

### 3/4.4 REACTOR COOLANT SYSTEM

#### 3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

##### STARTUP AND POWER OPERATION

##### LIMITING CONDITION FOR OPERATION

---

3.4.1.1 All reactor coolant loops shall be in operation.

APPLICABILITY: MODES 1 and 2.

ACTION:

With less than the above required reactor coolant loops in operation, be in at least HOT STANDBY within 6 hours.

##### SURVEILLANCE REQUIREMENTS

---

4.4.1.1 The above required reactor coolant loops shall be verified in operation and circulating reactor coolant at least once per 12 hours.

## REACTOR COOLANT SYSTEM

### HOT STANDBY

#### LIMITING CONDITION FOR OPERATION

---

3.4.1.2 All of the reactor coolant loops listed below shall be OPERABLE with all reactor coolant loops in operation when the Reactor Trip breakers are closed and two reactor coolant loops listed below shall be OPERABLE with at least one reactor coolant loop in operation when the Reactor Trip breakers are open:\*

- a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,
- b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump, and
- c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump.

APPLICABILITY:     MODE 3

#### ACTION:

- a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.
- b. With less than three reactor coolant loops in operation and the Reactor Trip breakers in the closed position, within 1 hour open the Reactor Trip breakers.
- c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required reactor coolant loop to operation.

#### SURVEILLANCE REQUIREMENTS

---

4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 10% at least once per 12 hours.

4.4.1.2.3 The required reactor coolant loops shall be verified in operation and circulating reactor coolant at least once per 12 hours.

---

\* All reactor coolant pumps may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

## REACTOR COOLANT SYSTEM

### HOT SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.4.1.3 At least two of the loops listed below shall be OPERABLE and at least one of these loops shall be in operation:\*

- a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,\*\*
- b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,\*\*
- c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump,\*\*
- d. RHR Loop A, and
- e. RHR Loop B.

APPLICABILITY: MODE 4.

#### ACTION:

- a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; if the remaining OPERABLE loop is an RHR loop, be in COLD SHUTDOWN within 24 hours.
- b. With no loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required loop to operation.

---

\* All reactor coolant pumps and RHR pumps may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

\*\* A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 275°F unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

## REACTOR COOLANT SYSTEM

### SURVEILLANCE REQUIREMENTS

---

4.4.1.3.1 The required reactor coolant pump(s), if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.2 The required steam generator(s) shall be determined OPERABLE by verifying secondary side water level to be greater than or equal to 10% at least once per 12 hours.

4.4.1.3.3 At least one reactor coolant or RHR loop shall be verified in operation and circulating reactor coolant at least once per 12 hours.

## REACTOR COOLANT SYSTEM

### COLD SHUTDOWN - LOOPS FILLED

#### LIMITING CONDITION FOR OPERATION

---

3.4.1.4.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation\*, and either:

- a. One additional RHR loop shall be OPERABLE\*\*, or
- b. The secondary side water level of at least two steam generators shall be greater than 10%.

APPLICABILITY: MODE 5 with reactor coolant loops filled\*\*\*.

#### ACTION:

- a. With one of the RHR loops inoperable or with less than the required steam generator water level, immediately initiate corrective action to return the inoperable RHR loop to OPERABLE status or restore the required steam generator water level as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

#### SURVEILLANCE REQUIREMENTS

---

4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits at least once per 12 hours.

4.4.1.4.1.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

---

\* The RHR pump may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

\*\* One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

\*\*\* A reactor coolant pump shall not be started with one or more of the Reactor Coolant System cold leg temperatures less than or equal to 275°F unless the secondary water temperature of each steam generator is less than 50°F above each of the Reactor Coolant System cold leg temperatures.

## REACTOR COOLANT SYSTEM

### COLD SHUTDOWN - LOOPS NOT FILLED

#### LIMITING CONDITION FOR OPERATION

---

3.4.1.4.2 Two residual heat removal (RHR) loops shall be OPERABLE\* and at least one RHR loop shall be in operation.\*\*

APPLICABILITY: MODE 5 with reactor coolant loops not filled.

ACTION:

- a. With less than the above required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation.

#### SURVEILLANCE REQUIREMENTS

---

4.4.1.4.2 At least one RHR loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

---

\* One RHR loop may be inoperable for up to 2 hours for surveillance testing provided the other RHR loop is OPERABLE.

\*\* The RHR pump may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

## REACTOR COOLANT SYSTEM

### 3/4.4.2 SAFETY VALVES

#### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.4.2.1 A minimum of one pressurizer Code safety valve shall be OPERABLE\* with a lift setting of 2485 psig + 2%, -3%.\*\* \*\*\*

APPLICABILITY: MODES 4 and 5.

#### ACTION:

With no pressurizer Code safety valve OPERABLE, immediately suspend all operations involving positive reactivity changes and place an OPERABLE RHR loop into operation in the shutdown cooling mode.

#### SURVEILLANCE REQUIREMENTS

---

4.4.2.1 No additional requirements other than those required by Specification 4.0.5.

---

\* While in MODE 5, an equivalent size vent pathway may be used provided that the vent pathway is not isolated or sealed.

\*\* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

\*\*\* All valves tested must have "as left" lift setpoints that are within  $\pm 1\%$  of the lift setting value.

## REACTOR COOLANT SYSTEM

### OPERATING

#### LIMITING CONDITION FOR OPERATION

---

3.4.2.2 All pressurizer Code safety valves shall be OPERABLE with a lift setting of 2485 psig + 2%, -3%.\* \*\*

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With one pressurizer Code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.4.2.2 No additional requirements other than those required by Specification 4.0.5.

---

\* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

\*\* All valves tested must have "as left" lift setpoints that are within  $\pm 1\%$  of the lift setting value. |

## REACTOR COOLANT SYSTEM

### 3/4.4.3 PRESSURIZER

#### LIMITING CONDITION FOR OPERATION

---

3.4.3 The pressurizer shall be OPERABLE with a water volume of less than or equal to 92% of indicated level, and at least two groups of pressurizer heaters each having a capacity of at least 125 kW and capable of being supplied by emergency power.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With only one group of pressurizer heaters OPERABLE, restore at least two groups to OPERABLE status within 72 hours\*\* or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With the pressurizer otherwise inoperable, be in at least HOT STANDBY with the Reactor Trip System breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.4.3.1 The pressurizer water volume shall be determined to be within its limit at least once per 12 hours.

4.4.3.2 The capacity of each of the above required groups of pressurizer heaters shall be verified by energizing the heaters and measuring circuit current at least once per 92 days.

---

\*\* 14 days if the inoperability is associated with an inoperable diesel generator.

## REACTOR COOLANT SYSTEM

### 3/4.4.4 RELIEF VALVES

#### LIMITING CONDITION FOR OPERATION

---

3.4.4 Both power-operated relief valves (PORVs) and their associated block valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one or both PORVs inoperable because of excessive leakage, within 1 hour either restore the PORV(s) to OPERABLE status or close the associated block valve(s) with power maintained to the block valve(s); otherwise be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one PORV inoperable due to causes other than excessive leakage, within 1 hour either restore the PORV to OPERABLE status or close its associated block valve and remove power from the block valve; otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With both PORVs inoperable due to causes other than excessive leakage, within 1 hour either restore at least one PORV to OPERABLE status or close each PORV's associated block valve and remove power from the block valve; with both block valves closed with power removed, restore at least one PORV to OPERABLE status within 30 days and restore power to its associated block valve; otherwise, be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours.
- d. With one or both block valve(s) inoperable, within 1 hour either restore the block valve(s) to OPERABLE status or close the block valve(s) and remove power from the block valve(s); otherwise, place its associated PORV in manual control within the next hour and be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours. Restore at least one block valve to OPERABLE status within 30 days if both block valves are inoperable; otherwise, be in at least HOT STANDBY within the next 6 hours and HOT SHUTDOWN within the following 6 hours.
- e. The provisions of Specification 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.4.4 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed with power removed in order to meet the requirements of Specification 3.4.4 or is closed to provide an isolation function.

## REACTOR COOLANT SYSTEM

### 3/4.4.5 STEAM GENERATORS

#### LIMITING CONDITION FOR OPERATION

---

3.4.5 Each steam generator shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more steam generators inoperable, restore the inoperable generator(s) to OPERABLE status prior to increasing  $T_{avg}$  above 200°F.

#### SURVEILLANCE REQUIREMENTS

---

4.4.5.0 Each steam generator shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

4.4.5.1 Steam Generator Sample Selection and Inspection - Each steam generator shall be determined OPERABLE during shutdown by selecting and inspecting at least the minimum number of steam generators specified in Table 4.4-1.

4.4.5.2 Steam Generator Tube Sample Selection and Inspection - The steam generator tube minimum sample size, inspection result classification, and the corresponding action required shall be as specified in Table 4.4-2. The inservice inspection of steam generator tubes shall be performed at the frequencies specified in Specification 4.4.5.3 and the inspected tubes shall be verified acceptable per the acceptance criteria of Specification 4.4.5.4. The tubes selected for each inservice inspection shall include at least 3% of the total number of tubes in all steam generators; the tubes selected for these inspections shall be selected on a random basis except:

- a. Where experience in similar plants with similar water chemistry indicates critical areas to be inspected, then at least 50% of the tubes inspected shall be from these critical areas;
- b. The first sample of tubes selected for each inservice inspection (subsequent to the preservice inspection) of each steam generator shall include:

**REACTOR COOLANT SYSTEM**

**STEAM GENERATORS**

**SURVEILLANCE REQUIREMENTS (Continued)**

---

- 1) All nonplugged tubes that previously had detectable wall penetrations (greater than 20%),
  - 2) Tubes in those areas where experience has indicated potential problems, and
  - 3) A tube inspection (pursuant to Specification 4.4.5.4a.8) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection.
- c. The tubes selected as the second and third samples in the inservice inspection may be less than a full tube inspection by concentrating (selecting at least 50% of the tubes to be inspected) the inspection on those areas of the tube sheet array and on those portions of the tubes where tubes with imperfections were previously found.

The results of each sample inspection shall be classified into one of the following three categories:

<u>Category</u>	<u>Inspection Results</u>
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.
C-3	More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.

Note: In all inspections, previously degraded tubes must exhibit significant (greater than 10%) further wall penetrations to be included in the above percentage calculations.

## REACTOR COOLANT SYSTEM

### STEAM GENERATORS

#### SURVEILLANCE REQUIREMENTS (Continued)

---

**4.4.5.3 Inspection Frequencies** - The above required inservice inspections of steam generator tubes shall be performed at the following frequencies:

- a. The first inservice inspection shall be performed after 6 Effective Full Power Months but within 24 calendar months following replacement of steam generators. Subsequent inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. If two consecutive inspections following service under AVT conditions, not including the preservice inspection, result in all inspection results falling into the C-1 Category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months.
- b. If the results of the inservice inspection of a steam generator conducted in accordance with Table 4.4-2 at 40-month intervals fall in Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 4.4.5.3a; the interval may then be extended to a maximum of once per 40 months; and
- c. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 4.4-2 during the shutdown subsequent to any of the following conditions:
  - 1) Primary-to-secondary tubes leak (not including leaks originating from tube-to-tube sheet welds) in excess of the limits of Specification 3.4.6.2, or
  - 2) A seismic occurrence greater than the Operating Basis Earthquake, or
  - 3) A loss-of-coolant accident resulting in rapid depressurization of the primary system, or
  - 4) A main steam line or feedwater line break resulting in rapid depressurization of the affected steam generator.

## REACTOR COOLANT SYSTEM

### STEAM GENERATORS

#### SURVEILLANCE REQUIREMENTS (Continued)

---

##### 4.4.5.4 Acceptance Criteria

a. As used in this specification:

- 1) Imperfection means an exception to the dimensions, finish or contour of a tube from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube wall thickness, if detectable, may be considered as imperfections;
- 2) Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube;
- 3) Degraded Tube means a tube containing imperfections greater than or equal to 20% of the nominal wall thickness caused by degradation;
- 4) % Degradation means the percentage of the tube wall thickness affected or removed by degradation;
- 5) Defect means an imperfection of such severity that it exceeds the plugging limit. A tube containing a defect is defective.
- 6) Plugging Limit means the imperfection depth at or beyond which the tube shall be removed from service because it may become unserviceable prior to the next inspection and is equal to 40% of the nominal tube wall thickness;
- 7) Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.5.3c, above;
- 8) Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg, or from the point of entry (cold leg side) completely around the U-bend and to the bottom of the hot leg; and

## REACTOR COOLANT SYSTEM

### STEAM GENERATORS

#### SURVEILLANCE REQUIREMENTS (Continued)

---

- 9) Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing.
- b. The steam generator shall be determined OPERABLE after completing the corresponding actions (plug all tubes exceeding the plugging limit and all tubes containing through-wall cracks) required by Table 4.4-2.

#### 4.4.5.5 Reports

- a. Within 15 days following the completion of each inservice inspection of steam generator tubes, the number of tubes plugged in each steam generator shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2;
- b. The complete results of the steam generator tube inservice inspection shall be submitted to the Commission in a Special Report pursuant to Specification 6.9.2 within 12 months following the completion of the inspection. This Special Report shall include:
- 1) Number and extent of tubes inspected,
  - 2) Location and percent of wall-thickness penetration for each indication of an imperfection, and
  - 3) Identification of tubes plugged.
- c. Results of steam generator tube inspections which fall into Category C-3 shall be reported to the Commission pursuant to 10 CFR Part 50.72 and prior to resumption of plant operation. This report shall provide a description of investigations conducted to determine cause of the tube degradation and corrective measures taken to prevent recurrence.

**TABLE 4.4-1**

**MINIMUM NUMBER OF STEAM GENERATORS TO BE  
INSPECTED DURING INSERVICE INSPECTION**

Preservice Inspection	No	Yes
No. of Steam Generators per Unit	Three	Three
First Inservice Inspection	All	Two
Second & Subsequent Inservice Inspections	One <sup>1</sup>	One <sup>2</sup>

**Table Notation**

- 1. The inservice inspection may be limited to one steam generator on a rotating schedule encompassing 9% of the tubes if the results of the first or previous inspections indicate that all steam generators are performing in a like manner. Note that under some circumstances, the operating conditions in one or more steam generators may be found to be more severe than those in other steam generators. Under such circumstances the sample sequence shall be modified to inspect the most severe conditions.**
- 2. The other steam generator not inspected during the first inservice inspection shall be inspected. The third and subsequent inspections should follow the instruction described in 1 above.**

TABLE 4-2

## STEAM GENERATOR TUBE INSPECTION

SAMPLE SIZE	1st SAMPLE INSPECTION		2nd SAMPLE INSPECTION		3rd SAMPLE INSPECTION	
	Result	Action Required	Result	Action Required	Result	Action Required
A minimum Of S Tubes Per S.G.	C-1	None	N/A	N/A	N/A	N/A
	C-2	Plug defective tubes and inspect additional 2S tubes in this S.G.	C-1	None	N/A	N/A
			C-2	Plug defective tubes inspect additional 4S tubes in this S.G.	C-1	None
					C-2	Plug defective tubes
					C-3	Perform action for C-3 result of first sample
C-3	Perform action for C-3 result of first sample	N/A	N/A			
C-3	Inspect all tubes in this S.G. plug defective tubes and inspection 2S tubes in each other S.G.  Notification to NRC pursuant to Section 4.4.5.5c.	All other S.G.s are C-1	None	N/A	N/A	
		Some S.G.s C-2 but no additional S.G.s are C-3	Perform action for C-2 result of second sample	N/A	N/A	
		Additional S.G. is C-3	Inspect all tubes in each S.G. and plug defective tubes. Notification to NRC pursuant to Section 4.4.5.5c.	N/A	N/A	

$S = \frac{9}{n}\%$  Where n is the number of steam generators inspected during an inspection.

## REACTOR COOLANT SYSTEM

### 3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

#### LEAKAGE DETECTION SYSTEMS

#### LIMITING CONDITION FOR OPERATION

---

3.4.6.1 The following Reactor Coolant System Leakage Detection Systems shall be OPERABLE:

- a. The Containment Atmosphere Gaseous or Particulate Radioactivity Monitoring System, and
- b. A Containment Sump Level Monitoring System.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With both the Particulate and Gaseous Radioactivity Monitoring Systems inoperable, operation may continue for up to 7 days provided:
  - 1) A Containment Sump Level Monitoring System is OPERABLE;
  - 2) Appropriate grab samples are obtained and analyzed at least once per 24 hours;
  - 3) A Reactor Coolant System water inventory balance is performed at least once per 8 hours during steady state operation except when operating in shutdown cooling mode; and
  - 4) Containment Purge, Exhaust and Instrument Air Bleed valves are maintained closed.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- b. With no Containment Sump Level Monitoring System operable, restore at least one Containment Sump Level Monitoring System to OPERABLE status within 7 days, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.4.6.1 The Leakage Detection System shall be demonstrated OPERABLE by:

- a. Containment Atmosphere Gaseous and Particulate Monitoring System-performance of CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST at the frequencies specified in Table 4.3-3, and
- b. Containment Sump Level Monitoring System-performance of CHANNEL CALIBRATION at least once per 18 months.

## REACTOR COOLANT SYSTEM

### OPERATIONAL LEAKAGE

#### LIMITING CONDITION FOR OPERATING

---

3.4.6.2 Reactor Coolant System leakage shall be limited to:

- a. No PRESSURE BOUNDARY LEAKAGE,
- b. 1 GPM UNIDENTIFIED LEAKAGE,
- c. 1 GPM total primary-to-secondary leakage through all steam generators and 500 gallons per day through any one steam generator,
- d. 10 GPM IDENTIFIED LEAKAGE from the Reactor Coolant System, and
- e. Leakage as specified in Table 3.4-1 up to a maximum of 5 GPM at a Reactor Coolant System pressure of  $2235 \pm 20$  psig from any Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1.\*

**APPLICABILITY:** MODES 1, 2, 3 and 4.

#### **ACTION:**

- a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With any Reactor Coolant System leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE, and leakage from Reactor Coolant System Pressure Isolation Valves, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With any Reactor Coolant System Pressure Isolation Valve leakage greater than allowed by 3.4.6.2.e above operation may continue provided:
  1. Within 4 hours verify that at least two valves in each high pressure line having a non-functional valve are in, and remain in that mode corresponding to the isolated condition, i.e., manual valves shall be locked in the closed position; motor operated valves shall be placed in the closed position and power supplies deenergized. Follow applicable ACTION statement for the affected system, and

---

\* Test pressure less than 2235 psig are allowed. Minimum differential test pressure shall not be less than 150 psid. Observed leakage shall be adjusted for the actual test pressure up to 2235 psig assuming the leakage to be directly proportional to pressure differential to the one-half power.

## REACTOR COOLANT SYSTEM

### OPERATIONAL LEAKAGE

#### LIMITING CONDITION FOR OPERATION (Continued)

---

2. The leakage\* from the remaining isolating valves in each high pressure line having a valve not meeting the criteria of Table 3.4-1, as listed in Table 3.4-1, shall be determined and recorded daily. The positions of the other valves located in the high pressure line having the leaking valve shall be recorded daily unless they are manual valves located inside containment.

Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- d. With any Reactor Coolant System Pressure Isolation Valve leakage greater than 5 gpm, reduce leakage to below 5 gpm within 1 hour, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

- 4.4.6.2.1 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by:
  - a. Monitoring the containment atmosphere gaseous or particulate radioactivity monitor at least once per 12 hours.
  - b. Monitoring the containment sump level at least once per 12 hours.
  - c. Performance of a Reactor Coolant System water inventory balance within 12 hours after achieving steady-state operation\*\* and at least once per 24 hours thereafter during steady-state operation, except that not more than 48 hours shall elapse between any two successive inventory balances; and
  - d. Monitoring the Reactor Head Flange Leakoff System at least once per 24 hours.
- 4.4.6.2.2 Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage\* to be within its limit:
  - a. At least once per 18 months.
  - b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 7 days or more and if leakage testing has not been performed in the previous 9 months, and
  - c. Prior to returning the valve to service following maintenance, repair or replacement work on the valve.

---

\* To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.

\*\* RCS average coolant temperature being changed by less than 5°F/hour.

**REACTOR COOLANT SYSTEM**

**OPERATIONAL LEAKAGE**

**LIMITING CONDITION FOR OPERATION (Continued)**

---

- d. Following valve actuation due to automatic or manual action or flow through the valve:
  - 1. Within 24 hours by verifying valve closure, and
  - 2. Prior to entering Mode 2 by verifying leakage rate.

The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

**TABLE 3.4-1**

**REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES**

<b><u>VALVE NUMBER</u></b>		<b><u>FUNCTION</u></b>
Unit 3	Unit 4	High-Head Safety Injection Check Valves
3-874A	4-874A	Loop A, hot leg
3-875A	4-875A	cold leg
3-873A	4-873A	cold leg
3-874B	4-874B	Loop B, hot leg
3-875B	4-875B	cold leg
3-873B	4-873B	cold leg
3-875C	4-875C	Loop C, cold leg
3-873C	4-873C	cold leg
		Residual Heat Removal Line Check Valves
3-876A	4-876A 4-876E	Loop A, cold leg
3-876B	4-876B	Loop B, cold leg
3-876D	4-876D	
3-876C	4-876C	Loop C, cold leg
3-876E		
	MOV4-750 MOV4-751	Loop A, hot leg to RHR
MOV3-750 MOV3-751		Loop C, hot leg to RHR

**ACCEPTABLE LEAKAGE LIMITS**

1. Leakage rates less than or equal to 1.0 gpm are considered acceptable.
2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable provided that the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
3. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between previously measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
4. Leakage rates greater than 5.0 gpm are considered unacceptable.

## REACTOR COOLANT SYSTEM

### 3/4.4.7 CHEMISTRY

#### LIMITING CONDITION FOR OPERATION

---

3.4.7 The Reactor Coolant System chemistry shall be maintained within the limits specified in Table 3.4-2.

**APPLICABILITY:** At all times.

**ACTION:**

MODES 1, 2, 3 and 4:

- a. With any one or more chemistry parameter in excess of its Steady-State Limit but within its Transient Limit, restore the parameter to within its Steady-State Limit within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and
- b. With any one or more chemistry parameter in excess of its Transient Limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

At All Other Times:

With the concentration of either chloride or fluoride in the Reactor Coolant System in excess of its Steady-State Limit for more than 24 hours or in excess of its Transient Limit, reduce the pressurizer pressure to less than or equal to 500 psig, if applicable, and perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation prior to increasing the pressurizer pressure above 500 psig or prior to proceeding to MODE 4.

#### SURVEILLANCE REQUIREMENTS

---

4.4.7 The Reactor Coolant System chemistry shall be determined to be within the limits by analysis of those parameters at the frequencies specified in Table 4.4-3.

**TABLE 3.4-2**  
**REACTOR COOLANT SYSTEM**  
**CHEMISTRY LIMITS**

<b><u>PARAMETER</u></b>	<b><u>STEADY STATE LIMIT</u></b>	<b><u>TRANSIENT LIMIT</u></b>
Dissolved Oxygen*	≤ 0.10 ppm	≤ 1.00 ppm
Chloride**	≤ 0.15 ppm	≤ 1.50 ppm
Fluoride**	≤ 0.15 ppm	≤ 1.50 ppm

---

\* Limit not applicable with average reactor coolant temperature less than or equal to 250°F.

\*\* Not required when reactor is defueled and RCS forced circulation is unavailable.

