

# Reference Material

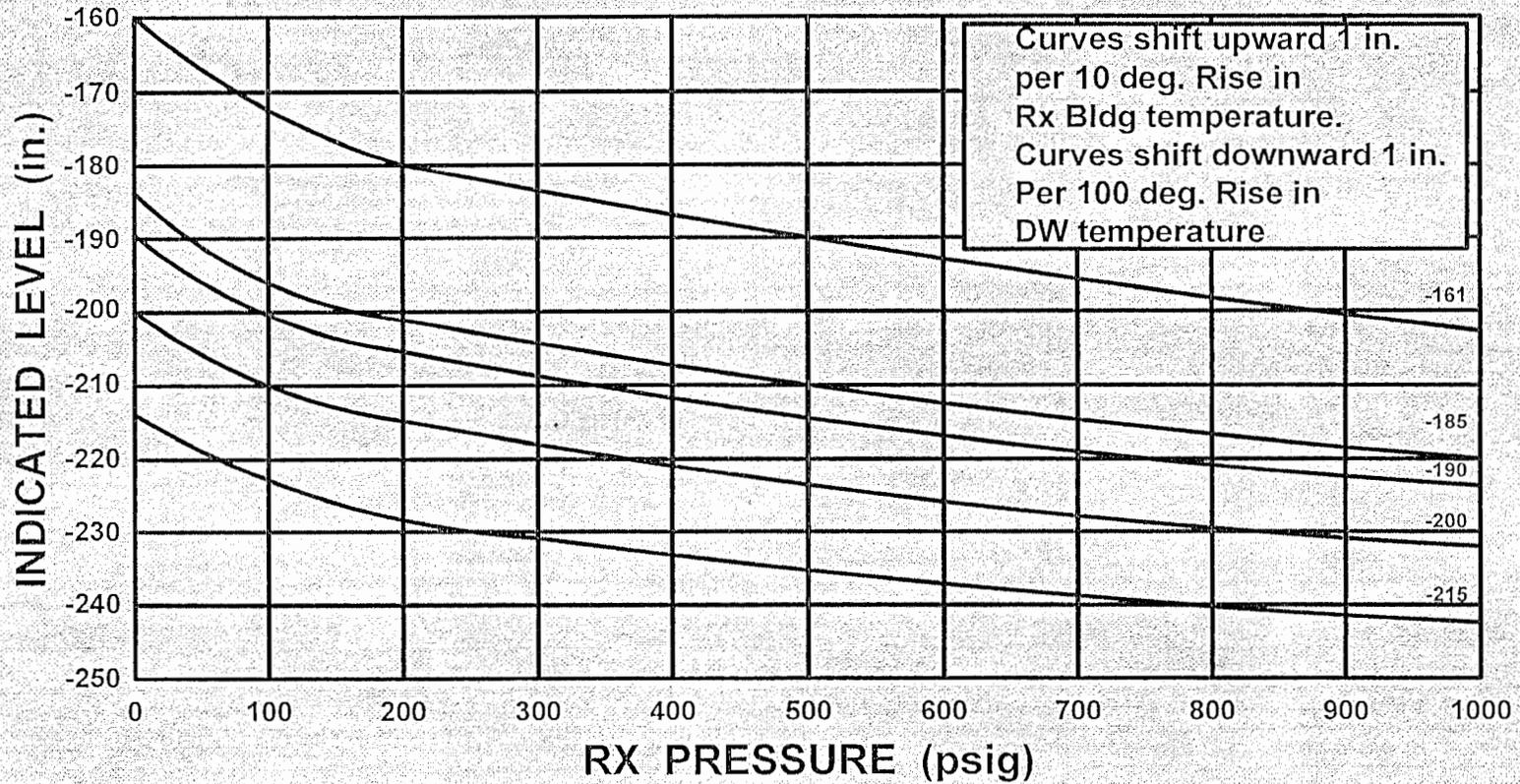
## 2015 RO NRC Exam

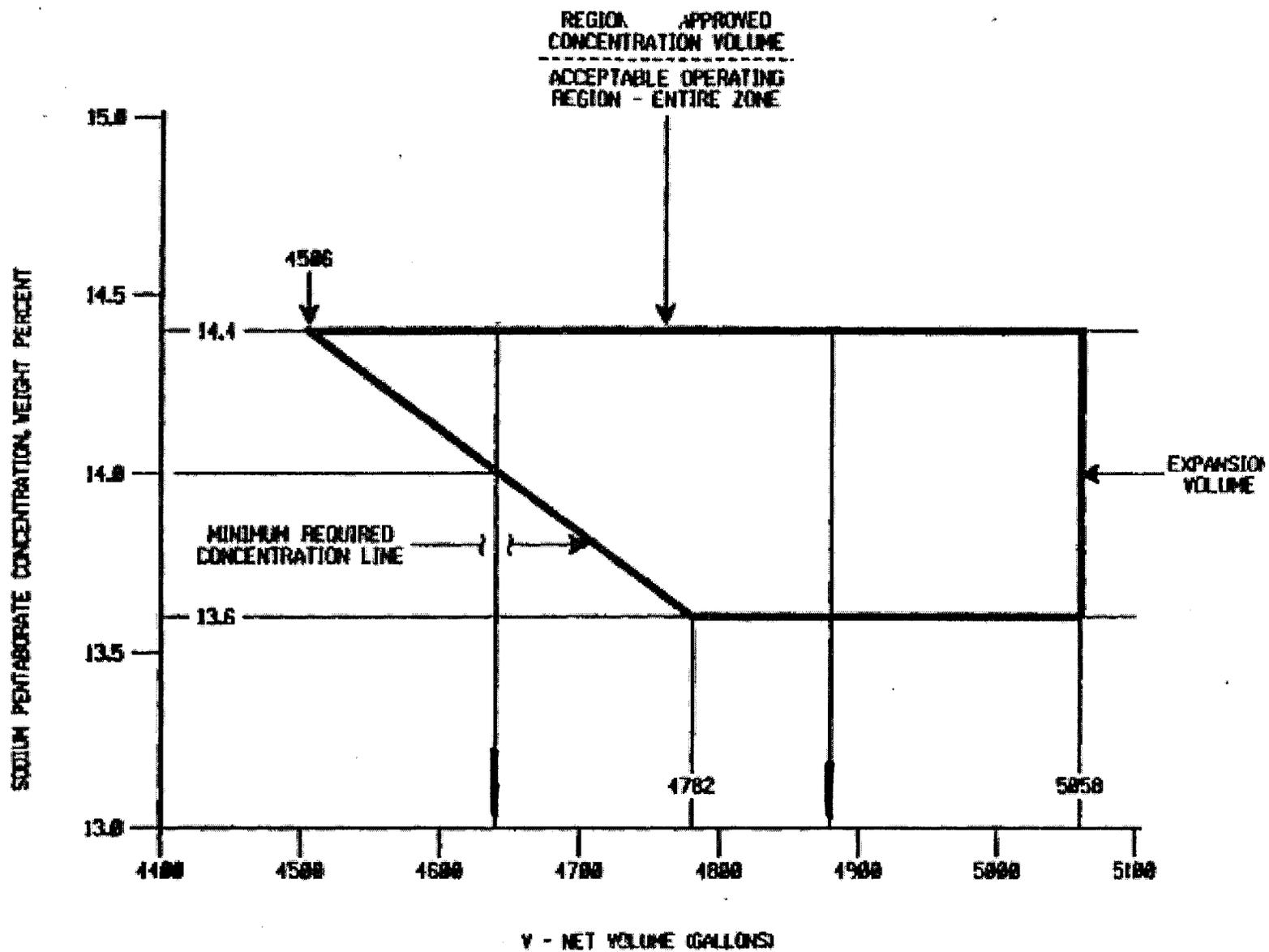
OP-92-039 - Fuel Zone Compensated Level  
APRM Meter Picture  
TS Figure 3.1.5-1 SLC Vol/Conc



