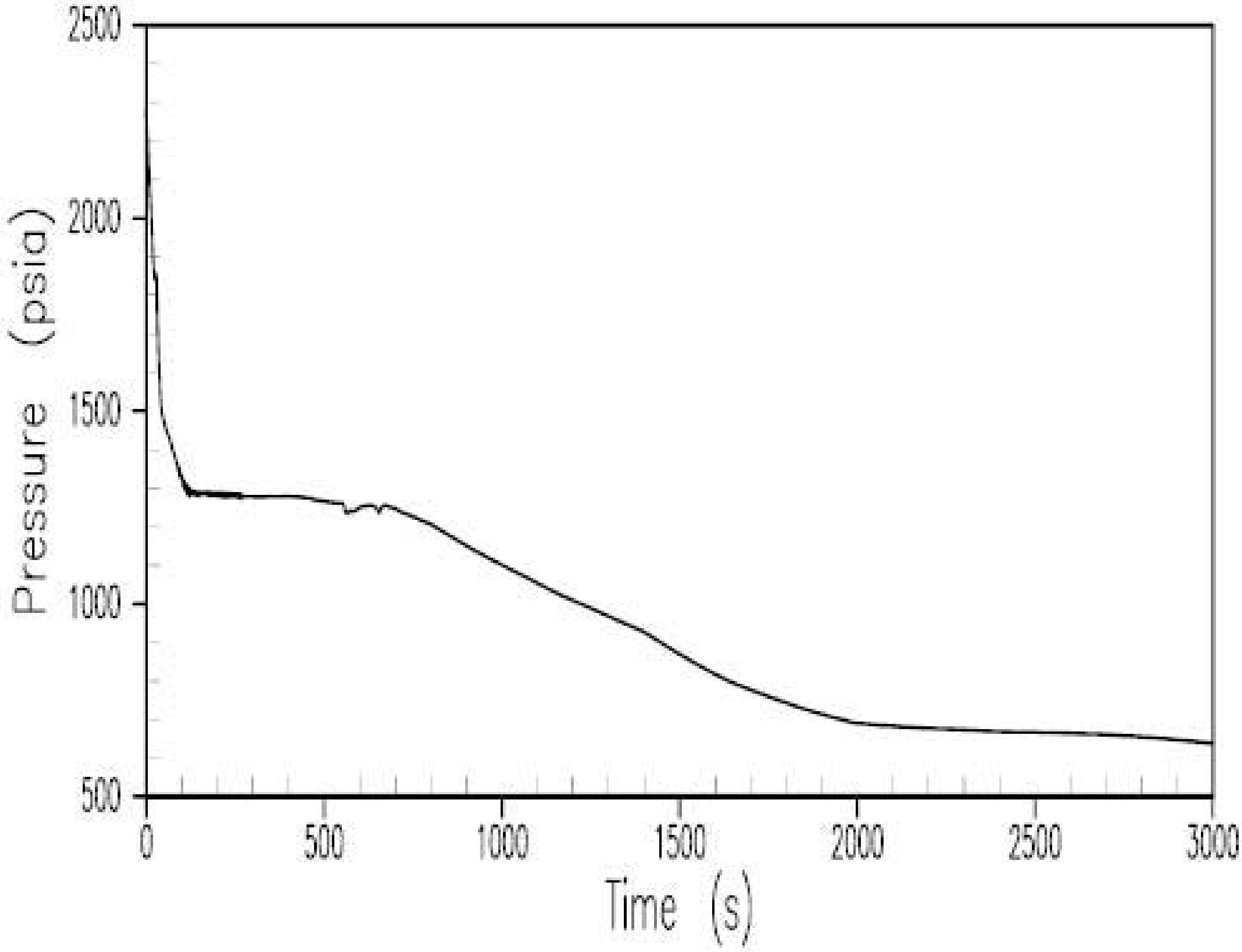
FIGURE 15.6-19

2 INCH COLD LEG BREAK
CORE MIXTURE LEVEL VS. TIME
(Top of Core = 22.0776 ft)



REV. OL-16
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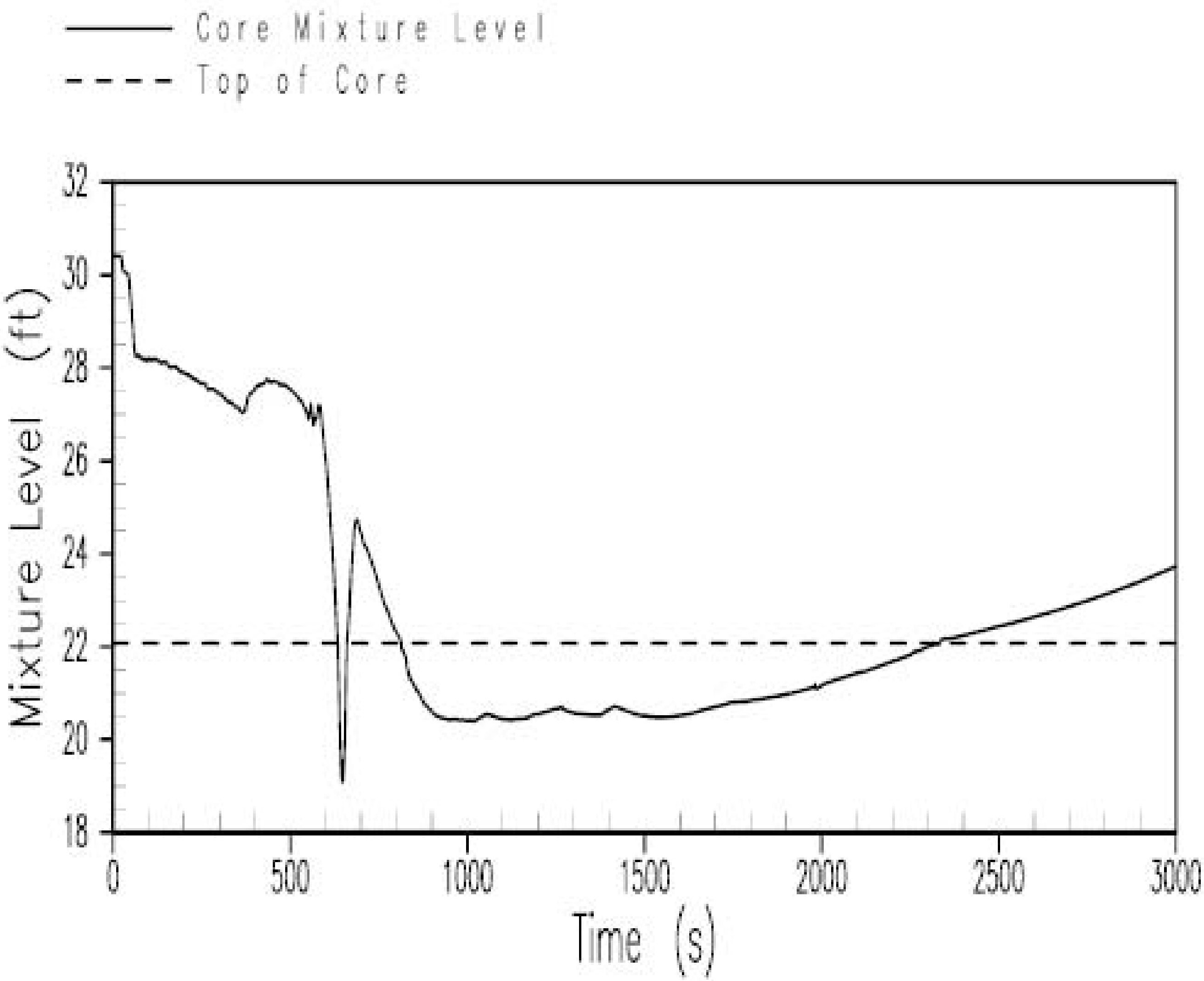
CALLAWAY PLANT

