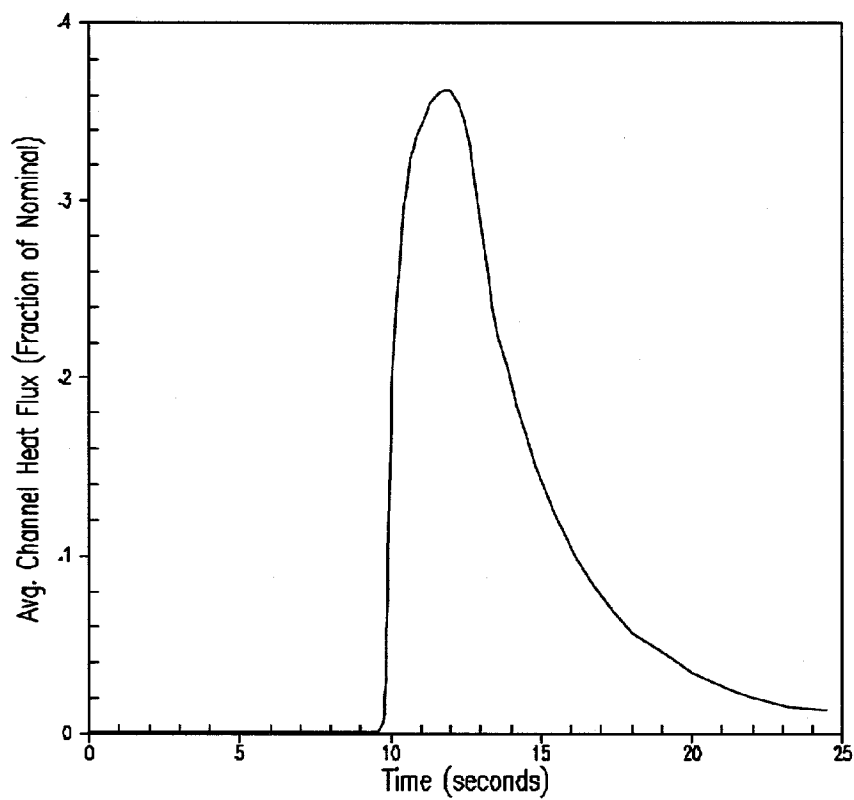


INDIAN POINT UNIT No. 3

UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM A SUBCRITICAL CONDITION  
NUCLEAR POWER VERSUS TIME

UFSAR FIGURE 14.1-2

REV. No. 01

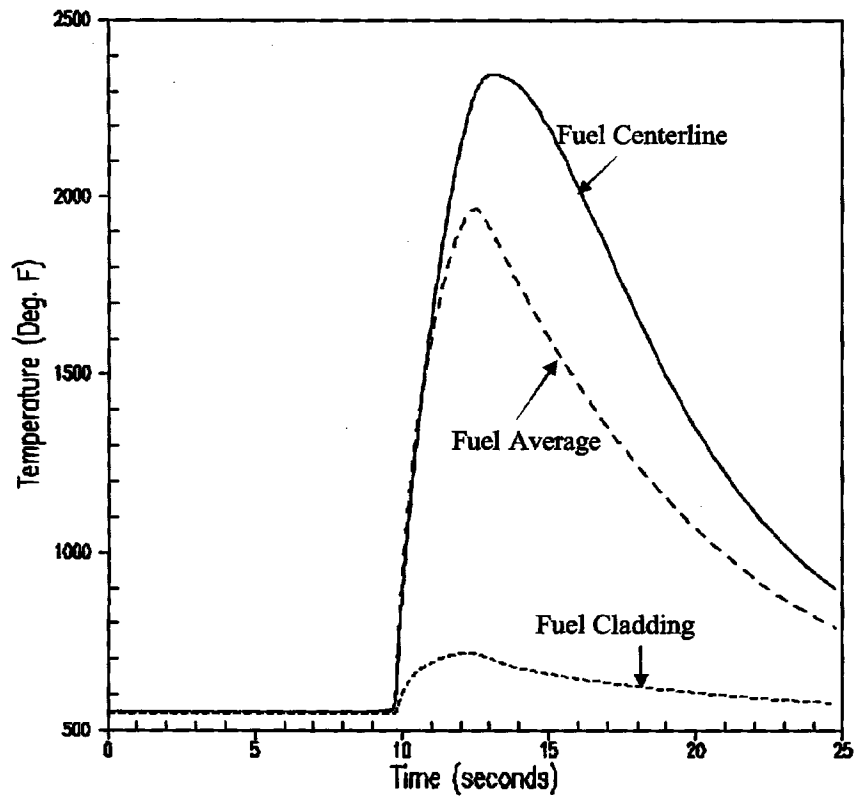


**INDIAN POINT UNIT No. 3**

**UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM A SUBCRITICAL CONDITION  
AVERAGE HEAT FLUX VERSUS TIME**

**UFSAR FIGURE 14.1-3**

**REV. No. 01**

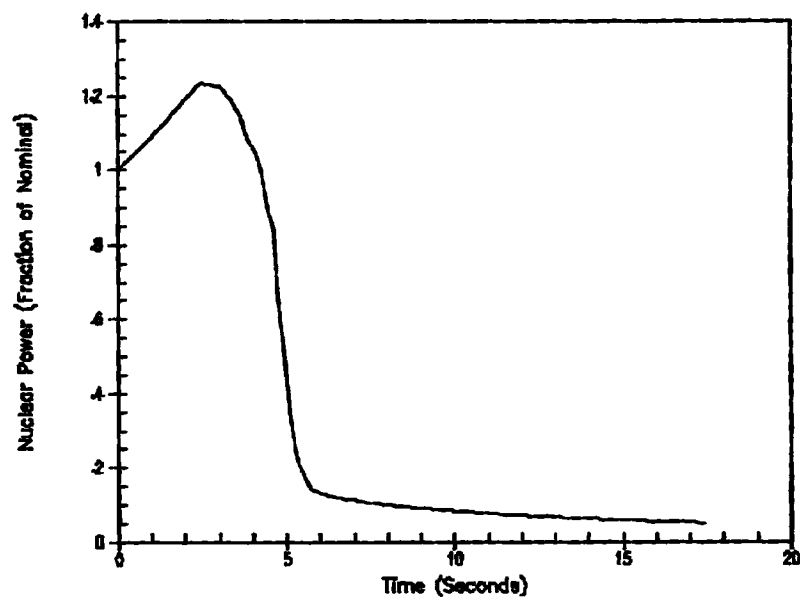


### INDIAN POINT UNIT No. 3

UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM A SUBCRITICAL CONDITION  
HOT SPOT FUEL AND CLAD  
TEMPERATURES VERSUS TIME

UFSAR FIGURE 14.1-4

REV. No. 01

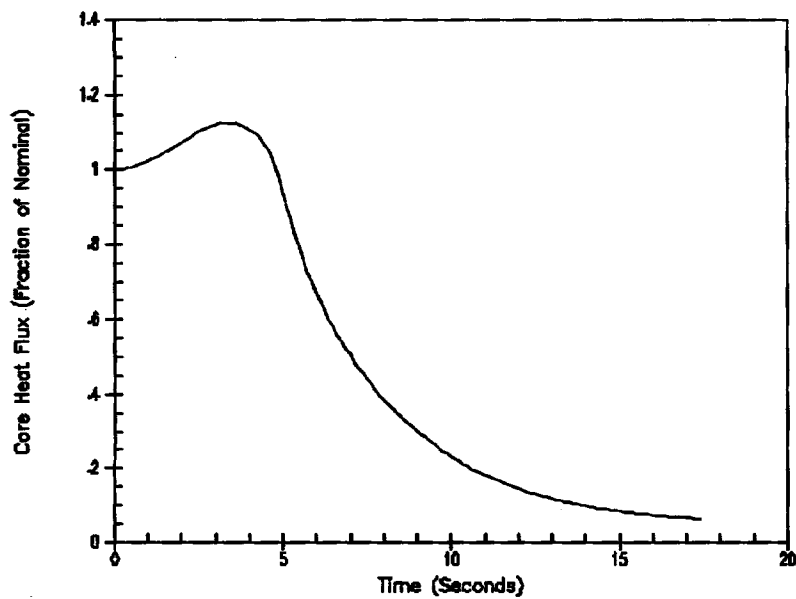


### INDIAN POINT UNIT No. 3

NUCLEAR POWER TRANSIENT FOR AN  
UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 66PCM/SEC WITHDRAWAL RATE

UFSAR FIGURE 14.1-5

REV. No. 01

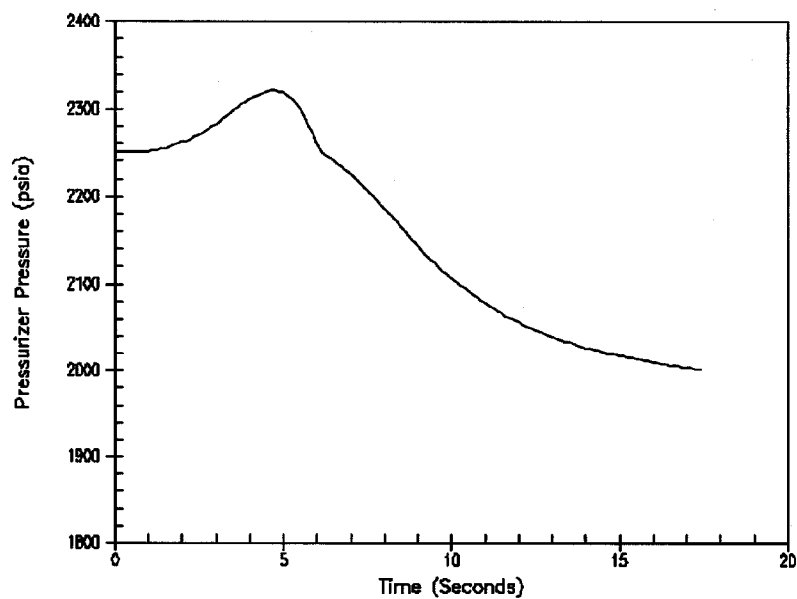


### INDIAN POINT UNIT No. 3

CORE HEAT FLUX TRANSIENT FOR AN  
UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 66PCM/SEC WITHDRAWAL RATE

UFSAR FIGURE 14.1-6

REV. No. 01

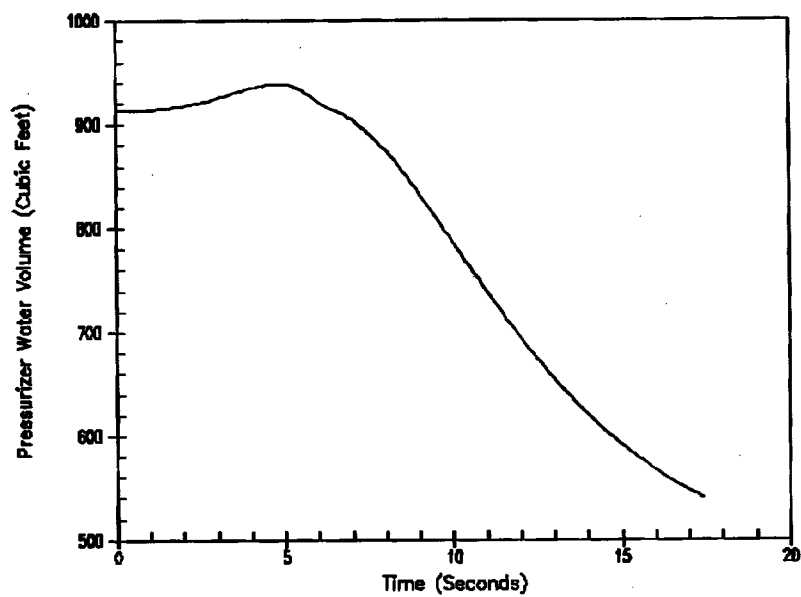


### INDIAN POINT UNIT No. 3

PRESSURIZER PRESSURE TRANSIENT FOR AN UNCONTROLLED RCCA BANK WITHDRAWAL FROM FULL POWER WITH MINIMUM REACTIVITY FEEDBACK. 66PCM/SEC WITHDRAWAL RATE

UFSAR FIGURE 14.1-7

REV. No. 01

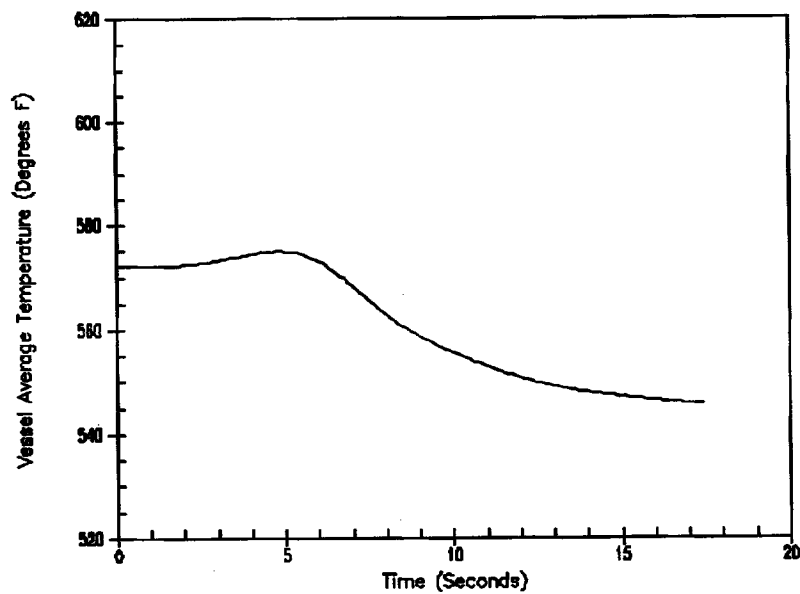


### INDIAN POINT UNIT No. 3

PRESSURIZER WATER VOLUME TRANSIENT FOR AN UNCONTROLLED RCCA BANK WITHDRAWAL FROM FULL POWER WITH MINIMUM REACTIVITY FEEDBACK. 66PCM/SEC WITHDRAWAL RATE

UFSAR FIGURE 14.1-8

REV. No. 01



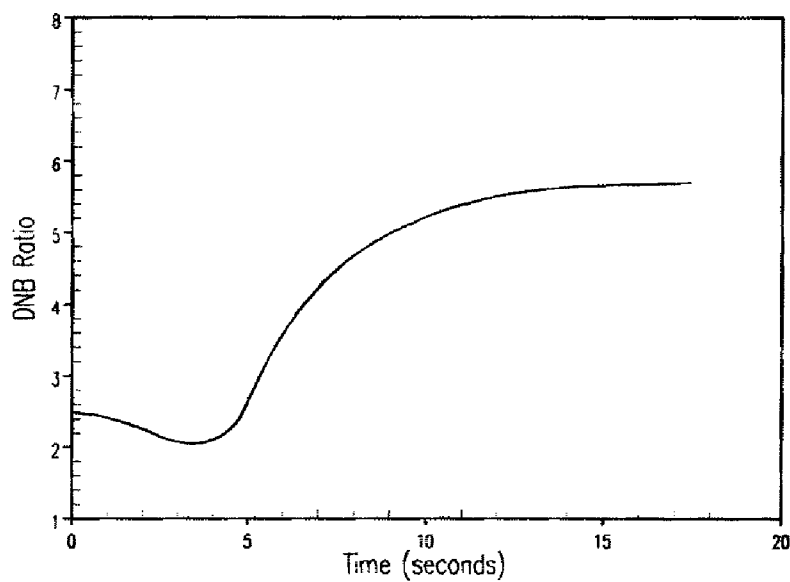
### INDIAN POINT UNIT No. 3

CORE AVERAGE WATER TEMPERATURE TRANSIENT FOR  
AN UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 66PCM/SEC WITHDRAWAL RATE

UFSAR FIGURE 14.1-9

REV. No. 01

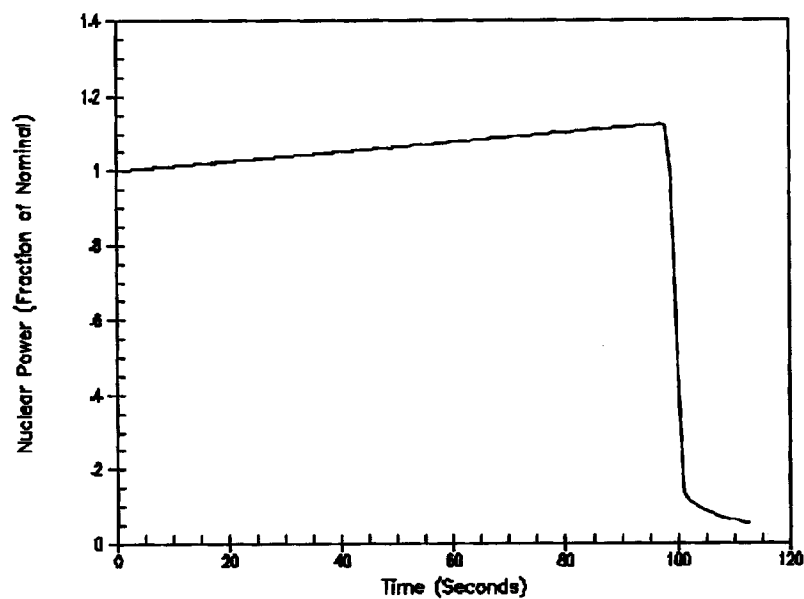




### INDIAN POINT UNIT No. 3

DNB RATIO VERSUS TIME FOR AN  
UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 66PCM/SEC WITHDRAWAL RATE

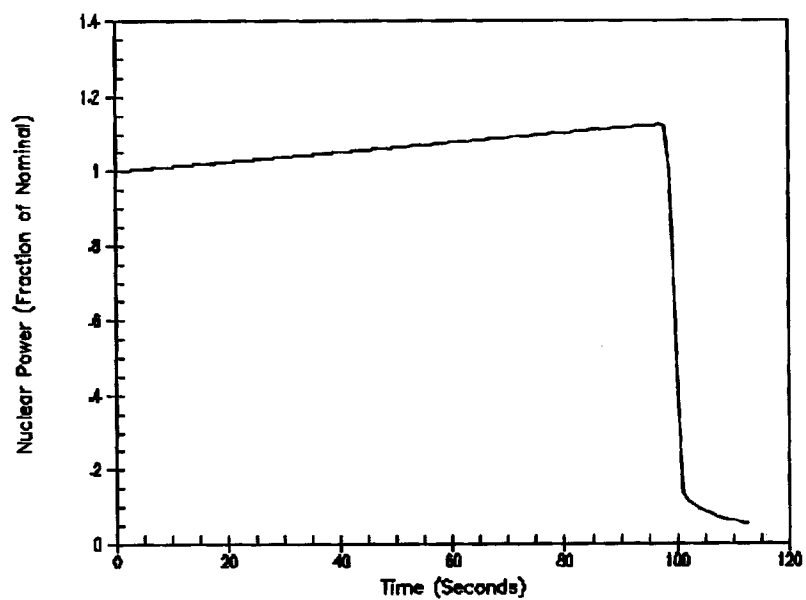
UFSAR FIGURE 14.1-10 | REV. No. 02



### INDIAN POINT UNIT No. 3

NUCLEAR POWER TRANSIENT FOR AN  
UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 1 PCM/SEC WITHDRAWAL RATE

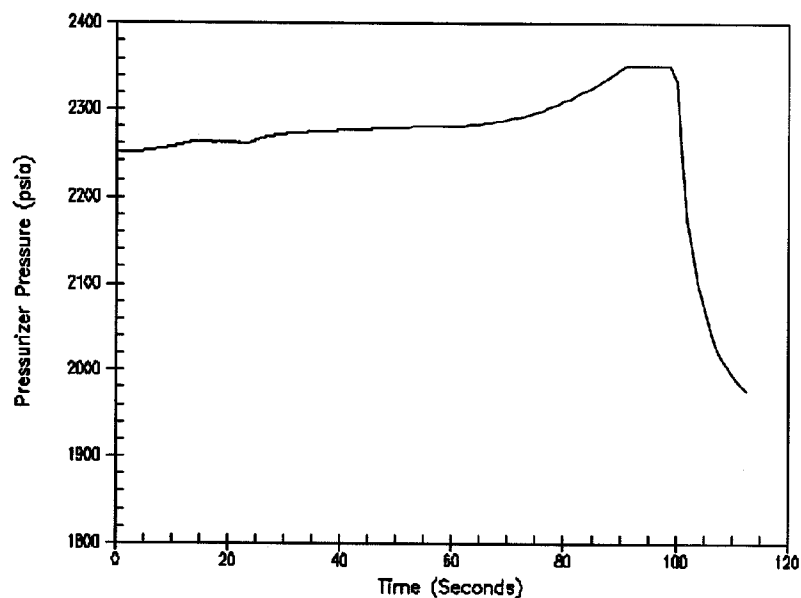
UFSAR FIGURE 14.1-11 | REV. No. 01



### INDIAN POINT UNIT No. 3

CORE HEAT FLUX TRANSIENT FOR AN  
UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 1 PCM/SEC WITHDRAWAL RATE

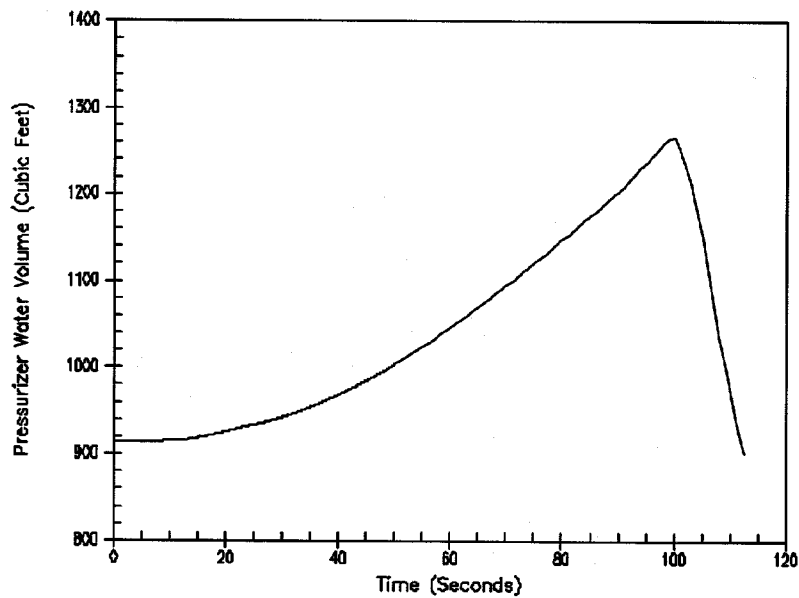
UFSAR FIGURE 14.1-12 | REV. No. 01



### INDIAN POINT UNIT No. 3

PRESSURIZER PRESSURE TRANSIENT FOR AN UNCONTROLLED RCCA BANK WITHDRAWAL FROM FULL POWER WITH MINIMUM REACTIVITY FEEDBACK. 1 PCM/SEC WITHDRAWAL RATE

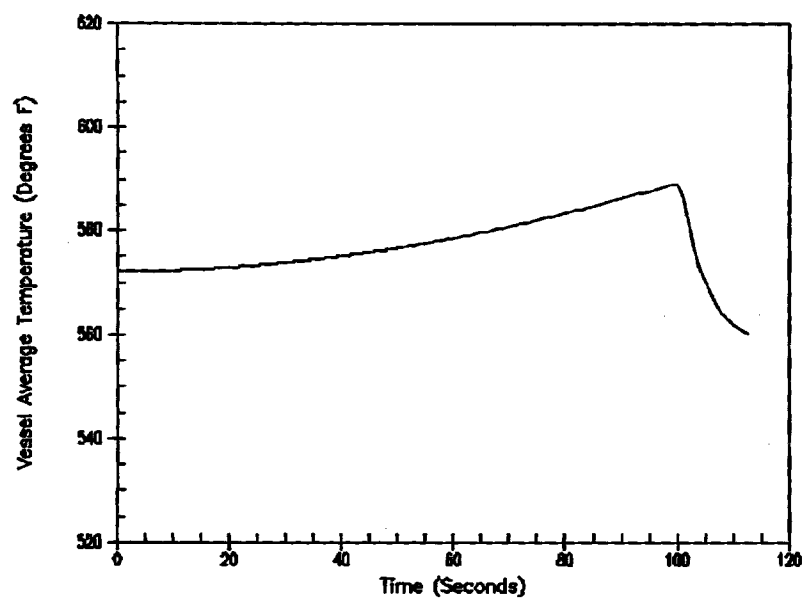
UFSAR FIGURE 14.1-13 | REV. No. 01



### INDIAN POINT UNIT No. 3

PRESSURIZER WATER VOLUME TRANSIENT FOR AN UNCONTROLLED RCCA BANK WITHDRAWAL FROM FULL POWER WITH MINIMUM REACTIVITY FEEDBACK. 1 PCM/SEC WITHDRAWAL RATE

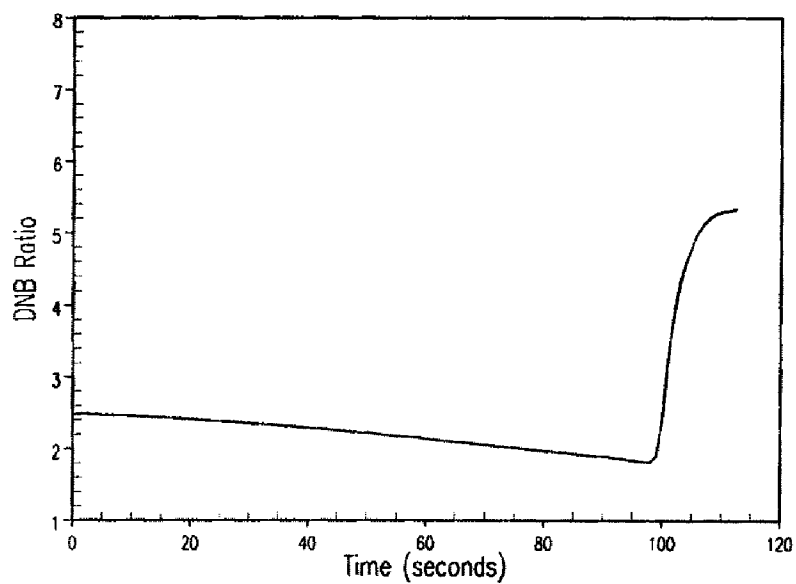
UFSAR FIGURE 14.1-14 | REV. No. 01



### INDIAN POINT UNIT No. 3

CORE AVERAGE WATER TEMPERATURE TRANSIENT FOR  
AN UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 1 PCM/SEC WITHDRAWAL RATE

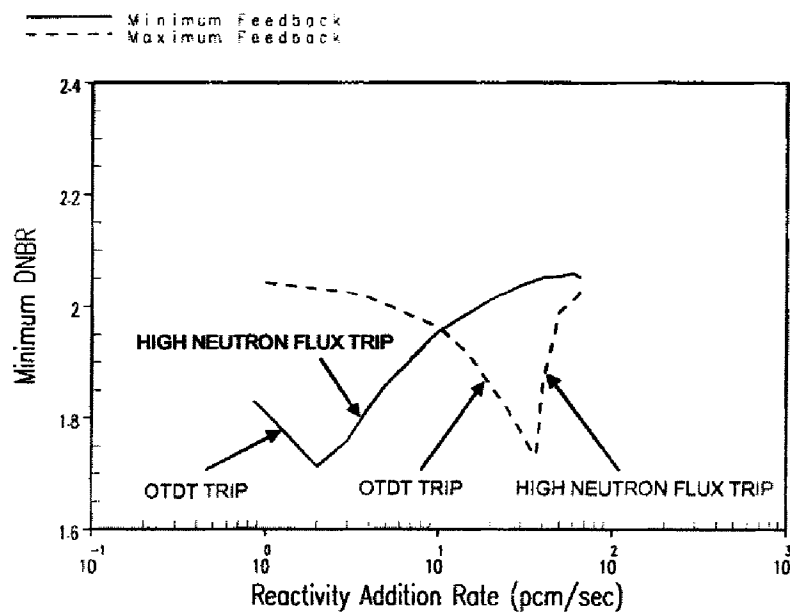
UFSAR FIGURE 14.1-15 | REV. No. 01



### INDIAN POINT UNIT No. 3

DNB RATIO VERSUS TIME FOR AN  
UNCONTROLLED RCCA BANK WITHDRAWAL  
FROM FULL POWER WITH MINIMUM REACTIVITY  
FEEDBACK. 1 PCM/SEC WITHDRAWAL RATE

UFSAR FIGURE 14.1-16 | REV. No. 02

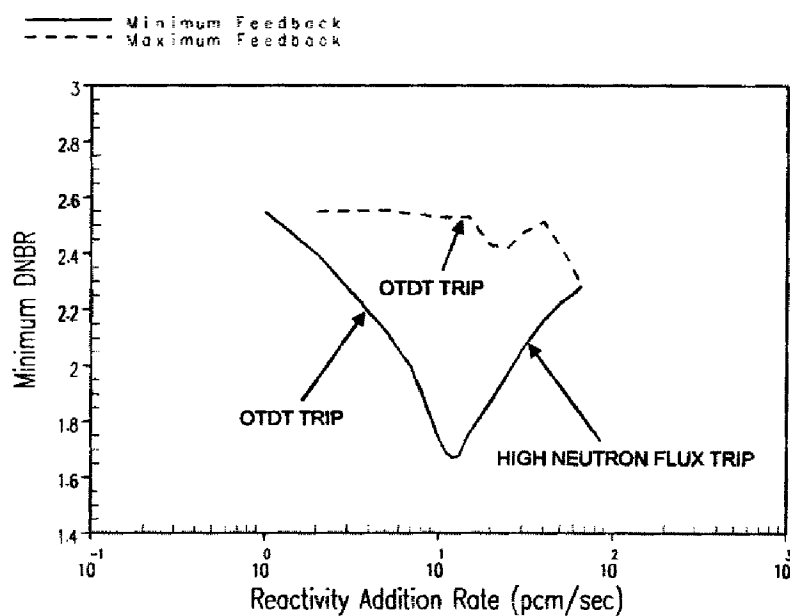


### INDIAN POINT UNIT No. 3

MINIMUM DNBR VERSUS REACTIVITY INSERTION  
RATE FOR AN UNCONTROLLED RCA BANK  
WITHDRAWAL FROM FULL POWER

UFSAR FIGURE 14.1-17 | REV. No. 02

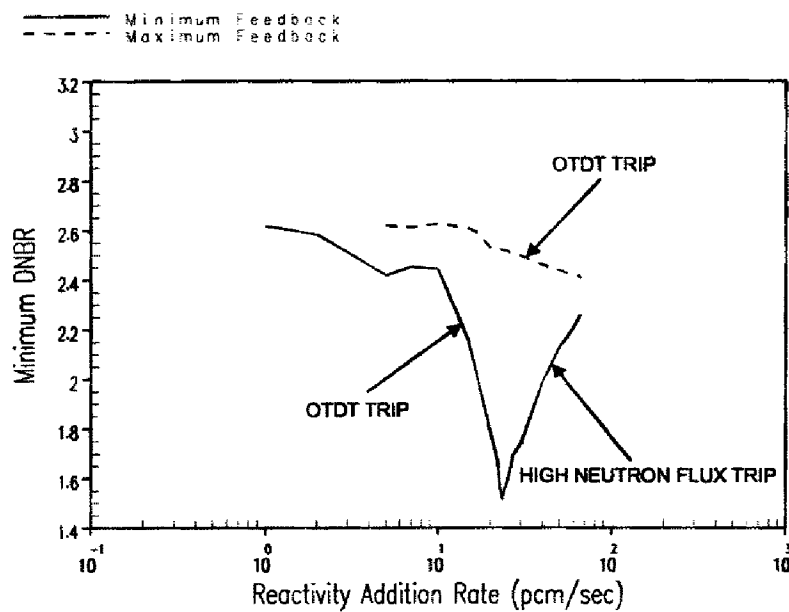




### INDIAN POINT UNIT No. 3

MINIMUM DNBR VERSUS REACTIVITY INSERTION  
RATE FOR AN UNCONTROLLED RCA BANK  
WITHDRAWAL FROM 60% POWER

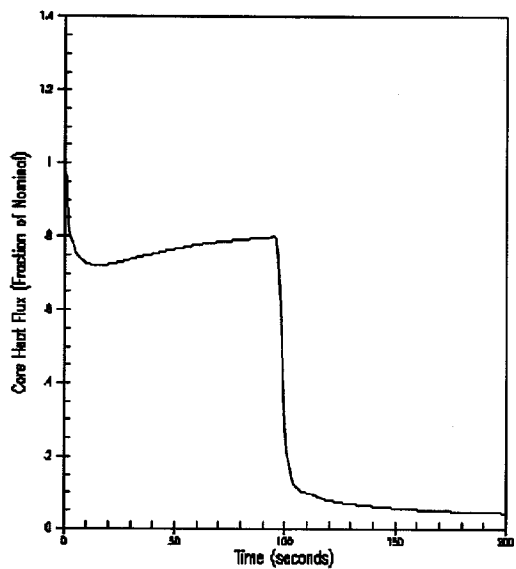
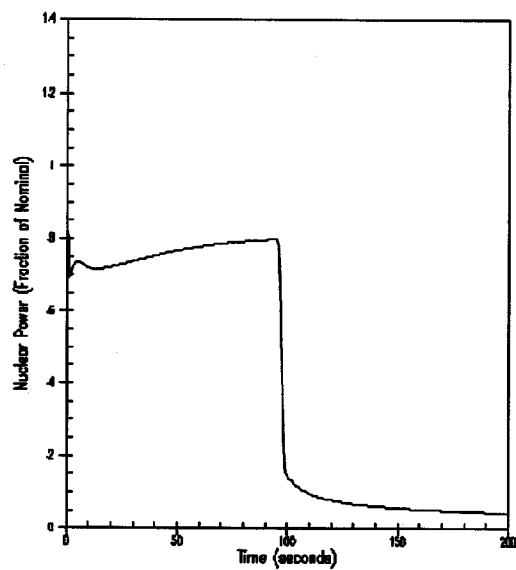
UFSAR FIGURE 14.1-18 | REV. No. 02



### INDIAN POINT UNIT No. 3

MINIMUM DNBR VERSUS REACTIVITY INSERTION  
RATE FOR AN UNCONTROLLED RCA BANK  
WITHDRAWAL FROM 10% POWER

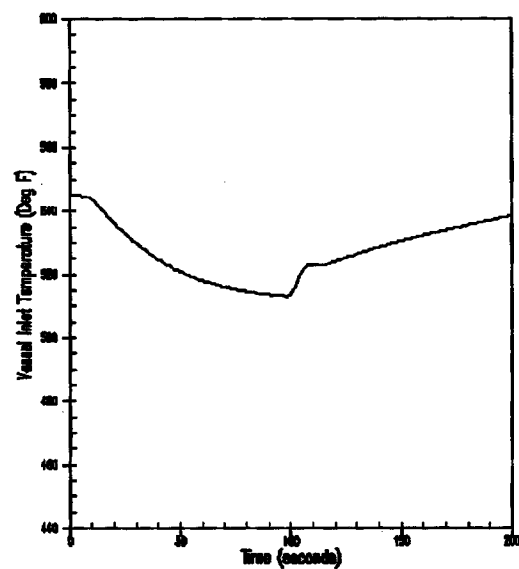
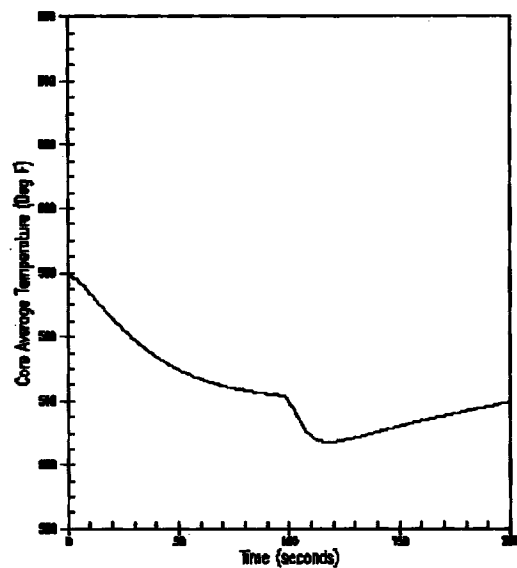
UFSAR FIGURE 14.1-19 | REV. No. 02



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
NUCLEAR POWER AND CORE HEAT FLUX FOR  
DROPPED RCCA WORTH OF 400 PCM AT BOL  
(SMALL NEGATIVE MTC)

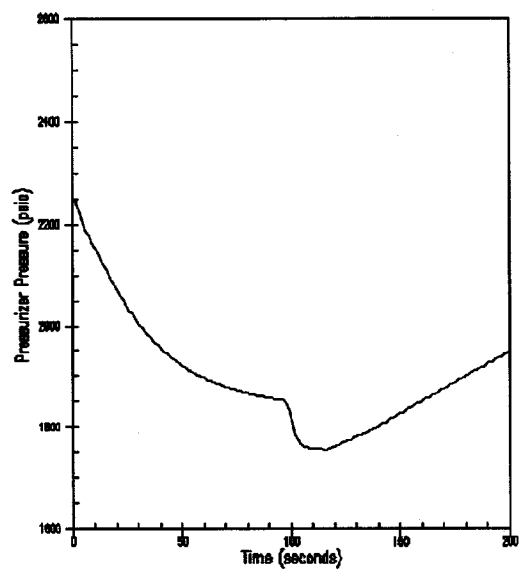
UFSAR FIGURE 14.1-20 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
CORE AVERAGE AND VESSEL INLET TEMPERATURE FOR  
DROPPED RCCA WORTH OF 400 PCM AT BOL  
(SMALL NEGATIVE MTC)

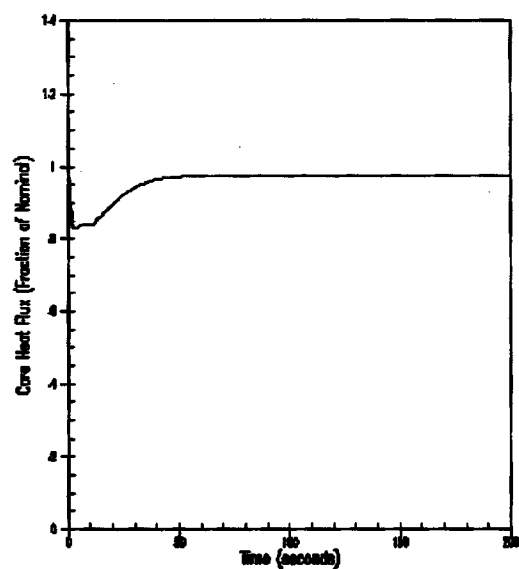
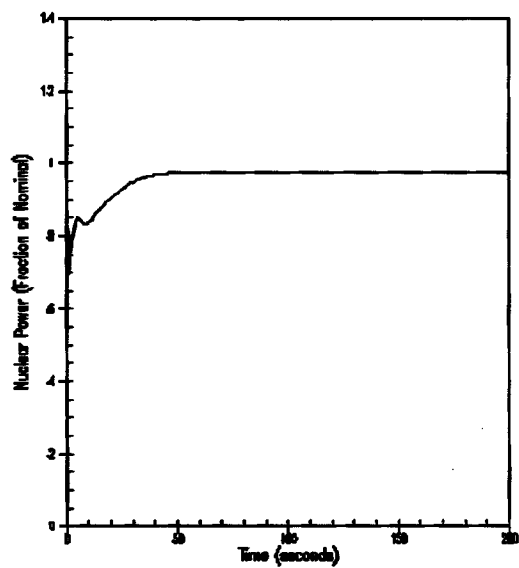
UFSAR FIGURE 14.1-21 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
PRESSURIZER PRESSURE FOR  
DROPPED RCCA WORTH OF 400 PCM AT BOL  
(SMALL NEGATIVE MTC)

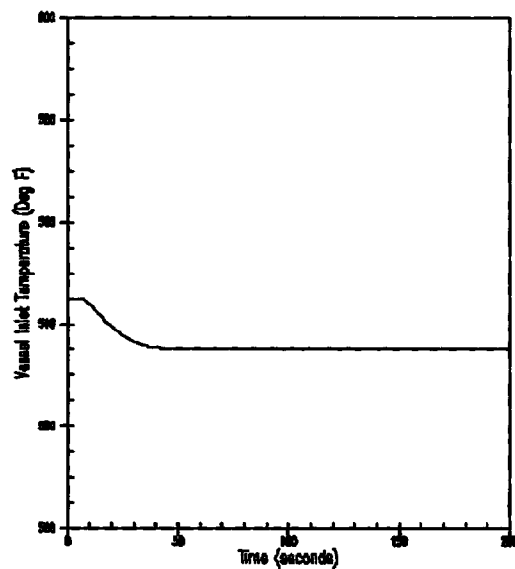
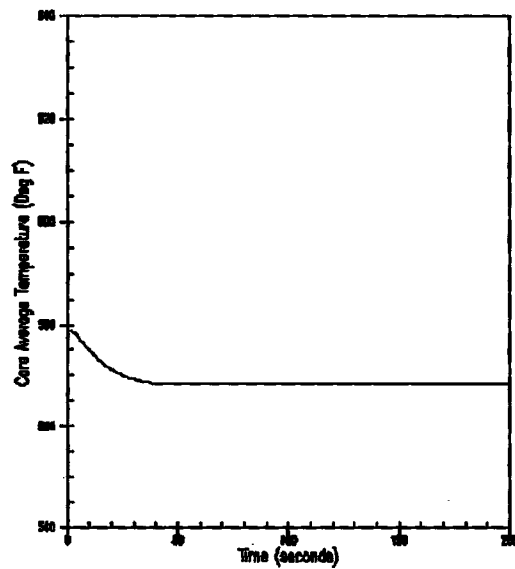
UFSAR FIGURE 14.1-22 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
NUCLEAR POWER AND CORE HEAT FLUX FOR  
DROPPED RCCA WORTH OF 400 PCM AT EOL  
(LARGE NEGATIVE MTC)

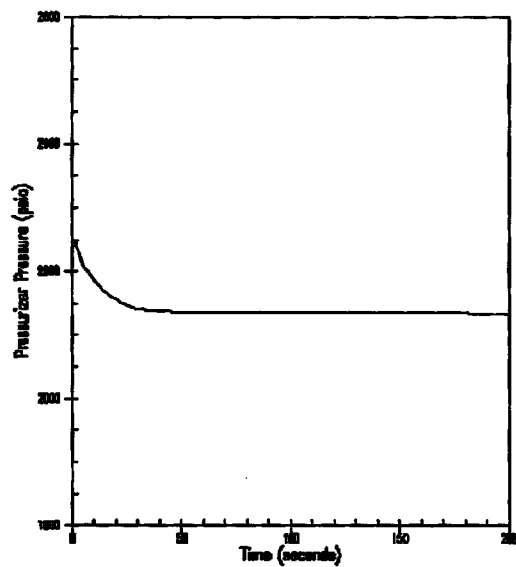
UFSAR FIGURE 14.1-23 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
CORE AVERAGE AND VESSEL INLET TEMPERATURE FOR  
DROPPED RCCA WORTH OF 400 PCM AT EOL  
(LARGE NEGATIVE MTC)

UFSAR FIGURE 14.1-24 | REV. No. 01

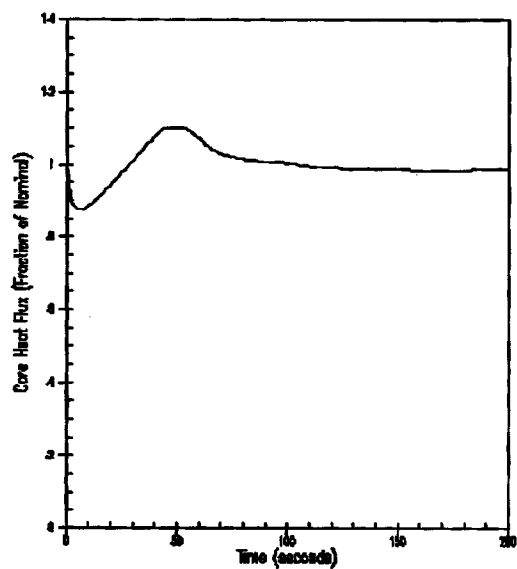
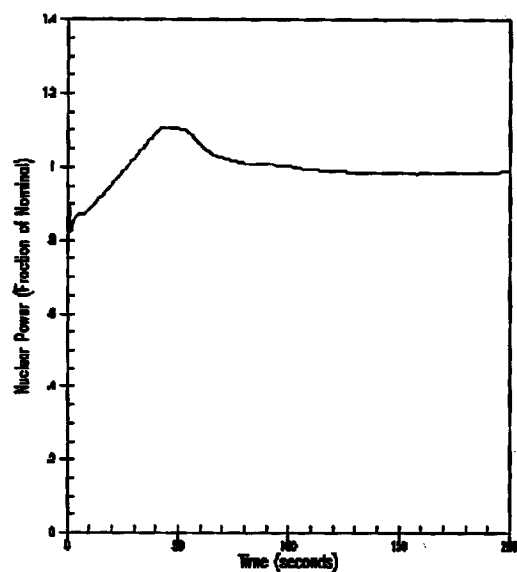


### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
PRESSURIZER PRESSURE FOR  
DROPPED RCCA WORTH OF 400 PCM AT EOL  
(LARGE NEGATIVE MTC)

UFSAR FIGURE 14.1-25 | REV. No. 01

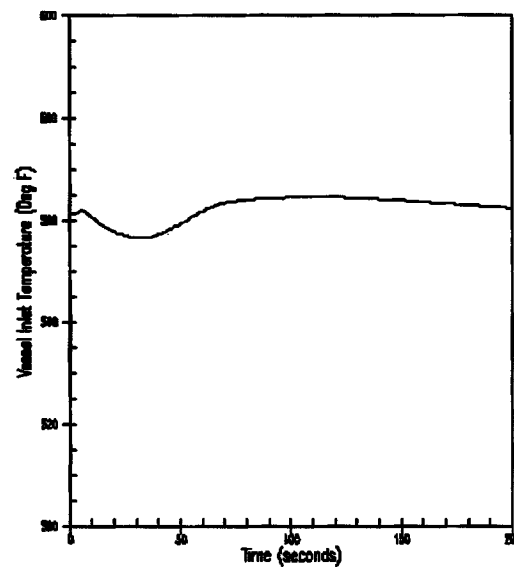
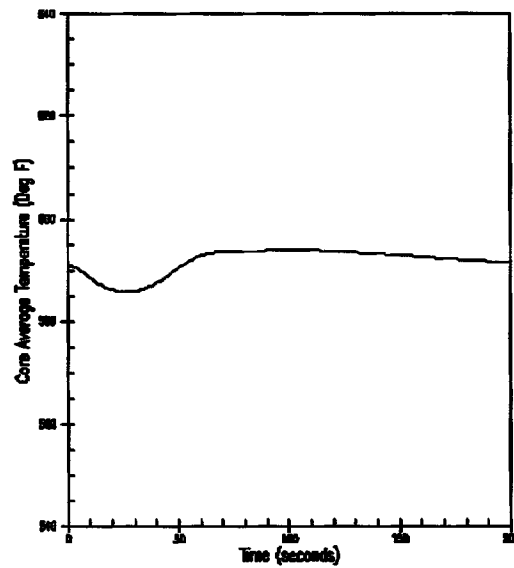




### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
NUCLEAR POWER AND CORE HEAT FLUX FOR  
DROPPED RCCA WORTH OF 200 PCM AT BOL  
(SMALL NEGATIVE MTC)

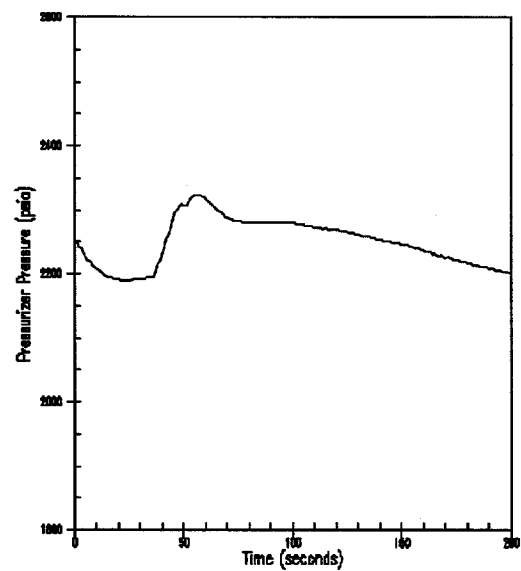
UFSAR FIGURE 14.1-26 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
CORE AVERAGE AND VESSEL INLET TEMPERATURE FOR  
DROPPED RCCA WORTH OF 200 PCM AT BOL  
(SMALL NEGATIVE MTC)

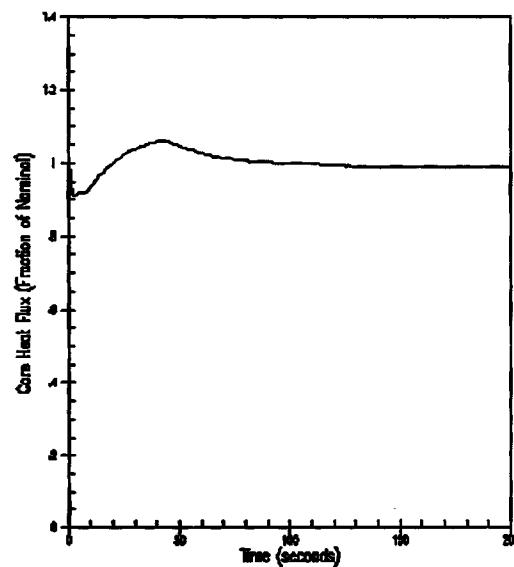
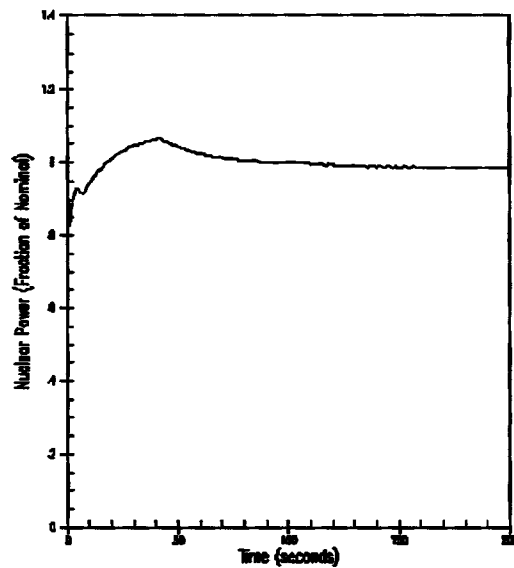
UFSAR FIGURE 14.1-27 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH MANUAL ROD CONTROL  
PRESSURIZER PRESSURE FOR  
DROPPED RCCA WORTH OF 200 PCM AT BOL  
(SMALL NEGATIVE MTC)

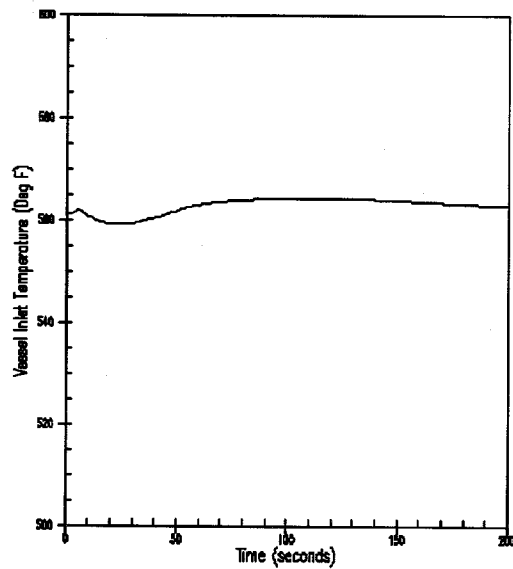
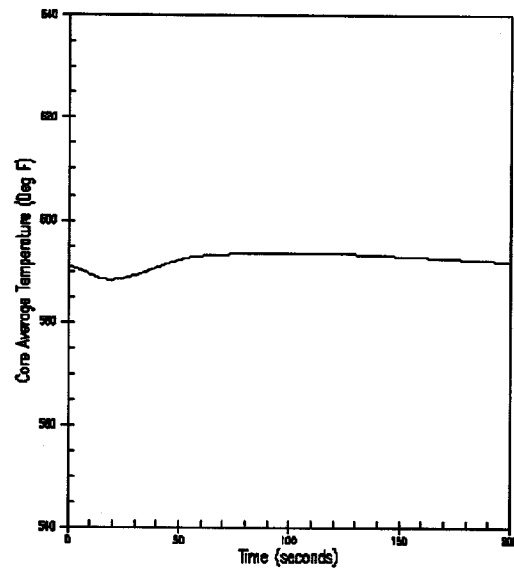
UFSAR FIGURE 14.1-28 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH AUTOMATIC ROD CONTROL  
NUCLEAR POWER AND CORE HEAT FLUX FOR  
DROPPED RCCA WORTH OF 200 PCM AT EOL  
(LARGE NEGATIVE MTC)

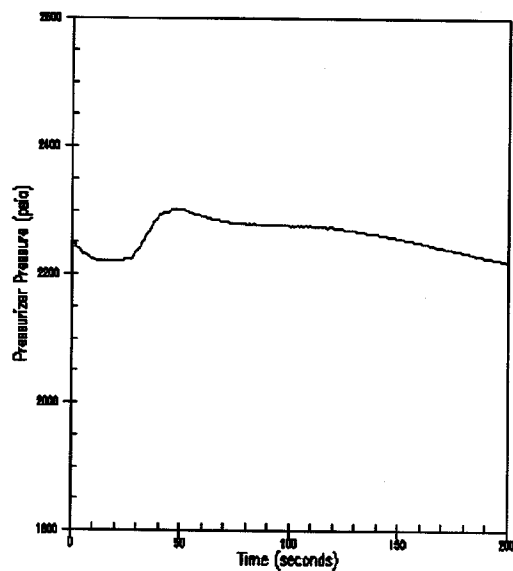
UFSAR FIGURE 14.1-29 | REV. No. 01



## INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH AUTOMATIC ROD CONTROL  
CORE AVERAGE AND VESSEL INLET TEMPERATURE FOR  
DROPPED RCCA WORTH OF 200 PCM AT EOL  
(LARGE NEGATIVE MTC)

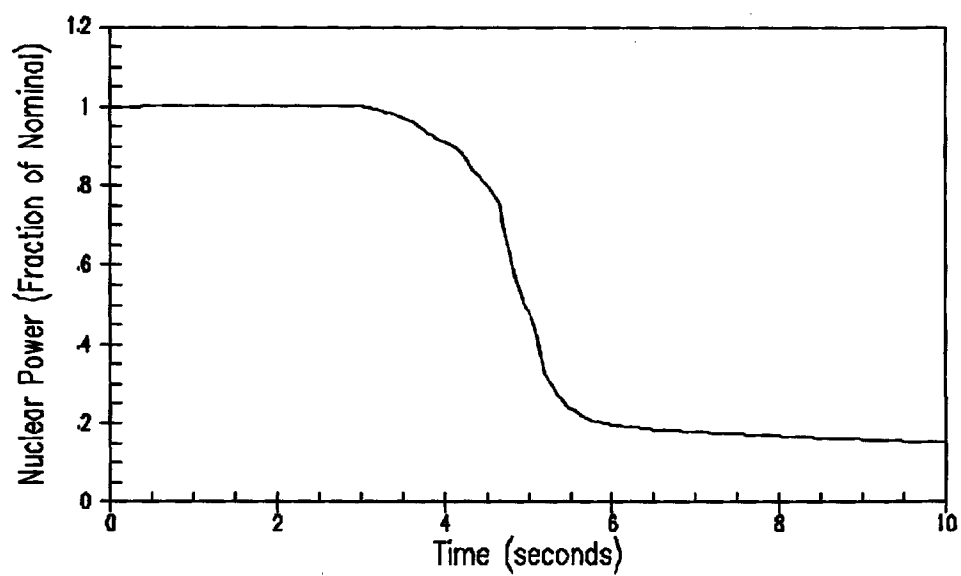
UFSAR FIGURE 14.1-30 | REV. No. 01



### INDIAN POINT UNIT No. 3

DROPPED ROD TRANSIENT WITH AUTOMATIC ROD CONTROL  
PRESSURIZER PRESSURE FOR  
DROPPED RCCA WORTH OF 200 PCM AT EOL  
(LARGE NEGATIVE MTC)

