ST. LUCIE EXAM 2002-301
50-335 & 50-389/2002-301

APRIL 22, 2002

FINAL Submittal

1. Senior Reactor Operator Written Exam

   References

APPENDIX E
PLANT COOLDOWN & SHUTDOWN COOLING OPERATION
(Page 1 of 11)

NOTE

Supplemental portable lighting may be obtained for component manipulations outside the Control Room.

- Dedicated portable lanterns are available at the following locations:
  - Storage Locker 1: Walkway to Containment Personnel Hatch
  - Storage Locker 2: RAB Hallway West End (-0.5' elevation)
  - Storage Locker 3: RAB M.G. Set Room (19.5' elevation)
  - Storage Locker 4: RAB HVAC Room West (43.0' elevation)
- Temporary portable lanterns are available at the following locations:
  - Field Operator Facility (FOF)
  - Steam Trestle (Inside Mezzanine level door)
- Additional guidance may be found in OP 2-0030127, Reactor Plant Cooldown - Hot Standby to Cold Shutdown or ONOP 2-0120039, Natural Circulation Cooldown.
- Performing an RCS cooldown with the charging pump suctions aligned to the BAMTs for Pressurizer makeup due to shrinkage will ensure adequate shutdown margin is maintained
- Cooldown and Boration are performed simultaneously.

INITIAL

1. ENSURE at least **ONE** of the following valves is positioned as indicated to align charging pump suction from the BAMTs:

   - V2508, 2B BAMT Outlet to Gravity Feed MOV, is OPEN _____
   - V2509, 2A BAMT Outlet to Gravity Feed MOV, is OPEN _____

CAUTION

Pressurizer heaters will NOT automatically deenergize due to Pressurizer low level

2. MAINTAIN Pressurizer level 30 to 70% during plant cooldown. _____

APPENDIX E
PLANT COOLDOWN & SHUTDOWN COOLING OPERATION
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INITIAL

CAUTION

- BOTH 2A and 2B BAMT level indications may NOT be reliable.
- BAM tanks contain approximately 99 gallons per %.
- BAM tank usage must be closely monitored to prevent gas binding of the charging pump.
- The charging pump low suction pressure trip is removed from the trip circuit when the charging pump NORMAL / ISOLATE switch is in ISOLATE.

NOTE

- Cooldown and Boration are performed simultaneously.
- Continue with this appendix while borating and cooling down.
- Perform Step 3 when the required BAMT volume has been injected.

3. When an amount greater than the minimum required Technical Specifications volume, in accordance with Figure 3.1-1, St. Lucie 2 Min BAMT (attached), has been injected into the RCS from the BAM tank(s), Then ALIGN the RWT for makeup as follows:

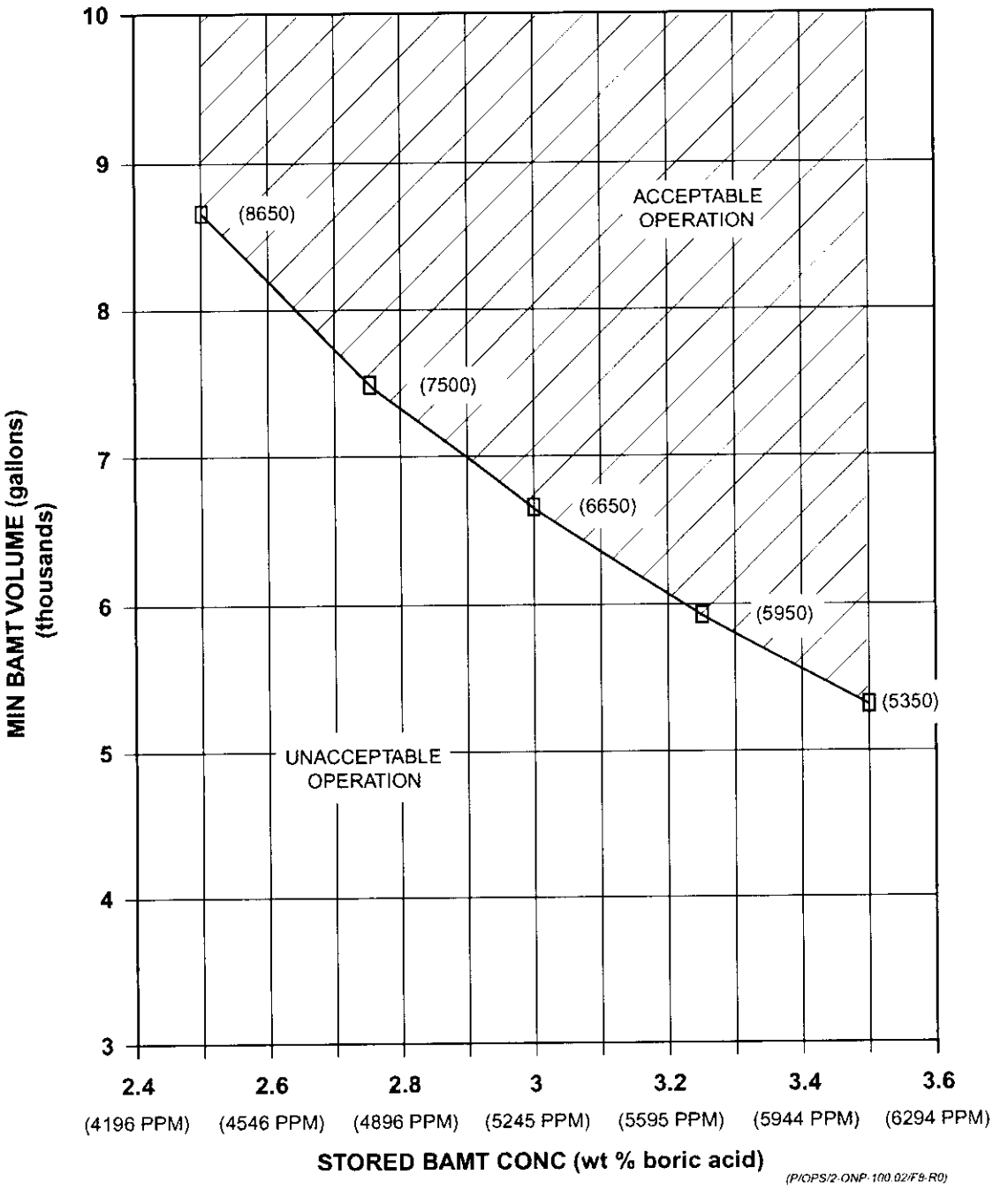
   A. STOP **ALL** Charging Pumps.