FIGURE 15.6-20

3 INCH COLD LEG BREAK
RCS PRESSURE VS. TIME

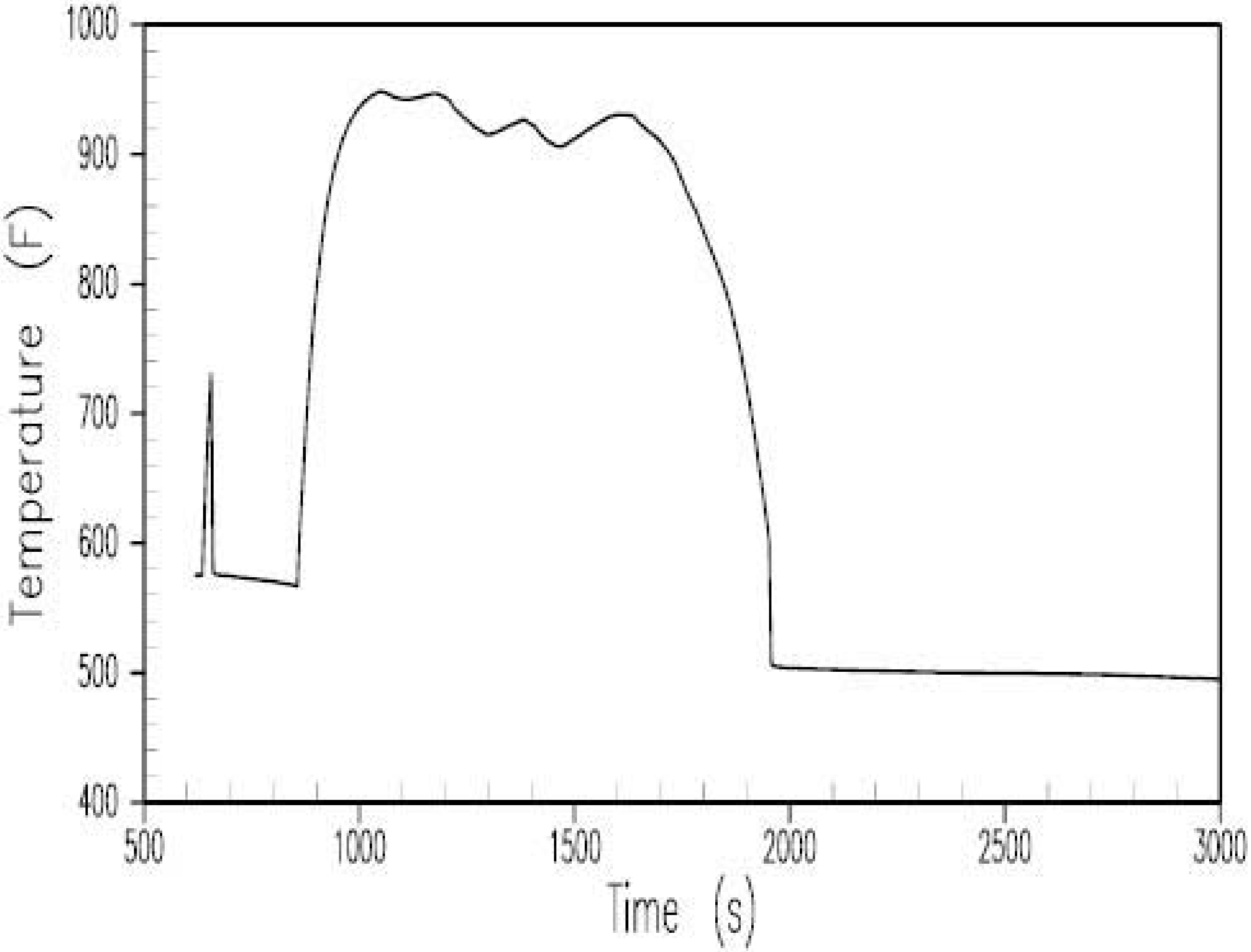


REV. OL-16
5/08

CALLAWAY PLANT

FIGURE 15.6-21

3 INCH COLD LEG BREAK
CORE MIXTURE LEVEL VS. TIME
(Top of Core = 22.0776 ft)



REV. OL-16
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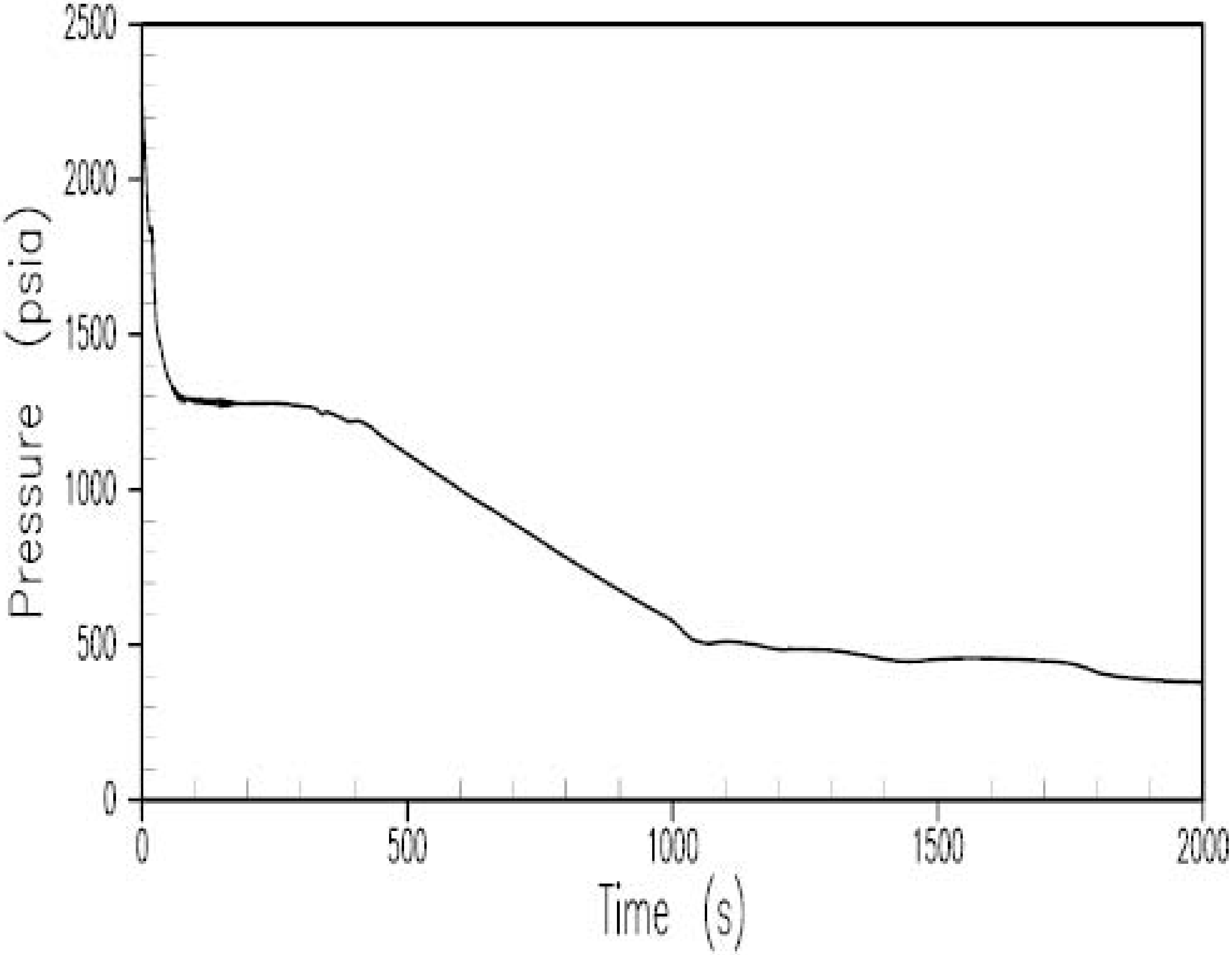
CALLAWAY PLANT