# FUEL ZONE COMPENSATED LEVEL (RX BLDG T=75°F DWT=135°F)

OP-92-039





SODIUM PENTABORATE SOLUTION  
VOLUME/CONCENTRATION REQUIREMENTS

FIGURE 3.1.5-1

# Reference Material

## 2015 SRO NRC Exam

HC.OP-ST.BB-0001 Att.6

10 CFR 50.72 Reporting Requirements

Selected Technical Specifications

SPL-P, HCTL & PSP, DSIL Curves

EALs & RALs

## 3/4.7 PLANT SYSTEMS

### 3/4.7.1 SERVICE WATER SYSTEMS

#### SAFETY AUXILIARIES COOLING SYSTEM

##### LIMITING CONDITION FOR OPERATION

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3.7.1.1 At least the following independent safety auxiliaries cooling system (SACS) subsystems, with each subsystem comprised of:

- a. Two OPERABLE SACS pumps, and
- b. An OPERABLE flow path consisting of a closed loop through the SACS heat exchangers and SACS pumps and to associated safety related equipment

shall be OPERABLE:

- a. In OPERATIONAL CONDITION 1, 2 and 3, two subsystems.
- b. In OPERATIONAL CONDITION 4, 5, and \*\* the subsystems associated with systems and components required OPERABLE by Specification 3.4.9.2, 3.5.2, 3.8.1.2, 3.9.11.1 and 3.9.11.2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, and \*\*.

##### ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3:
  1. a. With one SACS pump inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, restore the inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.\*\*\* If the condition specified by \*\*\* can not be met, be in at least HOT SHUTDOWN within the next 72 hours and in COLD SHUTDOWN within the following 24 hours.
  - b. With one SACS heat exchanger inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, restore the heat exchanger to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
2. With one SACS subsystem otherwise inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, realign at least one of the affected diesel generators to the OPERABLE SACS subsystem within 2 hours, within 6 hours realign other affected SACS supported loads required to support plant operation for at least 72 hours, and restore the inoperable subsystem to OPERABLE status with at least one OPERABLE pump and heat exchanger within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.\*\*\*

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\*\* When handling recently irradiated fuel in the secondary containment.

\*\*\* Two diesel generators and two service water pumps associated with the unaffected SACS loop must be OPERABLE.

## PLANT SYSTEMS

### LIMITING CONDITION FOR OPERATION (continued)

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#### ACTION: (Continued)

3.
    - a. With one SACS pump in each subsystem inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, restore at least one inoperable pump to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.\*\*\*
    - b. With one SACS heat exchanger in each subsystem inoperable, immediately initiate measures to place the unit in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
  4. With both SACS subsystems otherwise inoperable, immediately initiate measures to place the unit in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN\* in the following 24 hours.
- b. In OPERATIONAL CONDITION 3 or 4 with the SACS subsystem, which is associated with an RHR loop required OPERABLE by Specification 3.4.9.1 or 3.4.9.2, having two SACS pumps or one heat exchanger inoperable, declare the associated RHR loop inoperable and take the ACTION required by Specification 3.4.9.1 or 3.4.9.2, as applicable.

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\* Whenever both SACS subsystems are inoperable, if unable to attain COLD SHUTDOWN as required by this ACTION, maintain reactor coolant temperature as low as practical by use of alternate heat removal methods.

\*\*\* Two diesel generators and service water pumps associated with the required OPERABLE SACS pumps and all SACS heat exchangers must be OPERABLE.

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## PLANT SYSTEMS

### LIMITING CONDITION FOR OPERATION (continued)

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#### ACTION: (Continued)

- c. In OPERATIONAL CONDITION 4 or 5 with the SACS subsystem, which is associated with safety related equipment required OPERABLE by Specification 3.5.2, having two SACS pumps or one heat exchanger inoperable, declare the associated safety related equipment inoperable and take the ACTION required by Specification 3.5.2.
- d. In OPERATIONAL CONDITION 5 with the SACS subsystem, which is associated with an RHR loop required OPERABLE by Specification 3.9.11.1 or 3.9.11.2, having two SACS pumps or one heat exchanger inoperable, declare the associated RHR system inoperable and take the ACTION required by Specification 3.9.11.1 or 3.9.11.2, as applicable.
- e. In OPERATIONAL CONDITION 4, 5, or \*\*, with one SACS subsystem, which is associated with safety related equipment required OPERABLE by Specification 3.8.1.2, inoperable, realign the associated diesel generators within 2 hours to the OPERABLE SACS subsystem, or declare the associated diesel generators inoperable and take the ACTION required by Specification 3.8.1.2. The provisions of Specification 3.0.3 are not applicable.
- f. In OPERATIONAL CONDITION 4, 5, or \*\*, with only one SACS pump and heat exchanger and its associated flowpath OPERABLE, restore at least two pumps and two heat exchangers and associated flowpaths to OPERABLE status within 72 hours or, declare the associated safety related equipment inoperable and take the associated ACTION requirements.

