ATTACHMENT 2

Waterford Steam Electric Station
Operating License NPF-38

Operating Staff Experience Requirements

EOI shall have a licensed senior operator on each shift who has had at least six months of hot operating experience on a pressurized water reactor, including at least six weeks at power levels greater than 20% of full power, and who has had startup and shutdown experience. For those shifts where such an individual is not available on the plant staff, an advisor shall be provided who has had at least four years of power plant experience, including two years of nuclear plant experience, and who has had at least one year of experience on shift as a licensed senior operator at a similar type facility. Use of advisors who were licensed only at the RO level will be evaluated on a case-by-case basis. Advisors shall be trained on plant procedures, technical specifications and plant systems, and shall be examined on these topics at a level sufficient to assure familiarity with the plant. For each shift, the remainder of the shift crew shall be trained in the role of the advisors. Advisors, or fully trained and qualified replacements, shall be retained until the experience levels identified in the first sentence above have been achieved. The names of any replacement advisors shall be certified by EOI prior to these individuals being placed on shift. The NRC shall be notified at least 30 days prior to the date EOI proposes to release the advisors from further service.

Am. 60 12-14-89

Am. 60, 12-14-89

Am. 60 12-14-89

NUREG-1117

Technical Specifications
Waterford Steam Electric Station, Unit No. 3

Docket No. 50-382

Appendix "A" to
License No. NPF-38

**Issued by the
U.S. Nuclear Regulatory
Commission**

Office of Nuclear Reactor Regulation

March 1985

SECTION 1.0

DEFINITIONS

1.0 DEFINITIONS

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications.

ACTION

1.1 ACTION shall be that part of a specification which prescribes remedial measures required under designated conditions.

AXIAL SHAPE INDEX

1.2 The AXIAL SHAPE INDEX shall be the power generated in the lower half of the core less the power generated in the upper half of the core divided by the sum of these powers.

AZIMUTHAL POWER TILT - T_q

1.3 AZIMUTHAL POWER TILT shall be the power asymmetry between azimuthally symmetric fuel assemblies.

CHANNEL CALIBRATION

1.4 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping, or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.5 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

c. Digital computer channels - the exercising of the digital computer hardware using diagnostic programs and the injection of simulated process data into the channel to verify OPERABILITY including alarm and/or trip function.

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

a. All penetrations required to be closed during accident conditions are either:

 1. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

 2. Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.

b. All equipment hatches are closed and sealed,

c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,

d. The containment leakage rates are within the limits of Specification 3.6.1.2, and

e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

CONTROLLED LEAKAGE

1.8 CONTROLLED LEAKAGE shall be the seal water flow supplied from the reactor coolant pump seals.

CORE ALTERATION

1.9 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATION shall not preclude completion of movement of a component to a safe conservative position.

COLR - CORE OPERATING LIMITS REPORT

1.9a The CORE OPERATING LIMITS REPORT is the Waterford 3 specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Technical Specification 6.9.1.11. Plant operation within these operating limits is addressed in individual specifications.

DOSE EQUIVALENT I-131

1.10 DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in ICRP-30, Supplement to Part 1, Pages 192-212, Tables titled, "Committed Dose Equivalent in Target Organs or Tissue per Intake of Unit Activity."

$\bar{E}$ - AVERAGE DISINTEGRATION ENERGY

1.11 $\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half-lives greater than 15 minutes, making up at least 95% of the total noniodine activity in the coolant.

ENGINEERED SAFETY FEATURES RESPONSE TIME

1.12 The ENGINEERED SAFETY FEATURES RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable. The response time may be measured by any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

FREQUENCY NOTATION

1.13 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

IDENTIFIED LEAKAGE

1.14 IDENTIFIED LEAKAGE shall be:

a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured, and conducted to a sump or collecting tank, or

IDENTIFIED LEAKAGE (Continued)

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE, or

c. Reactor Coolant System leakage through a steam generator to the secondary system (primary to secondary leakage).

MEMBER(S) OF THE PUBLIC

1.15 MEMBER(S) OF THE PUBLIC means any individual except when that individual is receiving an occupational dose.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.16 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain 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/Trip Setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specification 6.9.1.7 and 6.9.1.8.

OPERABLE - OPERABILITY

1.17 A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s), and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing their related support function(s).

OPERATIONAL MODE - MODE

1.18 An OPERATIONAL MODE (i.e. MODE) shall correspond to any one inclusive combination of core reactivity condition, power level and average reactor coolant temperature specified in Table 1.2.

DEFINITIONS

PHYSICS TEST

1.19 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and (1) described in Chapter 14.0 of the FSAR, (2) authorized under the provisions of 10 CFR 50.59, or (3) otherwise approved by the Commission.

PLANAR RADIAL PEAKING FACTOR - Fxy

1.20 The PLANAR RADIAL PEAKING FACTOR is the ratio of the peak to plane average power density of the individual fuel rods in a given horizontal plane, excluding the effects of azimuthal tilt.

PRESSURE BOUNDARY LEAKAGE

1.21 PRESSURE BOUNDARY LEAKAGE shall be leakage (except primary to secondary leakage) through a non isolable fault in a Reactor Coolant System component body, pipe wall, or vessel wall.

PROCESS CONTROL PROGRAM (PCP)

1.22 The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, test, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, state regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

PURGE - PURGING

1.23 PURGE or PURGING shall be the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity,concentra- or other operating condition, in such a manner that replacement air or gas is required to purify the confinement.

RATED THERMAL POWER

1.24 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3716 MWt.

REACTOR TRIP SYSTEM RESPONSE TIME

1.25 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until electrical power is interrupted to the CEA drive mechanism. The response time may be measured by any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

REPORTABLE EVENT

1.26 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

SHIELD BUILDING INTEGRITY

1.27 SHIELD BUILDING INTEGRITY shall exist when:

a. Each door in each access opening is closed except when the access opening is being used for normal transit entry and exit, then at least one door shall be closed,

b. The shield building filtration system is in compliance with the requirements of Specification 3.6.6.1, and

c. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE.

SHUTDOWN MARGIN

1.28 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all control element assemblies are fully inserted except for the single assembly of highest reactivity worth which is assumed to be fully withdrawn.

SITE BOUNDARY

1.29 The SITE BOUNDARY shall be that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

SOFTWARE

1.30 The digital computer SOFTWARE for the reactor protection system shall be the program codes including their associated data, documentation, and procedures.

1.31 Definition 1.31 has been deleted.

SOURCE CHECK

1.32 A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of increased radioactivity.

1.33 Definition 1.33 has been deleted.

THERMAL POWER

1.34 THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

UNIDENTIFIED LEAKAGE

1.35 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.

UNRESTRICTED AREA

1.36 An UNRESTRICTED AREA shall be any area at or beyond the SITE BOUNDARY access to which is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, or any area within the SITE BOUNDARY used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes.

VENTILATION EXHAUST TREATMENT SYSTEM

1.37 A VENTILATION EXHAUST TREATMENT SYSTEM shall be any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal adsorbers and/or HEPA filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to the environment. Such a system is not considered to have any effect on noble gas effluents. Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

VENTING

1.38 VENTING shall be the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is not provided or required during VENTING. Vent, used in system names, does not imply a VENTING process.

WASTE GAS HOLDUP SYSTEM

1.39 A WASTE GAS HOLDUP SYSTEM shall be any system designed and installed to reduce radioactive gaseous effluents by collecting coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

INSERVICE TESTING PROGRAM

1.40 The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

TABLE 1.1

FREQUENCY NOTATION

NOTATION	FREQUENCY
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
P	Completed prior to each release.
Q	At least once per 92 days.
SA	At least once per 184 days.
R	At least once per 18 months.
S/U	Prior to each reactor startup.
N.A.	Not applicable.
SFCP	Surveillance Frequency Control Program

TABLE 1.2

OPERATIONAL MODES

OPERATIONAL MODE	REACTIVITY CONDITION, K_{eff}	% OF RATED THERMAL POWER*	AVERAGE COOLANT TEMPERATURE
1. POWER OPERATION	$\geq$ 0.99	> 5%	$\geq$ 350°F
2. STARTUP	$\geq$ 0.99	$\leq$ 5%	$\geq$ 350°F
3. HOT STANDBY	< 0.99	0	$\geq$ 350°F
4. HOT SHUTDOWN	< 0.99	0	350°F> T_{avg}>200°F
5. COLD SHUTDOWN	< 0.99	0	$\leq$ 200°F
6. REFUELING**	$\leq$ 0.95	0	$\leq$ 140°F

*Excluding decay heat.

**Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

SECTION 2.0

SAFETY LIMITS

AND

LIMITING SAFETY SYSTEM SETTINGS

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

2.1.1 REACTOR CORE

DNBR

2.1.1.1 The DNBR of the reactor core shall be maintained greater than or equal to 1.24.

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the DNBR of the reactor has decreased to less than 1.24, be in HOT STANDBY within 1 hour.

PEAK FUEL CENTERLINE TEMPERATURE

2.1.1.2 The peak fuel centerline temperature shall be maintained less than 5080°F (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-382-P-A.)

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the peak fuel centerline temperature has equaled or exceeded 5080°F (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-382-P-A), be in HOT STANDBY within 1 hour.

REACTOR COOLANT SYSTEM PRESSURE

2.1.2 The Reactor Coolant System pressure shall not exceed 2750 psia.

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

ACTION:

MODES 1 and 2

Whenever the Reactor Coolant System pressure has exceeded 2750 psia, be in HOT STANDBY with the Reactor Coolant System pressure within its limit within 1 hour.

MODES 3, 4, and 5

Whenever the Reactor Coolant System pressure has exceeded 2750 psia, reduce the Reactor Coolant System pressure to within its limit within 5 minutes.

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR TRIP SETPOINTS

2.2.1 The reactor protective instrumentation setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2-1.

APPLICABILITY: As shown for each channel in Table 3.3-1.

ACTION:

With a reactor protective instrumentation setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Linear Power Level - High		
Four Reactor Coolant Pumps Operating	≤ 108% of RATED THERMAL POWER	≤ 108.76% of RATED THERMAL POWER
3. Logarithmic Power Level - High (1)	≤ 0.257% of RATED THERMAL POWER (6)	≤ 0.280% of RATED THERMAL POWER (6)
4. Pressurizer Pressure - High	≤ 2350 psia	≤ 2359 psia
5. Pressurizer Pressure - Low	≥ 1684 psia (2)	≥ 1649.7 psia (2)
6. Containment Pressure - High	≤ 17.1 psia	≤ 17.4 psia
7. Steam Generator Pressure - Low	≥ 666 psia (3)	≥ 652.4 psia (3)
8. Steam Generator Level - Low	≥ 27.4% (4)	≥ 26.48% (4)
9. Local Power Density - High	≤ 21.0 kW/ft (5)	≤ 21.0 kW/ft (5)
10. DNBR - Low	≥ 1.26 (5)	≥ 1.26 (5)
11. DELETED		
12. Reactor Protection System Logic	Not Applicable	Not Applicable
13. Reactor Trip Breakers	Not Applicable	Not Applicable
14. Core Protection Calculators	Not Applicable	Not Applicable
15. CEA Calculators	Not Applicable	Not Applicable
16. Reactor Coolant Flow - Low	≥ 19.00 psid (7)	≥ 18.47 psid (7)

TABLE 2.2-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

TABLE NOTATIONS

(1) The operating bypass may be enabled above the 10^{-4}% bistable setpoint and shall be capable of automatic removal whenever the operating bypass is enabled and logarithmic power is below the 10^{-4}% bistable setpoint. Trip may be manually bypassed during physics testing pursuant to Special Test Exception 3.10.3.

(2) Value may be decreased manually, to a minimum of 100 psia, as pressurizer pressure is reduced, provided the margin between the pressurizer pressure and this value is maintained at less than or equal to 400 psi; the setpoint shall be increased automatically as pressurizer pressure is increased until the trip setpoint is reached. Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer pressure is greater than or equal to 500 psia.

(3) Value may be decreased manually as steam generator pressure is reduced, provided the margin between the steam generator pressure and this value is maintained at less than or equal to 200 psi; the setpoint shall be increased automatically as steam generator pressure is increased until the trip setpoint is reached.

(4) % of the distance between steam generator upper and low level instrument nozzles.