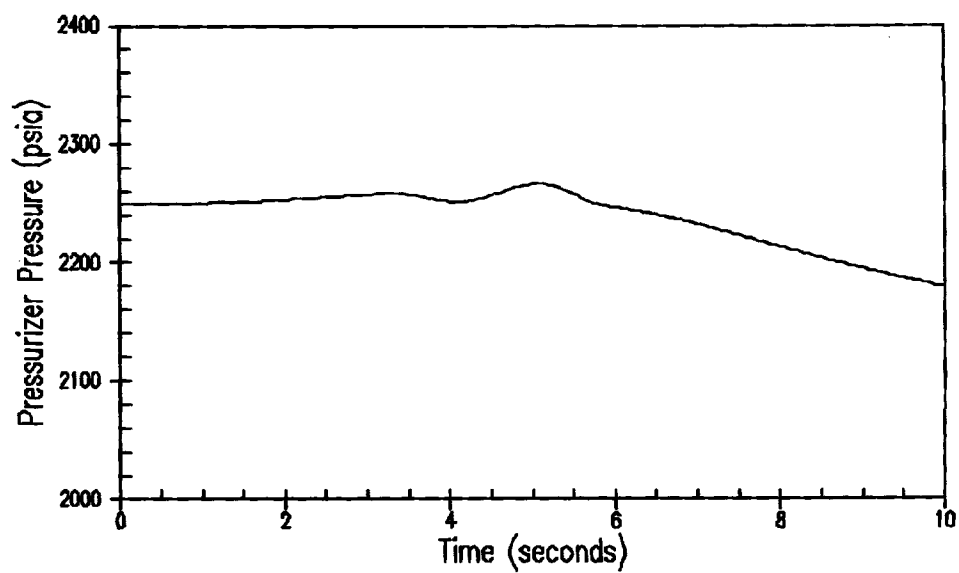
UFSAR FIGURE 14.1-31 | REV. No. 01



### INDIAN POINT UNIT No. 3

NUCLEAR POWER FOR PARTIAL LOSS OF FLOW  
FOUR LOOPS IN OPERATION  
ONE PUMP COASTING DOWN

UFSAR FIGURE 14.1-44 | REV. No. 01

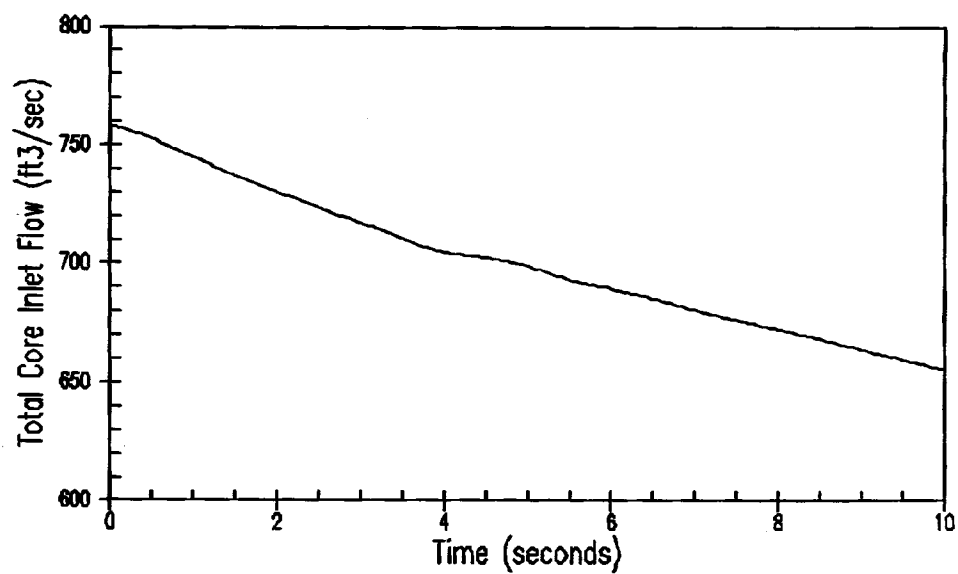


### INDIAN POINT UNIT No. 3

PRESSURIZER PRESSURE FOR PARTIAL LOSS OF FLOW  
FOUR LOOPS IN OPERATION  
ONE PUMP COASTING DOWN

UFSAR FIGURE 14.1-45 | REV. No. 01

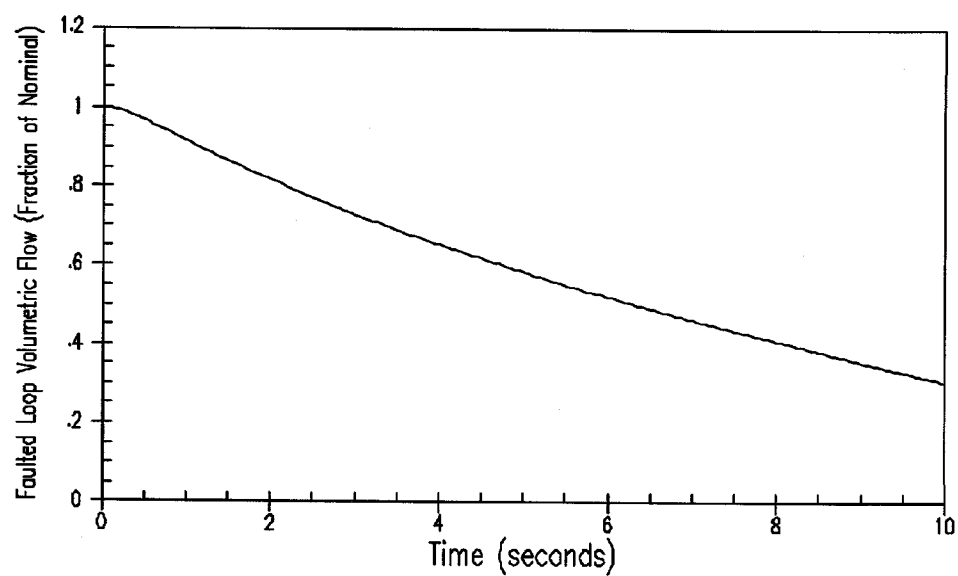




### INDIAN POINT UNIT No. 3

TOTAL CORE FLOW FOR PARTIAL LOSS OF FLOW  
FOUR LOOPS IN OPERATION  
ONE PUMP COASTING DOWN

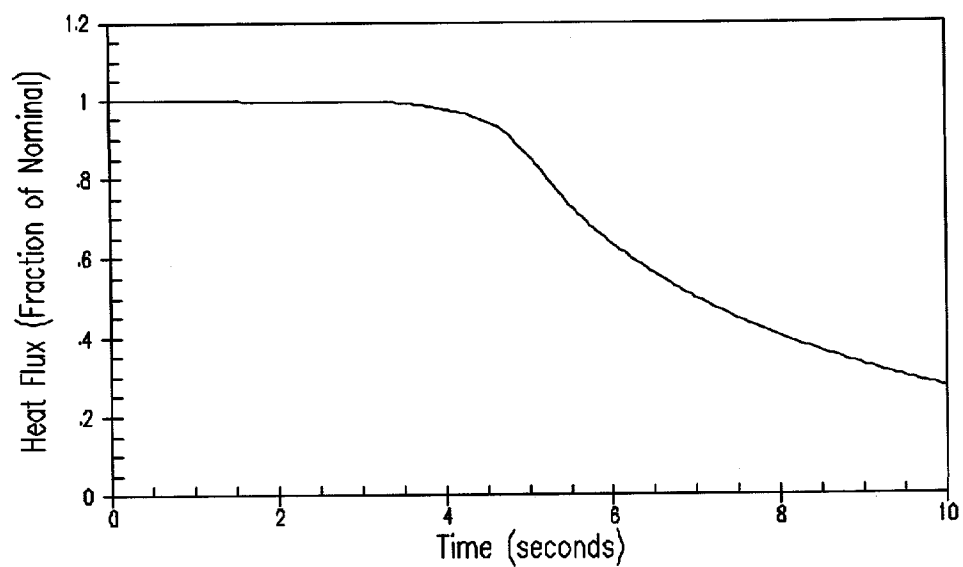
UFSAR FIGURE 14.1-46 | REV. No. 01



### INDIAN POINT UNIT No. 3

FAULTED LOOP FLOW FOR PARTIAL LOSS OF FLOW  
FOUR LOOPS IN OPERATION  
ONE PUMP COASTING DOWN

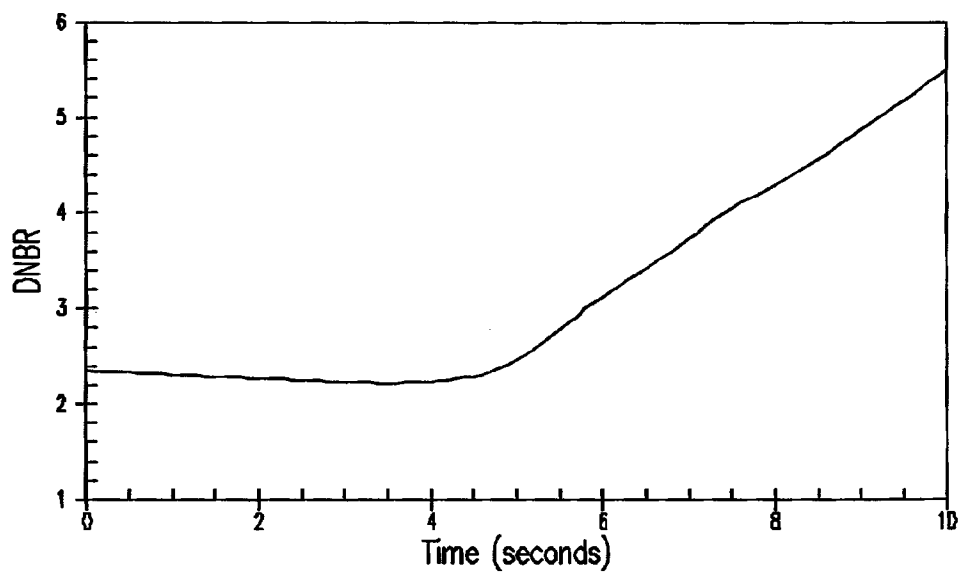
UFSAR FIGURE 14.1-47 | REV. No. 01



### INDIAN POINT UNIT No. 3

HEAT FLUX FOR PARTIAL LOSS OF FLOW  
FOUR LOOPS IN OPERATION  
ONE PUMP COASTING DOWN

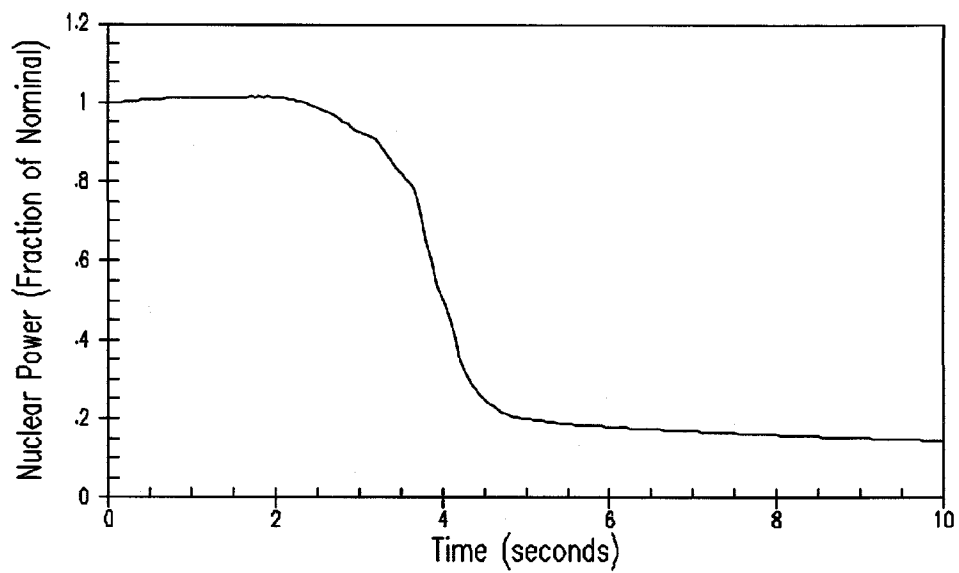
UFSAR FIGURE 14.1-48 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**DNBR FOR PARTIAL LOSS OF FLOW  
FOUR LOOPS IN OPERATION  
ONE PUMP COASTING DOWN**

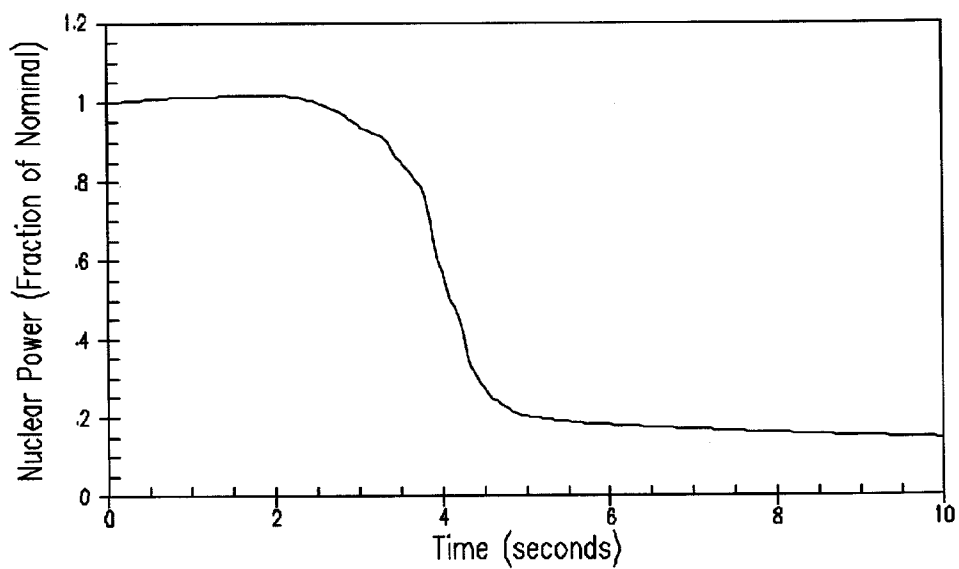
**UFSAR FIGURE 14.1-49 | REV. No. 01**



### INDIAN POINT UNIT No. 3

NUCLEAR POWER FOR COMPLETE LOSS OF FLOW  
UNDervOLTAGE  
FOUR LOOPS IN OPERATION  
FOUR PUMPS COASTING DOWN

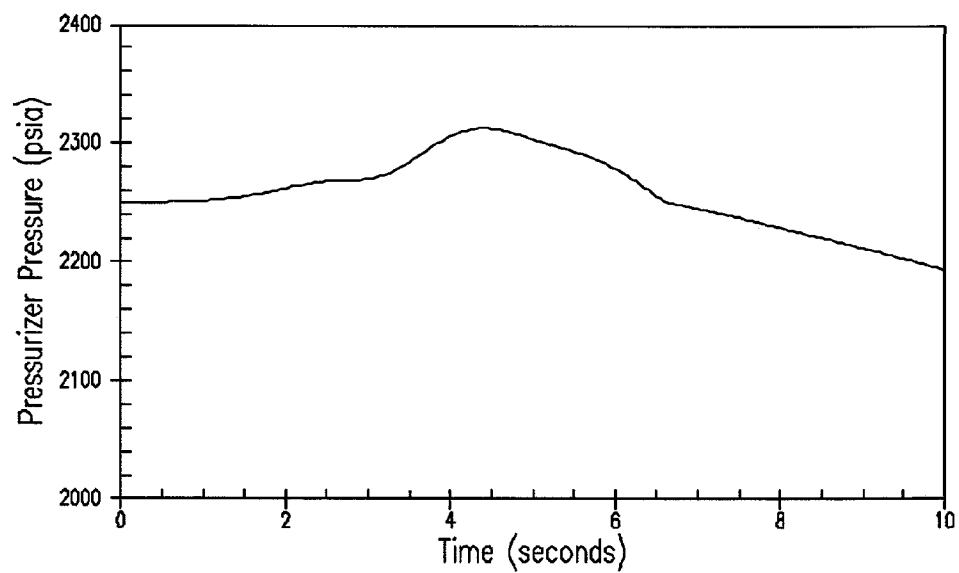
UFSAR FIGURE 14.1-50 | REV. No. 01



### INDIAN POINT UNIT No. 3

NUCLEAR POWER FOR COMPLETE LOSS OF FLOW  
UNDERFREQUENCY  
FOUR LOOPS IN OPERATION

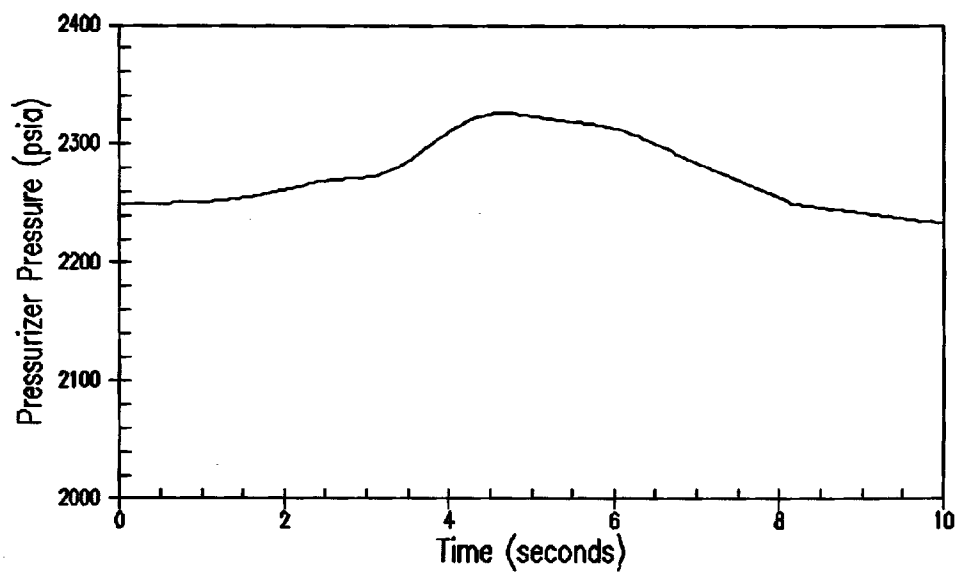
UFSAR FIGURE 14.1-50A | REV. No. 01



### INDIAN POINT UNIT No. 3

PRESSURIZER PRESSURE FOR COMPLETE LOSS OF FLOW  
UNDervOLTAGE  
FOUR LOOPS IN OPERATION  
FOUR PUMPS COASTING DOWN

UFSAR FIGURE 14.1-51 | REV. No. 01

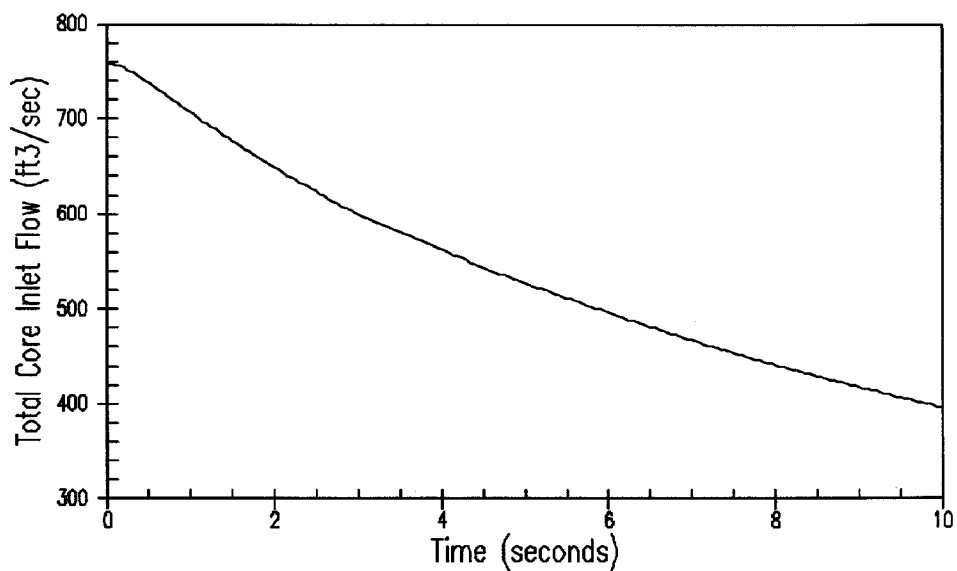


### INDIAN POINT UNIT No. 3

PRESSURIZER PRESSURE FOR COMPLETE LOSS OF FLOW  
UNDERFREQUENCY  
FOUR LOOPS IN OPERATION

UFSAR FIGURE 14.1-51A | REV. No. 01

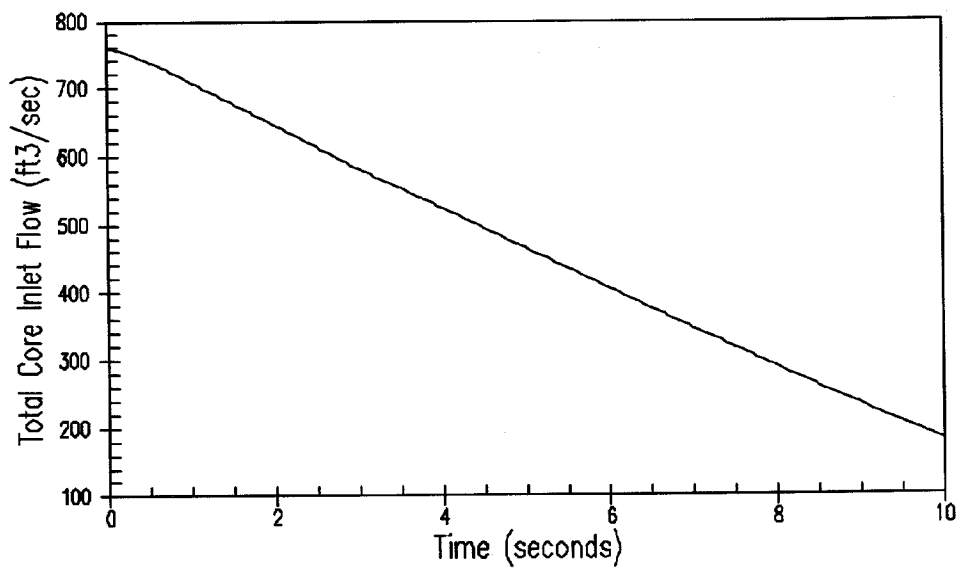




### INDIAN POINT UNIT No. 3

TOTAL CORE FLOW FOR COMPLETE LOSS OF FLOW  
UNDervOLTAGE  
FOUR LOOPS IN OPERATION  
FOUR PUMPS COASTING DOWN

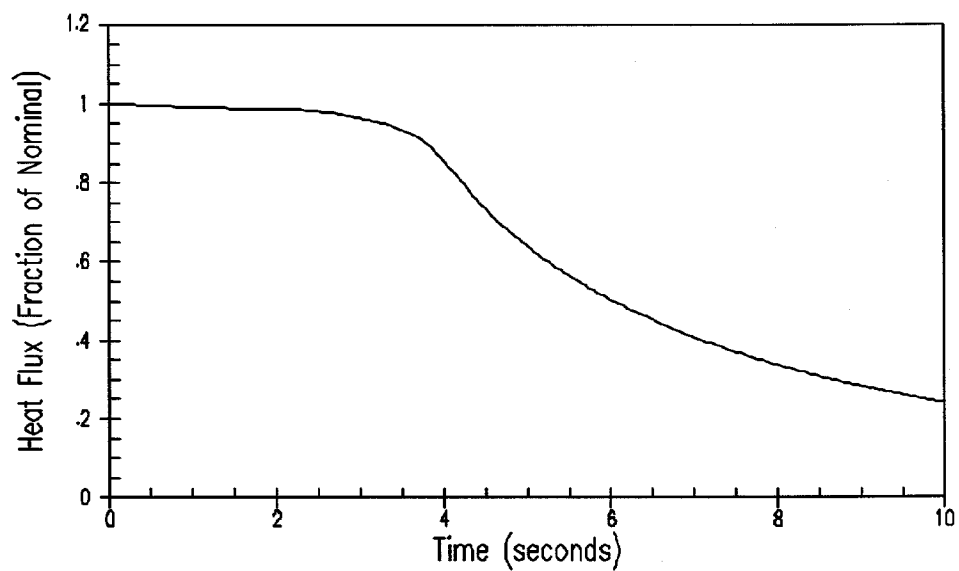
UFSAR FIGURE 14.1-52 | REV. No. 01



### INDIAN POINT UNIT No. 3

TOTAL CORE FLOW FOR COMPLETE LOSS OF FLOW  
UNDERFREQUENCY  
FOUR LOOPS IN OPERATION

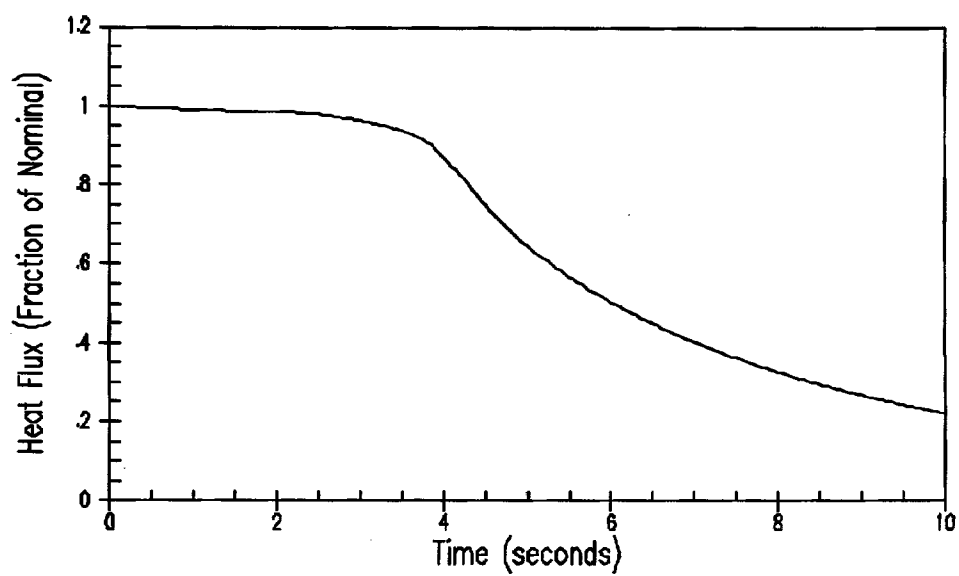
UFSAR FIGURE 14.1-52A | REV. No. 01



**INDIAN POINT UNIT No. 3**

**HEAT FLUX FOR COMPLETE LOSS OF FLOW  
UNDervOLTAGE  
FOUR LOOPS IN OPERATION  
FOUR PUMPS COASTING DOWN**

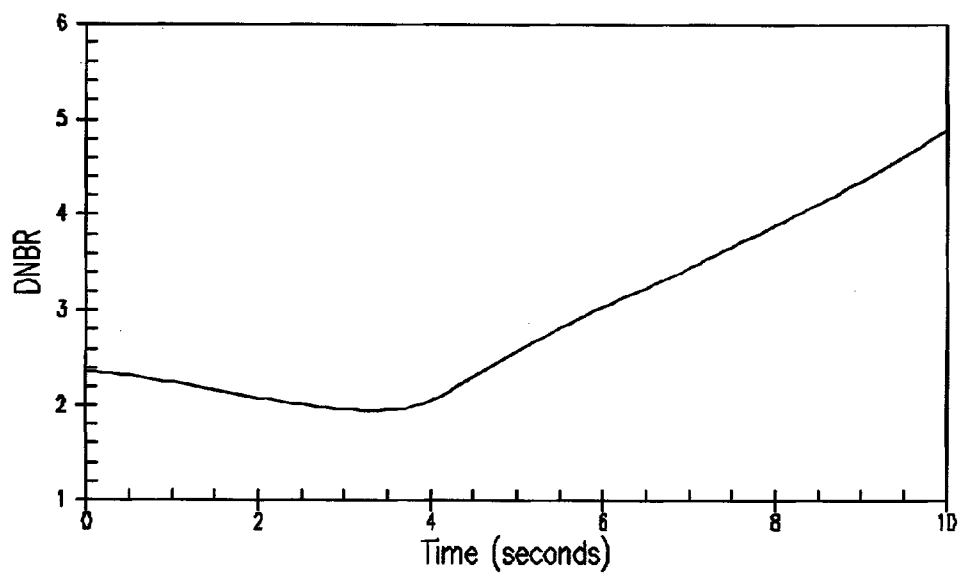
**UFSAR FIGURE 14.1-53 | REV. No. 01**



### INDIAN POINT UNIT No. 3

HEAT FLUX FOR COMPLETE LOSS OF FLOW  
UNDERFREQUENCY  
FOUR LOOPS IN OPERATION

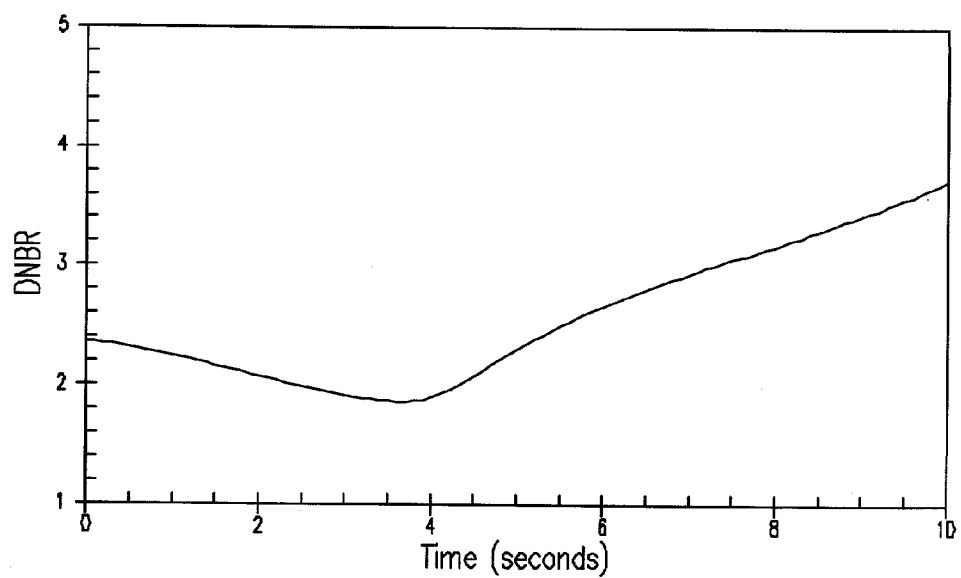
UFSAR FIGURE 14.1-53A | REV. No. 01



**INDIAN POINT UNIT No. 3**

**DNBR FOR COMPLETE LOSS OF FLOW  
UNDervOLTAGE  
FOUR LOOPS IN OPERATION  
FOUR PUMPS COASTING DOWN**

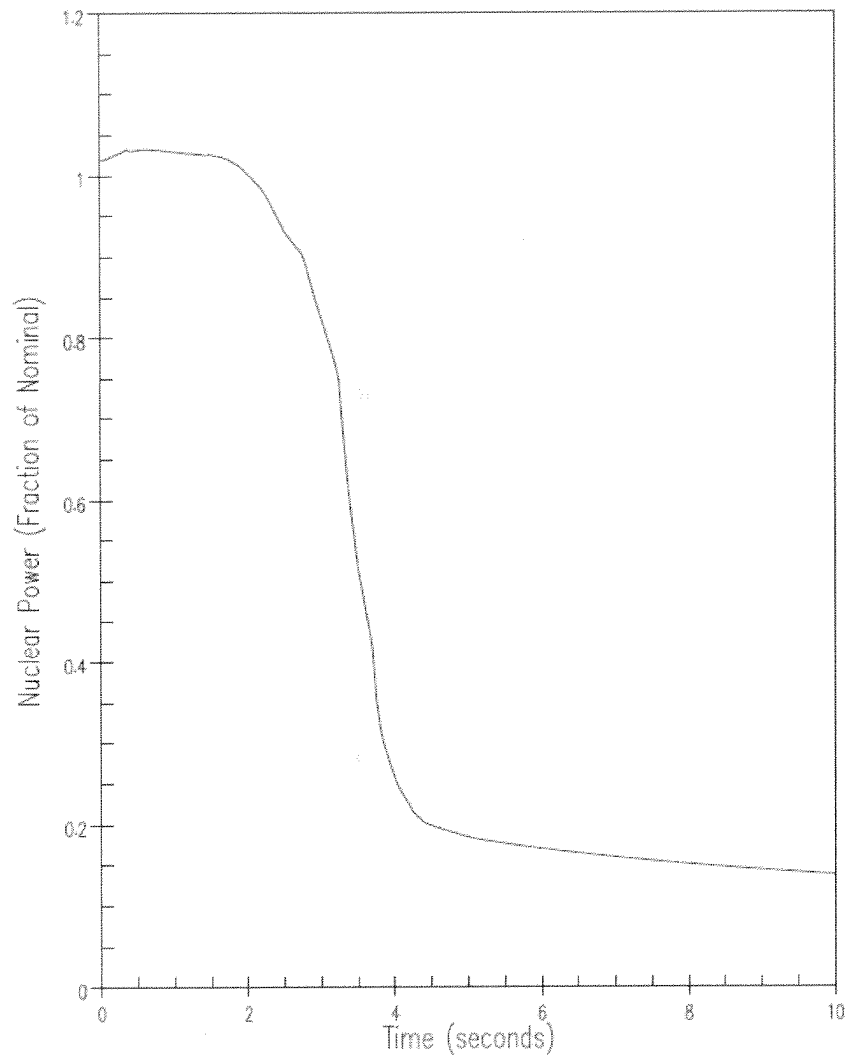
**UFSAR FIGURE 14.1-54 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**DNBR FOR COMPLETE LOSS OF FLOW  
UNDERFREQUENCY  
FOUR LOOPS IN OPERATION**

**UFSAR FIGURE 14.1-54A | REV. No. 01**

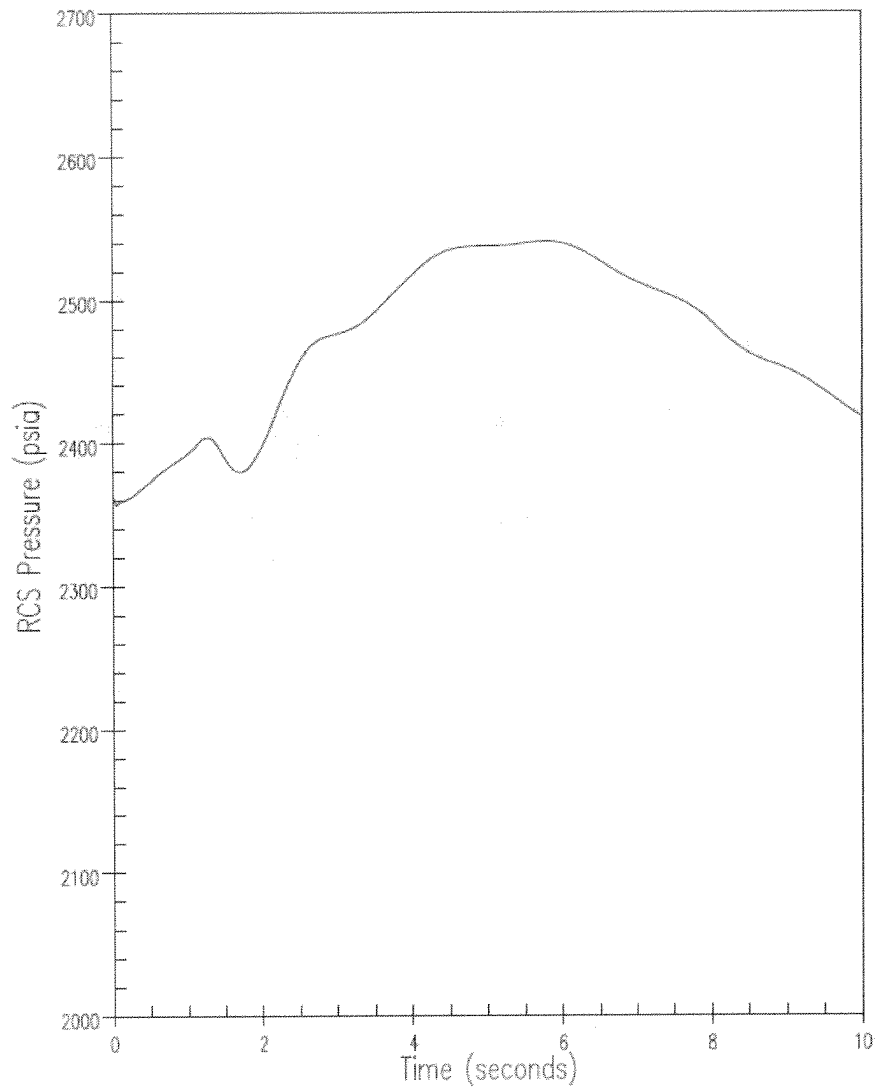


### INDIAN POINT UNIT No. 3

NUCLEAR POWER FOR RCP SHAFT SEIZURE  
FOUR LOOPS IN OPERATION

UFSAR FIGURE 14.1-55

REV. No. 03



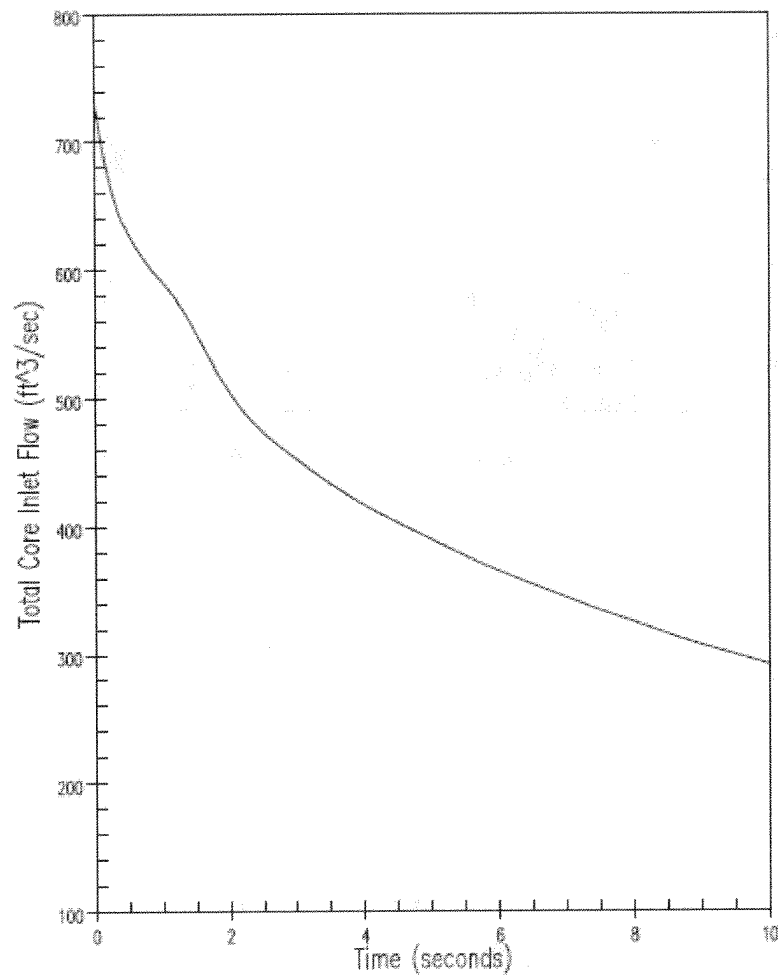
### INDIAN POINT UNIT No. 3

RCS PRESSURE FOR RCP SHAFT SEIZURE  
FOUR LOOPS IN OPERATION

UFSAR FIGURE 14.1-56

REV. No. 03



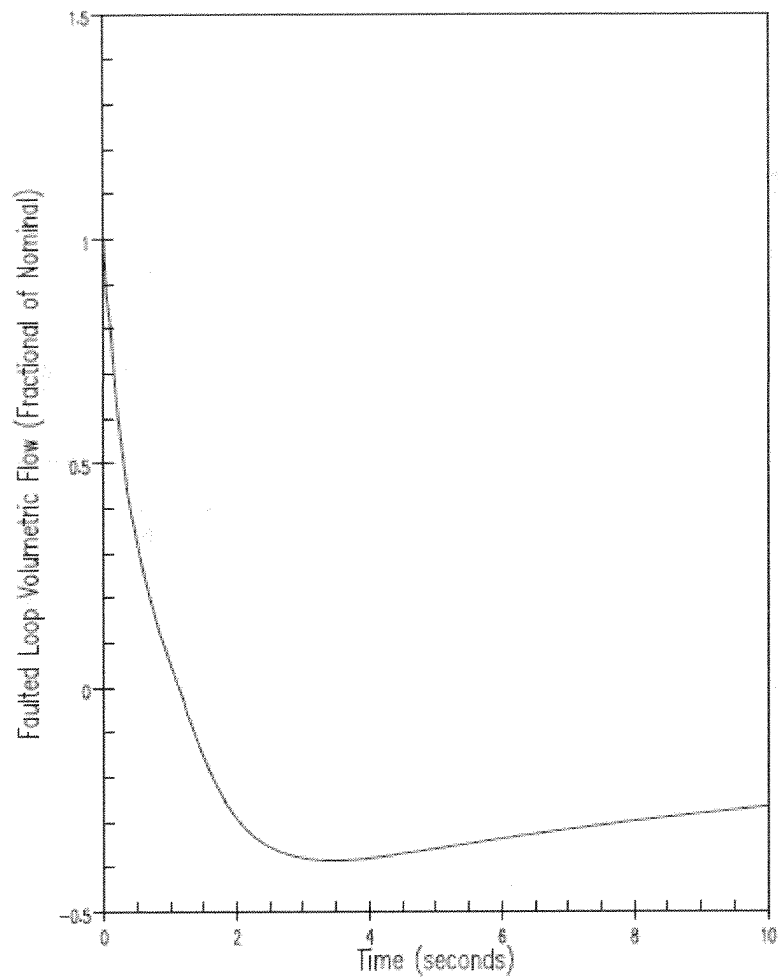


### INDIAN POINT UNIT No. 3

TOTAL CORE FLOW FOR RCP SHAFT  
SEIZURE FOUR LOOPS IN OPERATION

UFSAR FIGURE 14.1-57

REV. No. 03

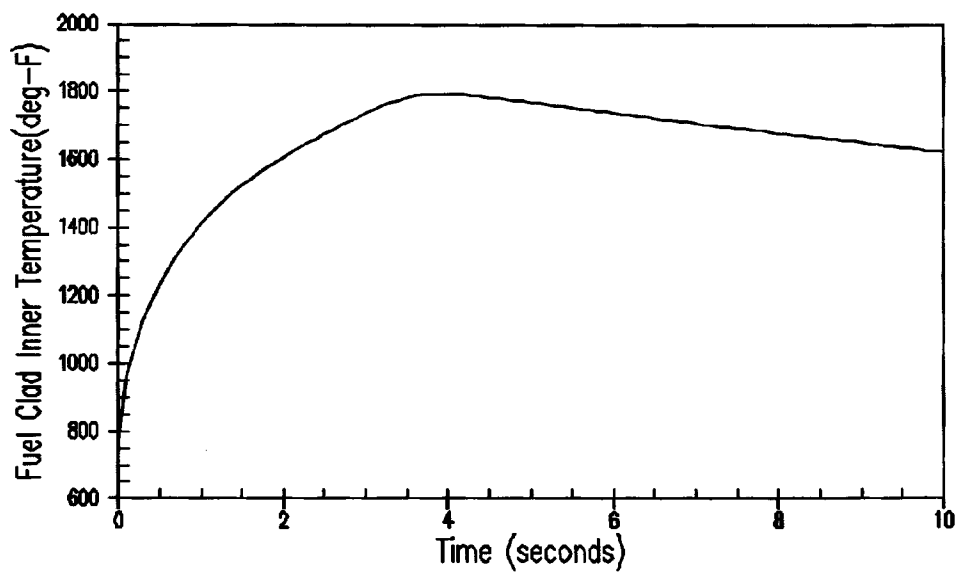


INDIAN POINT UNIT No. 3

FAULTED LOOP FLOW FOR RCP SHAFT  
SEIZURE FOUR LOOPS IN OPERATION

UFSAR FIGURE 14.1-58

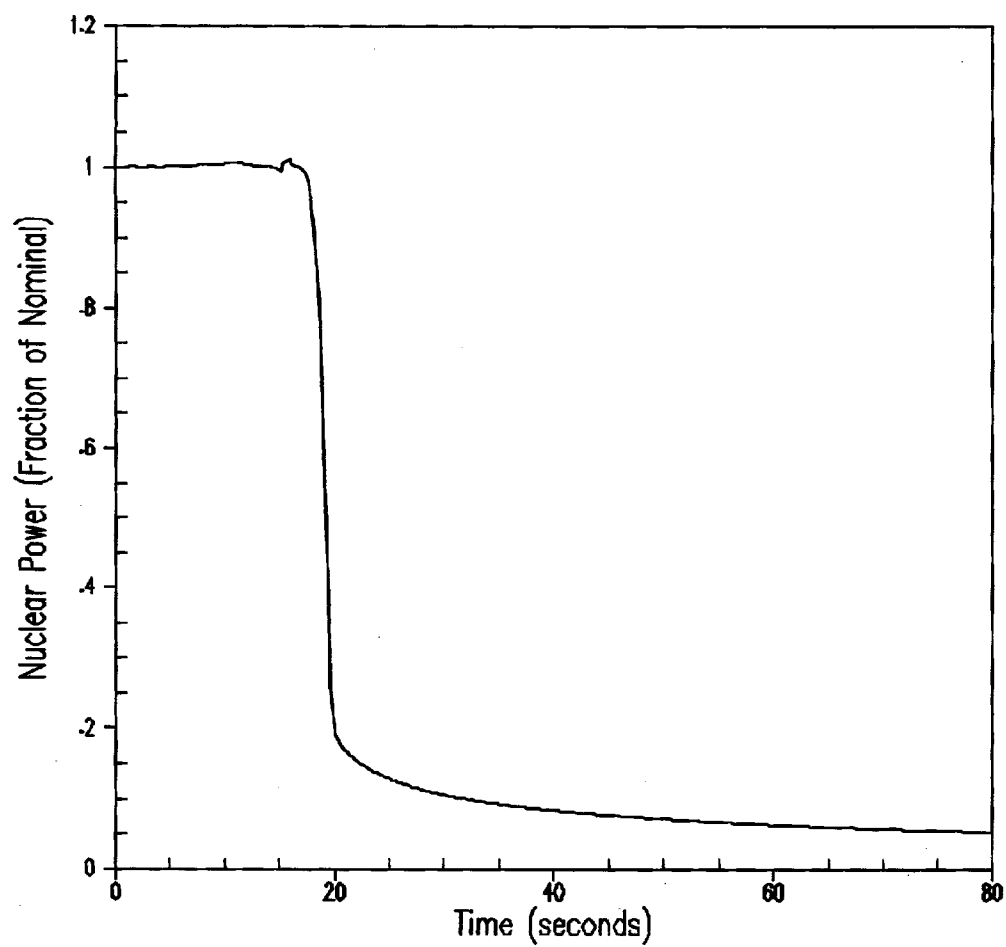
REV. No. 03



### INDIAN POINT UNIT No. 3

CLAD INNER TEMPERATURE FOR RCP SHAFT SEIZURE  
FOUR LOOPS IN OPERATION

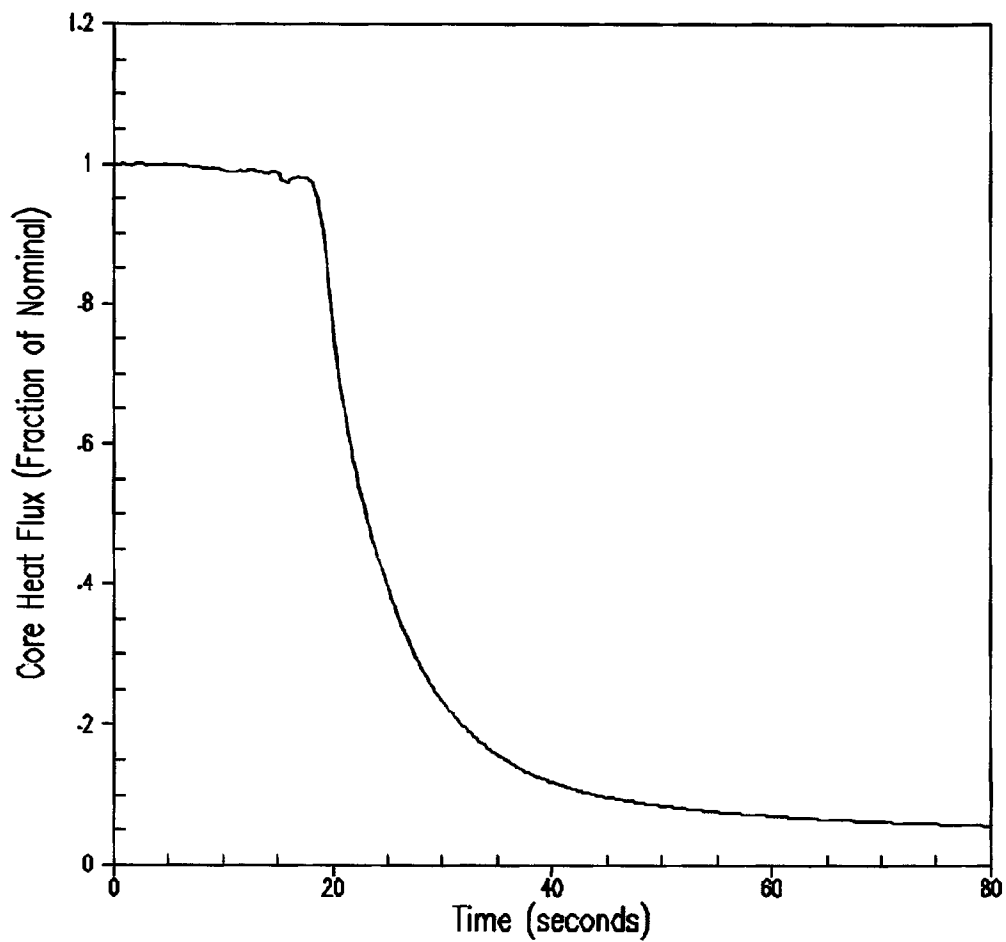
UFSAR FIGURE 14.1-59 | REV. No. 01



### INDIAN POINT UNIT No. 3

NUCLEAR POWER TRANSIENT FOR LOSS OF EXTERNAL LOAD,  
MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

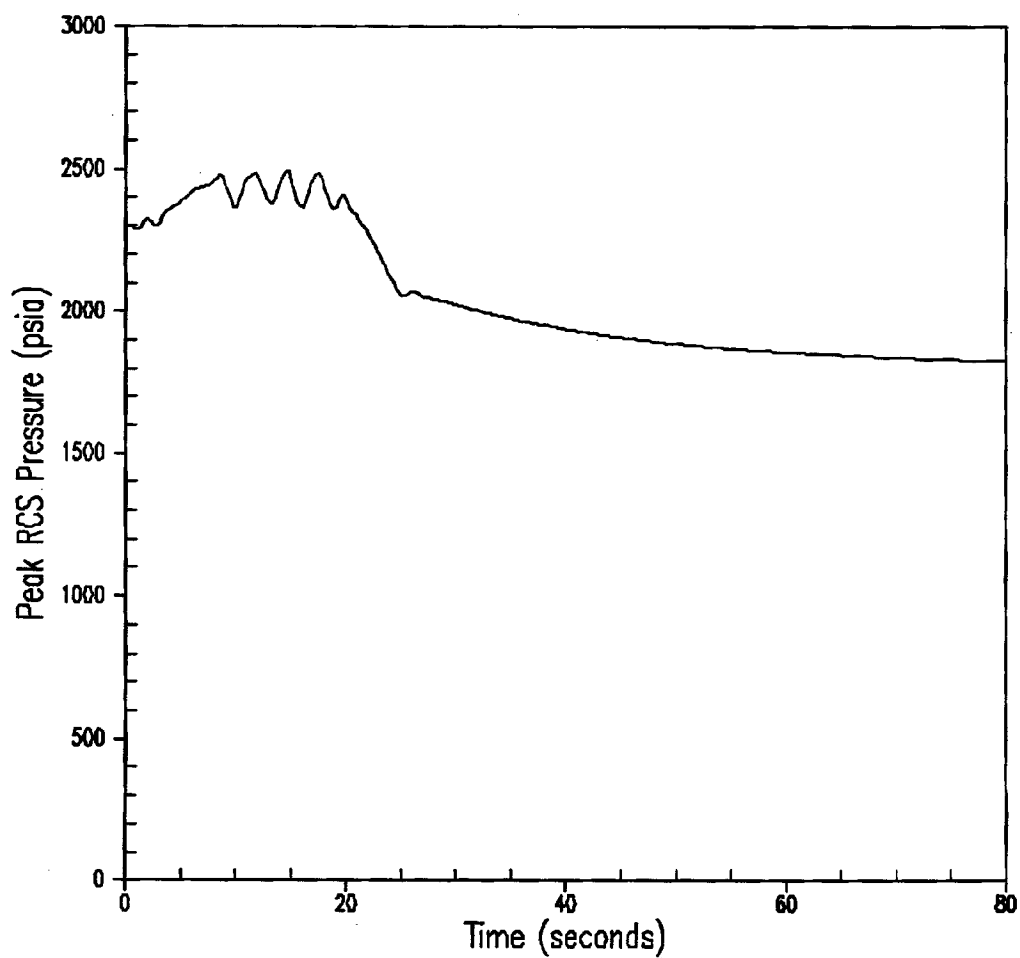
UFSAR FIGURE 14.1-62 | REV. No. 01



### INDIAN POINT UNIT No. 3

CORE HEAT FLUX TRANSIENT FOR LOSS OF EXTERNAL LOAD,  
MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

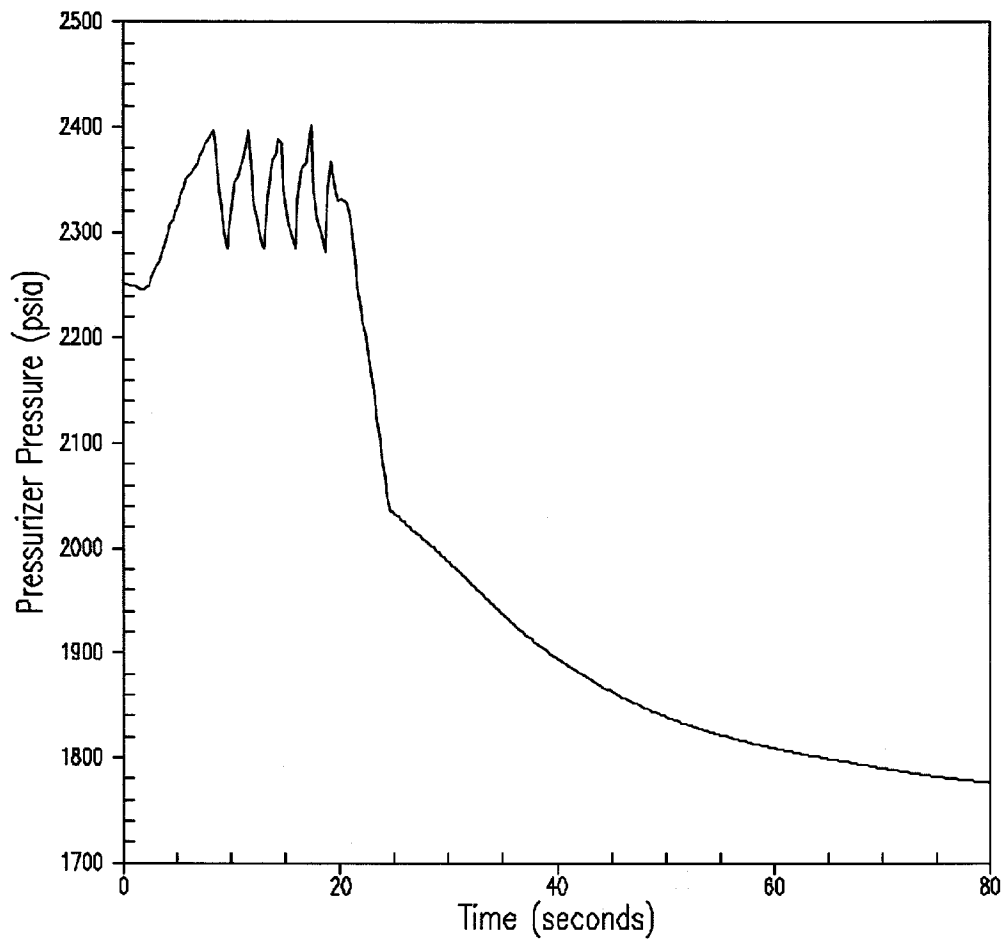
UFSAR FIGURE 14.1-63 | REV. No. 01



### INDIAN POINT UNIT No. 3

PEAK RCS PRESSURE TRANSIENT FOR LOSS OF EXTERNAL LOAD,  
MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

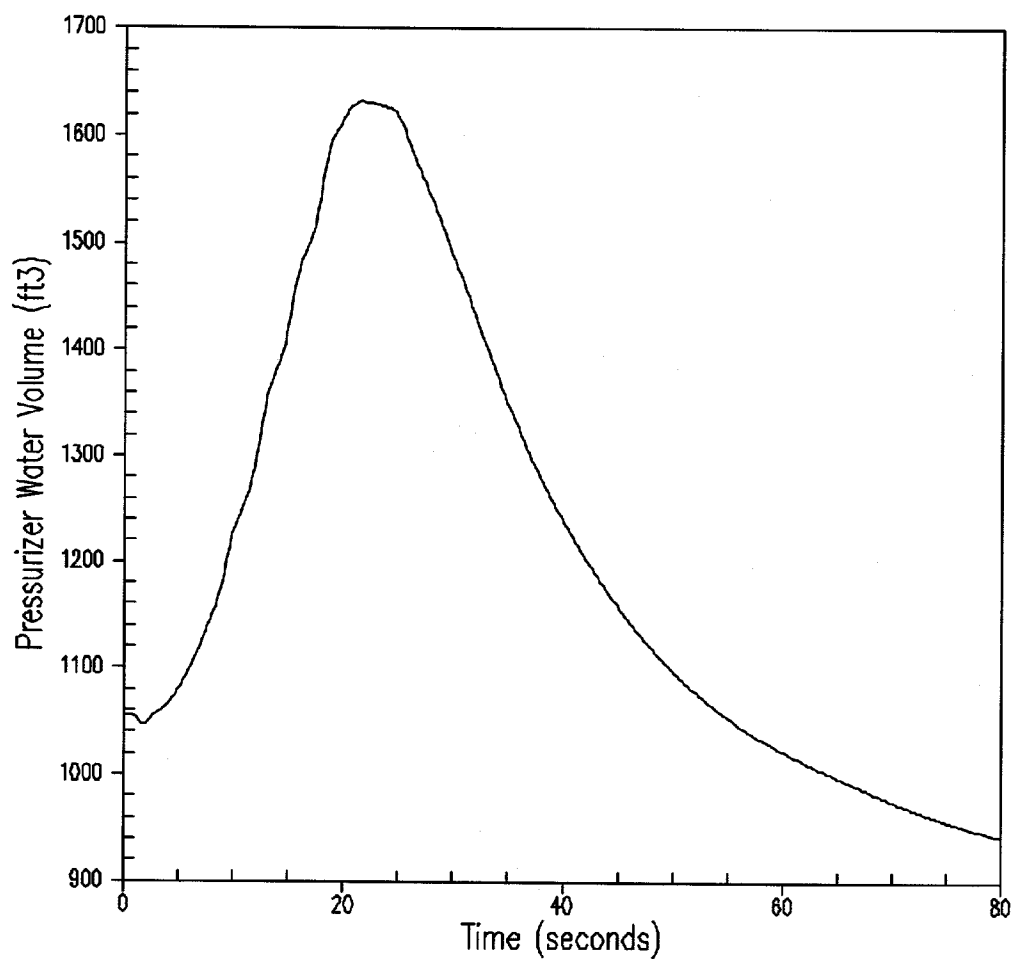
UFSAR FIGURE 14.1-64 | REV. No. 01



### INDIAN POINT UNIT No. 3

PRESSURIZER PRESSURE TRANSIENT FOR LOSS OF EXTERNAL LOAD,  
MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

UFSAR FIGURE 14.1-65 | REV. No. 01

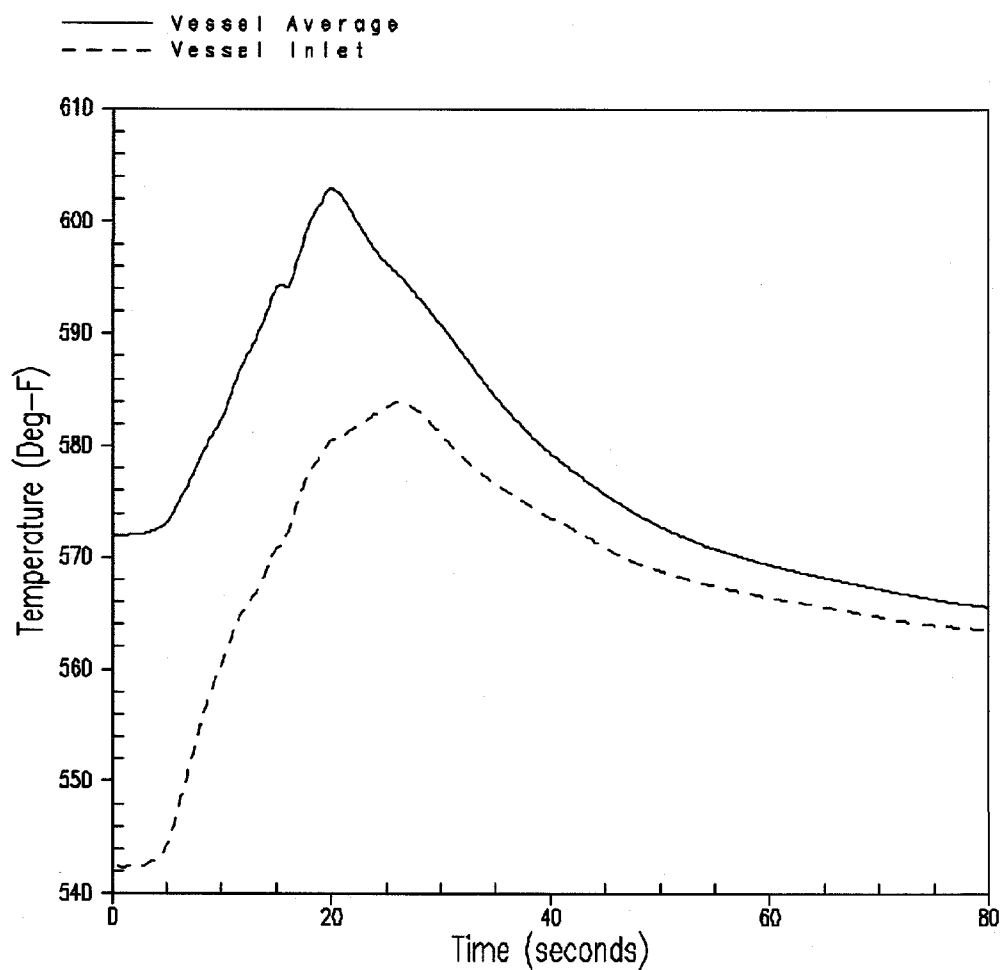


### INDIAN POINT UNIT No. 3

PRESSURIZER WATER VOLUME TRANSIENT FOR LOSS OF  
EXTERNAL LOAD, MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

UFSAR FIGURE 14.1-66 | REV. No. 01

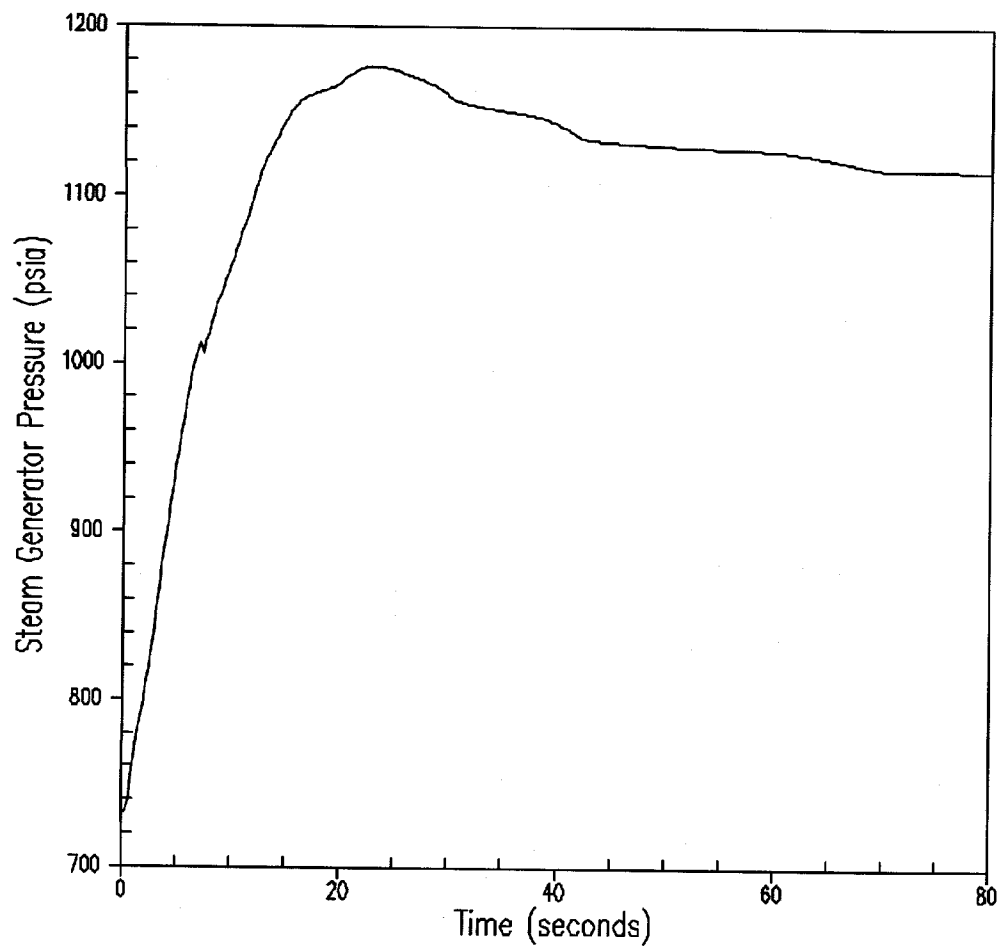




### INDIAN POINT UNIT No. 3

VESSEL AVERAGE & VESSEL INLET TEMPERATURE TRANSIENT  
FOR LOSS OF EXTERNAL LOAD, MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