### SURVEILLANCE REQUIREMENTS

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4.7.1.1 At least the above required safety auxiliaries cooling system subsystems shall be demonstrated OPERABLE:

- a. In accordance with the Surveillance Frequency Control Program by verifying that each valve in the flow path that is not locked, sealed or otherwise secured in position, is in its correct position.
- b. In accordance with the Surveillance Frequency Control Program by verifying that:  
1) Each automatic valve servicing safety-related equipment actuates to its correct position on the appropriate test signal(s), and 2) Each pump starts automatically when its associated diesel generator automatically starts.

PLANT SYSTEMS

STATION SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

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3.7.1.2 At least the following independent station service water system loops, with each loop comprised of:

- a. Two OPERABLE station service water pumps, and
- b. An OPERABLE flow path capable of taking suction from the Delaware River (ultimate heat sink) and transferring the water to the SACS heat exchangers,

shall be OPERABLE:

- a. In OPERATIONAL CONDITION 1, 2 and 3, two loops.
- b. In OPERATIONAL CONDITION 4, 5 and \*, one loop.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5 and \*.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3:
  - 1. With one station service water pump inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, restore the inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.\*\* If the condition specified by \*\* can not be met, be in at least HOT SHUTDOWN within the next 72 hours and in COLD SHUTDOWN within the following 24 hours.
  - 2. With one station service water pump in each loop inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, restore at least one inoperable pump to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.\*\*\*
  - 3. With one station service water system loop otherwise inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, assess the operability of the associated SACS loop and take the ACTION specified in LCO 3.7.1.1, Action Statement a.2, if required, and restore the inoperable station service water system loop to OPERABLE status with at least one OPERABLE pump within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.\*\*

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\* When handling recently irradiated fuel in the secondary containment.

\*\* Two diesel generators and two SACS pumps associated with the unaffected service water loop must be OPERABLE.

\*\*\* Two diesel generators and SACS pumps associated with the required OPERABLE service water pumps and all SACS heat exchangers must be OPERABLE.

## PLANT SYSTEMS

### LIMITING CONDITION FOR OPERATION (continued)

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#### ACTION: (Continued)

- b. In OPERATIONAL CONDITION 4 or 5:

With only one station service water pump and its associated flowpath OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated SACS subsystem inoperable and take the ACTION required by Specification 3.7.1.1.

- c. In OPERATIONAL CONDITION \*:

With only one station service water pump and its associated flowpath OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated SACS subsystem inoperable and take the ACTION required by Specification 3.7.1.1. The provisions of Specification 3.0.3 are not applicable.

### SURVEILLANCE REQUIREMENTS

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4.7.1.2 At least the above required station service water system loops shall be demonstrated OPERABLE:

- a. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power operated or automatic), servicing safety related equipment that is not locked, sealed or otherwise secured in position, is in its correct position.
- b. In accordance with the Surveillance Frequency Control Program, by verifying that:
1. Each automatic valve servicing non-safety related equipment actuates to its isolation position on an isolation test signal.
  2. Each pump starts automatically when its associated diesel generator automatically starts.

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\* When handling recently irradiated fuel in the secondary containment.

## PLANT SYSTEMS

### ULTIMATE HEAT SINK

#### LIMITING CONDITION FOR OPERATION

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3.7.1.3 The ultimate heat sink (Delaware River) shall be OPERABLE with:

- a. A minimum river water level at or above elevation -9'0 Mean Sea Level, USGS datum (80'0 PSE&G datum), and
- b. An average river water temperature of less than or equal to 85.0°F.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5 and \*.

#### ACTION:

With the river water temperature in excess of 85.0°F, continued plant operation is permitted provided that both emergency discharge valves are open and emergency discharge pathways are available. With the river water temperature in excess of 88.0°F, continued plant operation is permitted provided that all of the following additional conditions are satisfied: all SSWS pumps are OPERABLE, all SACS pumps are OPERABLE, all EDGs are OPERABLE and the SACS loops have no cross-connected loads (unless they are automatically isolated during a LOP and/or LOCA); with ultimate heat sink temperature greater than 89°F and less than or equal to 91.4°F, verify once per hour that water temperature of the ultimate heat sink is less than or equal to 89°F averaged over the previous 24 hour period; otherwise, with the requirements of the above specification not satisfied:

- a. In OPERATIONAL CONDITIONS 1, 2 or 3, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- b. In OPERATIONAL CONDITIONS 4 or 5, declare the SACS system and the station service water system inoperable and take the ACTION required by Specification 3.7.1.1 and 3.7.1.2.
- c. In Operational Condition \*, declare the plant service water system inoperable and take the ACTION required by Specification 3.7.1.2. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.7.1.3 The ultimate heat sink shall be determined OPERABLE:

- a. By verifying the river water level to be greater than or equal to the minimum limit in accordance with the Surveillance Frequency Control Program.
- b. By verifying river water temperature to be within its limit:
  - 1) in accordance with the Surveillance Frequency Control Program when the river water temperature is less than or equal to 82°F.
  - 2) in accordance with the Surveillance Frequency Control Program when the river water temperature is greater than 82°F.

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\* When handling recently irradiated fuel in the secondary containment.

## 3/4.8 ELECTRICAL POWER SYSTEMS

### 3/4.8.1 A.C. SOURCES

#### A.C. SOURCES - OPERATING

#### LIMITING CONDITION FOR OPERATION

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3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and
- b. Four separate and independent diesel generators, each with:
  1. A separate fuel oil day tank containing a minimum of 360 gallons of fuel,
  2. A separate fuel storage system consisting of two storage tanks containing a minimum of 44,800 gallons of fuel, and
  3. A separate fuel transfer pump for each storage tank.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

#### ACTION:

Note: LCO 3.0.4.b is not applicable to DGs.