(5) As stored within the Core Protection Calculator (CPC). Calculation of the trip setpoint includes measurement, calculational and processor uncertainties, and dynamic allowances. The operating bypass may be enabled below the 10^{-4}% bistable setpoint and shall be capable of automatic removal whenever the operating bypass is enabled and logarithmic power is above the 10^{-4}% bistable setpoint. During testing pursuant to Special Test Exception 3.10.3, trip may be manually bypassed below 5% of RATED THERMAL POWER; the 10^{-4}% bistable setpoint may be changed to less than or equal 5% RATED THERMAL POWER to perform the automatic removal function.

(6) As measured by the Logarithmic Power Channels.

(7) The setpoint may be altered to disable trip function during testing pursuant to Specification 3.10.3.

TABLE 2.2-2

CORE PROTECTION CALCULATOR ADDRESSABLE CONSTANTS

I. TYPE I ADDRESSABLE CONSTANTS

POINT ID NUMBER	PROGRAM LABEL	DESCRIPTION	LOWER LIMITS	UPPER LIMITS
60	FC1	Core coolant mass flow rate calibration constant	.8	1.15
61	FC2	Core coolant mass flow rate calibration constant	0.0	0.0
62	CEANOP	CEAC/RSPT inoperable flag	*	*
63	TR	Azimuthal tilt allowance	1.02	1.4
64	TPC	Thermal power calibration constant	.7	1.3
65	KCAL	Neutron flux power calibration constant	0.0	2.0
66	DNBRPT	DNBR pretrip setpoint	1.25	5.0
67	LPDPT	Local power density pretrip setpoint	10.0	20.0

II. TYPE II ADDRESSABLE CONSTANTS

			LOWER LIMITS	UPPER LIMITS
68	BERR0	Thermal power uncertainty bias	**	**
69	BERR1	Power uncertainty factor used in DNBR calculation	**	**
70	BERR2	Power uncertainty bias used in DNBR calculation	**	**

*The CEAC/RSPT inoperable flag must have the value 0, 1, 2, or 3

**These shall be those established in accordance with CEN-197(C)-P, CPC/CEAC Software Modification for Waterford 3, March 1982.

Table 2.2-2 (Continued)

II. TYPE II ADDRESSABLE CONSTANTS			LOWER LIMITS	UPPER LIMITS
71	BERR2	Power uncertainty factor used in DNBR calculation	**	**
72	BERR4	Power uncertainty bias used in local power density calculation	**	**
73	EOL	End of life flag	**	**
74	ARM1	Multiplier for planar radial peaking factor	**	**
75	ARM2	Multiplier for planar radial peaking factor	**	**
76	ARM3	Multiplier for planar radial peaking factor	**	**
77	ARM4	Multiplier for planar radial peaking factor	**	**
78	ARM5	Multiplier for planar radial peaking factor	**	**
79	ARM6	Multiplier for planar radial peaking factor	**	**
80	ARM7	Multiplier for planar radial peaking factor	**	**
81	SC11	Shape annealing correction factor	**	**
82	SC12	Shape annealing correction factor	**	**
83	SC13	Shape annealing correction factor	**	**

Table 2.2-2 (Continued)

II. TYPE II ADDRESSABLE CONSTANTS

			LOWER LIMITS	UPPER LIMITS
84	SC21	Shape annealing correction factor	**	**
85	SC22	Shape annealing correction factor	**	**
86	SC23	Shape annealing correction factor	**	**
87	SC31	Shape annealing correction factor	**	**
88	SC32	Shape annealing correction factor	**	**
89	SC33	Shape annealing correction factor	**	**
90	PFMLTD	DNBR penalty factor correction multiplier	**	**
91	PFMLTL	LPD penalty factor correction multiplier	**	**
92	ASM2	Multiplier for CEA shadowing factor	**	**
93	ASM3	Multiplier for CEA shadowing factor	**	**
94	ASM4	Multiplier for CEA shadowing factor	**	**
95	ASM5	Multiplier for CEA shadowing factor	**	**
96	ASM6	Multiplier for CEA shadowing factor	**	**
97	ASM7	Multiplier for CEA shadowing factor	**	**
98	CORR1	Temperature shadowing correction factor multiplier	**	**
99	BPPCC1	Boundary point power correlation coefficient	**	**
100	BPPCC2	Boundary point power correlation coefficient	**	**

Table 2.2-2 (Continued)

II. TYPE II ADDRESSABLE CONSTANTS

			LOWER LIMITS	UPPER LIMITS
101	BPPCC3	Boundary point power correlation coefficient	**	**
102	BPPCC4	Boundary point power correlation coefficient	**	**
103	RPCLIM	Reactor power cutback time limit	**	**

SECTIONS 3.0 AND 4.0

LIMITING CONDITIONS FOR OPERATION

AND

SURVEILLANCE REQUIREMENTS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding specifications is required during the OPERATIONAL MODES or other conditions specified therein except as provided in LCO 3.0.2 or 3.0.8; or except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a specification shall exist when the requirements of the Limiting Condition for Operation and/or associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the ACTION requirements is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within 1 hour, action shall be initiated to place the unit in a MODE in which the specification does not apply by placing it, as applicable, in:

1. At least HOT STANDBY within the next 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual specifications.

This specification is not applicable in MODE 5 or 6.

3.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made when the conditions for the Limiting Conditions for Operation are not met and the ACTION requires a shutdown if they are not met within a specified interval. Entry into an OPERATIONAL MODE or specified condition may be made in accordance with ACTION requirements when conformance to them permits continued operation of the facility for an unlimited period of time. Applying this exception shall be subject to review and approval as described in plant administrative controls unless the individual specification contains an exception to these requirements. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION statements.

3.0.5 Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LIMITING CONDITION FOR OPERATION

3.0.6 To be used later.

3.0.7 To be used later.

3.0.8 When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:

a. The snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or

b. The snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

APPLICABILITY

SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Requirements shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the Surveillance. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified interval shall be failure to meet the LCO except as provided in 4.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

4.0.2 Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed twenty-five percent of the specified surveillance interval.

4.0.3 If it is discovered that a Surveillance was not performed within its specified interval, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified surveillance interval, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable ACTION(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable ACTION(s) must be entered.

4.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the stated surveillance interval or as otherwise specified. This provision shall not prevent passage through or to operational modes as required to comply with ACTION requirements.

THIS PAGE NOT USED.

3/4.1.1 BORATION CONTROL

SHUTDOWN MARGIN - ANY CEA WITHDRAWN

LIMITING CONDITION FOR OPERATION

3.1.1.1 The SHUTDOWN MARGIN shall be greater than or equal to that specified in the COLR.

APPLICABILITY: MODES 1, 2*, 3, 4, and 5 with any CEA fully or partially withdrawn.

ACTION:

With the SHUTDOWN MARGIN less than that specified in the COLR, immediately initiate boration to restore SHUTDOWN MARGIN to within limit.

SURVEILLANCE REQUIREMENTS

4.1.1.1.1 With any CEA fully or partially withdrawn, the SHUTDOWN MARGIN shall be determined to be greater than or equal to that specified in the COLR:

a. Within 1 hour after detection of an inoperable CEA(s) and at least once per 12 hours thereafter while the CEA(s) is inoperable. If the inoperable CEA is immovable or untrippable, the above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable CEA(s).

b. When in MODE 1 or MODE 2 with Keff greater than or equal to 1.0, by verifying that CEA group withdrawal is within the Transient Insertion Limits of Specification 3.1.3.6 in accordance with the Surveillance Frequency Control Program.

c. When in MODE 2 with Keff less than 1.0, within 4 hours prior to achieving reactor criticality by verifying that the predicted critical CEA position is within the limits of Specification 3.1.3.6.

---

* See Special Test Exception 3.10.1.

SURVEILLANCE REQUIREMENTS (Continued)

d. Prior to initial operation above 5% RATED THERMAL POWER after each fuel loading, by consideration of the factors of e. below, with the CEA groups at the Transient Insertion Limits of Specification 3.1.3.6.

e. When in MODE 3, 4, or 5, in accordance with the Surveillance Frequency Control Program by consideration of at least the following factors:

1. Reactor Coolant System boron concentration,
2. CEA position,
3. Reactor Coolant System average temperature,
4. Fuel burnup based on gross thermal energy generation,
5. Xenon concentration, and
6. Samarium concentration.

4.1.1.1.2 The overall core reactivity balance shall be compared to predicted values to demonstrate agreement within ± 1.0% delta k/k in accordance with the Surveillance Frequency Control Program. This comparison shall consider at least those factors stated in Specification 4.1.1.1.1e., above. The predicted reactivity values shall be adjusted (normalized) to correspond to the actual core conditions prior to exceeding a fuel burnup of 60 EFPDs after each fuel loading.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN MARGIN - ALL CEAS FULLY INSERTED

LIMITING CONDITION FOR OPERATION

3.1.1.2 The SHUTDOWN MARGIN shall be greater than or equal to that specified in the COLR.

APPLICABILITY: MODES 3, 4 and 5 with all CEAs fully inserted.

ACTION:

With the SHUTDOWN MARGIN less than that specified in the COLR, immediately initiate boration to restore SHUTDOWN MARGIN to within limit.

SURVEILLANCE REQUIREMENTS

4.1.1.2 With all CEAs fully inserted, the SHUTDOWN MARGIN shall be determined to be greater than or equal to that specified in the COLR, in accordance with the Surveillance Frequency Control Program by consideration of the following factors:

1. Reactor Coolant System boron concentration,
2. CEA position,
3. Reactor Coolant System average temperature,
4. Fuel burnup based on gross thermal energy generation,
5. Xenon concentration, and
6. Samarium concentration.

MODERATOR TEMPERATURE COEFFICIENT

LIMITING CONDITION FOR OPERATION

3.1.1.3 The moderator temperature coefficient (MTC) shall be within the limits specified in the COLR. The maximum upper design limit shall be:

a. Less positive than 0.5×10^{-4} delta k/k/°F whenever THERMAL POWER is ≤70% RATED THERMAL POWER, and

b. Less positive than 0.0×10^{-4} delta k/k/°F whenever THERMAL POWER is >70% RATED THERMAL POWER.

APPLICABILITY: MODES 1 and 2 [(1)(2)]

ACTION:

With the moderator temperature coefficient outside any one of the above limits, be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.1.3.1 The MTC shall be determined to be within its limits by confirmatory measurements. MTC measured values shall be extrapolated and/or compensated to permit direct comparison with the above limits.[(3)]

4.1.1.3.2 The MTC shall be determined at the following frequencies and THERMAL POWER conditions during each fuel cycle:

a. Prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading.[(3)]

b. At greater than 15% of RATED THERMAL POWER, prior to reaching 40 EFPD core burnup.

c. At any THERMAL POWER, within ± 7 EFPD of reaching two-thirds of expected core burnup.[(4)]

---

(1) With K_{eff} greater than or equal to 1.0.

(2) See Special Test Exception 3.10.2.

(3) For fuel cycles that meet the applicability requirements given in WCAP-16011-P-A, the verification prior to entering MODE 1 may be made using the predicted MTC as adjusted for the measured boron concentration.

(4) The MTC determination of Paragraph 4.1.1.3.2.c is not required if the results of the tests required in surveillance 4.1.1.3.2.a and 4.1.1.3.2.b are within a tolerance of $\pm 0.16 \times 10^{-4}$ delta k/k/°F from the corresponding design values. For cycles that meet the applicability requirements given in WCAP-16011-P-A, the MTC determination of surveillance 4.1.1.3.2.c is not required if the result of the test required in surveillance 4.1.1.3.2.b is within a tolerance of $\pm 0.16 \times 10^{-4}$ delta k/k/°F from the corresponding design value.

MINIMUM TEMPERATURE FOR CRITICALITY

LIMITING CONDITION FOR OPERATION

3.1.1.4 The Reactor Coolant System lowest operating loop temperature (T_{cold}) shall be greater than or equal to 533°F.

APPLICABILITY: MODES 1 and 2#.

ACTION:

With a Reactor Coolant System operating loop temperature (T_{cold}) less than 533°F, restore T_{cold} to within its limit within 15 minutes or be in HOT STANDBY within the next 15 minutes.