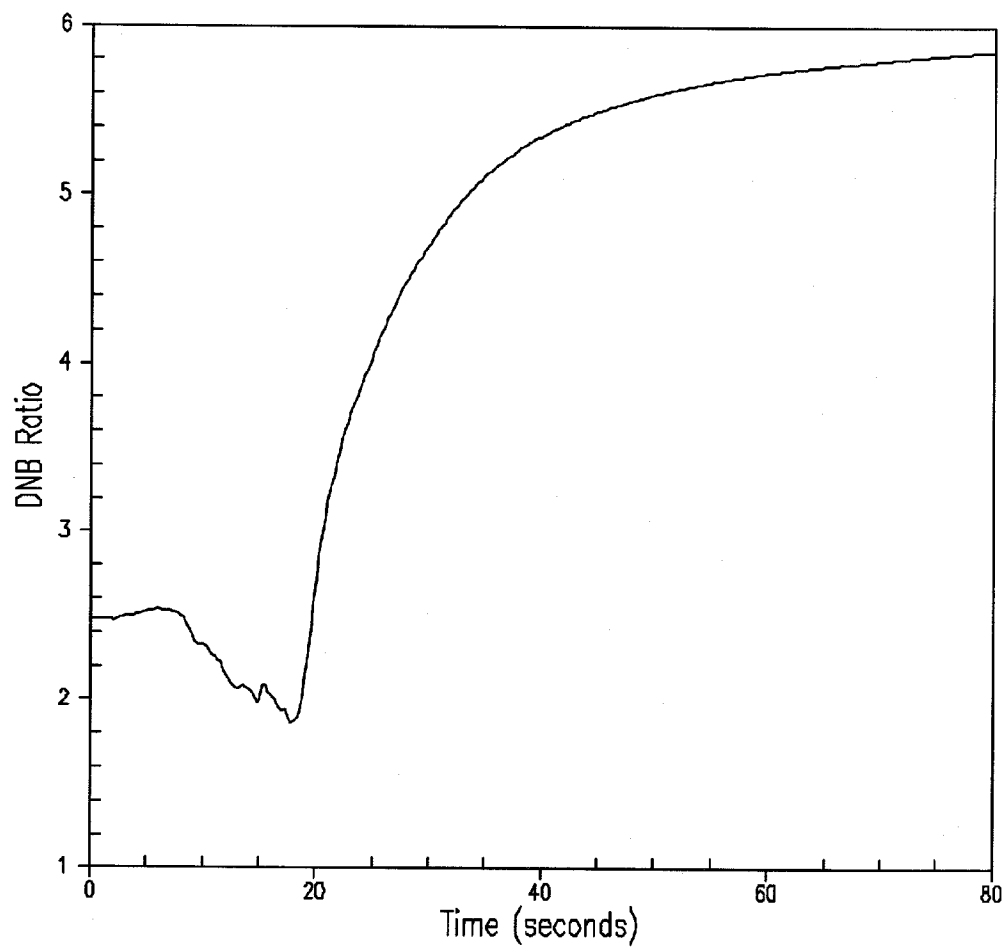
UFSAR FIGURE 14.1-67 | REV. No. 01



### INDIAN POINT UNIT No. 3

STEAM GENERATOR PRESSURE TRANSIENT FOR LOSS OF  
EXTERNAL LOAD, MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

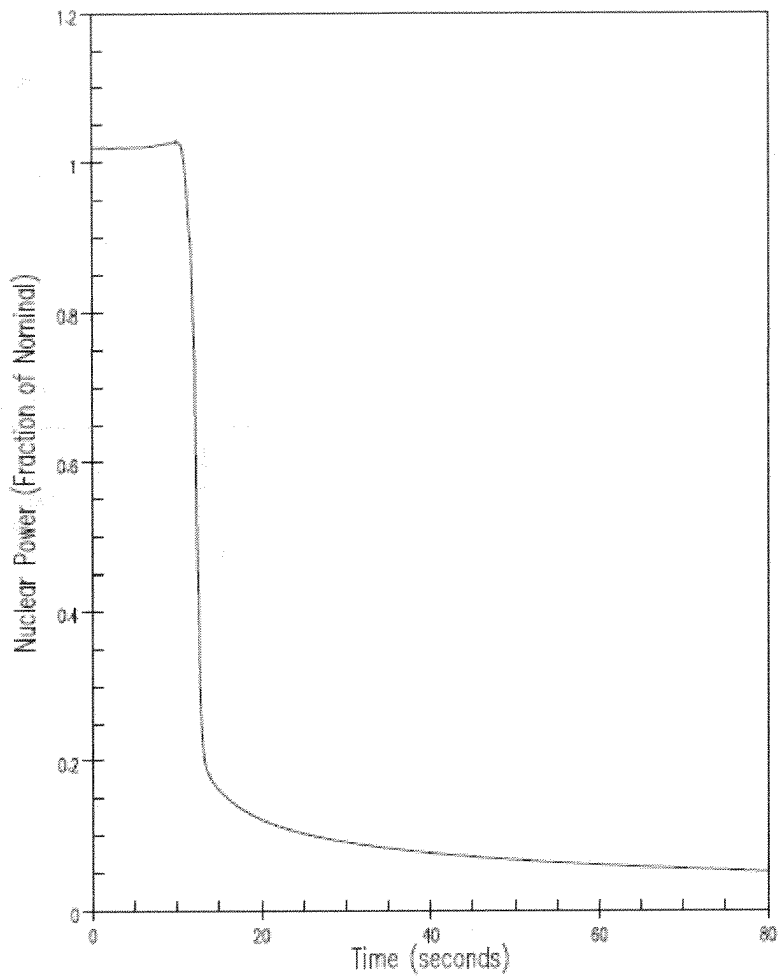
UFSAR FIGURE 14.1-68 | REV. No. 01



### INDIAN POINT UNIT No. 3

DNB RATIO TRANSIENT FOR LOSS OF EXTERNAL LOAD,  
MINIMUM REACTIVITY FEEDBACK,  
WITH PRESSURE CONTROL

UFSAR FIGURE 14.1-69 | REV. No. 01

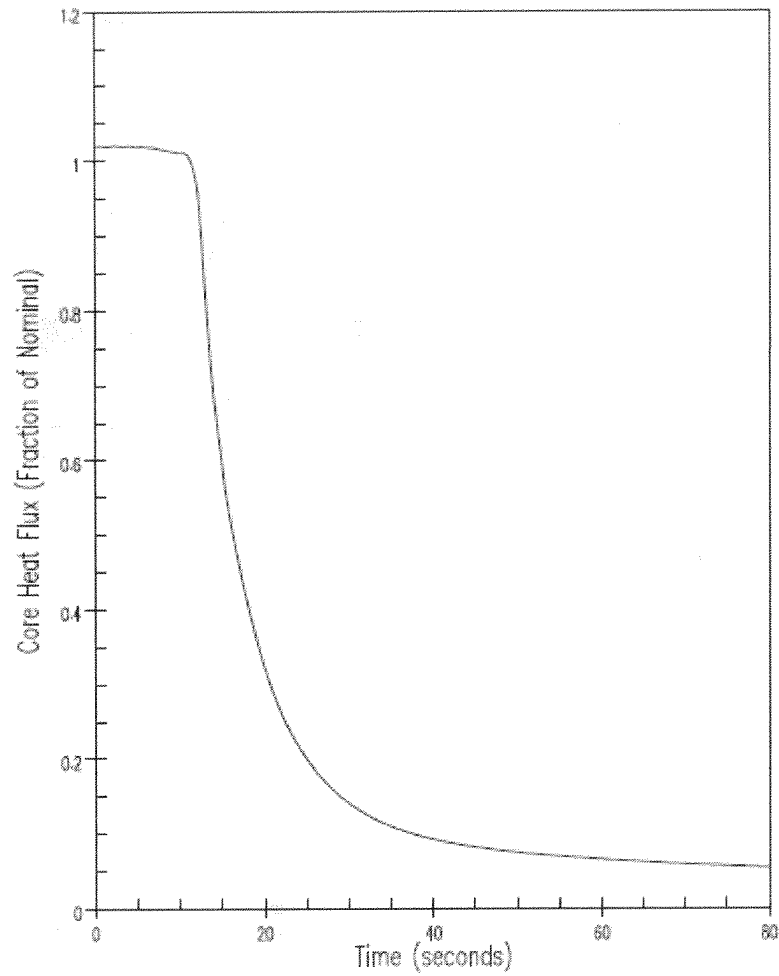


### INDIAN POINT UNIT No. 3

NUCLEAR POWER TRANSIENT FOR LOSS OF  
EXTERNAL LOAD, MINIMUM REACTIVITY  
FEEDBACK, WITHOUT PRESSURE CONTROL

UFSAR FIGURE 14.1-70

REV. No. 03

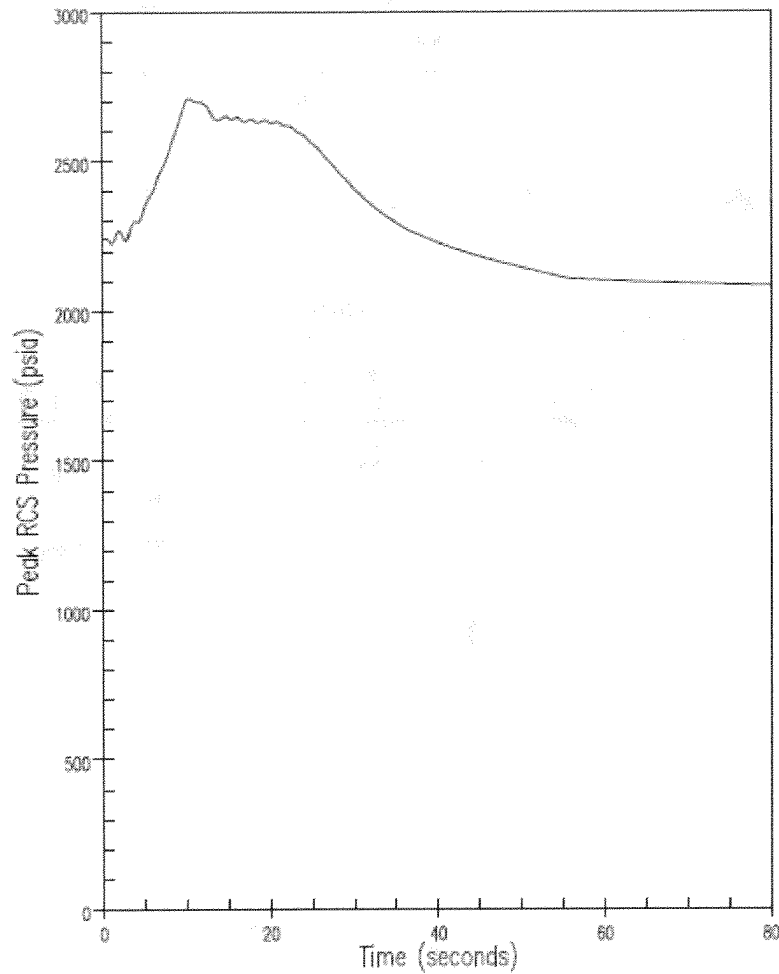


### INDIAN POINT UNIT No. 3

CORE HEAT FLUX TRANSIENT FOR LOSS OF  
EXTERNAL LOAD, MINIMUM REACTIVITY  
FEEDBACK, WITHOUT PRESSURE CONTROL

UFSAR FIGURE 14.1-71

REV. No. 03

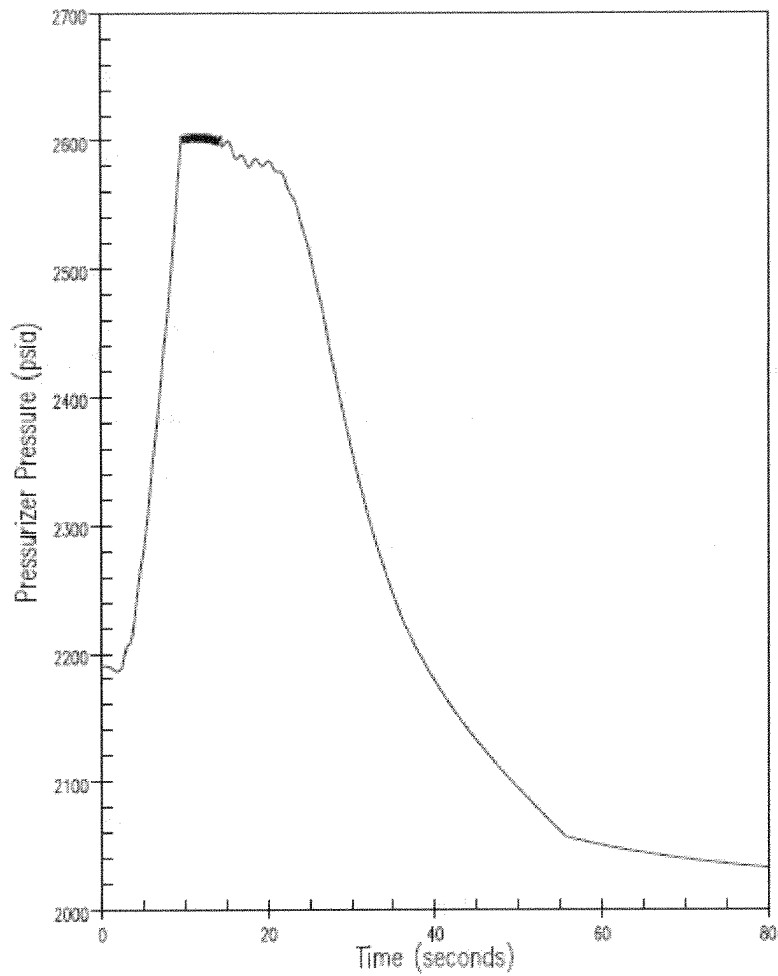


### INDIAN POINT UNIT No. 3

PEAK RCS PRESSURE TRANSIENT FOR LOSS OF  
EXTERNAL LOAD, MINIMUM REACTIVITY  
FEEDBACK, WITHOUT PRESSURE CONTROL

UFSAR FIGURE 14.1-72

REV. No. 03

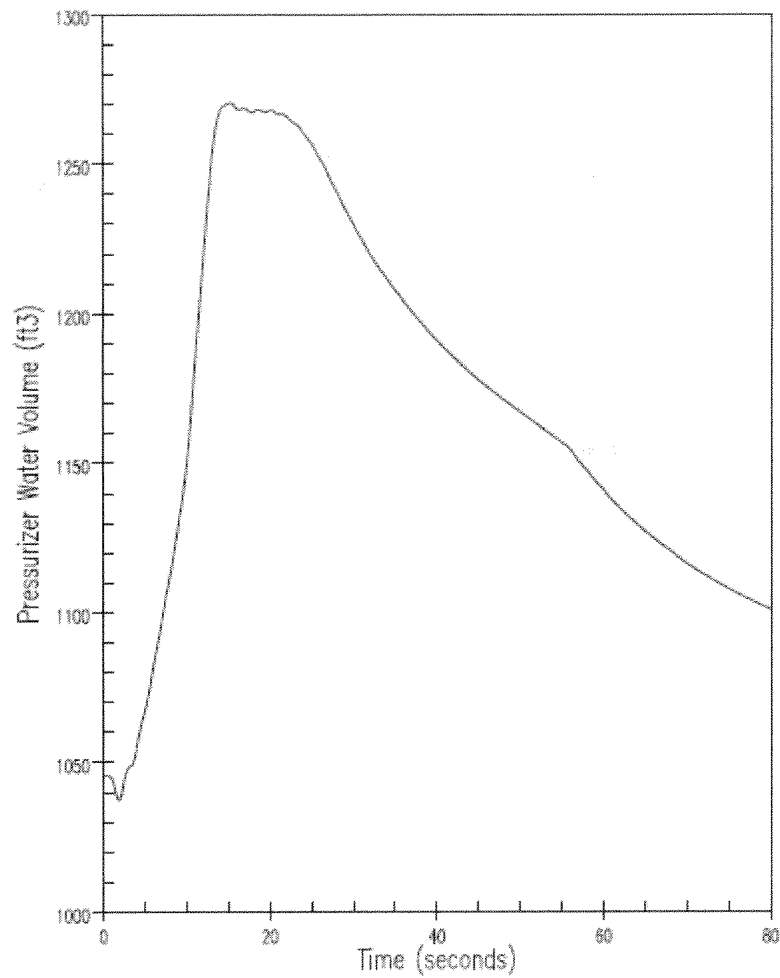


### INDIAN POINT UNIT No. 3

PRESSURIZER PRESSURE TRANSIENT FOR  
LOSS OF EXTERNAL LOAD MINIMUM  
REACTIVITY FEEDBACK, WITHOUT PRESSURE  
CONTROL

UFSAR FIGURE 14.1-73

REV. No. 03



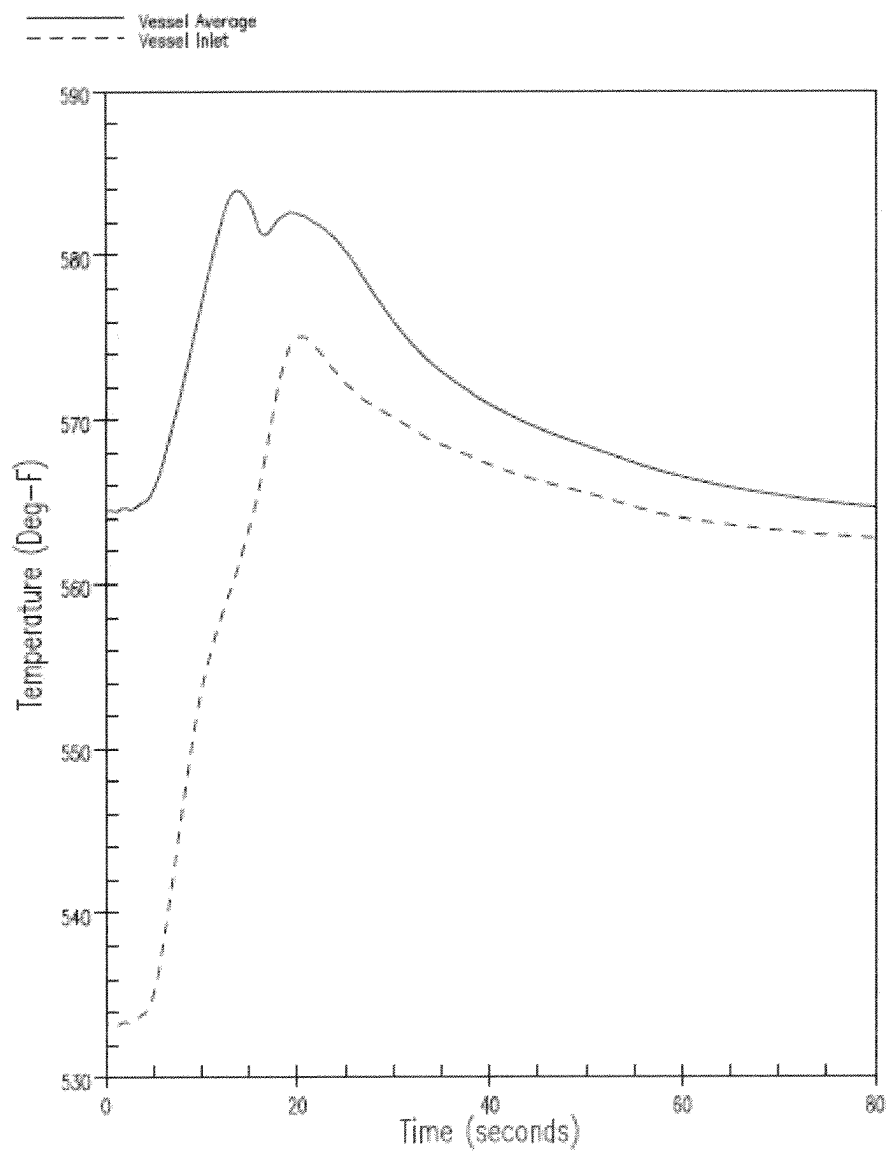
### INDIAN POINT UNIT No. 3

PRESSURIZER WATER VOLUME TRANSIENT FOR  
LOSS OF EXTERNAL LOAD, MINIMUM  
REACTIVITY FEEDBACK, WITHOUT PRESSURE  
CONTROL

UFSAR FIGURE 14.1-74

REV. No. 03



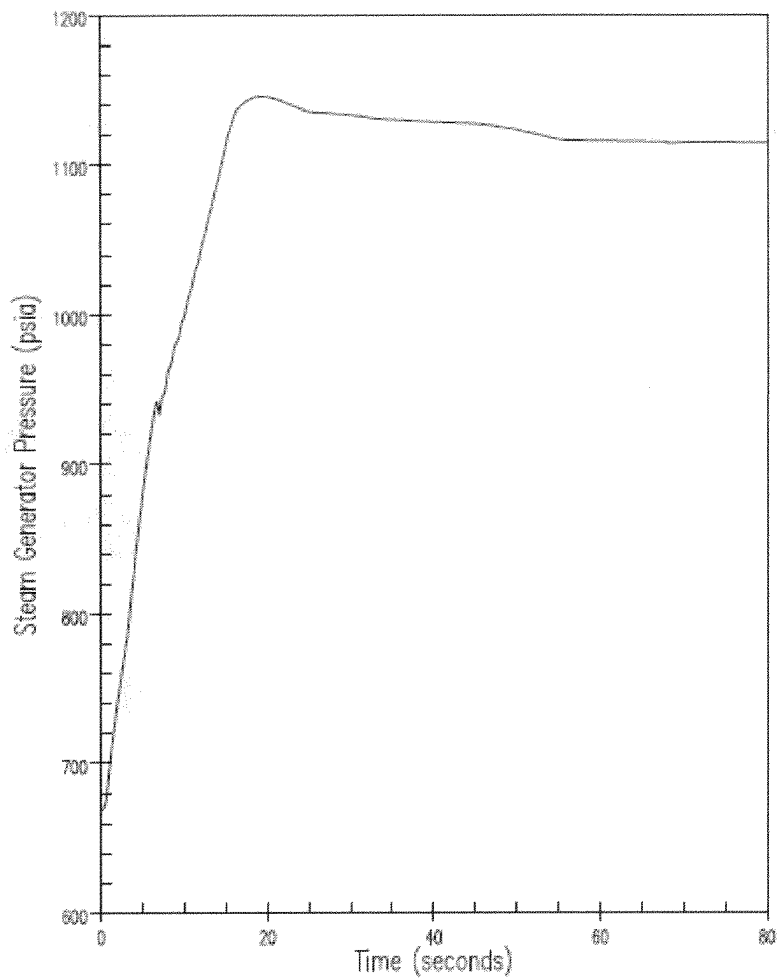


### INDIAN POINT UNIT No. 3

VESSEL AVERAGE & VESSEL INLET TEMPERATURE  
TRANSIENT FOR LOSS OF EXTERNAL LOAD, MINIMUM  
REACTIVITY FEEDBACK, WITHOUT PRESSURE  
CONTROL

UFSAR FIGURE 14.1-75

REV. No. 03

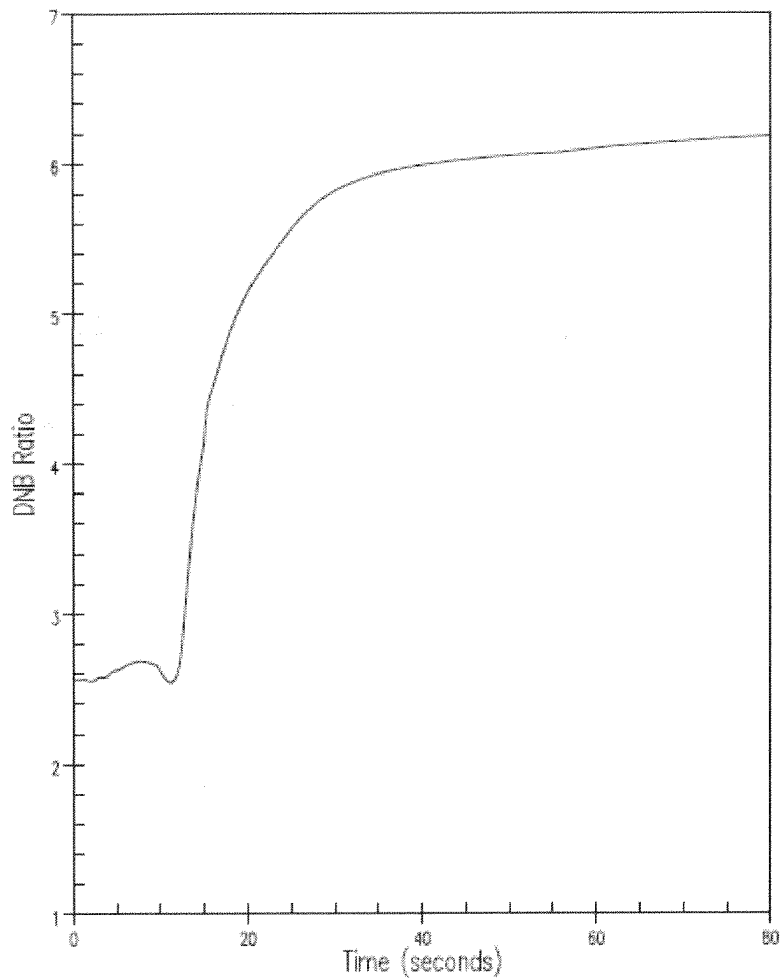


### INDIAN POINT UNIT No. 3

STEAM GENERATOR PRESSURE TRANSIENT  
FOR LOSS OF EXTERNAL LOAD, MINIMUM  
REACTIVITY FEEDBACK, WITHOUT PRESSURE  
CONTROL

UFSAR FIGURE 14.1-76

REV. No. 03

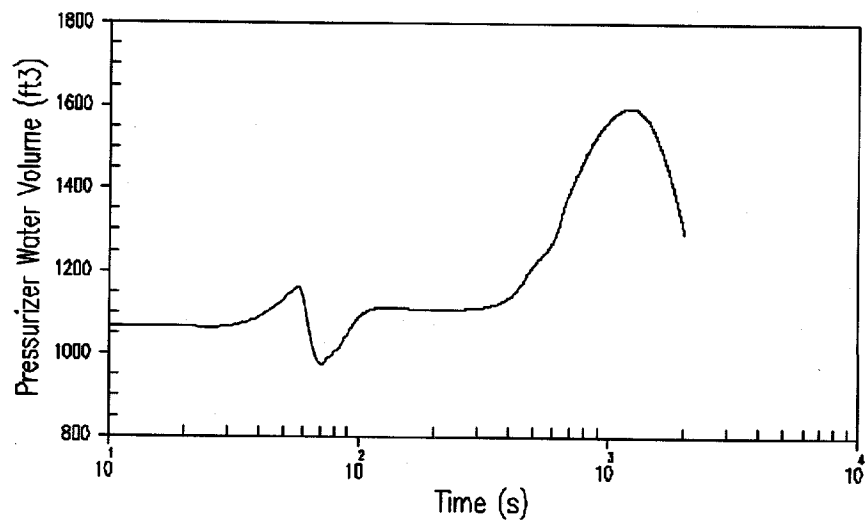
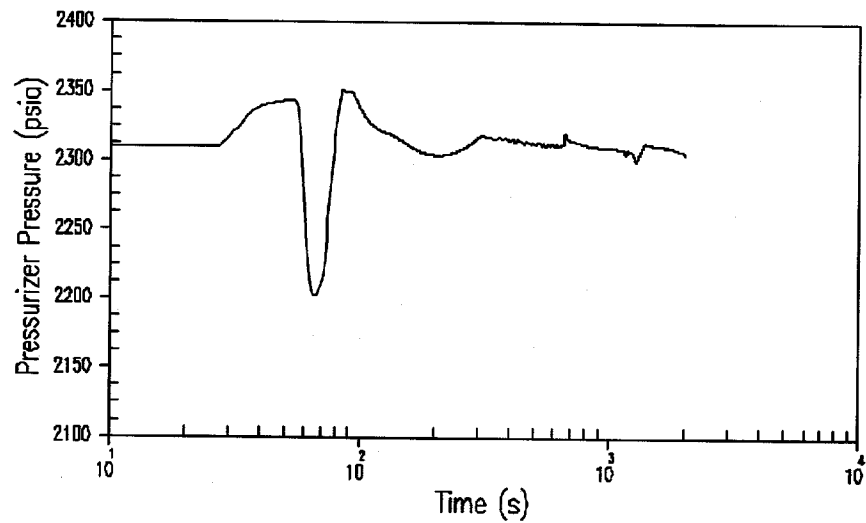


### INDIAN POINT UNIT No. 3

DNB RATIO TRANSIENT FOR LOSS OF  
EXTERNAL LOAD, MINIMUM REACTIVITY  
FEEDBACK, WITHOUT PRESSURE CONTROL

UFSAR FIGURE 14.1-77

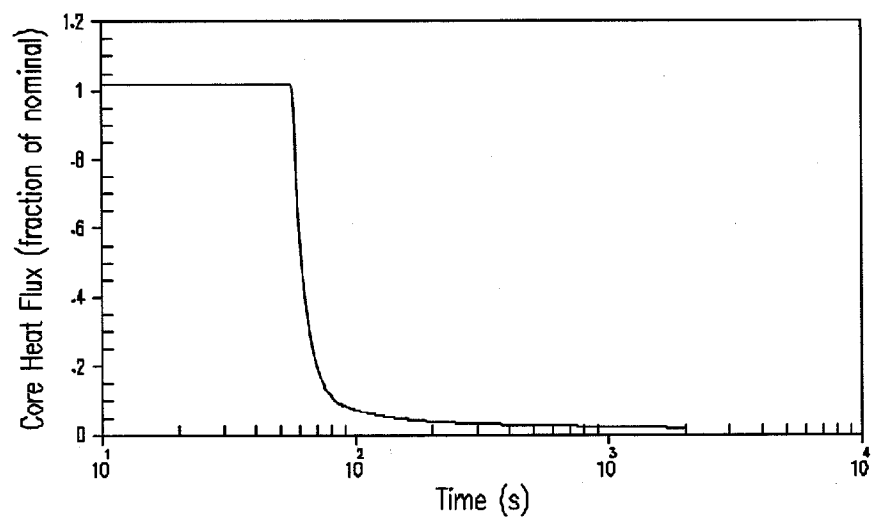
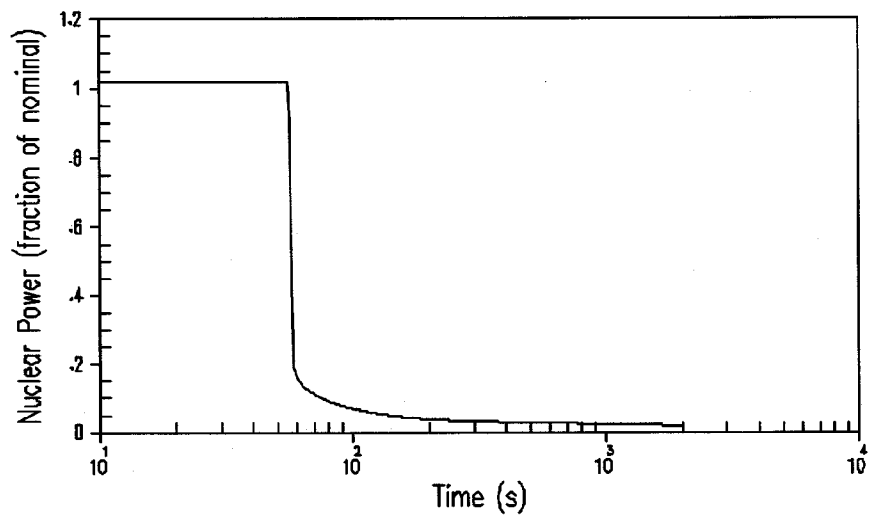
REV. No. 03



### INDIAN POINT UNIT No. 3

LOSS OF NORMAL FEEDWATER  
OFFSITE POWER AVAILABLE  
PRESSURIZER PRESSURE AND PRESSURIZER  
WATER VOLUME

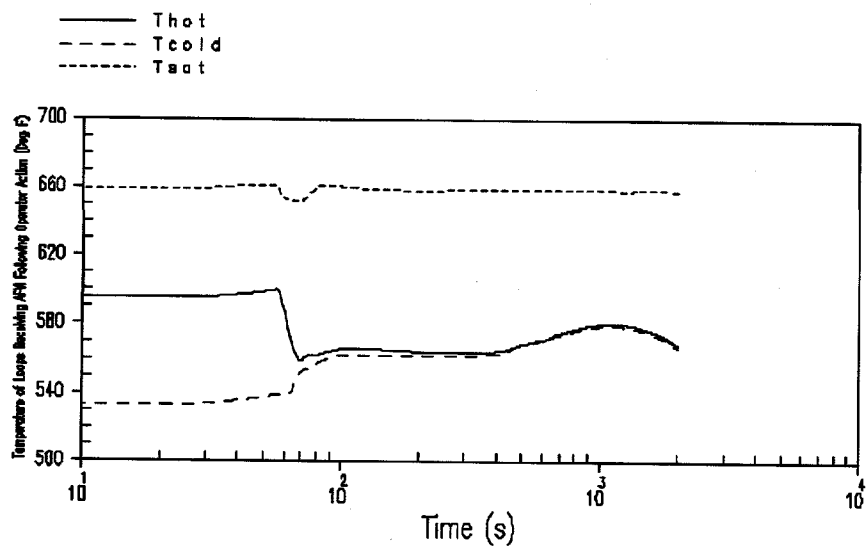
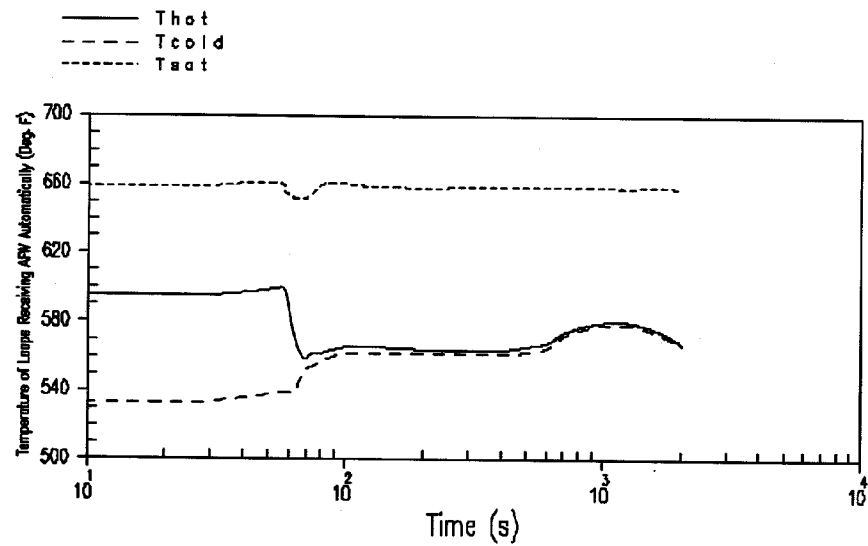
UFSAR FIGURE 14.1-90 | REV. No. 01



### INDIAN POINT UNIT No. 3

LOSS OF NORMAL FEEDWATER  
OFFSITE POWER AVAILABLE  
NUCLEAR POWER AND CORE HEAT FLUX

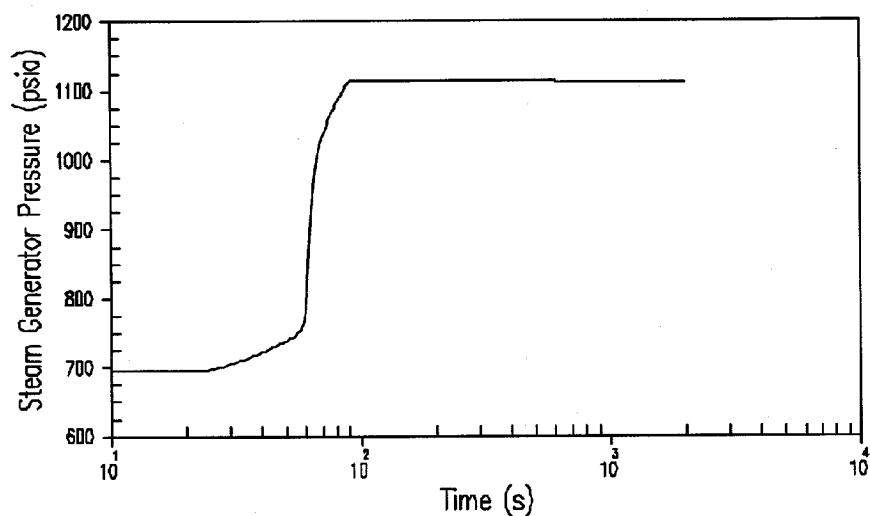
UFSAR FIGURE 14.1-91 | REV. No. 01



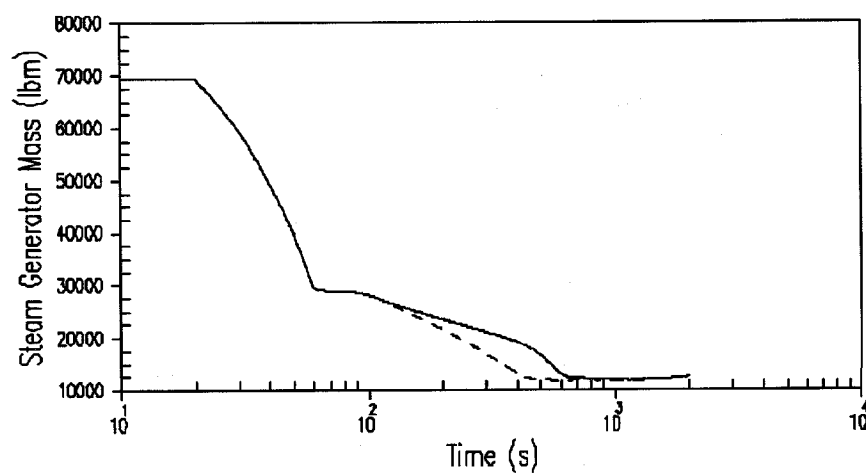
### INDIAN POINT UNIT No. 3

LOSS OF NORMAL FEEDWATER  
 OFFSITE POWER AVAILABLE  
 AUTOMATIC AFW LOOP TEMPERATURES AND  
 MANUAL AFW LOOP TEMPERATURES

UFSAR FIGURE 14.1-92 | REV. No. 01



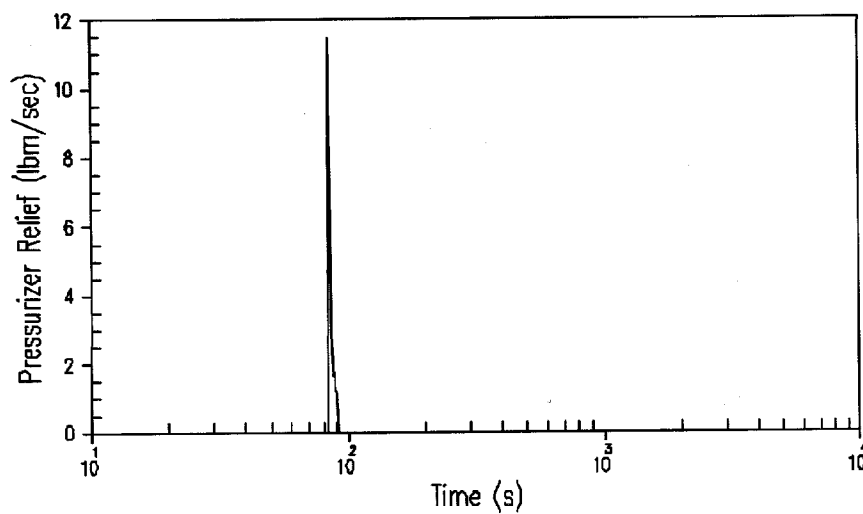
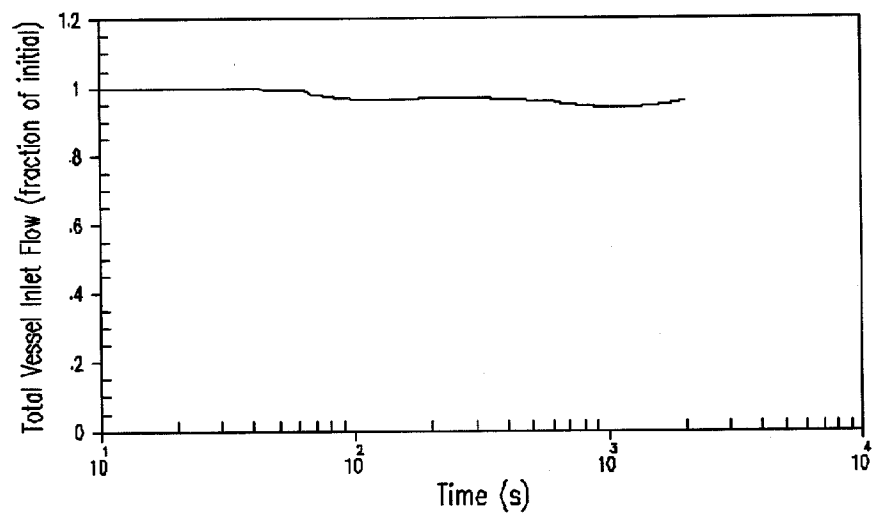
— SG Receiving AFW Flow Automatically  
 --- SG Receiving AFW Flow Following Operator Action



### INDIAN POINT UNIT No. 3

LOSS OF NORMAL FEEDWATER  
 OFFSITE POWER AVAILABLE  
 STEAM GENERATOR PRESSURE AND STEAM  
 GENERATOR MASS

UFSAR FIGURE 14.1-93 | REV. No. 01

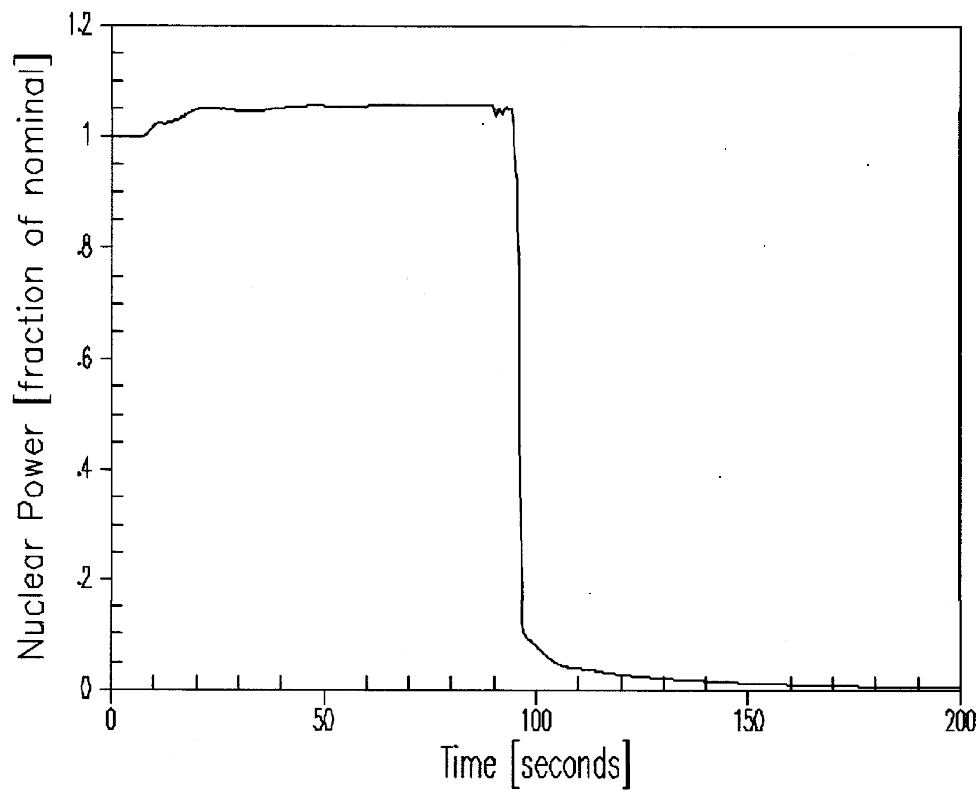


### INDIAN POINT UNIT No. 3

LOSS OF NORMAL FEEDWATER  
OFFSITE POWER AVAILABLE  
TOTAL VESSEL INLET FLOW AND PRESSURIZER  
RELIEF

UFSAR FIGURE 14.1-94 | REV. No. 01

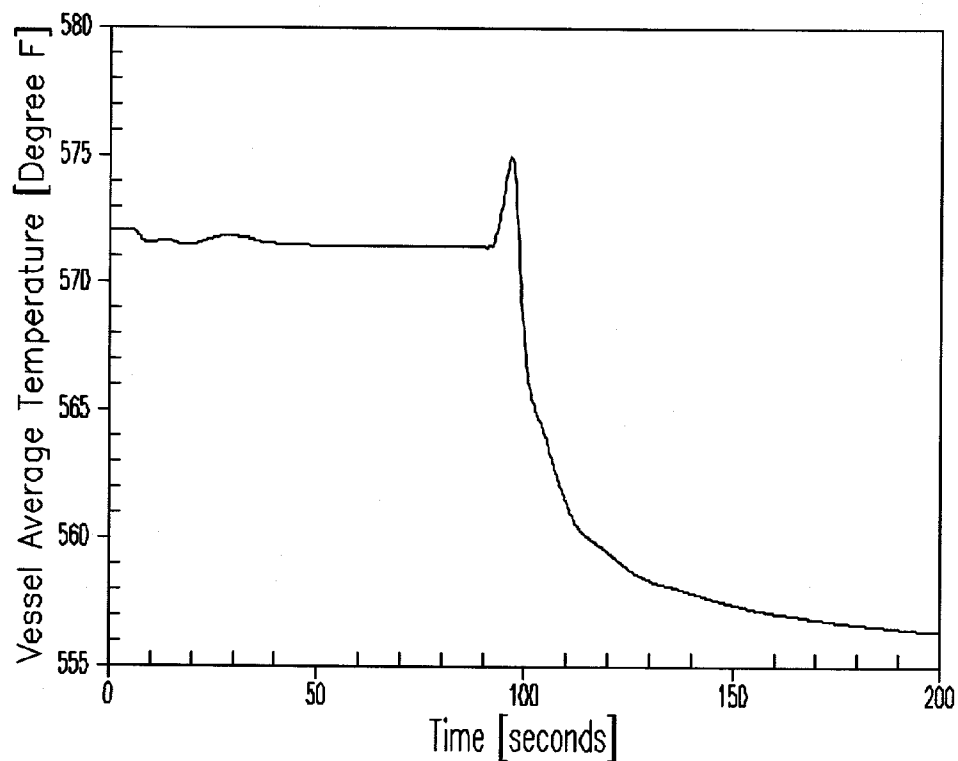




### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH AUTOMATIC ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
NUCLEAR POWER VERSUS TIME

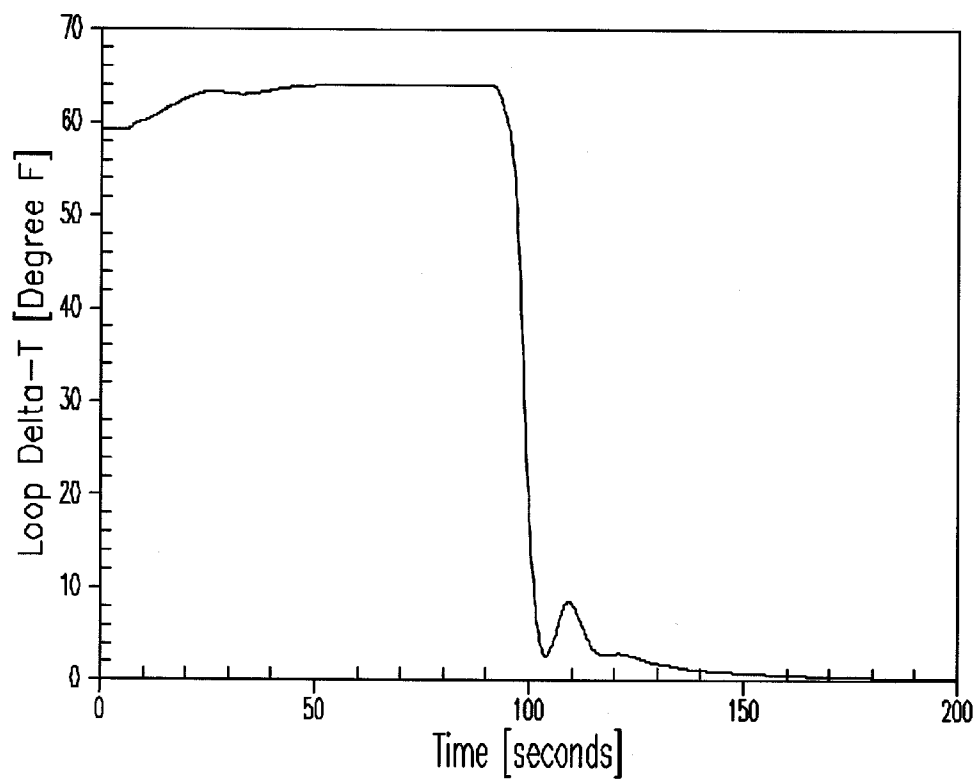
UFSAR FIGURE 14.1-95 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH AUTOMATIC ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
REACTOR VESSEL AVERAGE TEMPERATURE  
VERSUS TIME

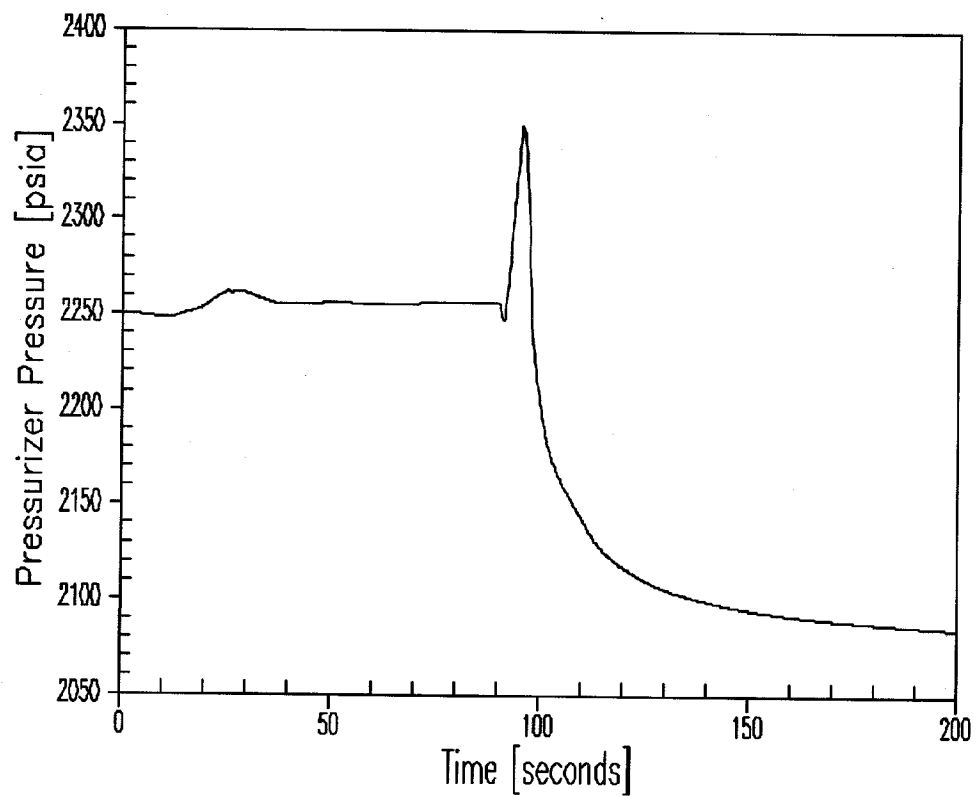
UFSAR FIGURE 14.1-96 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH AUTOMATIC ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
AFFECTED LOOP DELTA-T VERSUS TIME