TABLE 4.4-3  
REACTOR COOLANT SYSTEM  
CHEMISTRY LIMITS SURVEILLANCE REQUIREMENTS

<u>PARAMETER</u>	<u>SAMPLE AND ANALYSIS FREQUENCY</u>
Dissolved Oxygen*	At least 5 times per week not to exceed 72 hours between samples
Chloride**	At least 5 times per week not to exceed 72 hours between samples
Fluoride**	At least 5 times per week not to exceed 72 hours between samples

\* Not required with average reactor coolant temperature less than or equal to 250°F.

\*\* Not required when reactor is defueled and RCS forced circulation is unavailable.

## REACTOR COOLANT SYSTEM

### 3/4.4.8 SPECIFIC ACTIVITY

#### LIMITING CONDITION FOR OPERATION

---

3.4.8 The specific activity of the primary coolant shall be limited to:

- a. Less than or equal to 1.0 microcurie per gram DOSE EQUIVALENT I-131, and
- b. Less than or equal to  $100/\bar{E}$  microcuries per gram of gross radioactivity.

APPLICABILITY: MODES 1, 2, 3, 4 and 5.

#### ACTION:

MODES 1, 2 and 3\*:

- a. With the specific activity of the reactor coolant greater than 1 microcurie per gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or exceeding the limit line shown on Figure 3.4-1, be in at least HOT STANDBY with average reactor coolant temperature less than 500°F within 6 hours; and
- b. With the specific activity of the reactor coolant greater than  $100/\bar{E}$  microcurie per gram, be in at least HOT STANDBY with average reactor coolant temperature less than 500°F within 6 hours.

MODES 1, 2, 3, 4, and 5:

With the specific activity of the reactor coolant greater than 1 microcurie per gram DOSE EQUIVALENT I-131 or greater than  $100/\bar{E}$  microcuries per gram, perform the sampling and analysis requirements of Item 6.a) of Table 4.4-4 until the specific activity of the reactor coolant is restored to within its limits.

#### SURVEILLANCE REQUIREMENTS

---

4.4.8 The specific activity of the reactor coolant shall be determined to be within the limits by performance of the sampling and analysis program of Table 4.4-4.

---

\* With the average reactor coolant temperature greater than or equal to 500°F.

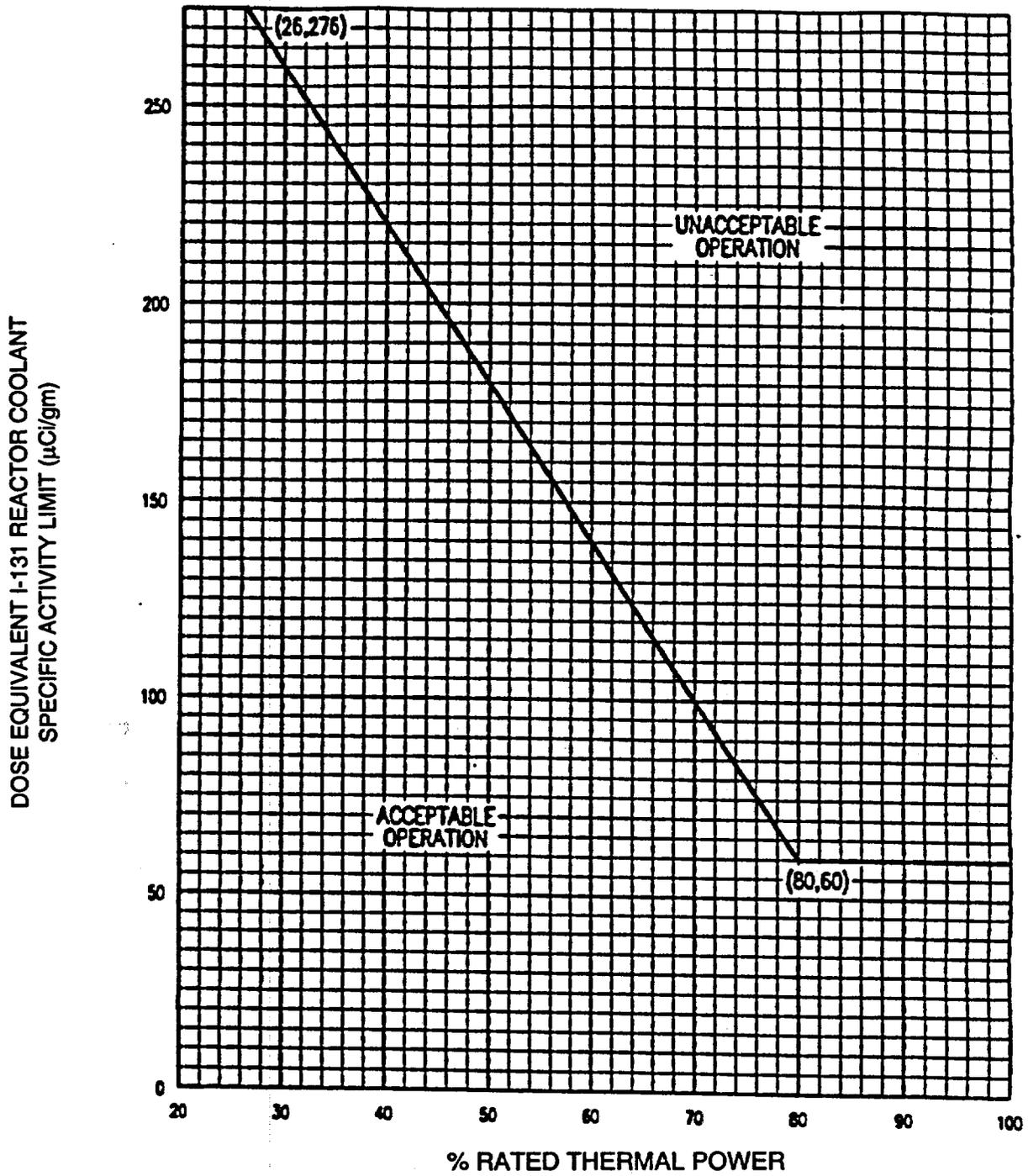


FIGURE 3.4.-1

DOSE EQUIVALENT I-131 REACTOR COOLANT SPECIFIC ACTIVITY LIMIT VERSUS PERCENT OF RATED THERMAL POWER WITH THE REACTOR COOLANT SPECIFIC ACTIVITY  $>1 \mu\text{Ci}/\text{gram}$  DOSE EQUIVALENT I-131.

TABLE 4.4-4

REACTOR COOLANT SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM

<u>TYPE OF MEASUREMENT AND ANALYSIS</u>	<u>SAMPLE AND ANALYSIS FREQUENCY</u>	<u>MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED</u>
1. Gross Radioactivity Determination	At least once per 72 hours.	1, 2, 3, 4
2. Tritium Activity Determination	1 per 7 days.	1, 2, 3, 4
3. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	1 per 14 days.	1
4. Radiochemical Isotopic Determination Including Gaseous Activity	Monthly	1, 2, 3, 4
5. Radiochemical for $\bar{E}$ Determination	1 per 6 months*	1
6. Isotopic Analysis for Iodine Including I-131, I-133, and I-135	a) Once per 4 hours, whenever the specific activity exceeds 1 $\mu\text{Ci}/\text{gram}$ DOSE EQUIVALENT I-131 or $100/\bar{E}$ $\mu\text{Ci}/\text{gram}$ of gross radioactivity, and	1#, 2#, 3#, 4#, 5#
	b. One sample between 2 and 6 hours following a THERMAL POWER change exceeding 15% of the RATED THERMAL POWER within a 1-hour period.	1, 2, 3

TURKEY POINT - UNITS 3 & 4

3/4-4-28

AMENDMENT NOS. 149 AND 144

Table 4.4-4 (Continued)

TABLE NOTATIONS

\* Sample to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since reactor was last subcritical for 48 hours or longer.

# Until the specific activity of the Reactor Coolant System is restored within its limits.

## REACTOR COOLANT SYSTEM

### 3/4.4.9 PRESSURE TEMPERATURE LIMITS

## REACTOR COOLANT SYSTEM

### LIMITING CONDITION FOR OPERATION

---

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2 and 3.4-3 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

- a. A maximum heatup of 100°F in any 1-hour period,
- b. A maximum cooldown of 100°F in any 1-hour period, and
- c. A maximum temperature change of less than or equal to 5°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

#### ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS  $T_{avg}$  and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

---

4.4.9.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.9.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR Part 50, Appendix H. The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3.

MATERIAL PROPERTY BASIS

LIMITING MATERIAL: Intermediate/Lower Shell Circumferential Weld Seams (Ht. #71249)

LIMITING ART VALUES AT 32 EFY: 1/4 T, 262°F  
3/4 T, 218°F

**FPL 32 EFY HEATUP CURVES**

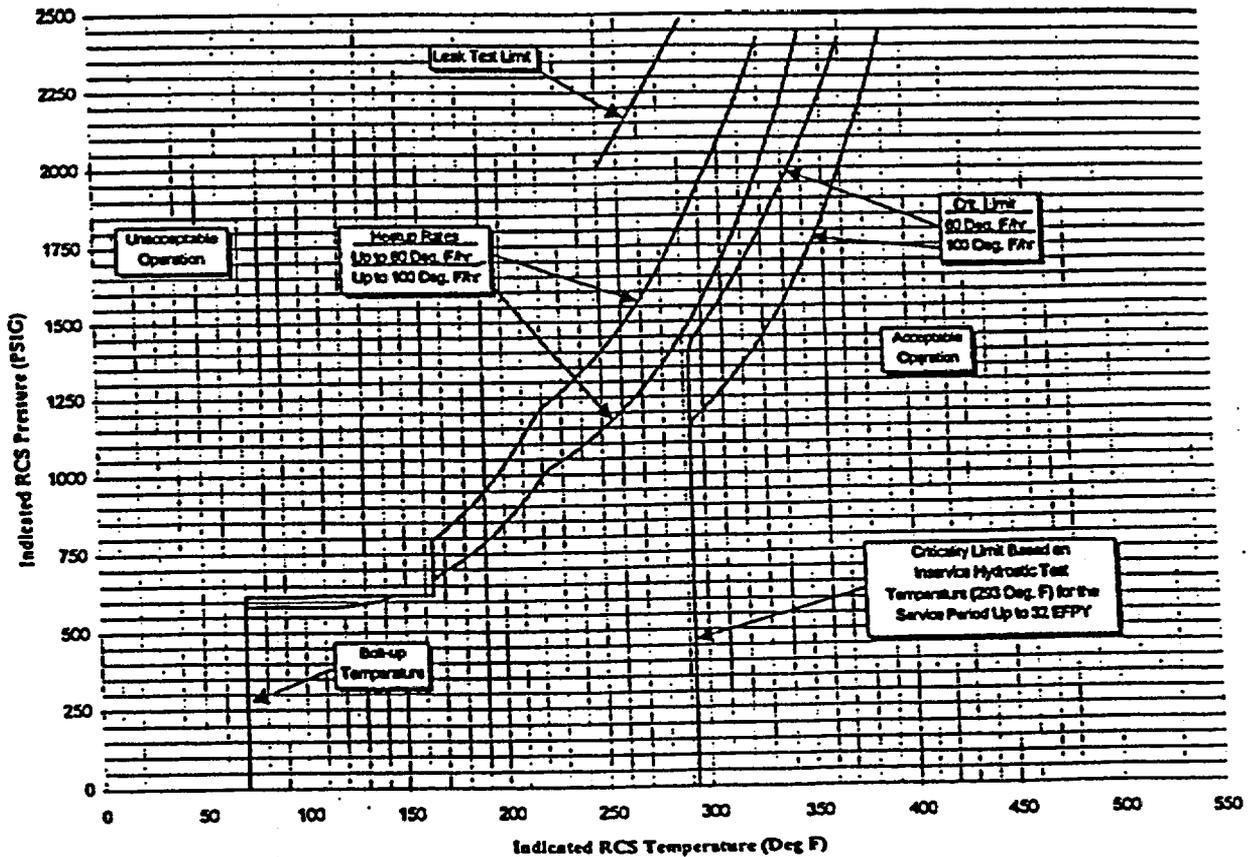


FIGURE 3.4-2 Turkey Point Units 3 and 4 Reactor Coolant System Heatup Limitations (Heatup Rate of 60 and 100°F/hr) Applicable for 32 EFY (Without Margins for Instrumentation Errors)

MATERIAL PROPERTY BASIS

LIMITING MATERIAL: Intermediate/Lower Shell Circumferential Weld Seams (Ht. #71249)

LIMITING ART VALUES AT 32 EFY: 1/4 T, 262°F  
3/4 T, 218°F

**FPL 32 EFY COOLDOWN CURVES**

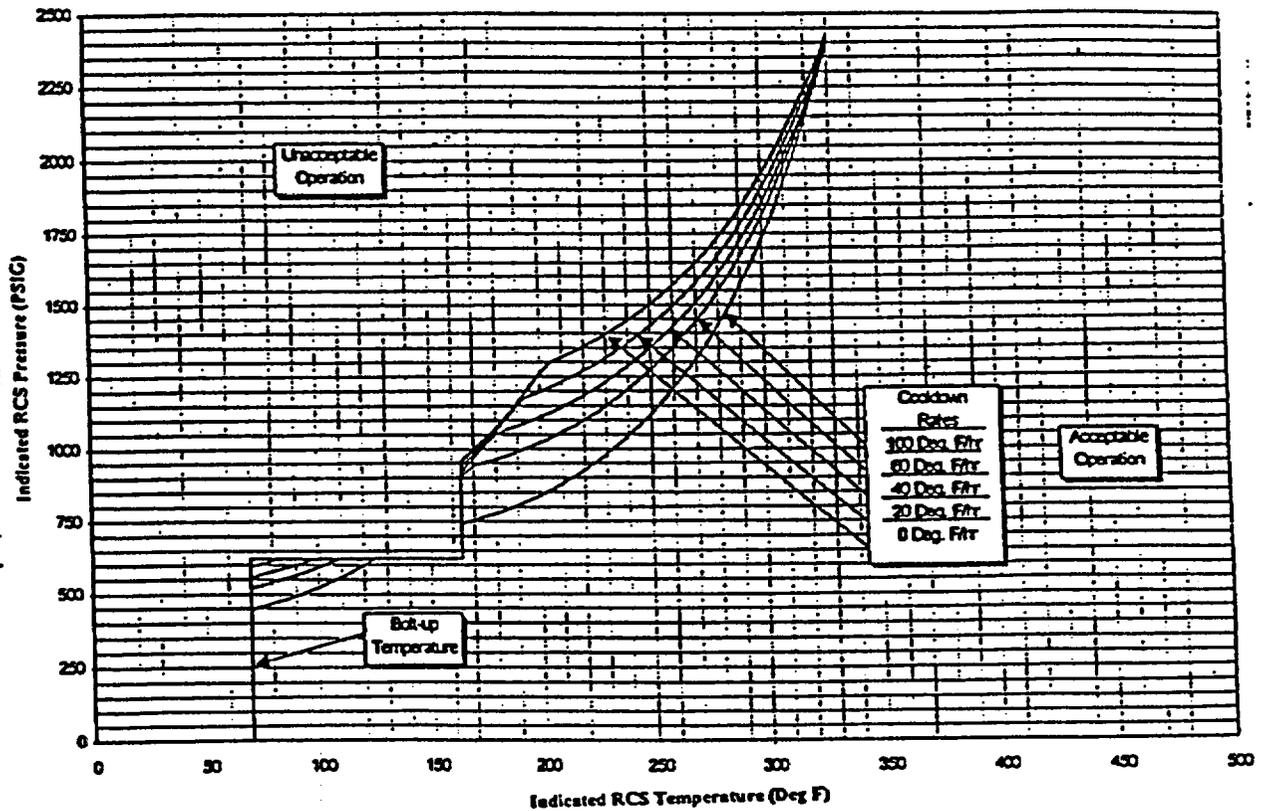


FIGURE 3.4-3 Turkey Point Units 3 and 4 Reactor Coolant System Cooldown Limitations (Cooldown Rate of 0, 20, 40, 60 and 100°F/hr) Applicable for 32 EFY (Without Margins for Instrumentation Errors)

## REACTOR COOLANT SYSTEM

### PRESSURIZER

#### LIMITING CONDITION FOR OPERATION

---

3.4.9.2 The pressurizer temperature shall be limited to:

- a. A maximum heatup of 100°F in any 1-hour period,
- b. A maximum cooldown of 200°F in any 1-hour period, and
- c. A maximum spray water temperature differential of 320°F.

APPLICABILITY: At all times.

#### ACTION:

With the pressurizer temperature limits in excess of any of the above limits, restore the temperature to within the limits within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the pressurizer; determine that the pressurizer remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the pressurizer pressure to less than 500 psig within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.4.9.2 The pressurizer temperatures shall be determined to be within the limits at least once per 30 minutes during system heatup or cooldown. The spray water temperature differential shall be determined to be within the limit at least once per 12 hours during auxiliary spray operation.

## REACTOR COOLANT SYSTEM

### OVERPRESSURE MITIGATING SYSTEMS

#### LIMITING CONDITION FOR OPERATION

---

3.4.9.3 The high pressure safety injection flow paths to the Reactor Coolant System (RCS) shall be isolated, and at least one of the following Overpressure Mitigating Systems shall be OPERABLE:

- a. Two power-operated relief valves (PORVs) with a lift setting of  $\leq 468$  psig, or
- b. The RCS depressurized with a RCS vent of greater than or equal to 2.20 square inches.

APPLICABILITY MODES 4 (below an RCS average coolant temperature of 275°F), 5, and 6 with the reactor vessel head on.

#### ACTION:

- a. With the high pressure safety injection flow paths to the RCS unisolated, restore isolation of these flow paths within 4 hours.
- b. With one PORV inoperable in MODE 4 (below an RCS average coolant temperature of 275°F), restore the inoperable PORV to OPERABLE status within 7 days or depressurize and vent the RCS through at least a 2.20 square inch vent within the next 8 hours.
- c. With one PORV inoperable in Modes 5 or 6 with the reactor vessel head on, either (1) restore the inoperable PORV to OPERABLE status within 24 hours, or (2) complete depressurization and venting of the RCS through at least a 2.20 square inch vent within a total of 32 hours, or (3) complete depressurization and venting of the RCS through at least one open PORV and associated block valve within a total of 32 hours.
- d. With both PORVs inoperable, either restore one PORV to OPERABLE status or complete depressurization and venting of the RCS through at least a 2.20 square inch vent within 24 hours.
- e. In the event either the PORVs or a 2.20 square inch vent is used to mitigate an RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs or RCS vent(s) on the transient, and any corrective action necessary to prevent recurrence. A Special Report is not required when such a transient is the result of water injection into the RCS for test purposes with an open vent path.
- f. The provisions of Specification 3.0.4 are not applicable.

## REACTOR COOLANT SYSTEM

### OVERPRESSURE MITIGATING SYSTEMS

#### SURVEILLANCE REQUIREMENTS

---

4.4.9.3.1 Each PORV shall be demonstrated OPERABLE by:

- a. Performance of an ANALOG CHANNEL OPERATIONAL TEST\* on the PORV actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the PORV is required OPERABLE and at least once per 31 days thereafter when the PORV is required OPERABLE.
- b. Performance of a CHANNEL CALIBRATION on the PORV actuation channel at least once per 18 months; and
- c. Verifying the PORV block valve is open at least once per 72 hours when the PORV is being used for overpressure protection.
- d. While the PORVs are required to be OPERABLE, the backup nitrogen supply shall be verified OPERABLE at least once per 24 hours.\*

4.4.9.3.2 The 2.20 square inch vent shall be verified to be open at least once per 12 hours\*\* when the vent(s) is being used for overpressure protection.

4.4.9.3.3 Verify the high pressure injection flow path to the RCS is isolated at least once per 24 hours by closed valves with power removed or by locked closed manual valves.

---

\* Not required to be met until 12 hours after decreasing RCS cold leg temperature to  $\leq 275^{\circ}\text{F}$ .

\*\* Except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open at least once per 31 days.

## REACTOR COOLANT SYSTEM

### 3/4.4.10 STRUCTURAL INTEGRITY

#### LIMITING CONDITION FOR OPERATION

---

3.4.10 The structural integrity of ASME Code Class 1, 2 and 3 components shall be maintained in accordance with Specification 4.4.10.

APPLICABILITY: ALL MODES

ACTION:

- a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 50°F above the minimum temperature required by NDT considerations.
- b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.
- c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) from service.

#### SURVEILLANCE REQUIREMENTS

---

4.4.10 In addition to the requirements of Specification 4.0.5, each reactor coolant pump flywheel shall be inspected at least once every 10 years, by either conducting an in-place ultrasonic examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius, or conduct a surface examination (magnetic particle and/or liquid penetrant) of exposed surfaces of the disassembled flywheel.

## REACTOR COOLANT SYSTEM

### 3/4.4.11 REACTOR COOLANT SYSTEM VENTS

#### LIMITING CONDITION FOR OPERATION

---

3.4.11 At least one Reactor Coolant System vent path consisting of at least two vent valves in series and powered from emergency busses shall be OPERABLE and closed at each of the following locations:

- a. Reactor vessel head, and
- b. Pressurizer steam space

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

- a. With one of the above Reactor Coolant System vent paths inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all the vent valves in the inoperable vent path; restore the inoperable vent path to OPERABLE status within 30 days, or, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With both Reactor Coolant System vent paths inoperable; maintain the inoperable vent path closed with power removed from the valve actuators of all the vent valves in the inoperable vent paths, and restore at least one of the vent paths to OPERABLE status within 72 hours or be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.4.11 Each Reactor Coolant System vent path shall be demonstrated OPERABLE at least once per 18 months by:

- a. Verifying all manual isolation valves in each vent path are locked in the open position,
- b. Cycling each vent valve through at least one complete cycle of full travel from the control room, and
- c. Verifying flow through the Reactor Coolant System vent paths during venting.

## 3/4.5 EMERGENCY CORE COOLING SYSTEMS

### 3/4.5.1 ACCUMULATORS

#### LIMITING CONDITION FOR OPERATION

---

3.5.1 Each Reactor Coolant System (RCS) accumulator shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3\*.

ACTION:

- a. With one accumulator inoperable, except as a result of boron concentration not being within limits, restore the inoperable accumulator to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.
- b. With one accumulator inoperable due to the boron concentration not being within the limits, restore boron concentration back to the required limits within 72 hours, or be in at least HOT STANDBY within 6 hours and reduce pressurizer pressure to less than 1000 psig within the following 6 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.5.1.1 Each accumulator shall be demonstrated OPERABLE:

- a. At least once per 12 hours by:
  - 1) Verifying the borated water volume in each accumulator is between 6520 and 6820 gallons, and
  - 2) Verifying that the nitrogen cover pressure in each accumulator is between 600 and 675 psig, and
  - 3) Verifying that each accumulator isolation valve is open by control room indication (power may be restored to the valve operator to perform this surveillance if redundant indicator is inoperable).
- b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the solution in the water-filled accumulator is between 1950 and 2350 ppm;
- c. At least once per 31 days, when the RCS pressure is above 1000 psig, by verifying that the power to the isolation valve operator is disconnected by a locked open breaker.
- d. At least once per 18 months, each accumulator check valve shall be checked for operability.

---

\* Pressurizer pressure above 1000 psig.

## EMERGENCY CORE COOLING SYSTEMS

### 3/4.5.2 ECCS SUBSYSTEMS – T<sub>avg</sub> GREATER THAN OR EQUAL TO 350°F

#### LIMITING CONDITION FOR OPERATION

3.5.2 The following Emergency Core Cooling System (ECCS) equipment and flow paths shall be OPERABLE:

- a. Four OPERABLE Safety Injection (SI) pumps, each capable of being powered from its associated OPERABLE diesel generator<sup>#</sup>, with discharge aligned to the RCS cold legs,\*
- b. Two OPERABLE RHR heat exchangers,
- c. Two OPERABLE RHR pumps with discharge aligned to the RCS cold legs,
- d. An OPERABLE flow path capable of taking suction from the refueling water storage tank as defined in Specification 3.5.4, and
- e. Two OPERABLE flow paths capable of taking suction from the containment sump.