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\* This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

#### ACTION: (Continued)

2. For the inoperable A or B diesel generator, if continued operation is permitted by LCO 3.7.1.3:
  - a) Restore the inoperable diesel generator to OPERABLE status within 72 hours, or
  - b) Verify the Salem Unit 3 gas turbine generator (GTG) is available within 72 hours and once per 12 hours thereafter<sup>#</sup>, and restore the inoperable diesel generator to OPERABLE status within 14 days.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

3. For the inoperable C or D diesel generator, if continued operation is permitted by LCO 3.7.1.3, restore the inoperable diesel generator to OPERABLE status within 14 days, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c.

If a diesel generator became inoperable due to any causes other than an inoperable support system, an independently testable component, or preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators separately for each diesel generator by performing Surveillance Requirement 4.8.1.1.2.a.4 within 16 hours unless the absence of any potential common mode failure for the remaining diesel generators is demonstrated\*. If continued operation is permitted by LCO 3.7.1.3, restore at least two offsite circuits and all four of the above required diesel generators to OPERABLE status within 72 hours from time of the initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. A successful test(s) of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 performed under this ACTION statement for the OPERABLE diesel generators satisfies the diesel generator test requirements of ACTION Statement b.

- d. With both of the above required offsite circuits inoperable, restore at least one of the above required offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

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\* This test is required to be completed regardless of when the inoperable diesel generator is restored, to OPERABILITY.

# After the initial verification period, the GTG may be unavailable for a single period of up to 24-hours and the once-per 12-hour requirement to verify that the GTG is available may be suspended during this period.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

#### ACTION: (Continued)

e.

If either of the diesel generators became inoperable due to any cause other than an inoperable support system, an independently testable component, or preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 separately for each diesel generator within 8 hours\* unless the absence of any potential common mode failure for the remaining diesel generators is demonstrated. Restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. A successful test(s) of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 performed under this ACTION statement for the OPERABLE diesel generators satisfies the diesel generator test requirements of ACTION Statement b.

f. With two diesel generators of the above required A.C. electrical power sources inoperable, in addition to ACTION e., above, verify within 2 hours that all required systems, subsystems, trains, components, and devices that depend on the remaining diesel generators as a source of emergency power are also OPERABLE; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

g.

If either of the diesel generators became inoperable due to any cause other than an inoperable support system, an independently testable component, or preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 separately for each diesel generator within 8 hours\* unless the absence of any potential common mode failure for the remaining diesel generators is demonstrated. Restore at least one of the above required inoperable A.C. sources to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore the inoperable offsite circuit and both of the inoperable diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

h. With the buried fuel oil transfer piping's cathodic protection system inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the system to OPERABLE status.

i. With one fuel oil transfer pump inoperable, realign the flowpath of the affected tank to the tank with the remaining operable fuel oil transfer pump within 48 hours and restore the inoperable transfer pump to OPERABLE status within 14 days, otherwise declare the affected emergency diesel generator (EDG) inoperable. This variance may be applied to only one EDG at a time.

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\* This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

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3.8.2.1 As a minimum, the following D.C. electrical power sources shall be OPERABLE:

- a. Channel A, consisting of:
  - 1. 125 volt battery 1AD411
  - 2. 125 volt full capacity charger 1AD413 or 1AD414
  - 3. 250 volt battery 10D421;
  - 4. 250 volt full capacity charger 10D423
  
- b. Channel B, consisting of:
  - 1. 125 volt battery 1BD411
  - 2. 125 volt full capacity charger 1BD413 or 1BD414
  - 3. 250 volt battery 10D431;
  - 4. 250 volt full capacity charger 10D433
  
- c. Channel C, consisting of:
  - 1. 125 volt battery 1CD411
  - 2. 125 volt full capacity charger 1CD413 or 1CD414
  - 3. 125 volt battery 1CD447
  - 4. 125 volt full capacity charger 1CD444
  
- d. Channel D, consisting of:
  - 1. 125 volt battery 1DD411
  - 2. 125 volt full capacity charger 1DD413 or 1DD414
  - 3. 125 volt battery 1DD447
  - 4. 125 volt full capacity charger 1DD444

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

a.



b.



ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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c. With the average electrolyte temperature of each sixth cell of connected cells in any 125v battery at or below 72°F, but at or above 65°F, the battery may be considered OPERABLE for an additional 31 days, provided that:

1. Within 2 hours from identification of degraded temperature, the battery pilot cells are determined to meet Category A limits; and
2. Within 24 hours from identification of degraded temperature, and once per seven days thereafter, all connected cells are determined to meet Category B limits.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With the average electrolyte temperature of each sixth cell of connected cells in any 250v battery at or below 72°F, but at or above 65°F, the battery may be considered OPERABLE for an additional 31 days, provided that:

1. Within 2 hours from identification of degraded temperature, the battery pilot cells are determined to meet Category A limits; and
2. Within 24 hours from identification of degraded temperature, and once per seven days thereafter, all connected cells are determined to meet Category B limits.

Otherwise, declare the associated HPCI or RCIC system inoperable and take the appropriate ACTION required by the applicable Specification.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each of the above required batteries and chargers shall be demonstrated OPERABLE:

- a. In accordance with the Surveillance Frequency Control Program by verifying that:
  - 1. The parameters in Table 4.8.2.1-1 meet the Category A limits, and
  - 2. Total battery terminal voltage for each 125-volt battery is greater than or equal to 129 volts on float charge and for each 250-volt battery the terminal voltage is greater than or equal to 258 volts on float charge.
  
- b. In accordance with the Surveillance Frequency Control Program and within 7 days after a battery discharge with battery terminal voltage below 108 volts for a 125-volt battery or 210 volts for a 250-volt battery, or battery overcharge with battery terminal voltage above 140 volts for a 125-volt battery or 280 volts for a 250-volt battery, by verifying that:
  - 1. The parameters in Table 4.8.2.1-1 meet the Category B limits,
  - 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than  $150 \times 10^{-6}$  ohms, excluding cable intercell connections, and
  - 3. The average electrolyte temperature of each sixth cell of connected cells is above 72°F.
  