FIGURE 15.6-22

3 INCH COLD LEG BREAK
HOT SPOT CLAD TEMPERATURE VS. TIME

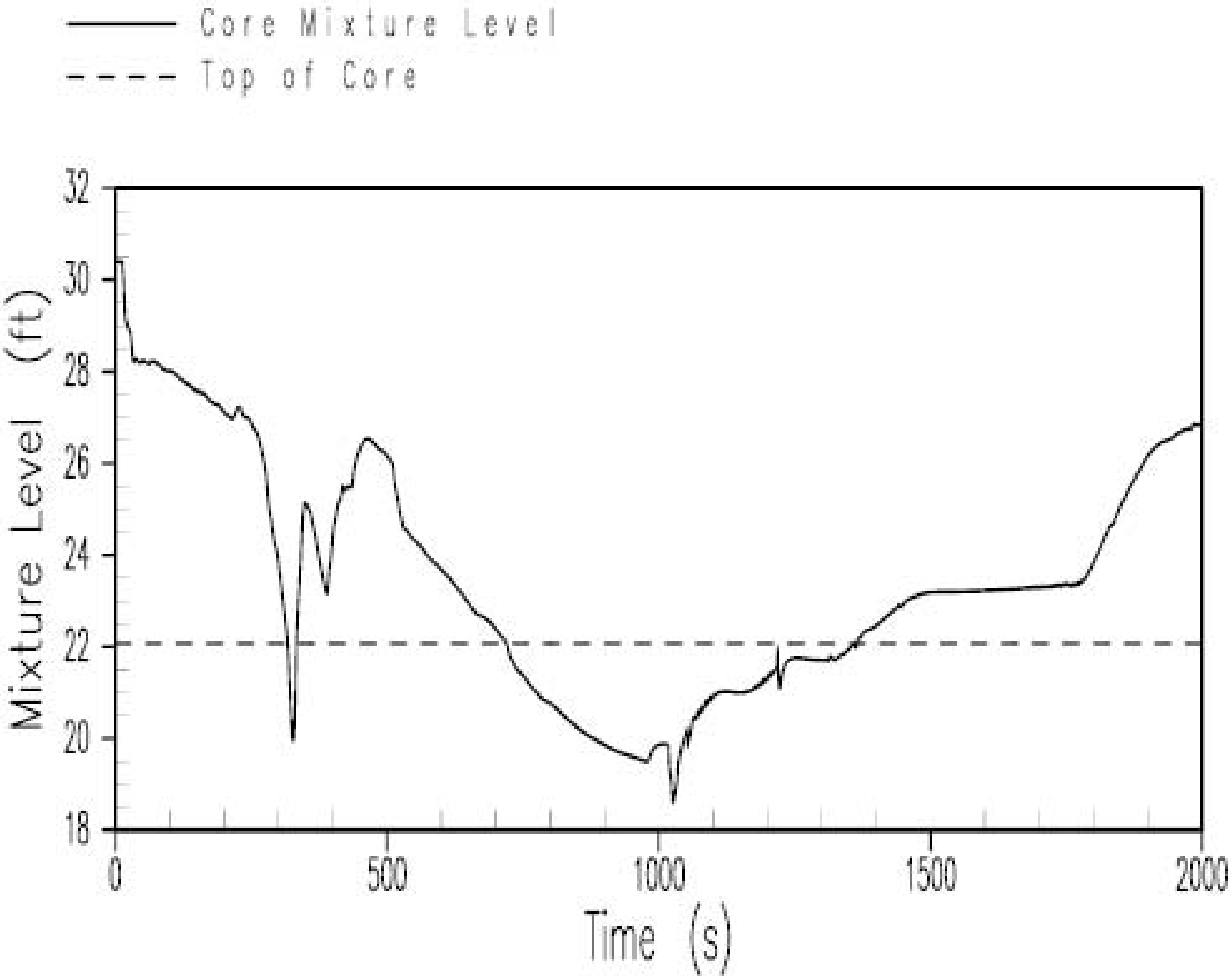


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-23

4 INCH COLD LEG BREAK
RCS PRESSURE VS. TIME

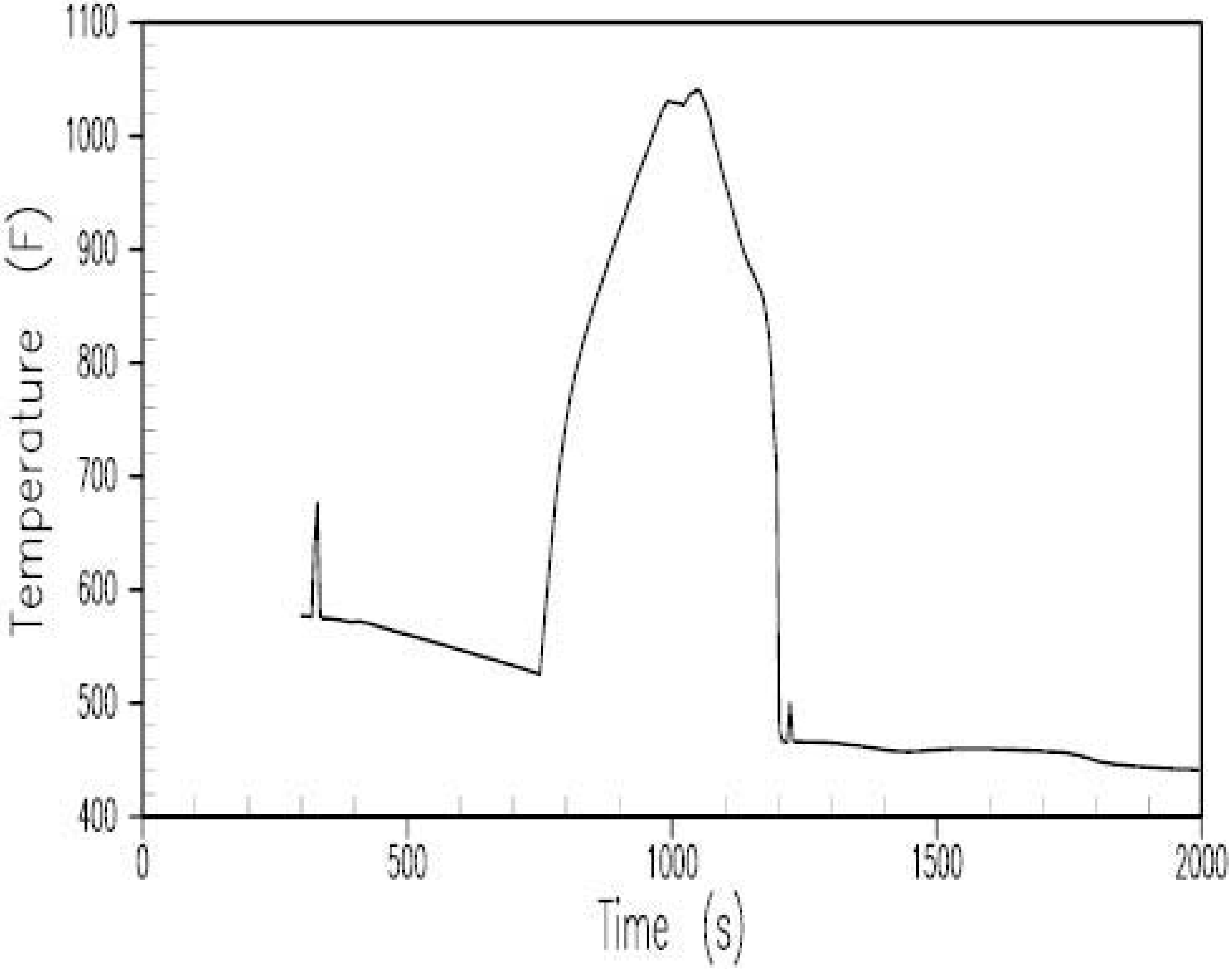


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-24

4 INCH COLD LEG BREAK
CORE MIXTURE LEVEL VS. TIME
(Top of Core = 22.0778 ft)

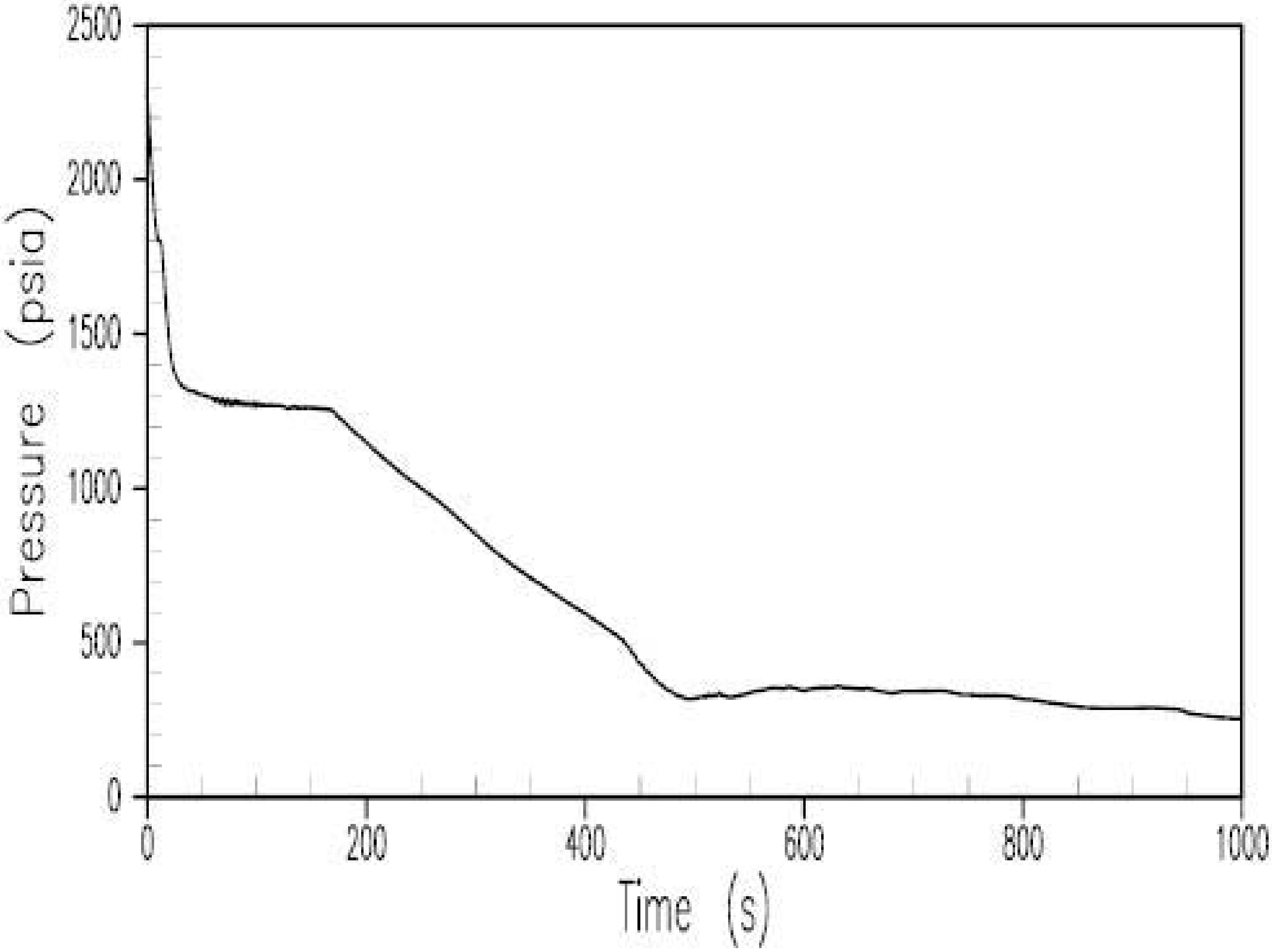


REV. OL-16
5/08

CALLAWAY PLANT

FIGURE 15.6-25

4 INCH COLD LEG BREAK
HOT SPOT CLAD TEMPERATURE VS. TIME

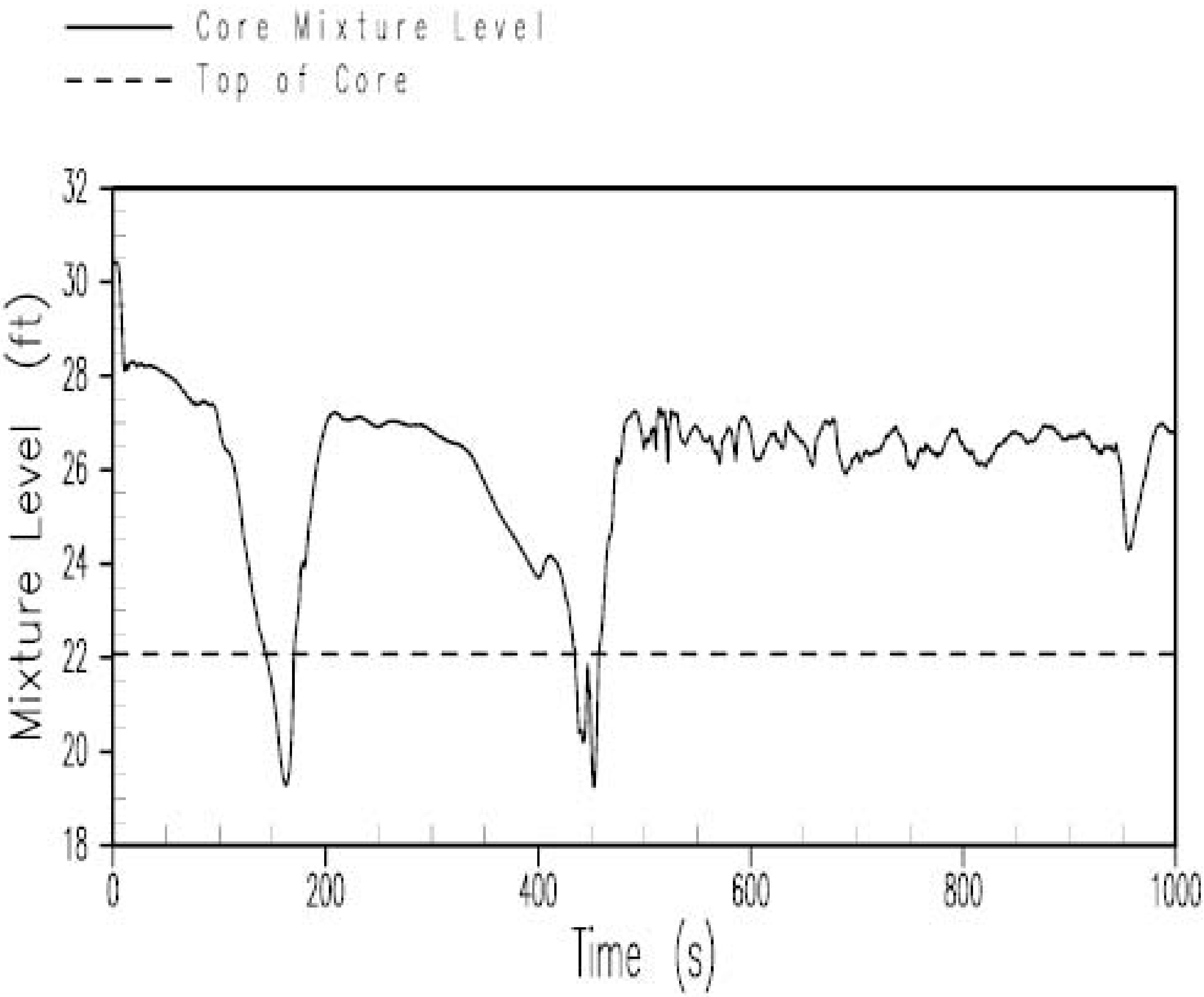


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-26

6 INCH COLD LEG BREAK
RCS PRESSURE VS. TIME



REV. OL-16
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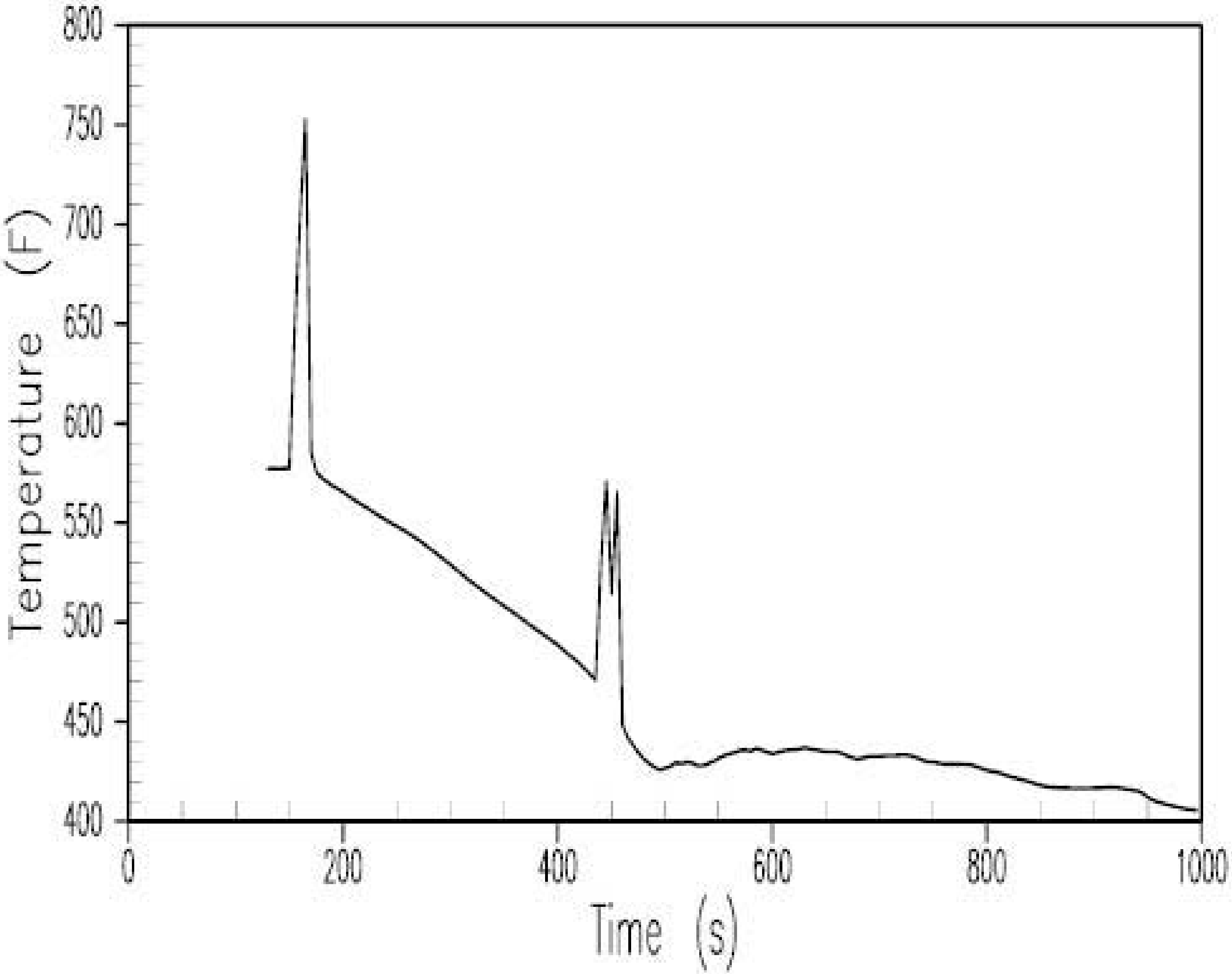
CALLAWAY PLANT