APPLICABILITY: MODES 1, 2, and 3\*\*.

#### ACTION:

- a. With any one of the required ECCS components or flow paths inoperable, except for inoperable Safety Injection Pump(s) or an inoperable RHR pump, restore the inoperable component or flow path to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. In the event the ECCS is actuated and injects water in the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date since January 1, 1990.
- c. With one of the four required Safety Injection pumps inoperable and the opposite unit in MODE 1, 2, or 3, restore the pump to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 12 hours and in HOT SHUTDOWN within the following 6 hours.\*\*\*

---

\* Only three OPERABLE Safety Injection (SI) pumps (two associated with the unit and one from the opposite unit), each capable of being powered from its associated OPERABLE diesel generator<sup>#</sup>, with discharge aligned to the RCS cold leg are required if the opposite unit is in MODE 4, 5, or 6.

\*\* The provisions of Specifications 3.0.4 and 4.0.4 are not applicable for entry into MODE 3 for the Safety Injection flow paths isolated pursuant to Specification 3.4.9.3 provided that the Safety Injection flow paths are restored to OPERABLE status prior to T<sub>avg</sub> exceeding 380°F. Safety Injection flow paths may be isolated when T<sub>avg</sub> is less than 380°F.

\*\*\* The provisions of Specifications 3.0.4 and 4.0.4 are not applicable.

# Inoperability of the required EDG's does not constitute inoperability of the associated Safety Injection pumps.

## EMERGENCY CORE COOLING SYSTEMS

### 3/4.5.2 ECCS SUBSYSTEMS - $T_{avg}$ GREATER THAN OR EQUAL TO 350°F

#### LIMITING CONDITION FOR OPERATION

---

- d. With two of the four required Safety Injection pumps inoperable and the opposite unit in MODE 1, 2, or 3, restore one of the two inoperable pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 12 hours and in HOT SHUTDOWN within the following 6 hours. This ACTION applies to both units simultaneously.
- e. With one of the three required Safety Injection pumps inoperable and the opposite unit in MODE 4, 5, or 6, restore the pump to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- f. With a required Safety Injection pump OPERABLE but not capable of being powered from its associated diesel generator, restore the capability within 14 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- g. With an ECCS subsystem inoperable due to an RHR pump being inoperable, restore the inoperable RHR pump to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

## EMERGENCY CORE COOLING SYSTEMS

### SURVEILLANCE REQUIREMENTS

---

4.5.2 Each ECCS component and flow path shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying by control room indication that the following valves are in the indicated positions with power to the valve operators removed:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
864A and B	Supply from RWST to ECCS	Open
862A and B	RWST Supply to RHR pumps	Open
863A and B	RHR Recirculation	Closed
866A and B	H.H.S.I. to Hot Legs	Closed
HCV-758*	RHR HX Outlet	Open

To permit temporary operation of these valves for surveillance or maintenance purposes, power may be restored to these valves for a period not to exceed 24 hours.

- b. At least once per 31 days by:

- 1) Verifying that the ECCS piping is full of water by venting the ECCS pump casings and accessible discharge piping,
- 2) Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position, and
- 3) Verifying that each RHR Pump develops the indicated differential pressure applicable to the operating conditions in accordance with Figure 3.5-1 when tested pursuant to Specification 4.0.5.

- c. At least once per 92 days by:

- 1) Verifying that each SI pump develops the indicated differential pressure applicable to the operating conditions when tested pursuant to Specification 4.0.5.

SI pump  $\geq 1083$  psid at a metered flowrate  $\geq 300$  gpm (normal alignment or Unit 4 SI pumps aligned to Unit 3 RWST), or

$\geq 1113$  psid at a metered flowrate  $\geq 280$  gpm (Unit 3 SI pumps aligned to Unit 4 RWST).

---

\* Air Supply to HCV-758 shall be verified shut off and sealed closed once per 31 days.

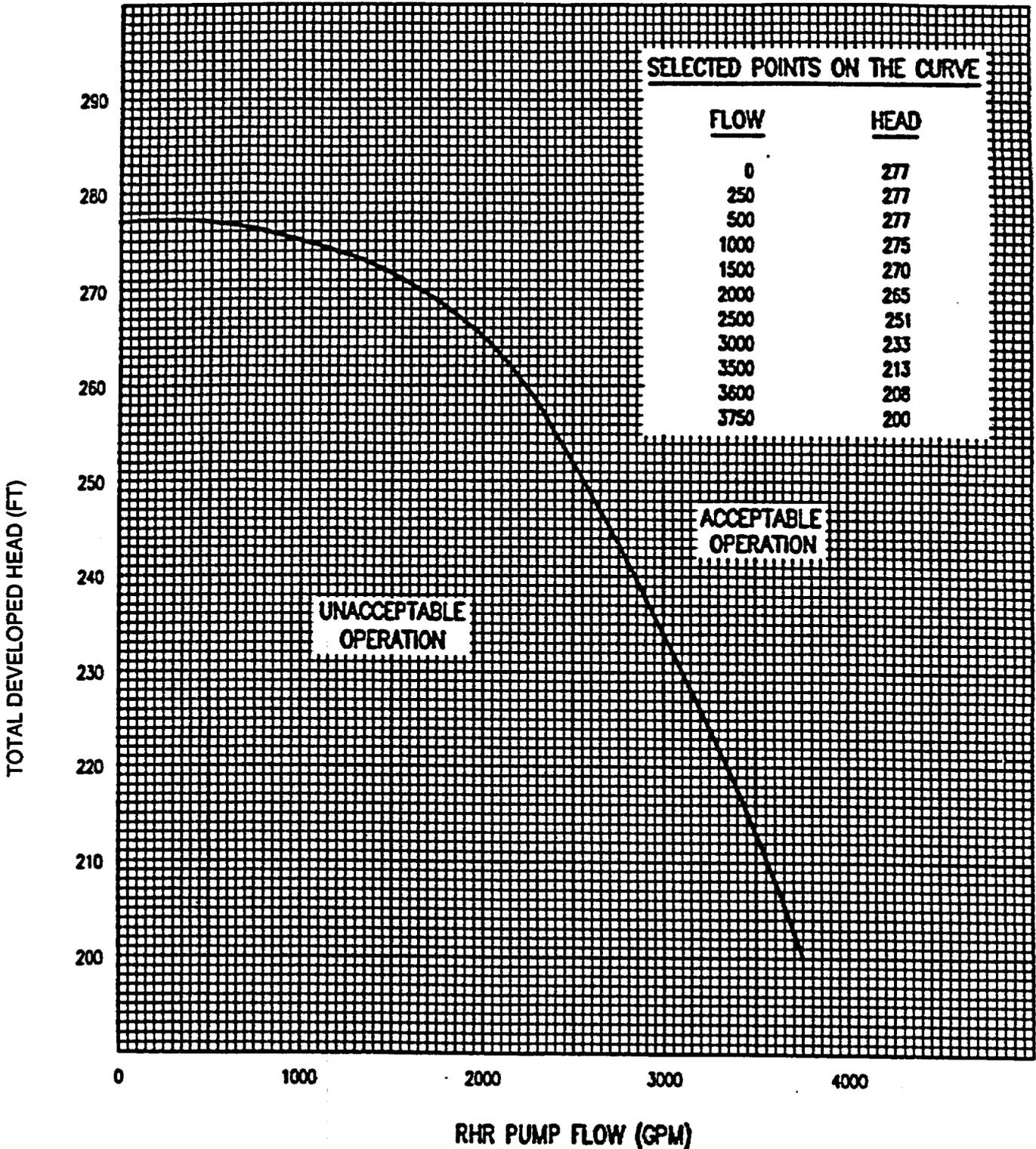


Figure 3.5-1  
RHR Pump Curve

## EMERGENCY CORE COOLING SYSTEMS

### SURVEILLANCE REQUIREMENTS

---

- d. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suction during LOCA conditions. The visual inspection shall be performed:
- 1) For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and
  - 2) At least once daily of the areas affected within containment by containment entry and during the final entry when CONTAINMENT INTEGRITY is established.
- e. At least once per 18 months by:
- 1) Verifying automatic isolation and interlock action of the RHR system from the Reactor Coolant System by ensuring that with a simulated or actual Reactor Coolant System pressure signal greater than or equal to 525 psig the interlocks cause the valves to automatically close and prevent the valves from being opened, and
  - 2) Verifying correct interlock action to ensure that the RWST is isolated from the RHR System during RHR System operation and to ensure that the RHR System cannot be pressurized from the Reactor Coolant System unless the above RWST Isolation Valves are closed.
  - 3) A visual inspection of the containment sump and verifying that the suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or abnormal corrosion.
- f. At least once per 18 months, during shutdown, by:
- 1) Verifying that each automatic valve in the flow path actuates to its correct position on Safety Injection actuation test signal, and
  - 2) Verifying that each of the following pumps start automatically upon receipt of a Safety Injection actuation test signal:
    - a) Safety Injection pump, and
    - b) RHR pump.

## EMERGENCY CORE COOLING SYSTEMS

### SURVEILLANCE REQUIREMENTS

---

- g. By verifying the correct position of each electrical and/or mechanical position stop for the following ECCS throttle valves:
- 1) Within 4 hours following completion of each valve stroking operation or maintenance on the valve when the ECCS components are required to be OPERABLE, and
  - 2) At least once per 18 months.

RHR System  
Valve Number

HCV-\*-758  
MOV-\*-872

## EMERGENCY CORE COOLING SYSTEMS

### 3/4.5.3 ECCS SUBSYSTEMS - $T_{avg}$ LESS THAN 350°F

#### LIMITING CONDITION FOR OPERATION

---

3.5.3 As a minimum, the following ECCS components and flow path shall be OPERABLE:

- a. One OPERABLE RHR heat exchanger,
- b. One OPERABLE RHR pump, and
- c. An OPERABLE flow path capable of (1) taking suction from the refueling water storage tank upon being manually realigned and (2) transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY:     MODE 4.

#### ACTION:

- a. With no OPERABLE ECCS flow path from the refueling water storage tank, restore at least one ECCS flow path to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 24 hours.
- b. With either the residual heat removal heat exchanger or RHR pump inoperable, restore the components to OPERABLE status or maintain the Reactor Coolant System  $T_{avg}$  less than 350°F by use of alternate heat removal methods.
- c. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date since January 1, 1990.

#### SURVEILLANCE REQUIREMENTS

---

4.5.3 The above ECCS components shall be demonstrated OPERABLE per the applicable requirements of Specification 4.5.2.

## EMERGENCY CORE COOLING SYSTEMS

### 3/4.5.4 REFUELING WATER STORAGE TANK

#### LIMITING CONDITION FOR OPERATION

---

3.5.4 For single Unit operation, one refueling water storage tank (RWST) shall be OPERABLE or for dual Unit operation two RWSTs shall be OPERABLE with:

- a. A minimum indicated borated water volume of 320,000 gallons per RWST,
- b. A minimum boron concentration of 1950 ppm of boron,
- c. A minimum solution temperature of 39°F, and
- d. A maximum solution temperature of 100°F.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

With less than the required number of RWST(s) OPERABLE, restore the tank(s) to OPERABLE status within 1 hour or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.5.4 The required RWST(s) shall be demonstrated OPERABLE:

- a. At least once per 7 days by:
  - 1) Verifying the indicated borated water volume in the tank, and
  - 2) Verifying the boron concentration of the water.
- b. By verifying the RWST temperature is within limits whenever the outside air temperature is less than 39°F or greater than 100°F at the following frequencies:
  - 1) Within one hour upon the outside temperature exceeding its limit for consecutive 23 hours, and
  - 2) At least once per 24 hours while the outside temperature exceeds its limit.

### 3/4.6 CONTAINMENT SYSTEMS

#### 3/4.6.1 PRIMARY CONTAINMENT

##### CONTAINMENT INTEGRITY

##### LIMITING CONDITION FOR OPERATION

---

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.\*

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

##### SURVEILLANCE REQUIREMENTS

---

4.6.1.1 CONTAINMENT INTEGRITY shall be demonstrated:

- a. At least once per 31 days by verifying that all penetrations\*\* not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their closed positions;
- b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

---

\* Exception may be taken under Administrative Controls for opening of valves and airlocks necessary to perform surveillance, testing requirements and/or corrective maintenance. In addition, Specification 3.6.4 shall be complied with.

\*\* Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except that such verification need not be performed more often than once per 92 days.

## CONTAINMENT SYSTEMS

### CONTAINMENT LEAKAGE

#### LIMITING CONDITION FOR OPERATION

---

3.6.1.2 Containment leakage rates shall be limited in accordance with the Containment Leakage Rate Testing Program.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the measured overall integrated containment leakage rate exceeding  $1.0 L_a$  within one hour, initiate action to be in HOT STANDBY within the next 6 hours, and COLD SHUTDOWN within the following 30 hours. Restore the overall integrated leakage rate to less than  $0.75 L_a$  and the combined leakage rate for all penetrations subject to Type B and C tests to less than  $0.60 L_a$  prior to increasing the Reactor Coolant System temperature above  $200^\circ\text{F}$ .

#### SURVEILLANCE REQUIREMENTS

---

4.6.1.2 The containment leakage rates shall be demonstrated at the required test schedule and shall be determined in conformance with the criteria specified in the Containment Leakage Rate Testing Program.

## CONTAINMENT SYSTEMS

### CONTAINMENT AIR LOCKS

#### LIMITING CONDITION FOR OPERATION

---

3.6.1.3 Each containment air lock shall be OPERABLE with:

- a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, or during the performance of containment air lock surveillance and/or testing requirements, then at least one air lock door shall be closed, and
- b. An overall air lock leakage rate in accordance with the Containment Leakage Rate Testing Program.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

- a. With one containment air lock door inoperable:
  1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed;
  2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days;
  3. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With the containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

## **CONTAINMENT SYSTEMS**

### **SURVEILLANCE REQUIREMENTS**

---

**4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:**

- a. Following each closing, at the frequency specified in the Containment Leakage Rate Testing Program, by verifying that the seals have not been damaged and have seated properly by vacuum testing the volume between the door seals in accordance with approved plant procedures.
- b. By conducting overall air lock leakage tests in accordance with the Containment Leakage Rate Testing Program.
- c. At least once per 24 months by verifying that only one door in each air lock can be opened at a time.

## CONTAINMENT SYSTEMS

### INTERNAL PRESSURE

#### LIMITING CONDITION FOR OPERATION

---

3.6.1.4 Primary containment internal pressure shall be maintained between -2 and +3 psig.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the containment internal pressure outside of the limits above, restore the internal pressure to within the limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.1.4 The primary containment internal pressure shall be determined to be within the limits at least once per 12 hours.

## CONTAINMENT SYSTEMS

### AIR TEMPERATURE

#### LIMITING CONDITION FOR OPERATION

---

3.6.1.5 Primary containment average air temperature shall not exceed 125°F and shall not exceed 120°F by more than 336 equivalent hours\* during a calendar year.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

With the containment average air temperature greater than 125°F or greater than 120°F for more than 336 equivalent hours\* during a calendar year, reduce the average air temperature to within the applicable limit within 8 hours, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.1.5 The primary containment average air temperature shall be the arithmetical average of the temperatures at the following locations and shall be determined at least once per 24 hours:

#### Approximate Location

- a. 0° Azimuth 58 feet elevation
- b. 120° Azimuth 58 feet elevation
- c. 240° Azimuth 58 feet elevation

---

\* Equivalent hours are determined from actual hours using the time-temperature relationships that support the environmental qualification requirements of 10 CFR 50.49.

## CONTAINMENT SYSTEMS

### CONTAINMENT STRUCTURAL INTEGRITY

#### LIMITING CONDITION FOR OPERATION

---

3.6.1.6 The structural integrity of the containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.

#### APPLICABILITY MODES 1, 2, 3, and 4.

#### ACTION:

- a. With more than one tendon with an observed lift-off force between 90% and 95% of the predicted force, or with one tendon below 90% of the predicted force, restore the tendon(s) to the required level of integrity within 15 days and perform an engineering evaluation of the containment and provide a Special Report to the Commission within 30 days in accordance with Specification 6.9.2 or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With the average of all measured tendon forces for each type of tendon (dome, vertical, and hoop), including those measured in ACTION a., less than the predicted force, restore the tendon(s) to the required level of integrity within 15 days and perform an engineering evaluation of the containment and provide a Special Report to the Commission within 30 days in accordance with Specification 6.9.2 or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With any abnormal degradation of the structural integrity other than ACTION a. and ACTION b., at a level below the acceptance criteria of Specifications 4.6.1.6.1, 4.6.1.6.2 and 4.6.1.6.3, restore the containment to the required level of integrity within 72 hours and perform an engineering evaluation of the containment and provide a Special Report to the Commission within 15 days in accordance with Specification 6.9.2 or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.1.6.1 Containment Tendons. The containment tendons and the containment exterior surfaces shall be examined in accordance with ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL, "Requirements for Class CC Concrete Components of Light-Water Cooled Plants," and the modifications presented in 10 CFR 50.55a(b)(2)(viii), "Examination of concrete containments," as modified by approved exemptions. The containment structural integrity shall be demonstrated during the inspection periods specified in IWL-2410 and IWL-2420. The tendons' structural integrity shall be demonstrated by:

## CONTAINMENT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- a. Determining that tendons, selected in accordance with IWL-2521, have the average of all measured tendon forces for each type of tendon (dome, vertical and hoop) equal to or greater than the minimum required prestress specified at the anchorage for that type of tendon.
- b. Assuring that the measured force in each individual tendon is not less than 95% of the predicted force unless the following conditions are satisfied:
- 1) The measured force in no tendon is below 90% of the predicted force and the measured force in no more than one tendon is between 90% and 95% of the predicted force;
  - 2) The measured force in two tendons located adjacent to the tendon in 1) are not less than 95% of the predicted forces; and
  - 3) The measured forces in all the remaining sample tendons are not less than 95% of the predicted force.

The predicted force for each tendon shall be calculated individually for each inspection prior to the beginning of each inspection, and should consider such factors as:

- Prestressing history;
- Friction losses; and
- Time-dependent losses (creep, shrinkage, relaxation), considering time elapsed from prestressing.

When evaluation of consecutive surveillances of prestressing forces for the same tendon or tendons in a group indicates a trend of prestress loss such that the tendon force(s) would be less than the minimum design prestress requirements before the next inspection interval, an evaluation shall be performed and reported in the Engineering Evaluation Report as prescribed in IWL-3300.

- c. Performing tendon detensioning, examinations, and testing on a sample tendon of each type (dome, vertical, and hoop). A single wire or strand shall be removed from each detensioned tendon. Each removed wire or strand shall be examined over its entire length for corrosion and mechanical damage. Tension tests shall be performed on each removed wire or strand: one at each end, one at mid-length, and one in the location of the most corroded area, if any. The following information shall be obtained from each test:
- 1) Yield strength;
  - 2) Ultimate tensile strength;
  - 3) Elongation.

## CONTAINMENT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

The condition of wire or strand is acceptable if:

- 1) Samples are free of physical damage;
  - 2) Sample ultimate tensile strength and elongation are not less than minimum specified values.
- d. Performing tendon retensioning of those tendons that have been detensioned to at least the force predicted for the tendon at the time of the test. However, the retensioning force shall not exceed 70% of the specified minimum ultimate tensile strength of the tendon based on the number of effective wires or strands in the tendon at the time of retensioning. During retensioning of these tendons, if the elongation corresponding to a specific load (adjusted for effective wires or strands) differs by more than 10% from that recorded during the last measurement, an evaluation must be performed to determine whether the difference is related to wire failures or slip of wires in anchorage. A difference of more than 10% must be identified in the ISI Summary Report required by IWA-6000.
- e. Performing examination of corrosion protection medium and free water in accordance with IWL-2525, with acceptance standards prescribed in IWL-3221.4. The following conditions, if they occur, shall be reported in the ISI Summary Report required by IWA-6000:
- 1) The sheathing filler grease contains chemically combined water exceeding 10% by weight or the presence of free water;
  - 2) The absolute difference between the amount removed and the amount replaced exceeds 10% of the tendon net duct volume.
  - 3) Grease leakage is detected during general visual examination of the containment surface.

**4.6.1.6.2 End Anchorages and Containment Concrete Surfaces.** The structural integrity of the end anchorages of all tendons inspected pursuant to Specification 4.6.1.6.1 and the containment concrete surfaces shall be demonstrated by performing examination of tendon anchorage areas and containment concrete surfaces in accordance with IWL-2000, with acceptance standards prescribed in IWL-3000. Acceptability of inaccessible areas shall be evaluated when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas. For each inaccessible area identified, the following shall be provided in the ISI Summary Report required by IWA-6000:

- 1) A description of the type and estimated extent of degradation, and the conditions that led to the degradation;
- 2) An evaluation of each area, and the result of the evaluation; and
- 3) A description of necessary corrective actions.

## CONTAINMENT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

4.6.1.6.3 Containment Surfaces Inspection for Containment Leakage Rate Testing Program. In accordance with the Containment Leakage Rate Testing Program, a visual inspection of the accessible interior and exterior surfaces of the containment, including the liner plate, shall be performed. The purpose of this inspection shall be to identify any evidence of structural deterioration which may affect containment structural integrity or leaktightness. The visual inspection shall be general in nature; its intent shall be to detect gross areas of widespread cracking, spalling, gouging, rust, weld degradation, or grease leakage. The visual examination may include the utilization of binoculars or other optical devices. Corrective actions taken, and recording of structural deterioration and corrective actions, shall be in accordance with the Containment Leakage Rate Testing Program. Records of previous inspections shall be reviewed to verify no apparent changes in appearance. The first inspection performed will form the baseline for future surveillances.

## CONTAINMENT SYSTEMS

### CONTAINMENT VENTILATION SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.6.1.7 Each containment purge supply and exhaust isolation valve shall be OPERABLE and:

- a. The containment purge supply and exhaust isolation valves shall be sealed closed to the maximum extent practicable but may be open for purge system operation for pressure control, for environmental conditions control, for ALARA and respirable air quality considerations for personnel entry and for surveillance tests that require the valve to be open.
- b. The purge supply and exhaust isolation valves shall not be opened wider than 33 or 30 degrees, respectively (90 degrees is fully open).

APPLICABILITY: MODES 1, 2, 3, AND 4.

#### ACTION:

- a. With a containment purge supply and/or exhaust isolation valve(s) open for reasons other than given in 3.6.1.7.a above, close the open valve(s) or isolate the penetration(s) within 4 hours, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With a containment purge supply and/or exhaust isolation valve(s) having a measured leakage rate exceeding the limits of Specification 4.6.1.7.2, restore the inoperable valve(s) to OPERABLE status or isolate the penetrations such that the measured leakage rate does not exceed the limits of Specification 4.6.1.7.2 within 24 hours, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.1.7.1 Each containment purge supply and exhaust isolation valve shall be verified to be sealed closed or open in accordance with Specification 3.6.1.7.a at least once per 31 days.

4.6.1.7.2 At least once per 6 months, each containment purge supply and exhaust isolation valve shall be demonstrated OPERABLE by verifying that the measured leakage rate is less than or equal to  $0.05 L_a$  when pressurized to  $P_a$ .