SURVEILLANCE REQUIREMENTS

4.1.1.4 The Reactor Coolant System temperature (T_{cold}) shall be determined to be greater than or equal to 533°F in accordance with the Surveillance Frequency Control Program.

#With K_{eff} greater than or equal to 1.0.

REACTIVITY CONTROL SYSTEMS

3/4.1.2 BORATION SYSTEMS

FLOW PATHS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.1 As a minimum, one of the following boron injection flow paths shall be OPERABLE and capable of being powered from an OPERABLE emergency power source:

a. A flow path from the boric acid makeup tank via either a boric acid makeup pump or a gravity feed connection and any charging pump to the Reactor Coolant System if the boric acid makeup tank in Specification 3.1.2.7a. is OPERABLE, or

b. The flow path from the refueling water storage pool via either a charging pump or a high pressure safety injection pump to the Reactor Coolant System if the refueling water storage pool in Specification 3.1.2.7b. is OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

With none of the above flow paths OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.*

SURVEILLANCE REQUIREMENTS

4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program 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.

* Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SHUTDOWN MARGIN.

REACTIVITY CONTROL SYSTEMS

FLOW PATHS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 At least two boron injection flow paths to the RCS via the charging pumps shall be OPERABLE. The following flow paths may be used:

a. With the contents of either boric acid makeup tank in accordance with Figure 3.1-1, the following flow paths shall be OPERABLE:

   1. One flow path from an acceptable boric acid makeup tank via its boric acid makeup pump; and

   2. One flow path from an acceptable boric acid makeup tank via its gravity feed valve; or

b. With the combined contents of both boric acid makeup tanks in accordance with Figure 3.1-2, both of the following flow paths shall be OPERABLE:

   1. One flow path consisting of both boric acid makeup pumps, and

   2. One flow path consisting of both gravity feed valves.

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

ACTION:

With only one of the above required boron injection flow paths to the Reactor Coolant System OPERABLE, restore at least two boron injection flow paths to the Reactor Coolant System to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable, within the next 6 hours; restore at least two flow paths to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.2 At least two of the above required flow paths shall be demonstrated OPERABLE:

a. 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 in accordance with the Surveillance Frequency Control Program.

b. By verifying that each automatic valve in the flow path actuates to its correct position on an SIAS test signal in accordance with the Surveillance Frequency Control Program.

c. By verifying that the flow path required by Specification 3.1.2.2a.1 and 3.1.2.2a.2 delivers at least 40 gpm to the Reactor Coolant System in accordance with the Surveillance Frequency Control Program.

REACTIVITY CONTROL SYSTEMS

CHARGING PUMPS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.3 At least one charging pump or one high pressure safety injection pump in the boron injection flow path required OPERABLE pursuant to Specification 3.1.2.1 shall be OPERABLE and capable of being powered from an OPERABLE emergency power source.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no charging pump or high pressure safety injection pump OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes. *

SURVEILLANCE REQUIREMENTS

4.1.2.3 No additional Surveillance Requirements other than those required by the INSERVICE TESTING PROGRAM.

* Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SHUTDOWN MARGIN.

CHARGING PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.4 At least two independent charging pumps shall be OPERABLE.

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

ACTION:

With only one charging pump OPERABLE, restore at least two charging pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable, within the next 6 hours; restore at least two charging pumps to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.4 Each required charging pump shall be demonstrated OPERABLE by verifying that each charging pump starts in response to an SIAS test signal in accordance with the Surveillance Frequency Control Program.

REACTIVITY CONTROL SYSTEMS

BORIC ACID MAKEUP PUMPS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.5 At least one boric acid makeup pump shall be OPERABLE and capable of being powered from an OPERABLE emergency bus if only the flow path through the boric acid pump in Specification 3.1.2.1a. is OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no boric acid makeup pump OPERABLE as required to complete the flow path of Specification 3.1.2.1a., suspend all operations involving CORE ALTERATIONS or positive reactivity changes. *

SURVEILLANCE REQUIREMENTS

4.1.2.5 No additional Surveillance Requirements other than those required by the INSERVICE TESTING PROGRAM.

* Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SHUTDOWN MARGIN.

BORIC ACID MAKEUP PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.6 At least the boric acid makeup pump(s) in the boron injection flow path(s) required OPERABLE pursuant to Specification 3.1.2.2a. shall be OPERABLE and capable of being powered from an OPERABLE emergency bus if the flow path through the boric acid pump(s) in Specification 3.1.2.2a. is OPERABLE.

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

ACTION:

With one boric acid makeup pump required for the boron injection flow path(s) pursuant to Specification 3.1.2.2a. inoperable, restore the boric acid makeup pump to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable, restore the above required boric acid makeup pump(s) to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.6 Each required boric acid makeup pump shall be demonstrated OPERABLE by verifying that each boric acid makeup pump starts in response to an SIAS test signal in accordance with the Surveillance Frequency Control Program.

BORATED WATER SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.7 As a minimum, one of the following borated water sources shall be OPERABLE:

a. One boric acid makeup tank with a boron concentration between 4900 ppm and 6125 ppm and a minimum borated water volume of 36% indicated level.

b. The refueling water storage pool (RWSP) with:

1. A minimum contained borated water volume of 12% indicated level, and

2. A minimum boron concentration of 2050 ppm.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no borated water sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes. *

SURVEILLANCE REQUIREMENTS

4.1.2.7 The above required borated water source shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program when the Reactor Auxiliary Building air temperature is less than 55°F by verifying the boric acid makeup tank solution is greater than or equal to 60°F (when it is the source of borated water).

b. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the boron concentration of the water, and

3. Verifying the contained borated water volume of the tank.

* Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SHUTDOWN MARGIN.

BORATED WATER SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.8 Each of the following borated water sources shall be OPERABLE:

a. At least one of the following sources:

1) One boric acid makeup tank, with the tank contents in accordance with Figure 3.1-1, or

2) Two boric acid makeup tanks, with the combined contents of the tanks in accordance with Figure 3.1-2, and

b. The refueling water storage pool in accordance with Specification 3.5.4.

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

ACTION:

a. With the above required boric acid makeup tank(s) inoperable, restore the tank(s) to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.1 or 3.1.1.2, whichever is applicable; restore the above required boric acid makeup tank(s) to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the refueling water storage pool inoperable, restore the pool 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.

SURVEILLANCE REQUIREMENTS

4.1.2.8 Each borated water source shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying the boric acid makeup tank solution temperature is greater than or equal to 60°F when the Reactor Auxiliary Building air temperature is less than 55°F.

b. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the boron concentration in the water, and

2. Verifying the contained borated water volume of the water source.

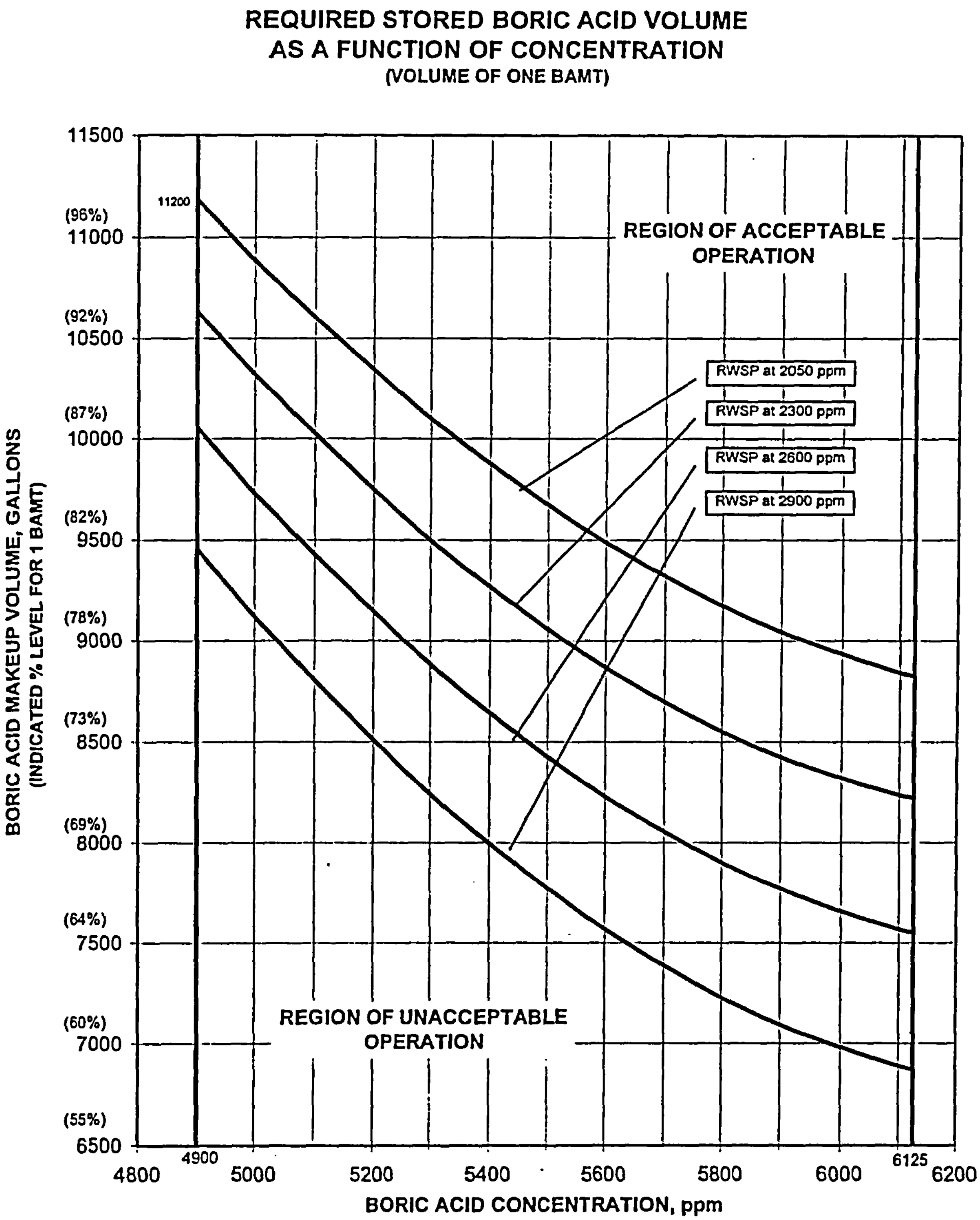
REQUIRED STORED BORIC ACID VOLUME
AS A FUNCTION OF CONCENTRATION
(VOLUME OF ONE BAMT)
11500
(96%)
11000
(92%)
10500
(87%)
10000
(82%)
9500
(78%)
9000
(73%)
8500
(69%)
8000
(64%)
7500
(60%)
7000
(55%)
6500
11200
REGION OF ACCEPTABLE OPERATION
RWSP at 2050 ppm
RWSP at 2300 ppm
RWSP at 2600 ppm
RWSP at 2900 ppm
REGION OF UNACCEPTABLE OPERATION
BORIC ACID MAKEUP VOLUME, GALLONS
(INDICATED % LEVEL FOR 1 BAMT)
4800
4900
5000
5200
5400
5600
5800
6000
6125
6200
BORIC ACID CONCENTRATION, ppm

FIGURE 3.1-1

REQUIRED STORED BORIC ACID VOLUME AS A FUNCTION OF CONCENTRATION

(COMBINED VOLUME OF TWO BAMT)