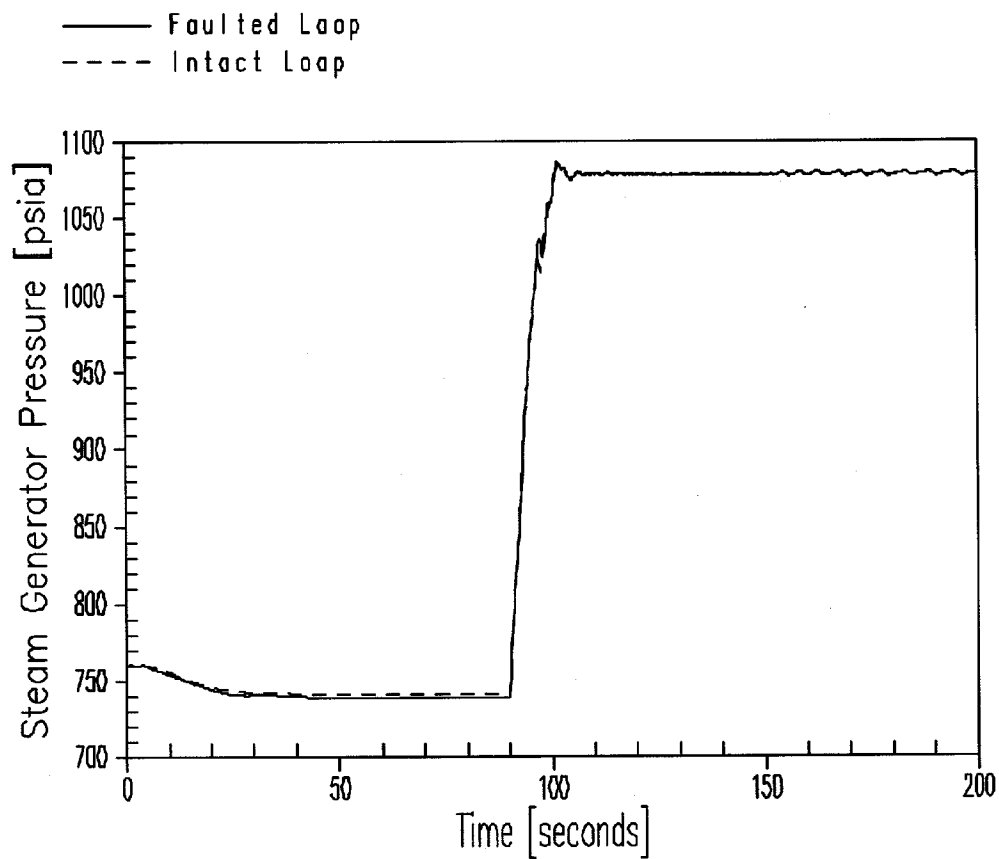
UFSAR FIGURE 14.1-97 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH AUTOMATIC ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
PRESSURIZER PRESSURE VERSUS TIME

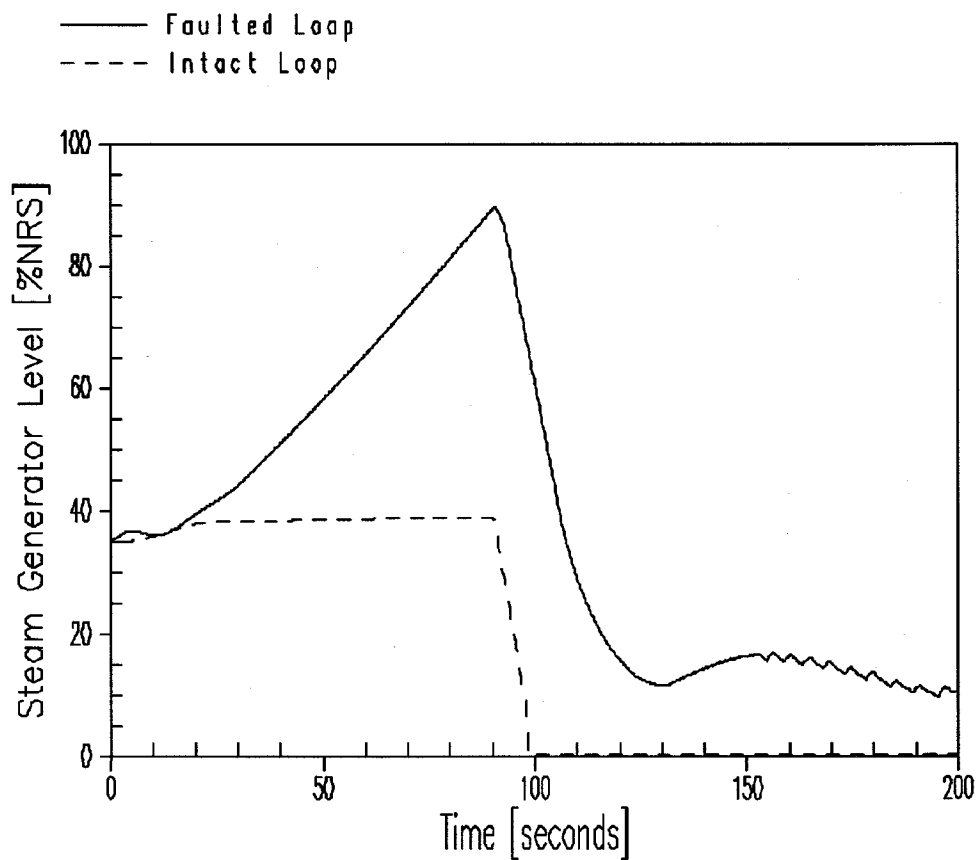
UFSAR FIGURE 14.1-98 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH AUTOMATIC ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
STEAM GENERATOR PRESSURE VERSUS TIME

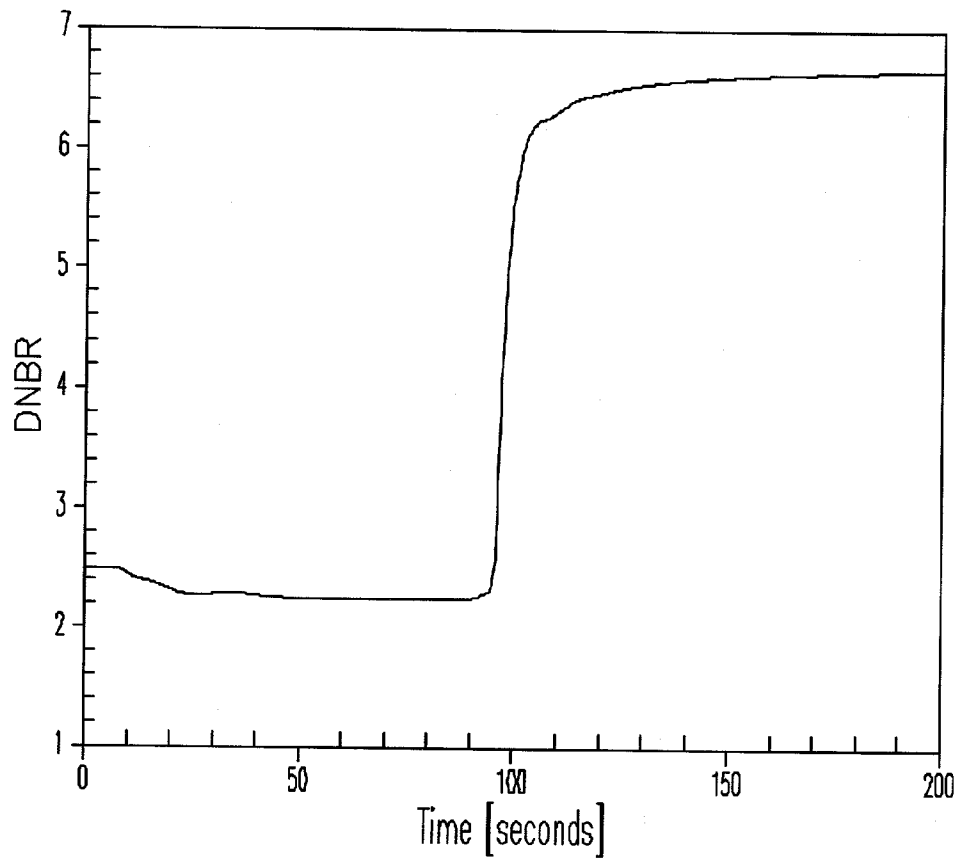
UFSAR FIGURE 14.1-99 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH AUTOMATIC ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
STEAM GENERATOR LEVEL VERSUS TIME

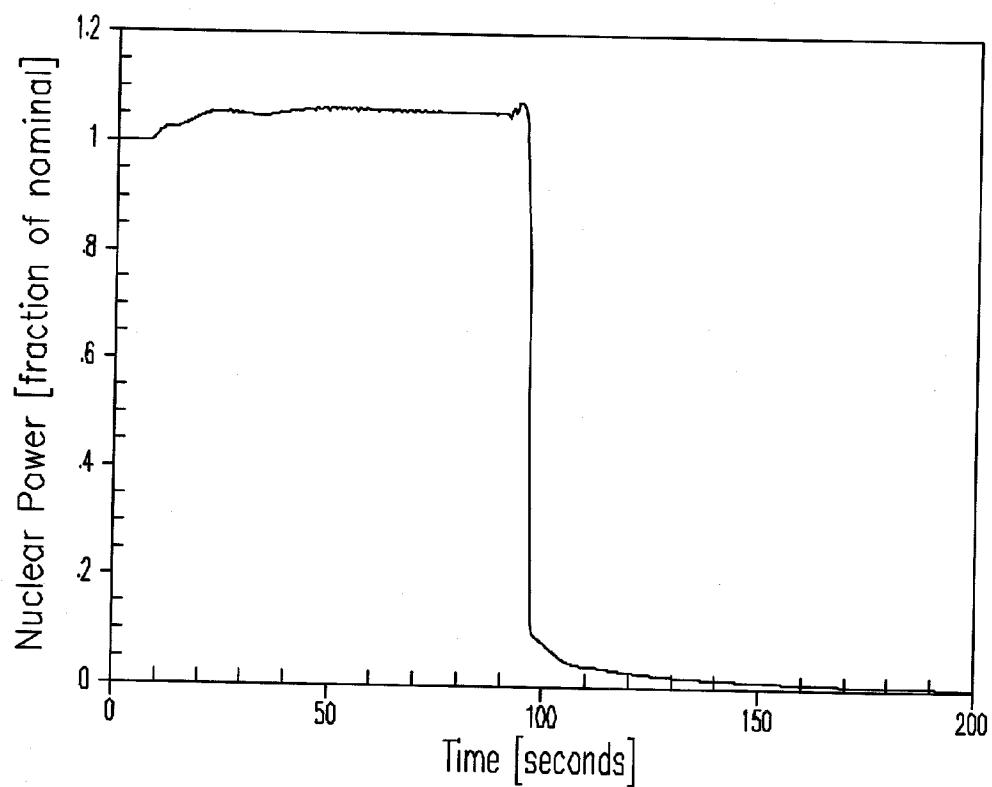
UFSAR FIGURE 14.1-100 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH AUTOMATIC ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
DNBR VERSUS TIME**

**UFSAR FIGURE 14.1-101 | REV. No. 01**

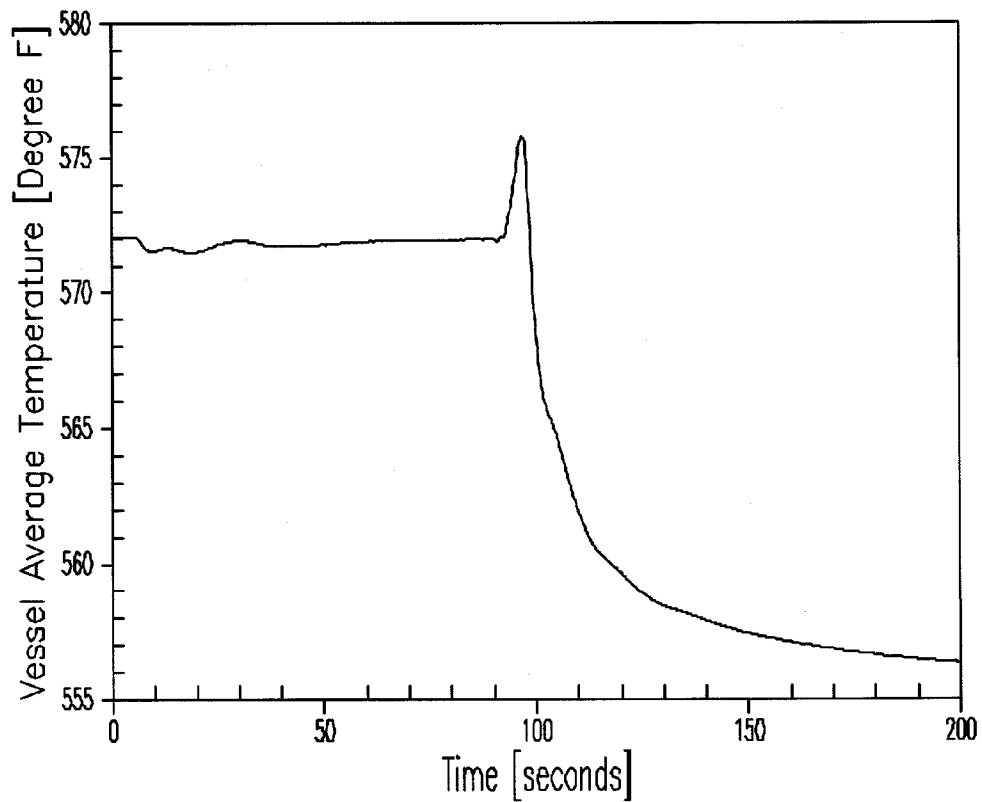


### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH MANUAL ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
NUCLEAR POWER VERSUS TIME

UFSAR FIGURE 14.1-102 | REV. No. 01

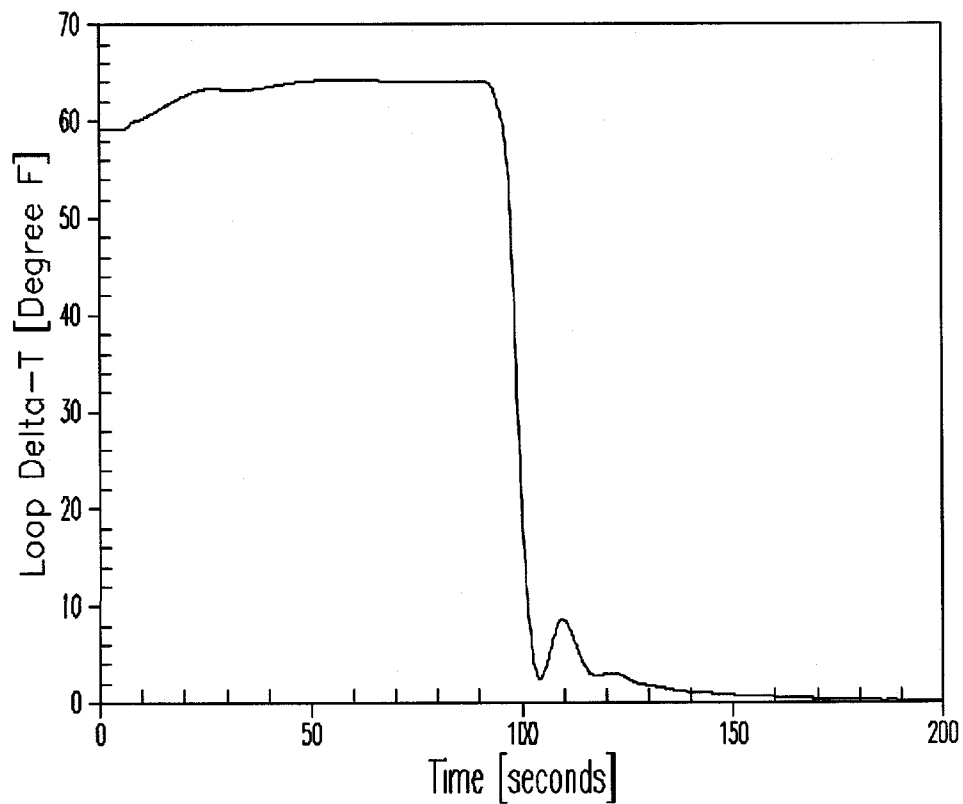




### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH MANUAL ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
REACTOR VESSEL AVERAGE TEMPERATURE  
VERSUS TIME

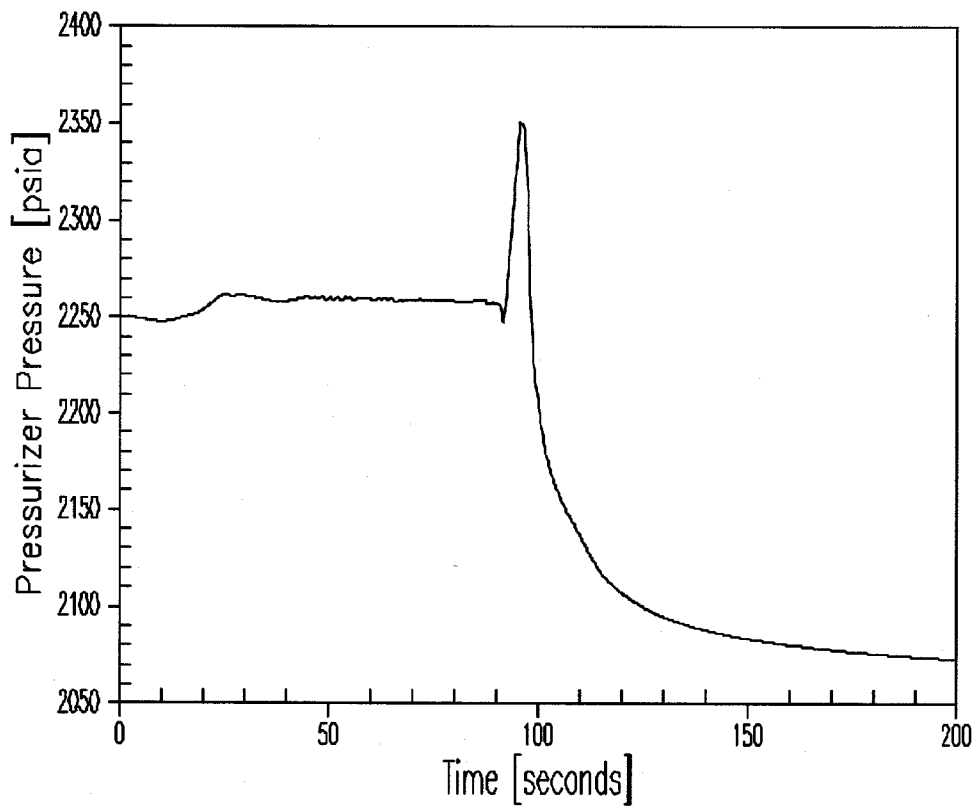
UFSAR FIGURE 14.1-103 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH MANUAL ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
AFFECTED LOOP DELTA-T VERSUS TIME

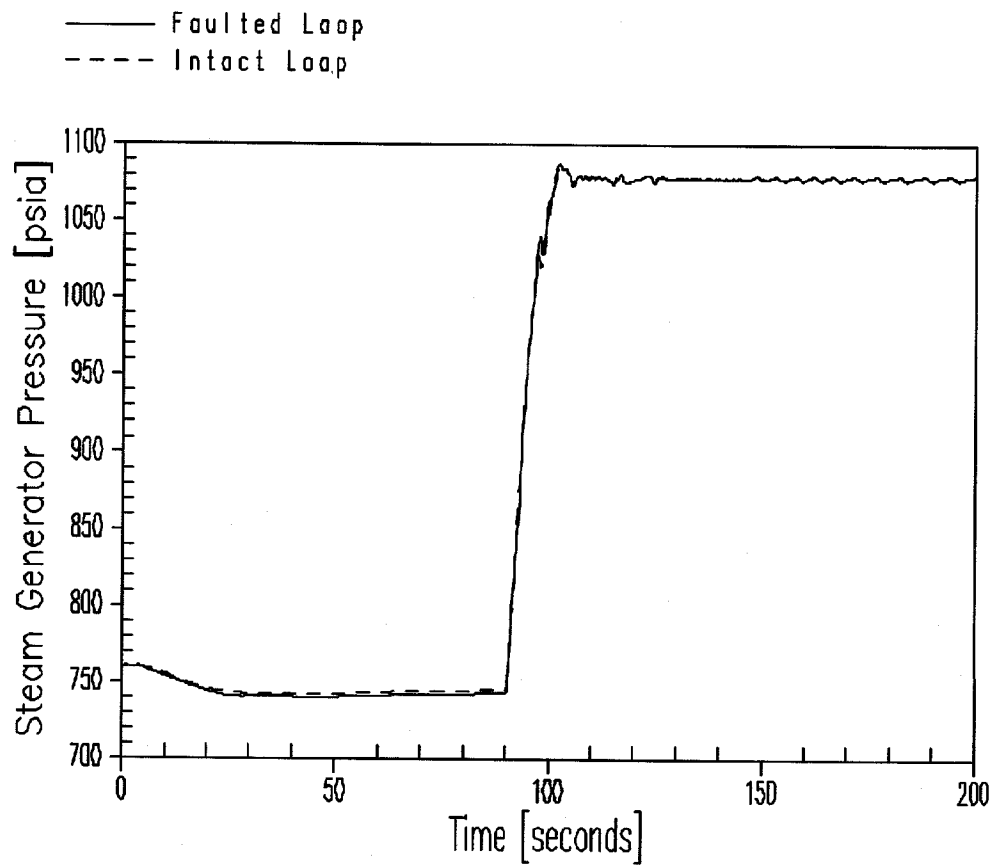
UFSAR FIGURE 14.1-104 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH MANUAL ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
PRESSURIZER PRESSURE VERSUS TIME

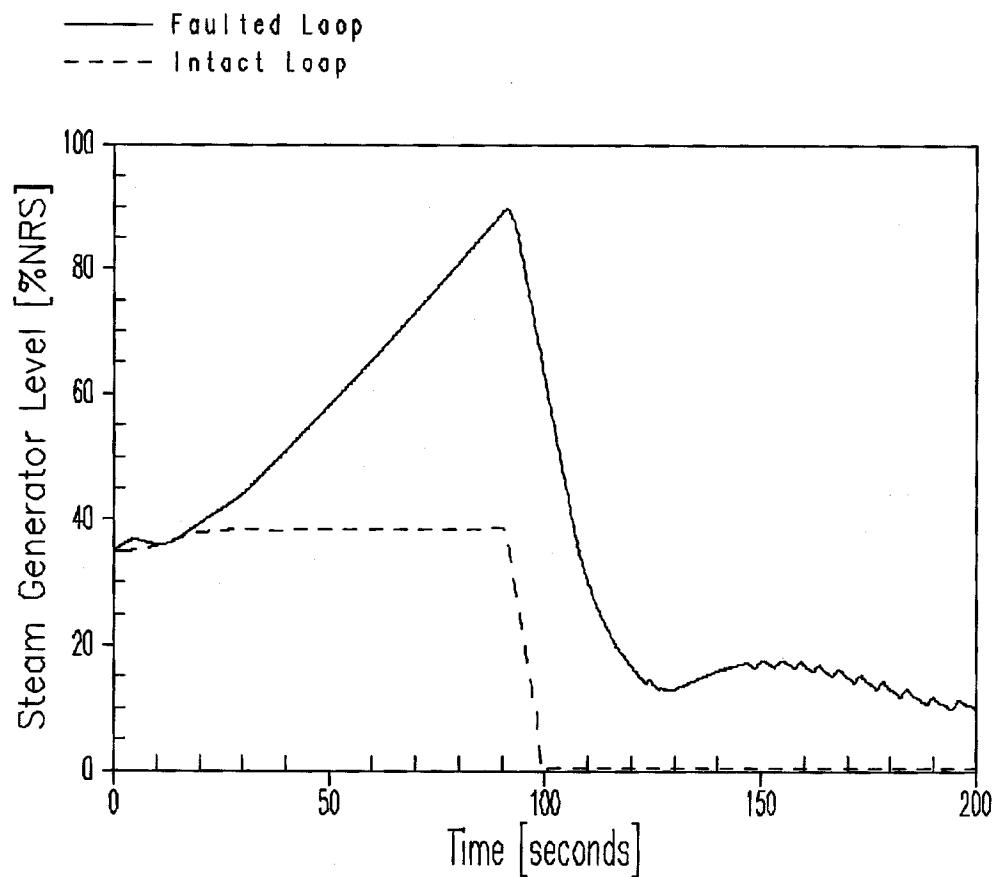
UFSAR FIGURE 14.1-105 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH MANUAL ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
STEAM GENERATOR PRESSURE VERSUS TIME

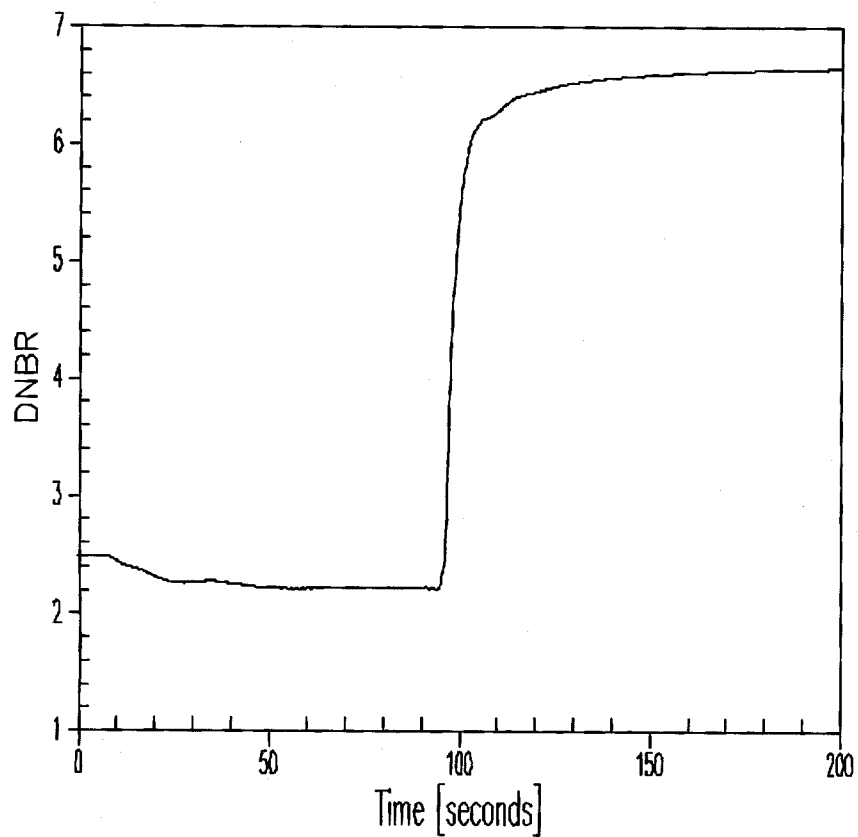
UFSAR FIGURE 14.1-106 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH MANUAL ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
STEAM GENERATOR LEVEL VERSUS TIME

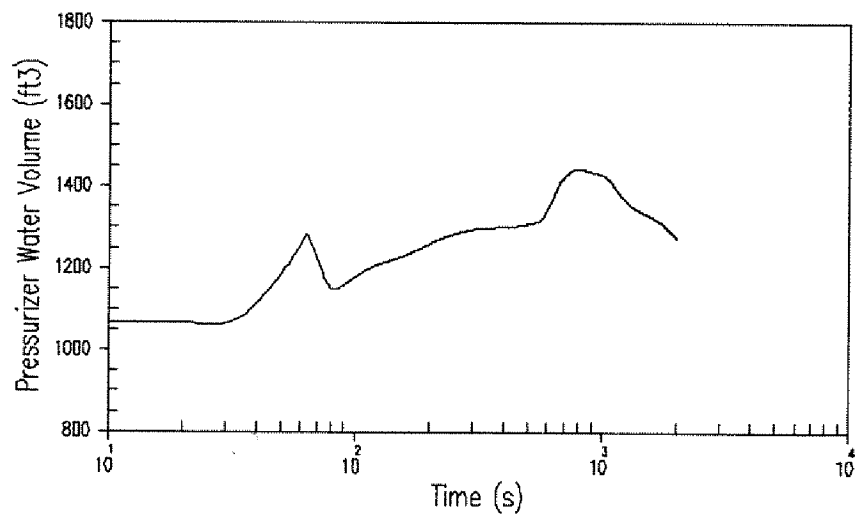
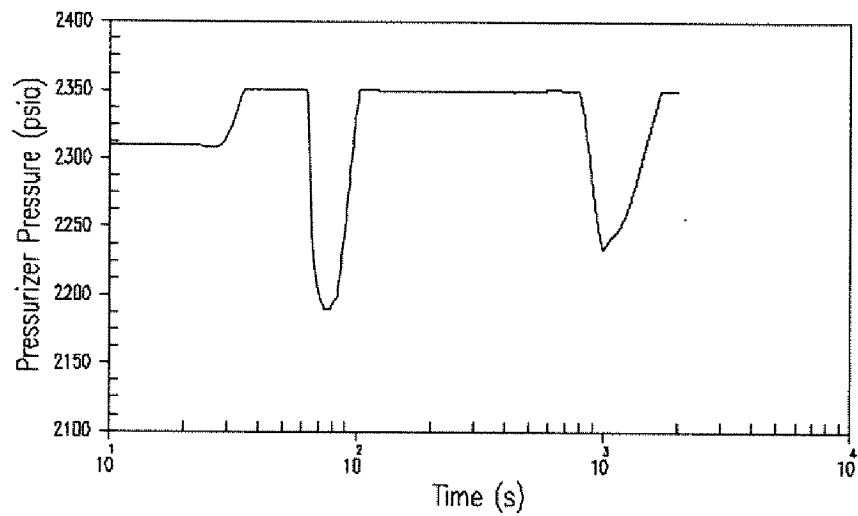
UFSAR FIGURE 14.1-107 | REV. No. 01



### INDIAN POINT UNIT No. 3

FEEDWATER SYSTEM MALFUNCTION FROM HOT  
FULL POWER WITH MANUAL ROD CONTROL  
UNIFORM STEAM GENERATOR TUBE PLUGGING  
DNBR VERSUS TIME

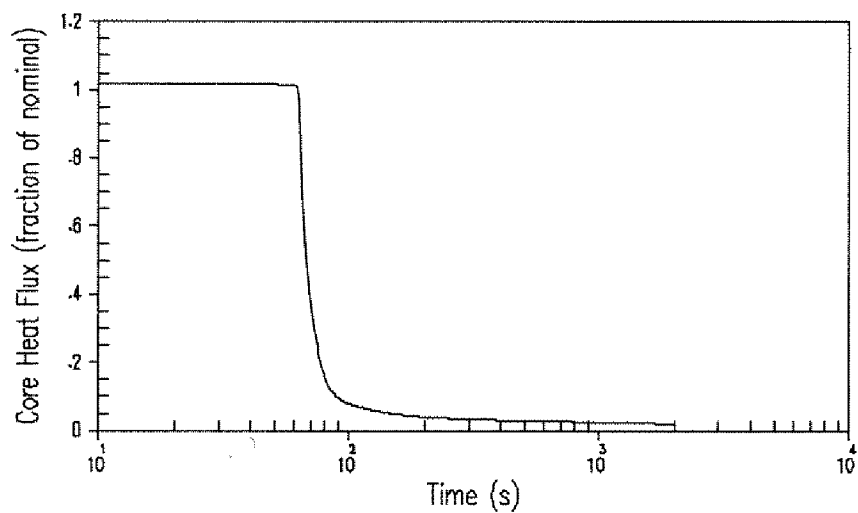
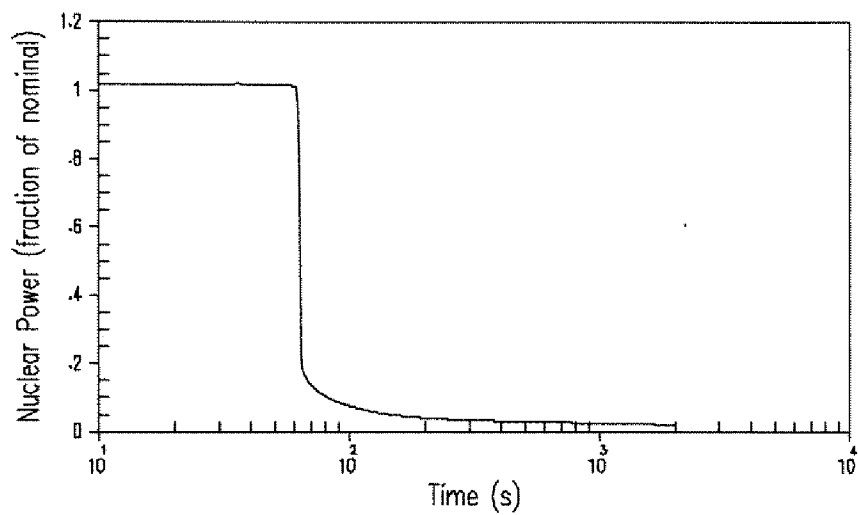
UFSAR FIGURE 14.1-108 | REV. No. 01



### INDIAN POINT UNIT No. 3

LOSS OF ALL POWER TO THE  
STATION AUXILIARIES  
PRESSURIZER PRESSURE AND PRESSURIZER  
WATER VOLUME

UFSAR FIGURE 14.1-143 | REV. No. 01

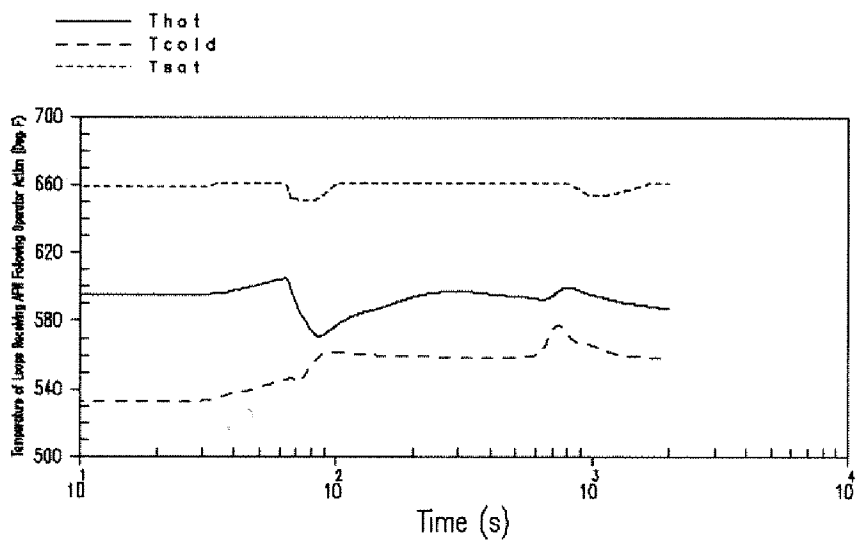
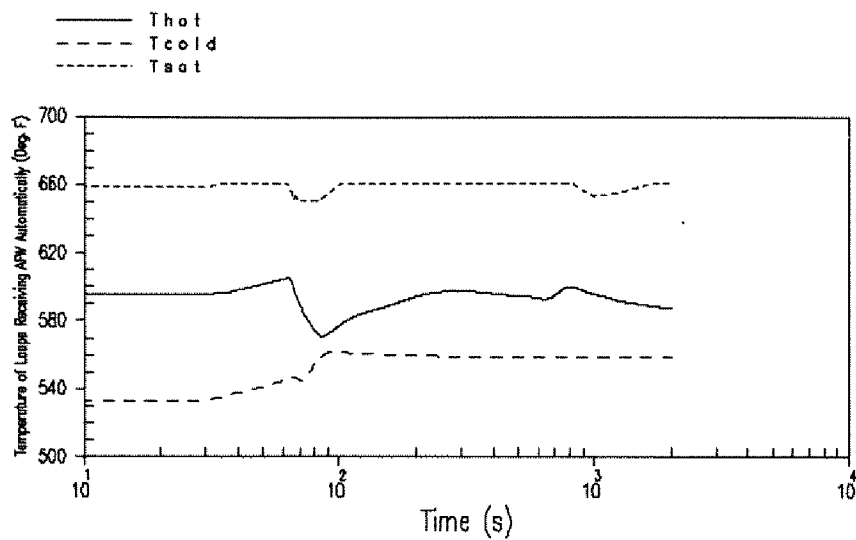


### INDIAN POINT UNIT No. 3

LOSS OF ALL POWER TO THE  
STATION AUXILIARIES  
NUCLEAR POWER AND CORE HEAT FLUX

UFSAR FIGURE 14.1-144 | REV. No. 01

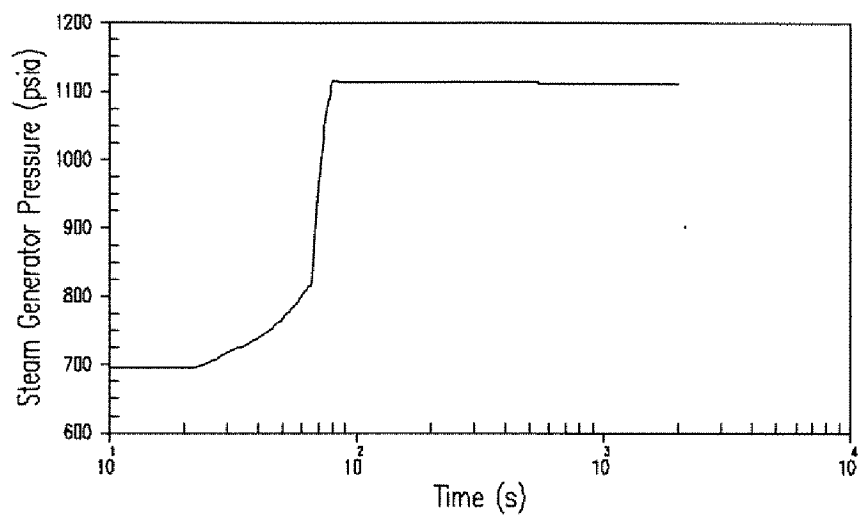




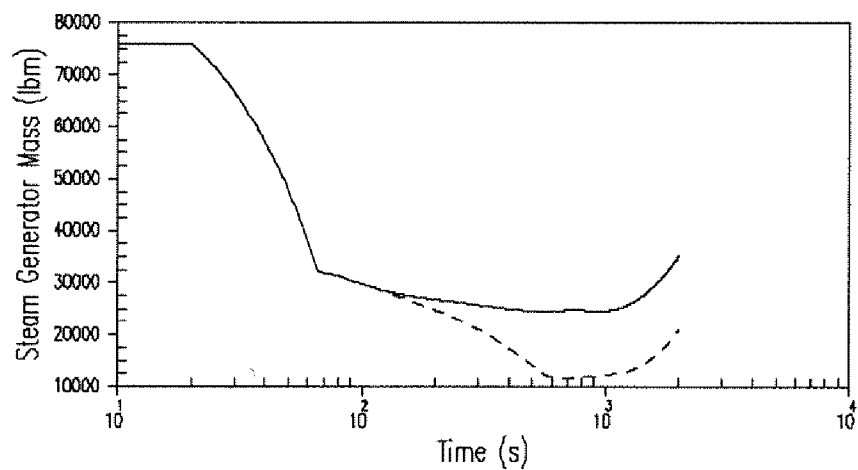
## INDIAN POINT UNIT No. 3

LOSS OF ALL POWER TO THE  
 STATION AUXILIARIES  
 AUTOMATIC AFW LOOP TEMPERATURES AND  
 MANUAL AFW LOOP TEMPERATURES

UFSAR FIGURE 14.1-145 | REV. No. 01



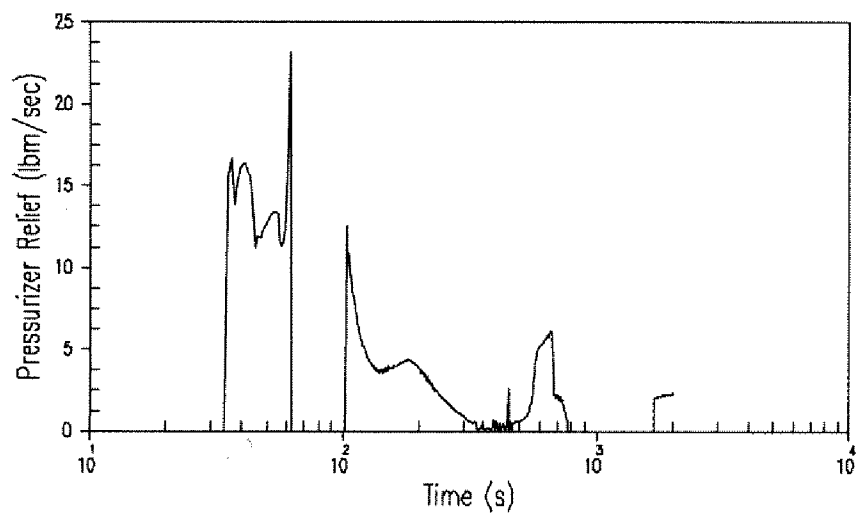
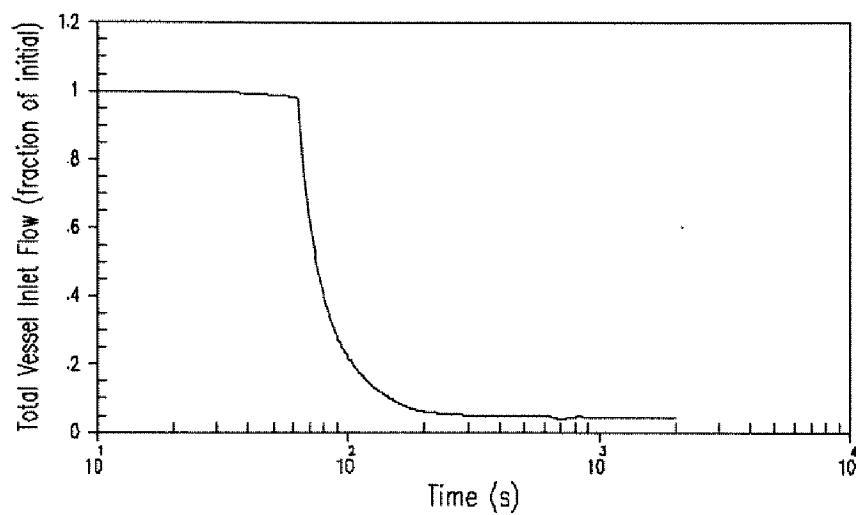
— SG Receiving AFW Flow Automatically  
 - - - SG Receiving AFW Flow Following Operator Action



### INDIAN POINT UNIT No. 3

LOSS OF ALL POWER TO THE  
 STATION AUXILIARIES  
 STEAM GENERATOR PRESSURE AND STEAM  
 GENERATOR MASS

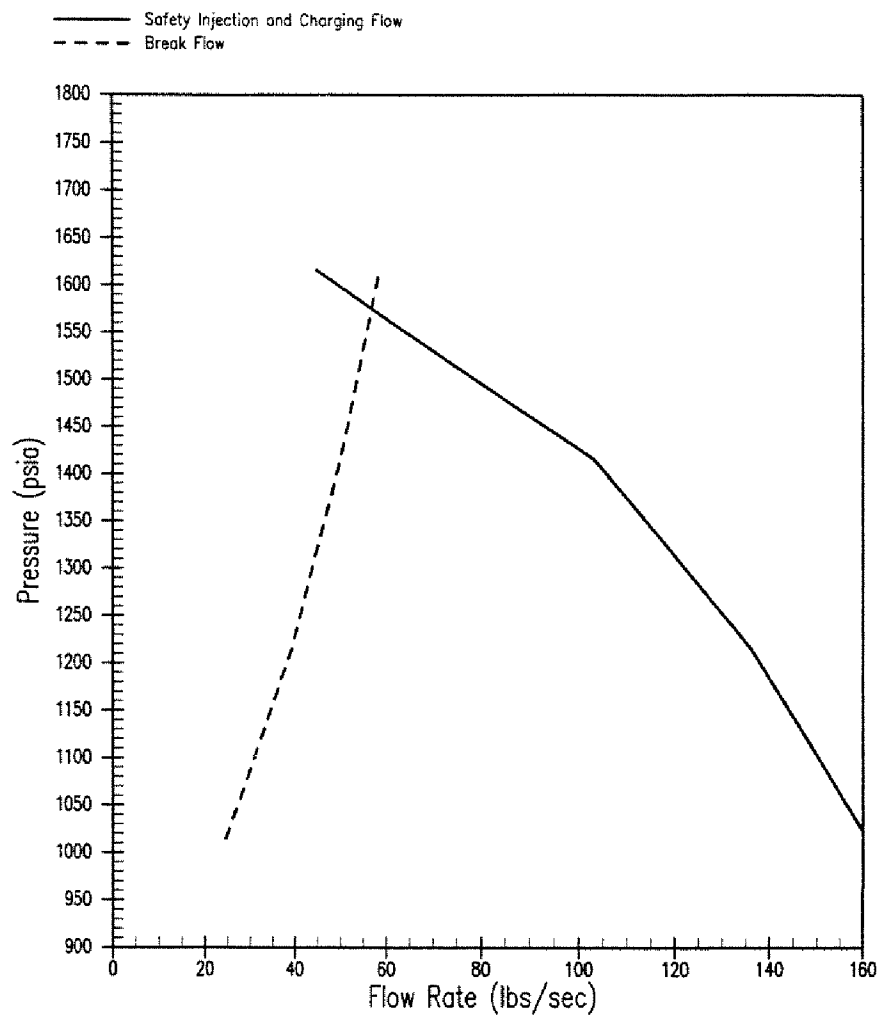
UFSAR FIGURE 14.1-146 | REV. No. 01



### INDIAN POINT UNIT No. 3

LOSS OF ALL POWER TO THE  
STATION AUXILIARIES  
TOTAL VESSEL INLET FLOW AND PRESSURIZER  
RELIEF

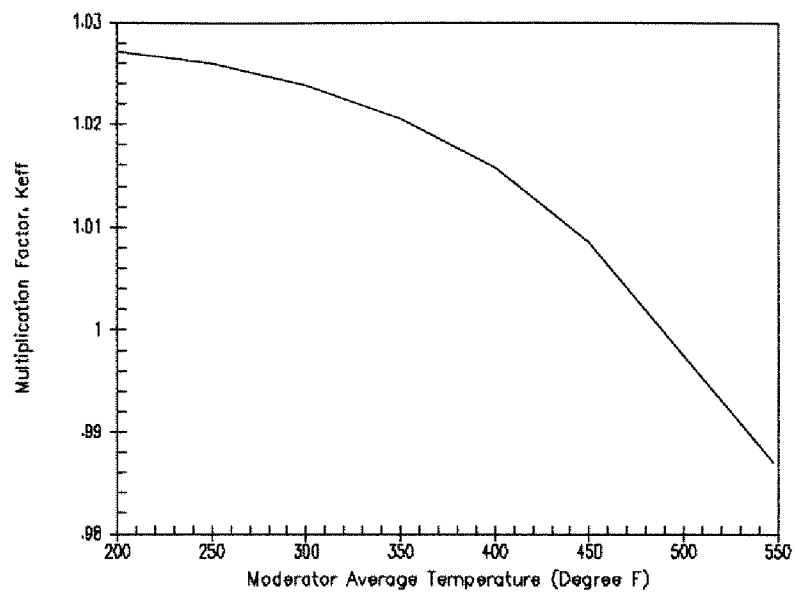
UFSAR FIGURE 14.1-147 | REV. No. 01



### INDIAN POINT UNIT No. 3

**SAFETY INJECTION AND CHARGING FLOW  
AND BREAK FLOW DURING RUPTURE OF  
ONE PUMP COASTING DOWN**

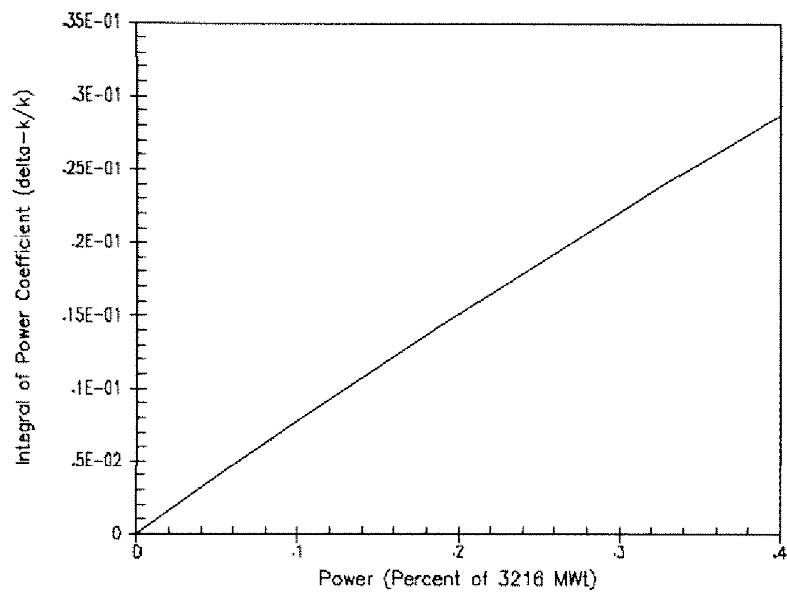
**UFSAR FIGURE 14.2-1 | REV. No. 01**



### INDIAN POINT UNIT No. 3

RUPTURE OF A STEAM PIPE EVENTS  
 VARIATION OF REACTIVITY WITH CORE  
 TEMPERATURE AT 1050 PSIA FOR THE END  
 OF LIFE RODDED CORE WITH ONE RCCA STUCK

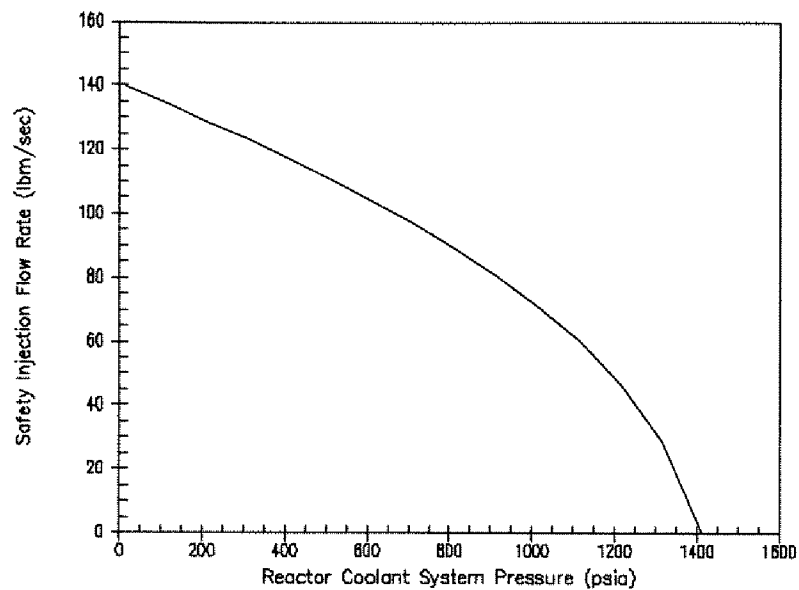
UFSAR FIGURE 14.2-2 | REV. No. 01



### INDIAN POINT UNIT No. 3

RUPTURE OF A STEAM PIPE EVENTS  
VARIATION OF REACTIVITY WITH POWER  
AT CONSTANT MODERATOR AVERAGE  
TEMPERATURE

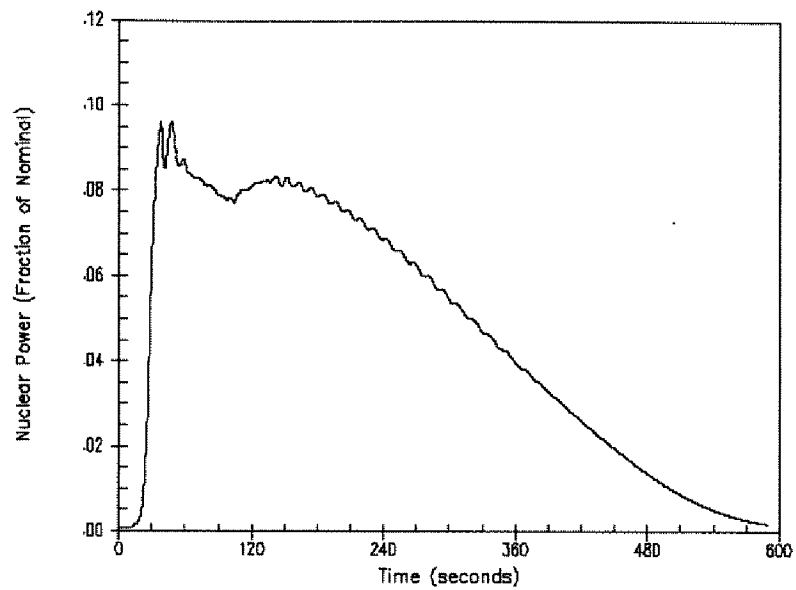
UFSAR FIGURE 14.2-3 | REV. No. 01



### INDIAN POINT UNIT No. 3

RUPTURE OF STEAM PIPE EVENTS  
SAFETY INJECTION FLOW  
VERSUS RCS PRESSURE

UFSAR FIGURE 14.2-4 | REV. No. 01

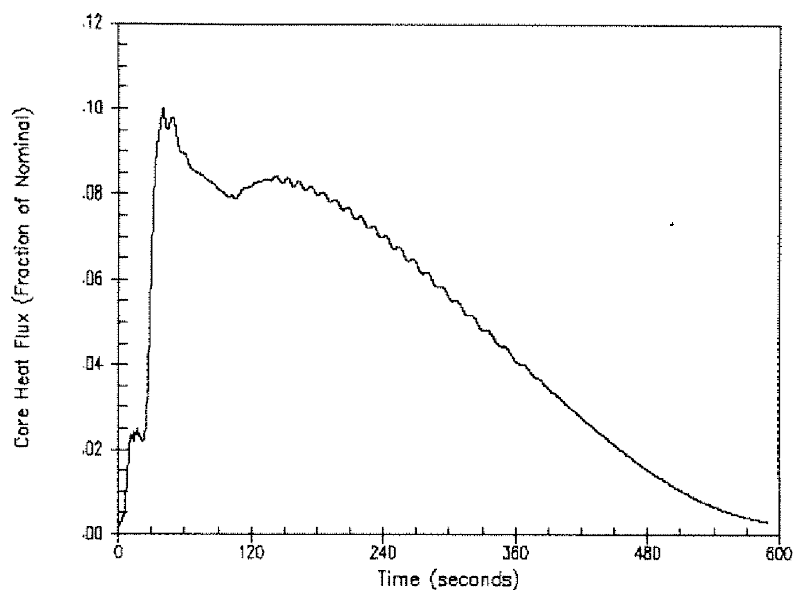


### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
NUCLEAR POWER VERSUS TIME

UFSAR FIGURE 14.2-5 | REV. No. 01

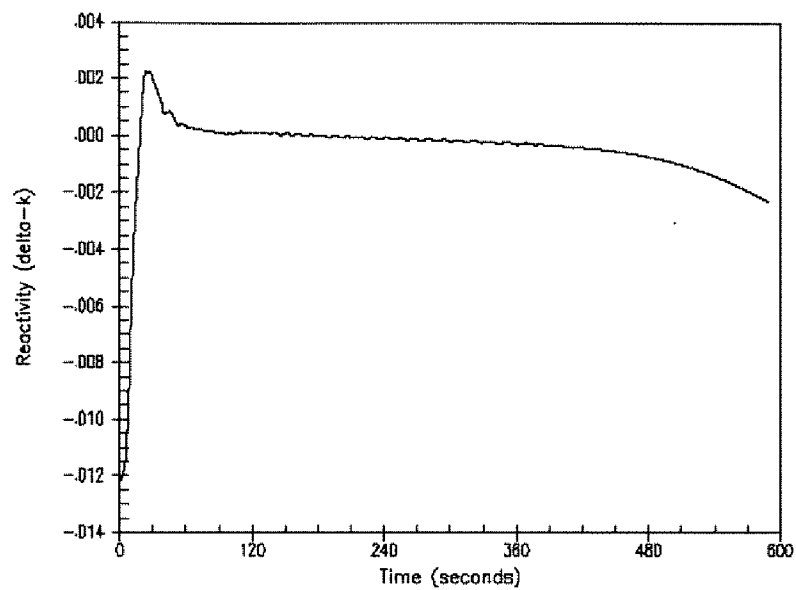




INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
CORE HEAT FLUX VERSUS TIME

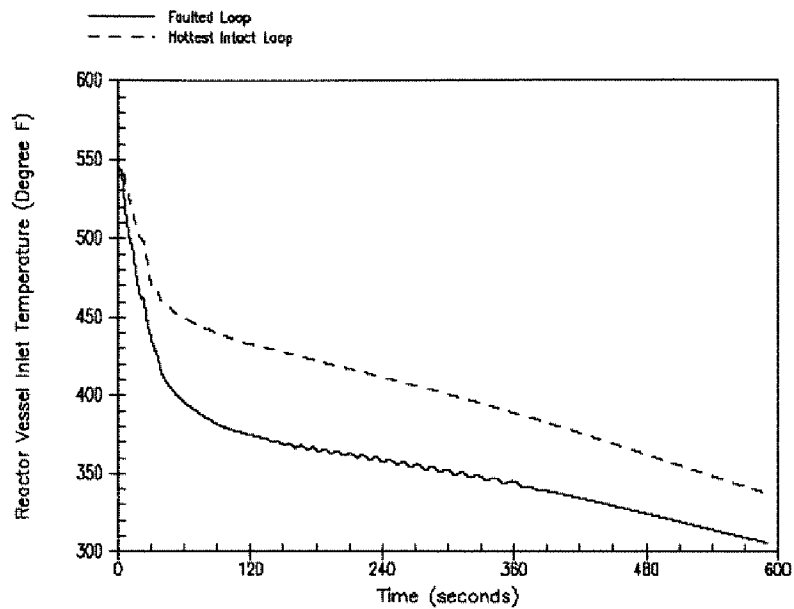
UFSAR FIGURE 14.2-6 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
REACTIVITY VERSUS TIME