4.6.1.7.3 At least once per 18 months, the mechanical stop on each containment purge supply and exhaust isolation valve shall be verified to be in place and that the valves will open no more than 33 or 30 degrees, respectively.

## CONTAINMENT SYSTEMS

### 3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

#### CONTAINMENT SPRAY SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.6.2.1 Two independent Containment Spray Systems shall be OPERABLE with each Spray System capable of taking suction from the RWST and manually transferring suction to the containment sump via the RHR System.

**APPLICABILITY:** MODES 1, 2, 3, and 4.

**ACTION:**

- a. With one Containment Spray System inoperable restore the inoperable Spray System to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With two Containment Spray Systems inoperable restore at least one Spray System to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore both Spray Systems to OPERABLE status within 72 hours of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.2.1 Each Containment Spray System shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position and that power is available to flow path components that require power for operation;
- b. By verifying that on recirculation flow, each pump develops the indicated differential pressure, when tested pursuant to Specification 4.0.5:

Containment Spray Pump  $\geq$ 241.6 psid while aligned in recirculation mode.

## **CONTAINMENT SYSTEMS**

### **SURVEILLANCE REQUIREMENTS (Continued)**

---

- c. At least once per 18 months during shutdown by:
  - 1) Verifying that each automatic valve in the flow path actuates to its correct position on a containment spray actuation test signal, and
  - 2) Verifying that each spray pump starts automatically on a containment spray actuation test signal. The manual isolation valves in the spray lines at the containment shall be locked closed for the performance of these tests.
  
- d. At least once per 10 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

## CONTAINMENT SYSTEMS

### EMERGENCY CONTAINMENT COOLING SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.6.2.2 Three emergency containment cooling units shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

- a. With one of the above required emergency containment cooling units inoperable restore the inoperable cooling unit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With two or more of the above required emergency containment cooling units inoperable, restore at least two cooling units to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore all of the above required cooling units to OPERABLE status within 72 hours of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.2.2 Each emergency containment cooling unit shall be demonstrated OPERABLE:

- a. At least once per 31 days by starting each cooler unit from the control room and verifying that each unit motor reaches the nominal operating current for the test conditions and operates for at least 15 minutes.
- b. At least once per 18 months by:
  - 1) Verifying that two emergency containment cooling units start automatically on a safety injection (SI) test signal, and
  - 2) Verifying a cooling water flow rate of greater than or equal to 2000 gpm to each cooler.

## CONTAINMENT SYSTEMS

### 3/4.6.3 EMERGENCY CONTAINMENT FILTERING SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.6.3 Three emergency containment filtering units shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one emergency containment filtering unit inoperable, restore the inoperable filter to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.3 Each emergency containment filtering unit shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes;
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following operational exposure of filters to effluents from painting, fire, or chemical release or (3) after every 720 hours of system operation by:
  - 1) Performance of a visual inspection for foreign material and gasket deterioration, and verifying that the filtering unit satisfies the in-place penetration and bypass leakage testing acceptance criteria of greater than or equal to 99% removal of DOP and halogenated hydrocarbons at the system flow rate of 37,500 cfm  $\pm$ 10%;
  - 2) Verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with applicable portions of Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and performed in accordance with ASTM D3803-1989 at 30°C and 95% relative humidity, meets the methyl iodide penetration criteria of less than 35% and that any charcoal failing to meet this criteria be replaced with charcoal that meets or exceeds the stated performance requirement; and
  - 3) Verifying a system flow rate of 37,500 cfm  $\pm$ 10% and a pressure drop across the HEPA and charcoal filters of less than 6 inches water gauge during system operation when tested in accordance with ANSI N510-1975;

## CONTAINMENT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- c. After maintenance affecting flow distribution, by performance of a visual inspection and an air distribution test at a system flow rate of 37,500 cfm  $\pm$ 10%;
- d. At least once per 18 months by:
  - 1) Verifying that the system starts on a Safety Injection test signal and;
  - 2) Verifying that the filter cooling solenoid valves can be opened by operator action and are opened automatically on a loss of flow signal.
- e. After each complete or partial replacement of a HEPA filter bank, by performance of a visual inspection for foreign material and gasket deterioration and by verifying that the filtering unit satisfies the in-place penetration and bypass leakage testing acceptance criteria of greater than or equal to 99% removal of DOP test aerosol while operating the system at a flow rate of 37,500 cfm  $\pm$ 10%; and
- f. After each complete or partial replacement of a charcoal adsorber bank, by performance of a visual inspection for foreign material and gasket deterioration and by verifying that the filtering unit satisfies the in-place penetration and bypass leakage testing acceptance criteria of greater than or equal to 99% removal of halogenated hydrocarbon while operating the system at a flow rate of 37,500 cfm  $\pm$ 10%.

## CONTAINMENT SYSTEMS

### 3/4.6.4 CONTAINMENT ISOLATION VALVES

#### LIMITING CONDITION FOR OPERATION

---

3.6.4 Each containment isolation valve shall be OPERABLE with isolation times less than or equal to required isolation times.

**APPLICABILITY:** MODES 1, 2, 3, and 4.

#### **ACTION:**

\*With one or more isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

- a. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or
- b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic containment isolation valve secured in the isolation position, or
- c. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange, or
- d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.6.4.1 The isolation valves shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by performance of a cycling test, and verification of isolation time.

---

\* CAUTION: The inoperable isolation valve(s) may be part of a system(s). Isolating the affected penetration(s) may affect the use of the system(s). Consider the technical specification requirements on the affected system(s) and act accordingly.

## **CONTAINMENT SYSTEMS**

### **SURVEILLANCE REQUIREMENTS (Continued)**

---

**4.6.4.2** Each isolation valve shall be demonstrated OPERABLE during the COLD SHUTDOWN or REFUELING MODE at least once per 18 months by:

- a. Verifying that on a Phase "A" Isolation test signal, each Phase "A" isolation valve actuates to its isolation position;
- b. Verifying that on a Phase "B" Isolation test signal, each Phase "B" isolation valve actuates to its isolation position; and
- c. Verifying that on a Containment Ventilation Isolation test signal, each purge, exhaust and instrument air bleed valve actuates to its isolation position.

**4.6.4.3** The isolation time of each power-operated or automatic valve shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

### 3/4.7 PLANT SYSTEMS

#### 3/4.7.1 TURBINE CYCLE

##### SAFETY VALVES

#### LIMITING CONDITION FOR OPERATION

---

3.7.1.1 All main steam line Code safety valves associated with each steam generator shall be OPERABLE with lift settings as specified in Table 3.7-2.

**APPLICABILITY:** MODES 1, 2, and 3.

##### ACTION:

With (3) reactor coolant loops and associated steam generators in operation and with one or more main steam line Code safety valves inoperable, and

- a. in MODES 1 and 2, with a positive Moderator Temperature Coefficient, operation may continue provided that, within 4 hours, either the inoperable valve(s) are restored to OPERABLE status or the Power Range Neutron Flux High Trip Setpoint is reduced to the maximum allowable percent of RATED THERMAL POWER listed in Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours, or
- b. in MODES 1 and 2, with a negative or zero Moderator Temperature Coefficient; or in Mode 3, with a positive, negative or zero Moderator Temperature Coefficient, operation may continue provided that, within 4 hours, either the inoperable valve(s) are restored to OPERABLE status or reactor power is reduced to less than or equal to the maximum allowable percent of RATED THERMAL POWER listed in Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.7.1.1 No additional requirements other than those required by Specification 4.0.5. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

**TABLE 3.7-1**

**MAXIMUM ALLOWABLE POWER LEVEL WITH  
INOPERABLE STEAM LINE SAFETY VALVES DURING THREE LOOP OPERATION**

<b><u>MAXIMUM NUMBER OF INOPERABLE SAFETY VALVES ON ANY OPERATING STEAM GENERATOR</u></b>	<b><u>MAXIMUM ALLOWABLE POWER LEVEL (PERCENT OF RATED THERMAL POWER)</u></b>
1	53
2	33
3	14

**TABLE 3.7-2**

**STEAM LINE SAFETY VALVES PER LOOP**

	<b><u>VALVE NUMBER</u></b>			<b><u>LIFT SETTING (<math>\pm 3\%</math>)* **</u></b>	<b><u>ORIFICE SIZE SQUARE INCHES</u></b>
	<b><u>Loop A</u></b>	<b><u>Loop B</u></b>	<b><u>Loop C</u></b>		
1.	RV1400	RV1405	RV1410	1085 psig	16
2.	RV1401	RV1406	RV1411	1100 psig	16
3.	RV1402	RV1407	RV1412	1115 psig	16
4.	RV1403	RV1408	RV1413	1130 psig	16

\* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

\*\* All valves tested must have "as left" lift setpoints that are within  $\pm 1\%$  of the lift setting value listed in Table 3.7-2.

## PLANT SYSTEMS

### AUXILIARY FEEDWATER SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.7.1.2 Two independent auxiliary feedwater trains including 3 pumps as specified in Table 3.7-3 and associated flowpaths shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3

ACTION:

- 1) With one of the two required independent auxiliary feedwater trains inoperable, either restore the inoperable train to an OPERABLE status within 72 hours, or place the affected unit(s) in at least HOT STANDBY within the next 6 hours\* and in HOT SHUTDOWN within the following 6 hours.
- 2) With both required auxiliary feedwater trains inoperable, within 2 hours either restore both trains to an OPERABLE status, or restore one train to an OPERABLE status and follow ACTION statement 1 above for the other train. If neither train can be restored to an OPERABLE status within 2 hours, verify the OPERABILITY of both standby feedwater pumps and place the affected unit(s) in at least HOT STANDBY within the next 6 hours\* and in HOT SHUTDOWN within the following 6 hours. Otherwise, initiate corrective action to restore at least one auxiliary feedwater train to an OPERABLE status as soon as possible and follow ACTION statement 1 above for the other train.
- 3) With a single auxiliary feedwater pump inoperable, within 4 hours, verify OPERABILITY of two independent auxiliary feedwater trains, or follow ACTION statements 1 or 2 above as applicable. Upon verification of the OPERABILITY of two independent auxiliary feedwater trains, restore the inoperable auxiliary feedwater pump to an OPERABLE status within 30 days, or place the operating unit(s) in at least HOT STANDBY within 6 hours\* and in HOT SHUTDOWN Within the following 6 hours. The provisions of Specification 3.0.4 are not applicable during the 30 day period for the inoperable auxiliary feedwater pump.

#### SURVEILLANCE REQUIREMENTS

---

4.7.1.2.1 The required independent auxiliary feedwater trains shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
  - 1) Verifying by control panel indication and visual observation of equipment that each steam turbine-driven pump operates for 15 minutes or greater and develops a flow of greater than or equal to 373 gpm to the entrance of the steam generators. The provisions of Specification 4.0.4 are not applicable for entry into MODES 2 and 3;

---

\* If this ACTION applies to both units simultaneously, be in at least HOT STANDBY within the next 12 hours and in HOT SHUTDOWN within the following 6 hours.

## PLANT SYSTEMS

### AUXILIARY FEEDWATER SYSTEM

#### SURVEILLANCE REQUIREMENTS (Continued)

---

- 2) Verifying by control panel indication and visual observation of equipment that the auxiliary feedwater discharge valves and the steam supply and turbine pressure valves operate as required to deliver the required flow during the pump performance test above;
  - 3) Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position; and
  - 4) Verifying that power is available to those components which require power for flow path operability.
- b. At least once per 18 months by:
- 1) Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of each Auxiliary Feedwater Actuation test signal, and
  - 2) Verifying that each auxiliary feedwater pump receives a start signal as designed automatically upon receipt of each Auxiliary Feedwater Actuation test signal.

4.7.1.2.2 An auxiliary feedwater flow path to each steam generator shall be demonstrated OPERABLE following each COLD SHUTDOWN of greater than 30 days prior to entering MODE 1 by verifying normal flow to each steam generator.

TABLE 3.7-3

AUXILIARY FEEDWATER SYSTEM OPERABILITY

<u>UNIT</u>	<u>TRAIN</u>	<u>STEAM SUPPLY FLOWPATH<sup>(3)</sup></u>	<u>PUMP</u>	<u>DISCHARGE WATER FLOWPATH<sup>(3)</sup></u>
3	1	SG 3C via MOV-3-1405 or SG 3B via MOV-3-1404 <sup>(1)</sup>	A or C <sup>(2)</sup>	SG 3A via CV-3-2816 SG 3B via CV-3-2817 SG 3C via CV-3-2818
3	2	SG 3A via MOV-3-1403 or SG 3B via MOV-3-1404 <sup>(1)</sup>	B or C <sup>(2)</sup>	SG 3A via CV-3-2831 SG 3B via CV-3-2832 SG 3C via CV-3-2833
4	1	SG 4C via MOV-4-1405 or SG 4B via MOV-4-1404 <sup>(1)</sup>	A or C <sup>(2)</sup>	SG 4A via CV-4-2816 SG 4B via CV-4-2817 SG 4C via CV-4-2818
4	2	SG 4A via MOV-4-1403 or SG 4B via MOV-4-1404 <sup>(1)</sup>	B or C <sup>(2)</sup>	SG 4A via CV-4-2831 SG 4B via CV-4-2832 SG 4C via CV-4-2833

NOTES:

<sup>(1)</sup> Steam admission valves MOV-3-1404 and MOV-4-1404 can be aligned to either train (but not both) to restore OPERABILITY in the event MOV-3-1403 or MOV-3-1405, or MOV-4-1403 or MOV-4-1405 are inoperable.

<sup>(2)</sup> During single and two unit operation, one pump shall be OPERABLE in each train and the third auxiliary feedwater pump shall be OPERABLE and capable of being powered from, and supplying water to either train, except as noted in ACTION 3 of Technical Specification 3.7.1.2. The third auxiliary feedwater pump (normally the "C" pump) can be aligned to either train to restore OPERABILITY in the event one of the required pumps is inoperable.

<sup>(3)</sup> If any local manual realignment of valves is required when operating the auxiliary feedwater pumps, a dedicated individual, who is in communication with the control room, shall be stationed at the auxiliary feedwater pump area. Upon instructions from the control room, this operator would realign the valves in the AFW system train to its normal operational alignment.

## PLANT SYSTEMS

### CONDENSATE STORAGE TANK

#### LIMITING CONDITION FOR OPERATION

---

3.7.1.3 The condensate storage tanks (CST) system shall be OPERABLE with:

##### Opposite Unit in MODES 4, 5 or 6

A minimum indicated water volume of 210,000 gallons in either or both condensate storage tanks. |

##### Opposite Unit in MODES 1, 2 or 3

A minimum indicated water volume of 420,000 gallons. |

APPLICABILITY: MODES 1, 2 and 3.

##### ACTION:

##### Opposite Unit in MODES 4, 5 or 6

With the CST system inoperable, within 4 hours restore the CST system to OPERABLE status or be in at least HOT STANDBY in the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

##### Opposite Unit in MODES 1, 2 or 3

- 1) With the CST system inoperable due to indicating less than 420,000 gallons, but greater than or equal to 210,000 gallons indicated, within 4 hours restore the inoperable CST system to OPERABLE status or place one unit in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. |
- 2) With the CST system inoperable with less than 210,000 gallons indicated, within 1 hour restore the CST system to OPERABLE status or be in at least HOT STANDBY within the next 12 hours and in HOT SHUTDOWN within the following 6 hours. This ACTION applies to both units simultaneously. |

#### SURVEILLANCE REQUIREMENTS

---

4.7.1.3 The condensate storage tank (CST) system shall be demonstrated OPERABLE at least once per 12 hours by verifying the indicated water volume is within its limit when the tank is the supply source for the auxiliary feedwater pumps. |

## PLANT SYSTEMS

### SPECIFIC ACTIVITY

#### LIMITING CONDITION FOR OPERATION

---

3.7.1.4 The specific activity of the Secondary Coolant System shall be less than or equal to 0.10 microCurie/gram DOSE EQUIVALENT I-131.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

With the specific activity of the Secondary Coolant System greater than 0.10 microCurie/gram DOSE EQUIVALENT I-131, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.7.1.4 The specific activity of the Secondary Coolant System shall be determined to be within the limit by performance of the sampling and analysis program of Table 4.7-1.

**TABLE 4.7-1**

**SECONDARY COOLANT SYSTEM SPECIFIC ACTIVITY**

**SAMPLE AND ANALYSIS PROGRAM**

<b><u>TYPE OF MEASUREMENT AND ANALYSIS</u></b>	<b><u>SAMPLE AND ANALYSIS FREQUENCY</u></b>
1. Gross Radioactivity Determination	At least once per 72 hours.
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	a) Once per 31 days, when- ever the gross radio- activity determination indicates concentrations greater than 10% of the allowable limit for radioiodines.  b) Once per 6 months, when- ever the gross radio- activity determination indicates concentrations less than or equal to 10% of the allowable limit for radioiodines.

## PLANT SYSTEMS

### MAIN STEAM LINE ISOLATION VALVES

#### LIMITING CONDITION FOR OPERATION

---

3.7.1.5 Each main steam line isolation valve (MSIV) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

MODE 1:

With one MSIV inoperable but open, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 24 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

MODES 2 and 3:

With one MSIV inoperable, subsequent operation in MODE 2 or 3 may proceed provided the isolation valve is maintained closed. Otherwise, be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.7.1.5 Each MSIV shall be demonstrated OPERABLE by verifying full closure within 5 seconds when tested pursuant to Specification 4.0.5. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

## PLANT SYSTEMS

### STANDBY FEEDWATER SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.7.1.6 Two Standby Steam Generator Feedwater Pumps shall be OPERABLE\* and at least 135,000 gallons of water (indicated volume), shall be in the Demineralized Water Storage Tank.\*\*

APPLICABILITY: MODES 1, 2 and 3

ACTION:

- a. With one Standby Steam Generator Feedwater Pump inoperable, restore the inoperable pump to available status within 30 days or submit a SPECIAL REPORT per 3.7.1.6d.
- b. With both Standby Steam Generator Feedwater Pumps inoperable, restore at least one pump to OPERABLE status within 24 hours, or:
  1. Notify the NRC within the following 4 hours, and provide cause for the inoperability and plans to restore pump(s) to OPERABLE status and,
  2. Submit a SPECIAL REPORT per 3.7.1.6d.
- c. With less than 135,000 gallons of water indicated in the Demineralized Water Storage Tank restore the available volume to at least 135,000 gallons indicated within 24 hours or submit a SPECIAL REPORT per 3.7.1.6d.
- d. If a SPECIAL REPORT is required per the above specifications submit a report describing the cause of the inoperability, action taken and a schedule for restoration within 30 days in accordance with 6.9.2.

#### SURVEILLANCE REQUIREMENTS

---

4.7.1.6.1 The Demineralized Water Storage tank water volume shall be determined to be within limits at least once per 24 hours.

4.7.1.6.2 At least monthly verify the standby feedwater pumps are OPERABLE by testing in recirculation on a STAGGERED TEST BASIS.

4.7.1.6.3 At least once per 18 months, verify operability of the respective standby steam generator feedwater pump by starting each pump and providing feedwater to the steam generators.

---

\* These pumps do not require plant safety related emergency power sources for operability and the flowpath is normally isolated.

\*\* The Demineralized Water Storage Tank is non-safety grade.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

4.7.1.6.4 The diesel engine for the diesel-driven Standby Steam Generator Feedwater Pump shall be demonstrated OPERABLE:

- a. At least once every 31 days, by testing with the associated standby steam generator feedwater pump in recirculation.
- b. At least once per 18 months, by subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service.

## PLANT SYSTEMS

### 3/4.7.2 COMPONENT COOLING WATER SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.7.2 The Component Cooling Water System (CCW) shall be OPERABLE with:

- a. Three CCW pumps, and
- b. Two CCW heat exchangers.

**APPLICABILITY:** MODES 1, 2, 3, and 4.

**ACTION:**

- a. With only two CCW pumps with independent power supplies OPERABLE, restore the inoperable CCW pump to OPERABLE status within 30 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable.
- b. With only one CCW pump OPERABLE or with two CCW pumps OPERABLE but not from independent power supplies, restore two pumps from independent power supplies to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With less than two CCW heat exchangers OPERABLE, restore two heat exchangers to OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.7.2 The Component Cooling Water System (CCW) shall be demonstrated OPERABLE:

- a. At least once per 12 hours, by verifying that two heat exchangers and one pump are capable of removing design basis heat loads.

## SURVEILLANCE REQUIREMENTS (Continued)

---

- b. At least once per 31 days by: (1) 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 and (2) verifying by a performance test the heat exchanger surveillance curves.\*
  
- c. At least once per 18 months during shutdown, by verifying that:
  - 1) Each automatic valve servicing safety-related equipment actuates to its correct position on a SI test signal, and
  - 2) Each Component Cooling Water System pump starts automatically on a SI test signal.
  - 3) Interlocks required for CCW operability are OPERABLE.

\* Technical specification 4.7. 2.b(2) is not applicable for entry into MODE 4 or MODE 3, provided that:

- 1) Surveillance 4.7.2.b(2) is performed no later than 72 hours after reaching a Reactor Coolant System Tavg of 547°F, and
- 2) MODE 2 shall not be entered prior to satisfactory performance of this surveillance.

## PLANT SYSTEMS

### 3/4.7.3 INTAKE COOLING WATER SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.7.3 The Intake Cooling Water System (ICW) shall be OPERABLE with:

- a. Three ICW pumps, and
- b. Two ICW headers.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

- a. With only two ICW pumps with independent power supplies OPERABLE, restore the inoperable ICW pump to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable.
- b. With only one ICW pump OPERABLE or with two ICW pumps OPERABLE but not from independent power supplies, restore two pumps from independent power supplies to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With only one ICW header OPERABLE, restore two headers to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.7.3 The Intake Cooling Water System (ICW) shall be demonstrated OPERABLE:

- a. At least once per 31 days 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; and
- b. At least once per 18 months during shutdown, by verifying that:
  - 1) Each automatic valve servicing safety-related equipment actuates to its correct position on a SI test signal, and
  - 2) Each Intake Cooling Water System pump starts automatically on a SI test signal.
  - 3) Interlocks required for system operability are OPERABLE.

## PLANT SYSTEMS

### 3/4.7.4 ULTIMATE HEAT SINK

#### LIMITING CONDITION FOR OPERATION

---

3.7.4 The ultimate heat sink shall be OPERABLE with an average supply water temperature less than or equal to 100°F. |

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the requirements of the above specification not satisfied, be in at least HOT STANDBY within 12 hours and In COLD SHUTDOWN within the following 30 hours. This ACTION shall be applicable to both units simultaneously.

#### SURVEILLANCE REQUIREMENTS

---

4.7.4 The ultimate heat sink shall be determined OPERABLE at least once per 24 hours by verifying the average supply water temperature\* to be within its limit. |

---

\* Portable monitors may be used to measure the temperature.

## PLANT SYSTEMS

### 3/4.7.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.7.5 The Control Room Emergency Ventilation System shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

MODES 1, 2, 3 and 4:

With the Control Room Emergency Ventilation System inoperable, suspend all movement of fuel in the spent fuel pool and restore the inoperable system to OPERABLE status within 84 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. If this ACTION applies to both units simultaneously, be in HOT STANDBY within 12 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6:

With the Control Room Emergency Ventilation System inoperable, suspend all operations involving CORE ALTERATIONS, movement of fuel in the spent fuel pool, or positive reactivity changes. This ACTION shall apply to both units simultaneously.