FIGURE 15.6-27

6 INCH COLD LEG BREAK
CORE MIXTURE LEVEL VS. TIME
(Top of Core = 22.0776 ft)

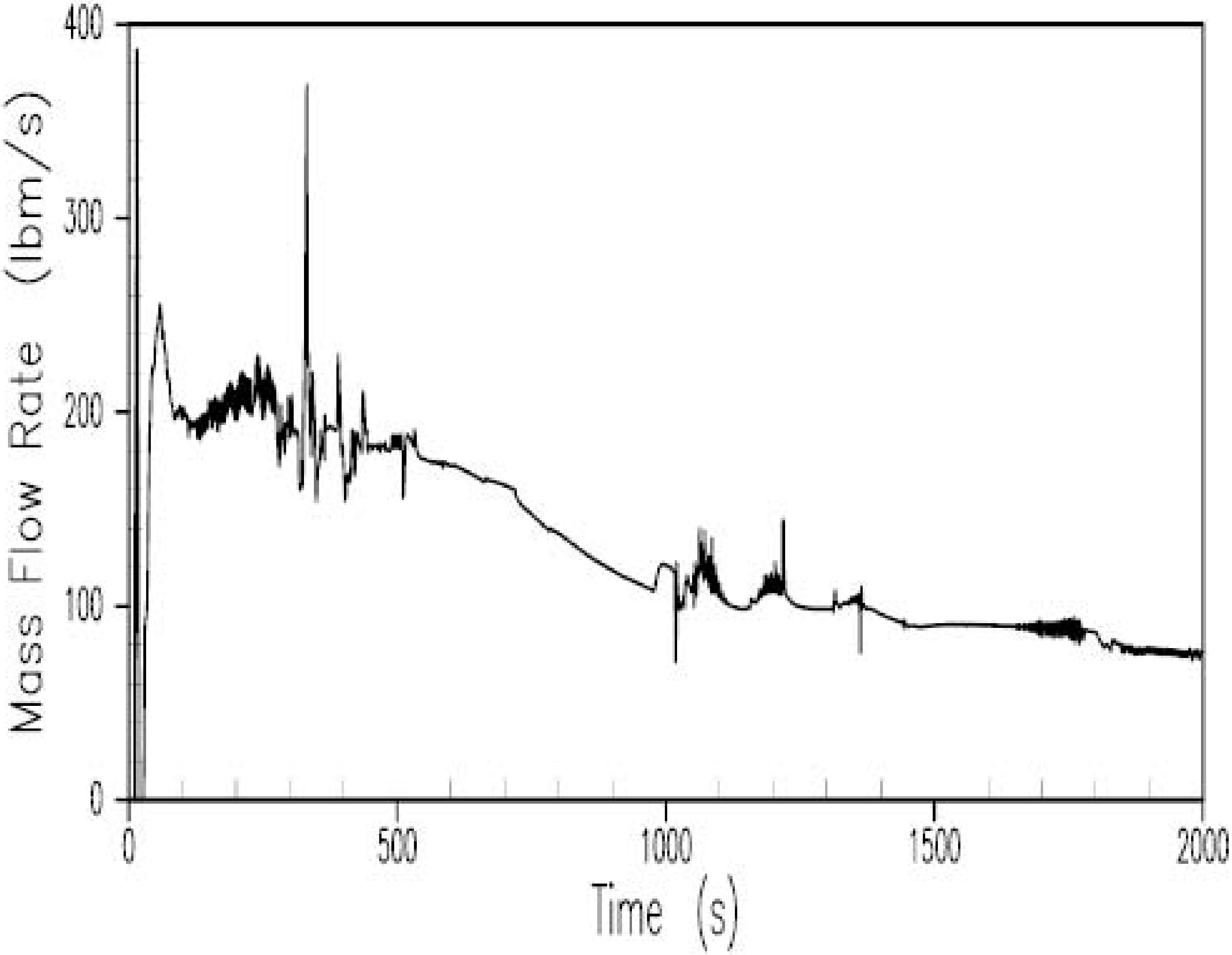


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-29

6 INCH COLD LEG BREAK
HOT SPOT CLAD TEMPERATURE VS. TIME

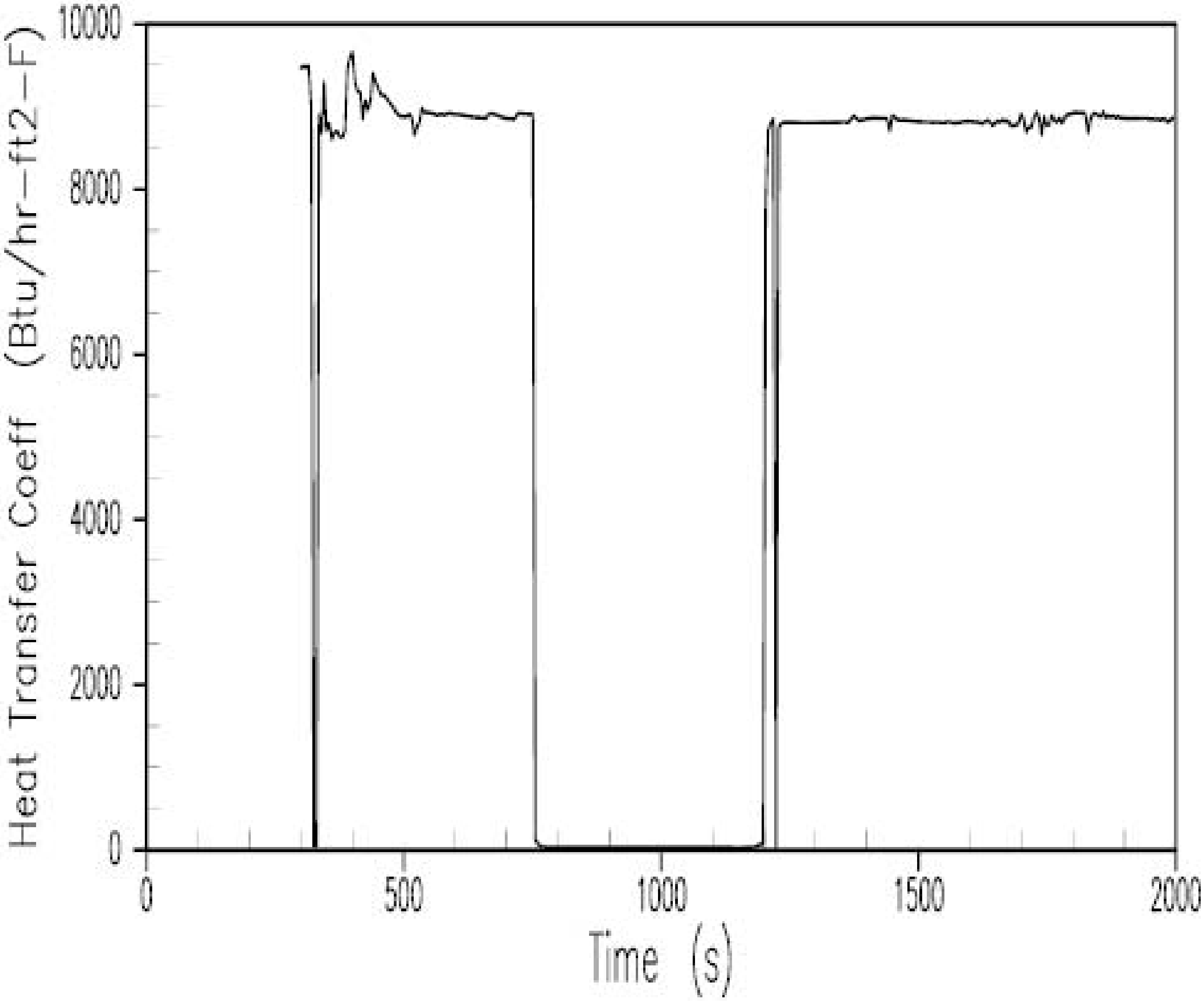


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-29

4 INCH COLD LEG BREAK
CORE EXIT STEAM FLOW VS. TIME

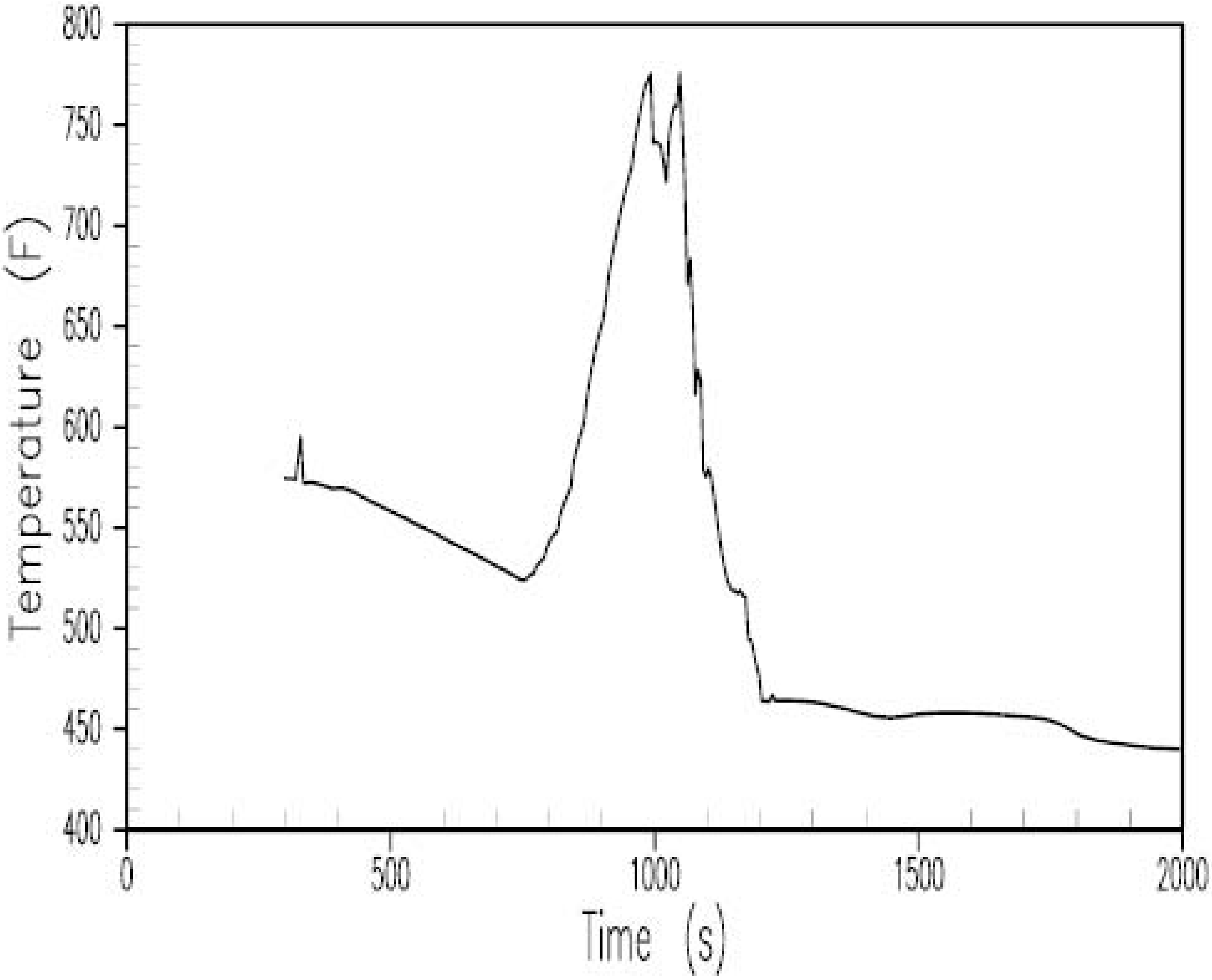


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-30

4 INCH COLD LEG BREAK
CORE HEAT TRANSFER COEFFICIENT VS. TIME

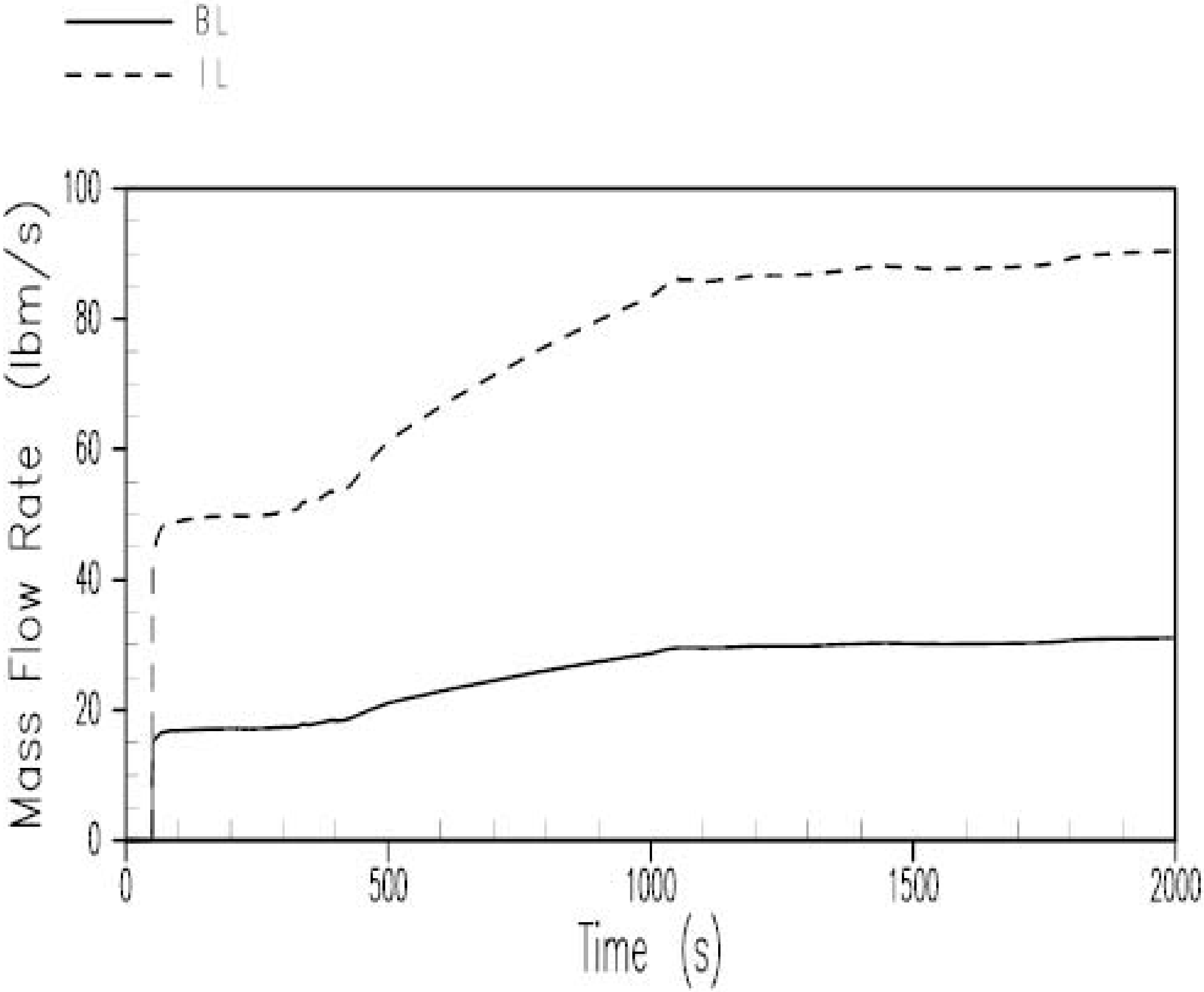


REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-31

4 INCH COLD LEG BREAK
HOT SPOT FLUID TEMPERATURE VS. TIME



REV. OL-16
5/06

CALLAWAY PLANT

FIGURE 15.6-32

4 INCH BL & IL PUMPED
SI FLOW RATE VS. TIME

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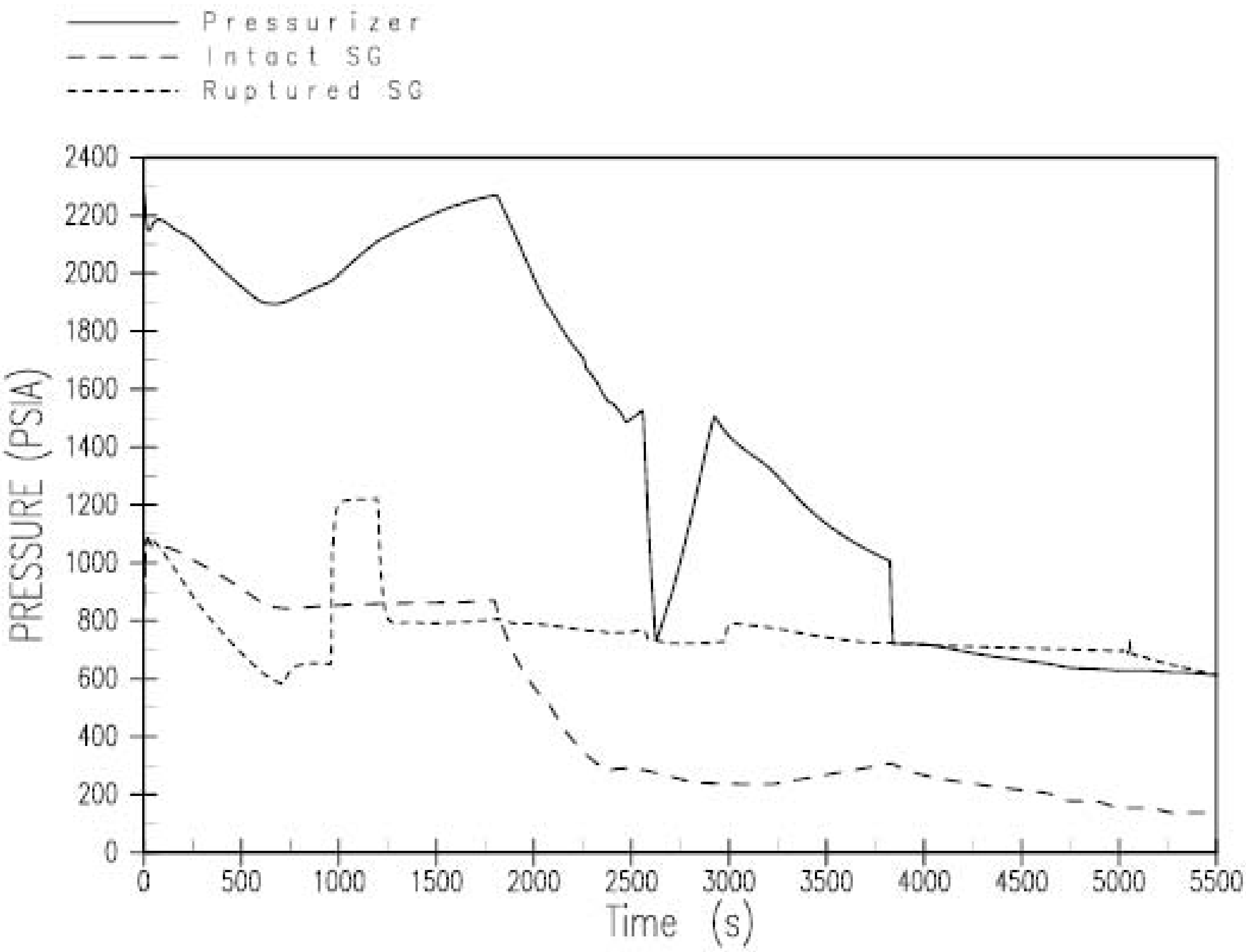

Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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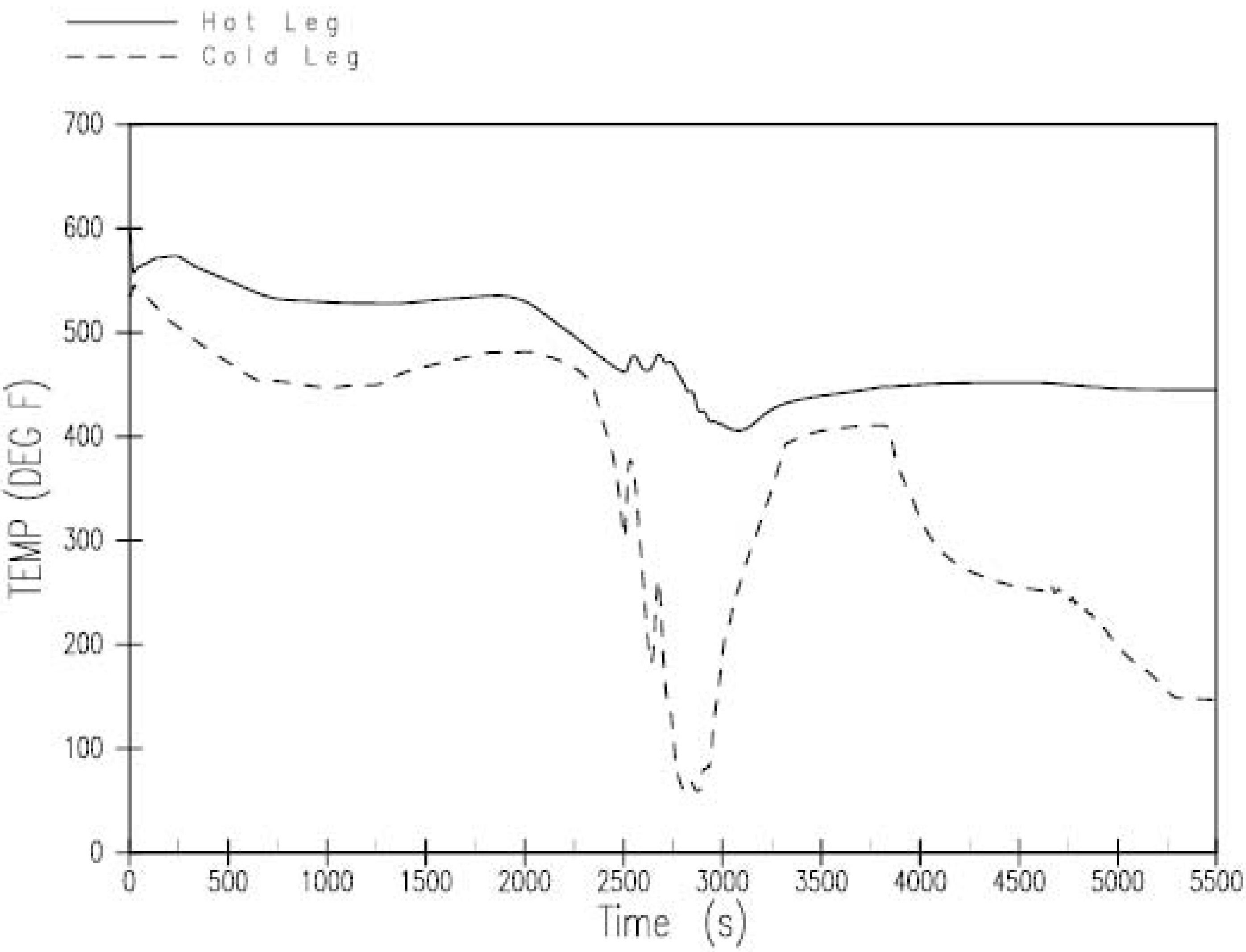
FIGURE 15.6-33A

PRESSURIZER AND STEAM GENERATOR (RUPTURED AND INTACT GENERATORS) PRESSURE TRANSIENTS FOR SGTR EVENT WITH OVERFILL

REV. 16 6/11

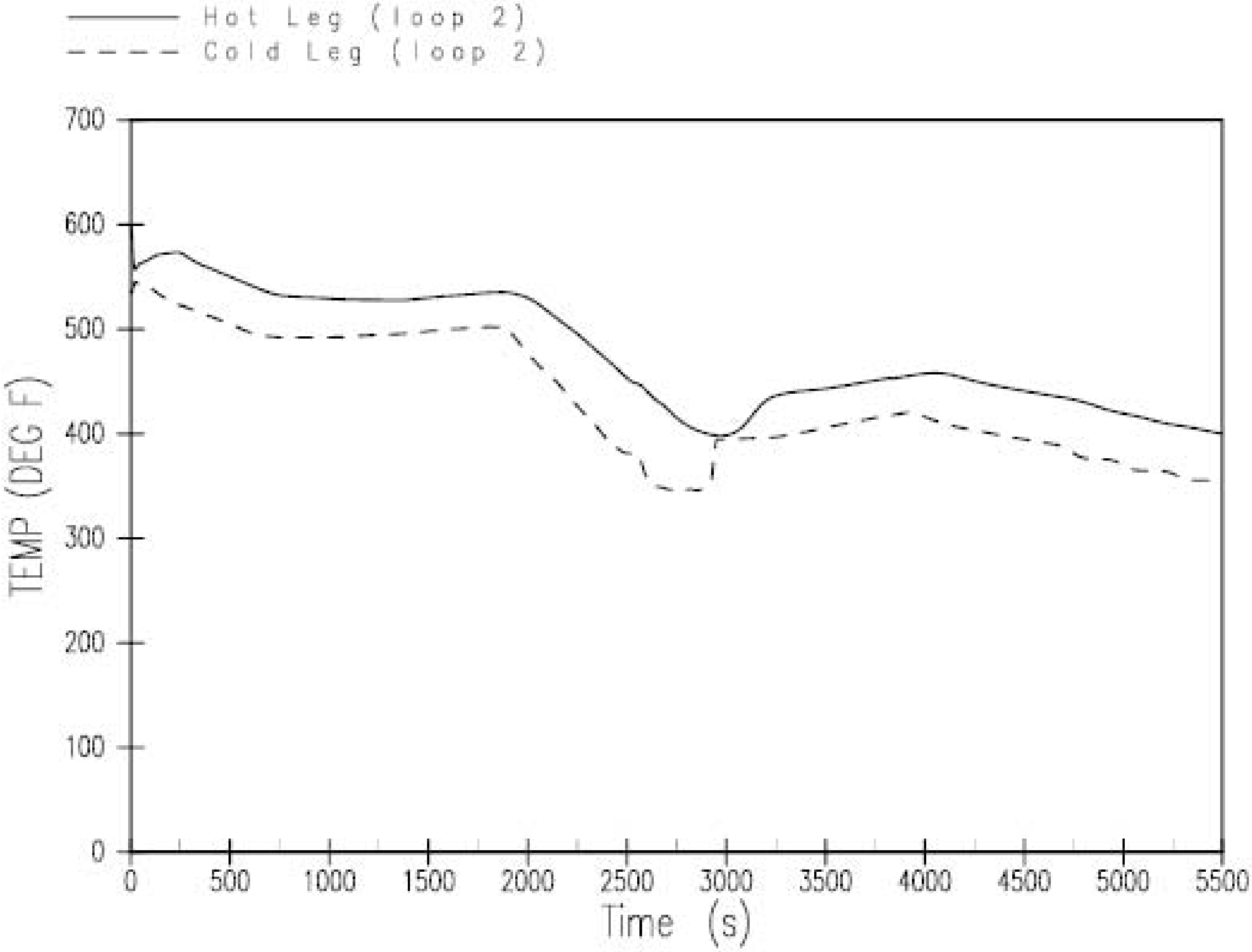


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-33B **REACTOR COOLANT SYSTEM TEMPERATURE (RUPTURED LOOP) TRANSIENT FOR SGTR EVENT WITH OVERFILL** **REV. 16 5/11**

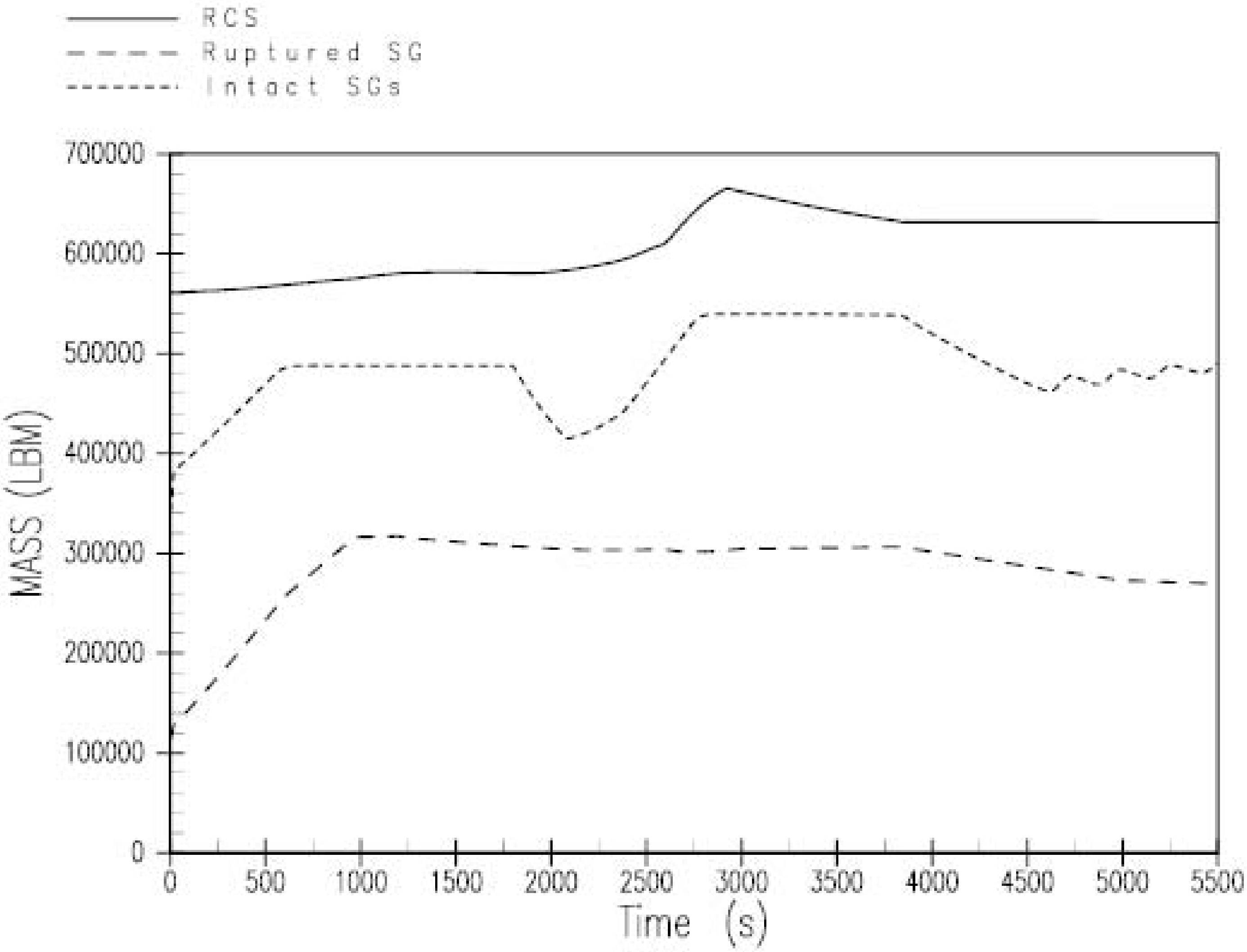


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-33C REACTOR COOLANT SYSTEM TEMPERATURE (INTACT LOOPS) TRANSIENT FOR SGTR EVENT WITH OVERFILL REV. 16 6/11