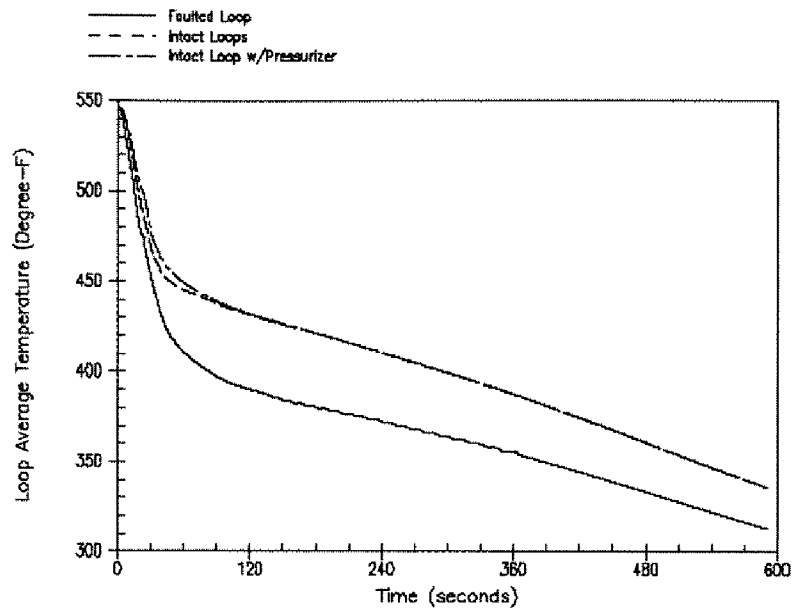
UFSAR FIGURE 14.2-7 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
REACTOR VESSEL INLET TEMPERATURES  
VERSUS TIME

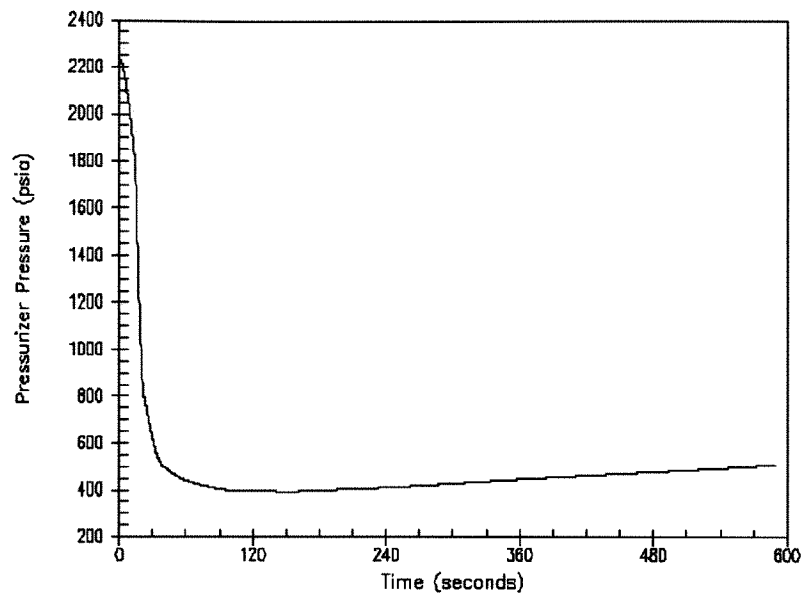
UFSAR FIGURE 14.2-8 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
LOOP AVERAGE TEMPERATURES  
VERSUS TIME

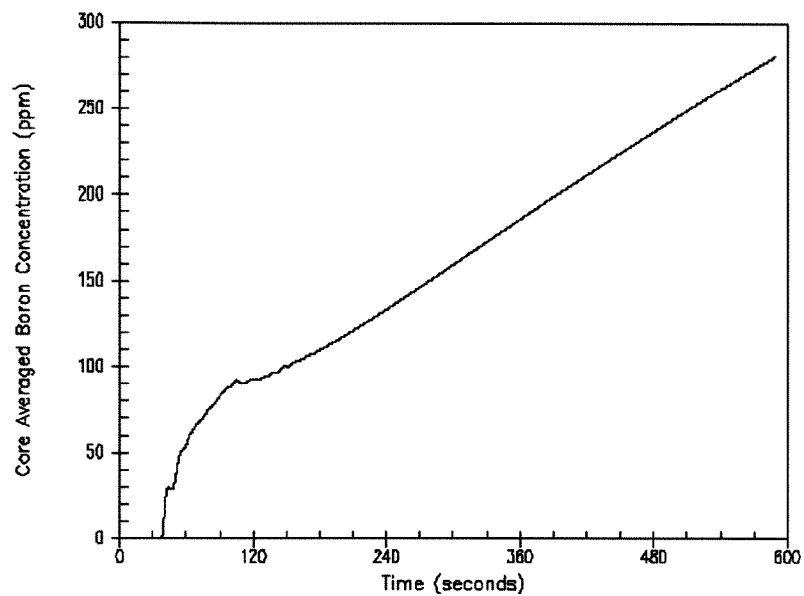
UFSAR FIGURE 14.2-9 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
PRESSURIZER PRESSURE  
VERSUS TIME

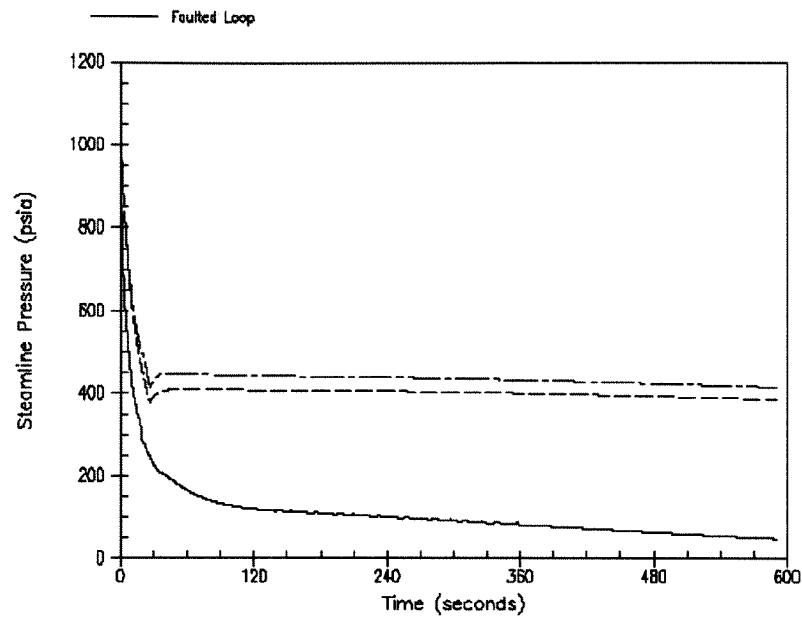
UFSAR FIGURE 14.2-10 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
CORE AVERAGED BORON CONCENTRATION  
VERSUS TIME

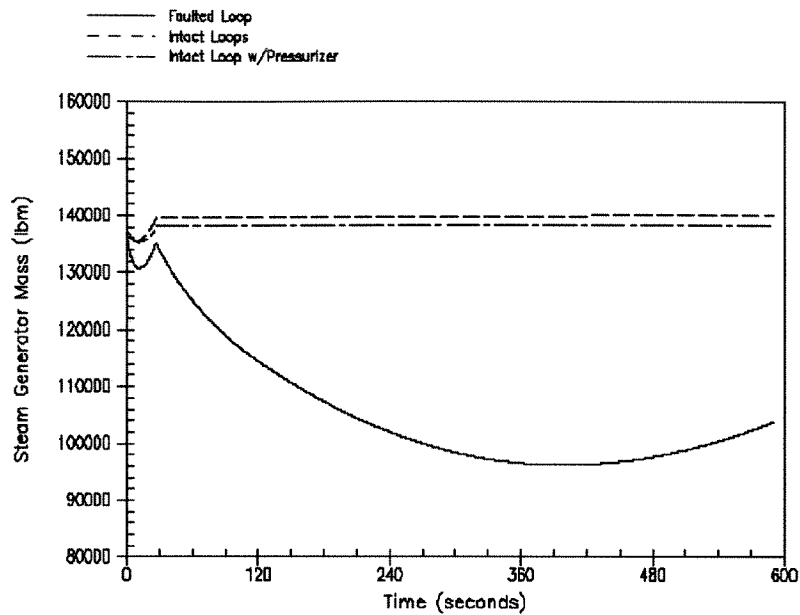
UFSAR FIGURE 14.2-11 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
STEAMLINE PRESSURE  
VERSUS TIME

UFSAR FIGURE 14.2-12 | REV. No. 01

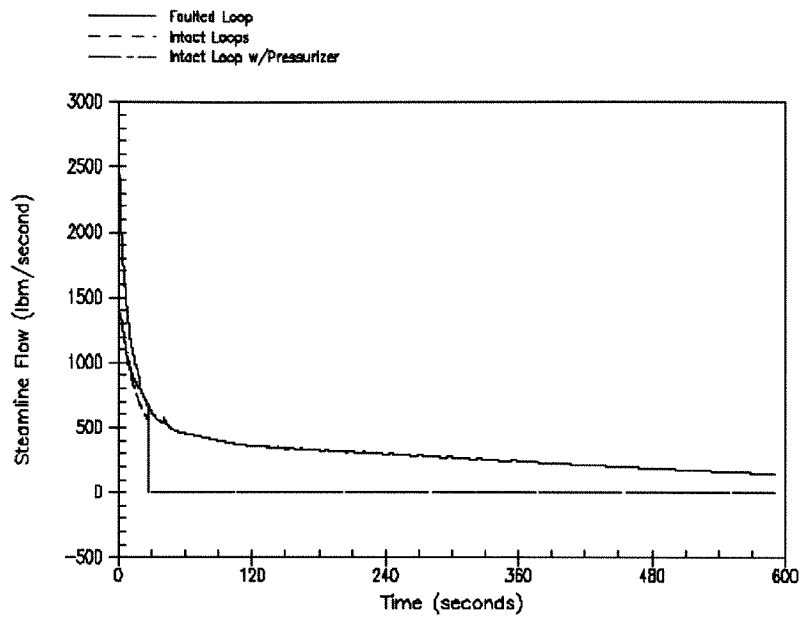


### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
STEAM GENERATOR MASS  
VERSUS TIME

UFSAR FIGURE 14.2-13 | REV. No. 01

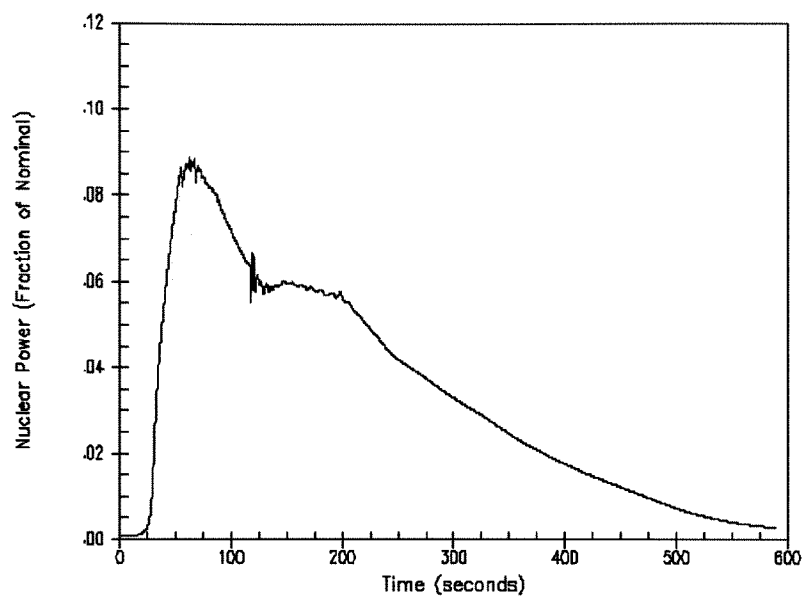




### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH OFFSITE POWER AVAILABLE  
STEAMLINE FLOW  
VERSUS TIME

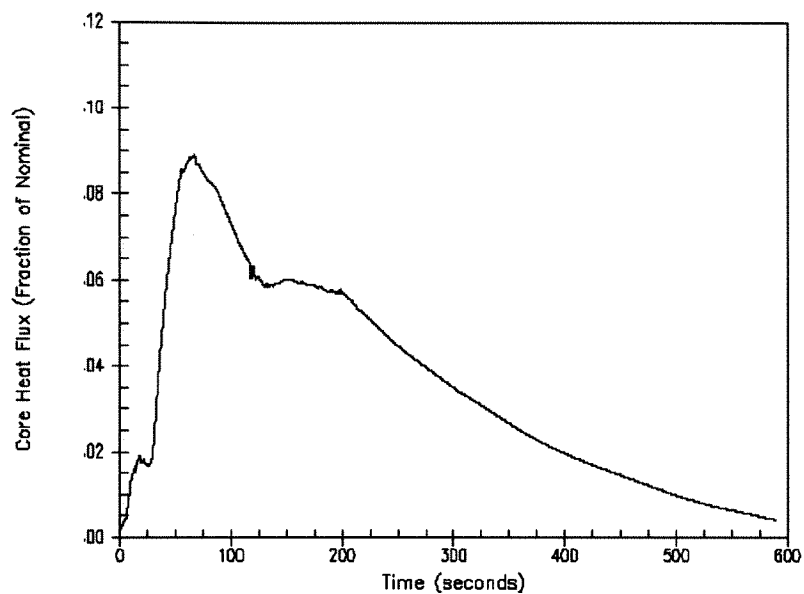
UFSAR FIGURE 14.2-14 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
NUCLEAR POWER  
VERSUS TIME

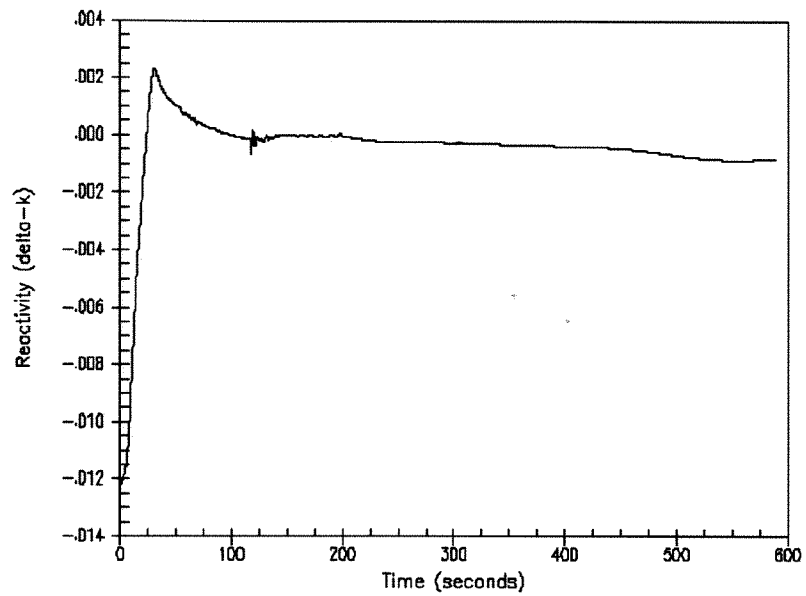
UFSAR FIGURE 14.2-15 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
CORE HEAT FLUX  
VERSUS TIME

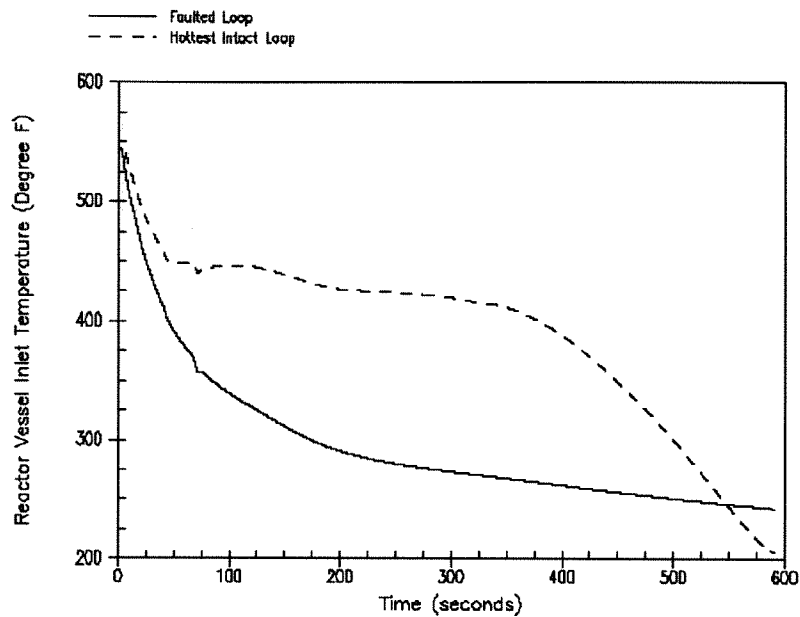
UFSAR FIGURE 14.2-16 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
REACTIVITY  
VERSUS TIME**

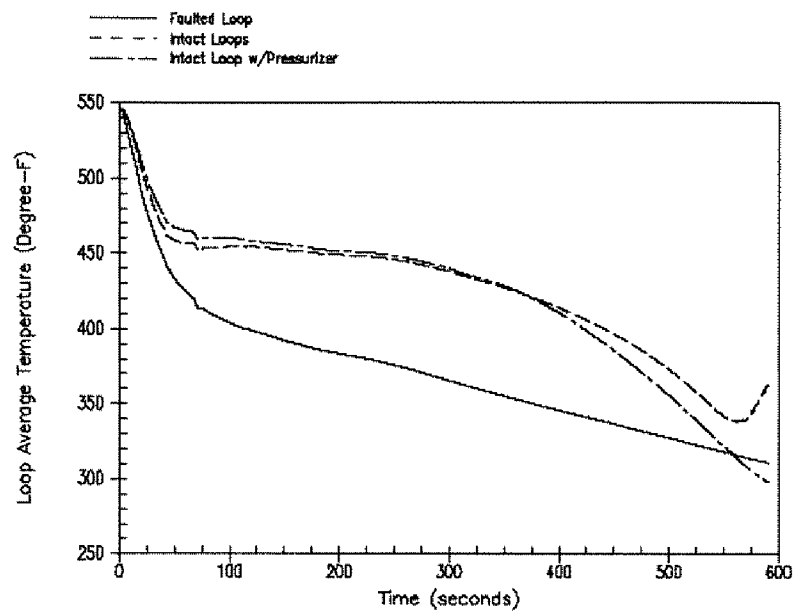
**UFSAR FIGURE 14.2-17 | REV. No. 01**



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
REACTOR VESSEL INLET TEMPERATURE  
VERSUS TIME

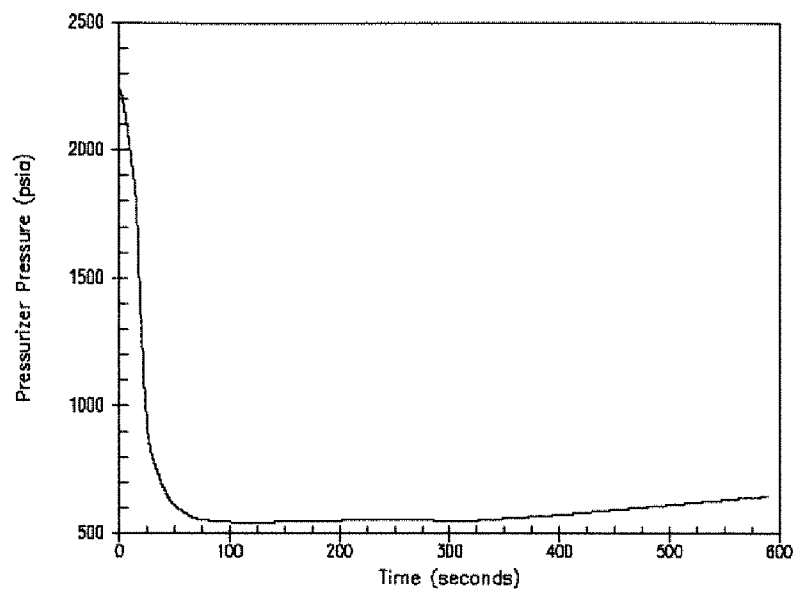
UFSAR FIGURE 14.2-18 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
LOOP AVERAGE TEMPERATURES  
VERSUS TIME

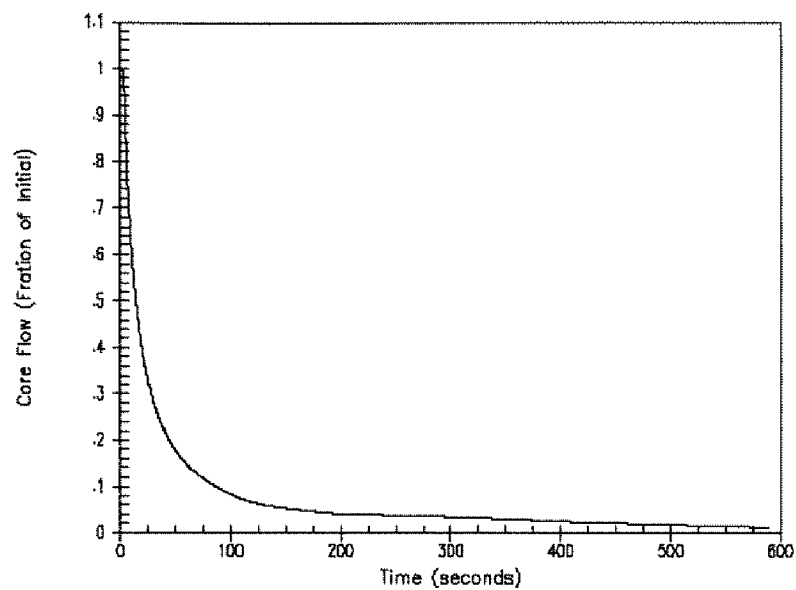
UFSAR FIGURE 14.2-19 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
PRESSURIZER PRESSURE  
VERSUS TIME

UFSAR FIGURE 14.2-20 | REV. No. 01

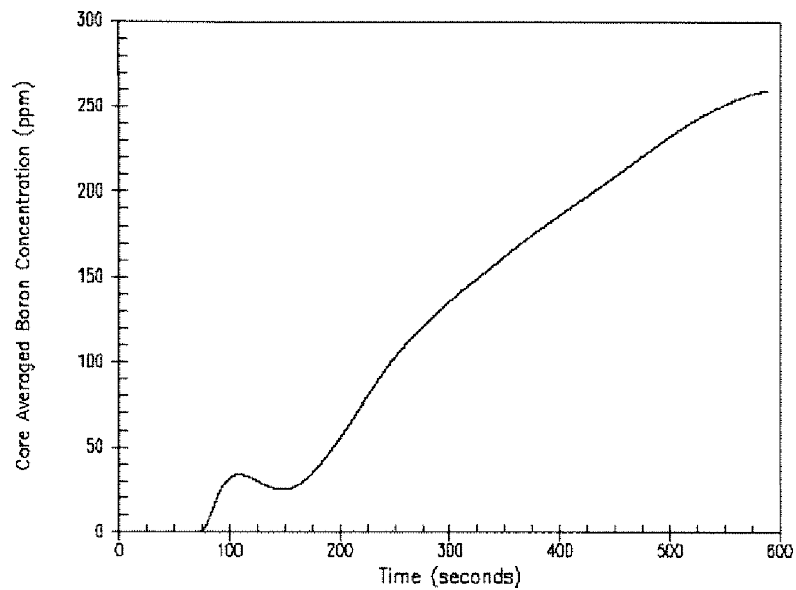


### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
CORE FLOW  
VERSUS TIME

UFSAR FIGURE 14.2-21 | REV. No. 01

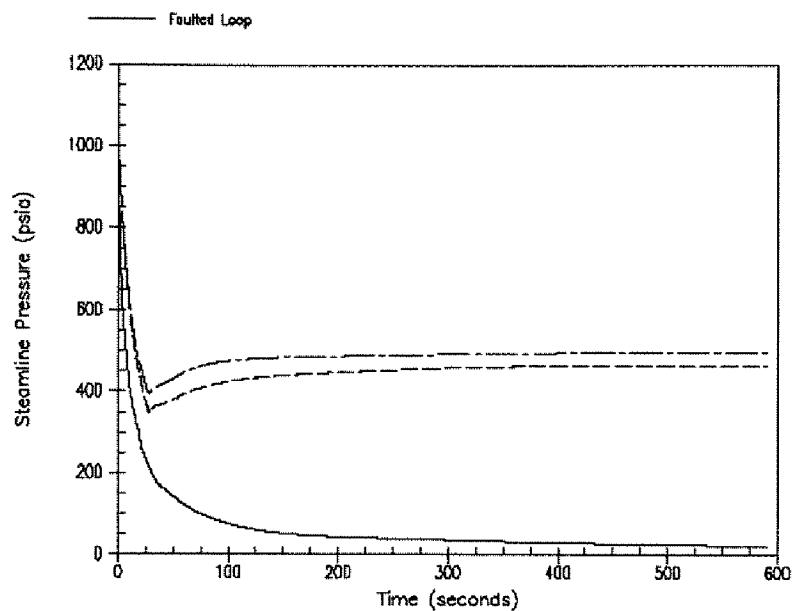




### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
CORE AVERAGED BORON CONCENTRATION  
VERSUS TIME

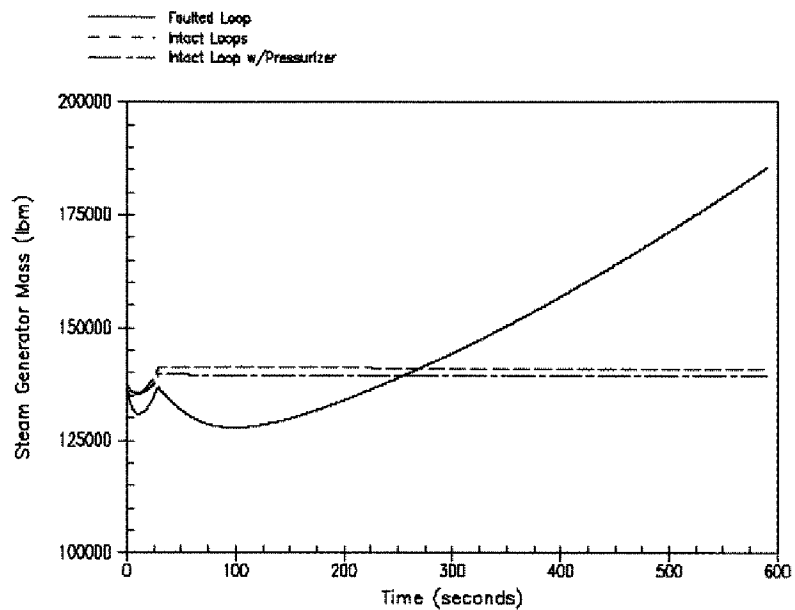
UFSAR FIGURE 14.2-22 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
STEAMLINE PRESSURE  
VERSUS TIME**

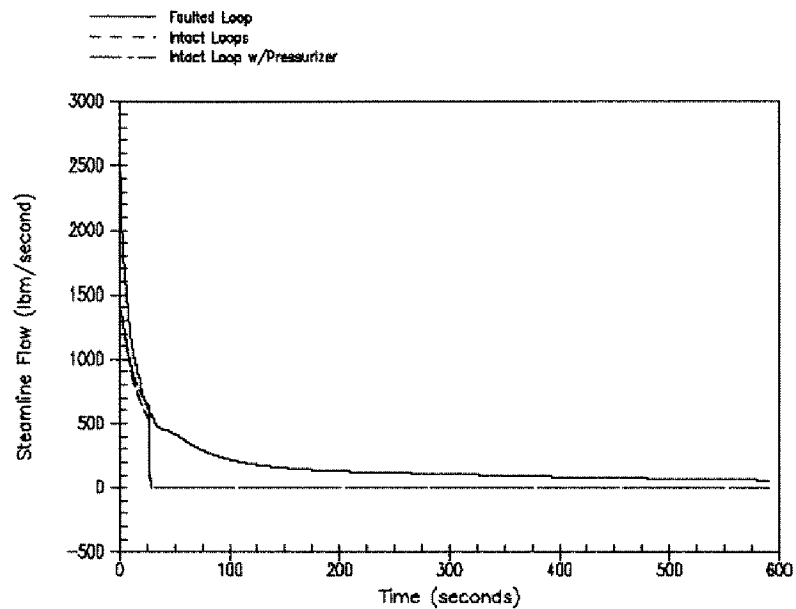
**UFSAR FIGURE 14.2-23 | REV. No. 01**



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
STEAM GENERATOR MASS  
VERSUS TIME

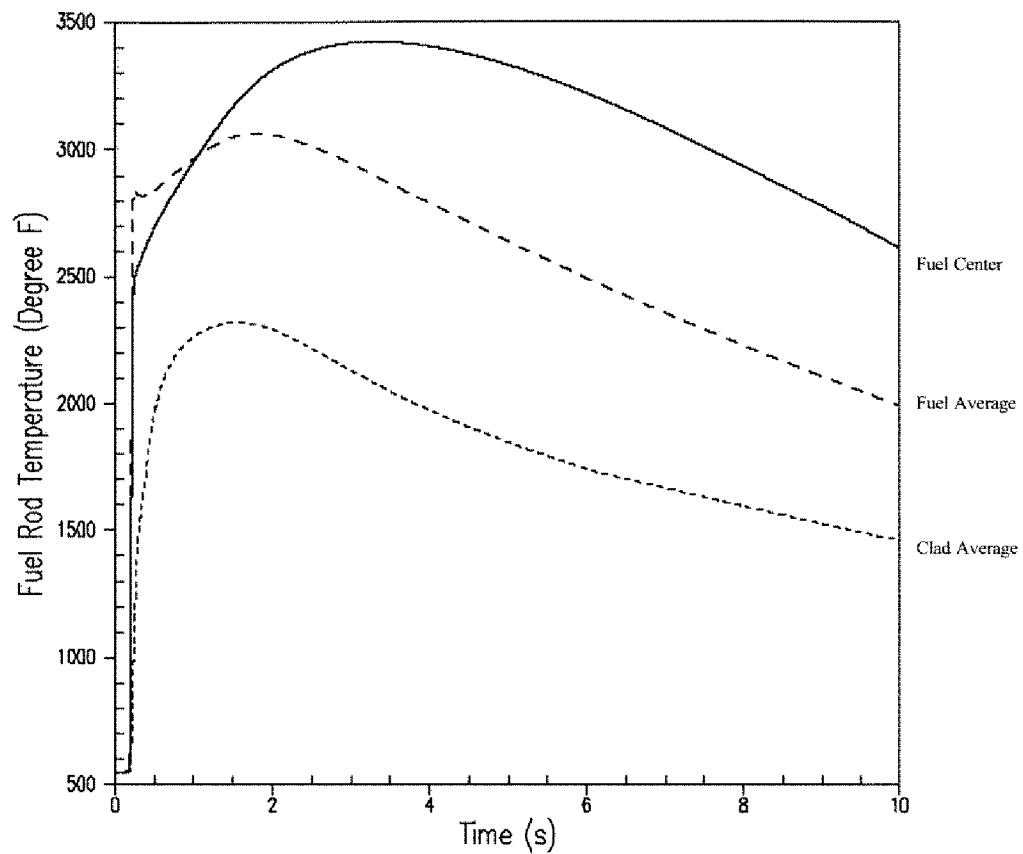
UFSAR FIGURE 14.2-24 | REV. No. 01



### INDIAN POINT UNIT No. 3

HYPOTHETICAL STEAMLINE BREAK  
WITH LOSS OF OFFSITE POWER  
STEAMLINE FLOW  
VERSUS TIME

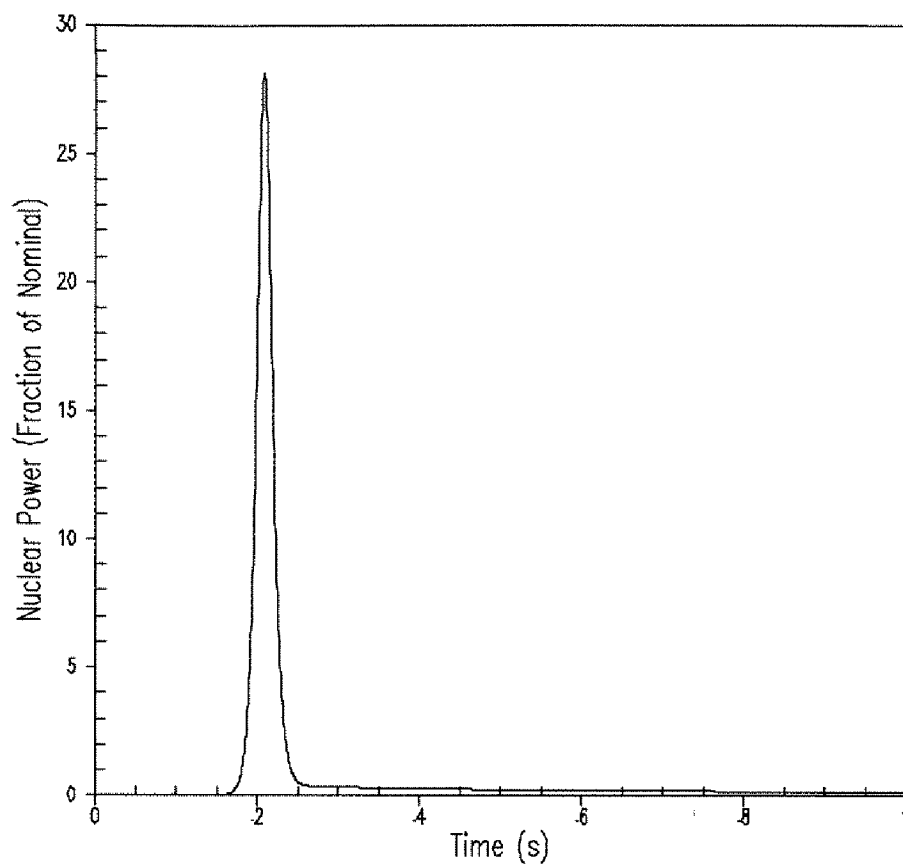
UFSAR FIGURE 14.2-25 | REV. No. 01



### INDIAN POINT UNIT No. 3

FUEL ROD TEMPERATURE FOR ROD EJECTION  
END OF LIFE-HOT ZERO POWER

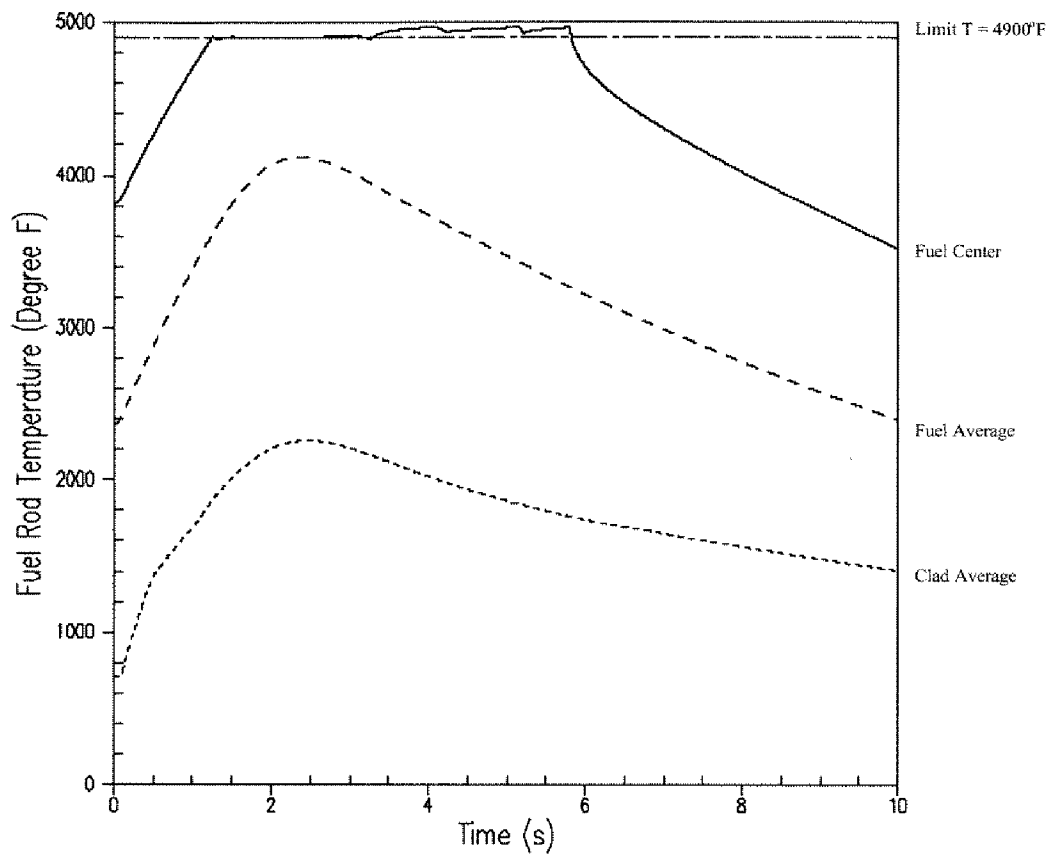
UFSAR FIGURE 14.2-48 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**NUCLEAR POWER FOR ROD EJECTION  
END OF LIFE-HOT ZERO POWER**

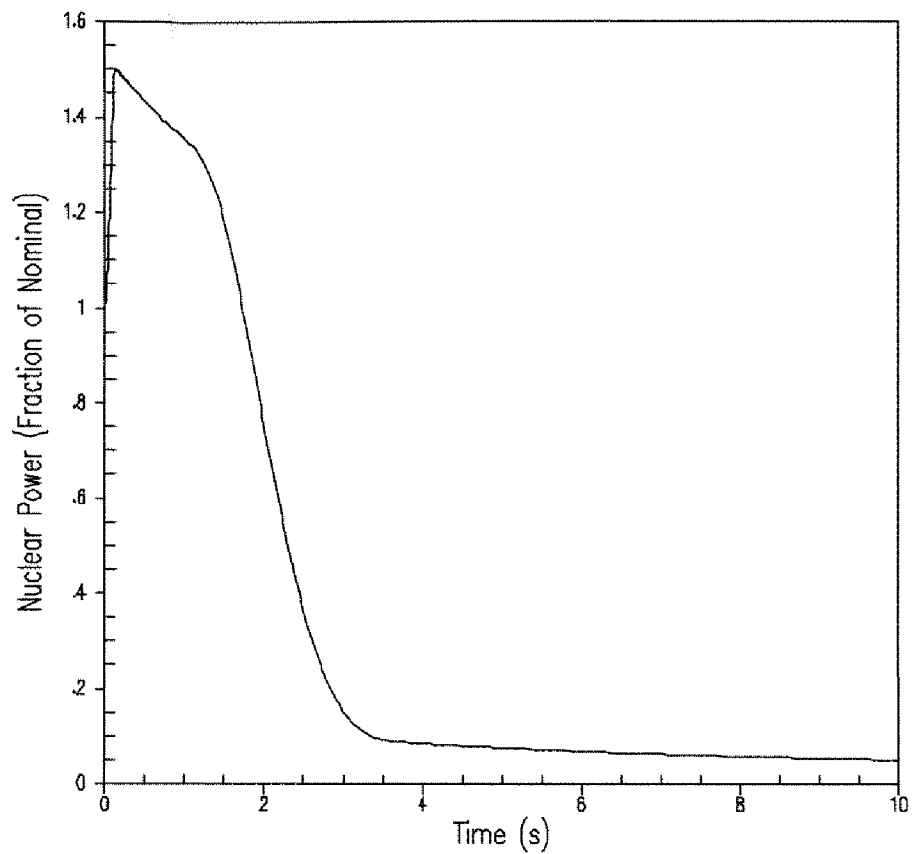
**UFSAR FIGURE 14.2-49 | REV. No. 01**



### INDIAN POINT UNIT No. 3

FUEL ROD TEMPERATURE FOR ROD EJECTION  
BEGINNING OF LIFE-HOT FULL POWER

UFSAR FIGURE 14.2-50 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**NUCLEAR POWER FOR ROD EJECTION  
BEGINNING OF LIFE-HOT FULL POWER**

**UFSAR FIGURE 14.2-51 | REV. No. 01**

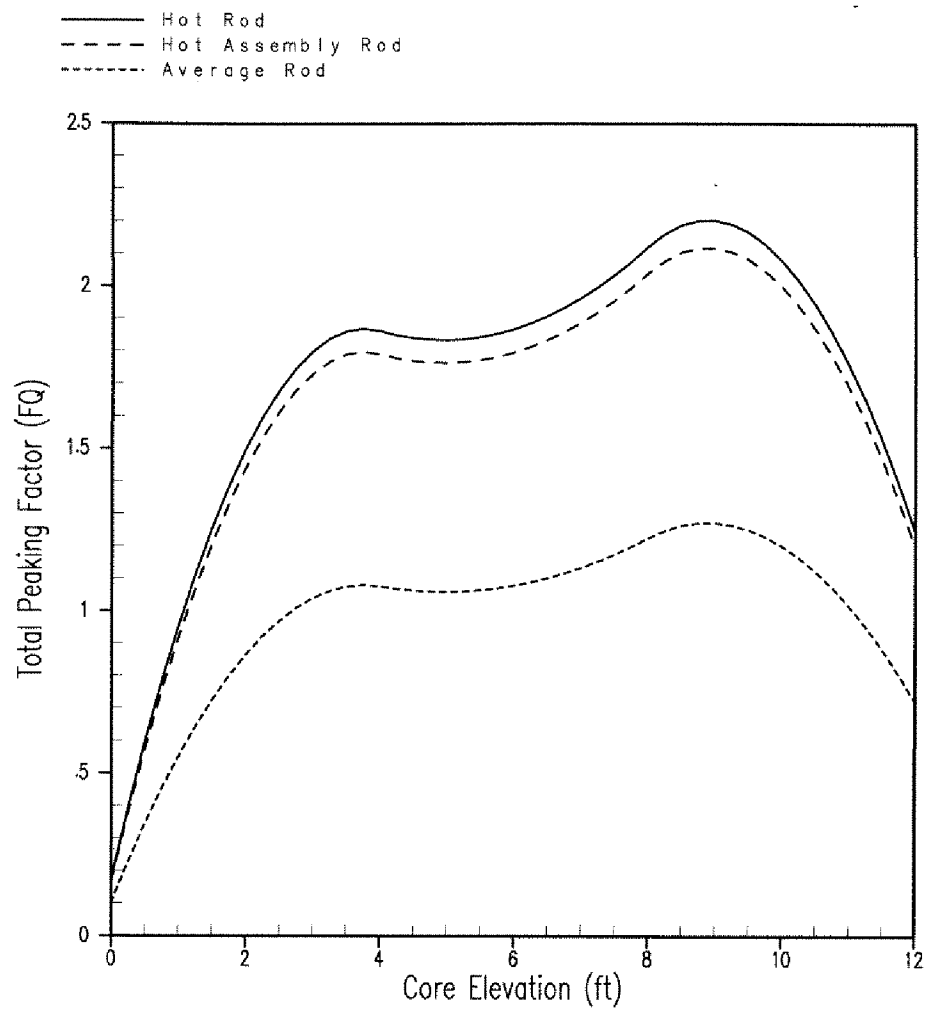


BLOWDOWN	0 second	BREAK OCCURS
	~24.5 seconds	PUMP SI SIGNAL (LOW PRESSURIZER PRESSURE)
		ACCUMULATOR INJECTION BEGINS
		END OF BLOWDOWN
REFILL	~24.5 – 36.5 seconds	PUMPED ECCS INJECTION BEGINS
		BOTTOM OF CORE RECOVERY
REFLOOD	~36.5 - 250 seconds	ACCUMULATOR EMPTIES
		CORE QUENCHED
LONG TERM CORE COOLING	24 hours	SWITCH TO COLD LEG RECIRCULATION ON RWST LOW LEVEL ALARM
		SWITCH TO HOT LEG/COLD LEG RECIRCULATION

### INDIAN POINT UNIT No. 3

**TYPICAL TIME SEQUENCE OF EVENTS  
FOR THE INDIAN POINT 3 NUCLEAR POWER PLANT  
BEST ESTIMATE LARGE BREAK LOCA ANALYSIS**

**UFSAR FIGURE 14.3–1** | **REV. No. 01**

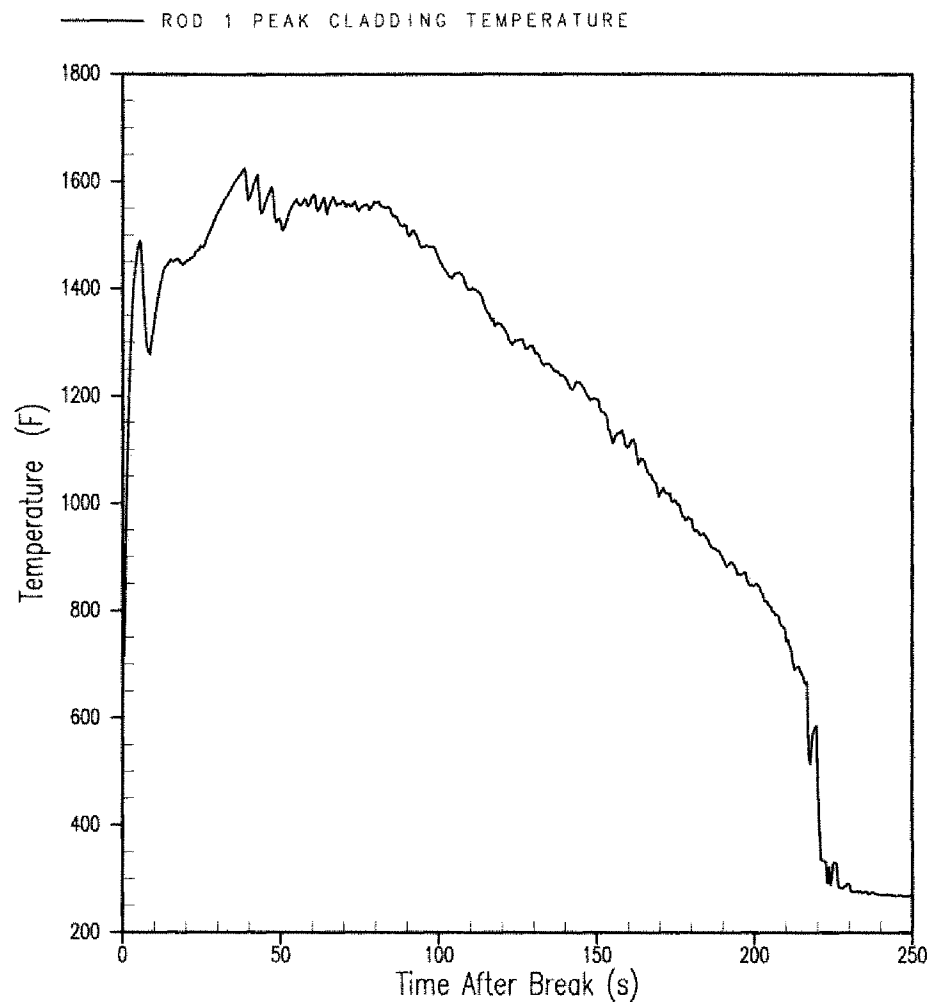


### INDIAN POINT UNIT No. 3

AXIAL POWER DISTRIBUTION FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-2

REV. No. 01

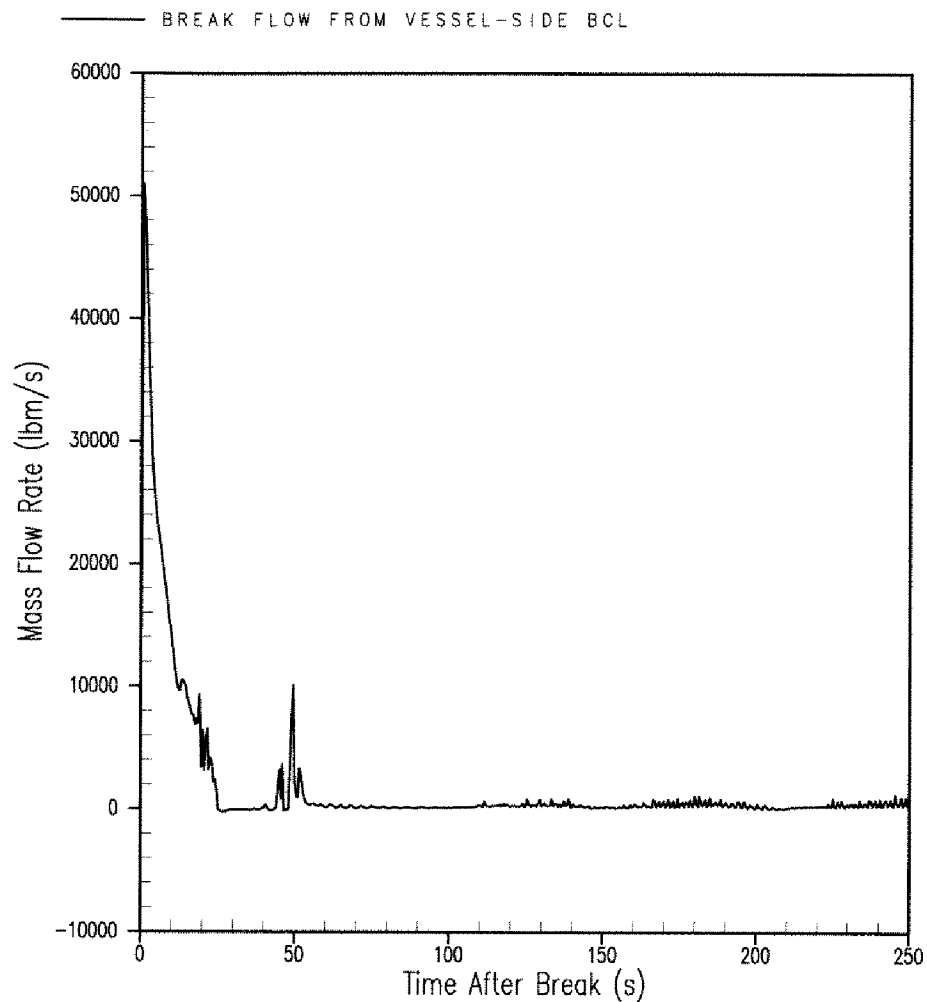


### INDIAN POINT UNIT No. 3

PEAK CLADDING TEMPERATURE FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-4

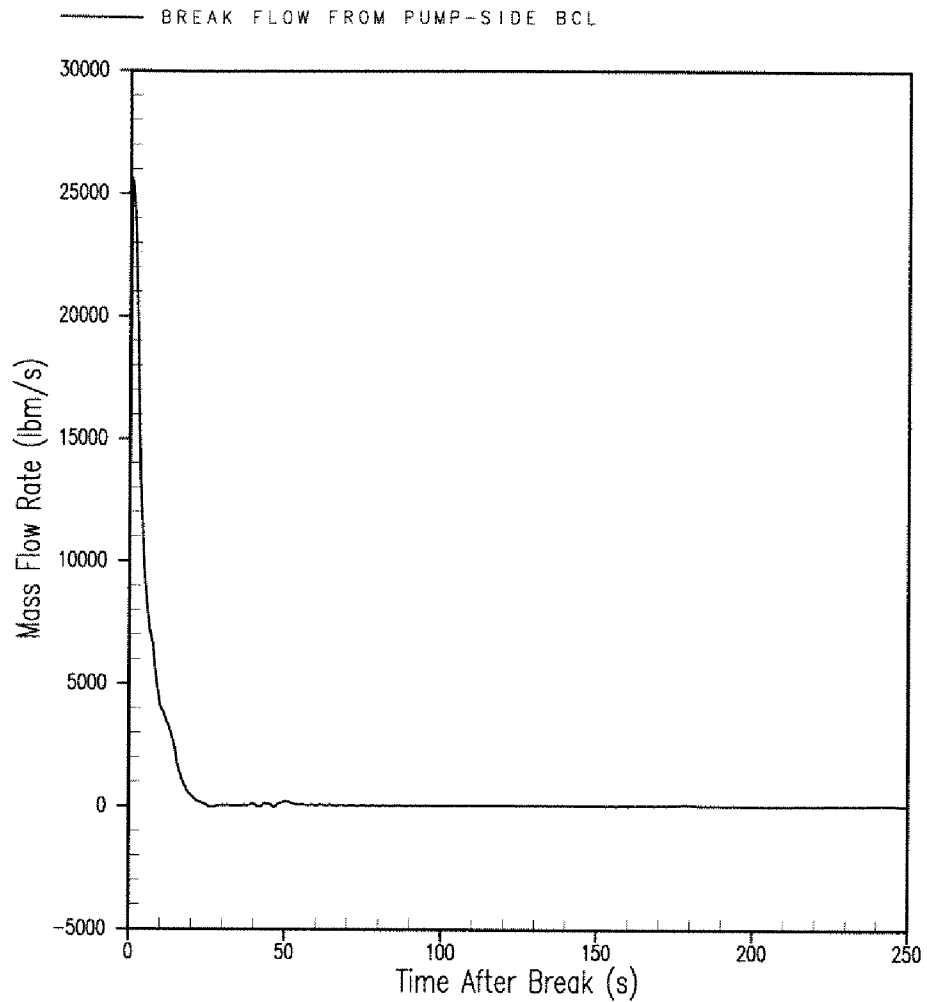
REV. No. 01



### INDIAN POINT UNIT No. 3

BREAK FLOW FROM BCL VESSEL SIDE FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

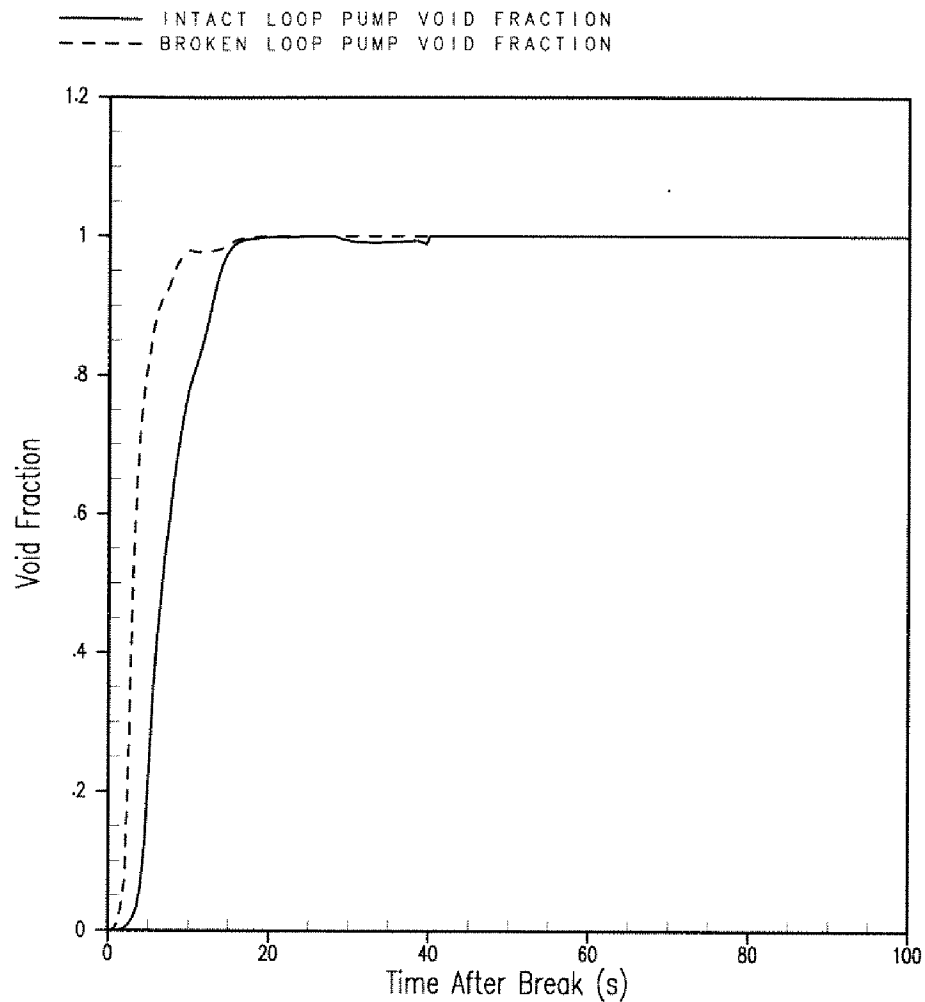
UFSAR FIGURE 14.3-5a | REV. No. 01



### INDIAN POINT UNIT No. 3

BREAK FLOW FROM BCL PUMP-SIDE FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT-BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-5b | REV. No. 01