- c. In accordance with the Surveillance Frequency Control Program by verifying that:
  - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
  - 2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material,
  - 3. The resistance of each cell-to-cell and terminal connection is less than or equal to  $150 \times 10^{-6}$  ohms, excluding cable intercell connections, and
  - 4. The battery charger will supply the current listed below at the voltage listed below for at least 8 hours.

<u>CHARGER</u>	<u>Minimum Voltage</u>	<u>CURRENT (AMPERES)</u>
1AD413, 1AD414 1BD413, 1BD414 1CD413, 1CD414 1CD444, 1DD414 1DD444, 1DD413	129	200
10D423, 10D433	258	50

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (continued)

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- d. In accordance with the Surveillance Frequency Control Program, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.
- e. In accordance with the Surveillance Frequency Control Program, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test.
- f. At least once per 18 months, during shutdown, performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating. At this once per 18 months interval, this performance discharge test may be performed in lieu of the battery service test.

TABLE 4.8.2.1-1

BATTERY SURVEILLANCE REQUIREMENTS

PARAMETER	CATEGORY A: (*) LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: (*) LIMITS FOR EACH CONNECTED CELL	CATEGORY C: (#) ALLOWABLE VALUE FOR EACH CONNECTED CELL
Electrolyte Level	≥Minimum level indication mark and <¼" above maximum level indication mark <sup>(d)</sup>	≥Minimum level indication mark and ≤¼" above maximum level indication mark <sup>(d)</sup>	Above top of plates and not overflowing
Float Voltage	≥2.13 volts	≥2.13 volts <sup>(a)</sup>	>2.07 volts
Specific Gravity <sup>(a)</sup>	≥1.200 <sup>(b)</sup>	≥1.195  AND  Average of all connected cells >1.205 <sup>(b)</sup>	Not more than .020 below the average of all connected cells  AND  Average of all connected cells ≥1.195 <sup>(b)</sup>

(\*) With parameters of one or more cells in one or more batteries not within limits (i.e., Category A, Category B or Category A and B limits not met), the battery may be considered OPERABLE provided that:

1. Within 1 hour, pilot cell electrolyte levels and float voltages are verified to meet Category C Allowable Values, AND
2. Within 24 hours, and once per 7 days thereafter, all battery cell parameters meet Category C Allowable Values, AND
3. Within 31 days, all battery cell parameters are restored to within Category A and Category B limits of this Table.

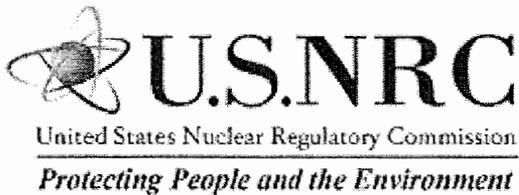
(#) Any Category C parameter not within its Allowable Value indicates an inoperable battery.

(a) Corrected for electrolyte temperature and level.

(b) OR battery charging current is less than 2 amperes when on float charge.

(c) May be corrected for average electrolyte temperature.

(d) Electrolyte level may exceed ¼" above maximum level indication mark if an equalizing charge is in progress, or an equalizing charge has been completed within the previous 72 hours.



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Immediate notification requirements for operating nuclear power reactors.

## § 50.72 Immediate notification requirements for operating nuclear power reactors.

(a) General requirements.<sup>1</sup> (1) Each nuclear power reactor licensee licensed under §§ 50.21(b) or 50.22 holding an operating license under this part or a combined license under part 52 of this chapter after the Commission makes the finding under § 52.103(g), shall notify the NRC Operations Center via the Emergency Notification System of:

(i) The declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan;<sup>2</sup> or

(ii) Those non-emergency events specified in paragraph (b) of this section that occurred within three years of the date of discovery.

(2) If the Emergency Notification System is inoperative, the licensee shall make the required notifications via commercial telephone service, other dedicated telephone system, or any other method which will ensure that a report is made as soon as practical to the NRC Operations Center.<sup>3</sup>

(3) The licensee shall notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes.

(4) The licensee shall activate the Emergency Response Data System (ERDS)<sup>4</sup> as soon as possible but not later than one hour after declaring an Emergency Class of alert, site area emergency, or general emergency. The ERDS may also be activated by the licensee during emergency drills or exercises if the licensee's computer system has the capability to transmit the exercise data.

(5) When making a report under paragraph (a)(1) of this section, the licensee shall identify:

(i) The Emergency Class declared; or

(ii) Paragraph (b)(1), "One-hour reports," paragraph (b)(2), "Four-hour reports," or paragraph (b)(3), "Eight-hour reports," as the paragraph of this section requiring notification of the non-emergency event.

(b) Non-emergency events--(1) One-hour reports. If not reported as a declaration of an Emergency Class under paragraph (a) of this section, the licensee shall notify the NRC as soon as practical and in all cases within one hour of the occurrence of any deviation from the plant's Technical Specifications authorized pursuant to Sec. 50.54(x) of this part.

(2) Four-hour reports. If not reported under paragraphs (a) or (b)(1) of this section, the licensee shall notify the NRC as soon as practical and in all cases, within four hours of the occurrence of any of the following:

(i) The initiation of any nuclear plant shutdown required by the plant's Technical Specifications.

(ii)-(iii) [Reserved]

(iv)(A) Any event that results or should have resulted in emergency core cooling system (ECCS) discharge into the reactor coolant system as a result of a valid signal except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

(B) Any event or condition that results in actuation of the reactor protection system (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

(v)-(x) [Reserved]

(xi) Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactively contaminated materials.

(3) Eight-hour reports. If not reported under paragraphs (a), (b)(1) or (b)(2) of this section, the licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any of the following:

(i) [Reserved]

(ii) Any event or condition that results in:

(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or

(B) The nuclear power plant being in an unanalyzed condition that significantly degrades plant safety.

(iii) [Reserved]

(iv)(A) Any event or condition that results in valid actuation of any of the systems listed in paragraph (b)(3)(iv)(B) of this section, except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

(B) The systems to which the requirements of paragraph (b)(3)(iv)(A) of this section apply are:

(1) Reactor protection system (RPS) including: Reactor scram and reactor trip. <sup>5</sup>

(2) General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs).

(3) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: High-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.

(4) ECCS for boiling water reactors (BWRs) including: High-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.