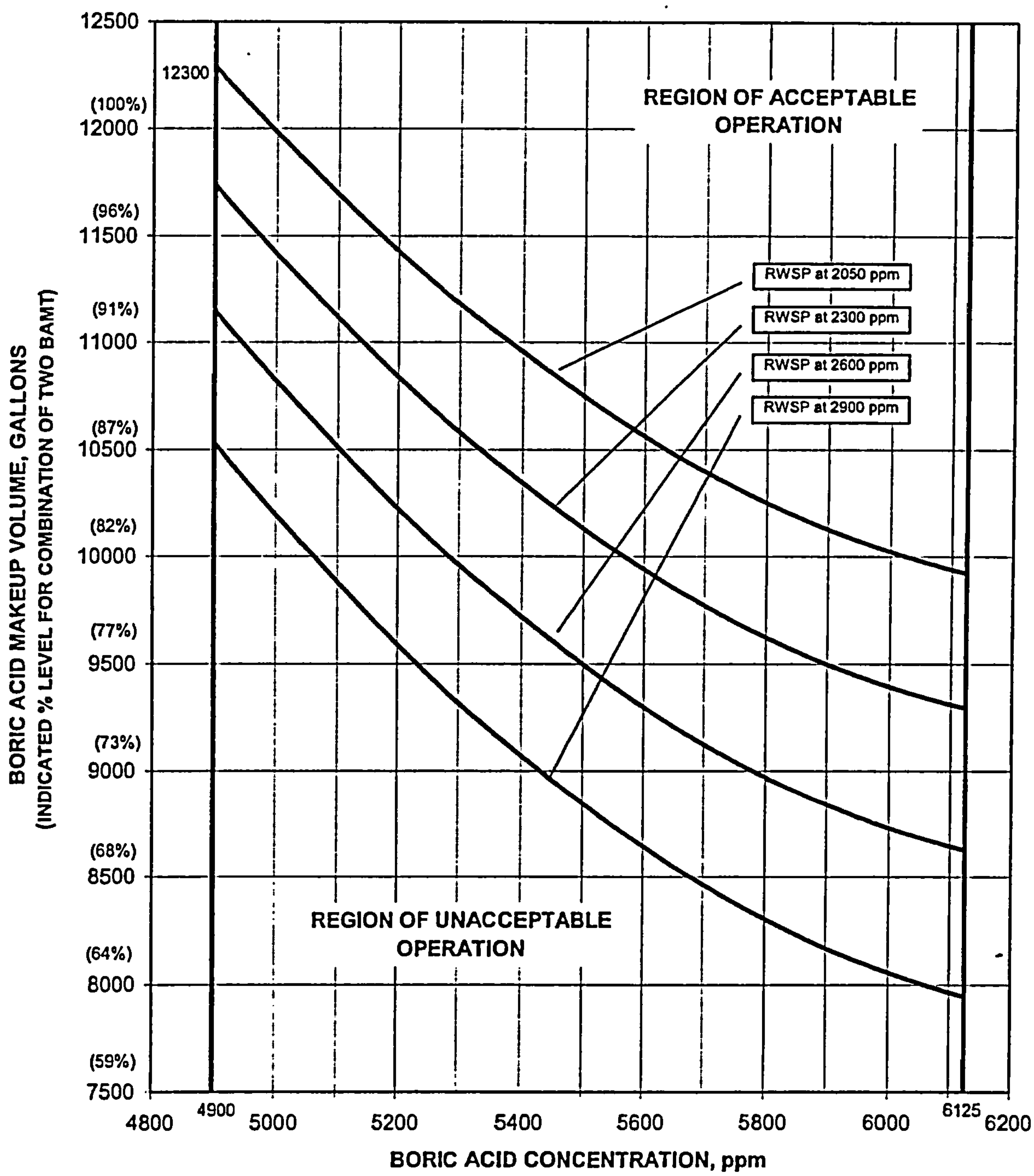

FIGURE 3.1-2

BORON DILUTION

LIMITING CONDITION FOR OPERATION

3.1.2.9 Boron concentration shall be verified consistent with SHUTDOWN MARGIN requirements of Specifications 3.1.1.1, 3.1.1.2, and 3.9.1. Boron dilution events shall be precluded by either "a" or "b" below.

a. 1. Two boron dilution alarms (startup channel high neutron flux) shall be OPERABLE with the alarms set in accordance with Specification 4.1.2.9.5

and

2. i. If the plant is in MODE 4, then remove power to at least one charging pump.

ii. If the plant is in MODE 5 with $k_{eff} \leq 0.97$, then remove power to at least one charging pump.

iii. If the plant is in MODE 5 with $k_{eff} > 0.97$, then remove power to at least two charging pumps.

iv. If the plant is in MODE 6, then remove power to at least two charging pumps.

OR

b. 1. The primary makeup water flow path to the reactor coolant system shall be isolated

and

2. Do not operate the plant in the configurations prohibited by the COLR for the current MODE.

APPLICABILITY: MODES 3*, 4, 5, and 6.

*While any shutdown CEA is less than 145 inches withdrawn.

ACTION:

a. With the boron concentration not consistent with required SHUTDOWN MARGIN, initiate emergency boration.

b. With one boron dilution alarm inoperable and the primary makeup water flow path to the reactor coolant system not isolated, determine reactor coolant system boron concentration within one hour and at least at the monitoring frequency specified in the COLR.

c. With both boron dilution alarms inoperable and the primary makeup water flow path to the reactor coolant system not isolated, determine the reactor coolant system boron concentration by two independent means within one hour and at least at the monitoring frequency specified in the COLR; otherwise, immediately suspend all operations involving positive reactivity changes or CORE ALTERATIONS (if applicable).

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.2.9.1 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 from MODE 2.

4.1.2.9.2 Each required boron dilution alarm shall be demonstrated OPERABLE by the performance of a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program, a CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program, and a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

4.1.2.9.3 If the primary makeup water flow path to the Reactor Coolant System is isolated to fulfill 3.1.2.9.b, the required primary makeup water flow path to the Reactor Coolant System shall be verified to be isolated by either locked closed manual valves, deactivated automatic valves secured in the isolation position, or by power being removed from all charging pumps, at least once per 24 hours.

4.1.2.9.4 The requirements of Specification 3.1.2.9.a.2 or 3.1.2.9.b.2 shall be verified in accordance with the Surveillance Frequency Control Program.

4.1.2.9.5 Each required boron dilution alarm setpoint shall be adjusted to less than or equal to the existing neutron flux (cps) multiplied by the value specified in the COLR, at the frequencies specified in the COLR.

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3/4.1.3 MOVABLE CONTROL ASSEMBLIES

CEA POSITION

LIMITING CONDITION FOR OPERATION

3.1.3.1 All CEAs shall be OPERABLE with each CEA of a given group positioned within 7 inches (indicated position) of all other CEAs in its group.

APPLICABILITY: MODES 1* and 2*.

ACTION:

a. With one or more CEAs inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in at least HOT STANDBY within 6 hours.

b. With more than one CEA trippable but misaligned from any other CEA in its group by more than 19 inches (indicated position), be in at least HOT STANDBY within 6 hours.

c. With one CEA trippable but misaligned from any other CEA in its group by more than 19 inches, operation in MODES 1 and 2 may continue, provided that core power is reduced in accordance with the limits specified in the COLR and within 1 hour the misaligned CEA is either:

    1. Restored to OPERABLE status within its above specified alignment requirements, or

    2. Declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. After declaring the CEA inoperable, operation in MODES 1 and 2 may continue pursuant to the requirements of Specification 3.1.3.6 provided:

        a) Within 1 hour the remainder of the CEAs in the group with the inoperable CEA shall be aligned to within 7 inches of the inoperable CEA while maintaining the allowable CEA sequence and insertion limits specified in the COLR; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation.

        b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours.

    Otherwise, be in at least HOT STANDBY within 6 hours.

*See Special Test Exceptions 3.10.2 and 3.10.4.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

d. With one or more CEAs trippable but misaligned from any other CEAs in its group by more than 7 inches but less than or equal to 19 inches, operation in MODES 1 and 2 may continue, provided that core power is reduced in accordance with the limits specified in the COLR and within 1 hour the misaligned CEA(s) is either:

1. Restored to OPERABLE status within its above specified alignment requirements, or

2. Declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. After declaring the CEA inoperable, operation in MODES 1 and 2 may continue pursuant to the requirements of Specification 3.1.3.6 provided:

a) Within 1 hour the remainder of the CEAs in the group with the inoperable CEA shall be aligned to within 7 inches of the inoperable CEA while maintaining the allowable CEA sequence and insertion limits specified in the COLR; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation.

b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours.

Otherwise, be in at least HOT STANDBY within the next 6 hours.

e. With one CEA trippable but inoperable due to causes other than addressed by ACTION a., above, and inserted beyond the Long Term Steady State Insertion Limits but within its above specified alignment requirements, operation in MODES 1 and 2 may continue pursuant to the requirements of Specification 3.1.3.6.

f. With one CEA trippable but inoperable due to causes other than addressed by ACTION a., above, but within its above specified alignment requirements and either greater than or equal to 145 inches withdrawn or within the Long Term Steady State Insertion Limits if in CEA group 6 or group P, operation in MODES 1 and 2 may continue.

g. DELETED

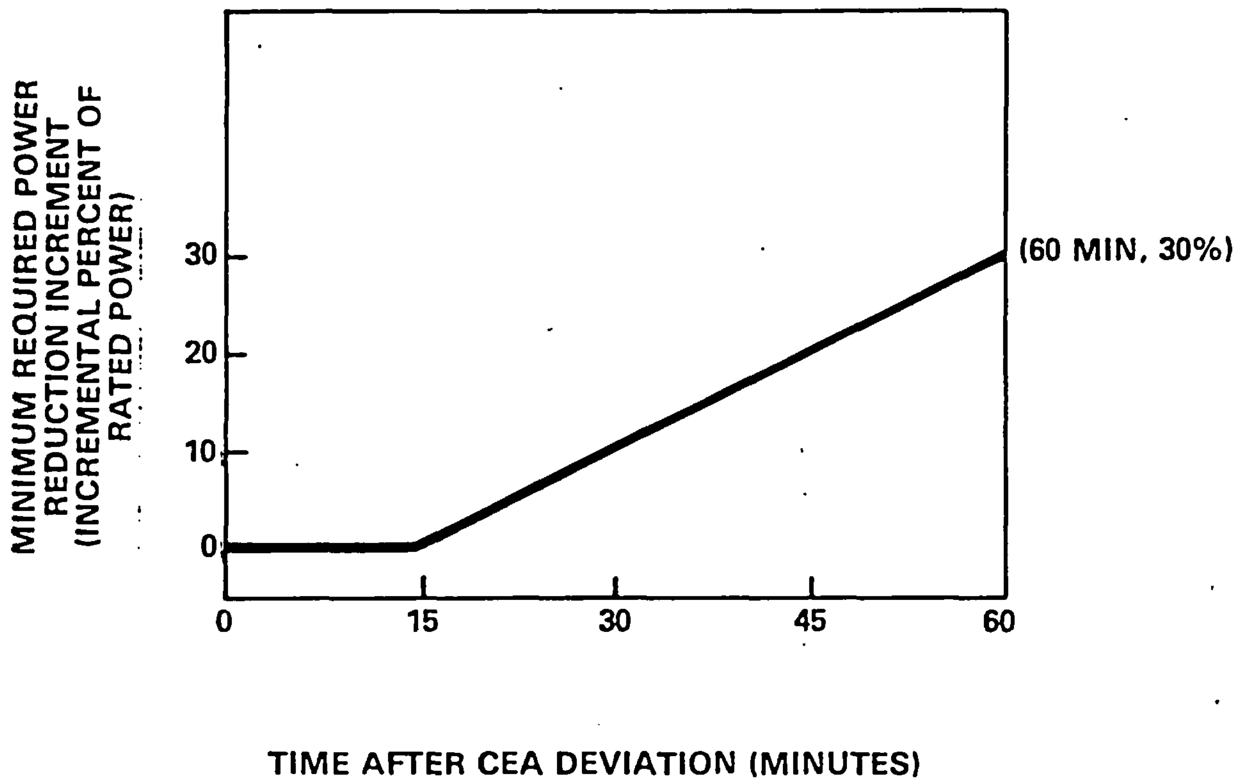
h. With more than one CEA trippable but inoperable due to causes other than addressed by ACTION a., above, restore the inoperable CEAs to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each CEA shall be determined to be within 7 inches (indicated position) of all other CEAs in its group in accordance with the Surveillance Frequency Control Program except during time intervals when one CEAC is inoperable or when both CEACs are inoperable, then verify the individual CEA positions at least once per 4 hours.

4.1.3.1.2 Each CEA not fully inserted in the core shall be determined to be OPERABLE by movement of at least 5 inches in any one direction in accordance with the Surveillance Frequency Control Program.

Required Power Reduction after Single CEA Deviation*



*When core power is reduced to 60% of rated power per this limit curve, further reduction is not required by this specification.