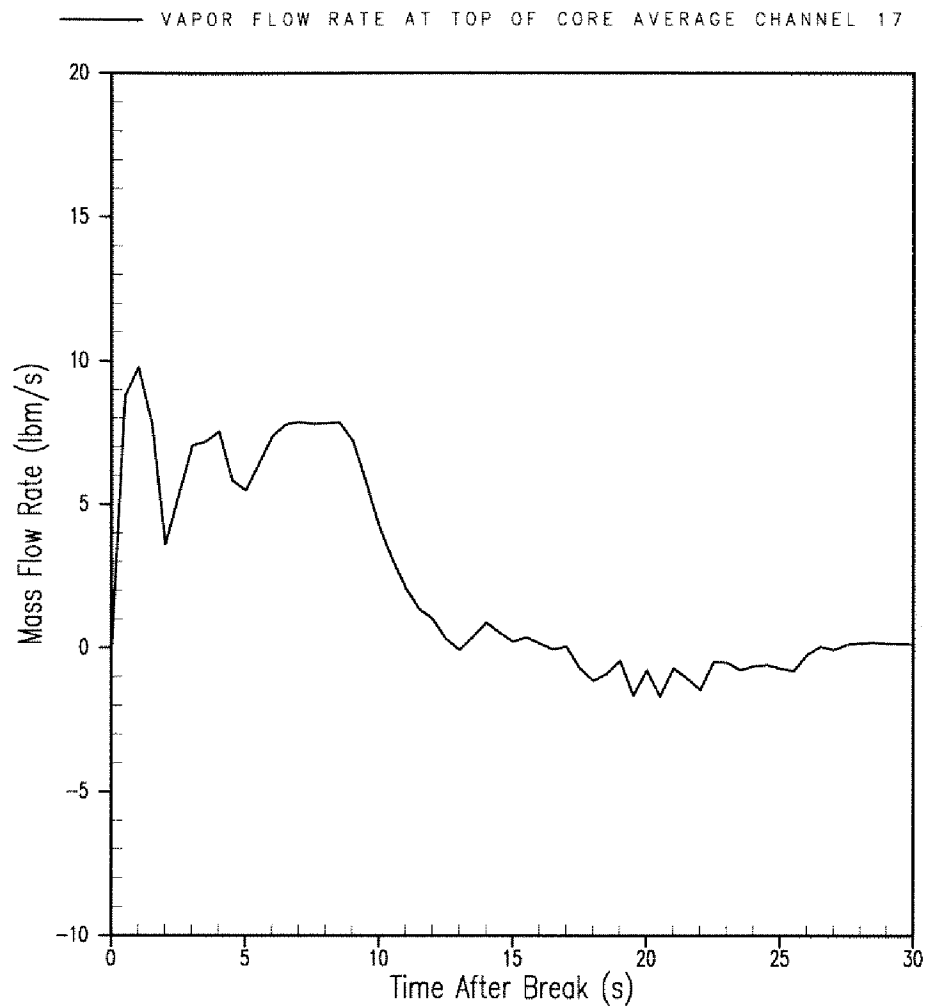


### INDIAN POINT UNIT No. 3

VOID FRACTION AT THE INTACT AND BROKEN  
LOOP PUMP INLET FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-6

REV. No. 01

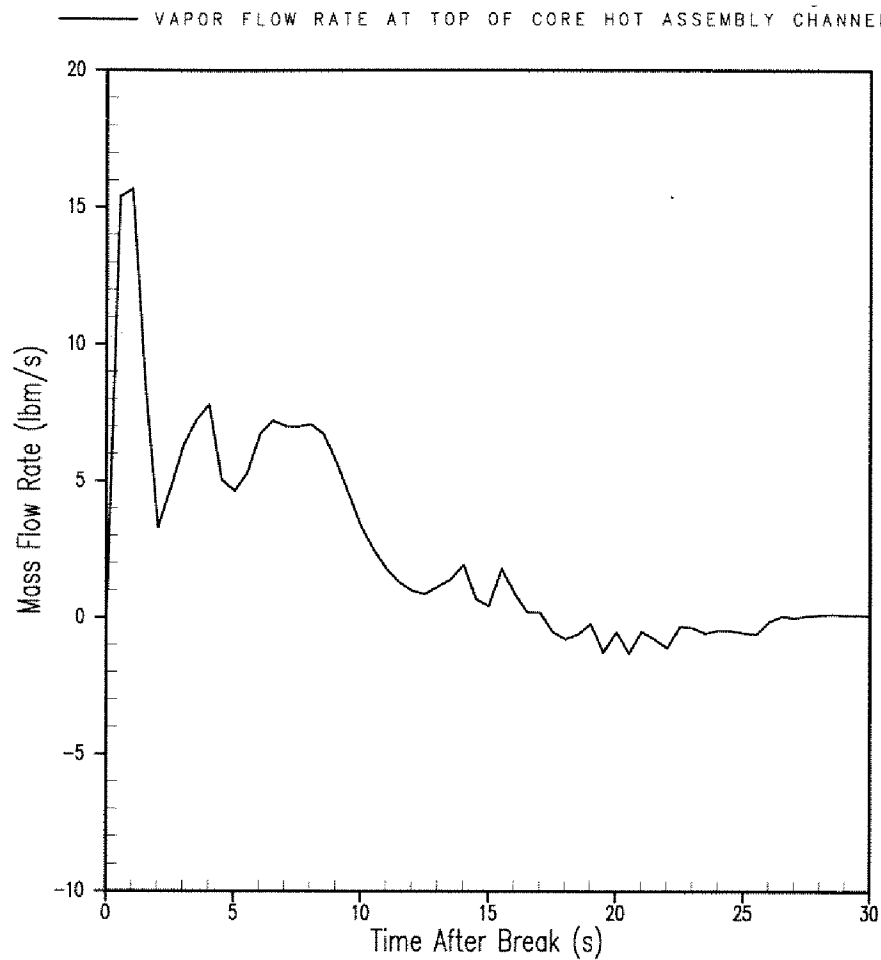


### INDIAN POINT UNIT No. 3

VAPOR FLOW RATE PER ASSEMBLY AT NEAR TOP  
OF CORE CHANNEL 17 DURING BLOWDOWN FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-7

REV. No. 01



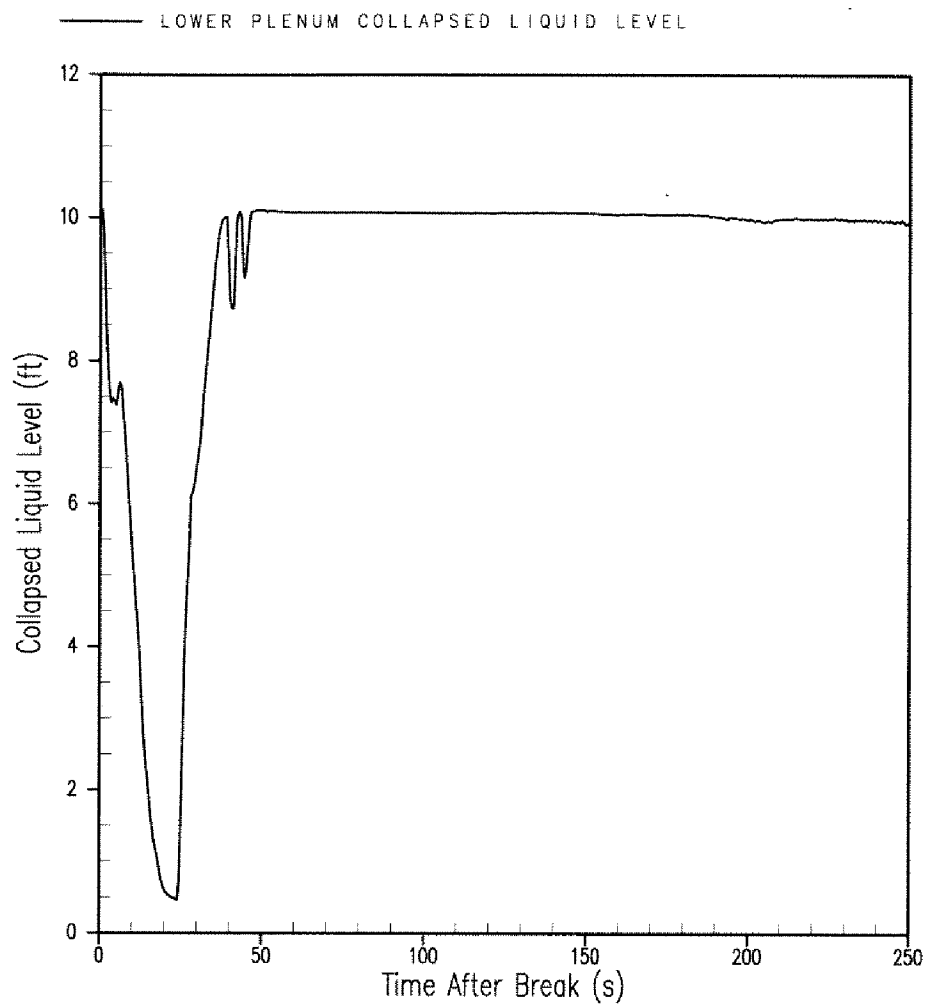
### INDIAN POINT UNIT No. 3

VAPOR FLOW RATE AT NEAR TOP OF  
CORE CHANNEL 19 DURING BLOWDOWN FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-8

REV. No. 01



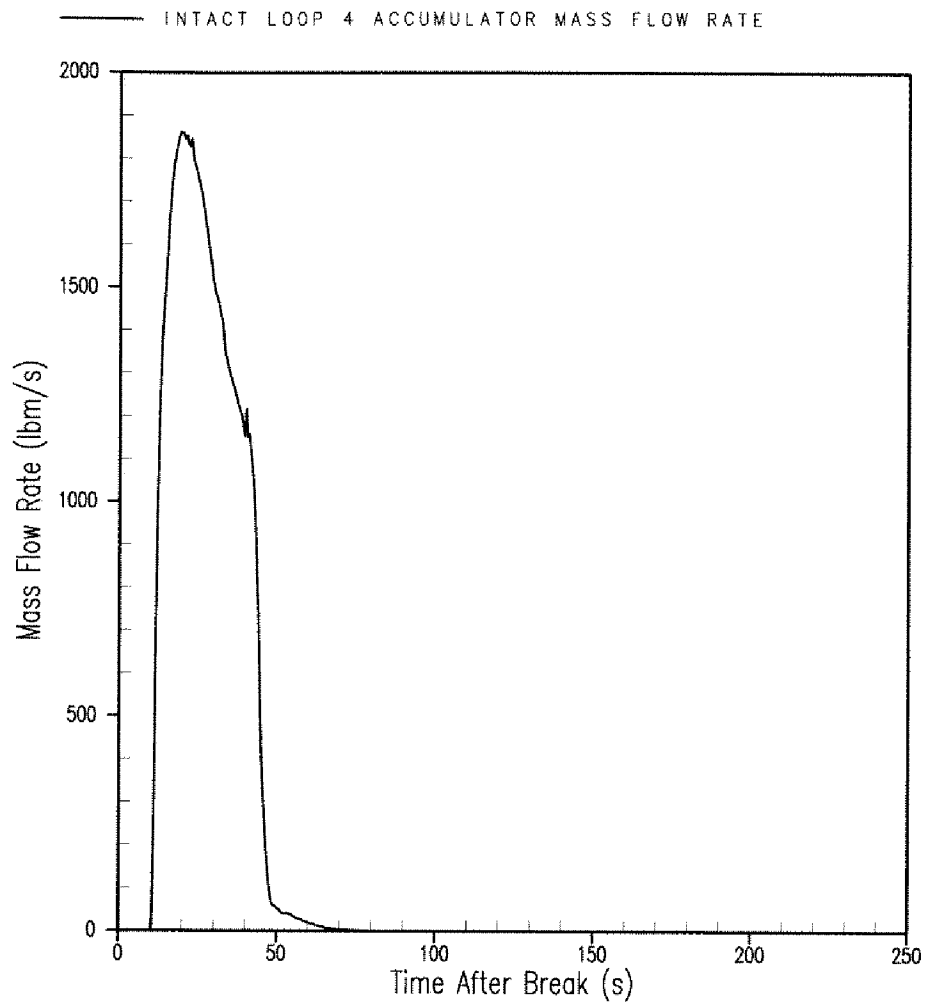


### INDIAN POINT UNIT No. 3

COLLAPSED LIQUID LEVEL IN LOWER PLENUM  
FOR INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-9

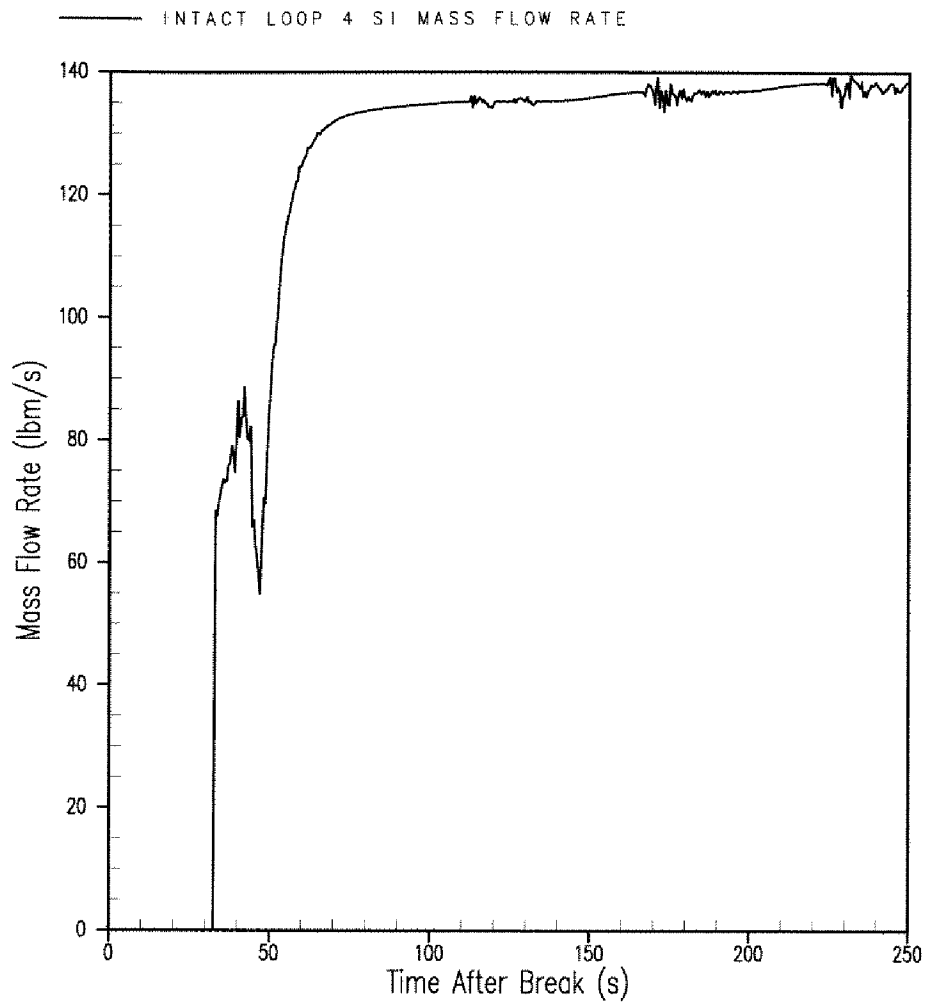
REV. No. 01



### INDIAN POINT UNIT No. 3

ACCUMULATOR MASS FLOW RATE FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

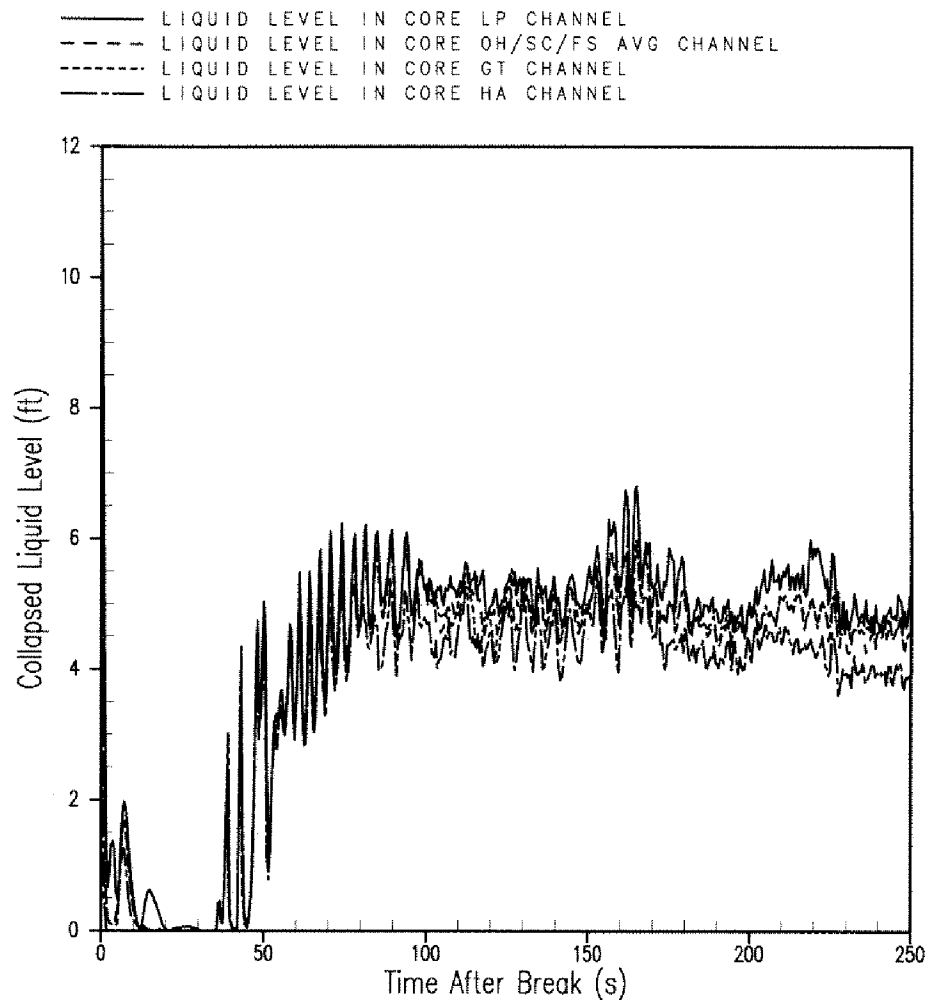
UFSAR FIGURE 14.3-10 | REV. No. 01



### INDIAN POINT UNIT No. 3

SI MASS FLOW RATE FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

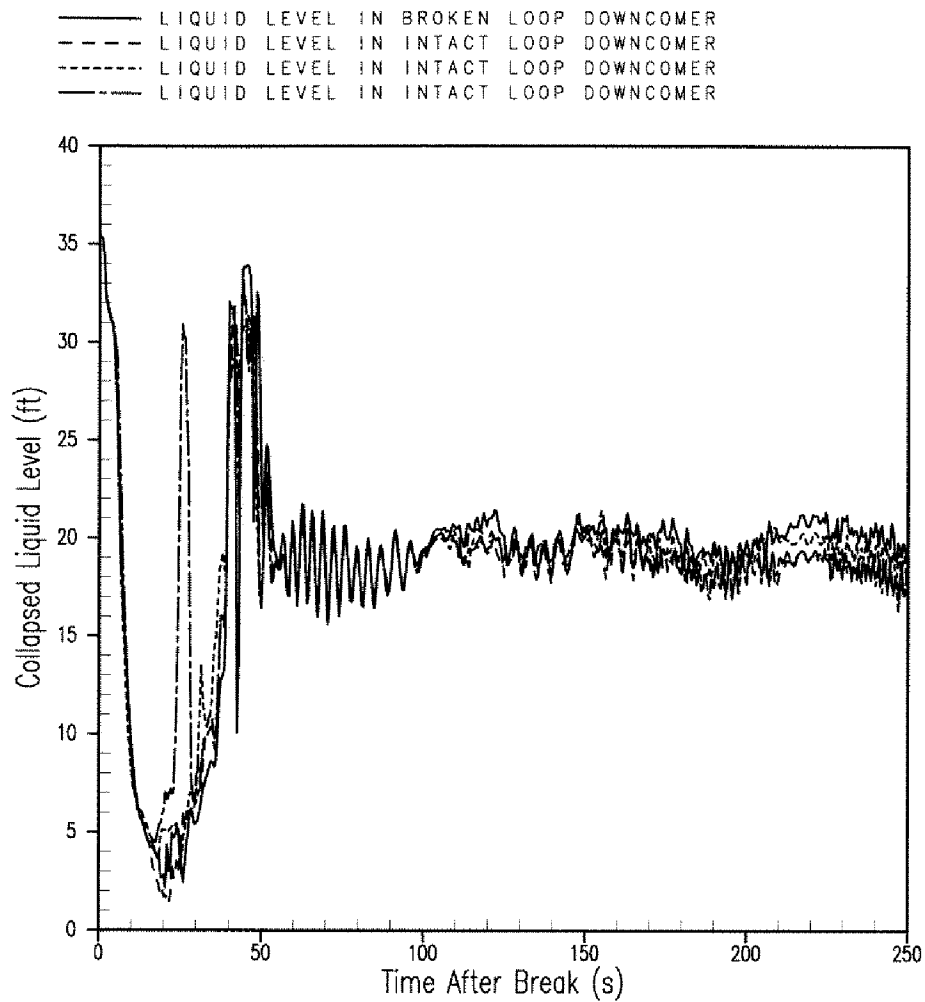
UFSAR FIGURE 14.3-11 | REV. No. 01



### INDIAN POINT UNIT No. 3

**COLLAPSED LIQUID LEVEL IN CORE CHANNELS  
FOR INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA**

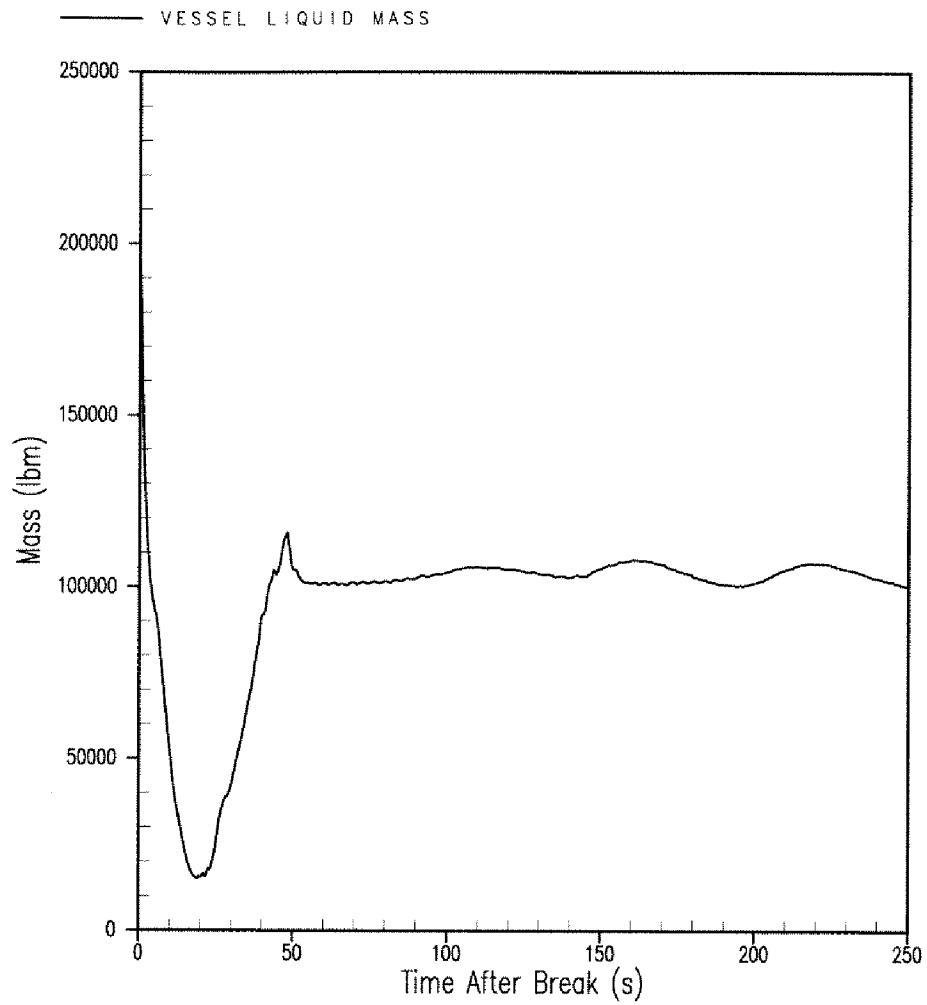
**UFSAR FIGURE 14.3-12 | REV. No. 01**



### INDIAN POINT UNIT No. 3

COLLAPSED LIQUID LEVEL IN DOWNCOMER CHANNELS  
 FOR INDIAN POINT 3 NUCLEAR POWER PLANT  
 REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

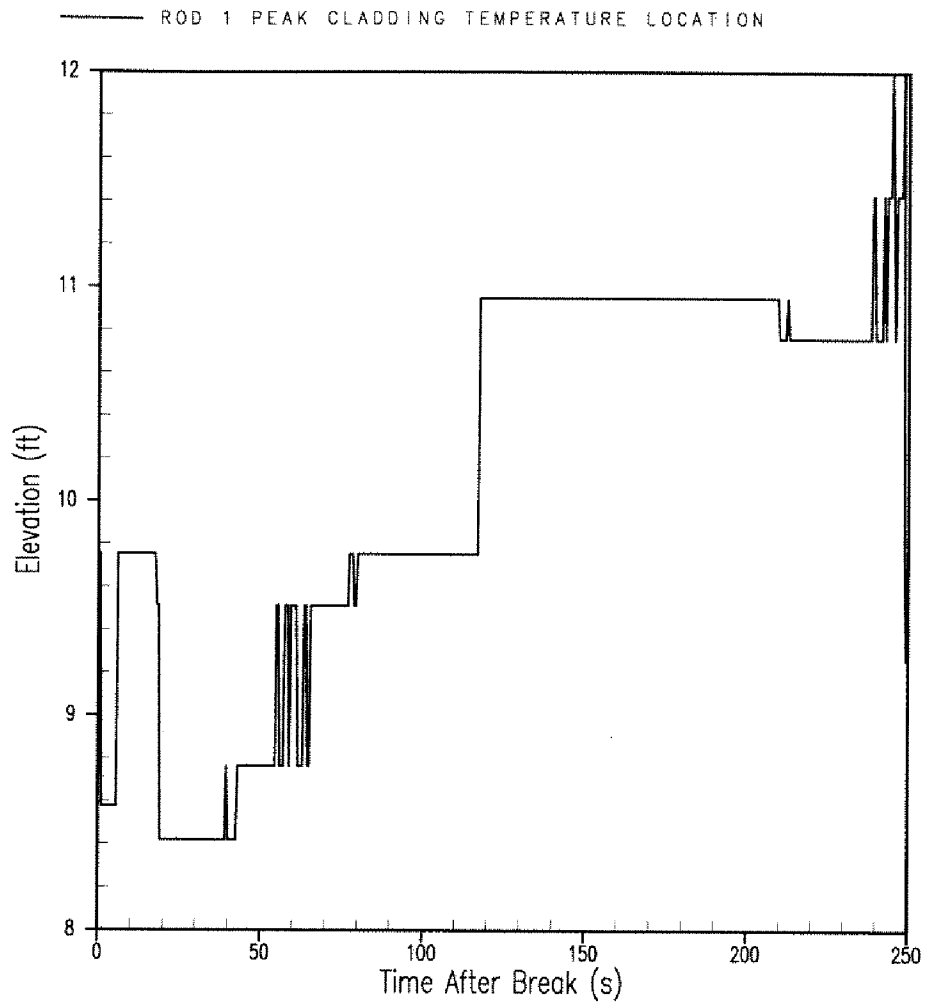
UFSAR FIGURE 14.3-13 | REV. No. 01



### INDIAN POINT UNIT No. 3

VESSEL FLUID MASS FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

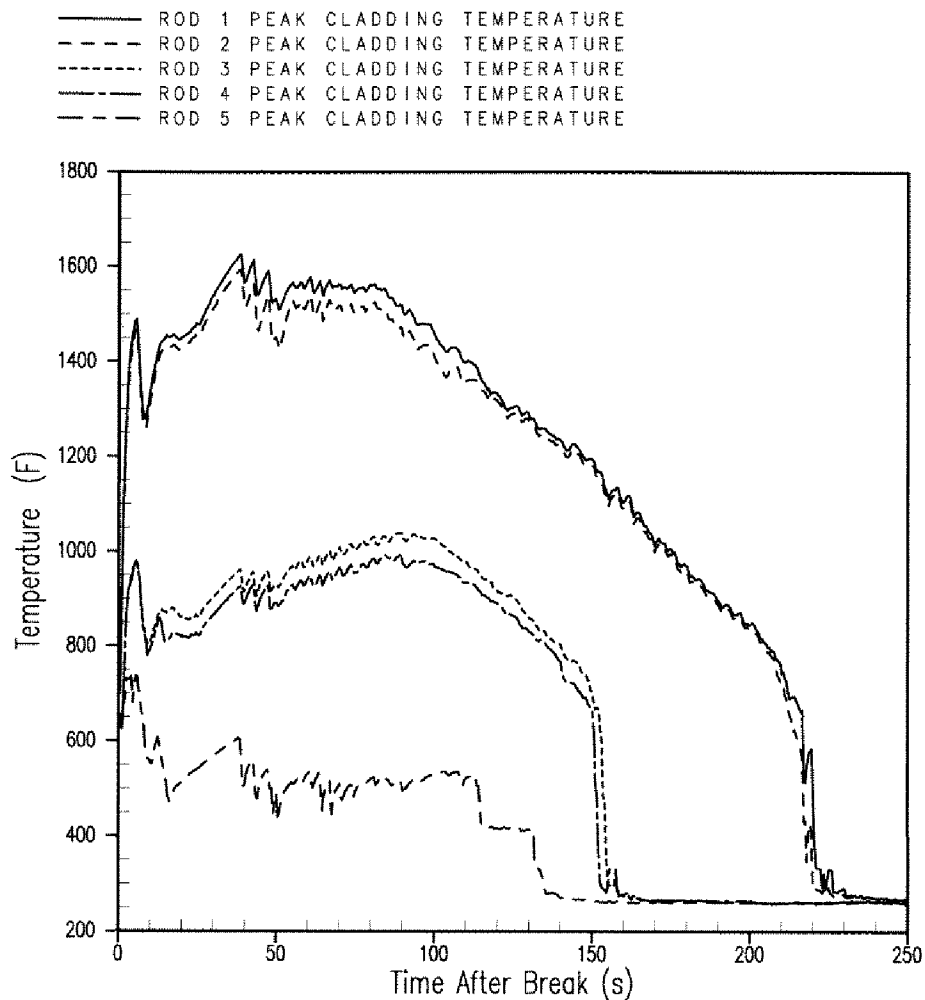
UFSAR FIGURE 14.3-14 | REV. No. 01



### INDIAN POINT UNIT No. 3

PEAK CLADDING TEMPERATURE LOCATION FOR  
INDIAN POINT 3 NUCLEAR POWER PLANT  
REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-15 | REV. No. 01

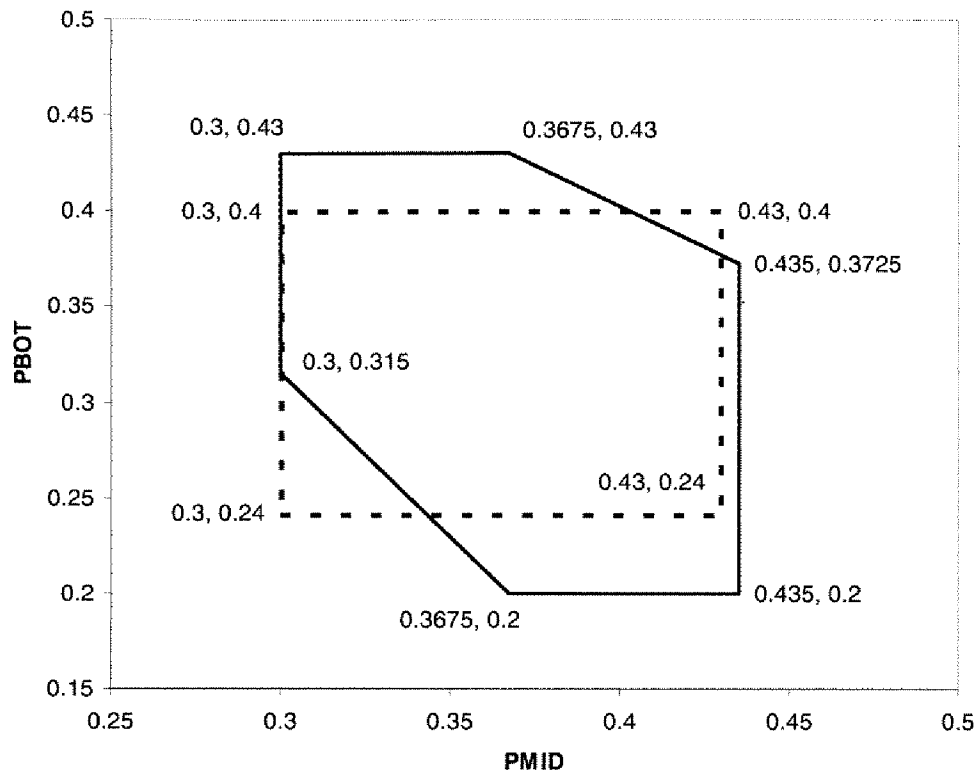


### INDIAN POINT UNIT No. 3

PEAK CLADDING TEMPERATURE COMPARISON  
 FOR FIVE RODS FOR  
 INDIAN POINT 3 NUCLEAR POWER PLANT  
 REFERENCE TRANSIENT—BEST ESTIMATE LBLOCA

UFSAR FIGURE 14.3-16 | REV. No. 01

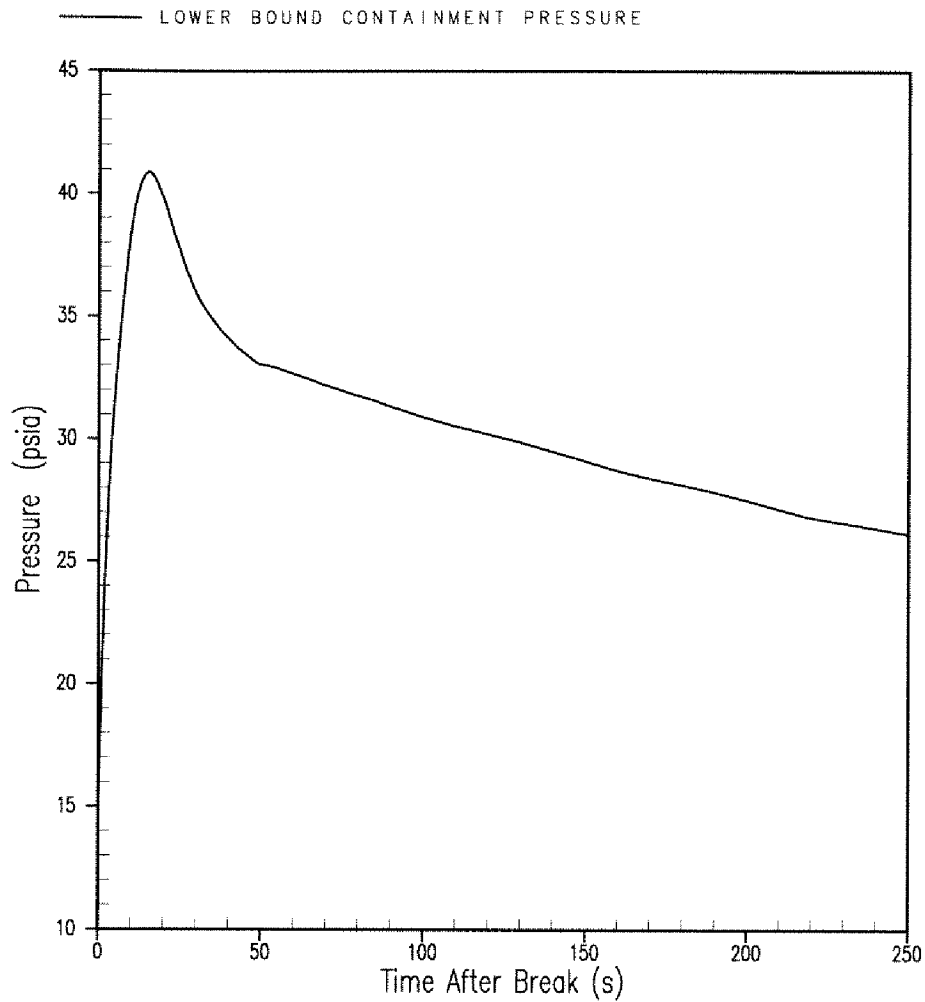




### INDIAN POINT UNIT No. 3

PBOT/PMID SAMPLING LIMITS (PLANT OPERATING RANGE INDICATED BY DASHED LINE; WCOBRA/TRAC RESPONSE SURFACE RANGE INDICATED BY SOLID LINE.) FOR INDIAN POINT 3 NUCLEAR POWER PLANT—BEST ESTIMATE LBLOCA

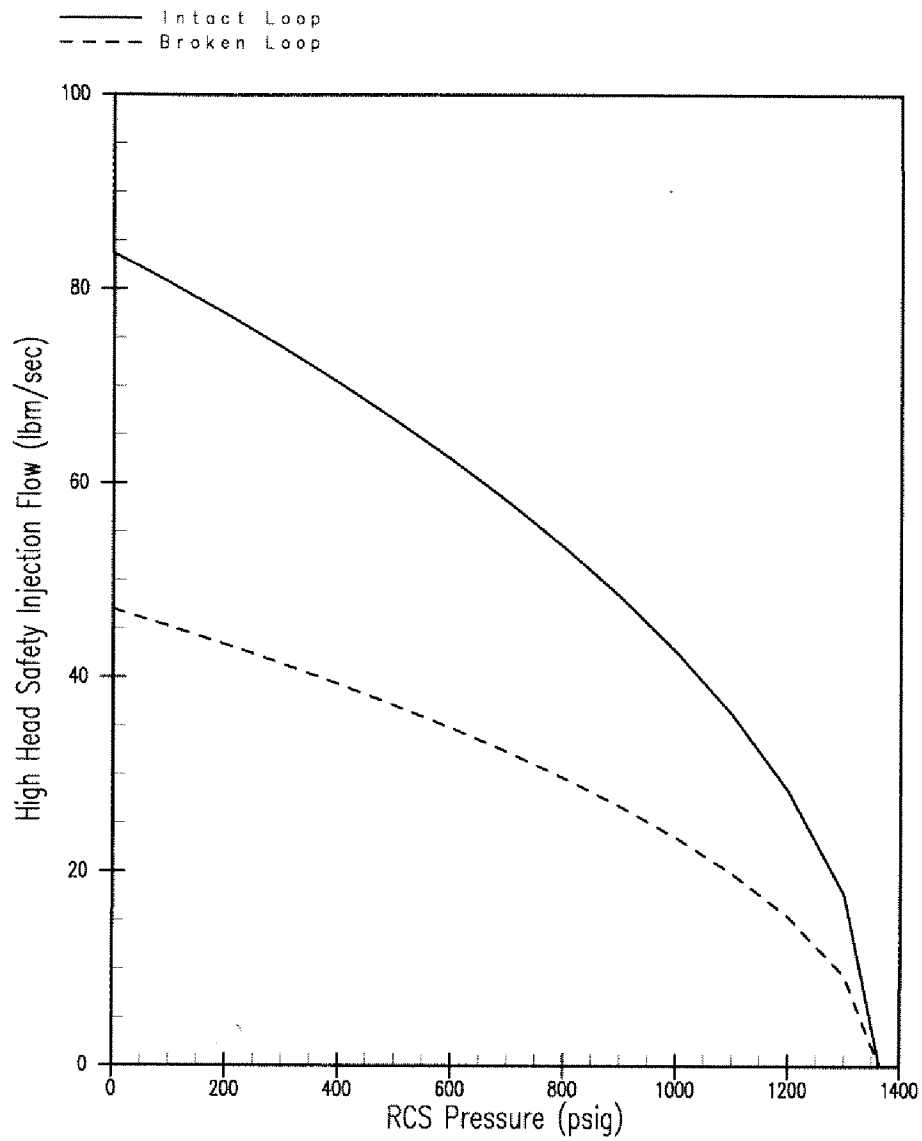
UFSAR FIGURE 14.3-17 | REV. No. 01



### INDIAN POINT UNIT No. 3

LOWER BOUND CONTAINMENT PRESSURE  
FOR INDIAN POINT 3 NUCLEAR POWER PLANT  
BEST ESTIMATE LBLOCA

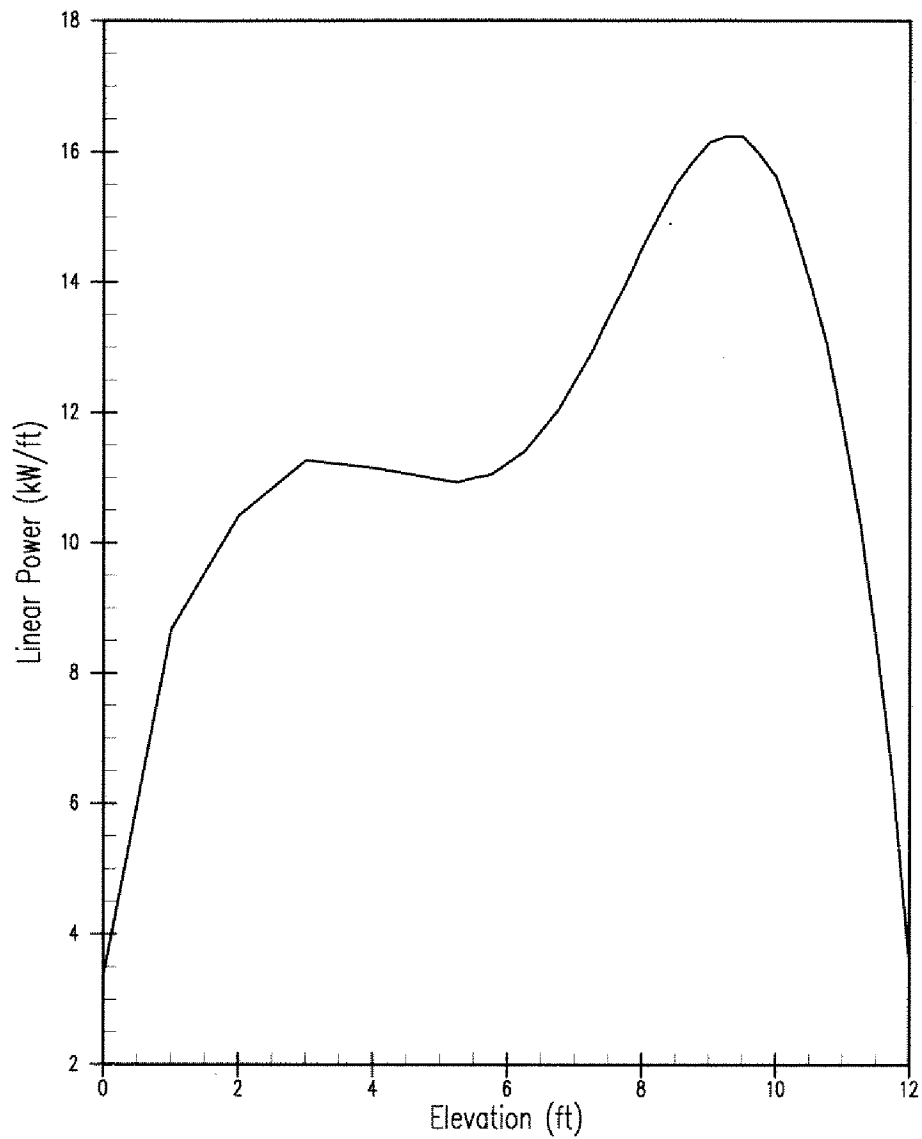
UFSAR FIGURE 14.3-18 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**HIGH HEAD SAFETY INJECTION FLOW RATE**

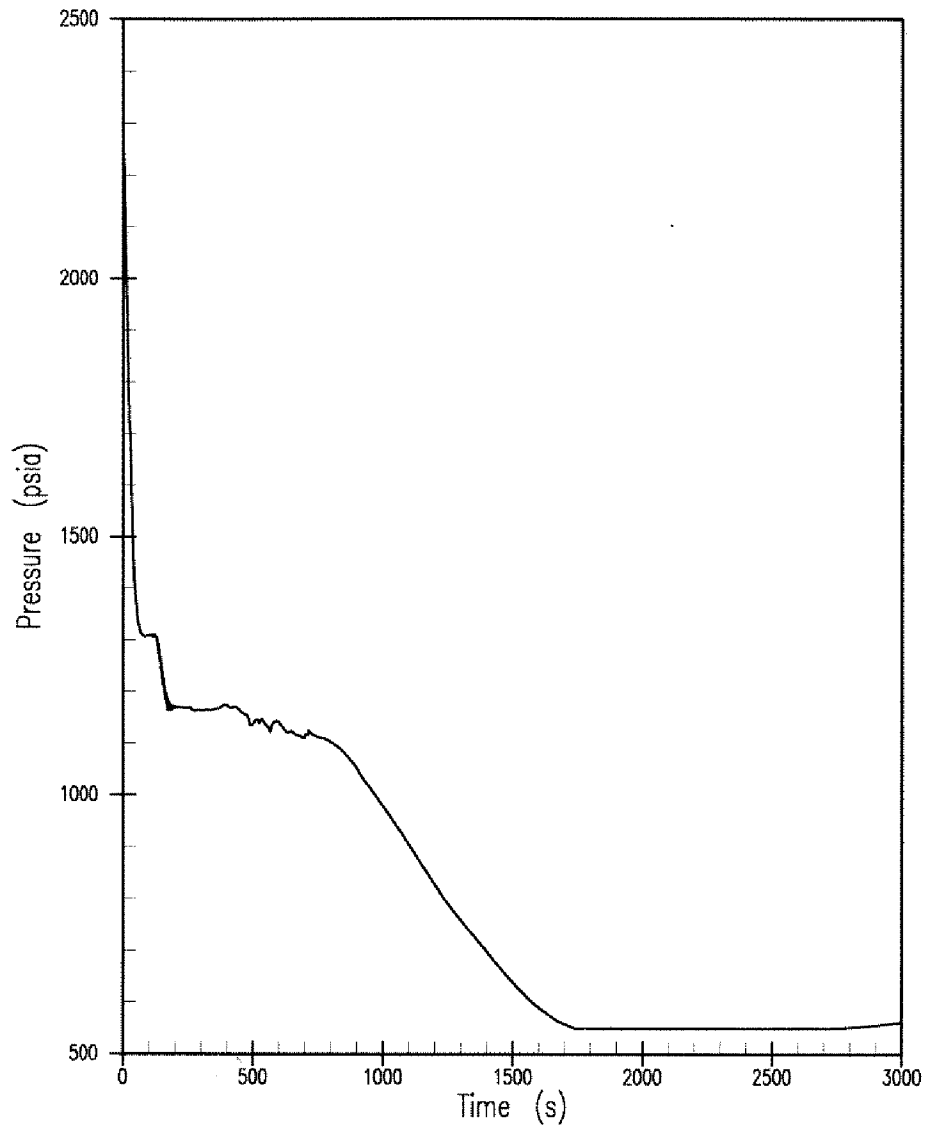
**UFSAR FIGURE 14.3-51 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**SMALL BREAK LOCA AXIAL POWER SHAPE**

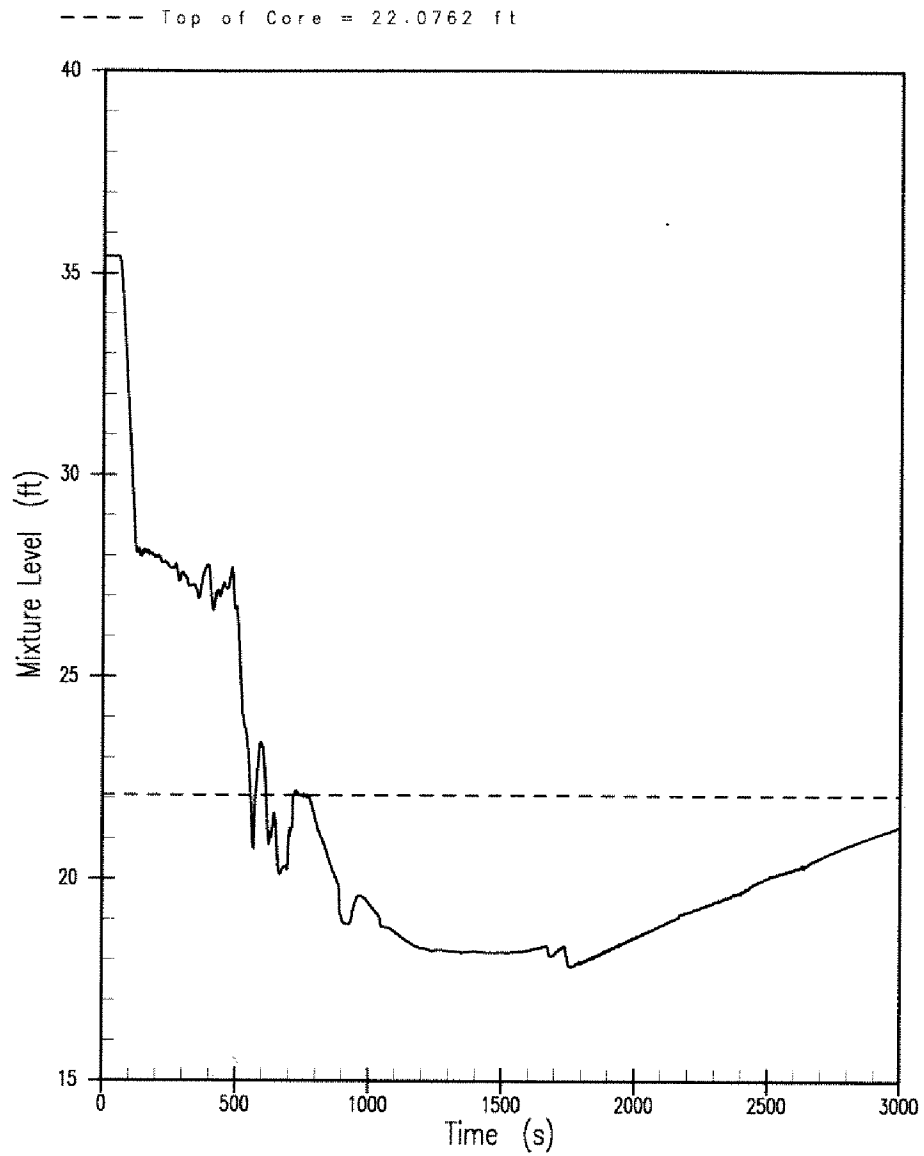
**UFSAR FIGURE 14.3-52 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**3" SMALL BREAK LOCA RCS PRESSURE**

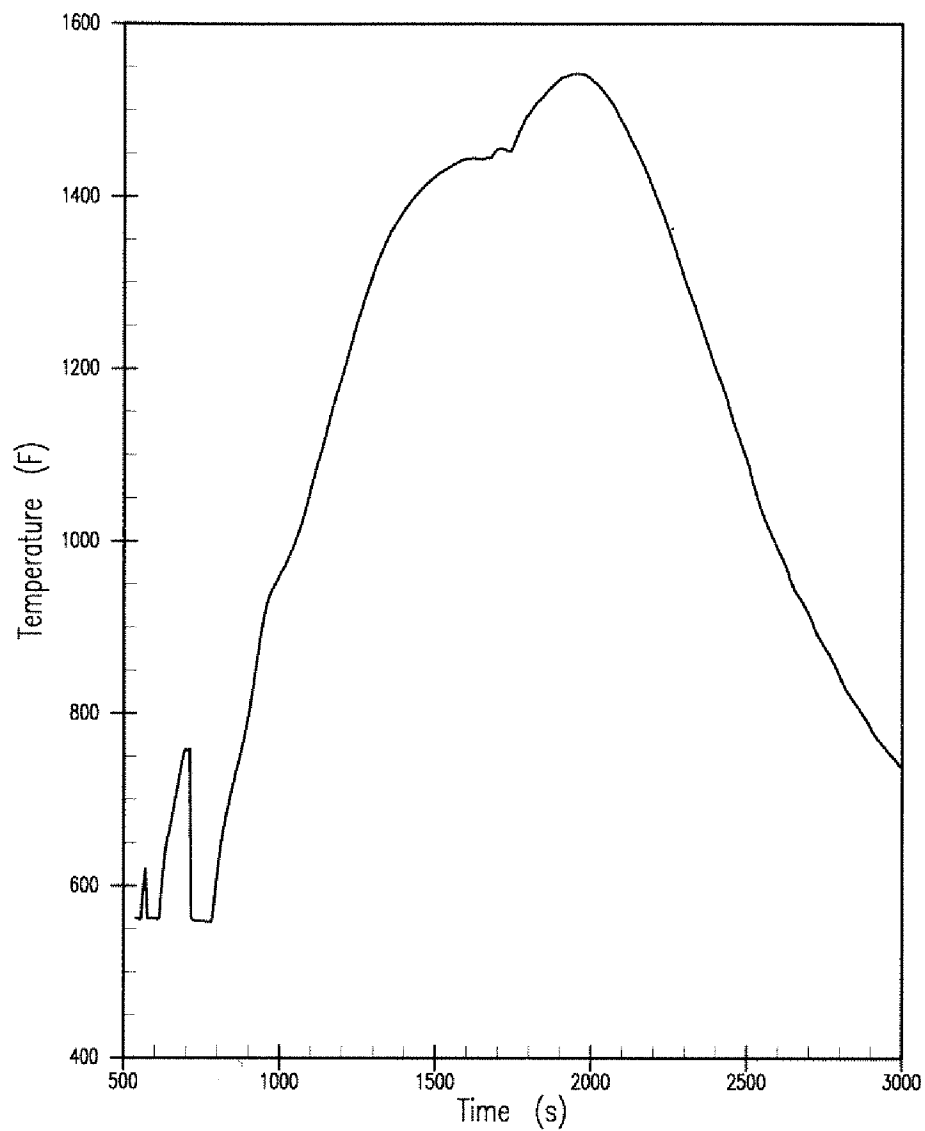
**UFSAR FIGURE 14.3-53 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**3"SMALL BREAK LOCA CORE MIXTURE LEVEL**

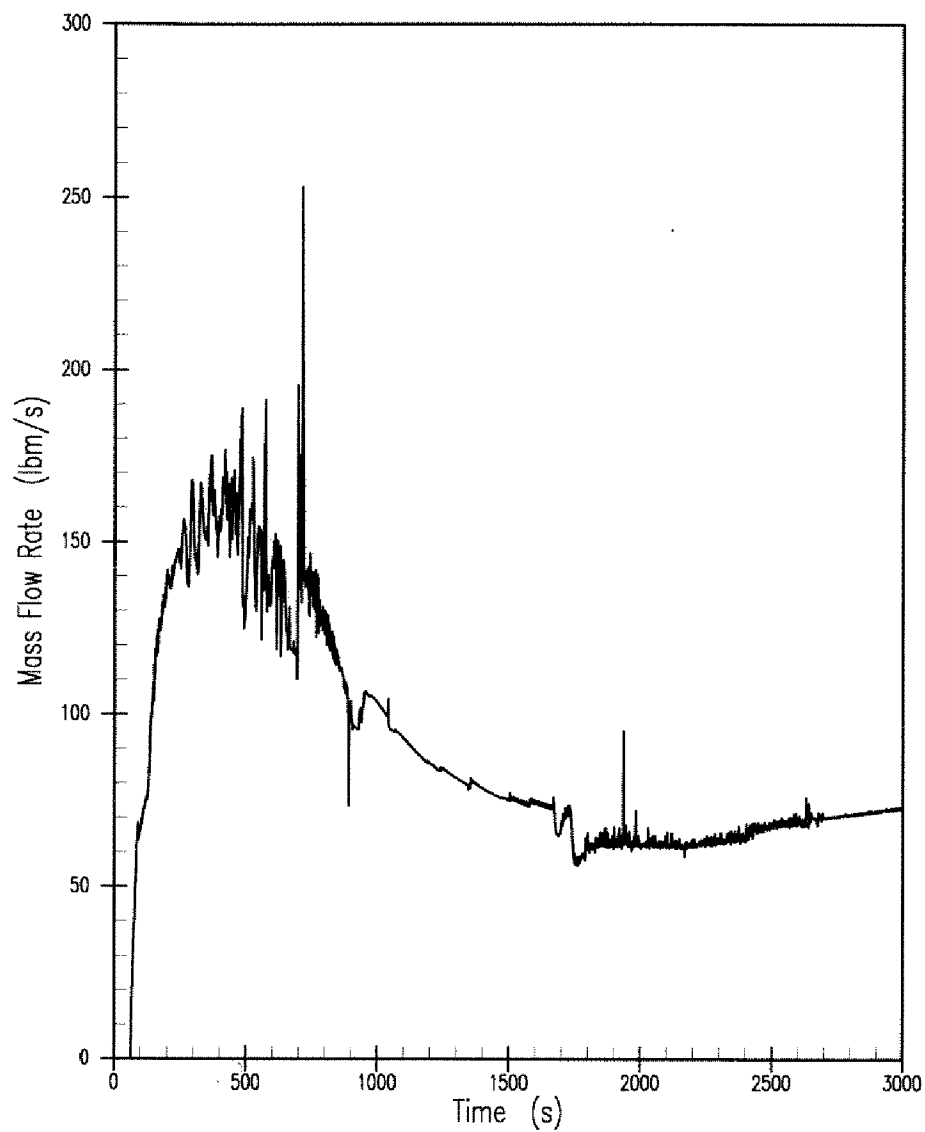
**UFSAR FIGURE 14.3-54 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**3" SMALL BREAK LOCA HOT ROD CLADDING  
TEMPERATURE**