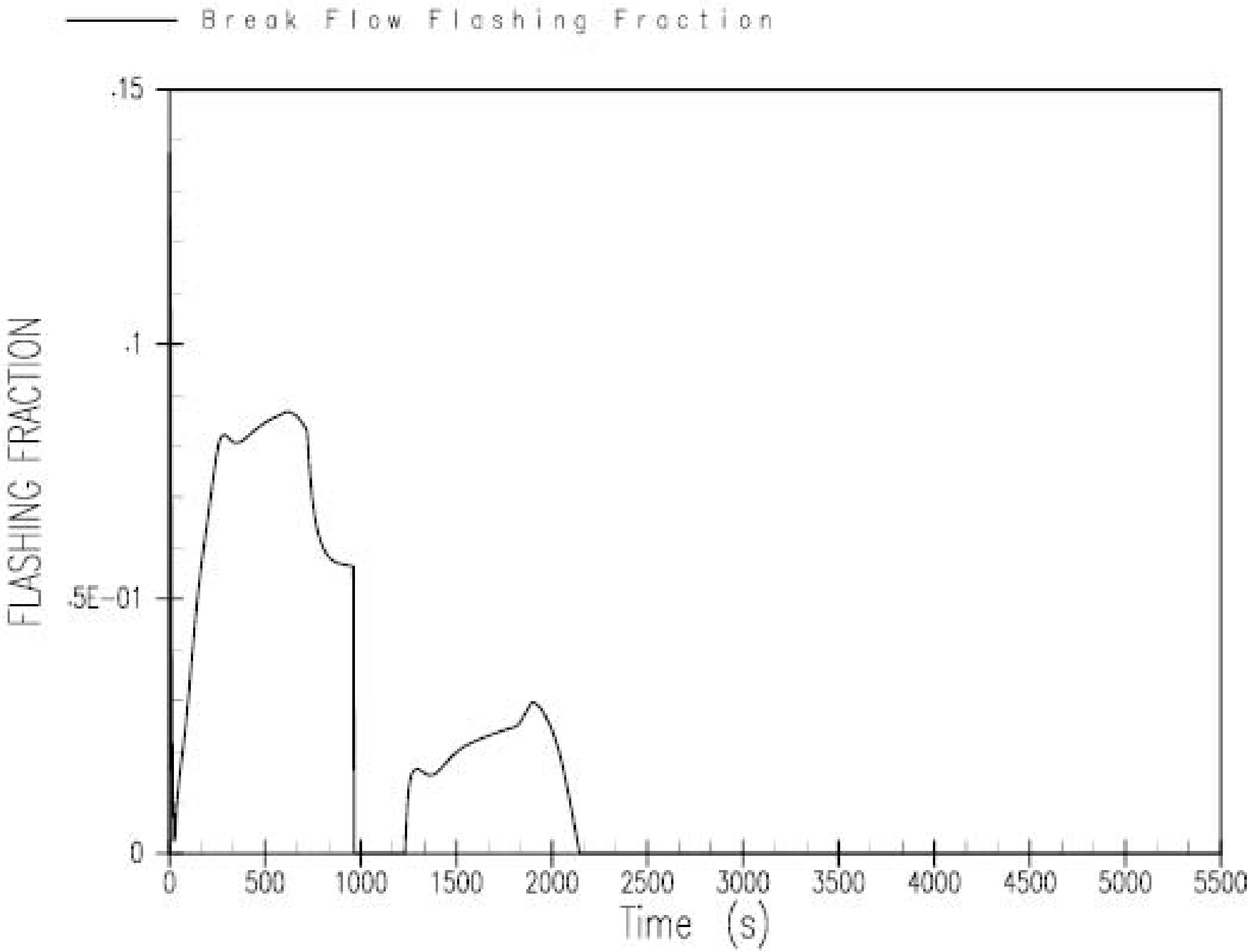


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-33D REACTOR COOLANT SYSTEM AND STEAM GENERATOR (RUPTURED AND INTACT GENERATORS) WATER MASS TRANSIENT FOR SGTR EVENT WITH OVERFILL REV. 18 5/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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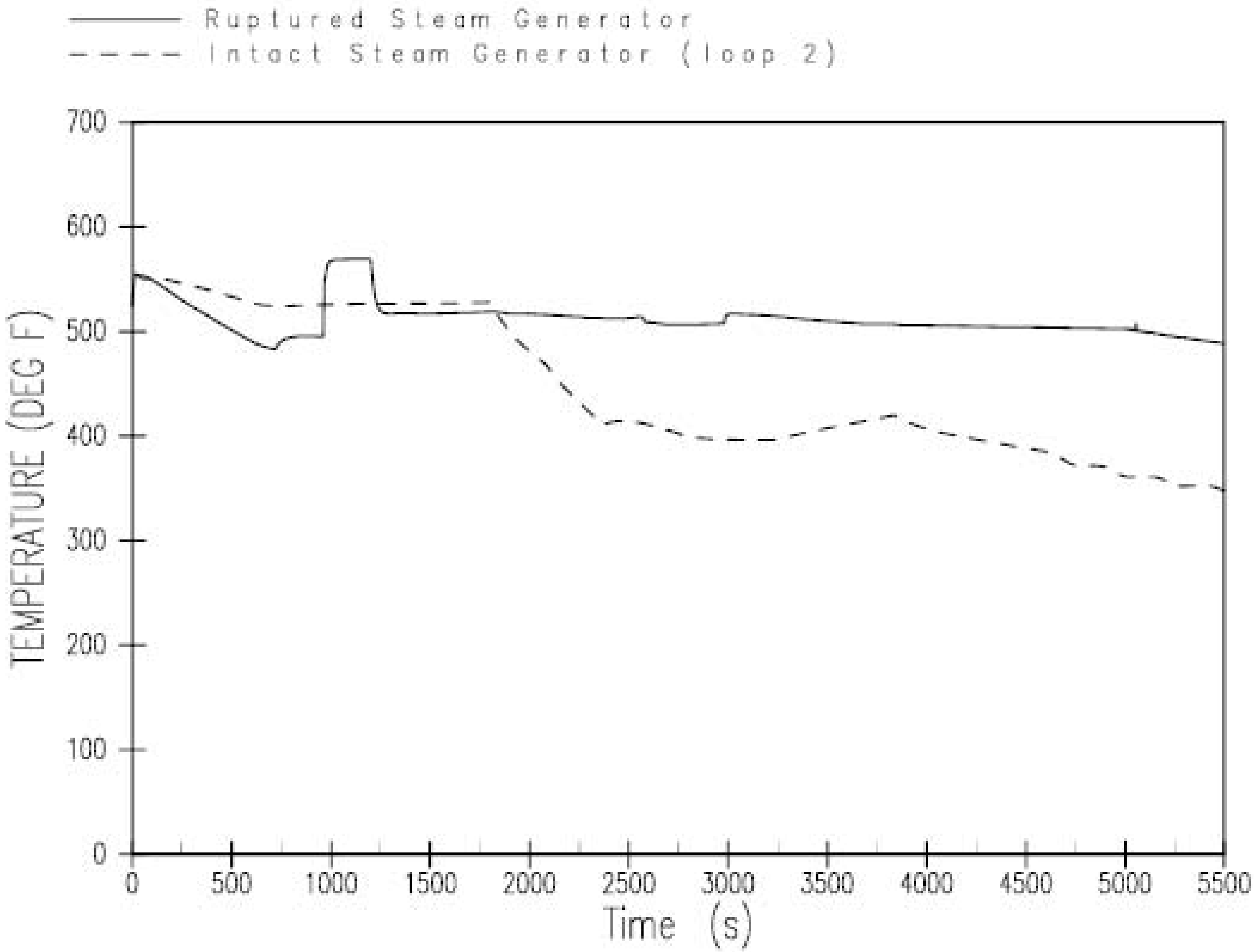
FIGURE 15.6-33E

RUPTURED STEAM GENERATOR BREAK FLOW FLASHING FRACTION TRANSIENT FOR SGTR EVENT WITH OVERFILL

REV. 18 6/11

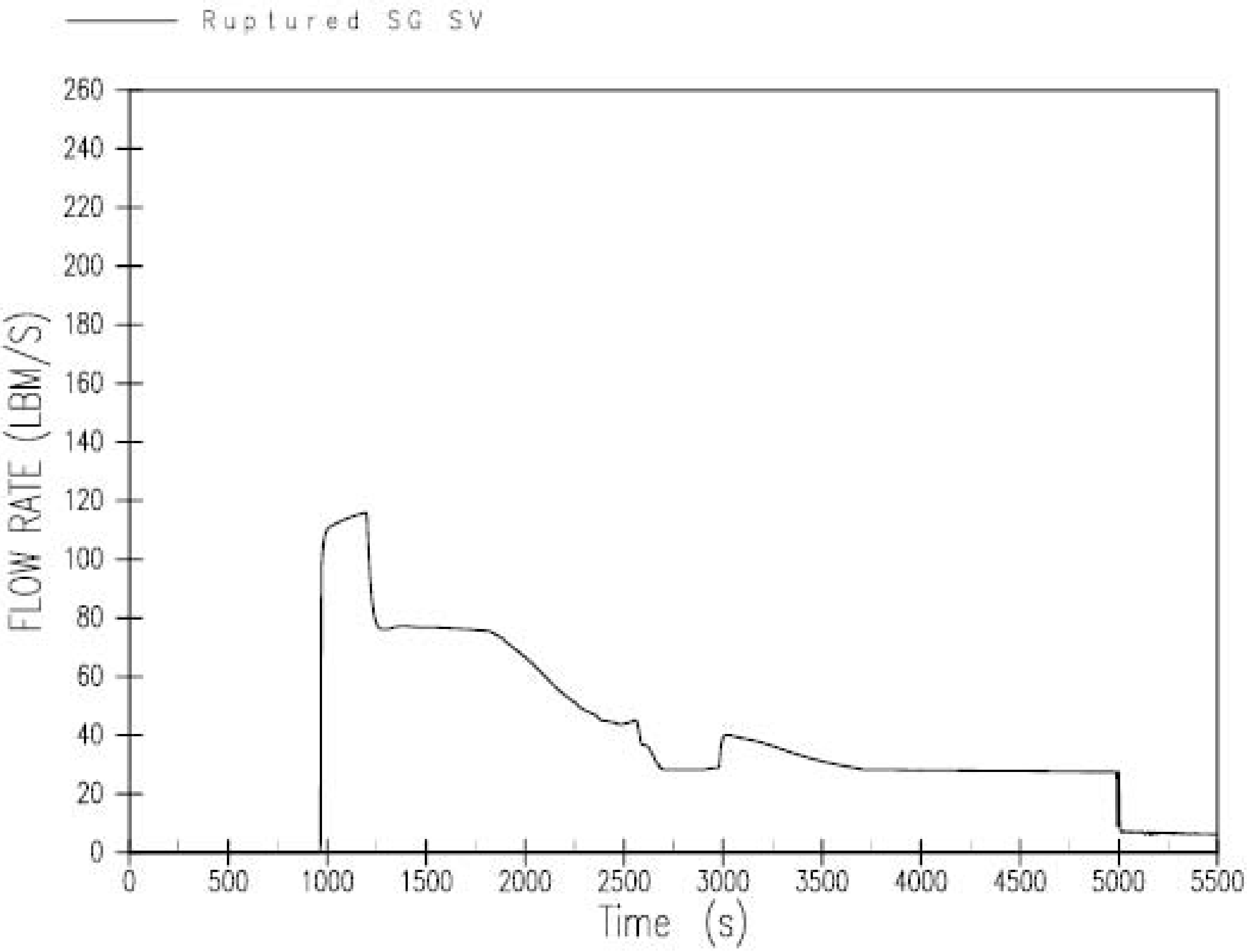


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-33F **STEAM GENERATOR TEMPERATURE (RUPTURED AND INTACT GENERATORS) TRANSIENT FOR SGTR EVENT WITH OVERFILL** **REV. 16 6/11**



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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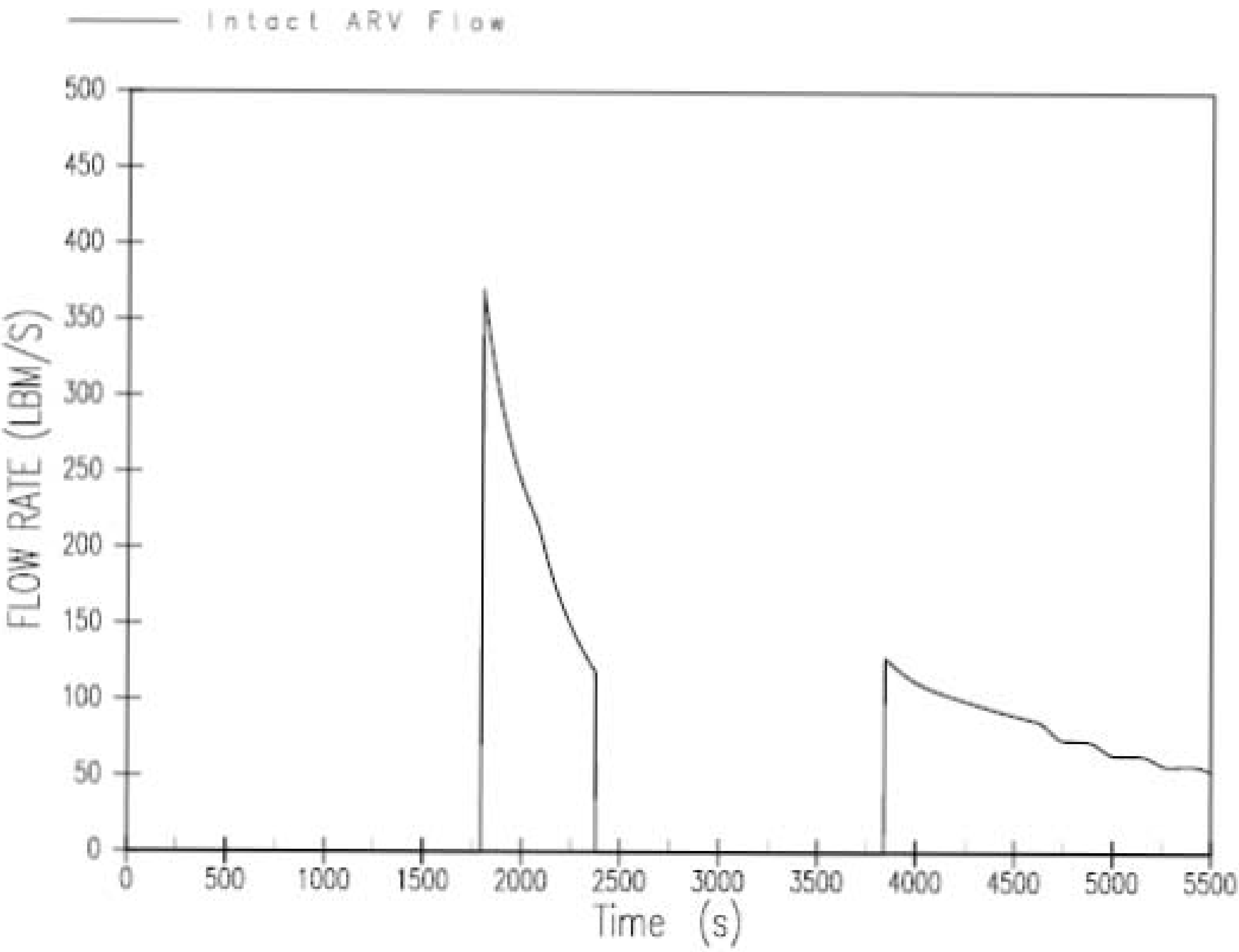
FIGURE 15.6-33G