(5) BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.

(6) PWR auxiliary or emergency feedwater system.

(7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems.

(8) Emergency ac electrical power systems, including: Emergency diesel generators (EDGs); hydroelectric facilities used in lieu of EDGs at the Oconee Station; and BWR dedicated Division 3 EDGs.

(v) Any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to:

(A) Shut down the reactor and maintain it in a safe shutdown condition;

(B) Remove residual heat;

(C) Control the release of radioactive material; or

(D) Mitigate the consequences of an accident.

(vi) Events covered in paragraph (b)(3)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to paragraph (b)(3)(v) of this section if redundant equipment in the same system was operable and available to perform the required safety function.

(vii)-(xi) [Reserved]

(xii) Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.

(xiii) Any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability (e.g., significant portion of control room indication, Emergency Notification System, or offsite notification system).

(c) *Followup notification.* With respect to the telephone notifications made under paragraphs (a) and (b) of this section, in addition to making the required initial notification, each licensee, shall during the course of the event:

(1) *Immediately report* (i) any further degradation in the level of safety of the plant or other worsening plant conditions, including those that require the declaration of any of the Emergency Classes, if such a declaration has not been previously made, or (ii) any change from one Emergency Class to another, or (iii) a termination of the Emergency Class.

(2) *Immediately report* (i) the results of ensuing evaluations or assessments of plant conditions, (ii) the effectiveness of response or protective measures taken, and (iii) information related to plant behavior that is not understood.

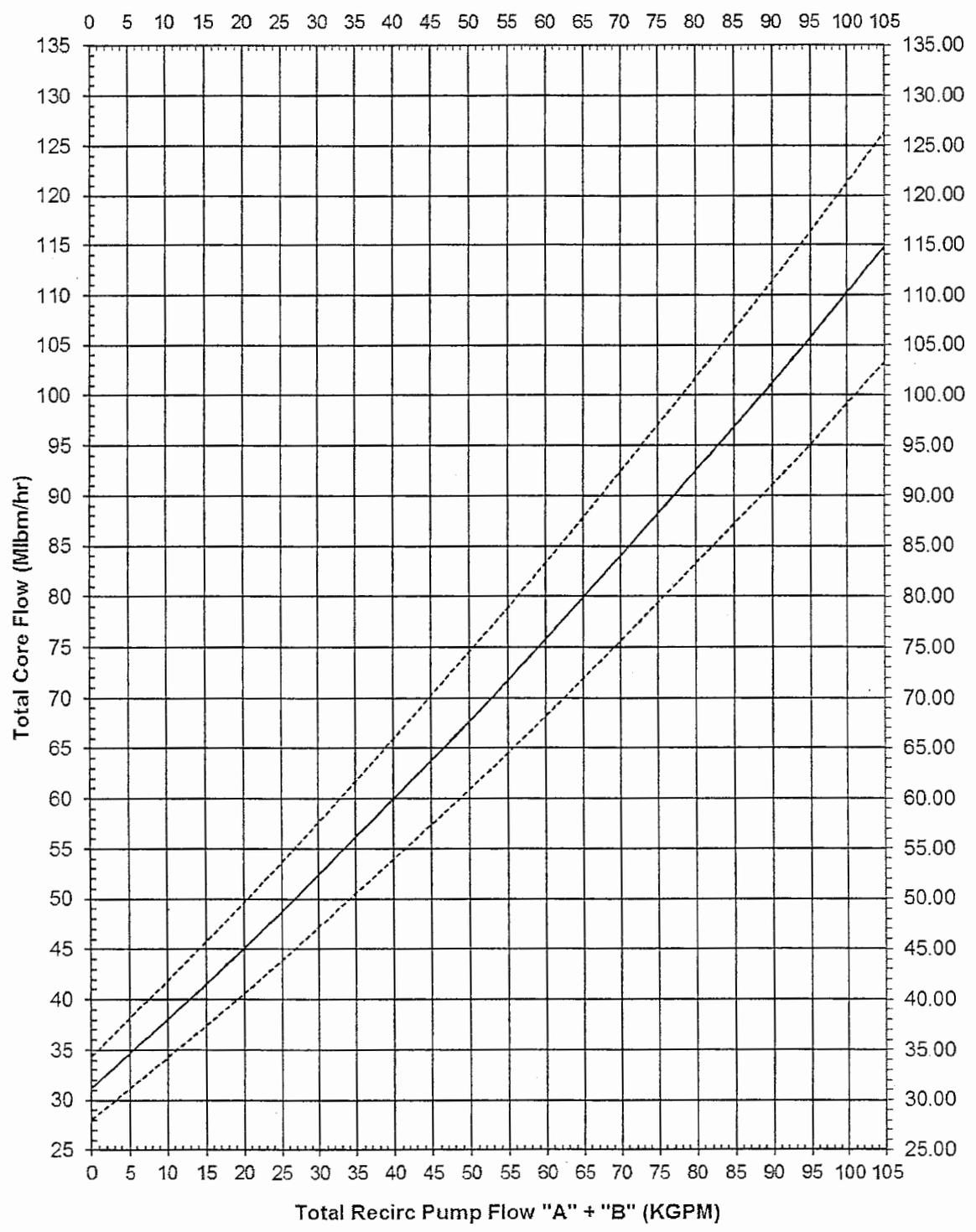
(3) Maintain an open, continuous communication channel with the NRC Operations Center upon request by the NRC.

[48 FR 39046, Aug. 29, 1983; 48 FR 40882, Sept. 12, 1983; 55 FR 29194, July 18, 1990, as amended at 56 FR 944, Jan. 10, 1991; 56 FR 23473, May 21, 1991; 56 FR 40184, Aug. 13, 1991; 57 FR 41381, Sept. 10, 1992; 58 FR 67661, Dec. 22, 1993; 59 FR 14087, Mar. 25, 1994; 65 FR 63786, Oct. 25, 2000; 72 FR 49502, Aug. 28, 2007]

1. Other requirements for immediate notification of the NRC by licensed operating nuclear power reactors are contained elsewhere in this chapter, in particular Secs. 20.1906, 20.2202, 50.36, 72.216, and 73.71.
2. These Emergency Classes are addressed in Appendix E of this part.
3. Commercial telephone number of the NRC Operations Center is (301) 816-5100.
4. Requirements for ERDS are addressed in Appendix E, Section VI.
5. Actuation of the RPS when the reactor is critical is reportable under paragraph (b)(2)(iv)(B) of this section.