#### SURVEILLANCE REQUIREMENTS

---

4.7.5 The Control Room Emergency Ventilation System shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 120°F;
- b. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 15 minutes;
- c. At least once per 18 months or (1) after 720 hours of system operation, or (2) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (3) following operational exposure of the filters to effluents from painting, fire, or chemical release in any ventilation zone communicating with the system, or (4) after complete or partial replacement of a filter bank by:

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- 1) Verifying that the air cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of greater than or equal to 99% DOP and halogenated hydrocarbon removal at a system flow rate of 1000 cfm  $\pm$ 10%.
  - 2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and analyzed per ASTM D3803 - 1989 at 30°C and 95% relative humidity, meets the methyl iodide penetration criteria of less than 2.5% or the charcoal be replaced with charcoal that meets or exceeds the stated performance requirement, and
  - 3) Verifying by a visual inspection the absence of foreign materials and gasket deterioration.
- d. At least once per 12 months by verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches Water Gauge while operating the system at a flow rate of 1000 cfm  $\pm$ 10%;
- e. At least once per 18 months by verifying that on a Containment Phase "A" Isolation test signal the system automatically switches into the recirculation mode of operation.

## PLANT SYSTEMS

### 3/4.7.6 SNUBBERS

#### LIMITING CONDITION FOR OPERATION

---

3.7.6 All snubbers shall be OPERABLE. The only snubbers excluded from the requirements are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed would have no adverse effect on any safety-related system.

APPLICABILITY: MODES 1, 2, 3, and 4. MODES 5 and 6 for snubbers located on systems required OPERABLE in those MODES.

#### ACTION:

With one or more snubbers inoperable on any system, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation per Specification 4.7.6f. on the attached component or declare the attached system inoperable and follow the appropriate ACTION statement for that system.

#### SURVEILLANCE REQUIREMENTS

---

4.7.6 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program in addition to the requirements of Specification 4.0.5.

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by Table 4.7-2. The visual inspection interval for each type of snubber shall be determined based upon the criteria provided in Table 4.7-2 and the first inspection interval determined using this criteria shall be based upon the previous inspection interval as established by the requirements in effect before Amendment 151 and 146.

**TABLE 4.7-2**

**SNUBBER VISUAL INSPECTION INTERVAL**

Population or Category (Notes 1 and 2)	NUMBER OF UNACCEPTABLE SNUBBERS		
	Column A Extended Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

**Note 1:** The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

**Note 2:** Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, or C if that integer includes a fractional value of unacceptable snubbers as determined by interpolation.

**Note 3:** If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.

**Note 4:** If the number of unacceptable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.

- Note 5:** If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.
- Note 6:** The provisions of Specification 4.0.2 are applicable for all inspection intervals up to and including 48 months.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

c. Visual Inspection Acceptance Criteria

Visual inspections shall verify that: (1) the snubber has no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are secure, and (3) fasteners for attachment of the snubber to the component and to the snubber anchorage are secure. Snubbers which appear inoperable as a result of visual inspections shall be classified as unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that: (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.7.6e. All snubbers found connected to an inoperable common hydraulic fluid reservoir shall be counted as unacceptable for determining the next inspection interval. A review and evaluation shall be performed to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the ACTION requirements shall be met.

d. Functional Tests

For each unit during refueling shutdown, a representative sample of snubbers shall be tested using the following sample plan:

- 1) At least 10% of the total number of safety related snubbers for the respective unit identified by site records shall be functionally tested either in-place or in a bench test. For each snubber of a type that does not meet the functional test acceptance criteria of Specification 4.7.6e, an additional 10% of that type of snubber shall be functionally tested until no more failures are found or until all snubbers of that type have been functionally tested;
- 2) The representative sample selected for functional testing shall include the various configurations, operating environments and the range of size and capacity of snubbers. At least 25% of the snubbers in the representative sample shall include snubbers from the following categories:
  - A. Snubbers within 5 feet of heavy equipment (ex. valves, pumps, turbines, motors, etc.)
  - B. Snubbers within 10 feet of the discharge from a safety relief valve.
- 3) Snubbers identified by site records as "Especially Difficult to Remove" or in "High Radiation Zones During Shutdown" shall also be included in the representative sample.\*

---

\* Permanent or other exemptions from functional testing for individual snubbers in these categories may be granted by the Commission only if a justifiable basis for exemption is presented and/or snubber life destructive testing was performed to qualify snubber OPERABILITY for all design conditions at either the completion of their fabrication or at a subsequent date.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the failed snubber (if it is repaired and installed in another position) and the spare snubber shall be retested. Test results of these snubbers may not be included for the re-sampling.

e. Mechanical Snubbers Functional Test Acceptance Criteria

The snubber functional test shall verify that:

- 1) Activation (restraining action) is achieved with the specified range of velocity or acceleration in both tension and compression;
- 2) Snubber release rate, where required, is within the specified range in tension and compression,
- 3) The force required to initiate or maintain motion of the snubber is within the specified range in both directions of travel.

f. Functional Test Failure Analysis

An engineering evaluation shall be made of each failure to meet the functional test acceptance criteria to determine the cause of the failure. The results of this evaluation shall be used, if applicable, in selecting snubbers to be tested in an effort to determine the OPERABILITY of other snubbers irrespective of type which may be subject to the same failure mode.

If any snubber selected for functional testing either fails to activate or fails to move, i.e., frozen-in-place, the cause will be evaluated under the provisions of 10 CFR Part 21.

Should the results of the evaluation indicate that the failure was caused by either manufacturer or design deficiency, further action shall be taken, if needed, based on manufacturer or engineering recommendations.

For the snubber(s) found inoperable, an evaluation shall be performed on the components to which the inoperable snubbers are attached. The purpose of this evaluation shall be to determine if the components to which the inoperable snubber(s) are attached were adversely affected by the inoperability of the snubber(s) in order to ensure that the component remains capable of meeting the designed service.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

**g. Snubber Service Life Monitoring Program**

A record of the service life of each snubber, the date at which the designated service life commences and the installation and maintenance records on which the designated service life is based shall be maintained.

Concurrent with the first inservice visual inspection and during refueling shutdown thereafter, the installation and maintenance records for each safety related snubber as identified by site records shall be reviewed to verify that the indicated service life has not been exceeded or will not be exceeded prior to the next scheduled snubber service life review. If the indicated service life will be exceeded prior to the next scheduled snubber service life review, the snubber service life shall be reevaluated or the snubber shall be replaced or reconditioned so as to extend its service life beyond the date of the next scheduled service life review. This re-evaluation, replacement or reconditioning shall be indicated in the records.

## PLANT SYSTEMS

### 3/4.7.7 SEALED SOURCE CONTAMINATION

#### LIMITING CONDITION FOR OPERATION

---

3.7.7 Each sealed source containing radioactive material either in excess of 100 microCuries of beta and/or gamma emitting material or 5 microCuries of alpha emitting material shall be free of greater than or equal to 0.005 microCurie of removable contamination.

**APPLICABILITY:** At all times.

**ACTION:**

- a. With a sealed source having removable contamination in excess of the above limits, immediately withdraw the sealed source from use and either:
  - 1. Decontaminate and repair the sealed source, or
  - 2. Dispose of the sealed source in accordance with Commission Regulations.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.7.7.1 Test Requirements - Each sealed source shall be tested for leakage and/or contamination by:

- a. The licensee, or
- b. Other persons specifically authorized by the Commission or an Agreement State.

The test method shall have a detection sensitivity of at least 0.005 microCurie per test sample.

4.7.7.2 Test Frequencies - Each category of sealed sources (excluding startup sources and fission detectors previously subjected to core flux) shall be tested at the frequency described below.

- a. Sources in use - At least once per 6 months for all sealed sources containing radioactive materials:
  - 1) With a half-life greater than 30 days (excluding Hydrogen 3), and
  - 2) In any form other than gas.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- b. **Stored sources not in use - Each sealed source and fission detector shall be tested prior to use or transfer to another licensee unless tested within the previous 6 months. Sealed sources and fission detectors transferred without a certificate indicating the last test date shall be tested prior to being placed into use; and**
- c. **Startup sources and fission detectors - Each sealed startup source and fission detector shall be tested within 31 days prior to being subjected to core flux or installed in the core and following repair or maintenance to the source.**

**4.7.7.3 Reports - A report shall be prepared and submitted to the Commission on an annual basis if sealed source or fission detector leakage tests reveal the presence of greater than or equal to 0.005 microCurie of removable contamination.**

**4.7.7.4 A complete inventory of licensed radioactive materials in possession shall be maintained current at all times.**

## PLANT SYSTEMS

### EXPLOSIVE GAS MIXTURE

#### LIMITING CONDITION FOR OPERATION

---

3.7.8 The concentration of oxygen in the GAS DECAY TANK SYSTEM (as measured in the inservice gas decay tank) shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

**APPLICABILITY:** At all times.

**ACTION:**

- a. With the concentration of oxygen in the inservice gas decay tank greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.
- b. With the concentration of oxygen in the inservice gas decay tank greater than 4% by volume and the hydrogen concentration greater than 4% by volume, immediately suspend all additions of waste gases to the gas decay tanks and reduce the concentration of oxygen to less than or equal to 4% by volume, then take ACTION a., above.
- c. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.7.8 The concentrations of hydrogen and oxygen in the inservice gas decay tanks shall be determined to be within the above limits by continuously\* monitoring the waste gases in the inservice gas decay tank with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-8 of Specification 3.3.3.6.

---

\* When continuous monitoring capability is inoperable, Table 3.3-8 allows the use of grab samples.

## PLANT SYSTEMS

### GAS DECAY TANKS

#### LIMITING CONDITION FOR OPERATION

---

3.7.9 The quantity of radioactivity contained in each gas decay tank shall be limited to less than or equal to 70,000 Curies of noble gases (considered as Xe-133 equivalent).

APPLICABILITY: At all times.

ACTION:

- a. With the quantity of radioactive material in any gas decay tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank, within 48 hours reduce the tank contents to within the limit, and describe the events leading to this condition in the next Annual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.4.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.7.9 The quantity of radioactive material contained in each gas decay tank shall be determined to be within the above limit at least once per 24 hours when radioactive materials are being added to the tank and the Reactor Coolant System total activity exceeds the limit of Specification 3.4.8.

## 3/4.8 ELECTRICAL POWER SYSTEMS

### 3/4.8.1 A.C. SOURCES

#### OPERATING

#### LIMITING CONDITION FOR OPERATION

---

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

- a. Two startup transformers and their associated circuits, and
- b. Three separate and independent diesel generators\* including,
  - 1) For Unit 3, two (3A and 3B); for Unit 4, one (3A or 3B) each with:
    - a) A separate skid-mounted fuel tank and a separate day fuel tank with an OPERABLE solenoid valve to permit gravity flow from the day tank to the skid mounted tank, and with the two tanks together containing a minimum of 2000 gallons of fuel oil.
    - b) A common Fuel Storage System containing a minimum volume of 38,000 gallons of fuel,\*\*
    - c) A separate fuel transfer pump,\*\*
    - d) Lubricating oil storage containing a minimum volume of 120 gallons of lubricating oil,
    - e) Capability to transfer lubricating oil from storage to the diesel generator unit, and
    - f) Energized MCC bus (MCC 3A vital section for EDG 3A, MCC 3K for EDG 3B).
  - 2) For Unit 3, one (4A or 4B); for Unit 4, two (4A and 4B) each with:
    - a) A separate day fuel tank containing a minimum volume of 230 gallons of fuel,
    - b) A separate Fuel Storage System containing a minimum volume of 34,700 gallons of fuel,
    - c) A separate fuel transfer pump, and
    - d) Energized MCC bus (MCC 4J for EDG 4A, MCC 4K for EDG 4B).

---

\* Whenever one or more of the four EDG's is out-of-service, ensure compliance with the EDG requirements specified in Specifications 3.5.2 and 3.8.2.1.

\*\*A temporary Class III fuel storage system containing a minimum volume of 38,000 gallons of fuel oil may be used for up to 10 days during the performance of Surveillance Requirement 4.8.1.1.2i.1 for the Unit 3 storage tank while Unit 3 is in Modes 5, 6, or defueled. If the diesel fuel oil storage tank is not returned to service within 10 days, Technical Specification 3.8.1.1 Action b and 3.8.1.2 Action apply to Unit 4 and Unit 3 respectively.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

---

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one of two startup transformers or an associated circuit inoperable, demonstrate the OPERABILITY of the other startup transformer and its associated circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the inoperable startup transformer is the associated startup transformer and became inoperable while the unit is in MODE 1, reduce THERMAL POWER to  $\leq 30\%$  RATED THERMAL POWER within 24 hours, or restore the inoperable startup transformer and associated circuits to OPERABLE status within the next 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. If THERMAL POWER is reduced to  $\leq 30\%$  RATED THERMAL POWER within 24 hours or if the inoperable startup transformer is associated with the opposite unit restore the startup transformer and its associated circuits to OPERABLE status within 30 days of the loss of OPERABILITY, or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. If the inoperable startup transformer is the associated startup transformer and became inoperable while the unit was in MODE 2, 3, or 4 restore the startup transformer and its associated circuits to OPERABLE status within 24 hours or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.
- b. With one of the required diesel generators inoperable, demonstrate the OPERABILITY of the above required startup transformers and their associated circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than an inoperable support system, an independently testable component, or preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining required diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours, unless the absence of any potential common mode failure for the remaining diesel generators is determined. If testing of remaining required diesel generators is required, this testing must be performed regardless of when the inoperable diesel generator is restored to OPERABILITY. Restore the inoperable diesel generator to OPERABLE status within 14 days\*\* or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With one startup transformer and one of the required diesel generators inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining

---

\*\* 72 hours if inoperability is associated with Action Statement 3.8.1.1.c.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

---

#### ACTION (Continued)

startup transformer and associated circuits within one hour and at least once per 8 hours thereafter; and if the diesel generator 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 required diesel generators by performing Surveillance Requirement 4.8.1.1.2a.4 within 8 hours, unless it can be confirmed that the cause of the inoperable diesel generator does not exist on the remaining required diesel generators, unless the diesel generators are already operating; restore one of the inoperable sources to OPERABLE status in accordance with Action Statements a and b, as appropriate. If testing of remaining required diesel generators is required, this testing must be performed regardless of when the inoperable diesel generator is restored to OPERABILITY. Notify the NRC within 4 hours of declaring both a start-up transformer and diesel generator inoperable. Restore the other A.C. power source (startup transformer or diesel generator) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statement a or b, as appropriate, with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable A.C. power source.

d. With one diesel generator inoperable, in addition to ACTION b. or c. above, verify that:

1. All required systems, subsystems, trains, components, and devices (except safety injection pumps) that depend on the remaining required OPERABLE diesel generators as a source of emergency power are also OPERABLE.

If this condition is not satisfied within 2 hours, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

2. At least two Safety Injection pumps are OPERABLE and capable of being powered from their associated OPERABLE diesel generators.

If this condition is not satisfied within 2 hours, be in at least HOT STANDBY within the next 12 hours and in HOT SHUTDOWN within the following 6 hours. This ACTION applies to both units simultaneously.

e. With two of the above required startup transformers or their associated circuits inoperable notify the NRC within 4 hours; restore at least one of the inoperable startup transformers to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours\* and in COLD

---

\* If the opposite unit is shutdown first, this time can be extended to 42 hours.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

---

#### ACTION (Continued)

SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously. With only one startup transformer and associated circuits restored, perform Surveillance Requirement 4.8.1.1.1a on the OPERABLE Startup transformer at least once per 8 hours, and restore the other startup transformer and its associated circuits to OPERABLE status or shutdown in accordance with the provisions of Action Statement 3.8.1.1a with time requirements of that Action Statement based on the time of initial loss of a startup transformer. This ACTION applies to both units simultaneously.

- f. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two startup transformers and their associated circuits by performing the requirements of Specification 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore all required diesel generators to OPERABLE status within 14 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- g. Following the addition of the new fuel oil\* to the Diesel Fuel Oil Storage Tanks, with one or more diesel generators with new fuel oil properties outside the required Diesel Fuel Oil Testing Program limits, restore the stored fuel oil properties to within the required limits within 30 days.
- h. With one or more diesel generators with stored fuel oil total particulates outside the required Diesel Fuel Oil Testing Program limits, restore the fuel oil total particulates to within the required limits within 7 days.

---

\* The properties of API Gravity, specific gravity or an absolute specific gravity; kinematic viscosity; clear and bright appearance; and flash point shall be confirmed to be within the Diesel Fuel Oil Testing Program limits, prior to the addition of the new fuel oil to the Diesel Fuel Oil Storage Tanks.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS

---

- 4.8.1.1.1 Each of the above required startup transformers and their associated circuits shall be:
- a. Determined **OPERABLE** at least once per 7 days by verifying correct breaker alignments, indicated power availability, and
  - b. Demonstrated **OPERABLE** at least once per 18 months while shutting down, by transferring manually unit power supply from the auxiliary transformer to the startup transformer.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- 4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE\*:
- a. At least once per 31 days on a STAGGERED TEST BASIS by:
- 1) Verifying the fuel volume in the day and skid-mounted fuel tanks (Unit 4-day tank only),
  - 2) Verifying the fuel volume in the fuel storage tank,
  - 3) Verifying the lubricating oil inventory in storage,
  - 4) Verifying the diesel starts and accelerates to reach a generator voltage and frequency of  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz. Once per 184 days, these conditions shall be reached within 15 seconds after the start signal from normal conditions. For all other starts, warmup procedures, such as idling and gradual acceleration as recommended by the manufacturer may be used. The diesel generator shall be started for this test by using one of the following signals:
    - a) Manual, or
    - b) Simulated loss-of-offsite power by itself, or
    - c) Simulated loss-of-offsite power in conjunction with an ESF Actuation test signal, or
    - d) An ESF Actuation test signal by itself.
  - 5) Verifying the generator is synchronized, loaded\*\* to 2300 - 2500 kW (Unit 3), 2650-2850 kW (Unit 4)\*\*\*, operates at this loaded condition for at least 60 minutes and for Unit 3 until automatic transfer of fuel from the day tank to the skid mounted tank is demonstrated, and the cooling system is demonstrated OPERABLE.
  - 6) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

---

\* All diesel generator starts for the purpose of these surveillances may be proceeded by a prelube period as recommended by the manufacturer.

\*\* May include gradual loading as recommended by the manufacturer so that the mechanical stress and wear on the diesel engine is minimized.

\*\*\* Momentary transients outside these load bands do not invalidate this test.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- b. Demonstrating at least once per 92 days that a fuel transfer pump starts automatically and transfers fuel from the storage system to the day tank,
- c. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day and skid-mounted fuel tanks (Unit 4-day tank only);
- d. At least once per 31 days by checking for and removing accumulated water from the fuel oil storage tanks;
- e. By verifying fuel oil properties of new fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.
- f. By verifying fuel oil properties of stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.
- g. At least once per 18 months, during shutdown (applicable to only the two diesel generators associated with the unit):
  - 1) Deleted
  - 2)\* Verifying the generator capability to reject a load of greater than or equal to 380 kw while maintaining voltage at  $4160 \pm 420$  volts and frequency at  $60 \pm 1.2$  Hz;
  - 3)\* Verifying the generator capability to reject a load of greater than or equal to 2500 kW (Unit 3), 2874 kW (Unit 4) without tripping. The generator voltage shall return to less than or equal to 4784 volts within 2 seconds following the load rejection;
  - 4) Simulating a loss-of-offsite power by itself, and:
    - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses, and
    - b. Verifying the diesel starts on the auto-start signal, energizes the emergency busses with any permanently

---

\* For the purpose of this test, warmup procedures, such as idling, gradual acceleration, and gradual loading as recommended by the manufacturer may be used.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

connected loads within 15 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the auto-connected shutdown loads. After automatic load sequencing, the steady-state voltage and frequency of the emergency busses shall be maintained at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz during this test.

- 5) Verifying that on an ESF Actuation test signal, without loss-of-offsite power, the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 15 seconds after the auto-start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test;
- 6) Simulating a loss-of-offsite power in conjunction with an ESF Actuation test signal, and:
  - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses;
  - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with any permanently connected loads within 15 seconds, energizes the auto-connected emergency (accident) loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After automatic load sequencing, the steady-state voltage and frequency of the emergency busses shall be maintained at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz during this test; and
  - c) Verifying that diesel generator trips that are made operable during the test mode of diesel operation are inoperable.
- 7)\* # Verifying the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to 2550-2750 kW (Unit 3), 2950-3150 kW (Unit 4)\*\* and during the remaining 22 hours of this test, the diesel generator shall be loaded to 2300-2500 kW (Unit 3), 2650-2850 kW (Unit 4)\*\*. The generator voltage and frequency shall be  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 15 seconds after the start signal; the steady-state generator voltage and frequency

---

\* For the purpose of this test, warmup procedures, such as idling, gradual acceleration, and gradual loading as recommended by the manufacturer may be used.

\*\* Momentary transients outside these load bands do not invalidate this test.

# This test may be performed during POWER OPERATION

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

shall be maintained within these limits during this test. Within 5 minutes after completing this 24-hour test, verify the diesel starts and accelerates to reach a generator voltage and frequency of  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 15 seconds after the start signal.\*\*

- 8) Verifying that the auto-connected loads to each diesel generator do not exceed 2500 kW (Unit 3), 2874 kW (Unit 4);
- 9) Verifying the diesel generator's capability to:
  - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
  - b) Transfer its loads to the offsite power source, and
  - c) Be restored to its standby status.
- 10) Verifying that the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation, and (2) automatically energizing the emergency loads with offsite power;
- 11) Verifying that the fuel transfer pump transfers fuel from the fuel storage tank (Unit 3), fuel storage tanks (Unit 4) to the day tanks of each diesel associated with the unit via the installed cross-connection lines;
- 12) Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block within  $\pm 10\%$  of its design interval;
- 13) Verifying that the diesel generator lockout relay prevents the diesel generator from starting;

---

\*\* If verification of the diesel's ability to restart and accelerate to a generator voltage and frequency of  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 15 seconds following the 24 hour operation test of Specification 4.8.1.1.2.g.7) is not satisfactorily completed, it is not necessary to repeat the 24-hour test. Instead, the diesel generator may be operated between 2300-2500 kW Unit 3, 2650-2850 kW (Unit 4) for 2 hours or until operating temperature has stabilized (whichever is greater). Following the 2 hours/operating temperature stabilization run, the EDG is to be secured and restarted within 5 minutes to confirm its ability to achieve the required voltage and frequency within 15 seconds.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- h. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting all required diesel generators simultaneously and verifying that all required diesel generators provide  $60 \pm 1.2$  Hz frequency and  $4160 \pm 420$  volts in less than or equal to 15 seconds: and
- i. At least once per 10 years by:
  - 1) Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank.\*
  - 2) For Unit 4 only, performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda.

---

\* A temporary Class III fuel storage system containing a minimum volume of 38,000 gallons of fuel oil may be used for up to 10 days during the performance of Surveillance Requirement 4.8.1.1.2.i.1 for the Unit 3 storage tank while Unit 3 is in Modes 5, 6, or defueled. If the diesel fuel oil storage tank is not returned to service within 10 days. Technical Specification 3.8.1.1 Action b and 3.8.1.2 Action apply to Unit 4 and Unit 3 respectively.

## A.C. SOURCES

### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

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

- a. One startup transformer and associated circuits, or an alternate circuit, between the offsite transmission network and the 4160 volt bus, A or B, and
- b. One diesel generator with:
  - 1) For Unit 3 (3A or 3B)  
A skid-mounted fuel tank and a day fuel tank, with an OPERABLE solenoid valve to permit gravity flow from the day tank to the skid mounted tank, with the two tanks together containing a minimum of 2000 gallons of fuel oil  
For Unit 4 (4A or 4B)  
A day fuel tank containing a minimum volume of 230 gallons of fuel
  - 2) A fuel storage system containing a minimum volume of fuel of 38,000 gallons (Unit 3). 34,700 gallons (Unit 4)\*\*
  - 3) An associated fuel transfer pump\*\*
  - 4) For Unit 3 only, lubricating oil storage containing a minimum volume of 120 gallons of lubricating oil
  - 5) For Unit 3 only capability to transfer lubricating oil from storage to the diesel generator unit and
  - 6) Energized MCC bus (as identified by Specification 3.8.1.1.b.).