   B. POSITION the following components as indicated:

COMPONENT ID	COMPONENT NAME	POSITION	PERF INITIAL
V2504	RWT to Chg Pump Suction	OPEN	
V2508	1B BAMT Outlet to Gravity Feed MOV	CLOSED	
V2509	1A BAMT Outlet to Gravity Feed MOV	CLOSED	

   C. OPERATE the available Charging Pump(s) as required to maintain Pressurizer level 30 to 70%.

FIGURE 8
FIGURE 3.1-1
ST. LUCIE 2 MIN BAMT VOLUME VS STORED BAMT CONCENTRATION
(Page 1 of 1)



(P/OPS/2-ONP-100.02/F9-R0)

FIGURE 1A
RCS PRESSURE TEMPERATURE
(Page 1 of 1)

(Containment Temperature Less Than or Equal to 200°F)

CAUTION

The RCP NPSH curve assumes one pump is operating in each loop. RCP instrumentation should be monitored for seal and pump performance in accordance with 1-NOP-01.02, Reactor Coolant Pump Operation, as the NPSH curve is approached.

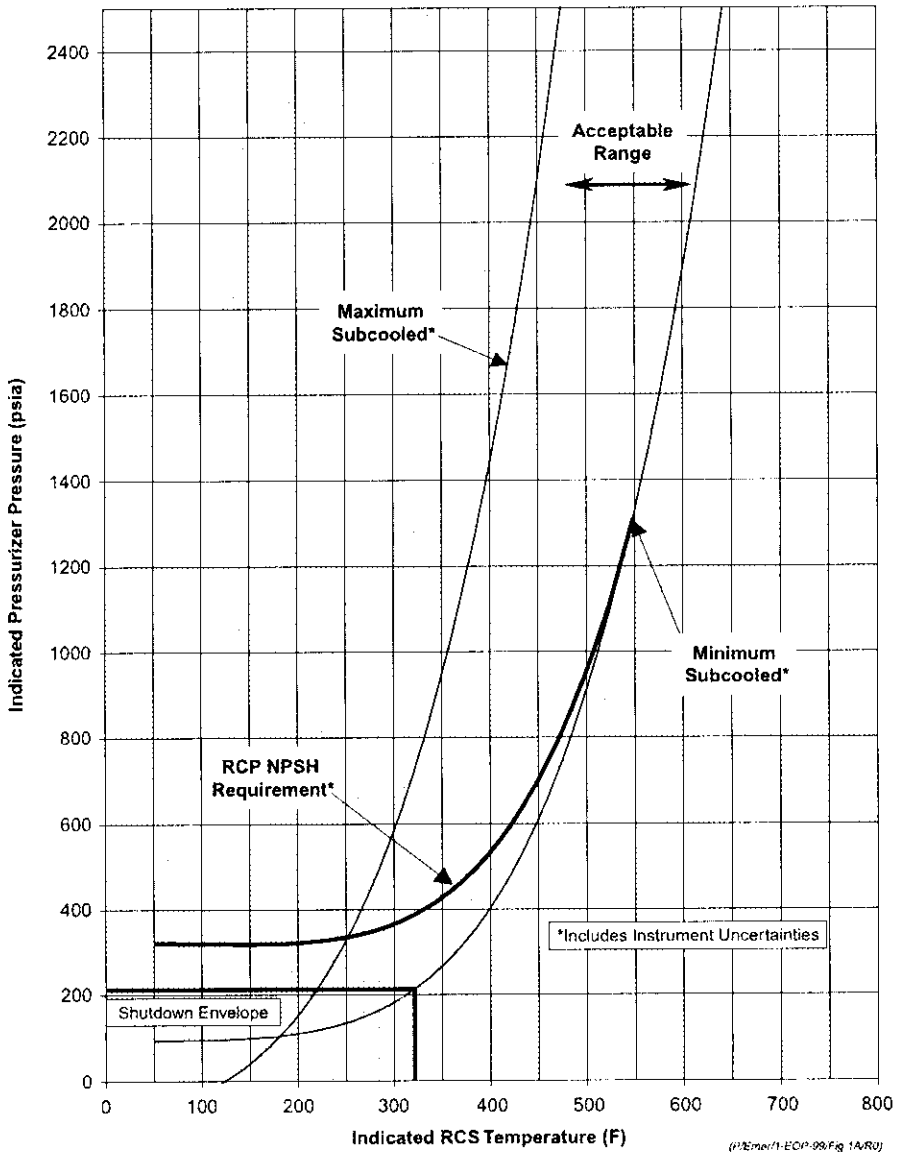
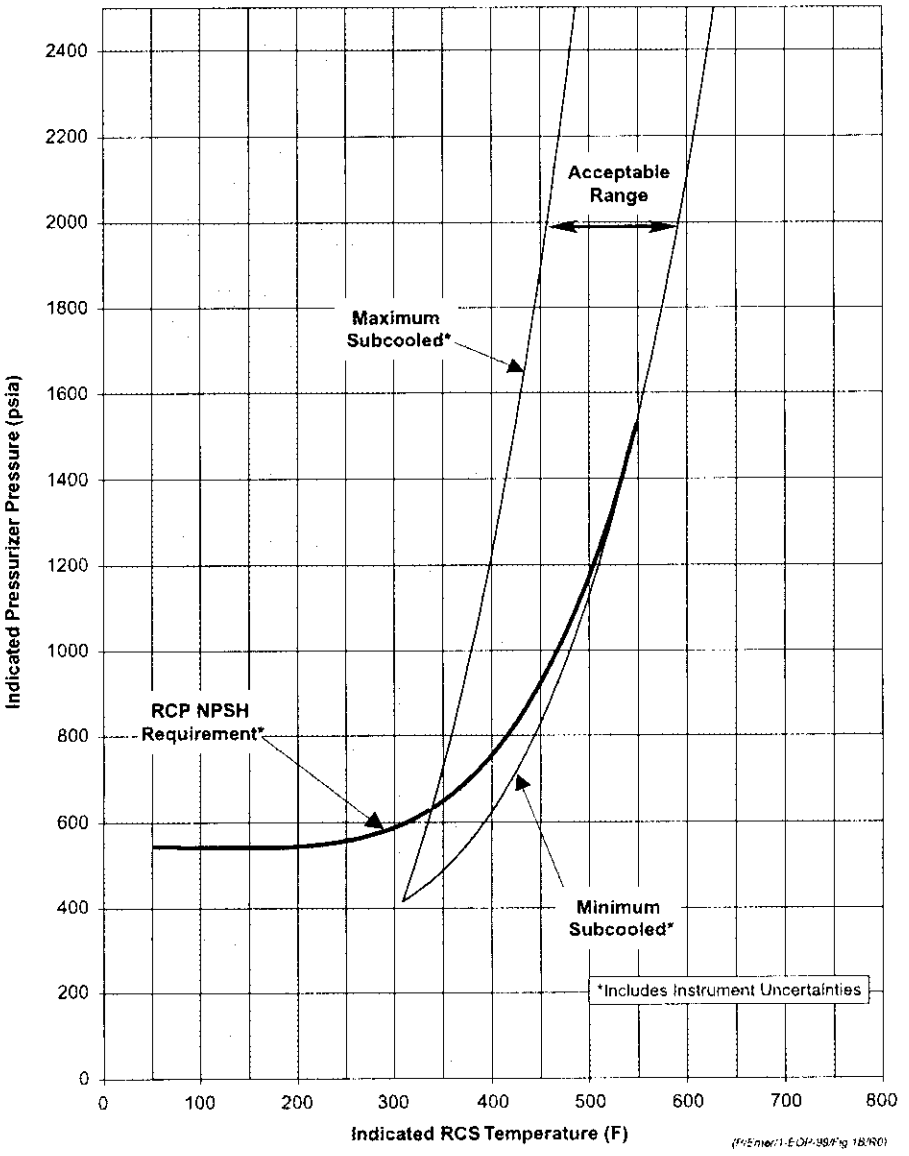