Figure 3.1 - 1A

POSITION INDICATOR CHANNELS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.3.2 At least two of the following three CEA position indicator channels shall be OPERABLE for each CEA:

a. CEA Reed Switch Position Transmitter (RSPT 1) with the capability of determining the absolute CEA positions within 5 inches,

b. CEA Reed Switch Position Transmitter (RSPT 2) with the capability of determining the absolute CEA positions within 5 inches, and

c. The CEA pulse counting position indicator channel.

APPLICABILITY: MODES 1 and 2.

ACTION:

With a maximum of one CEA per CEA group having only one of the above required CEA position indicator channels OPERABLE, within 6 hours either:

a. Restore the inoperable position indicator channel to OPERABLE status, or

b. Be in at least HOT STANDBY, or

c. Position the CEA group(s) with the inoperable position indicator(s) at its fully withdrawn position while maintaining the requirements of Specifications 3.1.3.1 and 3.1.3.6. Operation may then continue provided the CEA group(s) with the inoperable position indicator(s) is maintained fully withdrawn, except during surveillance testing pursuant to the requirements of Specification 4.1.3.1.2, and each CEA in the group(s) is verified fully withdrawn at least once per 12 hours thereafter by its "Full Out" limit.

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each of the above required position indicator channels shall be determined to be OPERABLE by verifying that for the same CEA, the position indicator channels agree within 5 inches of each other in accordance with the Surveillance Frequency Control Program.

POSITION INDICATOR CHANNELS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.3.3 At least one CEA Reed Switch Position Transmitter indicator channel shall be OPERABLE for each CEA not fully inserted.

APPLICABILITY: MODES 3*, 4*, and 5*.

ACTION:

With less than the above required position indicator channel(s) OPERABLE, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.1.3.3 Each of the above required CEA Reed Switch Position Transmitter indicator channel(s) shall be determined to be OPERABLE by performance of a CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program. The provisions of Specification 4.0.4 are not applicable for performance of this surveillance testing.

*With the reactor trip breakers in the closed position.

CEA DROP TIME

LIMITING CONDITION FOR OPERATION

3.1.3.4 The arithmetic average of the CEA drop times of all CEAs from a fully withdrawn position, shall be less than or equal to 3.2 seconds; and the individual CEA drop time, from a fully withdrawn position, shall be less than or equal to 3.5 seconds from when the electrical power is interrupted to the CEA drive mechanism until the CEA reaches the 90% insertion position with:

a. Tavg greater than or equal to 520°F, and

b. All reactor coolant pumps operating.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With either the average CEA drop time or any individual CEA drop time determined to exceed the above limits, restore the CEA drop time to within the above limits before proceeding to MODE 1 or 2.

b. With the CEA drop times within limits but determined at less than full reactor coolant flow, operation may proceed provided THERMAL POWER is restricted to less than or equal to the maximum THERMAL POWER level allowable for the reactor coolant pump combination operating at the time of CEA drop time determination.

SURVEILLANCE REQUIREMENTS

4.1.3.4 The CEA drop time shall be demonstrated through measurement prior to reactor criticality:

a. For all CEAs following each removal and reinstallation of the reactor vessel head,

b. For specifically affected individual CEAs following any maintenance on or modification to the CEA drive system which could affect the drop time of those specific CEAs, and

c. At each refueling outage.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN CEA INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

3.1.3.5 All shutdown CEAs shall be withdrawn to greater than or equal to 145 inches.

APPLICABILITY: MODES 1** and 2*#**.

ACTION:

With a maximum of one shutdown CEA withdrawn to less than 145 inches withdrawn, within 1 hour either:

a. Withdraw the CEA to greater than or equal to 145 inches, or

b. Declare the CEA inoperable and determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.5 Each shutdown CEA shall be determined to be withdrawn to greater than or equal to 145 inches withdrawn:

a. Within 15 minutes prior to withdrawal of any CEAs in regulating groups or group P during an approach to reactor criticality, and

b. In accordance with the Surveillance Frequency Control Program.

*See Special Test Exception 3.10.2.

#With Keff greater than or equal to 1.0.

**Except for surveillance testing pursuant to Specification 4.1.3.1.2.

REGULATING AND GROUP P CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.6 The regulating CEA groups and group P CEAs shall be limited to the withdrawal sequence and to the insertion limits* specified in the COLR** with CEA insertion between the Long Term Steady State Insertion Limits and the Transient Insertion Limits restricted to:

a. Less than or equal to 4 hours per 24 hour interval,

b. Less than or equal to 5 Effective Full Power Days per 30 Effective Full Power Day interval, and

c. Less than or equal to 14 Effective Full Power Days per calendar year.

APPLICABILITY: MODES 1*** and 2*** #.

ACTION:

a. With the regulating CEA groups or group P CEAs inserted beyond the Transient Insertion Limits, except for surveillance testing pursuant to Specification 4.1.3.1.2, or Reactor Power Cutback, within 2 hours either:

   1. Restore the regulating CEA groups or group P CEAs to within the limits, or

   2. Reduce THERMAL POWER to less than or equal to that fraction of RATED THERMAL POWER which is allowed by the CEA group position using the COLR.

b. With the regulating CEA groups or group P CEAs inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals greater than 4 hours per 24-hour interval, operation may proceed provided either:

   1. The Short Term Steady State Insertion Limits specified in the COLR are not exceeded, or

   2. Any subsequent increase in THERMAL POWER is restricted to less than or equal to 5% of RATED THERMAL POWER per hour.

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*Following a reactor power cutback in which (1) Regulating Groups 5 and/or 6 are dropped or (2) Regulating Groups 5 and/or 6 are dropped and the remaining Regulating Groups (Groups 1, 2, 3, and 4) are sequentially inserted, the Transient Insertion Limit specified in the COLR can be exceeded for up to 2 hours.

**CEAs are fully withdrawn in accordance with the Transient Insertion Limit specified in the COLR when withdrawn to at least 145 inches.

***See Special Test Exceptions 3.10.2 and 3.10.4.

#With K_{eff} greater than or equal to 1.0.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

c. With the regulating CEA groups or group P CEAs inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals greater than 5 EFPD per 30 EFPD interval or greater than 14 EFPD per calendar year, either:

   1. Restore the regulating CEA groups or group P CEAs to within the Long Term Steady State Insertion Limits within two hours, or

   2. Be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.6 The position of each regulating CEA group and CEA group P shall be determined to be within the Transient Insertion Limits in accordance with the Surveillance Frequency Control Program except during time intervals when the PDIL Auctioneer Alarm Circuit is inoperable, then verify the individual CEA positions at least once per 4 hours. The accumulated times during which the regulating CEA groups or CEA group P are inserted beyond the Long Term Steady State Insertion Limits but within the Transient Insertion Limits shall be determined in accordance with the Surveillance Frequency Control Program.

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3/4.2 POWER DISTRIBUTION LIMITS

3/4 2.1 LINEAR HEAT RATE

LIMITING CONDITION FOR OPERATION

3.2.1 The linear heat rate limit, specified in the COLR, shall be maintained by one of the following methods as applicable:

a. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on linear heat rate (when COLSS is in service); or

b. Operating within the region of acceptable operation specified in the COLR using any operable CPC channel (when COLSS is out of service).

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.

ACTION:

a. With the linear heat rate limit not being maintained as indicated by COLSS calculated core power exceeding the COLSS calculated core power operating limit based on linear heat rate, within 15 minutes initiate corrective action to reduce the linear heat rate to within the limit and either:

   1. Restore the linear heat rate to within its limits within 1 hour, or

   2. Reduce THERMAL POWER to less than or equal to 20% of RATED THERMAL POWER within the next 6 hours.

b. With the linear heat rate limit not being maintained as indicated by operation outside the region of acceptable operation specified in the COLR with COLSS out of service, either:

   1. Restore COLSS to service within 2 hours, or

   2. Restore the linear heat rate to within its limits within the next 2 hours, or

   3. Reduce THERMAL POWER to less than or equal to 20% of RATED THERMAL POWER within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.2.1.1 The provisions of Specification 4.0.4 are not applicable.

4.2.1.2 The linear heat rate shall be determined to be within its limits when THERMAL POWER is above 20% of RATED THERMAL POWER by continuously monitoring the core power distribution with the Core Operating Limit Supervisory System

LIMITING CONDITION FOR OPERATION

(COLSS) or, with the COLSS out of service, by verifying in accordance with the Surveillance Frequency Control Program that the linear heat rate, as indicated on any OPERABLE Local Power Density channel, is within the limits specified in the COLR.

4.2.1.3 In accordance with the Surveillance Frequency Control Program, the COLSS Margin Alarm shall be verified to actuate at a THERMAL POWER level less than or equal to the core power operating limit based on kW/ft.

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POWER DISTRIBUTION LIMITS

3/4.2.2 PLANAR RADIAL PEAKING FACTORS - F_{xy}

LIMITING CONDITION FOR OPERATION

3.2.2 The measured PLANAR RADIAL PEAKING FACTORS (F^m_{xy}) shall be less than or equal to the PLANAR RADIAL PEAKING FACTORS (F^c_{xy}) used in the Core Operating Limit Supervisory System (COLSS) and in the Core Protection Calculators (CPC).

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.*

ACTION:

With a F^m_{xy} exceeding a corresponding F^c_{xy}, within 6 hours either:

a. Adjust the CPC addressable constants to increase the multiplier applied to planar radial peaking by a factor equivalent to greater than or equal to F^m_{xy}/F^c_{xy} and restrict subsequent operation so that a margin to the COLSS operating limits of at least $[F^m_{xy}/F^c_{xy}) - 1.0]$ x 100% is maintained; or

b. Adjust the affected PLANAR RADIAL PEAKING FACTORS (F^c_{xy}) used in the COLSS and CPC to a value greater than or equal to the measured PLANAR RADIAL PEAKING FACTORS (F^m_{xy}) or

c. Be in at least HOT STANDBY.

SURVEILLANCE REQUIREMENTS

4.2.2.1 The provisions of Specification 4.0.4 are not applicable.

4.2.2.2 The measured PLANAR RADIAL PEAKING FACTORS (F^m_{xy}) obtained by using the incore detection system, shall be determined to be less than or equal to the PLANAR RADIAL PEAKING FACTORS (F^c_{xy}), used in the COLSS and CPC at the following intervals:

a. After each fuel loading with THERMAL POWER greater than 40% but prior to operation above 70% of RATED THERMAL POWER, and

b. In accordance with the Surveillance Frequency Control Program.

*See Special Test Exception 3.10.2.

3/4.2.3 AZIMUTHAL POWER TILT - T_q

LIMITING CONDITION FOR OPERATION

3.2.3 The AZIMUTHAL POWER TILT (T_q) shall be less than or equal to the FOLLOWING LIMITS:

a. AZIMUTHAL POWER TILT Allowance used in the Core Protection Calculators (CPCs) and

b. the limit specified in the COLR.

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.*

ACTION:

a. With the measured AZIMUTHAL POWER TILT determined to exceed the AZIMUTHAL POWER TILT Allowance used in the CPCs within 2 hours either correct the power tilt or adjust the AZIMUTHAL POWER TILT Allowance used in the CPCs to greater than or equal to the measured value.

b. With the measured AZIMUTHAL POWER TILT determined to exceed the limit specified in the COLR:

1. Due to misalignment of a CEA, within 30 minutes verify that the Core Operating Limit Supervisory System (COLSS) (when COLSS is being used to monitor the core power distribution per Specifications 4.2.1.2 and 4.2.4.2) is detecting the CEA misalignment.

2. Verify that the AZIMUTHAL POWER TILT is within its limit within 2 hours (24 hours for a CEA misalignment event) or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Linear Power Level - High trip setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours.

3. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the AZIMUTHAL POWER TILT is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

*See Special Test Exception 3.10.2.

SURVEILLANCE REQUIREMENTS

4.2.3.1 The provisions of Specification 4.0.4 are not applicable.

4.2.3.2 The AZIMUTHAL POWER TILT shall be determined to be within the limit above 20% of RATED THERMAL POWER by:

a. Continuously monitoring the tilt with COLSS when the COLSS is OPERABLE.

b. Calculating the tilt in accordance with the Surveillance Frequency Control Program when the COLSS is inoperable.

c. Verifying in accordance with the Surveillance Frequency Control Program, that the COLSS Azimuthal Tilt Alarm is actuated at an AZIMUTHAL POWER TILT greater than the AZIMUTHAL POWER TILT Allowance used in the CPCs.

d. Using the incore detectors in accordance with the Surveillance Frequency Control Program to independently confirm the validity of the COLSS calculated AZIMUTHAL POWER TILT.