APPLICABILITY: MODES 5\* and 6\*.

#### ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel, or crane operation with loads over the fuel storage pool, and within 8 hours, depressurize and vent the Reactor Coolant System through a greater than or equal to 2.2 square inch vent. In addition, when in MODE 5 with the reactor coolant loops not filled, or in MODE 6 with the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible and increase RCS inventory as soon as possible.

---

\* CAUTION - If the opposite unit is in MODES 1, 2, 3, or 4 see Specification 3.8.1.1

\*\* A temporary Class III fuel storage system containing a minimum volume of 38,000 gallons of fuel oil may be used for up to 10 days during the performance of Surveillance Requirement 4.8.1.1.2i.1 for the Unit 3 storage tank while Unit 3 is in Modes 5, 6, or defueled. If the diesel fuel oil storage tank is not returned to service within 10 days, Technical Specification 3.8.1.1 Action b and 3.8.1.2 Action apply to Unit 4 and Unit 3 respectively.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS

---

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the requirements of Specifications 4.8.1.1.1.a and 4.8.1.1.2 (except for Specification 4.8.1.1.2a.5).

### 3/4.8.2 D.C. SOURCES

#### OPERATING

#### LIMITING CONDITION FOR OPERATION

---

3.8.2.1 The following D.C. electrical sources shall be OPERABLE: \*#

- a. 125-volt D.C. Battery Bank 3A or spare battery bank D-52 and associated full capacity charger(s)
  - 1) 3A1 powered by motor control center (MCC) 3C with EDG 3A OPERABLE, or
  - 2) 3A2 powered by MCC 4D with EDG 4A and 4B OPERABLE, or
  - 3) 3A1 powered by MCC 3C with EDG 3A OPERABLE and 3A2 powered by MCC 4D with EDG 4A and 4B OPERABLE,
  
- b. 125-volt D.C. Battery Bank 3B or spare battery bank D-52 and associated full capacity charger(s)
  - 1) 3B1 powered by MCC 3B with EDG 3B OPERABLE, or
  - 2) 3B2 powered by MCC 4D with EDG 4A and 4B OPERABLE, or
  - 3) 3B1 powered by MCC 3B with EDG 3B OPERABLE and 3B2 powered by MCC 4D with EDG 4A and 4B OPERABLE,
  
- c. 125-volt D.C. Battery Bank 4A or spare battery bank D-52 and associated full capacity charger(s)
  - 1) 4A1 powered by MCC 4C with EDG 4A OPERABLE, or
  - 2) 4A2 powered by MCC 3D with EDG 3A and 3B OPERABLE, or
  - 3) 4A1 powered by MCC 4C with EDG 4A OPERABLE and 4A2 powered by MCC 3D with EDG 3A and 3B OPERABLE,
  
- d. 125-volt D.C. Battery Bank 4B or spare battery bank D-52 and associated full capacity charger(s)
  - 1) 4B1 powered by MCC 4B with EDG 4B OPERABLE, or
  - 2) 4B2 powered by MCC 3D with EDG 3A and 3B OPERABLE, or
  - 3) 4B1 powered by MCC 4B with EDG 4B OPERABLE and 4B2 powered by MCC 3D with EDG 3A and 3B OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

- a. With one or more of the required battery chargers OPERABLE but not capable of being powered from its associated OPERABLE diesel generator(s), restore the capability within 72 hours or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.

---

\* All battery chargers required to satisfy the LCO shall be powered from separate MCCs.

# Inoperability of the required EDG's specified in the LCO requirements below does not constitute inoperability of the associated battery chargers or battery banks.

## D.C. SOURCES

### LIMITING CONDITION FOR OPERATION

#### ACTION: (Continued)

- b. With one of the required battery banks inoperable, or with none of the full-capacity chargers associated with a battery bank OPERABLE, restore all battery banks to OPERABLE status and at least one charger associated with each battery bank to OPERABLE status within two hours\* or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.

### SURVEILLANCE REQUIREMENTS

#### 4.8.2.1 Each 125-volt battery bank and its associated full capacity charger(s) shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
  - 1) The parameters in Table 4.8-2 meet the Category A limits, and
  - 2) The total battery terminal voltage is greater than or equal to 129 volts on float charge and the battery charger(s) output voltage is  $\geq 129$  volts, and
  - 3) If two battery chargers are connected to the battery bank, verify each battery charger is supplying a minimum of 10 amperes, or demonstrate that the battery charger supplying less than 10 amperes will accept and supply the D.C. bus load independent of its associated battery charger.
- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 105 volts (108.6 volts for spare battery D-52), or battery overcharge with battery terminal voltage above 143 volts, by verifying that:
  - 1) The parameters in Table 4.8-2 meet the Category B limits,
  - 2) There is no visible corrosion at either terminals or connectors, or the connection resistance is less than  $150 \times 10^{-6}$  ohm, and
  - 3) The average electrolyte temperature of every sixth cell is above 60°F.
- c. At least once per 18 months 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, and coated with anticorrosion material,
  - 3) The resistance of each cell-to-cell and terminal connection is less than or equal to  $150 \times 10^{-6}$  ohm, and

\* Can be extended to 24 hours if the opposite unit is in MODE 5 or 6 and each of the remaining required battery chargers is capable of being powered from its associated diesel generator(s).

## D.C. SOURCES

### SURVEILLANCE REQUIREMENTS (Continued)

---

- 4) Each 400 amp battery charger (associated with Battery Banks 3A and 4B) will supply at least 400 amperes at  $\geq 129$  volts for at least 8 hours, and each 300 amp battery charger (associated with Battery Banks 3B and 4A) will supply at least 300 amperes at  $\geq 129$  volts for at least 8 hours.
- d. At least once per 18 months, 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. At least once per 18 months, during shutdown\*\*, by giving performance discharge tests of battery capacity 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.
- f. At least once per 60 months, during shutdown\*\*, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval this performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1.d.

---

\*\* Except that the spare battery bank D-52, and any other battery out of service when spare battery bank D-52 is in service may be tested with simulated loads during operation.

**TABLE 4.8-2**

**BATTERY SURVEILLANCE REQUIREMENTS**

PARAMETER	CATEGORY A <sup>(1)</sup>		CATEGORY B <sup>(2)</sup>
	LIMITS FOR EACH DESIGNATED PILOT CELL	LIMITS FOR EACH CONNECTED CELL	ALLOWABLE <sup>(3)</sup> VALUE FOR EACH CONNECTED CELL
Electrolyte Level	>Minimum level indication mark, and < ¼" above maximum level indication mark	>Minimum level indication mark, and < ¼" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts <sup>(6)</sup>	≥ 2.07 volts
Specific Gravity <sup>(4)</sup>	≥ 1.200 <sup>(5)</sup>	≥ 1.195	Not more than 0.020 below the average of all connected cells
		Average of all Connected cells > 1.205	Average of all connected cells ≥ 1.195 <sup>(5)</sup>

**TABLE NOTATIONS**

- (1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.
- (2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.
- (3) Any Category B parameter not within its allowable value indicates an inoperable battery.
- (4) Corrected for electrolyte temperature and level.
- (5) Or battery charging current is less than 2 amps when on charge.
- (6) Corrected for average electrolyte temperature.

## D.C. SOURCES

### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.8.2.2 As a minimum, three 125 volt battery banks, each with at least one associated full capacity charger capable of being powered by an OPERABLE diesel generator, shall be OPERABLE.

APPLICABILITY: MODES 5\* and 6\*.

#### ACTION:

With one or more of the required 125 volt battery banks or required associated full-capacity chargers inoperable or not capable of being powered from an OPERABLE diesel generator, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, or movement of irradiated fuel; initiate corrective action to restore the required battery banks and associated full-capacity chargers to OPERABLE status as soon as possible, and within 8 hours, depressurize and vent the Reactor Coolant System through at least a 2.2 square inch vent.

#### SURVEILLANCE REQUIREMENTS

---

4.8.2.2 The above required 125 volt battery banks and associated full-capacity chargers shall be demonstrated OPERABLE in accordance with Specification 4.8.2.1.

---

\* CAUTION - If the opposite unit is in MODES 1, 2, 3 or 4, see the corresponding Limiting Condition for Operation 3.8.2.1.

### 3/4.8.3 ONSITE POWER DISTRIBUTION

#### OPERATING

#### LIMITING CONDITION FOR OPERATION

---

3.8.3.1 The following electrical busses\* shall be energized in the specified manner with the tie breakers open between redundant busses within the unit\*\* and between the busses of Units 3 and 4.

- a. One train of A.C. Busses consisting of:
  - 1) 4160-Volt Bus A,
  - 2) 480-Volt Load Center Busses A, C and H\*\*\*, and
  - 3) 480-Volt Motor Control Center Busses A (Unit 4 only), C and D\*\*\*,
- b. One train of A.C. Busses consisting of:
  - 1) 4160-Volt Bus B
  - 2) 480-Volt Load Center Busses B, D and H\*\*\*, and
  - 3) 480-Volt Motor Control Center Busses B and D\*\*\*
- c. One opposite unit train of AC busses consisting of either:
  - 1) 4160-Volt Bus A, 480-Volt Load Center Busses A, C and H\*\*\*, and 480-Volt Motor Control Center Busses A (Unit 4 only), C and D\*\*\*, or
  - 2) 4160-Volt Bus B, 480-Volt Load Center Busses B, D and H\*\*\*, and 480-Volt Motor Control Center Busses B and D\*\*\*.
- d. 120 Volt AC Vital Panel 3P06 and 3P21 energized from its associated inverter connected to D.C. Bus 3B.\*\*\*\*
- e. 120 Volt AC Vital Panel 4P06 and 4P21 energized from its associated inverter connected to D.C. Bus 3B.\*\*\*\*
- f. 120 Volt AC Vital Panel 3P07 and 3P22 energized from its associated inverter connected to D.C. Bus 3A.\*\*\*\*
- g. 120 Volt AC Vital Panel 4P07 and 4P22 energized from its associated inverter connected to D.C. Bus 3A.\*\*\*\*
- h. 120 Volt AC Vital Panel 3P08 and 3P23 energized from its associated inverter connected to D.C. Bus 4B.\*\*\*\*
- i. 120 Volt AC Vital Panel 4P08 and 4P23 energized from its associated inverter connected to D.C. Bus 4B.\*\*\*\*

---

\* For Motor Control Center busses, vital sections only.

\*\* With the opposite unit in MODE 5 or 6, its 480-Volt Load Center can be cross-tied under conditions specified in Specification 3.8.3.2.a.

\*\*\* Electrical bus can be energized from either train of its unit and swing function to opposite train must be OPERABLE for the Unit(s) in MODES 1, 2, 3, and 4.

\*\*\*\* A back-up inverter may be used to replace the normal inverter provided the normal inverter on the same DC bus for the opposite unit is not replaced at the same time.

## ONSITE POWER DISTRIBUTION

### LIMITING CONDITION FOR OPERATION (Continued)

---

- j. 120 Volt AC Vital Panel 3P09 and 3P24 energized from its associated inverter connected to D.C. Bus 4A.\*\*\*\*
- k. 120 Volt AC Vital Panel 4P09 and 4P24 energized from its associated inverter connected to D.C. Bus 4A.\*\*\*\*
- l. 125 Volt D.C. Bus 3D01 energized from an associated battery charger and from Battery Bank 3A or spare battery bank D-52,
- m. 125 Volt D.C. Bus 3D23 energized from an associated battery charger and from Battery Bank 3B or spare battery bank D-52,
- n. 125 Volt D.C. Bus 4D01 energized from an associated battery charger and from Battery Bank 4B or spare battery bank D-52, and
- o. 125 Volt D.C. Bus 4D23 energized from an associated battery charger and from Battery Bank 4A or spare battery bank D-52

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one of the required trains (3.8.3.1a., b., and c) of A.C. emergency busses not fully energized (except for the required LC's and MCC's associated with the opposite unit), reenergize the train within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With any of the required LC's and/or MCC's associated with the opposite unit inoperable, restore the inoperable LC or MCC to OPERABLE status in accordance with Table 3.8-1 or Table 3.8-2 as applicable or place the unit in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With one A.C. vital panel either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: (1) Reenergize the A.C. vital panel within 2 hours or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours; and (2) reenergize the A.C. vital panel from an inverter connected to its associated D.C. bus

---

\*\*\*\* A back-up inverter may be used to replace the normal inverter, provided the normal inverter on the same DC bus for the opposite unit is not replaced at the same time.

## ONSITE POWER DISTRIBUTION

### LIMITING CONDITION FOR OPERATION (Continued)

---

#### ACTION: (Continued)

within 24 hours or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.

- d. With one D.C. bus not energized from its associated battery bank or associated charger, reenergize the D.C. bus from its associated battery bank within 2 hours\* or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.

### SURVEILLANCE REQUIREMENTS

---

4.8.3.1 The specified busses shall be determined energized and aligned in the required manner at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

---

\* Can be extended to 24 hours if the opposite unit is in MODE 5 or 6 and each of the remaining required battery chargers is capable of being powered from its associated diesel generator(s).

**TABLE 3.8-1**

**APPLICABLE TO UNIT 3 BASED ON UNIT 4 LOAD  
CENTERS AND MOTOR CONTROL CENTERS INOPERABLE**

**ALLOWABLE OUTAGE TIMES**

<u>Unit 4</u> Load Centers and Motor Control Centers Inoperable (Any MODE)	Allowable Outage Times (hours) Unit 3 – MODES 1, 2, 3 and 4		
	With AC Trains 3A, 3B, 4A, & 4B OPERABLE	With AC Trains 3A, 3B, & 4A OPERABLE	With AC Trains 3A, 3B, & 4B OPERABLE
LC 4A	N/A	72	N/A
MCC 4A	N/A	N/A	N/A
LC 4C and/or MCC 4C	2*	2*	N/A
LC 4H and/or MCC 4D	2**	2**	2**
LC 4B and/or MCC 4B	2*	N/A	2*
LC 4D	N/A	N/A	72

\* If the battery charger powered from the out-of-service LC and/or MCC is not required by LCO 3.8.2.1, the out-of-service time is not applicable (N/A).

\*\* If neither of the battery chargers powered from the out-of-service LC and/or MCC is required by LCO 3.8.2.1, the out-of-service time is 72 hours.

**TABLE 3.8-2**

**APPLICABLE TO UNIT 4 BASED ON UNIT 3 LOAD  
CENTERS AND MOTOR CONTROL CENTERS INOPERABLE**

**ALLOWABLE OUTAGE TIMES**

<b>Unit 3 Load Centers and Motor Control Centers Inoperable (Any MODE)</b>	<b>Allowable Outage Times (hours) Unit 4 – MODES 1, 2, 3 and 4</b>		
	<b>With AC Trains 4A, 4B, 3A, &amp; 3B OPERABLE</b>	<b>With AC Trains 4A, 4B, &amp; 3A OPERABLE</b>	<b>With AC Trains 4A, 4B, &amp; 3B OPERABLE</b>
LC 3A	N/A	72	N/A
LC 3C and/or MCC 3C	2*	2*	N/A
LC 3H and/or MCC 3D	2**	2**	2**
LC 3B and/or MCC 3B	2*	N/A	2*
LC 3D	N/A	N/A	72

\* If the battery charger powered from the out-of-service LC and/or MCC is not required by LCO 3.8.2.1, the out-of-service time is not applicable (N/A).

\*\* If neither of the battery chargers powered from the out-of-service LC and/or MCC is required by LCO 3.8.2.1, the out-of-service time is 72 hours.

## ONSITE POWER DISTRIBUTION

### SHUTDOWN

### LIMITING CONDITION FOR OPERATION

---

3.8.3.2 As a minimum, the following electrical busses shall be energized in the specified manner:

- a. One train of A.C. emergency busses associated with the unit (3.8. 3. 1a. or b.) consisting of one 4160-volt and three 480-volt A.C. emergency busses load centers\* and three (four for Unit 4 Train A) vital sections of motor control center busses,
- b. Two 120-volt A.C. vital busses for the unit energized from their associated inverters\*\* connected to their respective D.C. busses, and
- c. Three 125-volt D.C. busses energized from their associated battery banks.

APPLICABILITY MODES 5\*\*\* and 6\*\*\*.

#### ACTION:

With any of the above required electrical busses not energized in the required manner, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, or movement of irradiated fuel, initiate corrective action to energize the required electrical busses in the specified manner as soon as possible, and within 8 hours, depressurize and vent the RCS through at least a 2.2 square inch vent.

### SURVEILLANCE REQUIREMENTS

---

4.8.3.2 The specified busses shall be determined energized in the required manner at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

---

\* With the opposite unit in MODE 1, 2, 3, or 4, the 480-volt load centers can only be cross-tied upon issuance of an engineering evaluation to prevent exceeding required electrical components maximum design ratings and to ensure availability of the minimum required equipment.

\*\*A backup inverter may be used to replace the normal inverter provided the normal inverter on the same DC bus for the opposite unit is not replaced at the same time. |

\*\*\*CAUTION - If the opposite unit is in MODES 1, 2, 3, or 4, see the corresponding Limiting Condition for Operation 3.8.3.1.

### 3/4.9 REFUELING OPERATIONS

#### 3/4.9.1 BORON CONCENTRATION

##### LIMITING CONDITION FOR OPERATION

---

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met; either:

- a. A  $K_{\text{eff}}$  of 0.95 or less, or
- b. A boron concentration of greater than or equal to 1950 ppm.

APPLICABILITY:      MODE 6. \*

##### ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or its equivalent until  $K_{\text{eff}}$  is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 1950 ppm, whichever is the more restrictive.

##### SURVEILLANCE REQUIREMENTS

---

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

- a. Removing or unbolting the reactor vessel head, and
- b. Withdrawal of any full-length control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

4.9.1.3 Valves isolating unborated water sources\*\* shall be verified closed and secured in position by mechanical stops or by removal of air or electrical power at least once per 31 days.

4.9.1.4 The spent fuel pit boron concentration shall be determined at least once per 31 days.

---

\* The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

\*\* The primary water supply to the boric acid blender may be opened under administrative controls for makeup.

## REFUELING OPERATIONS

### 3/4.9.2 INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.9.2 As a minimum, one primary Source Range Neutron Flux Monitor with continuous visual indication in the control room and audible indication in the containment and control room, and one of the remaining three Source Range Neutron Flux Monitors (one primary or one of the two backup monitors) with continuous visual indication in the control room shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTION:

- a. With one of the above required monitors inoperable or not operating, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.
- b. With both of the above required monitors inoperable or not operating, determine the boron concentration of the Reactor Coolant System at least once per 12 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.9.2 Each required Source Range Neutron Flux Monitor shall be demonstrated OPERABLE by performance of:

- a. A CHANNEL CHECK at least once per 12 hours,
- b. An ANALOG CHANNEL OPERATIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS, and
- c. An ANALOG CHANNEL OPERATIONAL TEST at least once per 7 days.

## REFUELING OPERATIONS

### 3/4.9.3 DECAY TIME

#### LIMITING CONDITION FOR OPERATION

---

3.9.3 The reactor shall be subcritical for at least 100 hours.

**APPLICABILITY:** During movement of irradiated fuel in the reactor vessel.

**ACTION:**

With the reactor subcritical for less than 100 hours, suspend all operations involving movement of irradiated fuel in the reactor vessel.

#### SURVEILLANCE REQUIREMENTS

---

4.9.3 The reactor shall be determined to have been subcritical for at least 100 hours by verification of the date and time of subcriticality prior to movement of irradiated fuel in the reactor vessel.

## REFUELING OPERATIONS

### 3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

#### LIMITING CONDITION FOR OPERATION

---

3.9.4 The containment building penetrations shall be in the following status:

- a. The equipment door closed and held in place by a minimum of four bolts.
- b. A minimum of one door in each airlock is closed, or, both doors of the containment personnel airlock may be open if:
  - 1) at least one personnel airlock door is capable of being closed.
  - 2) The plant is in MODE 6 with at least 23 feet of water above the reactor vessel flange, and
  - 3) a designated individual is available outside the personnel airlock to close the door.
- c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:\*
  - 1) Closed by an isolation valve, blind flange, or manual valve, or
  - 2) Be capable of being closed by an OPERABLE automatic containment ventilation isolation valve.

**APPLICABILITY:** During movement of recently irradiated fuel within the containment. |

#### **ACTION:**

With the requirements of the above specification not satisfied, immediately suspend all operations involving movement of recently irradiated fuel in the containment building. |

#### **SURVEILLANCE REQUIREMENTS**

---

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment ventilation isolation valve within 100 hours prior to the start of and at least once per 7 days during movement of recently irradiated fuel in the containment building by: |

- a. Verifying the penetrations are in their closed/isolated condition, or
- b. Testing the containment ventilation isolation valves per the applicable portions of Specification 4.6.4.2.

---

\* Exception may be taken under Administrative Controls for opening of certain valves and airlocks necessary to perform surveillance or testing requirements.

## REFUELING OPERATIONS

### 3/4.9.5 COMMUNICATIONS

#### LIMITING CONDITION FOR OPERATION

---

3.9.5 Direct communications shall be maintained between the control room and personnel at the refueling station.

APPLICABILITY: During CORE ALTERATIONS.

ACTION:

When direct communications between the control room and personnel at the refueling station cannot be maintained, suspend all CORE ALTERATIONS.

#### SURVEILLANCE REQUIREMENTS

---

4.9.5 Direct communications between the control room and personnel at the refueling station shall be demonstrated within 1 hour prior to the start of and at least once per 12 hours during CORE ALTERATIONS.

## REFUELING OPERATIONS

### 3/4.9.6 MANIPULATOR CRANE

#### LIMITING CONDITION FOR OPERATION

---

3.9.6 The manipulator crane and auxiliary hoist shall be used for movement of drive rods or fuel assemblies and shall be OPERABLE with:

- a. The manipulator crane used for movement of fuel assemblies having:
  - 1) A minimum capacity of 2750 pounds, and
  - 2) An overload cutoff limit less than or equal to 2700 pounds.
- b. The auxiliary hoist used for latching and unlatching drive rods having:
  - 1) A minimum capacity of 610 pounds, and
  - 2) A load indicator which shall be used to prevent lifting loads in excess of 600 pounds.

**APPLICABILITY:** During movement of drive rods or fuel assemblies within the reactor vessel.

#### **ACTION:**

With the requirements for crane and/or hoist OPERABILITY not satisfied, suspend use of any inoperable manipulator crane and/or auxiliary hoist from operations involving the movement of drive rods and fuel assemblies within the reactor vessel.

#### SURVEILLANCE REQUIREMENTS

---

4.9.6.1 At least once each refueling, each manipulator crane used for movement of fuel assemblies within the reactor vessel shall be demonstrated OPERABLE within 100 hours prior to the start of such operations by performing a load test of at least 2750 pounds and demonstrating an automatic load cutoff when the crane load exceeds 2700 pounds.

4.9.6.2 At least once each refueling, each auxiliary hoist and associated load indicator used for movement of drive rods within the reactor vessel shall be demonstrated OPERABLE within 100 hours prior to the start of such operations by performing a load test of at least 610 pounds.