FIGURE 1B
RCS PRESSURE TEMPERATURE
(Page 1 of 1)

(Containment Temperature Greater Than or Equal to 200°F)

CAUTION

The RCP NPSH curve assumes one pump is operating in each loop. RCP instrumentation should be monitored for seal and pump performance in accordance with 1-NOP-01.02, Reactor Coolant Pump Operation, as the NPSH curve is approached.



ATTACHMENT 1
EMERGENCY CLASSIFICATION TABLE
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§2 **CAUTION**
Section 1.A should not be used for a steam generator tube leak/rupture.

EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1.A. ABNORMAL PRIMARY LEAK RATE (Page 1 of 2)	Reactor Coolant System (RCS) Leakage 1. RCS leakage GREATER THAN 10 gpm as indicated by: A. Control Room observation OR B. Inventory balance calculation OR C. Field observation OR D. Emergency Coordinator judgement OR 2. Indication of leaking RCS safety or relief valve which causes RCS pressure to drop below setpoints: - Unit 1 - 1600 psia - Unit 2 - 1736 psia	RCS Leakage GREATER THAN 50 gpm 1. Unisolable RCS leakage as indicated by Charging/letdown mismatch greater than 50 gpm but less than available charging pump capacity. OR 2. Unisolable measured RCS leakage indicating greater than 50 gpm but less than available charging pump capacity.	LOCA GREATER THAN capacity of charging pumps 1. RCS leakage greater than available charging pump capacity occurring with RCS pressure above HPSI shutoff head. OR 2. RCS leakage greater than available makeup occurring with RCS pressure below HPSI shutoff head. OR 3. Loss of RCS subcooled margin due to RCS leakage (saturated conditions). OR 4. Containment High Range Radiation Monitors indicate 7.3×10^3 R/hr (If CHRRM inoperable, Post-LOCA monitors indicate between 100 and 1000 mR/hr).	A release has occurred or is in progress resulting in: 1. Containment High Range Radiation monitor greater than 1.46×10^5 R/hr (If CHRRM inoperable, Post-LOCA monitors greater than 1000 mR/hr). OR 2. Performance of EPIP-09 (Off-site Dose Calculations) or measured dose rates from off-site surveys indicate site boundary (1 mile) exposure levels have been exceeded as indicated by either A, B, C or D below: A. 1000 mrem/hr (total dose rate) B. 1000 mrem (total dose - TEDE) C. 5000 mrem/hr (thyroid dose rate) D. 5000 mrem (thyroid dose - CDE)

(continued on next page)

1.A. ABNORMAL PRIMARY LEAK RATE

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

ATTACHMENT 1
EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1.A. ABNORMAL PRIMARY LEAK RATE (Page 2 of 2)				Loss of 2 of the 3 fission product barriers with imminent loss of the third (any two of the following exist and the third is imminent). 1. Fuel element failure (confirmed DEQ I-131 activity greater than 275 µCi/mL). AND 2. LOCA or Tube rupture on unisolable steam generator. AND 3. Containment Integrity Breached. **NOTE** Also refer to Potential Core Melt Event/ Class 6.A.