3/4.2.4 DNBR MARGIN

LIMITING CONDITION FOR OPERATION

3.2.4 The DNBR margin shall be maintained by one of the following methods:

a. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR (when COLSS is in service, and either one or both CEACs are operable); or

b. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR decreased by the amount specified in the COLR (when COLSS is in service and neither CEAC is operable); or

c. Operating within the region of acceptable operation specified in the COLR using any operable CPC channel (when COLSS is out of service and either one or both CEACs are operable); or

d. Operating within the region of acceptable operation specified in the COLR using any operable CPC channel (when COLSS is out of service and neither CEAC is operable).

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.

ACTION:

a. With the DNBR limit not being maintained as indicated by COLSS calculated core power exceeding the COLSS calculated core power operating limit based on DNBR, within 15 minutes initiate corrective action to reduce the DNBR to within the limits and either:

1. Restore the DNBR to within its limits within 1 hour, or

2. Reduce THERMAL POWER to less than or equal to 20% of RATED THERMAL POWER within the next 6 hours.

b. With the DNBR limit not being maintained as indicated by operation outside the region of acceptable operation specified in the COLR with COLSS out of service, either:

1. Restore COLSS to service within 2 hours, or

2. Restore the DNBR to within its limits within the next 2 hours, or

3. Reduce THERMAL POWER to less than or equal to 20% of RATED THERMAL POWER within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.2.4.1 The provisions of Specification 4.0.4 are not applicable.

4.2.4.2 The DNBR shall be determined to be within its limits when THERMAL POWER is above 20% of RATED THERMAL POWER by continuously monitoring the core power distribution with the Core Operating Limit Supervisory System (COLSS) or, with the COLSS out of service, by verifying in accordance with the Surveillance Frequency Control Program that the DNBR, as indicated on any OPERABLE DNBR channel, is within the limit specified in the COLR.

4.2.4.3 In accordance with the Surveillance Frequency Control Program, the COLSS Margin Alarm shall be verified to actuate at a THERMAL POWER level less than or equal to the core power operating limit based on DNBR.

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Through
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Are Not Used

3/4.2.5 RCS FLOW RATE

LIMITING CONDITION FOR OPERATION

3.2.5 The actual Reactor Coolant System total flow rate shall be greater than or equal to 148.0×10^6 lbm/h.

APPLICABILITY: MODE 1.

ACTION:

With the actual Reactor Coolant System total flow rate determined to be less than the above limit, reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.5 The actual Reactor Coolant System total flow rate shall be determined to be greater than or equal to the above limit in accordance with the Surveillance Frequency Control Program.

3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.2.6 The reactor coolant cold leg temperature (T_c) shall be maintained between 536°F and 549°F.*

APPLICABILITY: MODE 1 above 30% of RATED THERMAL POWER.

ACTION:

With the reactor coolant cold leg temperature exceeding its limit, restore the temperature to within its limit within 2 hours or reduce THERMAL POWER to less than 30% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.6 The reactor coolant cold leg temperature shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program.

*Following a reactor power cutback in which (1) Regulating Groups 5 and/or 6 are dropped or (2) Regulating Groups 5 and/or 6 are dropped and the remaining Regulating Groups (Groups 1, 2, 3, and 4) are sequentially inserted, the upper limit on T_c may increase to 559°F for up to 30 minutes.

POWER DISTRIBUTION LIMITS

3/4.2.7 AXIAL SHAPE INDEX

LIMITING CONDITION FOR OPERATION

3.2.7 The AXIAL SHAPE INDEX (ASI) shall be maintained within the limits specified in the COLR.

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER.*

ACTION:

With the AXIAL SHAPE INDEX outside the limits specified in the COLR, restore the AXIAL SHAPE INDEX to within its limit within 2 hours or reduce THERMAL POWER to less than 20% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.7 The AXIAL SHAPE INDEX shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program using the COLSS or any OPERABLE Core Protection Calculator channel.

*See Special Test Exception 3.10.2.

POWER DISTRIBUTION LIMITS

3/4.2.8 PRESSURIZER PRESSURE

LIMITING CONDITION FOR OPERATION

3.2.8 The steady-state pressurizer pressure shall be maintained between 2125 psia and 2275 psia.

APPLICABILITY: MODE 1

ACTION:

With the steady-state pressurizer pressure outside its above limits, restore the pressure to within its limit within 2 hours or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.8 The steady-state pressurizer pressure shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor protective instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.2 The logic for the bypasses shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total bypass function shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit in accordance with the Surveillance Frequency Control Program. Neutron detectors are exempt from response time testing. Each test shall include at least one channel per function such that all channels are tested as shown in the "Total No. of Channels" column of Table 3.3-1.

4.3.1.4 The isolation characteristics of each CEA isolation amplifier and each optical isolator for CEA Calculator to Core Protection Calculator data transfer shall be verified in accordance with the Surveillance Frequency Control Program during the shutdown per the following tests:

a. For the CEA position isolation amplifiers:

   1. With l20 volts AC (60 Hz) applied for at least 30 seconds across the output, the reading on the input does not exceed 0.015 volts DC.

SURVEILLANCE REQUIREMENTS (Continued)

2. With 120 volts AC (60 Hz) applied for at least 30 seconds across the input, the reading on the output does not exceed 15.0 volts DC.

b. For the optical isolators: Verify that the input to output insulation resistance is greater than 10 megohms when tested using a megohmmeter on the 500 volt DC range.

4.3.1.5 The Core Protection Calculator System and the Control Element Assembly Calculator System shall be determined OPERABLE in accordance with the Surveillance Frequency Control Program by verifying that less than three auto restarts have occurred on each calculator during the past 12 hours.

4.3.1.6 The Core Protection Calculator System shall be subjected to a CHANNEL FUNCTIONAL TEST to verify OPERABILITY within 12 hours of receipt of a High CPC Cabinet Temperature alarm.

TABLE 3.3-1
REACTOR PROTECTIVE INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2 sets of 2	1 set of 2	2 sets of 2	1, 2	1
	2 sets of 2	1 set of 2	2 sets of 2	3*, 4*, 5*	8
2. Linear Power Level - High	4	2	3	1, 2	2#, 3#
3. Logarithmic Power Level-High					
a. Startup and Operating	4	2(a)(d)	3	2**	2#, 3#
	4	2	3	3*, 4*, 5*	8
b. Shutdown	4	0	2	3, 4, 5	4
4. Pressurizer Pressure - High	4	2	3	1, 2	2#, 3#
5. Pressurizer Pressure - Low	4	2(b)	3	1, 2	2#, 3#
6. Containment Pressure - High	4	2	3	1, 2	2#, 3#
7. Steam Generator Pressure - Low	4/SG	2/SG	3/SG	1, 2	2#, 3#
8. Steam Generator Level - Low	4/SG	2/SG	3/SG	1, 2	2#, 3#
9. Local Power Density - High	4	2(c)(d)	3	1, 2	2#, 3#
10. DNBR - Low	4	2(c)(d)	3	1, 2	2#, 3#
11. DELETED					
12. Reactor Protection System Logic	4	2	3	1, 2	5
				3*, 4*, 5*	8
13. Reactor Trip Breakers	4	2(f)	4	1, 2	5
				3*, 4*, 5*	8
14. Core Protection Calculators	4	2(c)(d)	3	1, 2	2#, 3# and 7
15. CEA Calculators	2	1	2(e)	1, 2	6 and 7
16. Reactor Coolant Flow - Low	4/SG	2/SG(c)	3/SG	1, 2	2#, 3#

TABLE 3.3-1 (Continued)

TABLE NOTATION

*With the protective system trip breakers in the closed position, the CEA drive system capable of CEA withdrawal, and fuel in the reactor vessel.

#The provisions of Specification 3.0.4 are not applicable.

**Not applicable above a logarithmic power of 10^{-4} % RATED THERMAL POWER.

(a) The operating bypass may be enabled above the 10^{-4}% bistable setpoint and shall be capable of automatic removal whenever the operating bypass is enabled and logarithmic power is below the 10^{-4}% bistable setpoint. Trip may be manually bypassed during physics testing pursuant to Special Test Exception 3.10.3.

(b) Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer pressure is greater than or equal to 500 psia.

(c) The operating bypass may be enabled below the 10^{-4}% bistable setpoint and shall be capable of automatic removal whenever the operating bypass is enabled and logarithmic power is above the 10^{-4}% bistable setpoint. During testing pursuant to Special Test Exception 3.10.3, trip may be manually bypassed below 5% of RATED THERMAL POWER; the 10^{-4}% bistable setpoint may be changed to less than or equal 5% RATED THERMAL POWER to perform the automatic removal function.

(d) Trip may be bypassed during testing pursuant to Special Test Exception 3.10.3.

(e) See Special Test Exception 3.10.2.

(f) Each channel shall be comprised of two trip breakers; actual trip logic shall be one-out-of-two taken twice.

TABLE 3.3-1 (Continued)

TABLE NOTATION

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and/or open the protective system trip breakers.

ACTION 2 - With the number of channels OPERABLE one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may continue provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour. If the inoperable channel is bypassed, the desirability of maintaining this channel in the bypassed condition shall be documented by the On-Site Safety Review Committee in accordance with plant administrative procedures. The channel shall be returned to OPERABLE status prior to STARTUP following the next COLD SHUTDOWN.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS

With a channel process measurement circuit that affects multiple functional units inoperable or in test, bypass or trip all associated functional units as listed below:

Process Measurement Circuit	Functional Unit Bypassed/Tripped
1. Linear Power (Subchannel or Linear)	Linear Power Level - High Local Power Density - High DNBR - Low
2. Pressurizer Pressure - High	Pressurizer Pressure - High Local Power Density - High DNBR - Low
3. Containment Pressure - High	Containment Pressure - High (RPS) Containment Pressure - High (ESF)
4. Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator ΔP 1 and 2 (EFAS 1 and 2)
5. Steam Generator Level	Steam Generator Level - Low Steam Generator ΔP (EFAS)
6. Core Protection Calculator	Local Power Density - High DNBR - Low
7. Logarithmic Power	Logarithmic Power Level - High Local Power Density - High [(1)] DNBR - Low [(1)] Reactor Coolant Flow - Low [(1)]

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement, STARTUP and/or POWER OPERATION may continue provided the following conditions are satisfied:

a. Verify that one of the inoperable channels has been bypassed and place the other channel in the tripped condition within 1 hour, and

b. All functional units affected by the bypassed/tripped channel shall also be placed in the bypassed/tripped condition as listed below:

Process Measurement Circuit	Functional Unit Bypassed/Tripped
1. Linear Power (Subchannel or Linear)	Linear Power Level - High Local Power Density - High DNBR - Low

(1) With the operating bypass enabled.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS

2. Pressurizer Pressure - High	Pressurizer Pressure - High Local Power Density - High DNBR - Low
3. Containment Pressure - (RPS) High	Containment Pressure - High Containment Pressure - High (ESF)
4. Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator ΔP 1 and 2 (EFAS 1 and 2)
5. Steam Generator Level	Steam Generator Level - Low Steam Generator ΔP (EFAS)
6. Core Protection Calculator	Local Power Density - High DNBR - Low
7. Logarithmic Power	Logarithmic Power Level - High Local Power Density - High (1) DNBR - Low (1) Reactor Coolant Flow - Low (1)

STARTUP and/or POWER OPERATION may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent STARTUP and/or POWER OPERATION may continue if one channel is restored to OPERABLE status and the provisions of ACTION 2 are satisfied.

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, suspend all operations involving positive reactivity changes. *

ACTION 5 - With the number of channels OPERABLE one less those required by the Minimum Channels OPERABLE requirement, STARTUP and/or POWER OPERATION may continue provided the reactor trip breakers of the inoperable channel are placed in the tripped condition within 1 hour; otherwise, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing per Specification 4.3.1.1.