## REFUELING OPERATIONS

### 3/4.9.7 CRANE TRAVEL - SPENT FUEL STORAGE AREAS

#### LIMITING CONDITION FOR OPERATION

---

3.9.7 Loads in excess of 2000 pounds shall be prohibited from travel over fuel assemblies in the storage pool. |

**APPLICABILITY:** With fuel assemblies in the storage pool.

**ACTION:**

- a. With the requirements of the above specification not satisfied, place the crane load in a safe condition.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.9.7 Prior to crane operation over fuel assemblies in the spent fuel storage pool, verify that each load is 2000 pounds or less.

## REFUELING OPERATIONS

### 3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

#### HIGH WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

---

3.9.8.1 At least one residual heat removal (RHR) loop shall be OPERABLE and in operation.\*

**APPLICABILITY:** MODE 6, when the water level above the top of the reactor vessel flange is greater than or equal to 23 feet.

#### ACTION:

With no RHR loop OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to OPERABLE and operating status as soon as possible. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.9.8.1.1 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm at least once per 12 hours.

4.9.8.1.2 The RHR flow indicator shall be subjected to a CHANNEL CALIBRATION at least once per 18 months.

---

\* The required RHR loop may be removed from operation for up to 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.

## REFUELING OPERATIONS

### LOW WATER LEVEL

#### LIMITING CONDITION FOR OPERATION

---

3.9.8.2 Two independent residual heat removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation.

**APPLICABILITY:** MODE 6, when the water level above the top of the reactor vessel flange is less than 23 feet.

#### **ACTION:**

- a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status, or to establish greater than or equal to 23 feet of water above the reactor vessel flange, as soon as possible.
- b. With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.9.8.2 At least one RHR loop shall be verified in operation and circulating reactor coolant at a flow rate of greater than or equal to 3000 gpm at least once per 12 hours.

## REFUELING OPERATIONS

### 3/4.9.9 CONTAINMENT VENTILATION ISOLATION SYSTEM

#### LIMITING CONDITION FOR OPERATION

---

3.9.9 The Containment Ventilation Isolation System shall be OPERABLE.

**APPLICABILITY:** During CORE ALTERATIONS or movement of irradiated fuel within the containment.

**ACTION:**

- a. With the Containment Ventilation Isolation System inoperable, close each of the containment ventilation penetrations providing direct access from the containment atmosphere to the outside atmosphere.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.9.9 The Containment Ventilation Isolation System shall be demonstrated OPERABLE within 100 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS by verifying that Containment Ventilation Isolation occurs on a High Radiation test signal from each of the containment radiation monitoring instrumentation channels.

## REFUELING OPERATIONS

### 3/4.9.10 WATER LEVEL - REACTOR VESSEL

#### LIMITING CONDITION FOR OPERATION

---

3.9.10 At least 23 feet of water shall be maintained over the top of the reactor vessel flange.

**APPLICABILITY:** During movement of fuel assemblies or control rods within the containment when either the fuel assemblies being moved or the fuel assemblies seated within the reactor vessel are irradiated while in MODE 6.

**ACTION:**

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies or control rods within the reactor vessel.

#### SURVEILLANCE REQUIREMENTS

---

4.9.10 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and at least once per 24 hours thereafter during movement of fuel assemblies or control rods.

## REFUELING OPERATIONS

### 3/4.9.11 WATER LEVEL - STORAGE POOL

#### LIMITING CONDITION FOR OPERATION

---

3.9.11 The water level shall be maintained greater than or equal to elevation 56' – 10" the spent fuel storage pool.\*

**APPLICABILITY:** Whenever irradiated fuel assemblies are in the storage pool.

**ACTION:**

- a. With the requirements of the above specification not satisfied, suspend all movement of fuel assemblies and crane operations with loads in the fuel storage areas and restore the water level to within its limit within 4 hours.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.9.11 The water level in the storage pool shall be determined to be at least its minimum required depth at least once per 7 days when irradiated fuel assemblies are in the fuel storage pool.

---

\* The requirements of this specification may be suspended for more than 4 hours to perform maintenance provided a 10 CFR 50.59 evaluation is prepared prior to suspension of the above requirement and all movement of fuel assemblies and crane operation with loads in the fuel storage areas are suspended. If the level is not restored within 7 days, the NRC shall be notified within the next 24 hours.

## REFUELING OPERATIONS

### 3/4.9.12 HANDLING OF SPENT FUEL CASK

#### LIMITING CONDITION FOR OPERATION

---

3.9.12 The handling of spent fuel cask shall be limited to the following conditions:

- 1) The spent fuel cask shall not be moved into the spent fuel pit until all the spent fuel in the pit has decayed for a minimum of one thousand five hundred twenty-five (1,525) hours.
- 2) Only a single element cask may be moved into the spent fuel pit.
- 3) A fuel assembly shall not be removed from the spent fuel pit in a shipping cask until it has decayed for a minimum of one hundred twenty (120) days.

**APPLICABILITY:** During movement of spent fuel cask in the spent fuel storage area.

#### **ACTION:**

With the requirement of the above specification not satisfied, suspend all movement of the spent fuel cask within the spent fuel storage area.

#### **SURVEILLANCE REQUIREMENTS**

---

4.9.12.1 The following required decay times of the spent fuel assemblies shall be determined prior to the movement of a spent fuel cask by verification of date and time the spent fuel assemblies were placed into the spent fuel pit:

- a. 1525 hours of decay of all spent fuel assemblies in the spent fuel pit for movement of a spent fuel cask into the spent fuel pit.
- b. 120 days of decay of the spent fuel assembly in the spent fuel cask prior to removal of the spent fuel cask from the spent fuel pit.

4.9.12.2 Prior to any operations involving spent fuel cask movement into the fuel pit, verify only a single element cask will be moved into the spent fuel pit.

4.9.12.3 The spent fuel cask crane interlock shall be demonstrated OPERABLE within 7 days of crane operation and at least once per 7 days (7 days is maximum time between tests; specification 4.0.2 does not apply here) when the crane is being used to maneuver the spent fuel cask.

## REFUELING OPERATIONS

### 3/4.9.13 RADIATION MONITORING

#### LIMITING CONDITION FOR OPERATION

---

3.9.13 The Containment Radiation monitors which initiate containment and control room ventilation isolation shall be OPERABLE.

**APPLICABILITY:** During CORE ALTERATIONS or movement of irradiated fuel within the containment.

**ACTION:**

- a) With one or both radiation monitors inoperable, operation may continue provided the containment ventilation isolation valves are maintained closed.
- b) With one or both radiation monitors inoperable, within 1 hour isolate the Control Room Emergency Ventilation System and initiate operation of the Control Room Emergency Ventilation System in the recirculation mode.

#### SURVEILLANCE REQUIREMENTS

---

4.9.13 Each Containment Radiation monitor shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST at the frequencies shown in Table 4.3-3.

## REFUELING OPERATIONS

### 3/4.9.14 SPENT FUEL STORAGE

#### LIMITING CONDITION FOR OPERATION

---

3.9.14 The following conditions shall apply to spent fuel storage:

- a. The maximum enrichment loading for the fuel assemblies in the spent fuel racks shall not exceed 4.5 weight percent of U-235.
- b. The minimum boron concentration in the Spent Fuel Pit shall be 1950 ppm.
- c. Storage in Region II of the Spent Fuel Pit shall be further restricted by burnup and enrichment limits specified in Table 3.9-1.

APPLICABILITY: At all times when fuel is stored in the Spent Fuel Pit.

#### ACTION:

- a. With either condition a, or c not satisfied, suspend movement of additional fuel assemblies into the Spent Fuel Pit and restore the spent fuel storage configuration to within the specified conditions.
- b. With boron concentration in the Spent Fuel Pit less than 1950 ppm, suspend movement of spent fuel in the Spent Fuel Pit and initiate action to restore boron concentration to 1950 ppm or greater.

#### SURVEILLANCE REQUIREMENTS

---

4.9.14 The boron concentration of the Spent Fuel Pit shall be verified to be 1950 ppm or greater at least once per month.

TABLE 3.9-1

SPENT FUEL BURNUP REQUIREMENTS FOR STORAGE  
IN REGION II OF THE SPENT FUEL PIT

<u>Initial w/o</u>	<u>Discharge Burnup MWD/MTU</u>
1.6	0.0
1.80	3706
2.00	7459
2.20	9724
2.40	12582
2.60	15338
2.63	15914
2.80	17994
3.00	20548
3.25	23312
3.40	25354
3.60	27605
3.88	30256
4.00	31804
4.20	33752
4.40	35599
4.50	36746

Linear interpolation between values may be used for intermediate points.

### 3/4.10 SPECIAL TEST EXCEPTIONS

#### 3/4.10.1 SHUTDOWN MARGIN

##### LIMITING CONDITION FOR OPERATION

---

3.10.1 The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 may be suspended for measurement of control rod worth and SHUTDOWN MARGIN provided reactivity equivalent to at least the highest estimated control rod worth is available for trip insertion from OPERABLE control rod(s).

APPLICABILITY: MODE 2.

ACTION:

- a. With any full-length control rod not fully inserted and with less than the above reactivity equivalent available for trip insertion, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.
- b. With all full-length control rods fully inserted and the reactor subcritical by less than the above reactivity equivalent, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.

##### SURVEILLANCE REQUIREMENTS

---

4.10.1.1 The position of each full-length control rod either partially or fully withdrawn shall be determined at least once per 2 hours.

4.10.1.2 Each full-length control rod not fully inserted shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position within 7 days prior to reducing the SHUTDOWN MARGIN to less than the limits of Specification 3.1.1.1.

## SPECIAL TEST EXCEPTIONS

### 3/4.10.2 GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

#### LIMITING CONDITION FOR OPERATION

---

3.10.2 The group height, insertion, and power distribution limits of Specifications 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.1, and 3.2.4 may be suspended during the performance of PHYSICS TESTS provided:

- a. The THERMAL POWER is maintained less than or equal to 85% of RATED THERMAL POWER, and
- b. The limits of Specifications 3.2.2 and 3.2.3 are maintained and determined at the frequencies specified in Specification 4.10.2.2 below.

APPLICABILITY: MODE 1.

#### ACTION:

With any of the limits of Specification 3.2.2 or 3.2.3 being exceeded while the requirements of Specifications 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.1, and 3.2.4 are suspended, either:

- a. Reduce THERMAL POWER sufficient to satisfy the ACTION requirements of Specifications 3.2.2 and 3.2.3, or
- b. Be in HOT STANDBY within 6 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.10.2.1 The THERMAL POWER shall be determined to be less than or equal to 85% of RATED THERMAL POWER at least once per hour during PHYSICS TESTS.

4.10.2.2 The requirements of the below listed specifications shall be performed at least once per 12 hours during PHYSICS TESTS:

- a. Specifications 4.2.2.1 and 4.2.2.5, and
- b. Specification 4.2.3.3.

## SPECIAL TEST EXCEPTIONS

### 3/4.10.3 PHYSICS TESTS

#### LIMITING CONDITION FOR OPERATION

---

3.10.3 The limitations of Specifications 3.1.1.3, 3.1.1.4, 3.1.3.1, 3.1.3.5, and 3.1.3.6 may be suspended during the performance of PHYSICS TESTS provided:

- a. The THERMAL POWER does not exceed 5% of RATED THERMAL POWER,
- b. The Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range channels are set at less than or equal to 25% of RATED THERMAL POWER, and
- c. The Reactor Coolant System lowest operating loop temperature ( $T_{avg}$ ) is greater than or equal to 531°F.

APPLICABILITY: MODE 2.

#### ACTION:

- a. With the THERMAL POWER greater than 5% of RATED THERMAL POWER, immediately open the Reactor trip breakers.
- b. With a Reactor Coolant System operating loop temperature ( $T_{avg}$ ) less than 531°F, restore  $T_{avg}$  to within its limit within 15 minutes or be in at least HOT STANDBY within the next 15 minutes.

#### SURVEILLANCE REQUIREMENTS

---

4.10.3.1 The THERMAL POWER shall be determined to be less than or equal to 5% of RATED THERMAL POWER at least once per hour during PHYSICS TESTS.

4.10.3.2 Each Intermediate and Power Range channel shall be subjected to an ANALOG CHANNEL OPERATIONAL TEST within 12 hours prior to initiating PHYSICS TESTS.

4.10.3.3 The Reactor Coolant System temperature ( $T_{avg}$ ) shall be determined to be greater than or equal to 531°F at least once per 30 minutes during PHYSICS TESTS.

3/4.10.4 (This specification number is not used)

## SPECIAL TEST EXCEPTIONS

### 3/4.10.5 POSITION INDICATION SYSTEM - SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.10.5 The limitations of Specification 3.1.3.3 may be suspended during the performance of individual full-length shutdown and control rod drop time measurements provided;

- a. Only one shutdown or control bank is withdrawn from the fully inserted position at a time, and
- b. The rod position indicator is OPERABLE during the withdrawal of the rods.

APPLICABILITY: MODES 3, 4, and 5 during performance of rod drop time measurements.

#### ACTION:

With the Position Indication Systems inoperable or with more than one bank of rods withdrawn, immediately open the Reactor trip breakers.

#### SURVEILLANCE REQUIREMENTS

---

4.10.5 The above required Position Indication Systems shall be determined to be OPERABLE within 24 hours prior to the start of and at least once per 24 hours thereafter during rod drop time measurements by verifying the Demand Position Indication System and the Analog Rod Position Indication System agree:

- a. Within 12 steps when the rods are stationary, and
- b. Within 24 steps during rod motion.

## 5.0 DESIGN FEATURES

---

### 5.1 SITE

5.1.1 The site is approximately 25 miles south of Miami, 8 miles east of Florida City, and 9 miles southeast of Homestead, Florida

### 5.2 CONTAINMENT

#### CONFIGURATION

5.2.1 The containment building is a steel-lined, reinforced concrete building of cylindrical shape, with a dome roof and having the following design features:

- a. Nominal inside diameter = 116 feet.
- b. Nominal inside height = 170.6 feet.
- c. Minimum thickness of concrete walls = 3.75 feet.
- d. Minimum thickness of concrete roof = 3.25 feet.
- e. Minimum thickness of concrete floor pad = 10.5 feet.
- f. Nominal thickness of steel liner = 0.25 inches.
- g. Nominal net free volume = 1,550,000 cubic feet.

#### DESIGN PRESSURE AND TEMPERATURE

5.2.2 The containment building is designed and shall be maintained for a maximum internal pressure of 55 psig and a temperature of 283°F. The containment building is also structurally designed to withstand an internal vacuum of 2.5 psig.

## DESIGN FEATURES

---

### 5.3 REACTOR CORE

#### FUEL ASSEMBLIES

5.3.1 The core shall contain 157 fuel assemblies with each fuel assembly containing 204 fuel rods clad with Zircaloy-4 or ZIRLO<sup>™</sup>, except that replacement of fuel rods by filler rods consisting of | stainless steel, or by vacant rod positions, may be made in fuel assemblies if justified by cycle-specific reload analysis using NRC-approved methodology. The reactor core contains approximately 71 metric tons of uranium in the form of natural or slightly enriched uranium dioxide pellets. Each fuel rod shall have a nominal active fuel length of 144 inches. Should more than 30 individual rods in the core, or 10 fuel rods in any fuel assembly, be replaced per refueling, a Special Report discussing the rod replacements shall be submitted to the Commission within 30 days after cycle startup.

#### CONTROL ROD ASSEMBLIES

5.3.2 The core shall contain 45 full-length control rod assemblies. The full-length control rod assemblies shall contain a nominal 142 inches of absorber material. The absorber material shall be silver, indium, and cadmium. All control rods shall be clad with stainless steel tubing.

### 5.4 REACTOR COOLANT SYSTEM

#### DESIGN PRESSURE AND TEMPERATURE

- 5.4.1 The Reactor Coolant System is designed and shall be maintained:
- a. In accordance with the Code requirements specified in Section 4.1 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
  - b. For a pressure of 2485 psig  $\pm$  1%, and
  - c. For a temperature of 650°F, except for the pressurizer which is 680°F.

#### VOLUME

5.4.2 The nominal water and steam volume of the Reactor Coolant System is 9343 cubic feet at a nominal  $T_{avg}$  of 574.2°F.

## DESIGN FEATURES

---

### 5.5 FUEL STORAGE

#### 5.5.1 CRITICALITY

5.5.1.1 The spent fuel storage racks are designed to provide safe subcritical storage of fuel assemblies by providing sufficient center-to-center spacing or a combination of spacing and poison and shall be maintained with:

- a.  $k_{eff}$  equivalent to less than 1.0 when flooded with unborated water, which includes a conservative allowance for uncertainties as described in WCAP-14416-P.
- b. A  $k_{eff}$  equivalent to less than or equal to 0.95 when flooded with borated to 650 ppm water, which includes a conservative allowance for uncertainties as described in WCAP-14416-P.
- c. A nominal 10.6 inch center-to-center distance for Region I and 9.0 inch center-to-center distance for Region II for two region fuel storage racks.
- d. The maximum enrichment loading for fuel assemblies is 4.5 weight percent of U-235.

5.5.1.2 The racks for new fuel storage are designed to store fuel in a safe subcritical array and shall be maintained with:

- a. A nominal 21 inch center-to-center spacing to assure  $k_{eff}$  equal to or less than 0.98 for optimum moderation conditions and equal to or less than 0.95 for fully flooded conditions.
- b. Fuel assemblies placed in the New Fuel Storage Area shall contain no more than 4.5 weight percent of U-235.

## DESIGN FEATURES

---

5.5.1.3 Credit for burnup is taken in determining placement locations for spent fuel in the two-region spent fuel racks. Administrative controls are employed to evaluate the burnup of each spent fuel assembly stored in areas where credit for burnup is taken. The burnup of spent fuel is ascertained by careful analysis of burnup history, prior to placement into the storage locations. Procedures shall require an independent check of the analysis of suitability for storage. A complete record of such analysis is kept for the time period that the spent fuel assembly remains in storage onsite.

### DRAINAGE

5.5.2 The spent fuel storage pit is designed and shall be maintained to prevent inadvertent draining of the pool below a level of 6 feet above the fuel assemblies in the storage racks.

### CAPACITY

5.5.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1404 in two region storage racks

## 5.6 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.6.1 The components identified in Table 5.6-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.6-1.

TABLE 5.6-1

COMPONENT CYCLIC OR TRANSIENT LIMITS

<u>COMPONENT</u>	<u>CYCLIC OR TRANSIENT LIMIT</u>	<u>DESIGN CYCLE OR TRANSIENT</u>
Reactor Coolant System	200 heatup cycles at $\leq 100^\circ\text{F/h}$ and 200 cooldown cycles at $\leq 100^\circ\text{F/h}$ .	Heatup cycle - $T_{\text{avg}}$ from $\leq 200^\circ\text{F}$ to $\geq 550^\circ\text{F}$ . Cooldown cycle - $T_{\text{avg}}$ from $\geq 550^\circ\text{F}$ to $\leq 200^\circ\text{F}$ .
	200 pressurizer cooldown cycles at $\leq 200^\circ\text{F/h}$ .	Pressurizer cooldown cycle temperatures from $\geq 650^\circ\text{F}$ to $\leq 200^\circ\text{F}$ .
	80 loss of load cycles, without immediate Turbine or Reactor trip.	$\geq 15\%$ of RATED THERMAL POWER to 0% of RATED THERMAL POWER.
	40 cycles of loss-of-offsite A.C. electrical power.	Loss-of-offsite A.C. electrical ESF Electrical System.
	80 cycles of loss of flow in one reactor coolant loop.	Loss of only one reactor coolant pump.
	400 Reactor trip cycles.	100% to 0% of RATED THERMAL POWER.
	150 leak tests.	Pressurized to $\geq 2435$ psig.
Secondary Coolant System	5 hydrostatic pressure tests.	Pressurized to $\geq 3100$ psig.
	6 loss of secondary pressure	Loss of Secondary pressure
	50 leak tests	Pressurized to $\geq 1085$ psig
	35 hydrostatic pressure tests.	Pressurized to $\geq 1356$ psig.

TURKEY POINT - UNITS 3 & 4

5-5

AMENDMENT NOS.

AND

**SECTION 6.0**  
**ADMINISTRATIVE CONTROLS**

## ADMINISTRATIVE CONTROLS

---

### 6.1 RESPONSIBILITY

6.1.1 The Plant General Manager shall be responsible for overall unit operation of both units and shall delegate in writing the succession to this responsibility during his absence.

6.1.2 The Nuclear Plant Supervisor (or during his absence from the control room, a designated individual) shall be responsible for the control room command function. A management directive to this effect, signed by the Site Vice President shall be reissued to all station personnel on an annual basis.

### 6.2 ORGANIZATION

#### ONSITE AND OFFSITE ORGANIZATION

6.2.1 An onsite and an offsite organization shall be established for facility operation and corporate management. The onsite and offsite organization shall include the positions for activities affecting the safety of the nuclear power plant.

- a. Lines of authority, responsibility and communication shall be established and defined from the highest management levels through intermediate levels to, and including all operating organization positions. Those relationships shall be documented and updated, as appropriate, in the form of organizational charts. These organizational charts will be documented in the Topical Quality Assurance Report and updated in accordance with 10 CFR 50.54(a)(3).
- b. The Chief Nuclear Officer shall have corporate responsibility for overall plant nuclear safety, and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure nuclear safety.
- c. The Plant General Manager shall be responsible for overall plant safe operation and shall have control over those onsite activities necessary for safe operation and maintenance of the plant.
- d. Although the individuals who train the operating staff and those who carry out the quality assurance functions may report to the appropriate manager onsite, they shall have sufficient organizational freedom to be independent from operating pressures.
- e. Although health physics individuals may report to any appropriate manager onsite, for matters relating to radiological health and safety of employees and the public, the Health Physics Supervisor shall have direct access to that onsite individual having responsibility for overall unit management. Health physics personnel shall have the authority to cease any work activity when worker safety is jeopardized or in the event of unnecessary personnel radiation exposures.

## ADMINISTRATIVE CONTROLS

---

### PLANT STAFF

6.2.2 The plant organization shall be subject to the following:

- a. Each on-duty shift shall be composed of at least the minimum shift crew composition shown in Table 6.2-1;
- b. At least one licensed Operator shall be in the control room when fuel is in either reactor.
- c. At least two licensed Operators shall be present in the control room during reactor startup, scheduled reactor shutdown and during recovery from reactor trips. In addition, while either unit is in MODE 1, 2, 3, or 4, at least one licensed Senior Operator shall be in the control room;
- d. A Health Physics Technician\* shall be on site when fuel is in the reactor;
- e. All CORE ALTERATIONS shall be observed and directly supervised by either a licensed Senior Operator or licensed Senior Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation; and
- f. DELETED
- g. DELETED
- h. The Operations Supervisor shall hold a Senior Reactor Operator License.
- i. The Operations Manager shall either:
  1. hold or have held a Senior Reactor Operator License on the Turkey Point Plant; or,
  2. have held a Senior Reactor Operator License on a similar plant (i.e., another pressurized water reactor); or
  3. have completed the Turkey Point Plant Senior Management Operations Training Course. (i.e., certified at an appropriate simulator for equivalent senior operator knowledge level.)

---

\* The Health Physics Technician composition may be less than the minimum requirements for a period of time not to exceed 2 hours, in order to accommodate unexpected absence, provided immediate action is taken to fill the required positions.