1.A. ABNORMAL PRIMARY LEAK RATE

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1.B. ABNORMAL PRIMARY TO SECONDARY LEAK RATE (Page 1 of 2)	RCS PRI/SEC Leakage 1. Measured RCS to secondary leakage exceeds Tech. Spec. limits. AND 2. Secondary plant activity is detected.	Rapid gross failure of one steam generator tube (WITHIN charging pump capacity) with loss of offsite power 1. Measured RCS to secondary leakage greater than Tech. Spec. Limits and within charging pump capacity. AND 2. Secondary plant activity is detected. AND 3. Loss of both Non-Vital 4.16 KV buses. (continued on next page)	Rapid gross failure of steam generator tubes (GREATER THAN charging pump capacity) with a loss of offsite power 1. Measured RCS to secondary leakage is greater than charging pump capacity. AND 2. Secondary plant activity is detected. AND 3. Loss of both Non-Vital 4.16 KV buses. (continued on next page)	Loss of 2 of the 3 fission product barriers with imminent loss of the third (any two of the following exist and the third is imminent). 1. Fuel element failure (confirmed DEQ I-131 activity greater than 275 µCi/mL). AND 2. LOCA or Tube rupture on unisolable steam generator. AND 3. Containment integrity breached. **NOTE** Also refer to Potential Core Melt Event/ Class 6.A.

1.B. ABNORMAL PRIMARY TO SECONDARY LEAK RATE

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

ATTACHMENT 1
EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1.B. ABNORMAL PRIMARY TO SECONDARY LEAK RATE (Page 2 of 2)		Rapid failure of steam generator tubes (GREATER THAN charging pump capacity) 1. Measured RCS to secondary leakage greater than charging pump capacity. AND 2. Secondary plant activity is detected.	§2 Rapid failure of steam generator tube(s) (GREATER THAN charging pump capacity) with steam release in progress 1. Measured RCS to secondary leakage greater than charging pump capacity. AND 2. Secondary plant activity is detected. AND 3. Secondary steam release in progress from affected generator (i.e., ADVs, stuck steam safety(s) or unisolable leak.)	

1.B. ABNORMAL PRIMARY TO SECONDARY LEAK RATE

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1.C. LOSS OF SECONDARY COOLANT (Page 1 of 2)	Rapid depressurization of secondary plant 1. Rapid drop in either steam generator pressure to less than 600 psia.	Major steam leak with GREATER THAN 10 gpm primary/secondary leakage 1. Rapid drop in either steam generator pressure to less than 600 psia. AND 2. Known pri/sec leak of greater than 10 gpm. AND 3. Secondary plant activity is detected. Total loss of feedwater 1. No main or auxiliary feedwater flow available for greater than 15 minutes when required for heat removal. AND 2. Steam Generator levels are less than 40% wide range.	Major steam leak with GREATER THAN 50 gpm primary/secondary leakage and fuel damage indicated 1. Rapid drop in either steam generator pressure to less than 600 psia. AND 2. Known pri/sec leak of greater than 50 gpm. AND 3. Secondary plant activity is detected. AND 4. Fuel element damage is indicated (Refer to Fuel Element Failure Event/Class 4.A). TLOF with once-through cooling initiated 1. No main or auxiliary feedwater flow available. AND 2. PORV(s) have been opened to facilitate core heat removal.	A release has occurred or is in progress resulting in: 1. Containment High Range Radiation monitor greater than 1.46 X 10^5 R/hr (If CHRRM inoperable, Post-LOCA monitors greater than 1000 mR/hr). OR 2. Performance of EPIP-09 (Off-site Dose Calculations) or measured dose rates from off-site surveys indicate site boundary (1 mile) exposure levels have been exceeded as indicated by either A, B, C or D below: A. 1000 mrem/hr (total dose rate) B. 1000 mrem (total dose - TEDE) C. 5000 mrem/hr (thyroid dose rate) D. 5000 mrem (thyroid dose-CDE)

(continued on next page)

1.C. LOSS OF SECONDARY COOLANT

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

ATTACHMENT 1
EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1.C. LOSS OF SECONDARY COOLANT (Page 2 of 2)				Loss of 2 of the 3 fission product barriers with imminent loss of the third (any two of the following exist and the third is imminent). 1. Fuel element failure (confirmed DEQ I-131 activity greater than 275 µCi/mL). AND 2. LOCA or Tube rupture on unisolable steam generator. AND 3. Containment Integrity Breached. **NOTE** Also refer to Potential Core Melt Event/Class 6.A.

1.C. LOSS OF SECONDARY COOLANT

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
2.A. UNCONTROLLED EFFLUENT RELEASE	Radiological effluent limits exceeded 1. Plant effluent monitor(s) exceed alarm setpoint(s). AND 2. Confirmed analysis results for gaseous or liquid release which exceeds ODCM limits. **NOTE** If analysis is not available within one hour and it is expected that release is greater than ODCM limit, classify as UNUSUAL EVENT.	A release has occurred or is in progress that is 10 times the effluent limit 1. Plant effluent monitor(s) significantly exceed alarm setpoints. AND 2. Confirmed analysis results for gaseous or liquid release which exceeds 10 times ODCM limits. **NOTE** If analysis is not available within one hour and it is expected that release is equal to or greater than 10 times ODCM limit, classify as ALERT.	A release has occurred or is in progress resulting in: 1. Containment High Range Radiation Monitor greater than 7.3×10^3 R/hr (Post-LOCA monitors indicate between 100 and 1000 mR/hr, if CHRRM inoperable). OR 2. Measured Dose Rates or Offsite Dose Calculation (EPIP-09) worksheet values at one mile in excess of: A. 50 mrem/hr (total dose rate) or 250 mrem/hr (thyroid dose rate) for 1/2 hour. OR B. 500 mrem/hr (total dose rate) or 2500 mrem/hr (thyroid dose rate) for two minutes at one mile.	A release has occurred or is in progress resulting in: 1. Containment High Range Radiation monitor greater than 1.46×10^5 R/hr (If CHRRM inoperable, Post-LOCA monitors greater than 1000 mR/hr). OR 2. Performance of EPIP-09 (Off-site Dose Calculations) or measured dose rates from off-site surveys indicate site boundary (1 mile) exposure levels have been exceeded as indicated by either A, B, C or D below: A. 1000 mrem/hr (total dose rate) B. 1000 mrem (total dose - TEDE) C. 5000 mrem/hr (thyroid dose rate) D. 5000 mrem (thyroid dose-CDE)

ODCM - refers to Chemistry Procedure C-200. Offsite Dose Calculation Manual (ODCM)

2.A. UNCONTROLLED EFFLUENT RELEASE

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
2.B. HIGH RADIATION LEVELS IN PLANT		High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials 1. Any valid area monitor alarm from indeterminable source with meter near or greater than full scale deflection (10^3 mR/hr). OR 2. Unexpected plant iodine or particulate airborne concentration of 1000 DAC as seen in routine surveying or sampling. OR 3. Unexpected direct radiation dose rate reading or unexpected airborne radioactivity concentration from an indeterminable source in excess of 1000 times normal levels.		