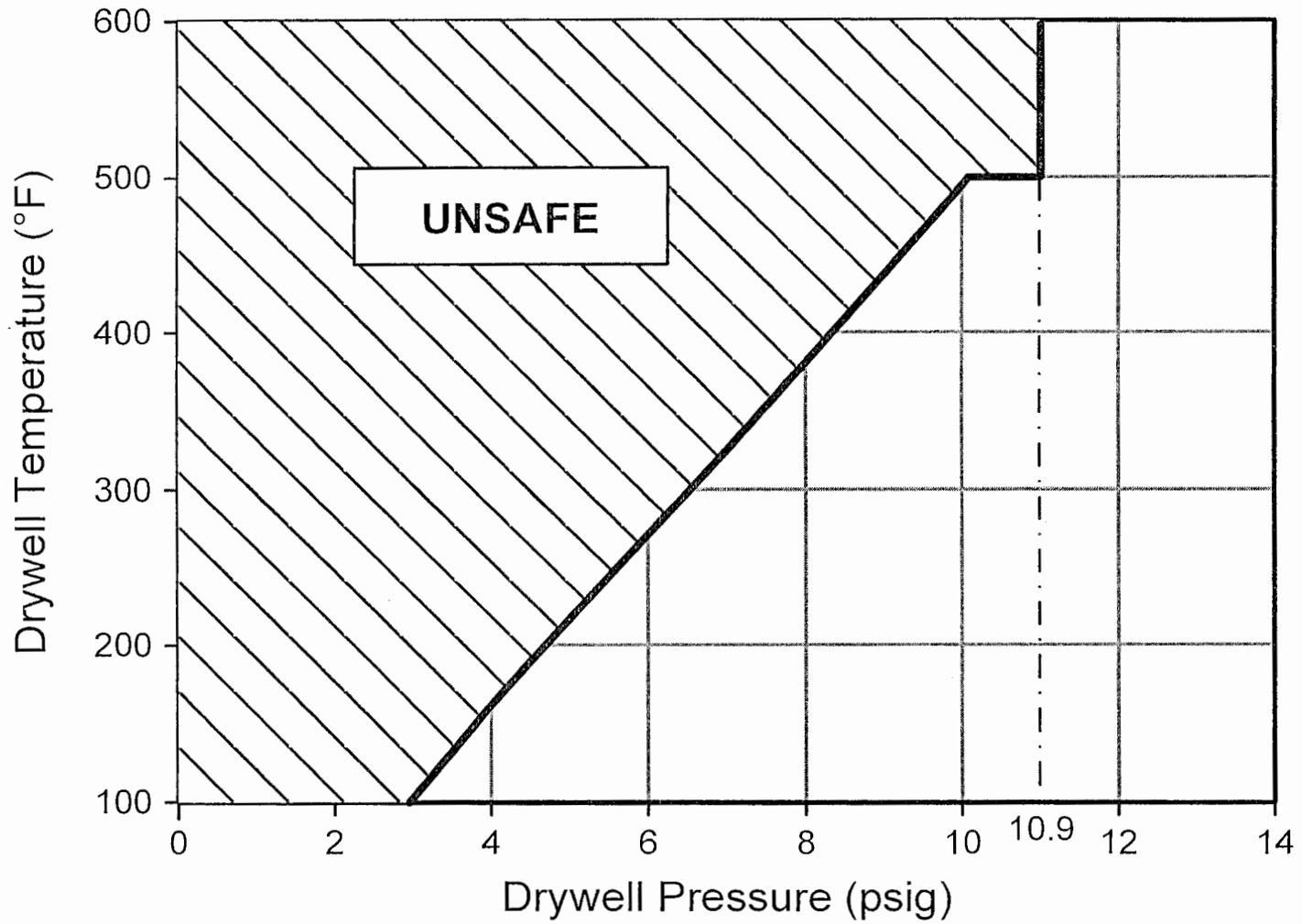
*Page Last Reviewed/Updated Thursday, July 10, 2014*