**ADMINISTRATIVE CONTROLS**

**TABLE 6.2-1**

**MINIMUM SHIFT CREW COMPOSITION**

POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION		
	BOTH UNITS IN MODE 1, 2, 3, or 4	BOTH UNITS IN MODE 5 or 6 OR DEFUELED	ONE UNIT IN MODE 1, 2, 3, or 4 AND ONE UNIT IN MODE 5 or 6 or DEFUELED
NPS	1	1	1
SRO	1	none**	1
RO	3*	2*	3*
AO	3*	3*	3*
STA	1***	none	1***

NPS - Nuclear Plant Supervisor with a Senior Operator license

SRO - Individual with a Senior Operator license

RO - Individual with an Operator license

AO - Auxiliary Operator

STA - Shift Technical Advisor

The shift crew composition may be one less than the minimum requirements of Table 6.2-1 for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 6.2-1. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

During any absence of the Nuclear Plant Supervisor from the control room while a unit is in MODE 1, 2, 3, or 4, an individual (other than the Shift Technical Advisor) with a valid Senior Operator license shall be designated to assume the control room command function. During any absence of the Nuclear Plant Supervisor from the control room while both units are in MODE 5 or 6, an individual with a valid Senior Operator license or Operator license shall be designated to assume the control room command function.

\* At least one of the required individuals must be assigned to the designated position for each unit.

\*\* At least one licensed Senior Operator or licensed Senior Operator Limited to Fuel Handling must be present during CORE ALTERATIONS on either unit, who has no other concurrent responsibilities.

\*\*\* The STA position may be filled by the Nuclear Plant Supervisor or an individual with a Senior Operator license who meets the 1985 NRC Policy Statement on Engineering Expertise on Shift.

## ADMINISTRATIVE CONTROLS

---

### 6.2.3 SHIFT TECHNICAL ADVISOR

6.2.3.1 The Shift Technical Advisor shall provide advisory technical support in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit and the opposite unit. The Shift Technical Advisor shall have a bachelor's degree or equivalent in a scientific or engineering discipline and shall meet the qualifications specified by the 1985 NRC Policy Statement on Engineering Expertise on Shift.

### 6.3 FACILITY STAFF QUALIFICATIONS

6.3.1 Each member of the facility staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for

6.3.1.1 The Health Physics Supervisor who shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

6.3.1.2 The Operations Manager whose requirement for a Senior Reactor Operator License is as stated in Specification 6.2.2.i.

6.3.1.3 The licensed Operators and Senior Operators who shall also meet or exceed the minimum qualifications of the supplemental requirements specified in 10 CFR Part 55, and ANSI 3.1, 1981.

6.3.1.4 The Multi-Discipline Supervisors who shall meet or exceed the following requirements:

- a. Education: Minimum of a high school diploma or equivalent
- b. Experience: Minimum of four years of related technical experience, which shall include three years power plant experience of which one year is at a nuclear power plant
- c. Training: Complete the Multi-Discipline Supervisor training program

6.3.2 When the Health Physics Supervisor does not meet the above requirements, compensatory action shall be taken which the Plant Nuclear Safety Committee determines and the NRC office of Nuclear Reactor Regulation concurs that the action meets the intent of Specification 6.3.1.

6.4 Deleted

6.5 Deleted

## ADMINISTRATIVE CONTROLS

---

### 6.6 DELETED

### 6.7 SAFETY LIMIT VIOLATION

6.7.1 The following actions shall be taken in the event a Safety Limit is violated:

- a. In accordance with 10 CFR 50.72, the NRC Operations Center, shall be notified by telephone as soon as practical and in all cases within one hour after the violation has been determined. The Chief Nuclear Officer, and the Company Nuclear Review Board (CNRB) shall be notified within 24 hours. |
- b. A Licensee Event Report shall be prepared in accordance with 10 CFR 50.73.
- c. The License Event Report shall be submitted to the Commission in accordance with 10 CFR 50.73, and to the CNRB, and the Chief Nuclear Officer within 30 days after discovery of the event. |
- d. Critical operation of the unit shall not be resumed until authorized by the Nuclear Regulatory Commission.

## ADMINISTRATIVE CONTROLS

---

### 6.8 PROCEDURES AND PROGRAMS

6.8.1 Written procedures shall be established, implemented, and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, Sections 5.1 and 5.3 of ANSI N18 .7-1972;
- b. The emergency operating procedures required to implement the requirements of NUREG-0737 and Supplement 1 to NUREG-0737 as stated in Generic Letter No. 82-33;
- c. PROCESS CONTROL PROGRAM implementation;
- d. OFFSITE DOSE CALCULATION MANUAL implementation;
- e. Quality Control Program for effluent monitoring using the guidance in Regulatory Guide 1.21, Revision 1, June 1974;
- f. Facility Fire Protection Program;
- g. Quality Control Program for environmental monitoring using the guidance in Regulatory Guide 4.1, Revision 1, April 1975; and
- h. Diesel Fuel Oil Testing Program implementation.

6.8.2 DELETED

6.8.3 DELETED

## ADMINISTRATIVE CONTROLS

---

### PROCEDURES AND PROGRAMS (Continued)

6.8.4 The following programs shall be established, implemented, and maintained:

a. Primary Coolant Sources Outside Containment

A program to reduce leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. The systems include the Safety Injection System, Chemical and Volume Control System, and the Containment Spray System. The program shall include the following:

- (1) Preventive maintenance and periodic visual inspection requirements, and
- (2) Integrated leak test requirements for each system at refueling cycle intervals or less.

b. DELETED

c. Secondary Water Chemistry

A program for monitoring of secondary water chemistry to inhibit steam generator tube degradation. This program shall include:

- (1) Identification of a sampling schedule for the critical variables and control points for these variables,
- (2) Identification of the procedures used to measure the values of the critical variables,

## ADMINISTRATIVE CONTROLS

---

### PROCEDURES AND PROGRAMS (Continued)

- (3) Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in-leakage,
- (4) Procedures for the recording and management of data,
- (5) Procedures defining corrective actions for all off-control point chemistry conditions, and
- (6) A procedure identifying: (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective action.

d. **DELETED**

e. **Diesel Fuel Oil Testing Program**

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

- a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
  1. An API Gravity or an absolute specific gravity within limits,
  2. a flash point and kinematic viscosity within limits for Grade No. 2-D fuel oil per ASTM D975, and
  3. a clear and bright appearance with proper color;
- b. Other properties for Grade No. 2-D fuel oil per ASTM D975 are within limits within 30 days following sampling and addition to storage tanks; and
- c. Total particulate concentration of the fuel oil is  $\leq 10$  mg/liter when tested every 31 days in accordance with either ASTM D-2276 or ASTM D-5452.

## ADMINISTRATIVE CONTROLS

---

### PROCEDURES AND PROGRAMS (Continued)

f. Radioactive Effluent Controls Program

This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

1. Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM;
2. Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS, conforming to ten times the 10 CFR 20, Appendix B, Table 2, Column 2 limits;
3. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;
4. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS, conforming to 10 CFR 50, Appendix I;
5. Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;
6. Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2 percent of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;
7. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary to 500 mrem per year to the whole body, 3000 mrem per year to the skin and 1500 mrem per year to any organ from iodine 131, iodine 133 tritium and all radionuclides in particulate form with half live greater than 8 days.
8. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY, conforming to 10 CFR §50, Appendix I;

## ADMINISTRATIVE CONTROLS

### PROCEDURES AND PROGRAMS (Continued)

9. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives greater than 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;
10. Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

g. Deleted

h. Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, and as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, as modified by the following deviations or exemptions:

- 1) Type A tests will be performed either in accordance with Bechtel Topical Report BN-TOP-1, Revision 1, dated November 1, 1972, or the guidelines of Regulatory Guide 1.163.
- 2) Type A testing frequency in accordance with NEI 94-01, Revision 0, Section 9.2.3, except:
  - a) For Unit 3, the first Type A test performed after the November 1992 Type A test shall be performed no later than November 2007.
  - b) For Unit 4, the first Type A test performed after October 1991 shall be performed no later than October 2006.
- 3) A vacuum test will be performed in lieu of a pressure test for airlock door seals at the required intervals (Amendment Nos. 73 and 77, issued by NRC November 11, 1981).

The peak calculated containment interval pressure for the design basis loss of coolant accident,  $P_a$ , is 49.9 psig.

The maximum allowable containment leakage rate,  $L_a$ , at  $P_a$ , shall be 0.25% of containment air weight per day.

## ADMINISTRATIVE CONTROLS

### PROCEDURES AND PROGRAMS (Continued)

Leakage Rate acceptance criteria are:

- 1) The As-found containment leakage rate acceptance criterion is  $\leq 1.0 L_a$ . Prior to increasing primary coolant temperature above 200°F following testing in accordance with this program or restoration from exceeding 1.0  $L_a$ , the As-left leakage rate acceptance criterion is  $\leq 0.75 L_a$ , for Type A test.
- 2) The combined leakage rate for all penetrations subject to Type B or Type C testing is as follows:
  - The combined As-left leakage rates determined on a maximum pathway leakage rate basis for all penetrations shall be verified to be less than 0.60  $L_a$ , prior to increasing primary coolant temperature above 200°F following an outage or shutdown that included Type B and Type C testing only.
  - The As-found leakage rates, determined on a minimum pathway leakage rate basis, for all newly tested penetrations when summed with the As-left minimum pathway leakage rate leakage rates for all other penetrations shall be less than 0.6  $L_a$ , at all times when containment integrity is required.
- 3) Overall air lock leakage acceptance criteria is  $\leq 0.05 L_a$ , when pressurized to  $P_a$ .

The provisions of Specification 4.0.2 do not apply to the test frequencies contained within the Containment Leakage Rate Testing Program.

6.8.5 Administrative procedures shall be developed and implemented to limit the working hours of plant staff who perform safety-related functions, e.g. licensed Senior Operators, licensed Operators, health physicists, auxiliary operators, and key maintenance personnel. The procedures shall include guidelines on working hours that ensure that adequate shift coverage is maintained without routine heavy use of overtime for individuals.

Any deviation from the working hour guidelines shall be authorized by the applicable department manager or higher levels of management, in accordance with established procedures and with documentation of the basis for granting the deviation. Controls shall be included in the procedures such that individual overtime shall be reviewed monthly by the Plant General Manager or his designee to assure that excessive hours have not been assigned. Routine deviation from the working hour guidelines shall not be authorized.

## ADMINISTRATIVE CONTROLS

---

### 6.9 REPORTING REQUIREMENTS

#### ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, DC pursuant to 10 CFR 50.4.

#### STARTUP REPORT

6.9.1 .1 A summary report of plant startup and power escalation testing shall be submitted following: (1) receipt of an Operating License, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the unit.

The report shall address each of the tests identified in the FSAR and shall in general include a description of the measured values of the operating conditions of characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report. Subsequent Startup Reports shall address startup tests that are necessary to demonstrate the acceptability of changes and/or modifications.

Startup Reports shall be submitted within: (1) 90 days following completion of the Startup Test Program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of Startup Test Program, and resumption or commencement of commercial operation), supplementary reports shall be submitted at least every 3 months until all three events have been completed.

## **ANNUAL REPORTS\***

**6.9.1.2 Annual Reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year.**

**Reports required on an annual basis shall include:**

- a. A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) for whom monitoring was required, receiving annual deep dose equivalent exposures greater than 100 mrem/yr and their associated man-rem exposure according to work and job functions\*\* (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling). The dose assignments to various duty functions may be estimated based on pocket dosimeter, thermoluminescent dosimeter (TLD), or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total deep dose equivalent received from external sources should be assigned to specific major work functions;**
- b. The results of specific activity analyses in which the primary coolant exceeded the limits of Specification 3.4.8. The following information shall be included: (1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded (in graphic and tabular format); (2) Fuel burnup by core region; (3) Clean-up flow history starting 48 hours prior to the first sample in which the limit was exceeded; (4) History of degassing operations, if any, starting 48 hours prior to the first sample in which the limit was exceeded; and (5) The time duration when the specific activity of the primary coolant exceeded 1.0 microcurie per gram DOSE EQUIVALENT I-131.**

---

**\* A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.**

**\*\*This tabulation supplements the requirements of §20.2206 of 10 CFR Part 20.**

## ADMINISTRATIVE CONTROLS

---

### ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT\*

6.9.1.3 The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in (1) the Offsite Dose Calculation Manual (ODCM), and in (2) 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

### 6.9.1.4 RADIOACTIVE EFFLUENT RELEASE REPORT\*\*

The Radioactive Effluent Release Report covering the operation of the unit shall be submitted in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

### MONTHLY OPERATING REPORTS

6.9.1.5 Routine reports of operating statistics and shutdown experience, including documentation of all challenges to the PORVs or safety valves, shall be submitted on a monthly basis to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, with a copy to the Regional Administrator of the Regional Office of the NRC, no later than the 15th of each month following the calendar month covered by the report.

---

\* A single submittal may be made for a multiple unit station.

\*\*A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

## ADMINISTRATIVE CONTROLS

### PEAKING FACTOR LIMIT REPORT

6.9.1.6 The  $W(Z)$  function(s) for Base-Load Operation corresponding to a  $\pm 2\%$  band about the target flux difference and/or a  $\pm 3\%$  band about the target flux difference, the Load-Follow function  $F_z(Z)$  and the augmented surveillance turnon power fraction  $P_T$  shall be provided to the U.S. Nuclear Regulatory Commission, whenever  $P_T$  is  $<1.0$ . In the event, the option of Baseload Operation (as defined in Section 4.2.2.3) will not be exercised, the submission of the  $W(Z)$  function is not required. Should these values (i.e.,  $W(Z)$ ,  $F_z(Z)$  and  $P_T$ ) change requiring a new submittal or an amended submittal to the Peaking Factor Limit Report, the Peaking Factor Limit Report shall be provided to the NRC Document Control desk with copies to the Regional Administrator and the Resident Inspector within 30 days of their implementation unless otherwise approved by the Commission.

The analytical methods used to generate the Peaking Factor limits shall be those previously reviewed and approved by the NRC. If changes to these methods are deemed necessary they will be evaluated in accordance with 10 CFR 50.59 and submitted to the NRC for review and approval prior to their use if the change is determined to involve an unreviewed safety question or if such a change would require amendment of previously submitted documentation.

### CORE OPERATING LIMITS REPORT

6.9.1.7 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT (COLR) before each reload cycle or any remaining part of a reload cycle for the following:

1. Axial Flux Difference for Specification 3.2.1.
2. Control Rod Insertion Limits for Specification 3.1.3.6.
3. Heat Flux Hot Channel Factor -  $F_Q(Z)$  for Specification 3/4.2.2.
4. All Rods Out position for Specification 3.1.3.2.
5. Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3

The analytical methods used to determine the AFD limits shall be those previously reviewed and approved by the NRC in:

1. WCAP-10216-P-A, RELAXATION OF CONSTANT AXIAL OFFSET CONTROL  $F_Q$  SURVEILLANCE TECHNICAL SPECIFICATION," June 1983.
2. WCAP-8385, "POWER DISTRIBUTION CONTROL AND LOAD FOLLOWING PROCEDURES - TOPICAL REPORT," September 1974.

The analytical methods used to determine  $F_Q(Z)$ ,  $F_{\Delta H}$  and the  $K(Z)$  curve shall be those previously reviewed and approved by the NRC in:

1. WCAP-9220-P-A, Rev. 1, "Westinghouse ECCS Evaluation Model - 1981 Version," February 1982.
2. WCAP-10054-P-A, (proprietary), "Westinghouse Small Break ECCS Evaluation Mode/Using the NOTRUMP Code," August 1985.

## ADMINISTRATIVE CONTROLS

3. WCAP-10054-P, Addendum 2, Revision 1 (proprietary), "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection in the Broken Loop and Improved Condensation Model," October 1995.\*
4. WCAP-12945-P, "Westinghouse Code Qualification Document For Best Estimate LOCA Analysis," Volumes I-V, June 1996.\*\*
5. USNRC Safety Evaluation Report, Letter from R. C. Jones (USNRC) to N. J. Liparulo (W), "Acceptance for Referencing of the Topical Report WCAP-12945(P) 'Westinghouse Code Qualification Document for Best Estimate Loss of Coolant Analysis,'" June 28, 1996.\*\*
6. Letter dated June 13, 1996, from N. J. Liparulo (W) to Frank R. Orr (USNRC), "Re-Analysis Work Plans Using Final Best Estimate Methodology."\*\*\*
7. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," S. L. Davidson and T. L. Ryan, April 1995.

The analytical methods used to determine Rod Bank Insertion Limits and the All Rods Out position shall be those previously reviewed and approved by the NRC in:

1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.

The ability to calculate the COLR nuclear design parameters are demonstrated in:

1. Florida Power & Light Company Topical Report NF-TR-95-01, "Nuclear Physics Methodology for Reload Design of Turkey Point & St. Lucie Nuclear Plants."

Topical Report NF-TR-95-01 was approved by the NRC for use by Florida Power & Light Company in:

1. Safety Evaluation by the Office of Nuclear Reactor Regulations Related to Amendment No. 174 to Facility Operating License DPR-31 and Amendment No. 168 to Facility Operating License DPR-41, Florida Power & Light Company Turkey Point Units 3 and 4, Docket Nos. 50-250 and 50-251.

The AFD,  $F_o(Z)$ ,  $F_{\Delta H}$ ,  $K(Z)$ , and Rod Bank Insertion Limits shall be determined such that all applicable limits of the safety analyses are met. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector, unless otherwise approved by the Commission.

## SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Regional Administrator of the Regional Office of the NRC within the time period specified for each report as stated in the Specifications within Sections 3.0, 4.0, or 5.0.

---

\* This reference is only to be used subsequent to NRC approval.

\*\*As evaluated in NRC Safety Evaluation dated December 20, 1997.

## ADMINISTRATIVE CONTROLS

---

### 6.10 DELETED

### 6.11 DELETED

### 6.12 HIGH RADIATION AREA

6.12.1 Pursuant to paragraph 20.1601(c) of 10 CFR Part 20, in lieu of the "control device" or "alarm signal" required by paragraph 20.1601(a), each high radiation area, as defined in 10 CFR Part 20, in which the intensity of radiation is greater than 100 mrem/hr but equal to or less than 1000 mrem/hr at 30 cm (12 in.) from the radiation source or from any surface which the radiation penetrates shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., Health Physics Technician) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates equal to or less than 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area; or
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel have been made knowledgeable of them; or
- c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the Health Physics Shift Supervisor in the RWP.

6.12.2 In addition to the requirements of Specification 6.12.1, areas accessible to personnel with radiation levels greater than 1000 mrem/hr at 30 cm (12 in.) and less than 500 rads/hr at 1 meter from the radiation source or from any surface which the radiation penetrates shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the shift supervisor on duty and/or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work areas and the maximum allowable stay time for individuals in that area. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

## ADMINISTRATIVE CONTROLS

For individual high radiation areas accessible to personnel with radiation levels of greater than 1000 mrem/hr and less than 500 rads/hr that are located within large areas, such as PWR containment, where no enclosure exists for purposes of locking, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded, conspicuously posted, and a flashing light shall be activated as a warning device.

### 6.13 DELETED

### 6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

#### 6.14.1 The ODCM shall contain the following:

- a. The methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the Radiological Environmental Monitoring Program; and
- b. The radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Annual Radioactive Effluent Release Reports required by Specification 6.9.1.3 and Specification 6.9.1.4.

#### 6.14.2 Licensee initiated changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:
  1. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and
  2. A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after approval of the Plant General Manager; and
- c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

**APPENDIX B**

**TO RENEWED FACILITY OPERATING LICENSE NOS. DPR-31 and DPR-41**

**TURKEY POINT NUCLEAR GENERATING UNITS NOS. 3 AND 4**

**ENVIRONMENTAL PROTECTION PLAN (EPP)**

**(NON-RADIOLOGICAL)**

## **1.0 Objectives of the Environmental Protection Plan**

The objective of the Environmental Protection Plan (EPP) is to provide for protection of the environment at the Turkey Point Plant and immediate adjacent areas.

The principle objectives of the EPP are to:

- 1. Aid in determining that the plant is operated in an environmentally acceptable manner, as established by NRC environmental impact assessments.**
- 2. Provide for review of NRC requirements to maintain consistency with other Federal and State requirements for environmental protection.**
- 3. Keep NRC informed of any significant environmental impacts due to facility operation and of actions taken in response to any impacts.**

Environmental concerns which relate to any water quality and biological monitoring matters will be regulated by way of EPA through the licensee's National Pollutant Discharge Elimination System (NPDES) permit.

## **2.0 Environmental Protection Issues**

With assumption of aquatic monitoring programs by U.S. Environmental Protection Agency (EPA) through the NPDES program, NRC will rely on EPA for resolution of issues involving the monitoring of water quality and biological monitoring programs.

### **3.0 Consistency Requirements**

#### **3.1 Facility Design and Operation**

The licensee may make changes in facility design or operation or perform tests or experiments affecting the environment provided such changes, tests or experiments do not involve an unreviewed environmental question. Changes in plant design or operation or performance of tests or experiments which do not significantly affect the environment are not subject to this requirement.

Before engaging in construction or operational activities which may significantly affect the environment, the licensee shall perform an environmental evaluation of such activity.\* When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activities and obtain prior approval from the NRC.

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns a matter which may result in significant adverse environmental impact

The licensee shall maintain records of changes in facility design or operation and of tests and experiments carried out pursuant to this Subsection. These records shall include a written evaluation which provides bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question.

---

\* Activities are excluded from this requirement if all measurable nonradiological effects are confined to the on-site areas previously disturbed during site preparation, plant construction and previous plant operation.

Activities governed by Section 3.3 of this EPP are not subject to the requirements of section 3.1.

**3.2 Reporting Related to the NPDES Permit and State 401 Certification**

1. Violations of the NPDES Permit or the State 401 Certification Conditions shall be reported to the NRC by submittal of copies of the reports required by the NPDES Permit or State 401 Certification.
2. Changes and additions to the NPDES Permit or the State 401 Certification shall be reported to the NRC within 30 days following the date the change is approved. If a permit or certification, in part or in its entirety, is appealed and stayed, the NRC shall be notified within 30 days following the date the stay is granted.
3. The NRC shall be notified of changes to the effective NPDES Permit proposed by the licensee by providing NRC with a copy of the proposed change at the same time it is submitted to the permitting agency. The licensee shall provide the NRC a copy of the application for renewal of the NPDES Permit at the same time the application is submitted to the permitting agency.

**3.3 Changes Required For Compliance With Other Environmental Regulations**

Changes in facility design or operation and performance of tests or experiments

which are required to achieve compliance with other Federal, State, or local environmental regulations are not subject to the requirements of Section 3.1.

#### **4.0 Administrative Procedures**

##### **4.1 Review and Audit**

The licensee shall provide for review and audit of compliance with the Environmental Protection Plan. The audits shall be conducted independently of the individual or groups responsible for performing the specific activity. A description of the organization structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

##### **4.2 Records Retention**

Records and logs relative to the environmental aspects of facility operation which have significant environmental impact shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to NRC on request.

Records of modifications to plant structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the facility. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

### **4.3 Changes in Environmental Protection Plan**

Request for change in the Environmental Protection Plan shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence prior to NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the Environmental Protection Plan.

### **5.0 Facility Reporting Requirements**

**5.1** A written report shall be submitted to the NRC within 30 days of occurrence of any event having significant environmental impact. The report shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and facility operating characteristics, (b) describe the probable cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (e) indicate the agencies notified.

Events reportable under this subsection which also require reports to other Federal, State or local agencies shall be reported in accordance with those reporting requirements in lieu of the requirements of this subsection. The NRC shall be provided a copy of such report within 10 working days of the time it is submitted to the other agency.

## **5.2 Unusual or Important Environmental Events**

**Any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to facility operation shall be recorded and promptly reported to the NRC within 5 working days followed by a written report within 30 days. No routine monitoring programs are required to implement this condition.**