2.B. HIGH RADIATION LEVELS IN PLANT

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
3. FIRE	§2 Uncontrolled fire within the Power Block lasting more than 10 minutes.	Uncontrolled fire 1. Potentially affecting safety systems. AND 2. Requiring off-site support in the opinion of the NPS/EC.	§2 Fire compromising the function of safety systems (e.g., both trains rendered inoperable).	**NOTE** Refer to Potential Core Melt Event/Class 6.A.
	§2 **NOTE** Explosion is defined as a rapid chemical reaction resulting in noise, heat and rapid expansion of gas.			
EXPLOSION	Occurrence of an explosion within the Owner Controlled Area.	§2 Damage to structures/components in the Protected Area by explosion which affects plant operation.	§2 Severe damage to safe shutdown equipment from explosion (e.g., both trains rendered inoperable.	

3. FIRE

EXPLOSION

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
4.A. FUEL ELEMENT FAILURE	Fuel element damage 1. Process monitors or area radiation surveys indicate increased letdown activity AND 2. Confirmed RCS sample indicating: A. Coolant activity greater than the Tech Spec limit for iodine spike (Tech Spec Figure 3.4-1.). OR B. Coolant activity greater than 100/Ē µCi/gram specific activity. **NOTE** If analysis is not available within one hour and it is expected that activity is greater than Tech Spec limit, classify as UNUSUAL EVENT.	Fuel element failure 1. Process monitors or area radiation surveys indicate increased letdown activity and confirmed RCS Samples indicating DEQ I-131 activity greater than or equal to 275 µCi/mL. **NOTE** If analysis is not available within one hour and it is expected that RCS activity for DEQ I-131 is greater than 275 µCi/mL, classify as an ALERT.	Fuel element failure with inadequate core cooling 1. RCS DEQ I-131 activity greater than or equal to 275 µCi/mL. AND 2. Highest CET per core quadrant indicates greater than 10°F superheat or 700°F.	A release has occurred or is in progress resulting in: 1. Containment High Range Radiation monitor greater than 1.46×10^5 R/hr (If CHRRM inoperable, Post-LOCA monitors greater than 1000 mR/hr). OR 2. Performance of EPIP-09 (Off-site Dose Calculations) or measured dose rates from off-site surveys indicate site boundary (1 mile) exposure levels have been exceeded as indicated by either A, B, C or D below: A. 1000 mrem/hr (total dose rate) B. 1000 mrem (total dose - TEDE) C. 5000 mrem/hr (thyroid dose rate) D. 5000 mrem (thyroid dose - CDE)

4.A FUEL ELEMENT FAILURE

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
4.B. FUEL HANDLING ACCIDENT		Fuel handling accident which results in the release of radioactivity to Containment or Fuel Handling Building: 1. NPS/EC determines that an irradiated fuel assembly may have been damaged. AND 2. Associated area or process radiation monitors are in alarm.	§2 Major damage to irradiated fuel in Containment or Fuel Handling Building 1. Affected area radiation monitor greater than 1000 mrem/hr. AND 2. Damage to more than one irradiated fuel assembly. OR Major damage resulting from uncovering of one or more irradiated fuel assemblies in the Spent Fuel Pool.	

4.B. FUEL HANDLING ACCIDENT

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
5.A. EARTHQUAKE	§₂ A confirmed earthquake has occurred 1. A confirmed earthquake has been experienced within the Owner Controlled Area. OR 2. ¶₄ An earthquake is detected by plant seismic monitor instruments or other means.	§₂ A confirmed earthquake has occurred. 1. A confirmed earthquake has occurred which registered GREATER THAN 0.05g within the Owner Controlled Area. OR 2. A confirmed earthquake has occurred that could or has caused trip of the turbine generator or reactor.	§₂ A confirmed earthquake has occurred. 1. A confirmed earthquake has occurred which registered GREATER THAN 0.1g within the Owner Controlled Area and the plant not in Cold Shutdown. OR 2. A confirmed earthquake has occurred that has caused loss of any safety system function (e.g., both trains inoperable).	**NOTE** Refer to Potential Core Melt Event/Class 6.A.
5.B. HURRICANE	Hurricane Warning 1. Confirmed hurricane warning is in effect.	Hurricane warning with winds near design basis 1. Confirmed hurricane warning is in effect and winds are expected to exceed 175 mph within the Owner Controlled Area. **NOTE** At FPL's request, NOAA will provide an accurate projection of wind speeds onsite 24 hours prior to the onset of hurricane force winds. If that projection is not available within 12 hours of entering into the warning, classify the event using current track and wind speeds to project onsite conditions. For example, projected onsite wind speed would be less than maximum hurricane wind speed if the track is away from PSL.	Hurricane warning with winds GREATER THAN design basis 1. Plant not at cold shutdown. AND 2. Confirmed hurricane warning is in effect and winds are expected to exceed 194 mph within the Owner Controlled Area. **NOTE** At FPL's request, NOAA will provide an accurate projection of wind speeds onsite 24 hours prior to the onset of hurricane force winds. If that projection is not available within 12 hours of entering into the warning, classify the event using current track and wind speeds to project onsite conditions. For example, projected onsite wind speed would be less than maximum hurricane wind speed if the track is away from PSL.	**NOTE** Refer to Potential Core Melt Event/Class 6.A.