STEAM GENERATOR ATMOSPHERIC RELEASE FLOW RATE (RUPTURED GENERATOR) TRANSIENT FOR SGTR EVENT WITH OVERFILL

REV. 16 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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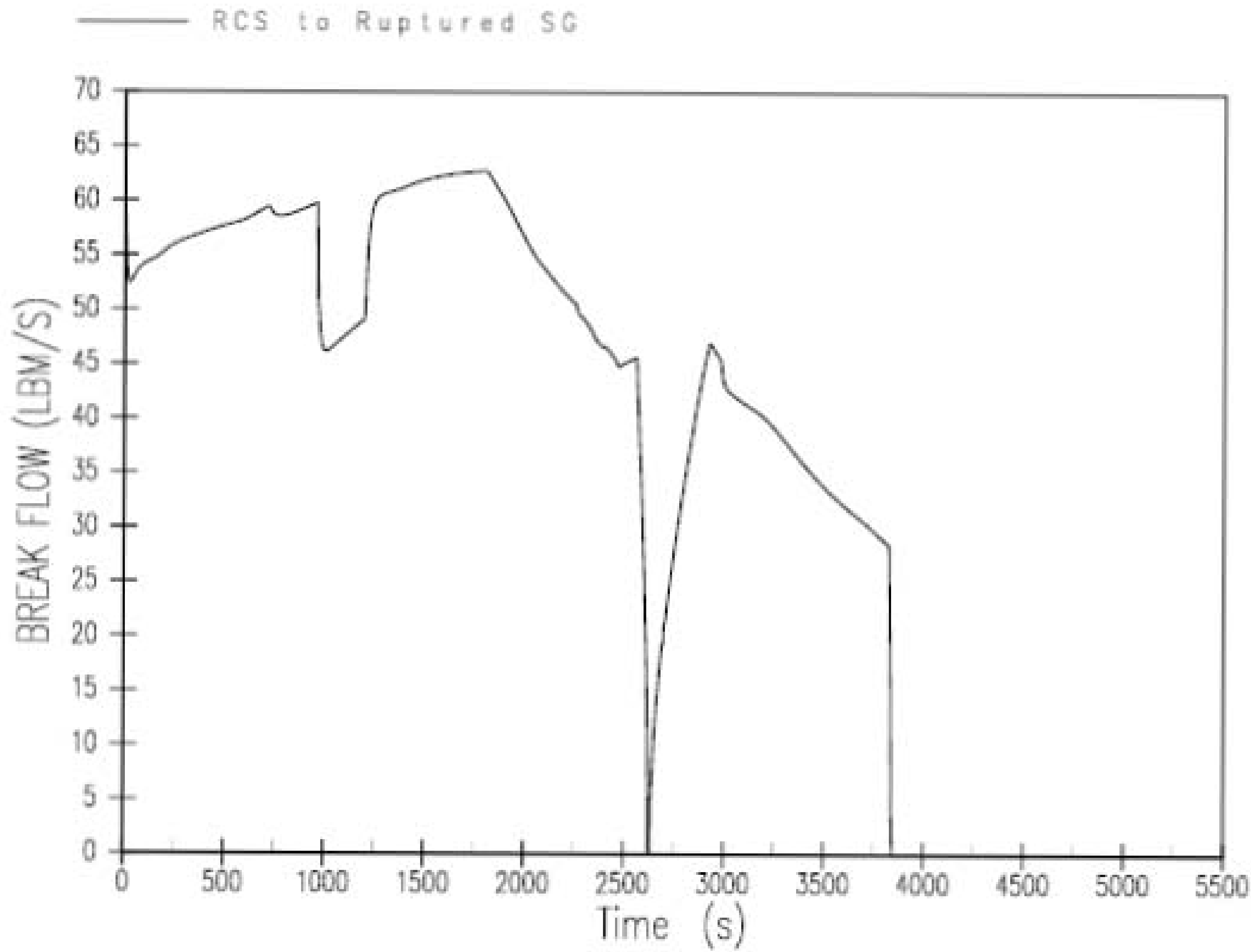
FIGURE 15.6-33H

STEAM GENERATOR ATMOSPHERIC RELEASE FLOW RATE (INTACT GENERATORS) TRANSIENT FOR SGTR EVENT WITH OVERFILL

REV. 16 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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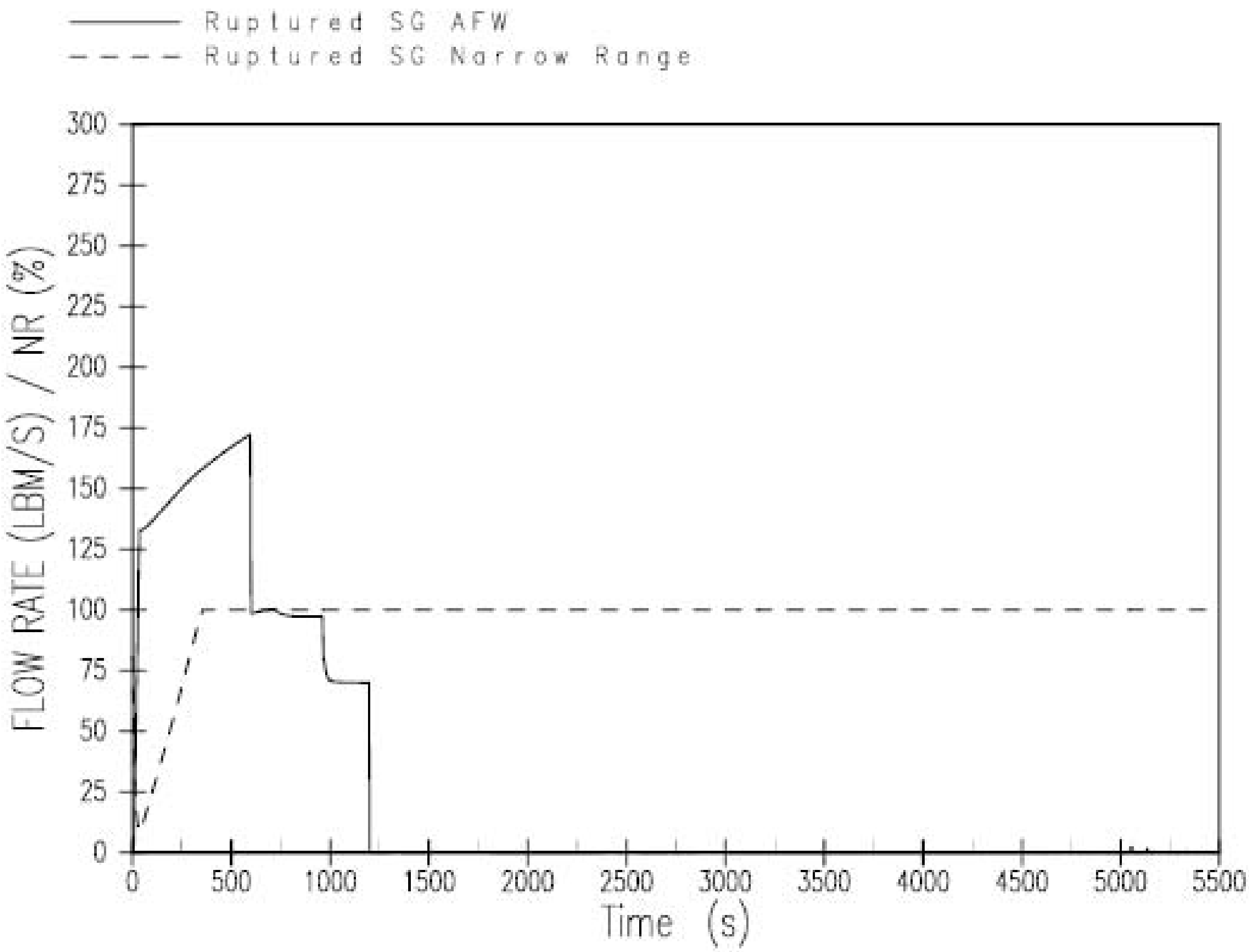
FIGURE 15.6-33I

RUPTURED STEAM GENERATOR BREAK FLOW RATE TRANSIENT FOR SGTR EVENT WITH OVERFILL

REV. 18 5/11

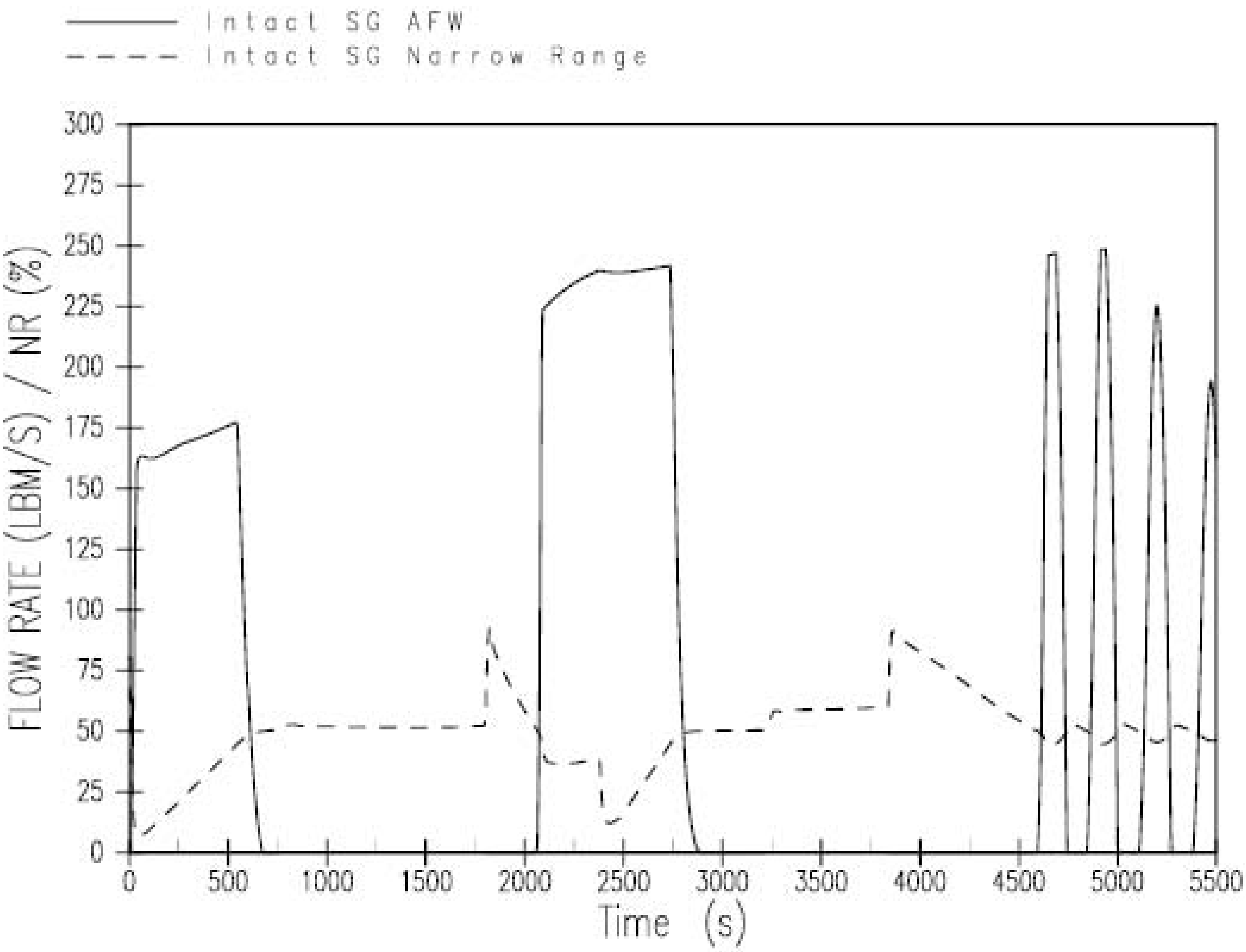


Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

CALLAWAY PLANT
FIGURE 15.6-33J **AUXILIARY FEEDWATER FLOW RATE AND NARROW RANGE LEVEL (RUPTURED GENERATOR) TRANSIENTS FOR SGTR EVENT WITH OVERFILL** **REV. 15 5/11**