ACTION 6 - a. With one CEAC inoperable, operation may continue for up to 7 days provided that at least once per 4 hours, each CEA is verified to be within 7 inches (indicated position) of all other CEAs in its group. After 7 days, operation may continue provided that Actions 6.b.1, 6.b.2, and 6.b.3 are met.

* Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SHUTDOWN MARGIN.

(1) With the operating bypass enabled.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS

b. With both CEACs inoperable, operation may continue provided that:

1. Within 4 hours the DNBR margin required by Specification 3.2.4b (COLSS in service) or 3.2.4d (COLSS out of service) is satisfied and the Reactor Power Cutback System is disabled, and

2. Within 4 hours:

a) All CEA groups are withdrawn to and subsequently maintained at the "Full Out" position, except during surveillance testing pursuant to the requirements of Specification 4.1.3.1.2 or for control when CEA group 6 may be inserted no further than 127.5 inches withdrawn.

b) The "RSPT/CEAC Inoperable" addressable constant in the CPCs is set to the inoperable status.

c) The Control Element Drive Mechanism Control System (CEDMCS) is placed in and subsequently maintained in the "Off" mode except during CEA group 6 motion permitted by a) above, when the CEDMCS may be operated in either the "Manual Group" or "Manual Individual" mode.

3. At least once per 4 hours, all CEAs are verified fully withdrawn except during surveillance testing pursuant to Specification 4.1.3.1.2 or during insertion of CEA group 6 as permitted by 2.a) above, then verify at least once per 4 hours that the inserted CEAs are aligned within 7 inches (indicated position) of all other CEAs in its group.

ACTION 7 - With three or more auto restarts of one non-bypassed calculator during a 12-hour interval, demonstrate calculator OPERABILITY by performing a CHANNEL FUNCTIONAL TEST within the next 24 hours.

ACTION 8 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

TABLE 3.3.2 has been deleted.

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TABLE 4.3-1

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	SFCP and S/U(1)	1, 2, 3*, 4*, 5*
2. Linear Power Level - High	SFCP	SFCP(2,4),SFCP (3,4), SFCP (4)	SFCP	1, 2
3. Logarithmic Power Level - High	SFCP	SFCP(4)	SFCP and S/U(1)	2#, 3, 4, 5
4. Pressurizer Pressure - High	SFCP	SFCP	SFCP	1, 2
5. Pressurizer Pressure - Low	SFCP	SFCP	SFCP	1, 2
6. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2
7. Steam Generator Pressure - Low	SFCP	SFCP	SFCP	1, 2
8. Steam Generator Level - Low	SFCP	SFCP	SFCP	1, 2
9. Local Power Density - High	SFCP	SFCP(2,4),SFCP(4,5)	SFCP, SFCP(6)	1, 2
10. DNBR - Low	SFCP	SFCP(7), SFCP(2,4), SFCP(8), SFCP(4,5)	SFCP, SFCP(6)	1, 2
11. DELETED				
12. Reactor Protection System Logic	N.A.	N.A.	SFCP(11) and S/U(1)	1, 2, 3*, 4*, 5*

TABLE 4.3-1 (Continued)

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
13. Reactor Trip Breakers	N.A.	N.A.	SFCP(10,11), S/U(1)	1, 2, 3*, 4*, 5*
14. Core Protection Calculators	SFCP	SFCP(2,4), SFCP(4,5)	SFCP(9), SFCP(6)	1,2
15. CEA Calculators	SFCP	SFCP	SFCP, SFCP(6)	1, 2
16. Reactor Coolant Flow - Low	SFCP	SFCP	SFCP	1, 2

TABLE 4.3-1 (Continued)

TABLE NOTATIONS

*With the reactor trip breakers in the closed position, the CEA drive system capable of CEA withdrawal, and fuel in the reactor vessel.

#The provisions of Specification 4.0.4 are not applicable when reducing reactor power to less than 10^{-4}% of RATED THERMAL POWER[a] from a reactor power level greater than 10^{-4}% of RATED THERMAL POWER[a]. Upon reducing power below 10^{-4}% of RATED THERMAL POWER[a], a CHANNEL FUNCTIONAL TEST shall be performed within 2 hours if not performed during the previous 31 days. This requirement does not apply with the reactor trip breakers open.

(1) Each startup or when required with the reactor trip breakers closed and the CEA drive system capable of rod withdrawal, if not performed in the previous 7 days.

(2) Heat balance only (CHANNEL FUNCTIONAL TEST not included):

a. No adjustments to RPS Linear Power or CPC power indications are required below 15% of RATED THERMAL POWER.

b. Between 15% and 80% of RATED THERMAL POWER, compare the RPS Linear Power, CPC ΔT power, and CPC neutron flux power indications to calorimetric power and take the following actions as applicable:

If RPS Linear Power or either CPC power indication is within -0.5% to +10% of RATED THERMAL POWER of calorimetric power, then do not calibrate the affected indication except as required during the initial power ascension following refueling.

If RPS Linear Power or either CPC power indication is less than calorimetric power by more than 0.5% of RATED THERMAL POWER, then calibrate the affected indication as close as practical to calorimetric power and within -0.5% to +10% of RATED THERMAL POWER of calorimetric power.

If the RPS Linear Power indication is greater than calorimetric power by more than 10% of RATED THERMAL POWER, then calibrate it such that it is within 0% to 10% of RATED THERMAL POWER greater than calorimetric power.

If either the CPC ΔT power or the CPC neutron flux power indication is greater than calorimetric power by more than 10% of RATED THERMAL POWER, then calibrate the affected CPC power indication such that it is 8% to 10% of RATED THERMAL POWER greater than calorimetric power.

c. At or above 80% of RATED THERMAL POWER, compare the RPS Linear Power, CPC ΔT power, and CPC neutron flux power indications to calorimetric power. If any indication is not within ±2% of RATED THERMAL POWER of calorimetric power, then calibrate the affected indication as close as practical to calorimetric power but within -0.5% to +2% of RATED THERMAL POWER of calorimetric power.

During PHYSICS TESTS, these daily calibrations may be suspended provided these calibrations are performed upon reaching each major test power plateau and prior to proceeding to the next major test power plateau.

[a] As measured by the Logarithmic Power Channels.

TABLE 4.3-1 (Continued)

TABLE NOTATIONS (Continued)

(3) Above 15% of RATED THERMAL POWER, verify that the linear power subchannel gains of the excore detectors are consistent with the values used to establish the shape annealing matrix elements in the Core Protection Calculators.

(4) Neutron detectors may be excluded from CHANNEL CALIBRATION.

(5) After each fuel loading and prior to exceeding 70% of RATED THERMAL POWER, the incore detectors shall be used to determine or verify acceptable values for the shape annealing matrix elements used in the Core Protection Calculators.

(6) This CHANNEL FUNCTIONAL TEST shall include the injection of simulated process signals into the channel as close to sensors as practicable to verify OPERABILITY including alarm and/or trip functions.

(7) Above 70% of RATED THERMAL POWER, verify that the total RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by either using the reactor coolant pump differential pressure instrumentation or by calorimetric calculations and if necessary, adjust the CPC addressable constant flow co-efficients such that each CPC indicated flow is less than or equal to the actual flow rate. The flow measurement uncertainty is included in the BERR1 term in the CPC and is equal to or greater than 4%.

(8) Above 70% of RATED THERMAL POWER, verify that the total RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by calorimetric calculations.

(9) The CHANNEL FUNCTIONAL TEST shall include verification that the correct values of addressable constants are installed in each OPERABLE CPC.

(10) In accordance with the Surveillance Frequency Control Program and following maintenance or adjustment of the reactor trip breakers, the CHANNEL FUNCTIONAL TEST shall include independent verification of the undervoltage trip function and the shunt trip function.

(11) The CHANNEL FUNCTIONAL TEST shall be scheduled and performed such that the Reactor Trip Breakers (RTBs) are tested at least every 6 weeks to accommodate the appropriate vendor recommended interval for cycling of each RTB.

INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2 The Engineered Safety Features Actuation System (ESFAS) instrumentation channels and bypasses shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value.

b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2.

4.3.2.2 The logic for the bypasses shall be demonstrated OPERABLE during the at power CHANNEL FUNCTIONAL TEST of channels affected by bypass operation. The total bypass function shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

4.3.2.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit in accordance with the Surveillance Frequency Control Program. Each test shall include at least one channel per function such that all channels are tested as shown in the "Total No. of Channels" Column of Table 3.3-3.

TABLE 3.3-3

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. SAFETY INJECTION (SIAS)					
a. Manual (Trip Buttons)	2 sets of 2	1 set of 2	2 sets of 2	1, 2, 3, 4	12
b. Containment Pressure - High	4	2	3	1, 2, 3	13*, 14*
c. Pressurizer Pressure - Low	4	2	3	1, 2, 3(a)	13*, 14*
d. Automatic Actuation - Logic	4	2	3	1, 2, 3	12
2. CONTAINMENT SPRAY (CSAS)					
a. Manual (Trip Buttons)	2 sets of 2	1 set of 2	2 sets of 2	1, 2, 3, 4	12
b. Containment Pressure -- High - High	4	2(b)	3	1, 2, 3	13*, 14*
c. Automatic Actuation Logic	4	2	3	1, 2, 3	12
3. CONTAINMENT ISOLATION (CIAS)					
a. Manual CIAS (Trip Buttons)	2 sets of 2	1 set of 2	2 sets of 2	1, 2, 3, 4	12
b. Containment Pressure - High	4	2	3	1, 2, 3	13*, 14*
c. Pressurizer Pressure - Low	4	2	3	1, 2, 3(a)	13*, 14*
d. Automatic Actuation Logic	4	2	3	1, 2, 3	12

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS To TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
4. MAIN STEAM LINE ISOLATION					
a. Manual (Trip Buttons)	2 sets of 2 per steam generator	1 set of 2 per steam generator	2 sets of 2 per operating steam generator	1, 2, 3	16
b. Steam Generator Pressure - Low	4/steam generator	2/steam generator	3/steam generator	1, 2, 3	13*, 14*
c. Containment Pressure - High	4	2	3	1, 2, 3	13*, 14*
d. Automatic Actuation Logic	4	2	3	1, 2, 3	12
5. SAFETY INJECTION SYSTEM SUMP RECIRCULATION (RAS)					
a. Manual RAS (Trip Buttons)	2	1	2	1, 2, 3, 4	12
b. Refueling Water Storage Pool - Low	4	2	3	1, 2, 3, 4	19, 20
c. Automatic Actuation Logic	4	2	3	1, 2, 3, 4	12
6. LOSS OF POWER (LOV)					
a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	3/bus	3/bus	3/bus	1, 2, 3	17, 18
b. 480 V Emergency Bus Undervoltage (Loss of Voltage)	3/bus	3/bus	3/bus	1, 2, 3	17, 18
c. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	3/bus	3/bus	3/bus	1, 2, 3	17, 18

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
7. EMERGENCY FEEDWATER (EFAS)					
a. Manual (Trip Buttons)	2 sets of 2 per steam generator	1 set of 2 per steam generator	2 sets of 2 per steam generator	1, 2, 3	15
b. SG Level (1/2) - Low and ΔP (1/2) - High	4/steam generator	2/steam generator	3/steam generator	1, 2, 3	19, 20
c. SG Level (1/2) - Low and No S/G Pressure - Low Trip (1/2)	4/steam generator	2/steam generator	3/steam generator	1, 2, 3	19, 20
d. Automatic Actuation Logic	4	2	3	1, 2, 3	12
e. Control Valve Logic (Wide Range SG Level - Low)	2/steam generator	1/steam generator	2/steam generator	1, 2, 3	15

TABLE 3.3-3 (Continued)

TABLE NOTATION

(a) Trip function may be bypassed in this MODE when pressurizer pressure is less than 400 psia; bypass shall be automatically removed when pressurizer pressure is greater than or equal to 500 psia.

(b) An SIAS signal is first necessary to enable CSAS logic.

* The provisions of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

ACTION 12 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION 13 - With the number of channels OPERABLE one less than the Total Number of Channels, STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour. If the inoperable channel is bypassed, the desirability of maintaining this channel in the bypassed condition shall be documented by the On-Site Safety Review Committee in accordance with plant administrative procedures. The channel shall be returned to OPERABLE status no later than prior to entry into the applicable MODE(S) following the next COLD SHUTDOWN.