5.A. EARTHQUAKE
5.B. HURRICANE

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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ATTACHMENT 1
EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
5.C. TORNADO	Notification of a tornado sighted in the Owner Controlled Area	§$_2$ Any tornado striking the Power Block.		**NOTE** Refer to Potential Core Melt Event/Class 6.A.
5.D. ABNORMAL WATER LEVEL	Abnormal water level conditions are expected or occurring 1. Low intake canal level of -10.5 ft. MLW for 1 hour or more. OR 2. Visual sightings by station personnel that water levels are approaching storm drain system capacity.	Flood, low water, hurricane surge or other abnormal water level conditions 1. The storm drain capacity is exceeded during hurricane surge or known flood conditions. OR 2. Low intake canal level of -10.5 ft. MLW for 1 hour or more with emergency barrier valves open.	Flood, low water, hurricane surge or other abnormal water level conditions causing failure of vital equipment 1. Flood/surge water level reaching elevation +19.5 ft. (turbine building/RAB ground floor). OR 2. Low intake canal level has caused the loss of all ICW flow.	

5.C. TORNADO

5.D. ABNORMAL WATER LEVEL

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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NOTE
Activation of the Emergency Response Facilities does not require declaration of an emergency or entry into a specific emergency classification.

EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
6.A. INCREASED AWARENESS OR POTENTIAL CORE MELT (Page 1 of 2)	Emergency Coordinator's judgement that plant conditions exist which warrant increased awareness on the part of the operating staff and/or local authorities. 1. The plant is shutdown under abnormal conditions (e.g., exceeding cooldown rates or primary system pipe cracks are found during operation). OR 2. Any plant shutdown required by Technical Specifications in which the required shutdown is not reached within action limits.	§2 Emergency Coordinator's judgement that plant conditions exist which have a potential to degrade the level of safety at the plant.	§2 Emergency Coordinator's judgement that plant conditions exist which are significantly degrading in an uncontrollable manner.	§2 Emergency Coordinator's judgement that plant conditions exist that make release or large amounts of radioactivity in a short period appear possible or likely. (Any core melt situation.) 1. LOCA with failure of ECCS leading to severe core degradation or melt. OR 2. LOCA with initially successful ECCS and subsequent failure of containment heat removal systems for greater than 2 hours. OR 3. Total loss of feedwater followed by failure of once-through-cooling (ECCS) to adequately cool the core. OR 4. Failure of off-site and on-site power along with total loss of feedwater makeup capability for greater than 2 hours. OR 5. ATWS occurs which results in core damage or causes failure of core cooling and make-up systems. OR 6. Any major internal or external event (e.g., fire, earthquake or tornado substantially beyond design basis) which in the ECs opinion has or could cause massive damage to plant systems resulting in any of the above. (continued on next page)

6.A. INCREASED AWARENESS OR POTENTIAL CORE MELT

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
6.A. INCREASED AWARENESS OR POTENTIAL CORE MELT (Page 2 of 2)				

NOTES
1. Most likely containment failure mode is melt-through with release of gases only. Quicker releases are expected for failure of containment isolation system.
2. General Emergency must be declared for the above listed events. The likelihood of corrective action (repair of AFW pump, etc.) should not be considered.

6.A. INCREASED AWARENESS OR POTENTIAL CORE MELT

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
7.A. LOSS OF POWER	Loss of off-site power or loss of all on-site AC power capability. 1. Loss of off-site AC power. OR 2. Loss of capability to power at least one vital 4.16 kv bus from any available emergency diesel generator.	§2 Station Blackout (Total Loss of AC) 1. Loss of off-site AC power. AND 2. Failure of both emergency diesel generators to start or load. Loss of all on-site DC power 1. Drop in A and B DC bus voltages to less than 70 VDC.	§2 Station Blackout (Total Loss of AC) for GREATER THAN 15 minutes 1. Loss of offsite AC power. AND 2. Sustained failure of both emergency diesel generators to start or load. AND 3. Failure to restore AC power to at least one vital 4.16 kv bus within 15 minutes. Loss of all vital on-site DC for greater than 15 minutes 1. Sustained drop in A and B DC bus voltages to 70 VDC for greater than 15 minutes.	**NOTE** Refer to Potential Core Melt Event/Class 6.A.

7.A. LOSS OF POWER

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
8.A. LOSS OF PLANT CONTROL FUNCTIONS		Loss of Plant Control Functions 1. Complete loss of any function needed for plant cold shutdown. OR 2. Failure of the Reactor Protection System to bring the reactor subcritical when needed. OR 3. Control Room is evacuated (for other than drill purposes) with control established locally at the Hot Shutdown Control Panel. Loss of Shutdown Cooling 1. Complete loss of functions needed to maintain cold shutdown. A. Failure of shutdown cooling systems, resulting in loss of cold shutdown conditions. AND B. RCS subcooling can NOT be maintained greater than 0°F.	Critical Loss of Plant Control Functions 1. Loss of any function or system which, in the opinion of the Emergency Coordinator, precludes placing the plant in Hot Shutdown. OR 2. Failure of the RPS to trip the reactor when needed and operator actions fail to bring the reactor subcritical. OR 3. Control Room is evacuated (for other than drill purposes) and control cannot be established locally at the Hot Shutdown Control Panel within 15 minutes.	**NOTE** Refer to Potential Core Melt Event/Class 6.A.

8.A. LOSS OF PLANT CONTROL FUNCTIONS

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

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EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
8.B. LOSS OF ALARMS / COMMUNICATION / MONITORING	§$_2$ Significant loss of effluent monitoring capability, communications, indication and alarm panels, etc., which impairs ability to perform accident or emergency assessment. 1. Loss of effluent or radiological monitoring capability requiring plant shutdown. OR 2. Loss of all primary and backup communication capability with offsite locations. OR 3. Unplanned loss of most (greater than 75%) or all Safety System annunciators for greater than 15 minutes.	§$_2$ Loss of alarms 1. Unplanned loss of most (greater than 75%) or all safety system annunciators. AND 2. Plant transient in progress.	Loss of alarms/monitoring 1. Inability to monitor* a significant transient in progress. *Monitoring means loss of ERDADS, QSPDS and/or the inability to determine any one of the following: reactivity control, core cooling, RCS status or containment integrity.	