### ATTACHMENT 6 TOTAL RECIRC PUMP FLOW vs TOTAL CORE FLOW CURVE

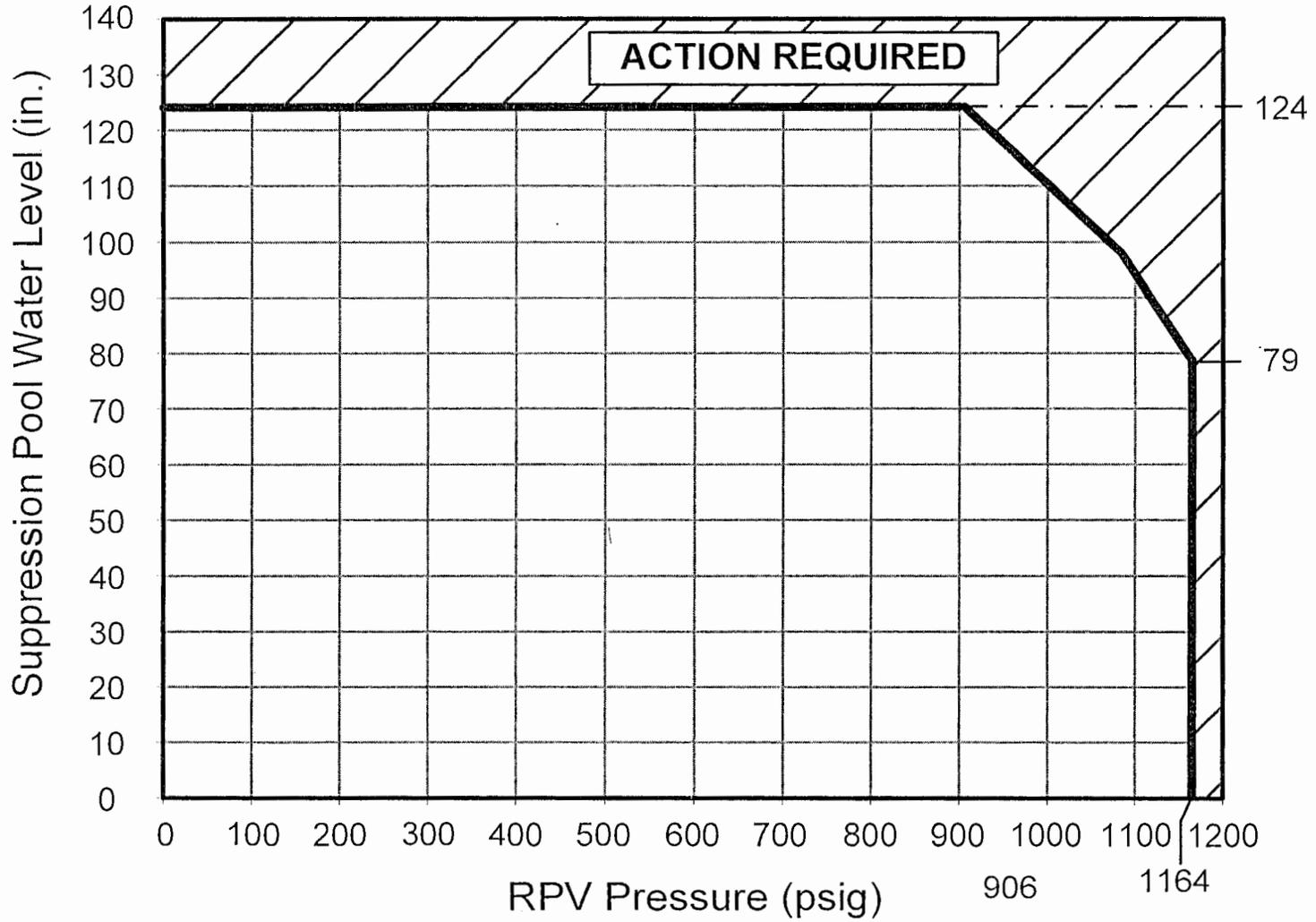


(1-BB-FI-R617-B31 + 1-BB-FI-R613-B31)

**Curve DWT-P**  
**Drywell Spray Initiation Limit**

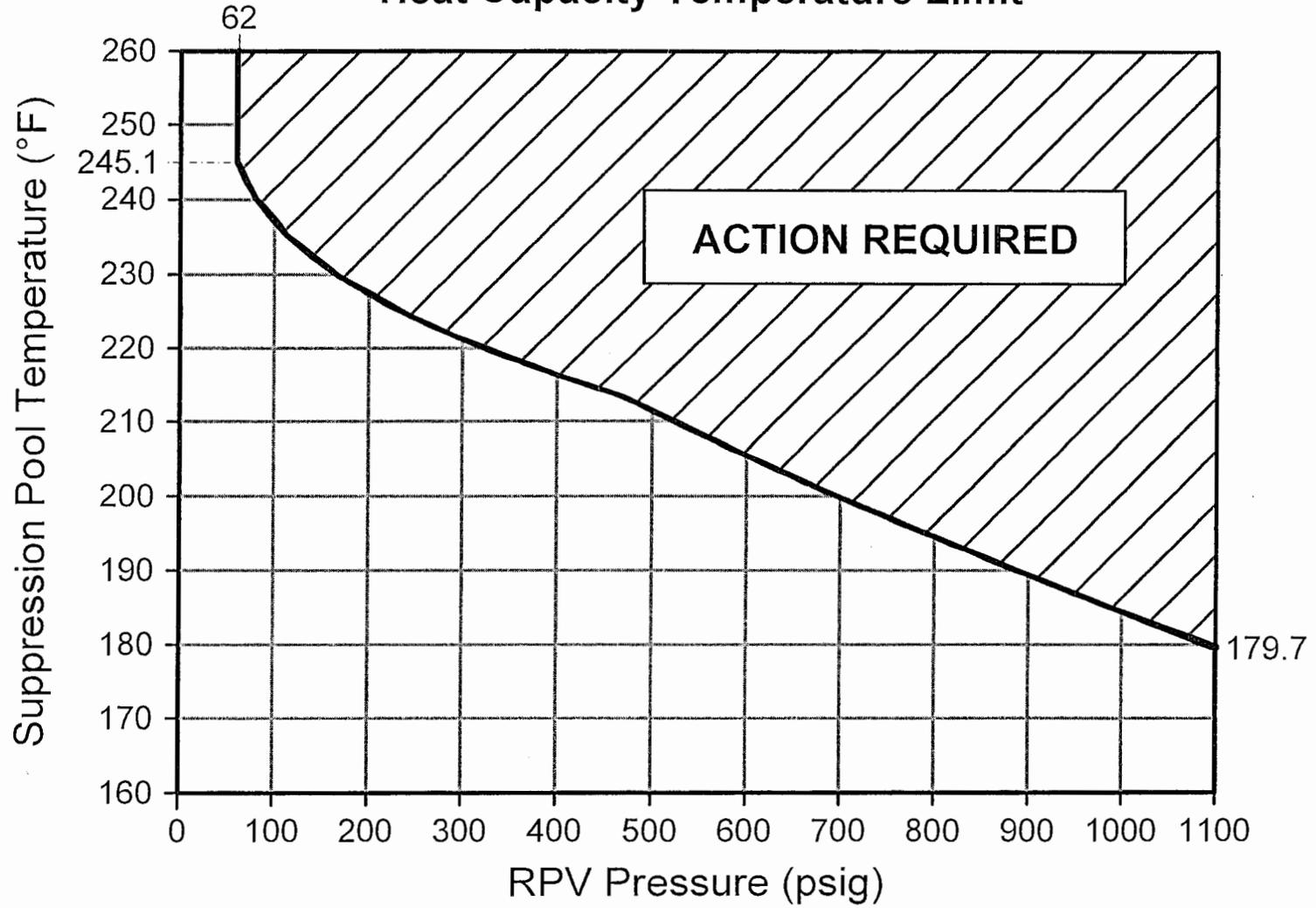


# Curve SPL-P SRV Tail Pipe Level Limit



### Curve SPT-P

### Heat Capacity Temperature Limit



# Curve SCP-L Pressure Suppression Pressure