**UFSAR FIGURE 14.3-55 | REV. No. 01**

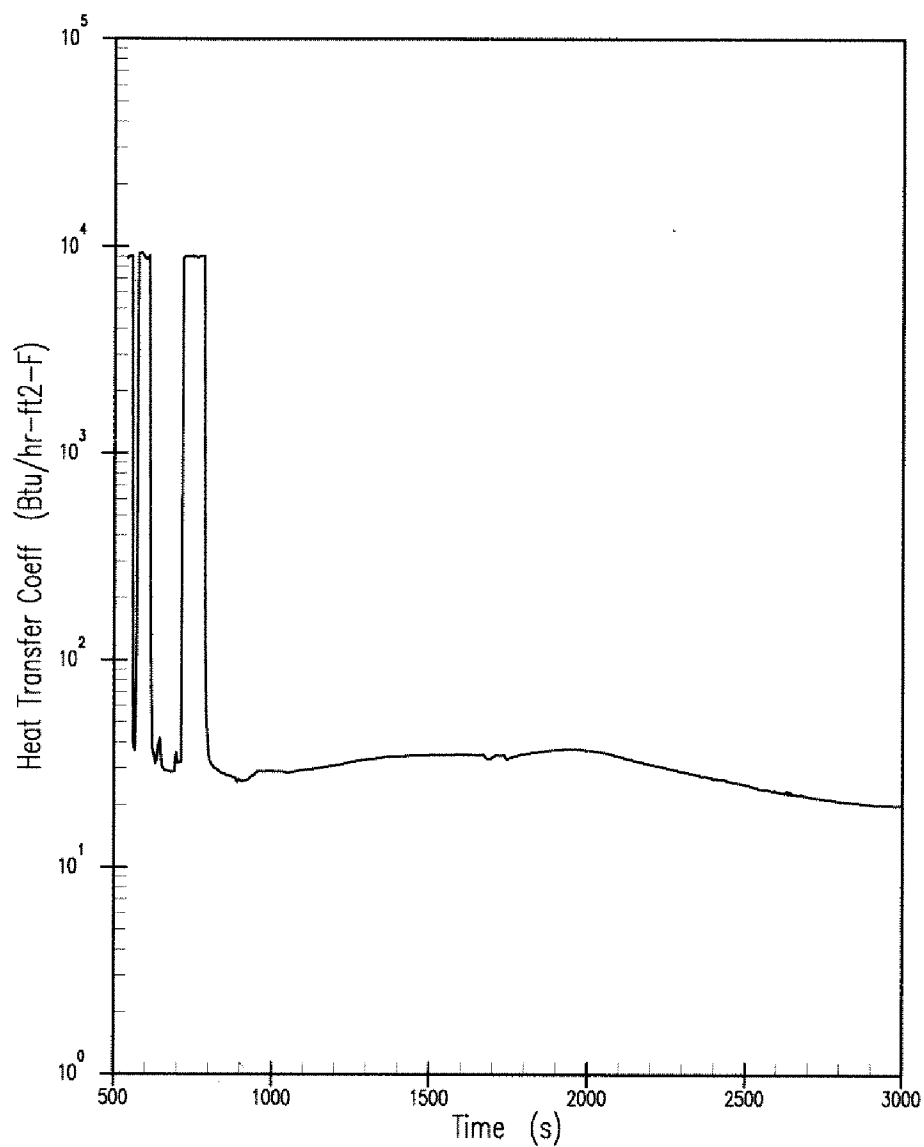


**INDIAN POINT UNIT No. 3**

**3" SMALL BREAK LOCA CORE OUTLET STEAM  
FLOW RATE**

**UFSAR FIGURE 14.3-56 | REV. No. 01**

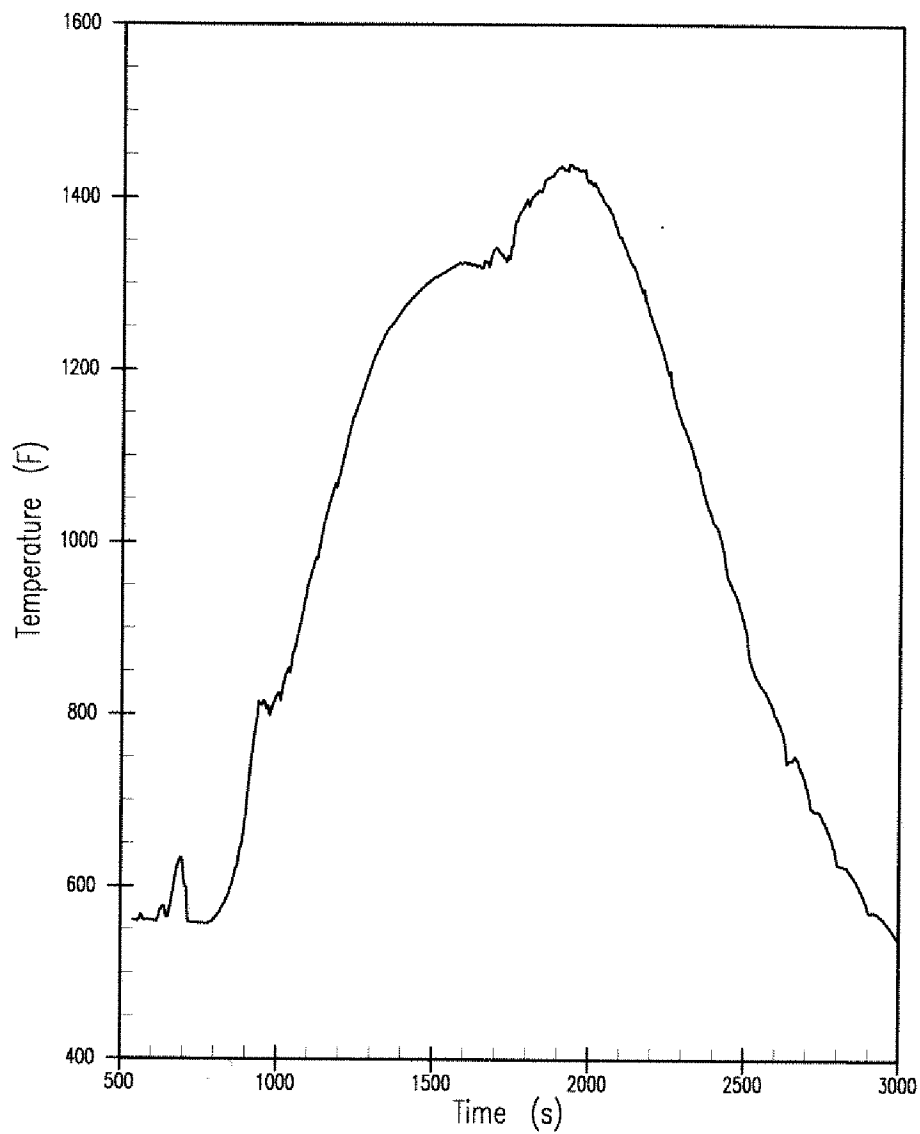




**INDIAN POINT UNIT No. 3**

**3" SMALL BREAK LOCA HOT ASSEMBLY ROD  
SURFACE HEAT TRANSFER COEFFICIENT**

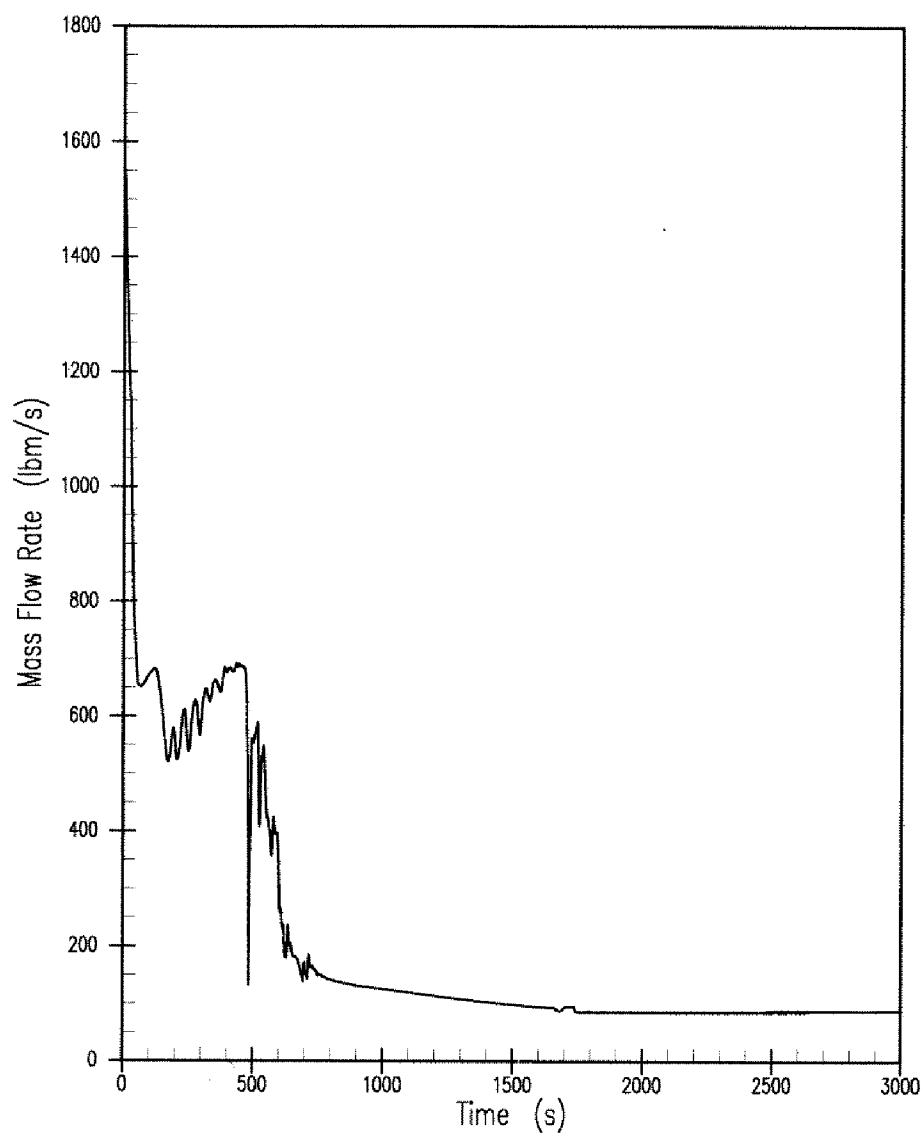
**UFSAR FIGURE 14.3-57 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**3" SMALL BREAK LOCA HOT SPOT  
FLUID TEMPERATURE**

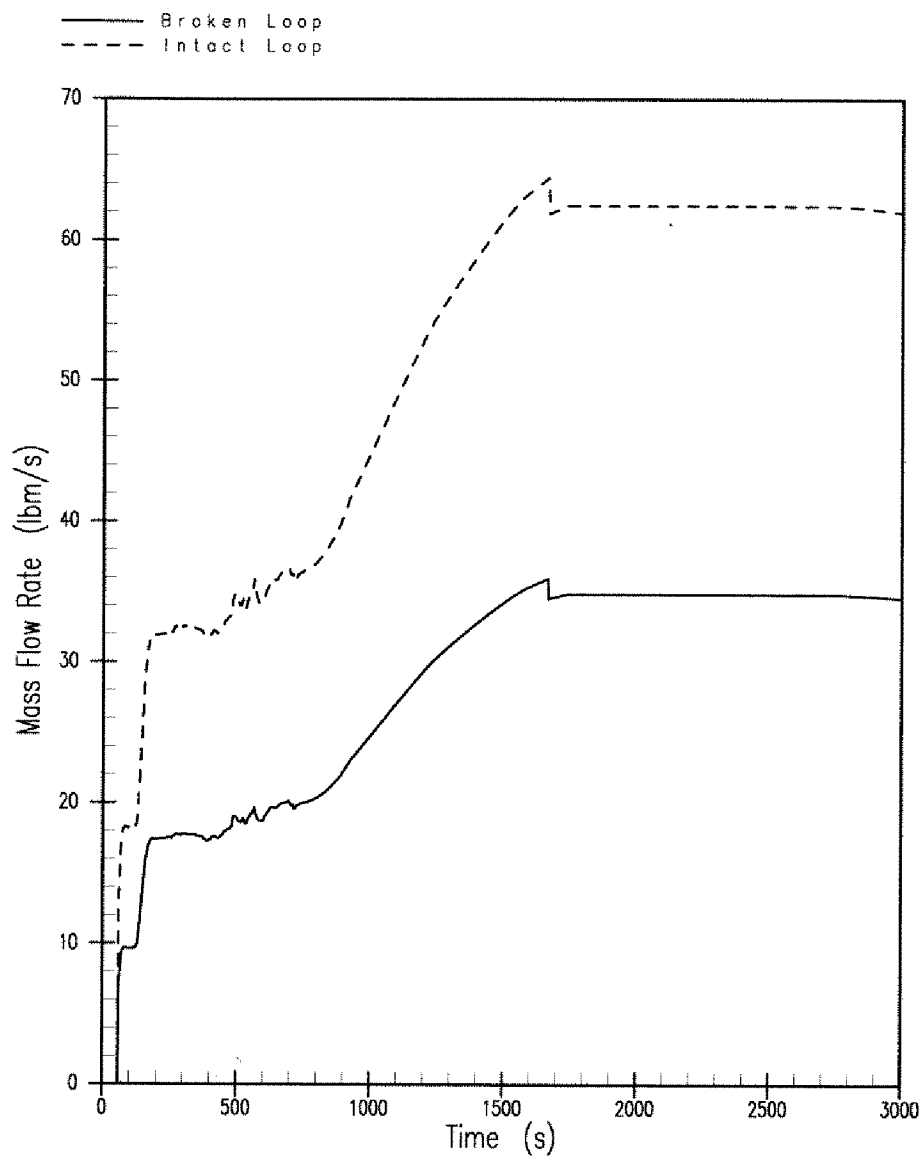
**UFSAR FIGURE 14.3-58 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**3" SMALL BREAK LOCA BREAK FLOW RATE**

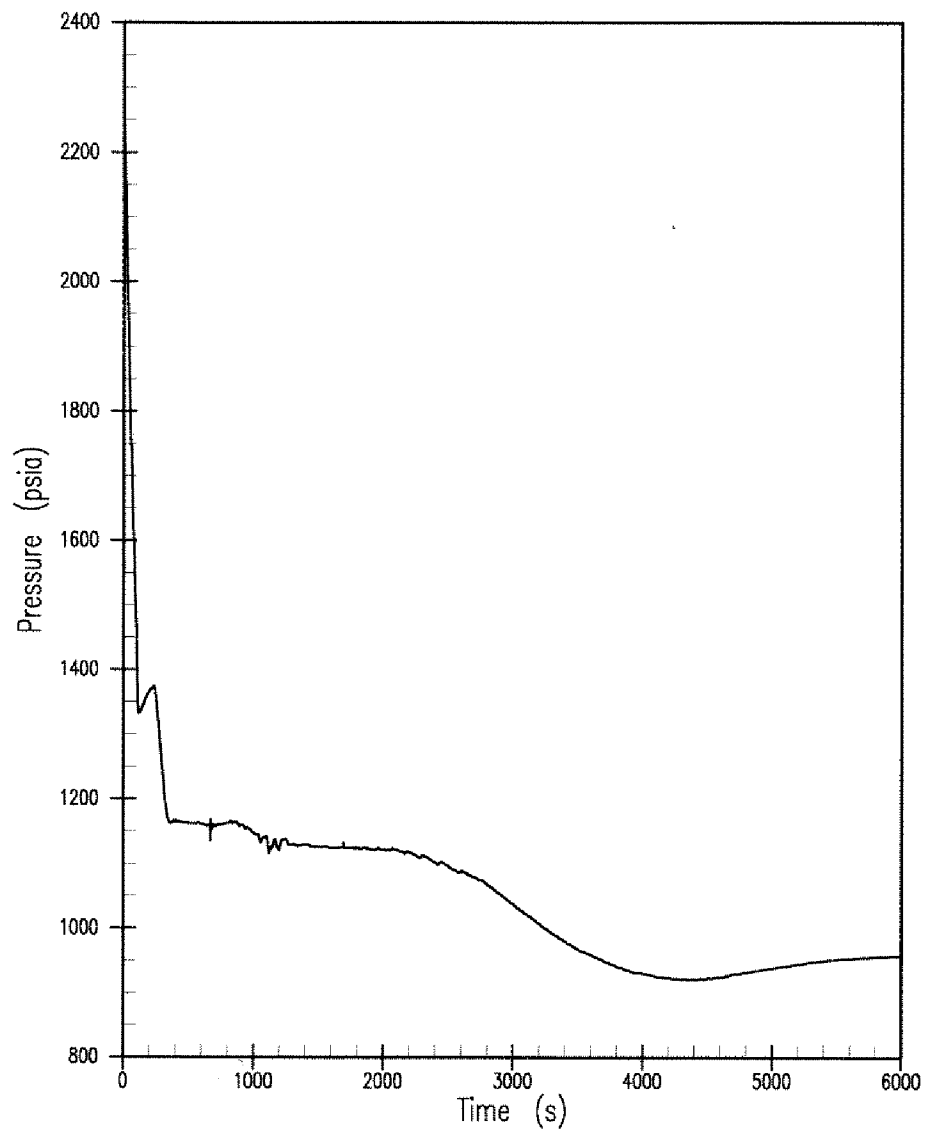
**UFSAR FIGURE 14.3-59 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**3" SMALL BREAK LOCA SAFETY INJECTION  
MASS FLOW RATE**

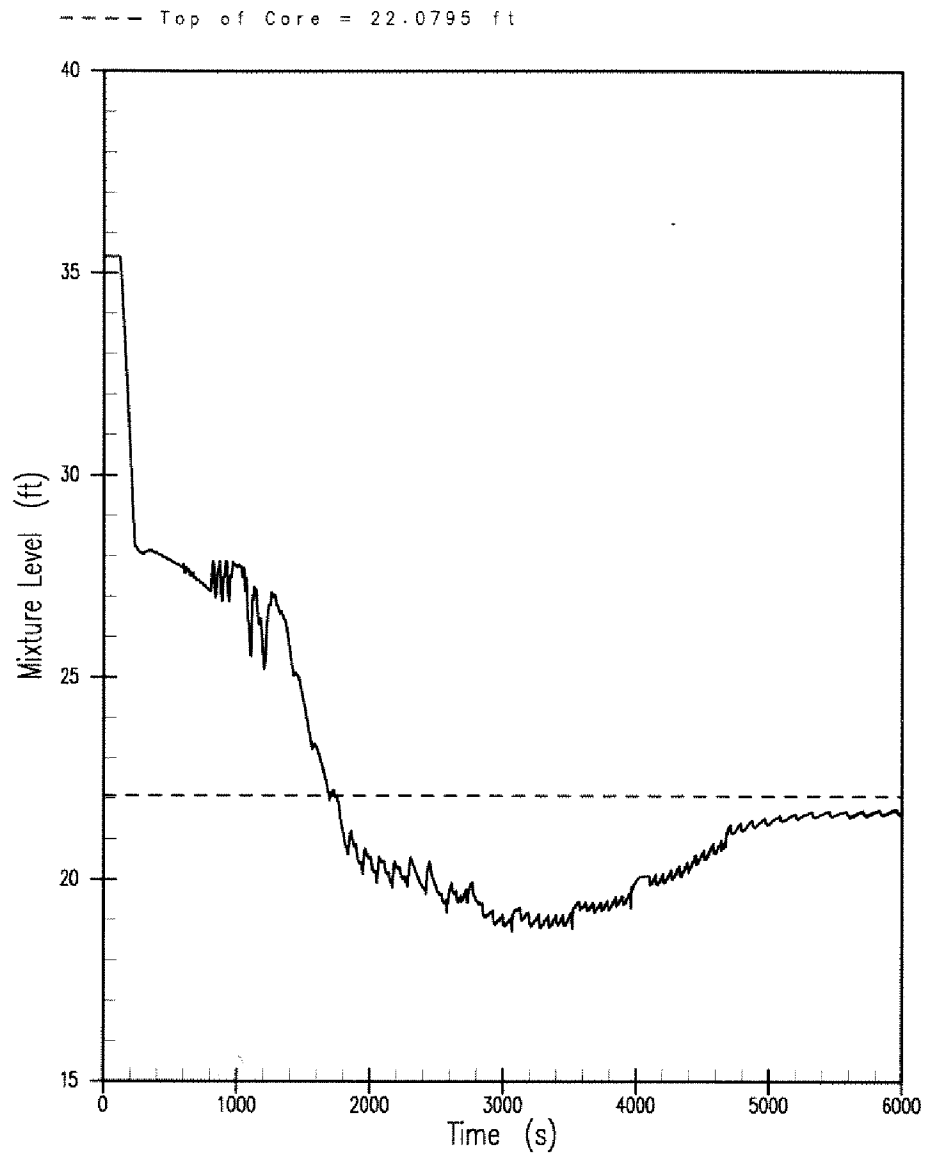
**UFSAR FIGURE 14.3-60 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**2" SMALL BREAK LOCA RCS PRESSURE**

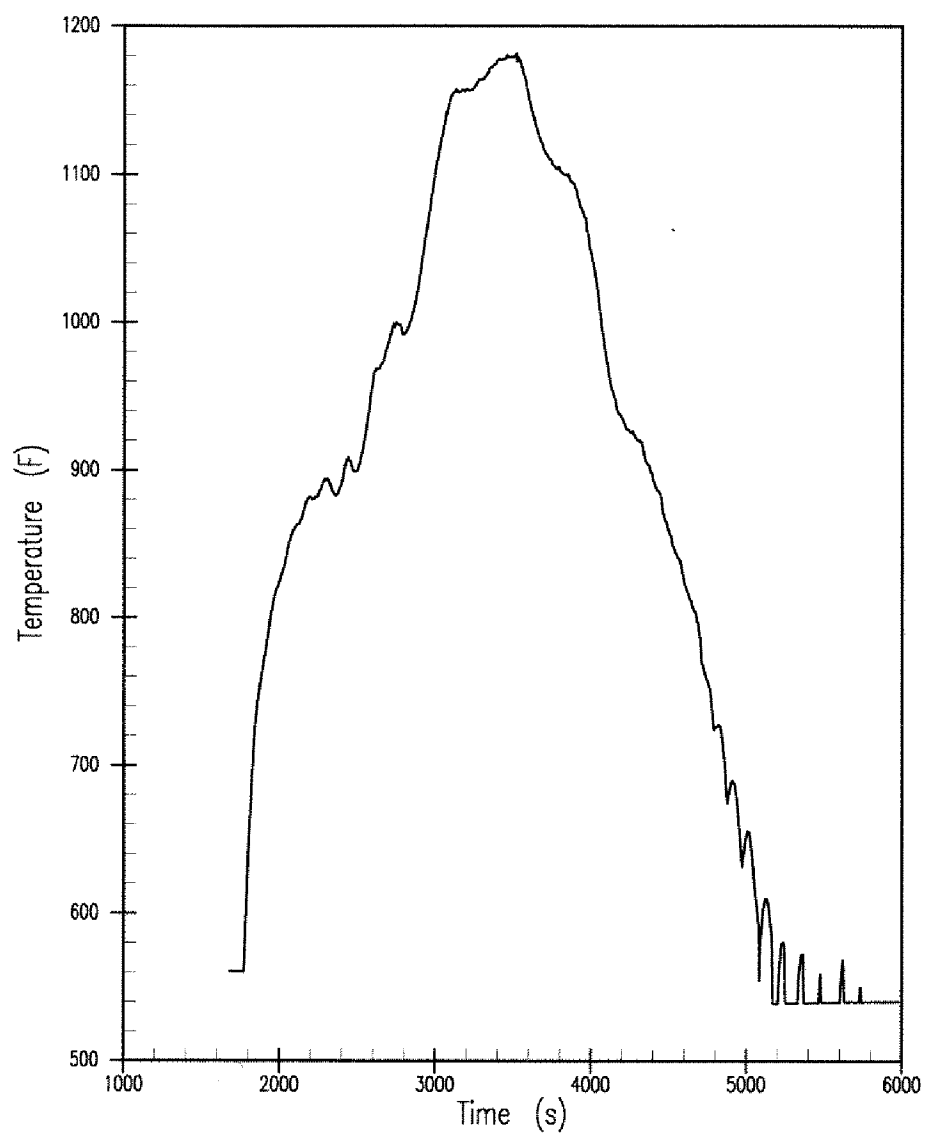
**UFSAR FIGURE 14.3-61 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**2" SMALL BREAK LOCA CORE MIXTURE LEVEL**

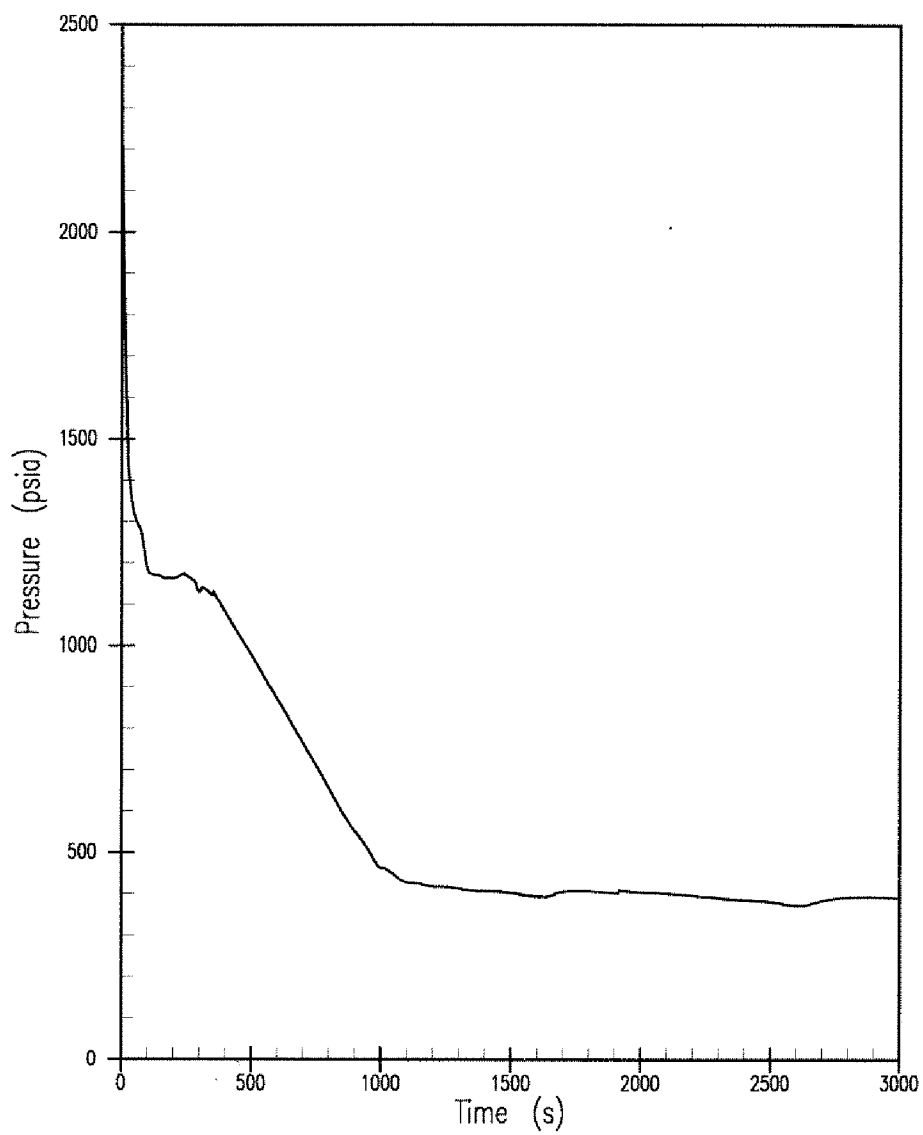
**UFSAR FIGURE 14.3-62 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**2" SMALL BREAK LOCA HOT ROD CLADDING  
TEMPERATURE**

**UFSAR FIGURE 14.3-63 | REV. No. 01**

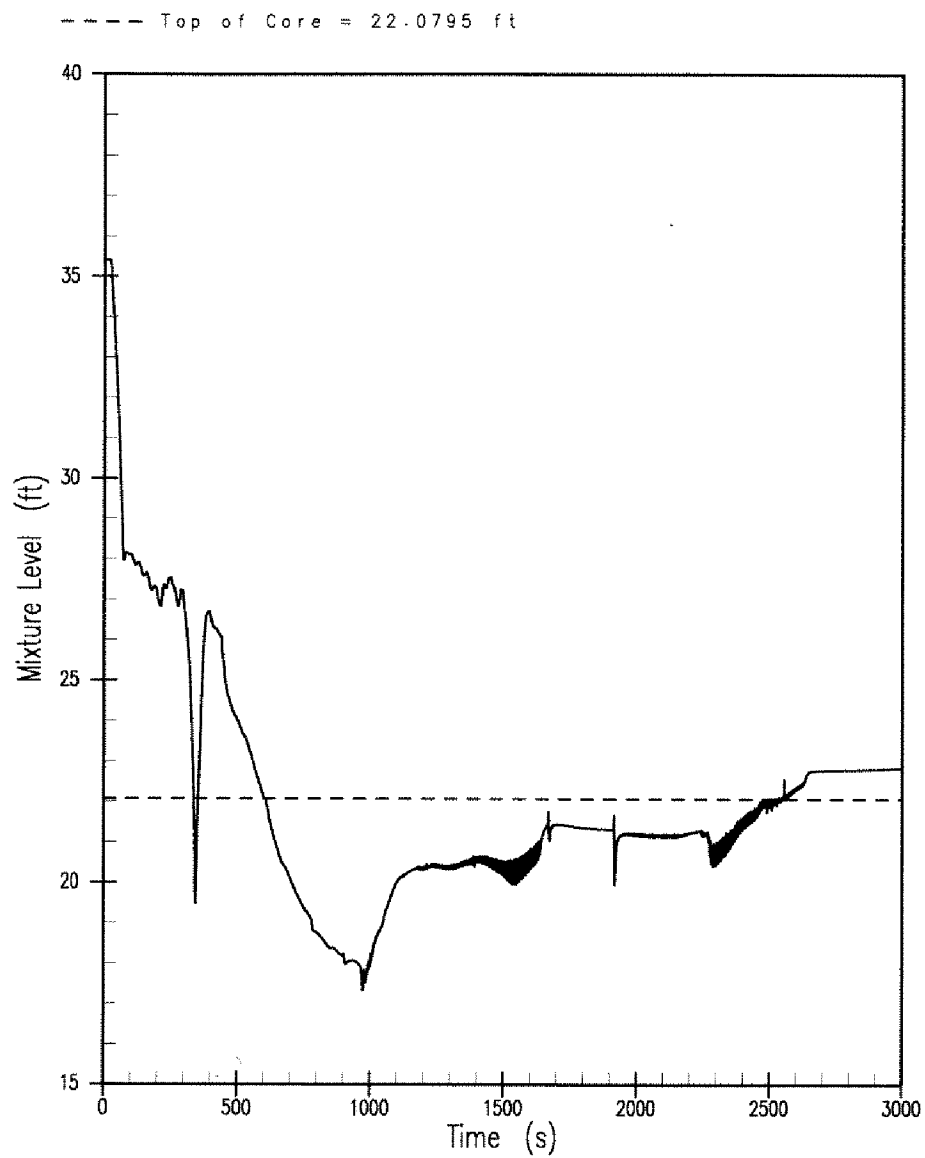


**INDIAN POINT UNIT No. 3**

**4" SMALL BREAK LOCA RCS PRESSURE**

**UFSAR FIGURE 14.3-64 | REV. No. 01**

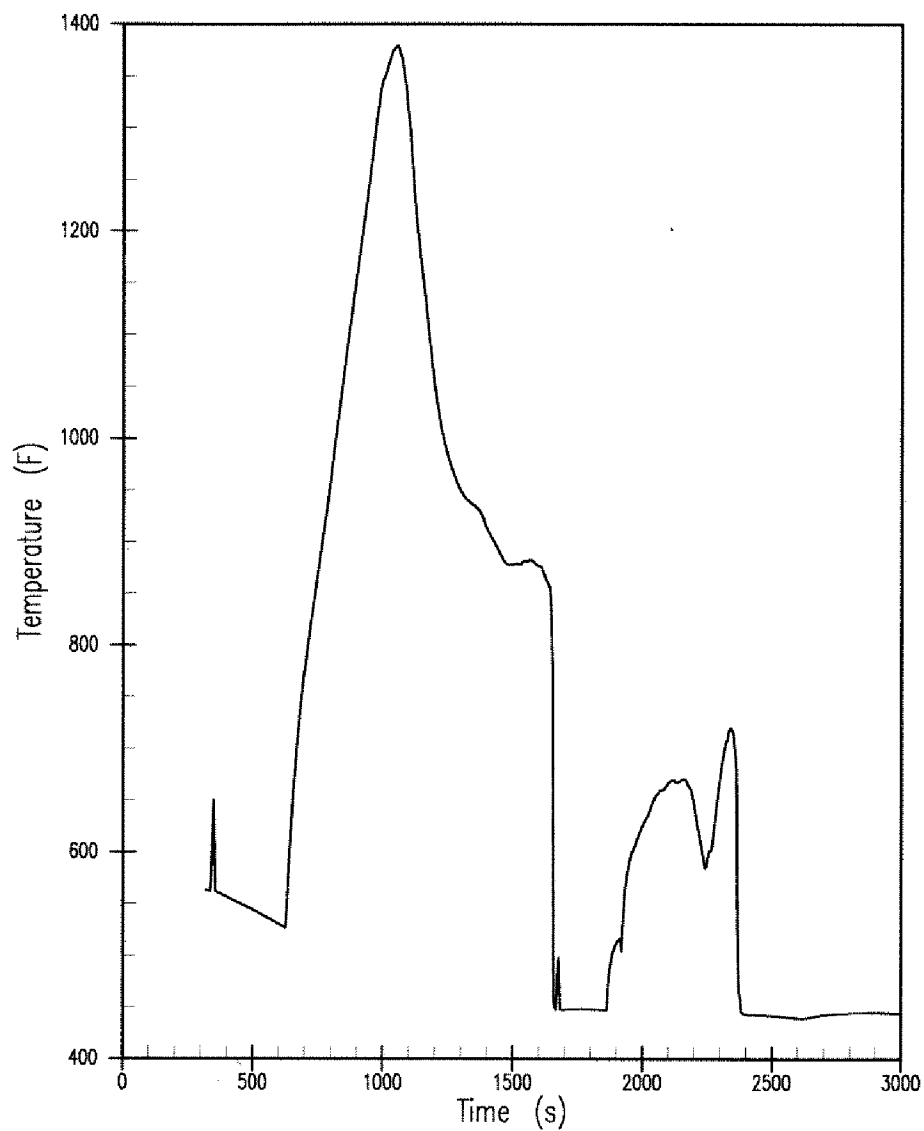




**INDIAN POINT UNIT No. 3**

**4" SMALL BREAK LOCA CORE MIXTURE LEVEL**

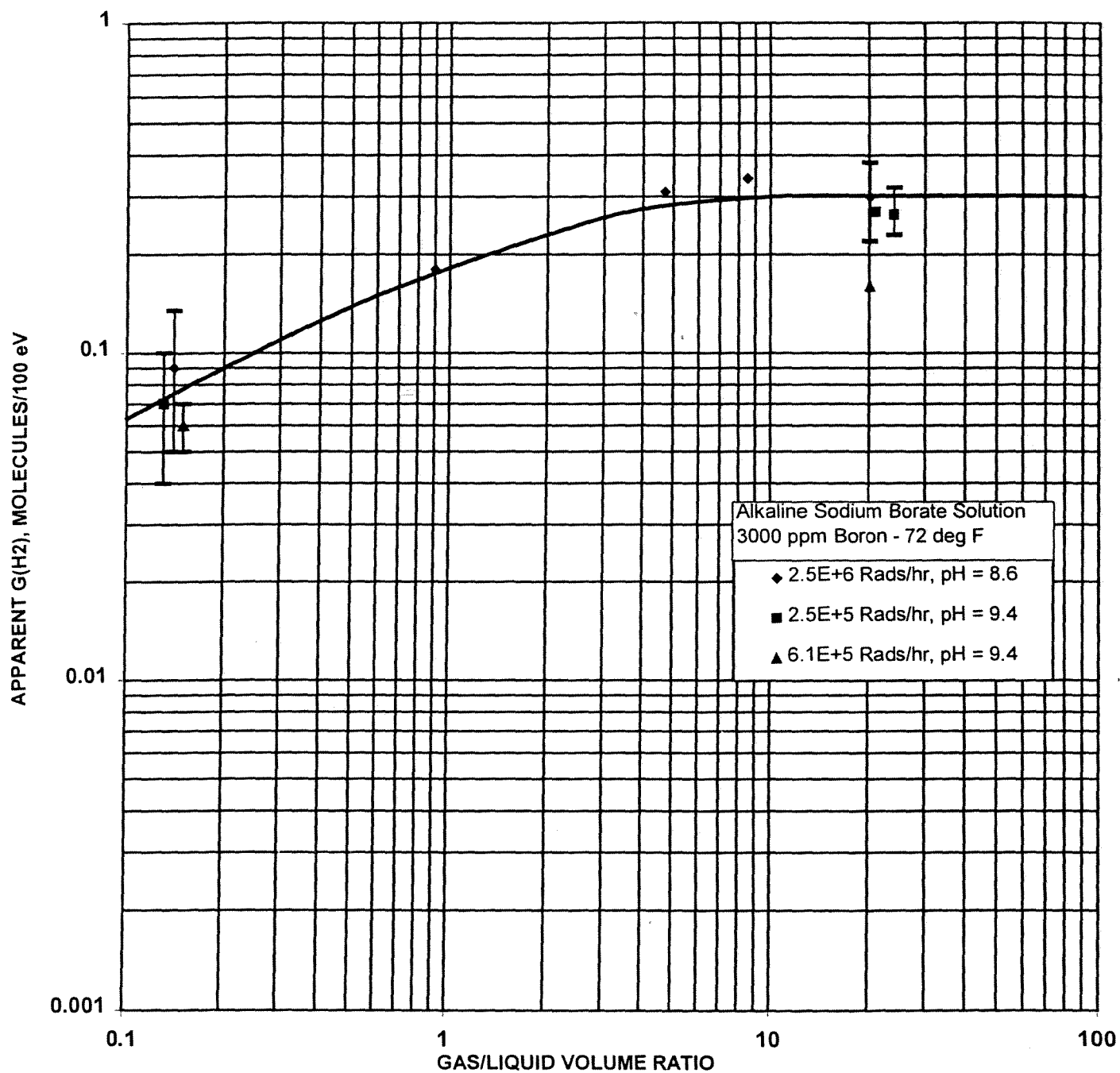
**UFSAR FIGURE 14.3-65 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**4" SMALL BREAK LOCA HOT ROD CLADDING  
TEMPERATURE**