8.B. LOSS OF ALARMS / COMMUNICATION / MONITORING

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

/R3

ATTACHMENT 1
EMERGENCY CLASSIFICATION TABLE
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EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
9.A. AIRCRAFT / MISSILE	Unusual aircraft activity 1. Aircraft crash in the Owner Controlled Area or unusual aircraft activity over facility that in the opinion of the NPS/EC, could threaten the safety of the plant or personnel.	§2 Aircraft/missile impact 1. Aircraft crash into the Power Block. OR 2. Visual or audible indication of missile impact on the Power Block.	§2 Damage to vital systems from aircraft/missiles 1. Aircraft crash into the Power Block damaging vital plant systems. OR 2. Damage resulting in loss of safe shutdown equipment from any missile.	
9.B. TURBINE FAILURE	Turbine rotating component failure causing rapid plant shutdown.	Visual indication that the turbine casing has been penetrated by blading.		
9.C. TOXIC OR FLAMMABLE GAS	Unplanned/uncontrolled toxic or flammable gas release in the Owner Controlled Area that could affect plant/personnel safety.	Entry of toxic or flammable gas into areas potentially affecting plant operation.	§2 Toxic or flammable gas has diffused into vital areas compromising the function of safety related equipment (e.g., both trains rendered inoperable).	
9.A. AIRCRAFT / MISSILE				
9.B. TURBINE FAILURE				
9.C. TOXIC OR FLAMMABLE GAS				

AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

ATTACHMENT 1
EMERGENCY CLASSIFICATION TABLE
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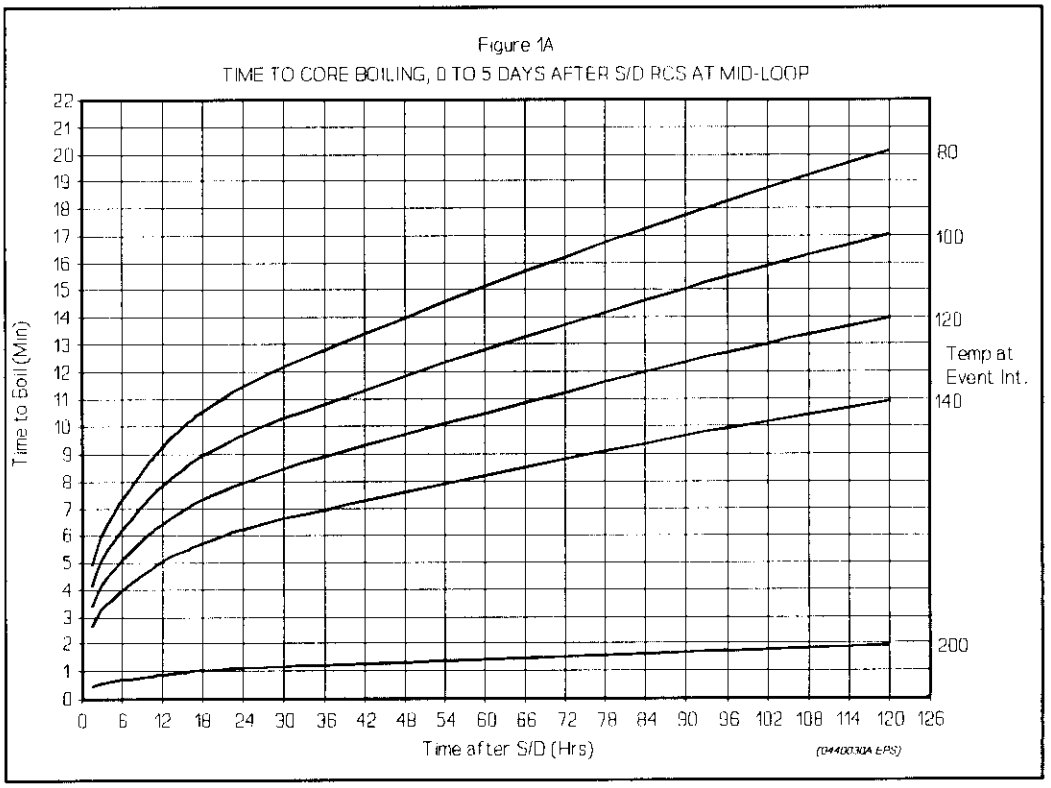
EVENT/CLASS	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
10. SECURITY THREAT	A SECURITY ALERT has been called by the Security Force in response to one or more of the items listed below. 1. Bomb threat 2. Attack threat 3. Civil disturbance 4. Protected area intrusion 5. Sabotage attempt 6. Internal disturbance 7. Vital area intrusion 8. Security force strike	A SECURITY EMERGENCY has been called by the Security Force as defined in the Safeguards Contingency Plan.	A SECURITY EMERGENCY involving imminent occupancy of the control room or other area(s) vital to the operation of the reactor as defined in the Safeguards Contingency Plan.	A successful takeover of the plant including the Control Room or any other area(s) vital to the operation of the reactor (as per the Security Plan).