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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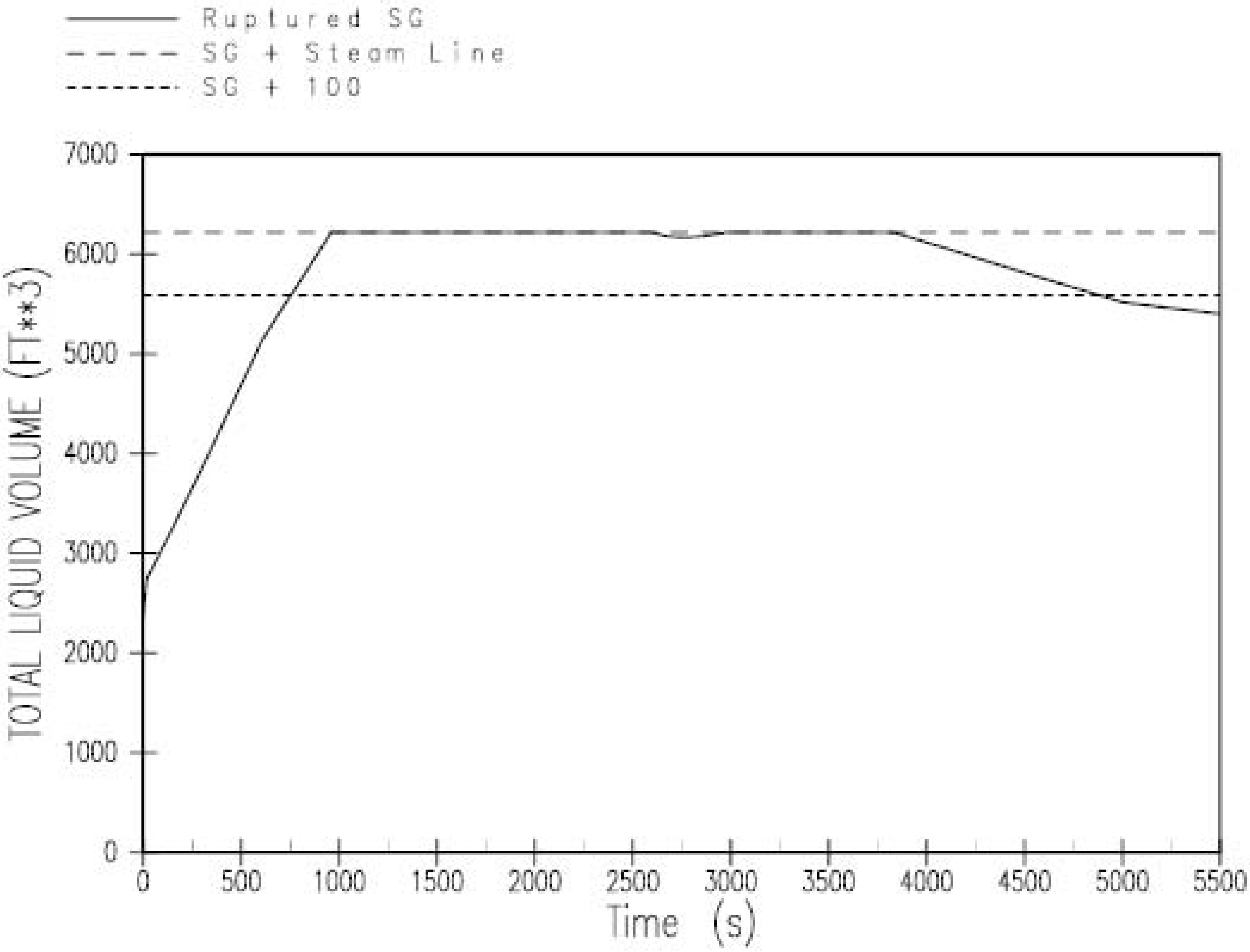
FIGURE 15.6-33K

AUXILIARY FEEDWATER FLOW RATE AND NARROW RANGE LEVEL (INTACT GENERATORS) TRANSIENTS FOR SGTR EVENT WITH OVERFILL

REV. 19 5/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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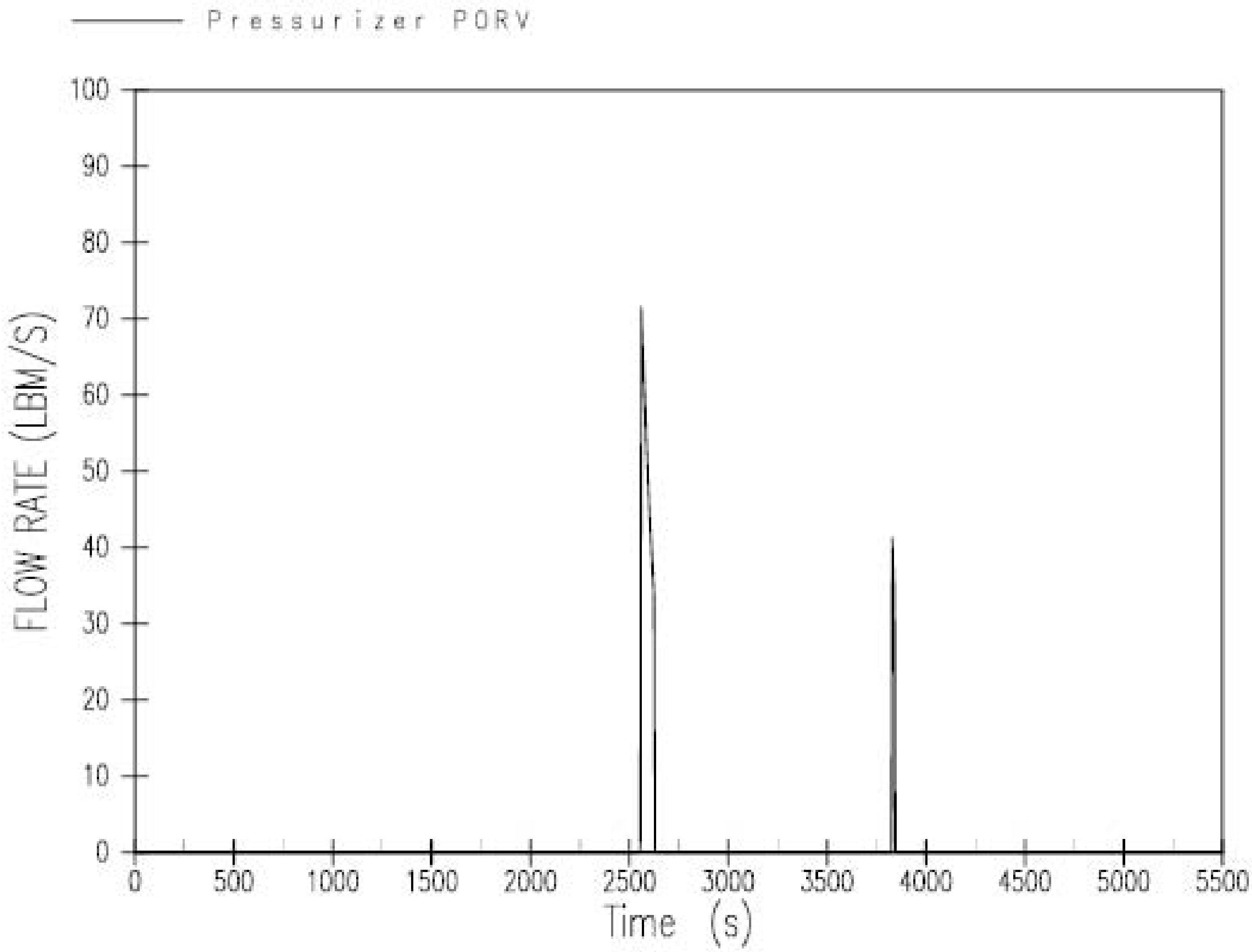
FIGURE 15.6-33L

RUPTURED STEAM GENERATOR
LIQUID VOLUME TRANSIENT
FOR SGTR EVENT WITH OVERFILL
REV. 19 6/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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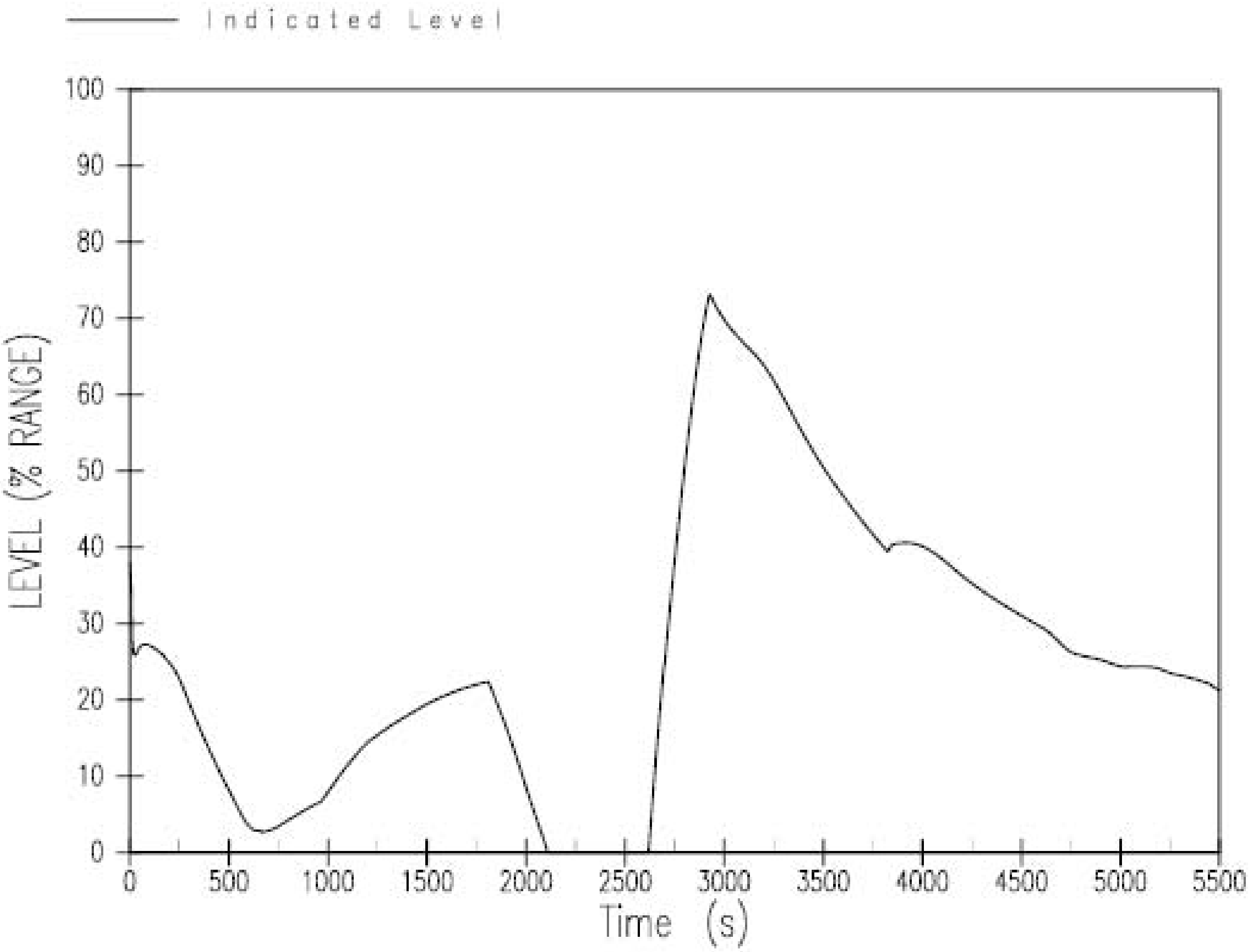
FIGURE 15.6-33M

PRESSURIZER PORV FLOW RATE TRANSIENT FOR SGTR EVENT WITH OVERFILL

REV. 16 5/11



Note:

The thermal-hydraulic model presented in this figure is based on an analysis that credits all three ASDs on the intact steam generators to be available to support the RCS rapid cooldown. This is conservative with respect to the thermal-hydraulic analysis of the SGTR and the potential effects of the associated transient.

Additional calculations have been performed that conservatively reduce the number of credited ASDs available for the rapid cooldown from three to two. This results in a longer rapid cooldown duration than is shown on this figure. The analyses that use the reduced ASD availability were performed to quantify radiological consequences of the prolonged cooldown. Conservative flowrates and durations were used in the radiological consequence analyses.

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FIGURE 15.6-33N

PRESSURIZER LIQUID VOLUME TRANSIENT FOR SGTR EVENT WITH OVERFILL

REV. 16 6/11

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Figure 15.6-57 Deleted

Figure 15.6-58 Deleted

Figure 15.6-59 Deleted

Figure 15.6-60 Deleted

Figure 15.6-61a Deleted

Figure 15.6-61b Deleted

Figure 15.6-61c Deleted

Figure 15.6-61d Deleted

Figure 15.6-61e Deleted

Figure 15.6-61f Deleted

Figure 15.6-61g Deleted

Figure 15.6-61h Deletedl

Figure 15.6-61i Deleted

Figure 15.6-61j Deleted

Figure 15.6-61k Deleted

Figure 15.6-61I Deleted

Figure 15.6-61m Deleted

Figure 15.6-61n Deleted