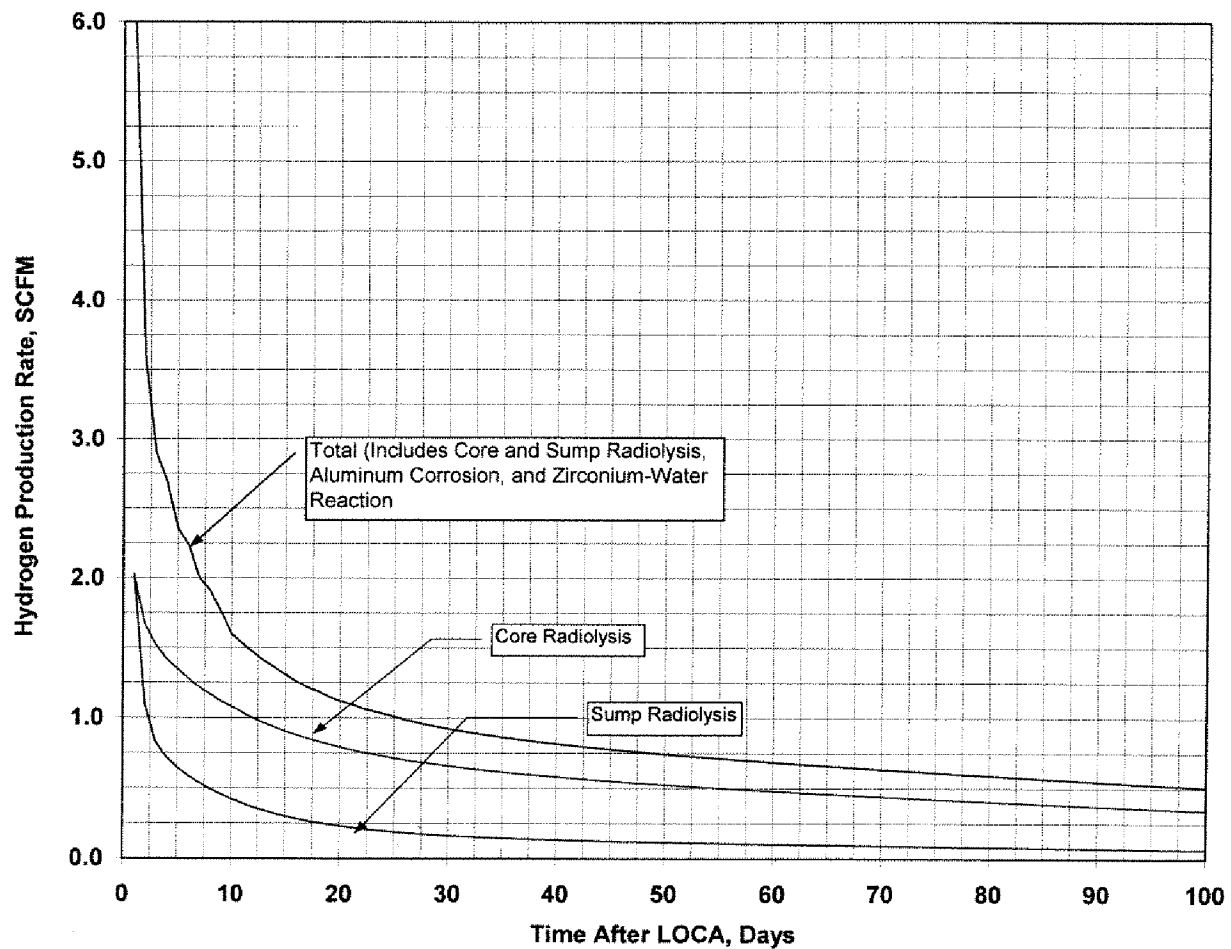
**UFSAR FIGURE 14.3-66 | REV. No. 01**



INDIAN POINT 3 FSAR UPDATE

RESULTS OF WESTINGHOUSE  
CAPSULE IRRADIATION TESTS

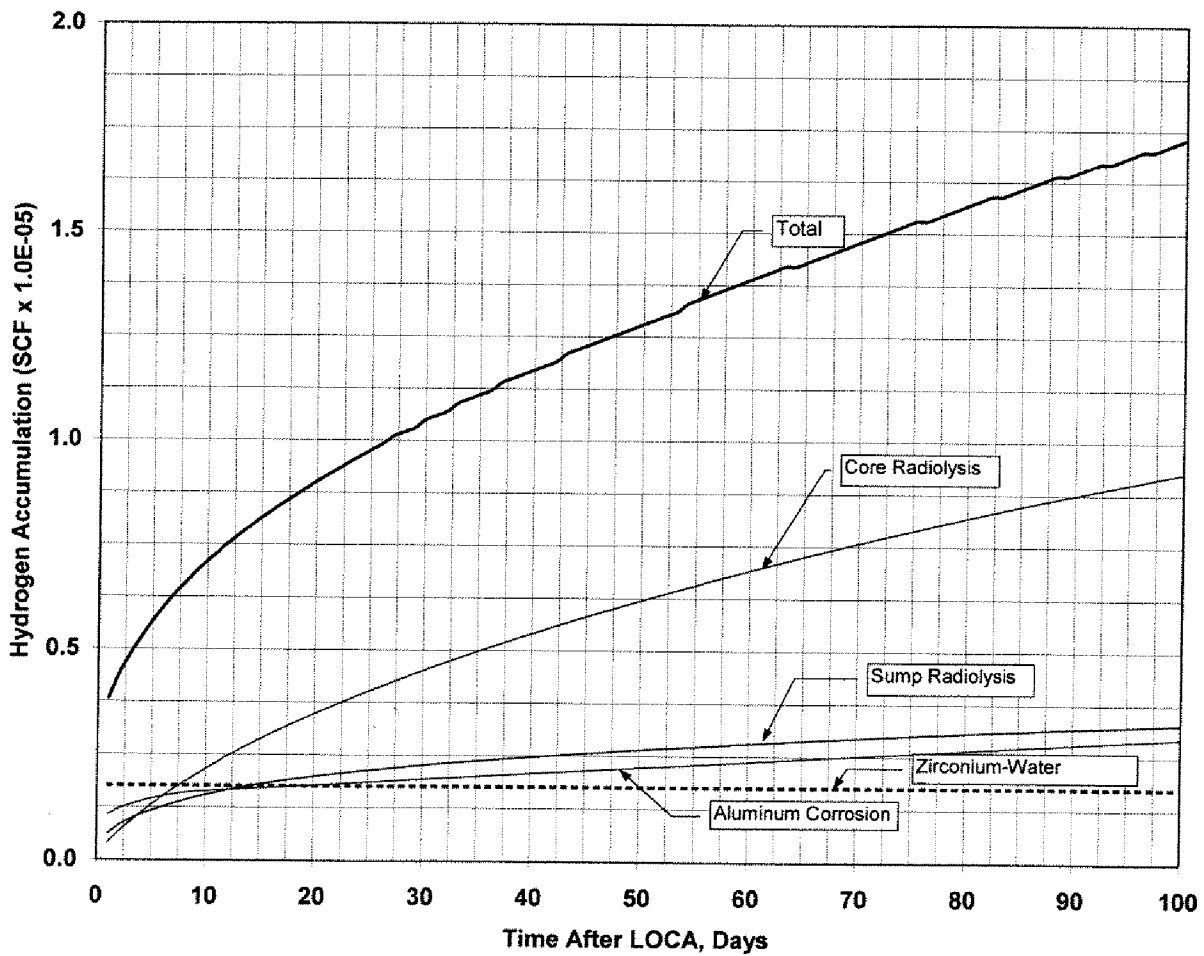
REV. 3 NOV 2001 | FIG. NO. 14.3-74



INDIAN POINT UNIT No. 3

HYDROGEN PRODUCTION RATE  
VERSUS TIME AFTER LOCA

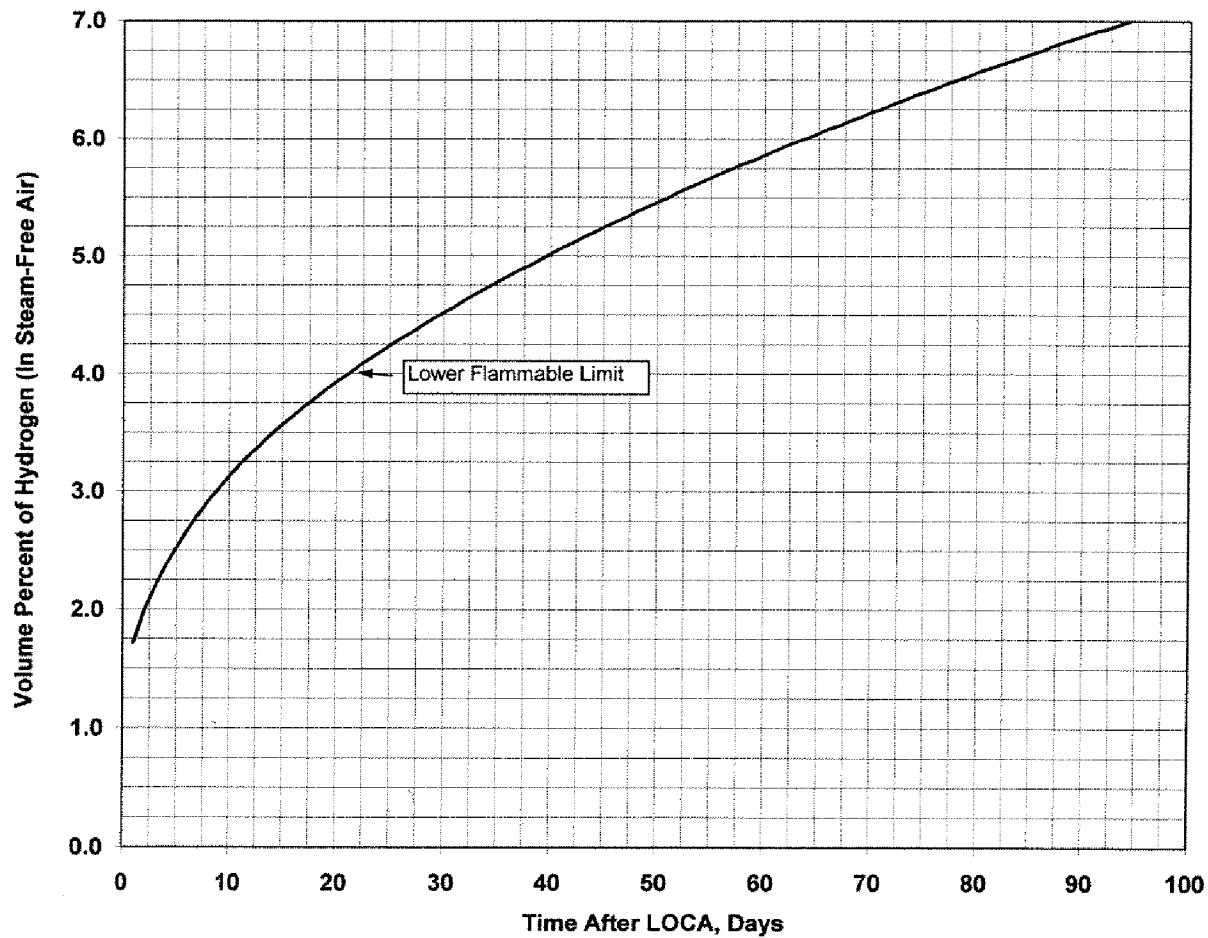
UFSAR FIGURE 14.3-75 | REV. No. 01



INDIAN POINT UNIT No. 3

TOTAL HYDROGEN ACCUMULATED FROM ALL SOURCES

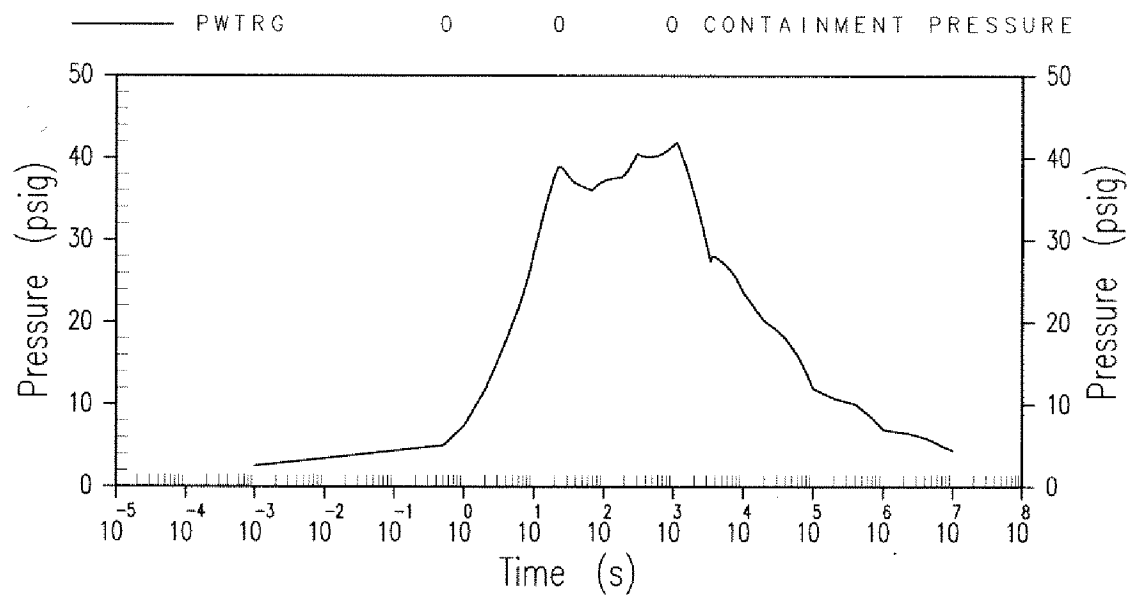
UFSAR FIGURE 14.3-77 | REV. No. 01



INDIAN POINT UNIT No. 3

CONCENTRATION OF HYDROGEN IN CONTAINMENT

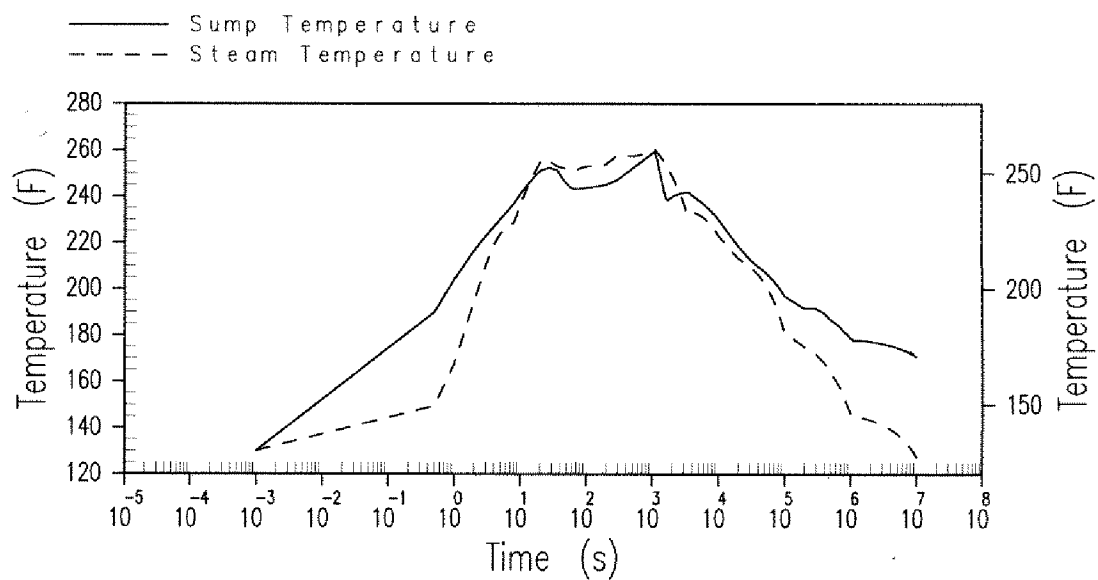
UFSAR FIGURE 14.3-79 | REV. No. 01



### INDIAN POINT UNIT No. 3

DOUBLE-ENDED PUMP SUCTION BREAK WITH  
MINIMUM SAFEGUARDS PRESSURE RESPONSE

UFSAR FIGURE 14.3-83 | REV. No. 01

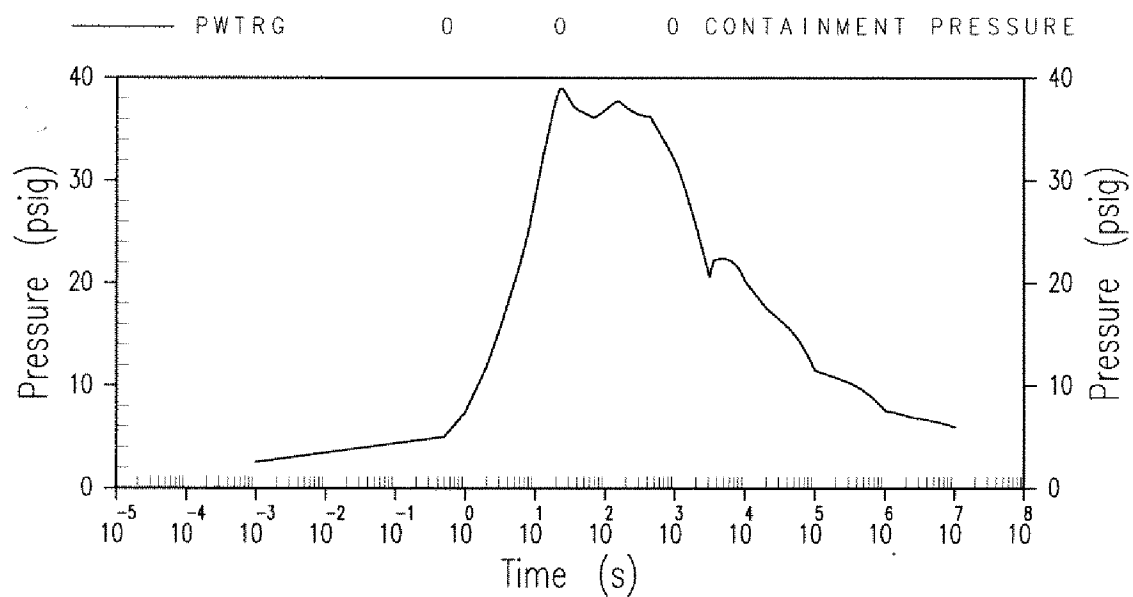


### INDIAN POINT UNIT No. 3

**DOUBLE-ENDED PUMP SUCTION BREAK WITH  
 MINIMUM SAFEGUARDS TEMPERATURE  
 RESPONSE**

**UFSAR FIGURE 14.3-84 | REV. No. 01**

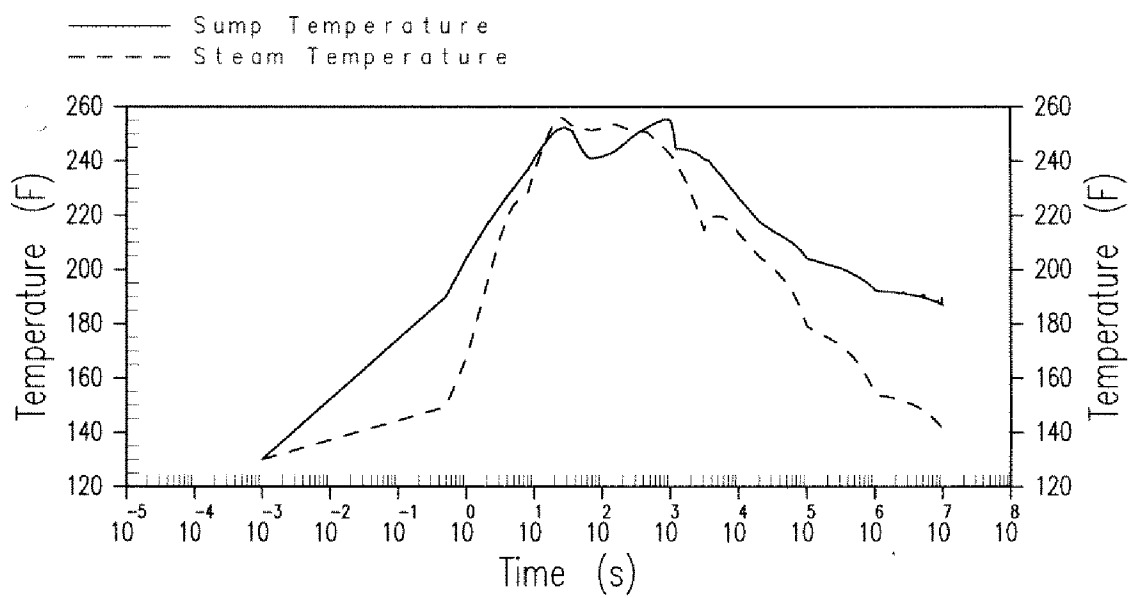




### INDIAN POINT UNIT No. 3

DOUBLE-ENDED PUMP SUCTION BREAK WITH  
MAXIMUM SAFEGUARDS PRESSURE  
RESPONSE

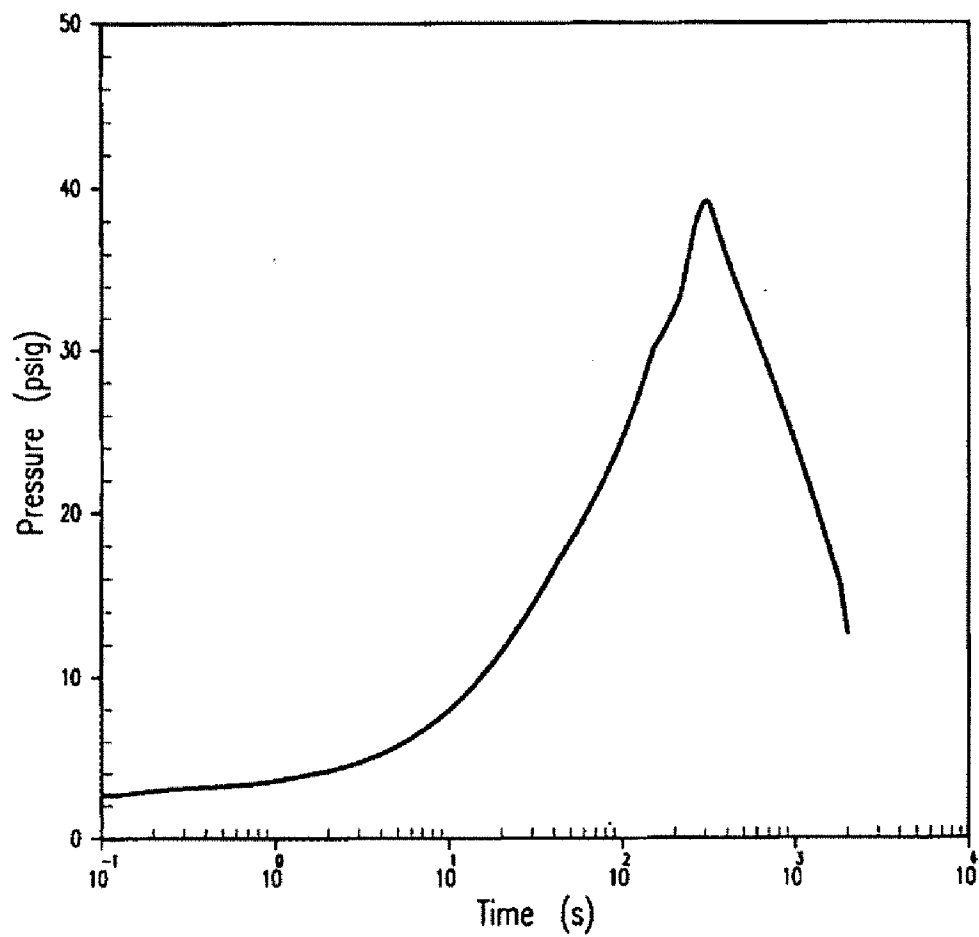
UFSAR FIGURE 14.3-85 | REV. No. 01



### INDIAN POINT UNIT No. 3

**DOUBLE-ENDED PUMP SUCTION BREAK WITH  
 MAXIMUM SAFEGUARDS TEMPERATURE  
 RESPONSE**

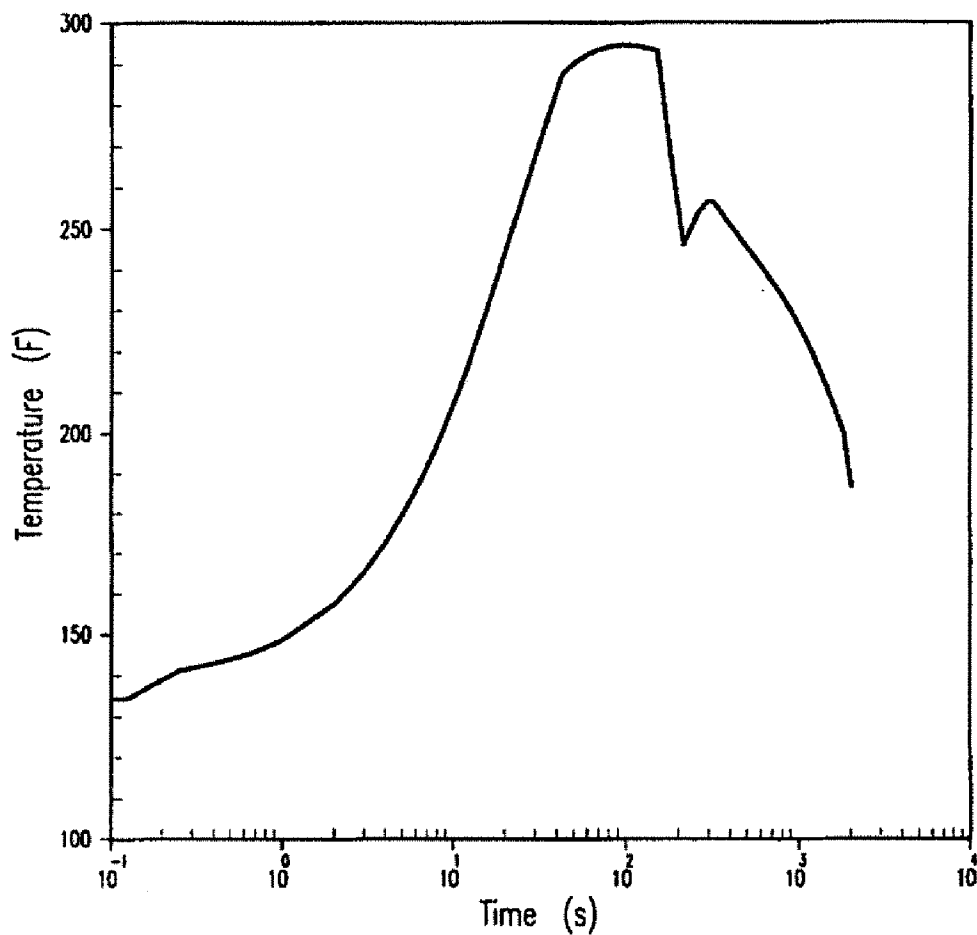
**UFSAR FIGURE 14.3-86 | REV. No. 01**



### INDIAN POINT UNIT No. 3

CONTAINMENT PRESSURE FOR 70% POWER  
STEAMLINE BREAK WITH FCV FAILURE AND  
OFFSITE POWER

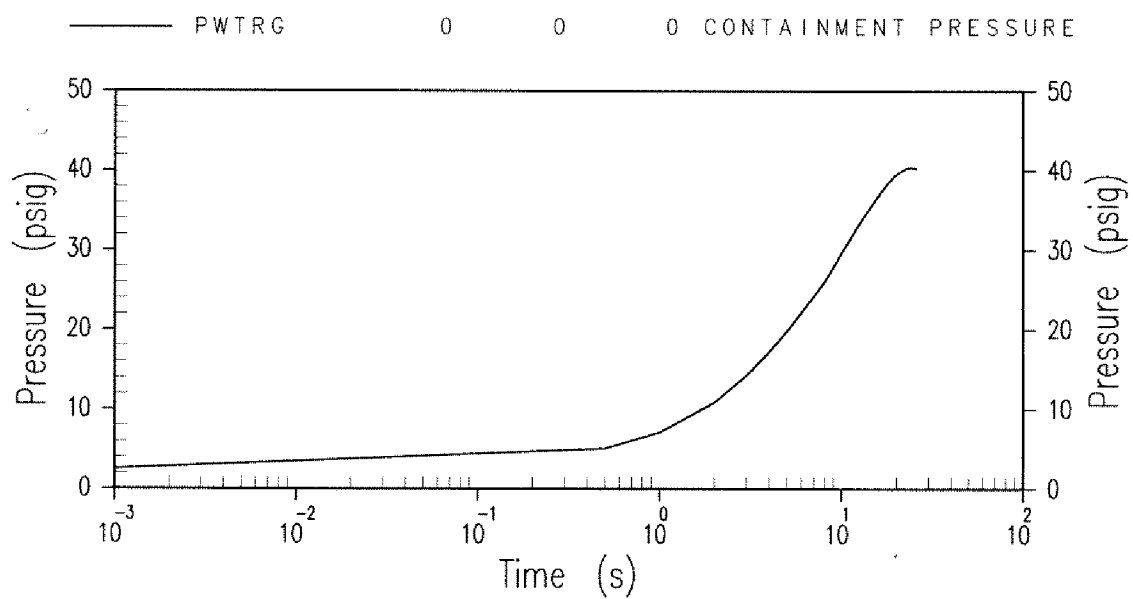
UFSAR FIGURE 14.3-87 | REV. No. 01



**INDIAN POINT UNIT No. 3**

**CONTAINMENT AIR TEMPERATURE FOR 70%  
POWER STEAMLINE BREAK WITH FCV FAILURE  
AND OFFSITE POWER**

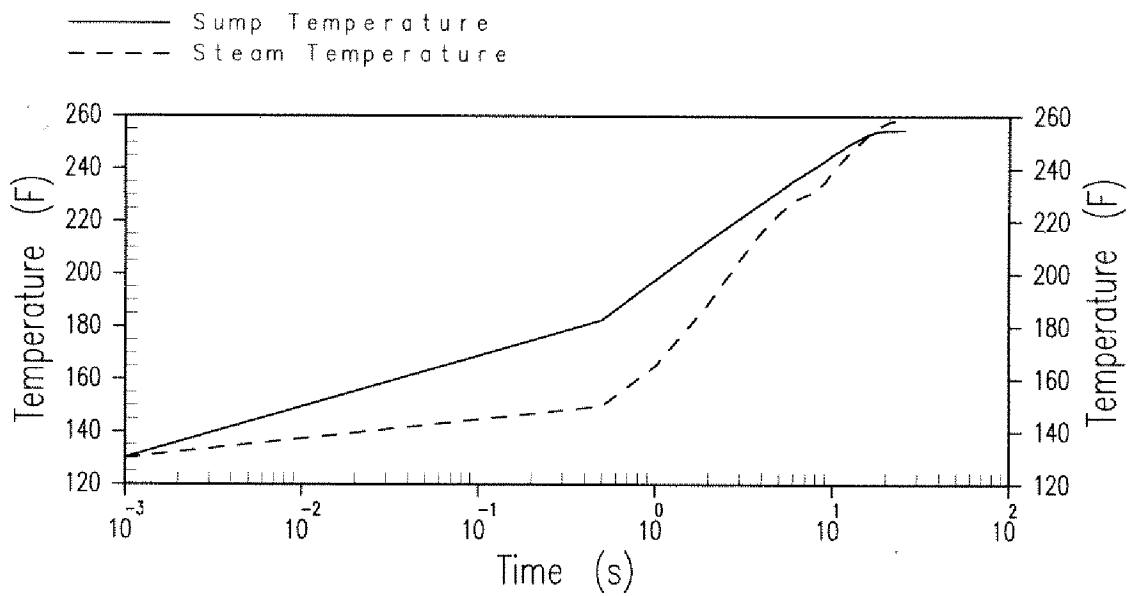
**UFSAR FIGURE 14.3-88 | REV. No. 01**



**INDIAN POINT UNIT No. 3**

**DOUBLE-ENDED HOT LEG BREAK PRESSURE  
RESPONSE**

**UFSAR FIGURE 14.3-100 | REV. No. 01**



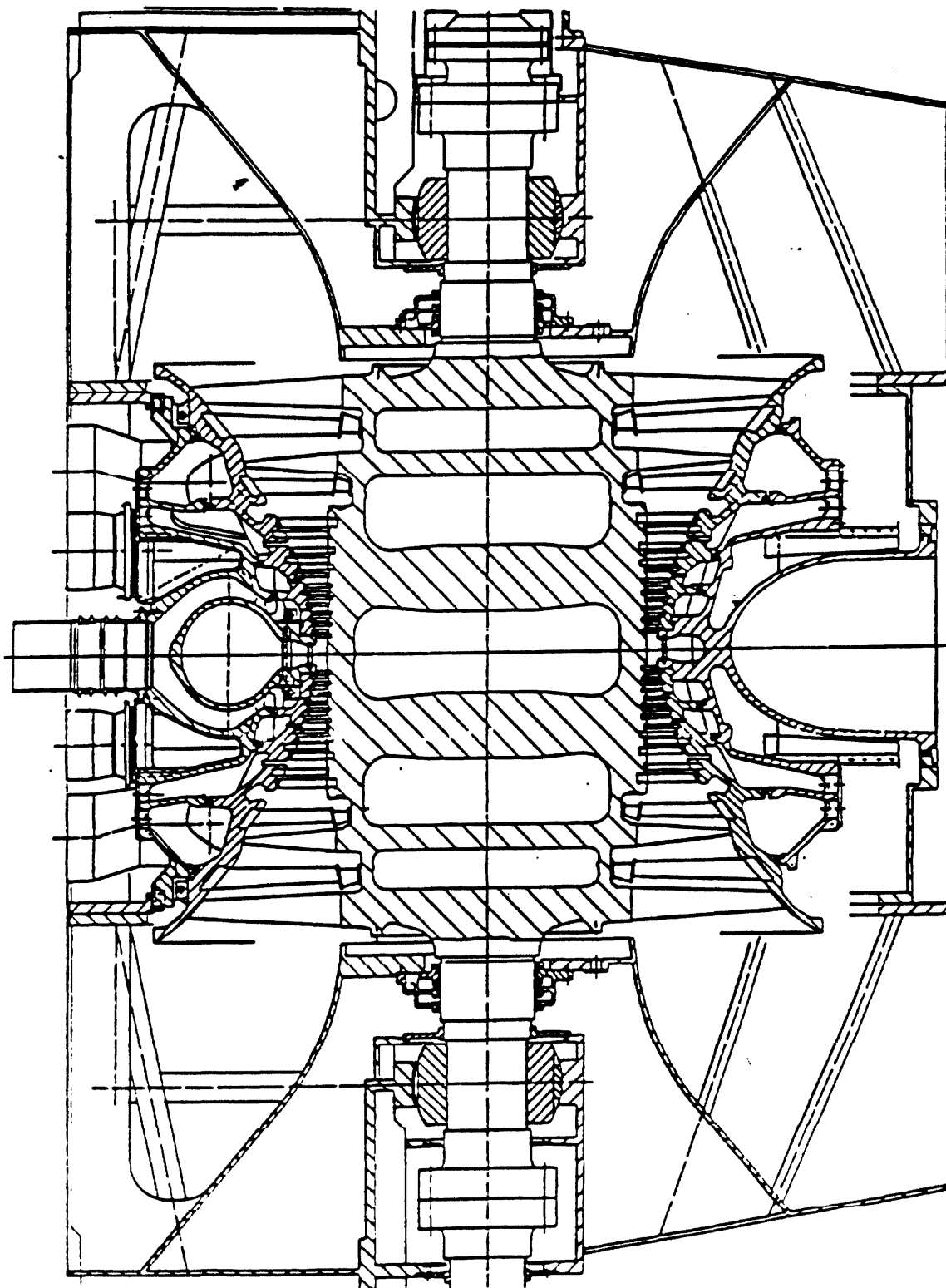
**INDIAN POINT UNIT No. 3**

**DOUBLE-ENDED HOT LEG BREAK  
TEMPERATURE RESPONSE**

**UFSAR FIGURE 14.3-101 | REV. No. 01**

Cross Section of Standard LP-Rotor  
(Nuclear Power Plant Indian Point Unit 3)

Figure 3.1



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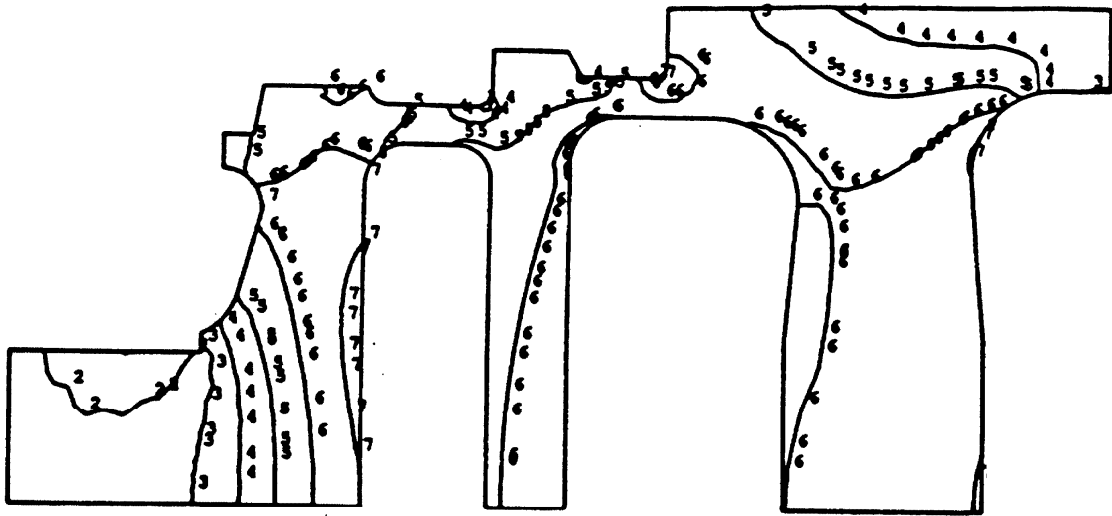


Fig. 3.2: Circumferential Stress in Welded LP-Rotor [8]  
(Line Number -2)  $\cdot 50 + \sigma / \text{MPa}$   $1 \text{ ksi} = 6,895 \text{ MPa}$

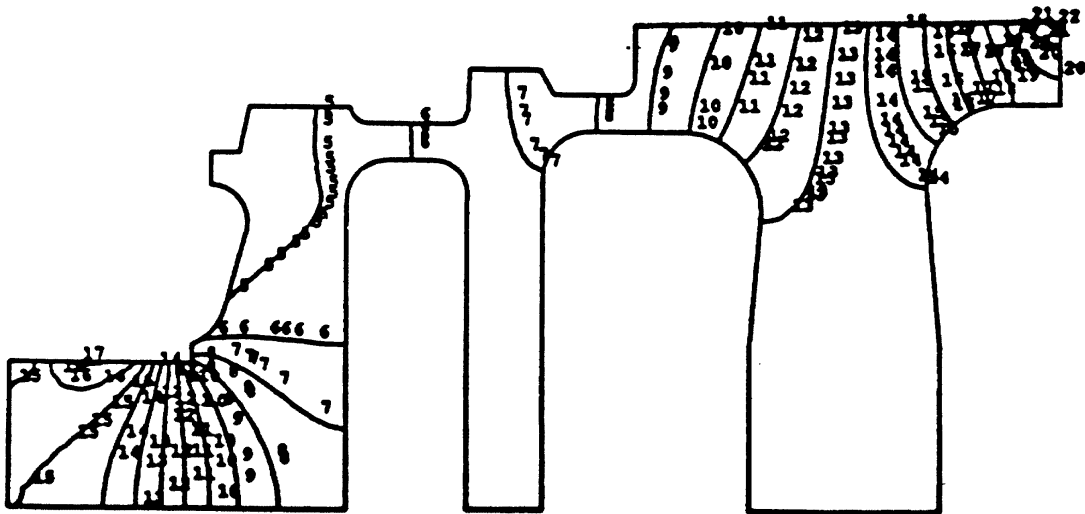
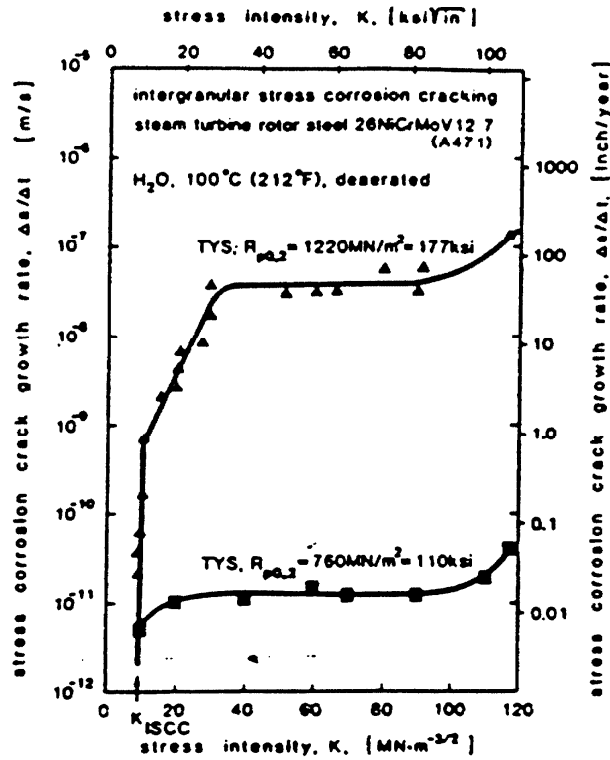


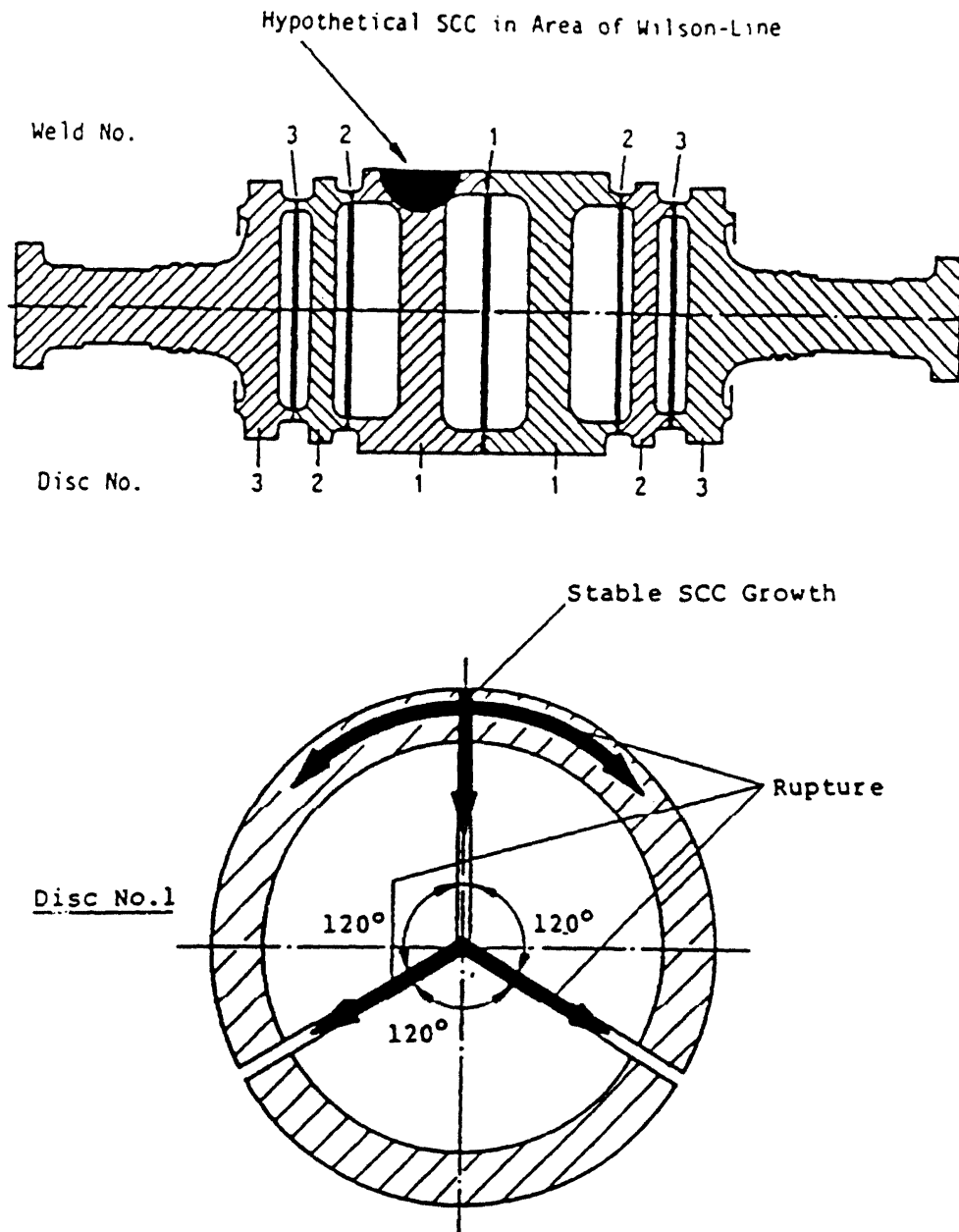
Fig. 3.3 Temperature in Welded LP-Rotor [8]  
(Line Number -1)  $\cdot 10 = T_c$   $T_F = 1,8 \cdot T_c + 32$   
 $T_c$  = Temperature in  $^{\circ}\text{C}$ ,  $T_F$  = Temperature in  $^{\circ}\text{F}$



Figure 5.1



Effect of stress intensity and yield strength on the growth rate of stress corrosion cracks in a steam turbine rotor steel. Note that  $K_{\text{ISCC}}$  is not measurably influenced by the change in yield strength; the "plateau" stress corrosion crack growth rate, however, is strongly influenced by the yield strength.



Hypothetical Failure Mode of Welded LP-Rotor Due to SCC

Figure 5.2

Figure 5.3

Results of  $K_{IC}$  - and  $R_o$  - Measurements for the LP-Rotors  
of Indian Point Unit 3

The items and the test report number (MP.-No) of the forgings of the three LP Indian Point Unit 3 LP-rotors are summarized. The actual measures  $R_o$  - (yield strength) and  $K_{IC}$  - (fracture toughness) values at room temperature are also tabulated and the fracture toughness statistically analyzed.

- Contents:
- Items and MP-numbers of the forgings
  - Measured yield strength at room temperature
  - Measured fracture toughness at room temperature
  - Summary and statistical evaluation

Items of Forgings

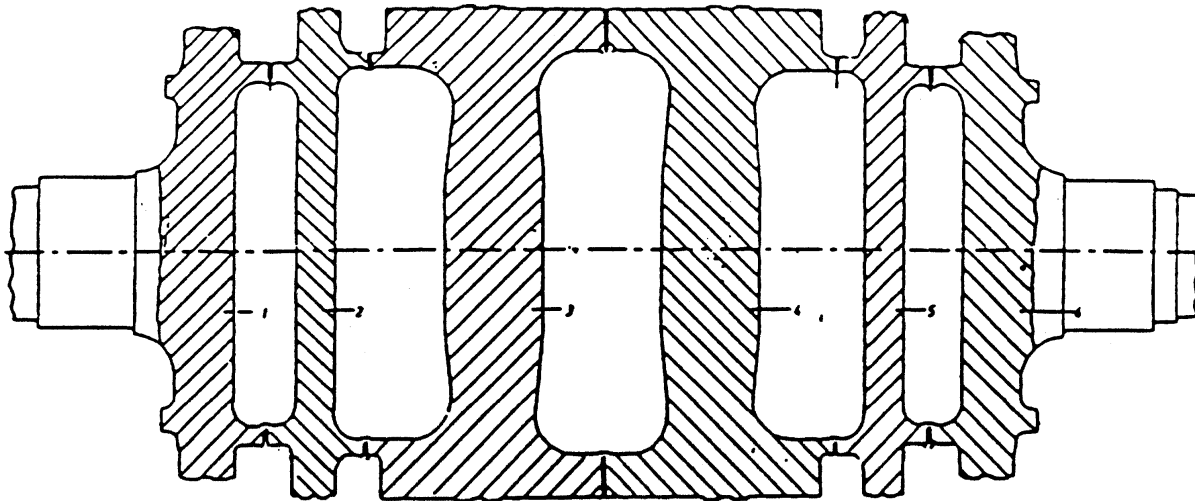
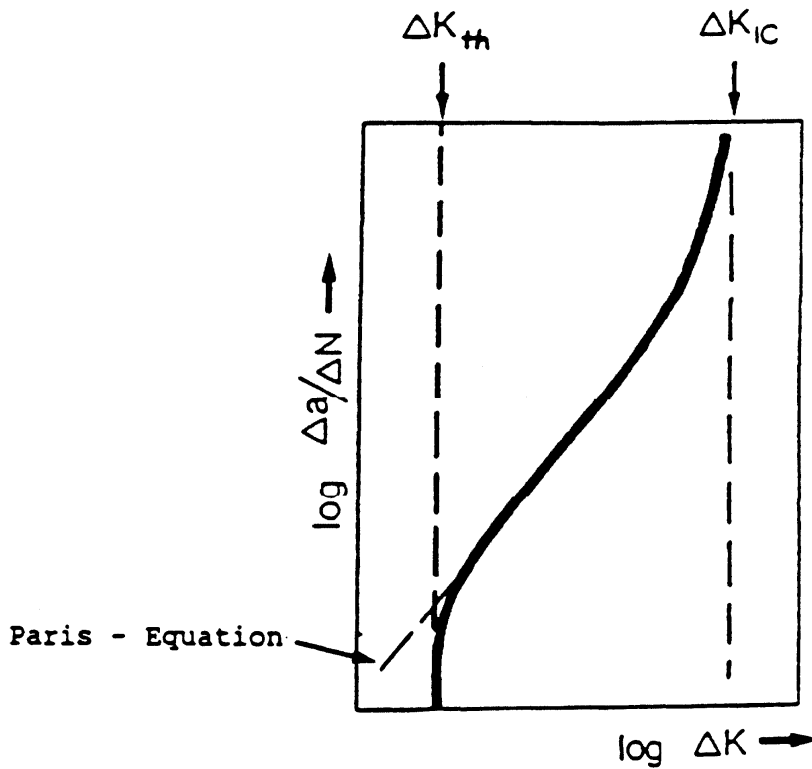


Figure 5.4  
Fatigue Crack Growth



## 6.0 METHOD FOR CALCULATING TURBINE MISSILE GENERATION PROBABILITY ( $P_1$ )

The turbine missile generation probability ( $P_1$ ) consists of two factors (1) the probability of shaft failure producing an internal turbine missile ( $P_1'$ ) and (2) the probability that this internal missile penetrates the casings and is ejected from out the turbine ( $P_1''$ ).

$$P_{1LCF}(N) = M \cdot \sum_{i=1}^F p_i(N) \quad \text{Equ. 6.14}$$

Since one double flow LP-rotor of the Indian Point Unit 3 has six forgings (2 shaft-ends, 4 disks), three forgings per flow must be considered ( $F = 3$ ), and so one obtains:

$$P_{1LCF}(N) = M \cdot [p_1(N) + p_2(N) + p_3(N)] \quad \text{Equ. 6.15}$$

The indices correspond to the forging (shaft-end, thin disc, thick disc) of a flow.

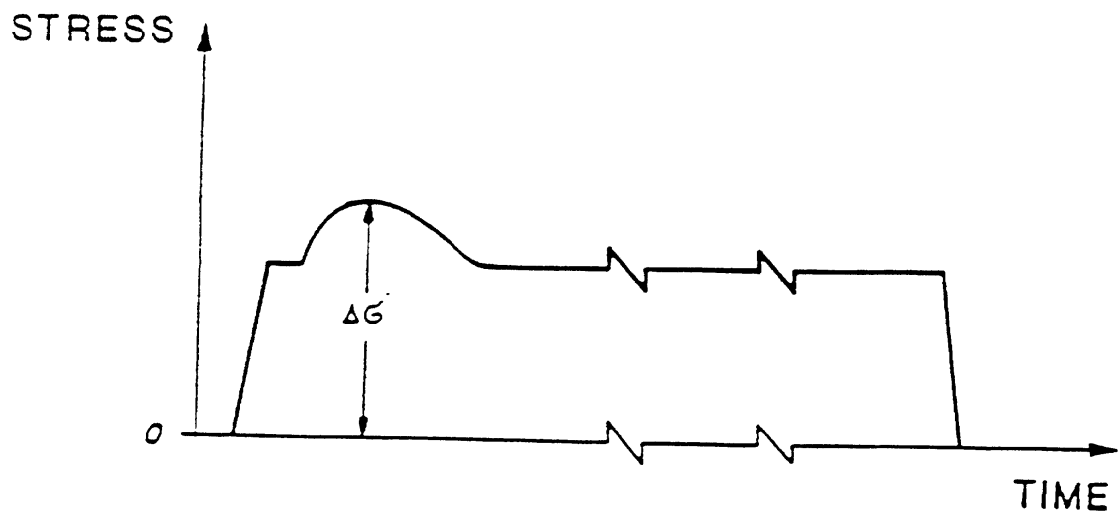


Figure 6.1: Normal Operation Cycle

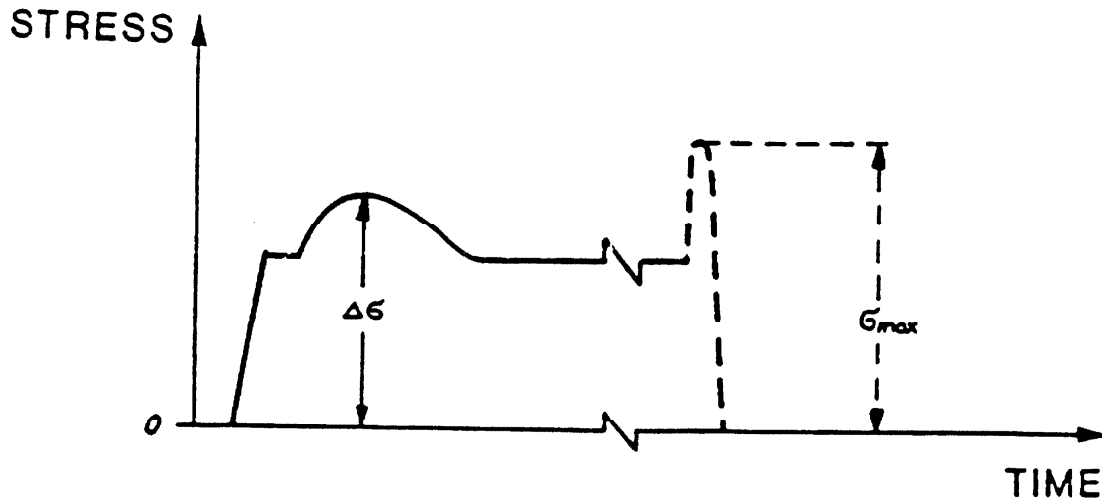


Fig. 6.2: Full Load Rejection With Overspeed

6.2.1 Probability of Missile Generation of an Individual LP-Rotor Forging  $p_1(N)$

The probability of missile generation due to Non-SCC for an individual LP-rotor forging is defined as the probability that an initial crack (crack length  $a_0$ ) grows up to the critical crack length  $a_c$  for brittle fracture.

For the determination of this probability some assumptions are made:

- Each forging has an initial crack with the length  $a_0$  at the location, where the highest transient stress appears.

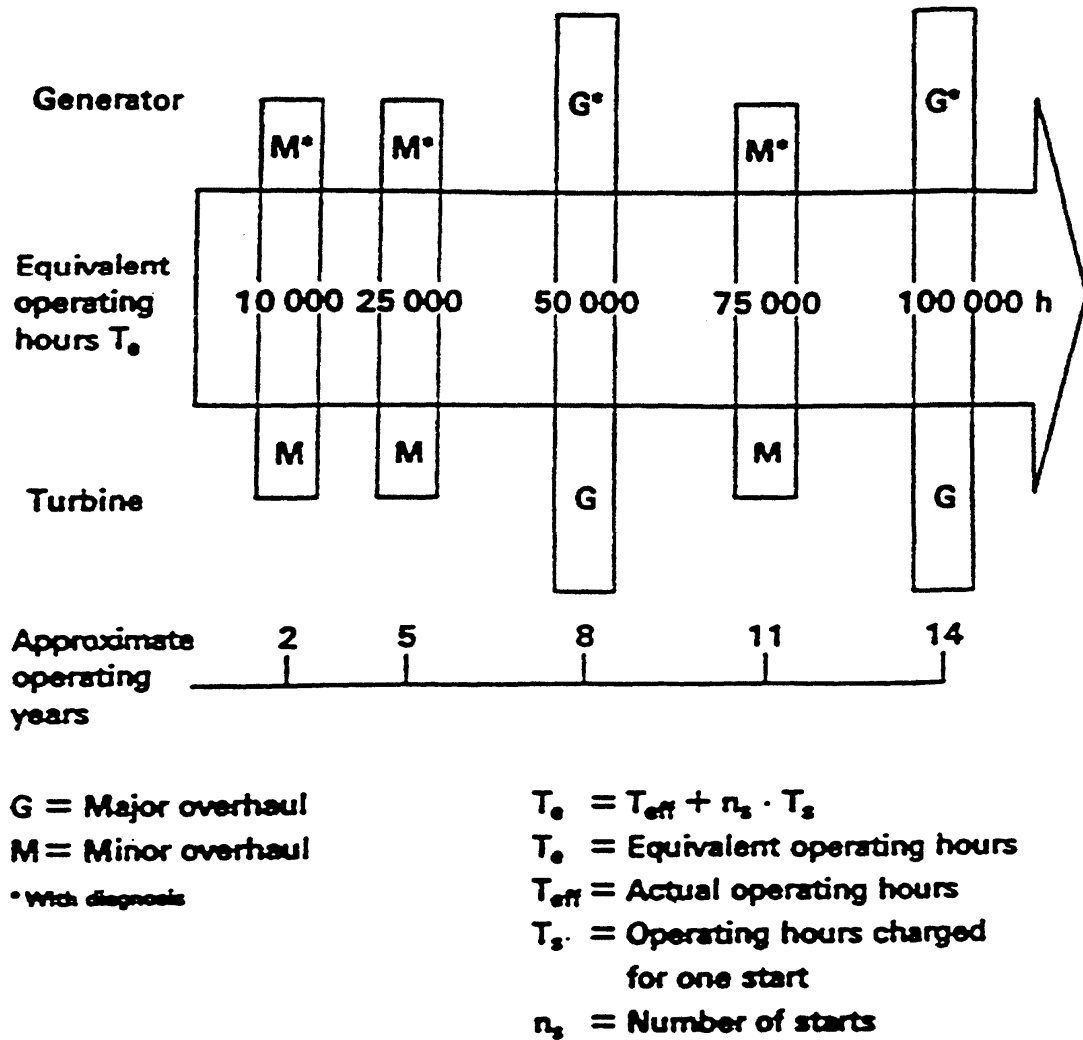


Figure 7.3  
Recommendations for Inspection Intervals  
of Large Turbine Generators

Figure 7.1  
LP-Retrofit Indian Point 3  
Assessment of the Probability of Steam Turbine  
Rupture from Stress Corrosion Cracking

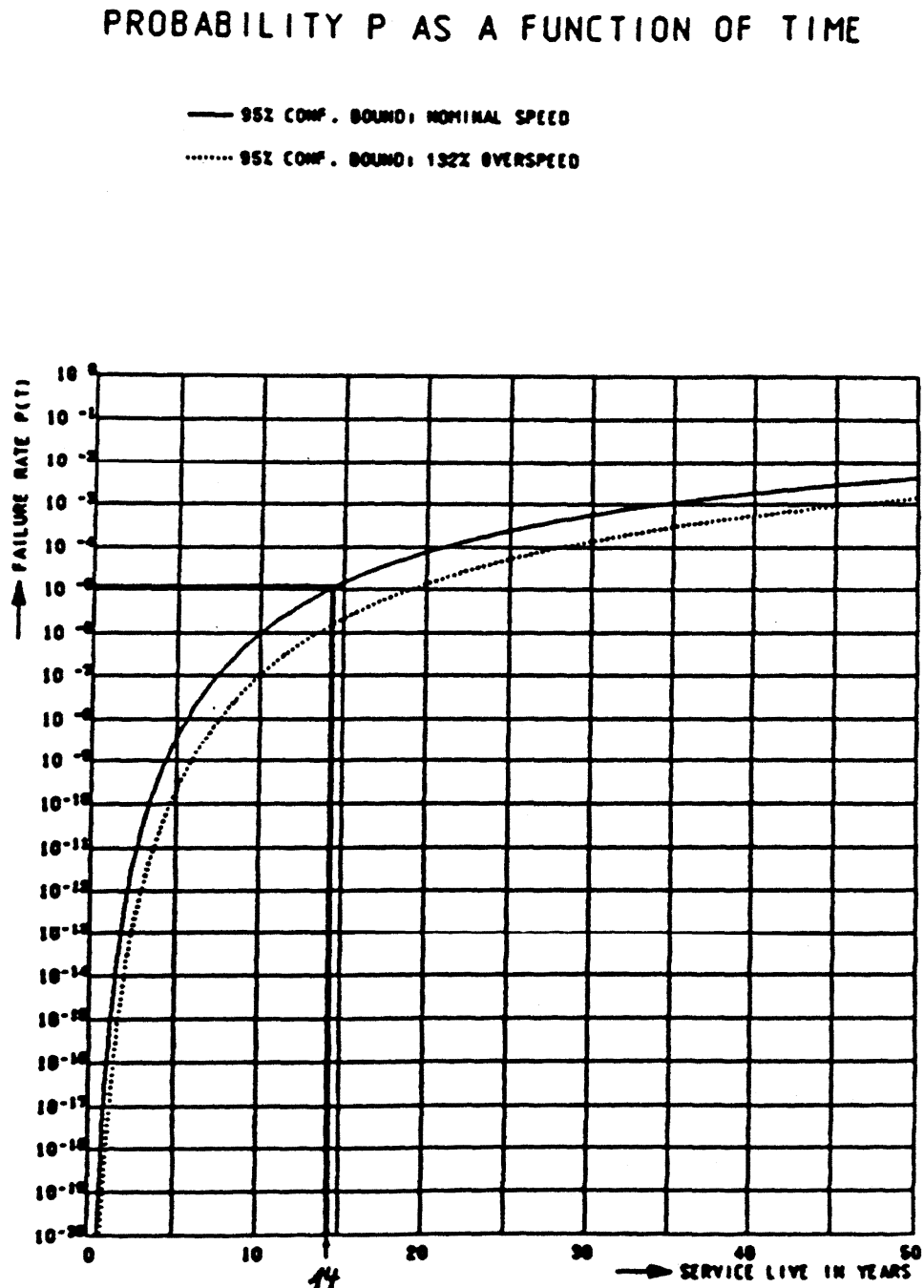
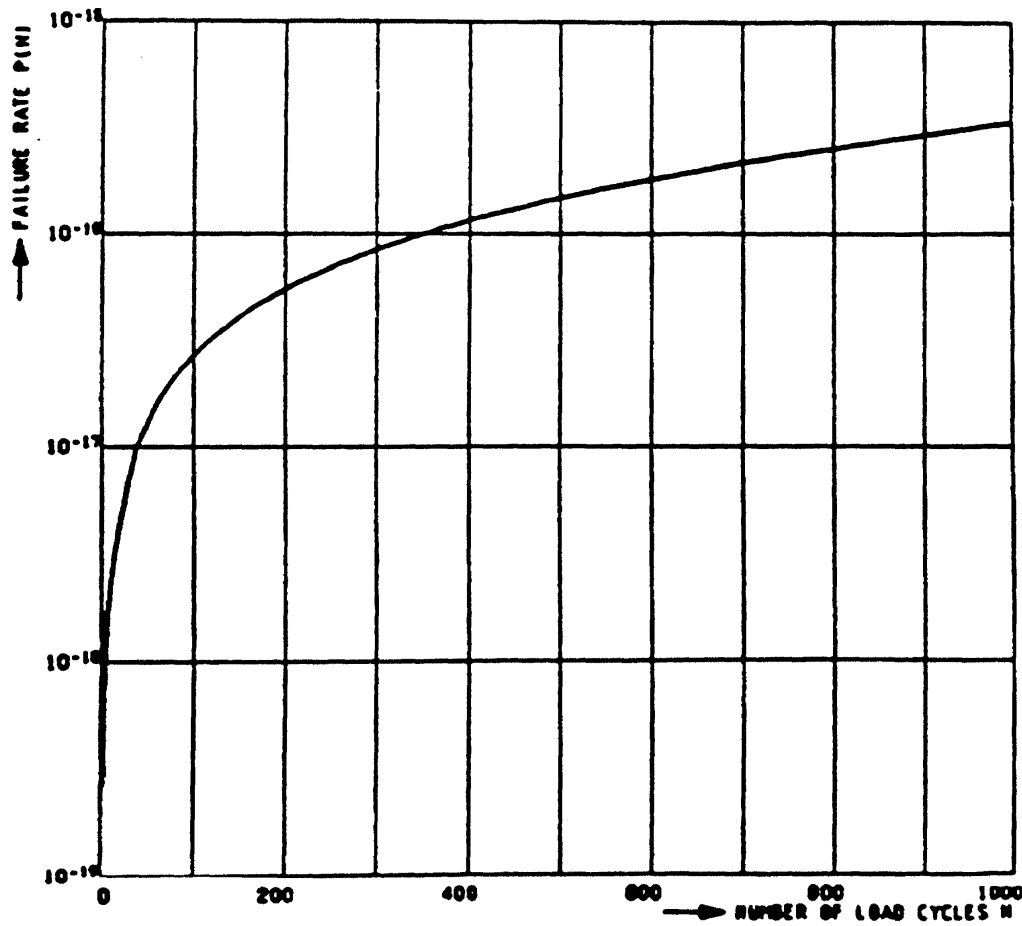


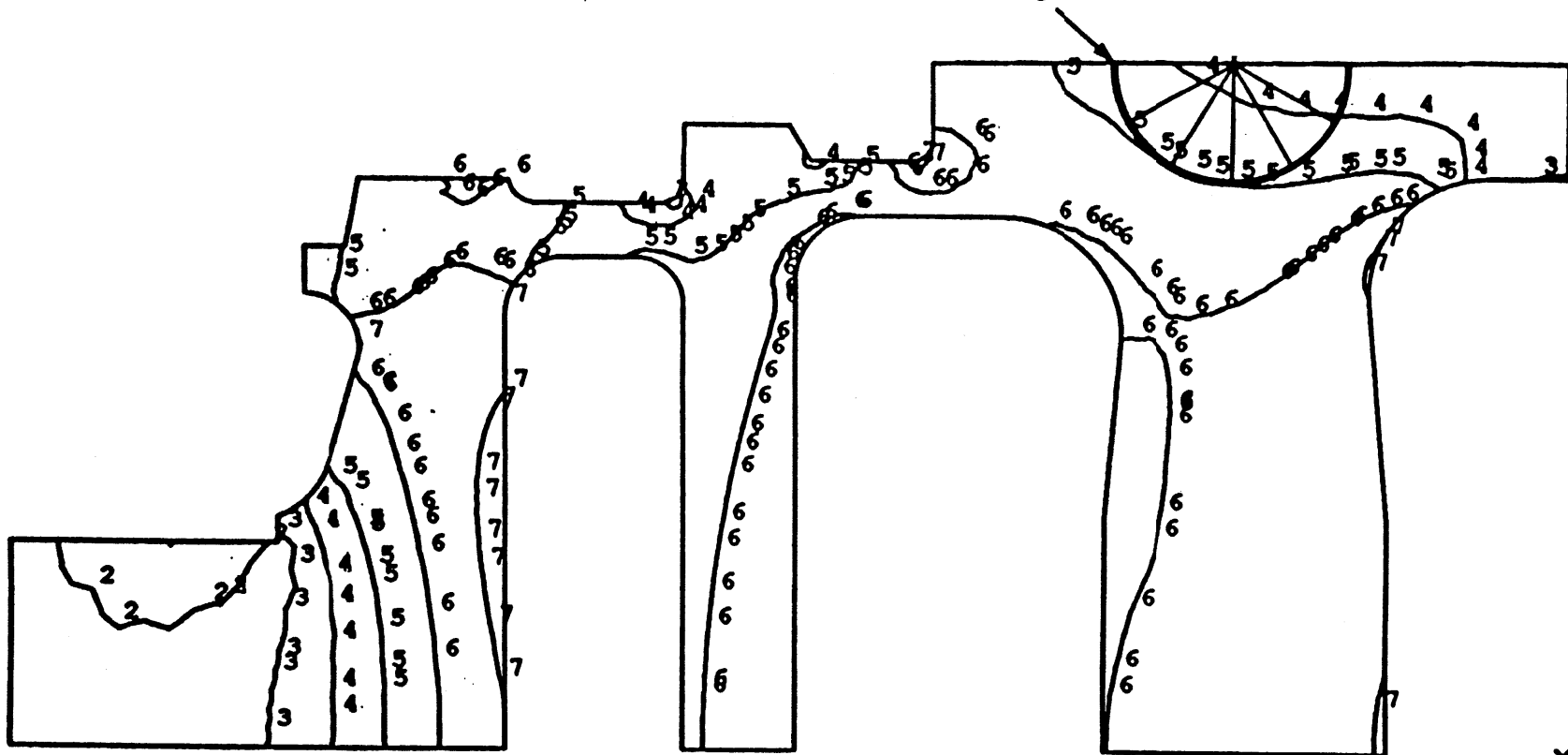


Figure 7.2  
LP-Retrofit Indian Point 3  
Assessment of the Probability of Steam Turbine  
Rupture From Low Cycle Fatigue

PROBABILITY P AS A FUNCTION OF  
LOAD CYCLES



# Critical Crack Size Due to SCC



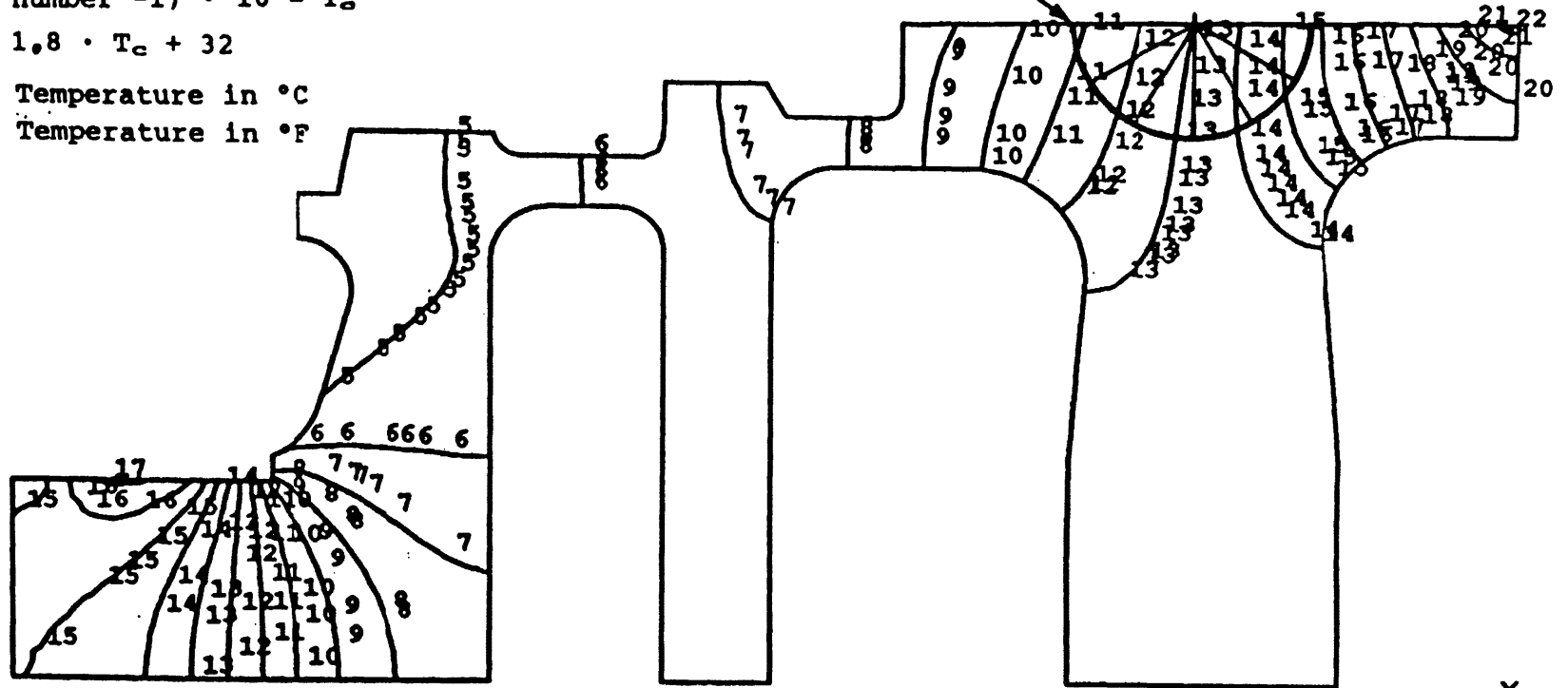
(Line number -2)  $\cdot 50 = \sigma/\text{MPa}$   
 1ksi = 6,895MPa

Figure 7A  
 Hoop Stresses with Temperature Load  
 at Nominal Speed

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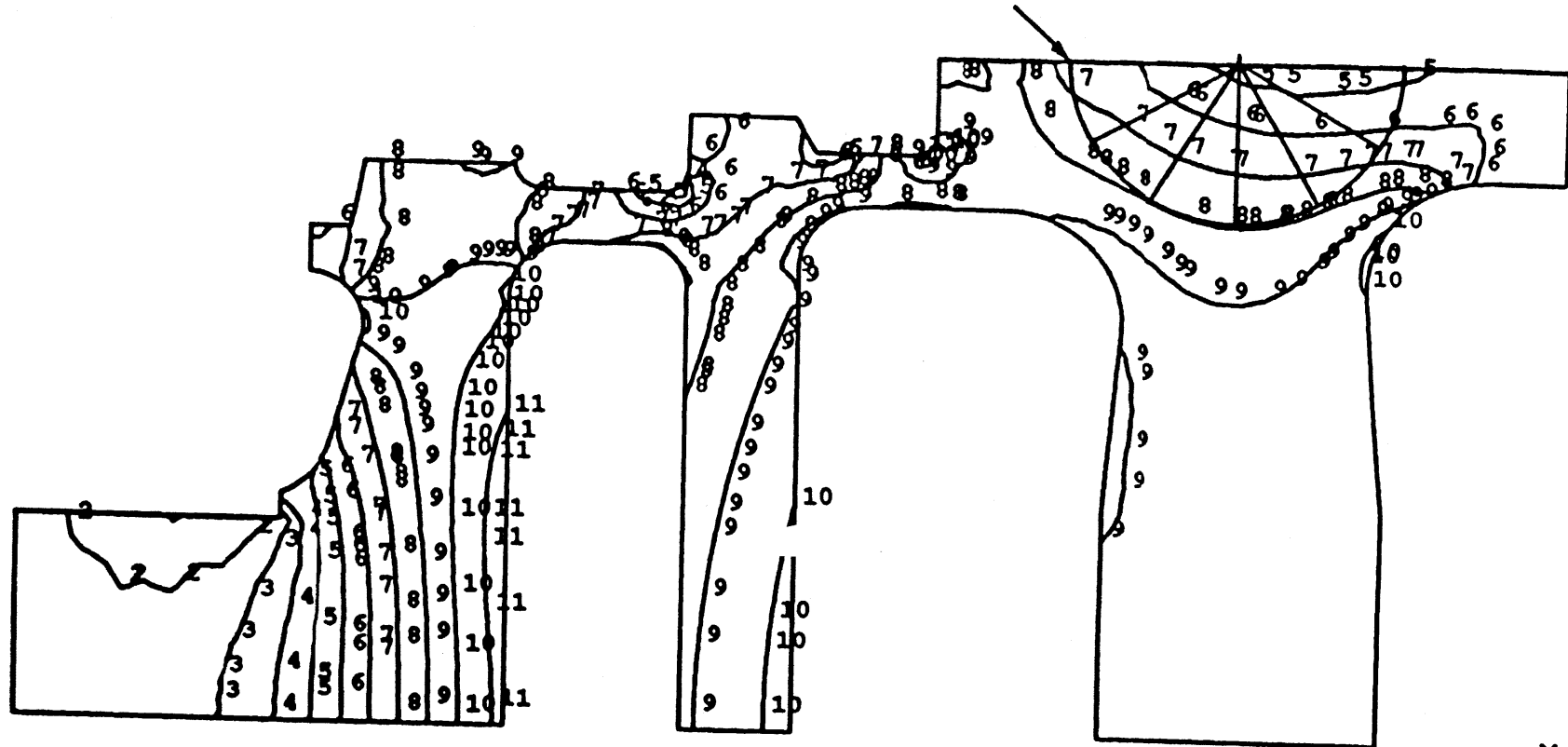
$T_r$  - Temperature in °F



**X**

**Figure 7B**  
**Temperature Distribution (Stationary)**

# Critical Crack Size Due to SCC



(Line number -2)  $\cdot 50 = \sigma/\text{MPa}$

1ksi = 6.895 MPa

Figure 7C  
Hoop Stress Distribution at 132%  
Overspeed and Stationary Temperature

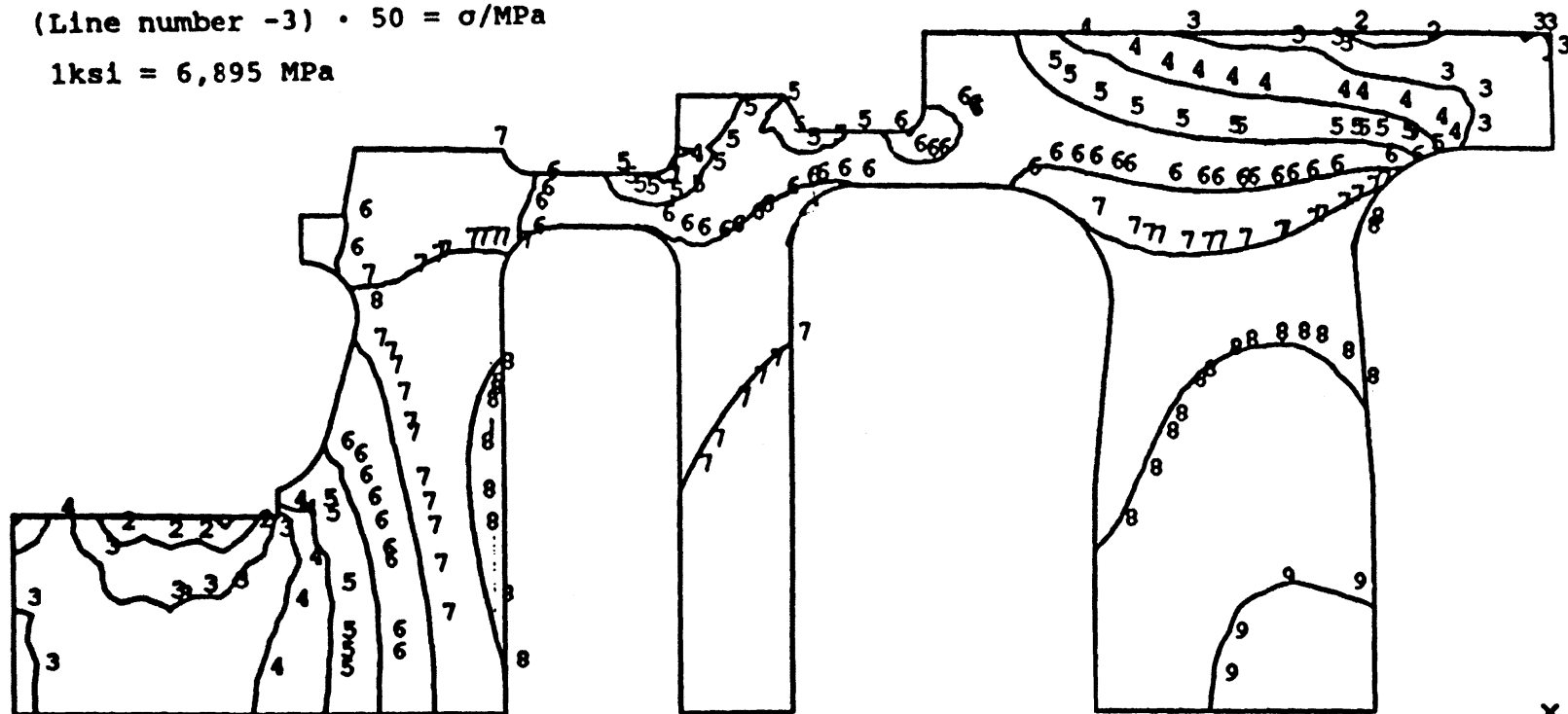
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(Line number -3)  $\cdot 50 = \sigma/\text{MPa}$

1ksi = 6,895 MPa

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x

Figure 7D  
Transient Hoop stress Distribution at  
Nominal Speed and  $t = 19,200$  Sec.

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