10. SECURITY THREAT

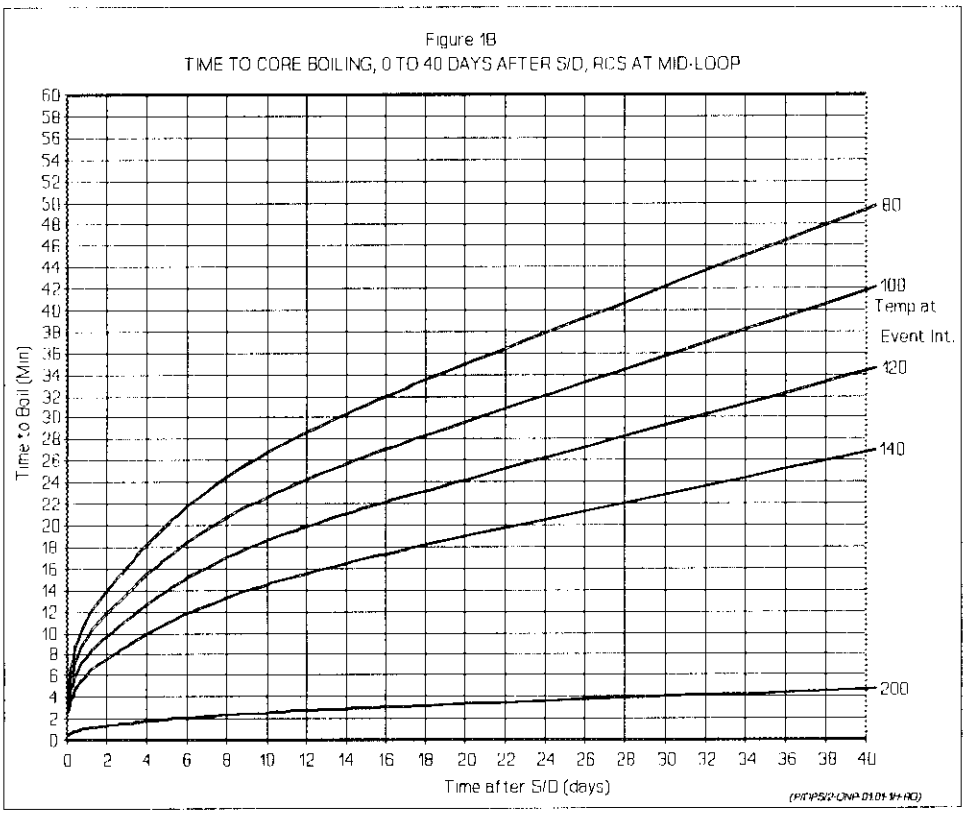
AFTER CLASSIFYING, GO TO EPIP-02, DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

FIGURE 1
TIME TO CORE BOILING
(Page 1 of 3)



REFER TO FIGURE 1C FOR ADJUSTING TIME TO BOIL

FIGURE 1
TIME TO CORE BOILING
(Page 2 of 3)



REFER TO FIGURE 1C FOR ADJUSTING TIME TO BOIL

FIGURE 1
TIME TO CORE BOILING
(Page 3 of 3)

CORRECTION FORMULAS

1. If the Refueling Cavity level is greater than 36 feet, Then PERFORM the following equations to correct time to boil.

   A. _____ft - 36 = _____ft
   Cavity level - 36 = adjusted level.

   B. {1 + [0.23] x [_____ft]} = _____
   {1 + [0.23] x [adjusted level]} = multiplier

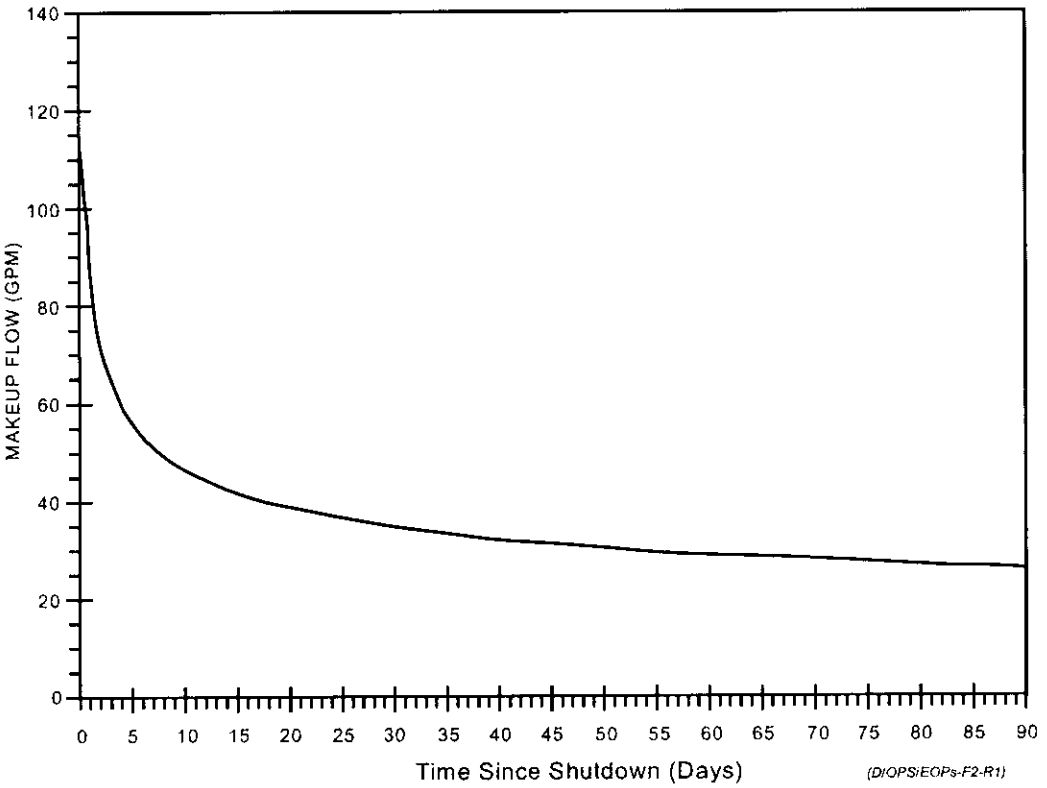
   C. _____ x _____min = _____min
   multiplier x time to boil from curve = corrected time to boil

2. If the core shuffle or reload has been completed, Then PERFORM the following equation to correct time to boil.

   _____ x 1.35 = _____min

¶1 Time to boil from curve **or** corrected time to boil from 1.C — x 1.35 = corrected time to boil

FIGURE 2
FLOW TO MAKEUP FOR BOIL-OFF
(Page 1 of 1)



Assumptions: Power History = 100%
Makeup Water Temp. = 100°F
Boiling Point Temp. = 212°F