With a channel process measurement circuit that affects multiple functional units inoperable or in test, bypass or trip all associated functional units as listed below:

	Process Measurement Circuit	Functional Unit Bypassed/Tripped
1.	Containment Pressure - High	Containment Pressure - High (ESF) Containment Pressure - High (RPS)
2.	Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator ΔP 1 and 2 (EFAS)

TABLE 3.3-3 (Continued)

TABLE NOTATION

ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE, STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue provided the following conditions are satisfied:

a. Verify that one of the inoperable channels has been bypassed and place the other inoperable channel in the tripped condition within 1 hour.

b. All functional units affected by the bypassed/tripped channel shall also be placed in the bypassed/tripped condition as listed below.

	Process Measurement Circuit	Functional Unit Bypassed/Tripped
1.	Containment Pressure Circuit	Containment Pressure - High (ESF) Containment Pressure - High (RPS)
2.	Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator ΔP 1 and 2 (EFAS)

STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue if one channel is restored to OPERABLE status and the provisions of ACTION 13 are satisfied.

ACTION 15 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channels to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

ACTION 16 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

TABLE 3.3-3 (Continued)

TABLE NOTATION

ACTION 17 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may continue provided the inoperable channel is placed in the tripped (D.C Relay energized) condition within 1 hour, the remaining Emergency Diesel Generator is OPERABLE, and the inoperable channel is restored to OPERABLE status within the next 48 hours. Otherwise, be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the next 30 hours. The surveillance requirements of Table 4.3-2 are waived for all channels while this action requirement is in effect.

ACTION 18 - With more than one channel inoperable, or if the inoperable channel cannot be placed in the trip (D.C. Relay energized) condition, declare the associated Emergency Diesel Generator inoperable and take the ACTION required by Specification 3.8.1.1. The surveillance requirements of Table 4.3-2 are waived for all channels while this action requirement is in effect.

ACTION 19 - With the number of channels OPERABLE one less than the Total Number of Channels, STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue, provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour:

a. If the inoperable channel is to remain in the bypassed condition, the desirability of maintaining this channel in the bypassed condition shall be documented by the On-Site Safety Review Committee in accordance with plant administrative procedures. The channel shall be returned to OPERABLE status no later than prior to entry into the applicable MODE(S) following the next COLD SHUTDOWN.

b. If the inoperable channel is required to be placed in the tripped condition, within 48 hours either restore the channel to OPERABLE status or place the channel in the bypassed condition. If the tripped channel can not be returned to OPERABLE status in 48 hours, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours or place the tripped channel in bypass.

With a channel process measurement circuit that affects multiple functional units inoperable or in test, bypass or trip all associated functional units as listed below:

TABLE 3.3-3 (Continued)

TABLE NOTATION

	Process Measurement Circuit	Functional Unit Bypassed/Tripped
1.	Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator ΔP 1 and 2 (EFAS)
2.	Steam Generator Level	Steam Generator Level - Low Steam Generator ΔP (EFAS)

ACTION 20 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE, STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue provided the following conditions are satisfied:

a. Verify that one of the inoperable channels has been bypassed and place the other inoperable channel in the tripped condition within 1 hour. With a channel process measurement circuit that affects multiple functional units inoperable or in test, bypass or trip all associated functional units as listed below:

	Process Measurement Circuit	Functional Unit Bypassed/Tripped
1.	Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator ΔP 1 and 2 (EFAS)
2.	Steam Generator Level	Steam Generator Level - Low Steam Generator ΔP (EFAS)

b. Restore at least one of the inoperable channels to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Subsequent operation in the applicable MODE(S) may continue if one channel is restored to OPERABLE status and the provisions of ACTION 19 are satisfied.

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1.	SAFETY INJECTION (SIAS)		
	a. Manual (Trip Buttons)	Not Applicable	Not Applicable
	b. Containment Pressure - High	≤ 17.1 psia	≤ 17.4 psia
	c. Pressurizer Pressure - Low	≥ 1684 psia(1)	≥ 1649.7 psia(1)
	d. Automatic Actuation Logic	Not Applicable	Not Applicable
2.	CONTAINMENT SPRAY (CSAS)		
	a. Manual (Trip Buttons)	Not Applicable	Not Applicable
	b. Containment Pressure -- High-High	≤ 17.7 psia	≤ 18.0 psia
	c. Automatic Actuation Logic	Not Applicable	Not Applicable
3.	CONTAINMENT ISOLATION (CIAS)		
	a. Manual CIAS (Trip Buttons)	Not Applicable	Not Applicable
	b. Containment Pressure - High	≤ 17.1 psia	≤ 17.4 psia
	c. Pressurizer Pressure - Low	≥ 1684 psia(1)	≥ 1649.7 psia(1)
	d. Automatic Actuation Logic	Not Applicable	Not Applicable
4.	MAIN STEAM LINE ISOLATION		
	a. Manual (Trip Buttons)	Not Applicable	Not Applicable
	b. Steam Generator Pressure - Low	≥ 666 psia(2)	≥ 652.4 psia(2)
	c. Containment Pressure - High	≤ 17.1 psia	≤ 17.4 psia
	d. Automatic Actuation Logic	Not Applicable	Not Applicable

TABLE [illegible] (Continued)
ENGINEERED SAFETY FEATURES ACTUA[illegible]N SYSTEM INSTRUMENTATION TRIP VALUES

	FUNCTIONAL UNIT	TRIP VALUE	ALLOWABLE VALUES
5.	SAFETY INJECTION SYSTEM SUMP RECIRCULATION (RAS)		
	a. Manual RAS (Trip Buttons)	Not Applicable	Not Applicable
	b. Refueling Water Storage Pool - Low	10.0% (57,967 gallons)	9.08% (52,634 gallons)
	c. Automatic Actuation Logic	Not Applicable	Not Applicable
6.	LOSS OF POWER		
	a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	$\geq$ 3245 volts	$\geq$ 3245 volts
	b. 480 V Emergency Bus Undervoltage	$\geq$ 372 volts	$\geq$ 354 volts
	c. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	$\geq$ 3875 volts	$\geq$ 3860 volts
7.	EMERGENCY FEEDWATER (EFAS)		
	a. Manual (Trip Buttons)	Not Applicable	Not Applicable
	b. Steam Generator (1&2) Level - Low	$\geq$ 27.4%[3][4]	$\geq$ 26.48%[3][4]
	c. Steam Generator ΔP - High (SG-1 > SG-2)	$\leq$ 123 psid	$\leq$ 134 psid
	d. Steam Generator ΔP - High (SG-2 > SG-1)	$\leq$ 123 psid	$\leq$ 134 psid
	e. Steam Generator (1&2) Pressure - Low	$\geq$ 666 psia[2]	$\geq$ 652.4 psia[2]
	f. Automatic Actuation Logic	Not Applicable	Not Applicable
	g. Control Valve Logic (Wide Range SG Level - Low)	$\geq$ 36.3%[3][5]	$\geq$ 35.3%[3][5]

TABLE 3.3-4 (Continued)

TABLE NOTATIONS

(1) Value may be decreased manually, to a minimum of 100 psia, as pressurizer pressure is reduced, provided the margin between the pressurizer and this value is maintained at less than or equal to 400 psi; the setpoint shall be increased automatically as pressurizer pressure is increased until the trip setpoint is reached. Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer is greater than or equal to 500 psia.

(2) Value may be decreased manually as steam generator pressure is reduced, provided the margin between the steam generator pressure and this value is maintained at less than or equal to 200 psi; the setpoint shall be increased automatically as steam generator pressure is increased until the trip setpoint is reached.

(3) % of this distance between steam generator upper and lower level instrument nozzles.

(4) Requires corresponding permissive trip signal of item 7.c., 7.d., or 7.e. to actuate EFAS.

(5) Requires corresponding EFAS trip to actuate control valves.

TABLE 3.3.5 has been deleted.

Next page is 3/4 3-25

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. SAFETY INJECTION (SIAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2, 3
c. Pressurizer Pressure - Low	SFCP	SFCP	SFCP	1, 2, 3
d. Automatice Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(3) (6)	1, 2, 3
2. CONTAINMENT SPRAY (CSAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Containment Pressure -- High - High	SFCP	SFCP	SFCP	1, 2, 3
c. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3
3. CONTAINMENT ISOLATION (CIAS)				
a. Manual CIAS (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2, 3
c. Pressurizer Pressure - Low	SFCP	SFCP	SFCP	1, 2, 3
d. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3
4. MAIN STEAM LINE ISOLATION				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3
b. Steam Generator Pressure - Low	SFCP	SFCP	SFCP	1, 2, 3
c. Containment Pressure - High	SFCP	SFCP	SFCP	1, 2, 3
d. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
5. SAFETY INJECTION SYSTEM RECIRCULATION (RAS)				
a. Manual RAS (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3, 4
b. Refueling Water Storage Pool - Low	SFCP	SFCP	SFCP	1, 2, 3, 4
c. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3, 4
Actuation Subgroup Relays	N.A.	N.A.	SFCP(1) (3)	1, 2, 3, 4
6. LOSS OF POWER (LOV)				
a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	N.A.	SFCP	SFCP(4)	1, 2, 3
b. 480 V Emergency Bus Undervoltage (Loss of Voltage)	N.A.	SFCP	SFCP(4)	1, 2, 3
c. 4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	N.A.	SFCP	SFCP(4)	1, 2, 3

TABLE 4.3.-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
7. EMERGENCY FEEDWATER (EFAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	SFCP	1, 2, 3
b. SG Level (1/2) - Low and ΔP (1/2) - High	SFCP	SFCP	SFCP	1, 2, 3
c. SG Level (1/2) - Low and No Pressure - Low Trip (1/2)	SFCP	SFCP	SFCP	1, 2, 3
d. Automatic Actuation Logic (except subgroup relays)	N.A.	N.A.	SFCP(2)	1, 2, 3
Actuation Subgroup Relays	N.A.	N.A	SFCP(1) (3)	1, 2, 3
e. Control Valve Logic (Wide Range SG Level - Low)	SFCP	SFCP	SFCP(5)	1, 2, 3

TABLE NOTATION

(1) Each train or logic channel shall be tested in accordance with the Surveillance Frequency Control Program.

(2) Testing of Automatic Actuation Logic shall include the energization/deenergization of each initiation relay and verification of the OPERABILITY of each initiation relay.

(3) A subgroup relay test shall be performed which shall include the energization/deenergization of each subgroup relay and verification of the OPERABILITY of each subgroup relay. Relays K109, K114, K202, K301, K305, K308 and K313 are exempt from testing during power operation but shall be tested in accordance with the Surveillance Frequency Control Program and during each COLD SHUTDOWN condition unless tested within the previous 62 days

(4) Using installed test switches.

(5) To be performed during each COLD SHUTDOWN if not performed in the previous 6 months.

(6) Each train shall be tested, with the exemption of relays, K110, K410 and K412, in accordance with the Surveillance Frequency Control Program. Relays K110, K410 and K412 shall be tested in accordance with the Surveillance Frequency Control Program.

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

ACTION:

a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable.

b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-3.

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

	INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1.	AREA MONITORS					
a.	Deleted					
b.	Containment - Purge & Exhaust Isolation	1/train	1, 2, 3, 4 & **	40 mR/h or $\leq$ 2x background whichever is Higher	20 - 5×10^{5} mR/h	25
2.	PROCESS MONITORS					
a.	DELETED					
b.	Control Room Intake Monitors	1/intake	ALL MODES & ***	$\leq 5.45 \times 10^{-6}$ µCi/cc	10^{-8} - 10^{-2} µCi/cc	26
c.	Steam Generator Blowdown Monitor	1	1, 2, 3, & 4	$\leq 10^{-3}$ µCi/cc	10^{-6} - 10^{-1} µCi/cc	28
d.	Component Cooling Water Monitors A&B	1/line	ALL MODES	$\leq 10^{-4}$ µCi/cc	10^{-7} - 10^{-2} µCi/cc	28
e.	Component Cooling Water Monitor A/B	1	1, 2, 3, & 4	$\leq 10^{-4}$ µCi/cc	10^{-7} - 10^{-2} µCi/cc	28

*Deleted
**During CORE ALTERATIONS or load movements with or over irradiated fuel within the containment.
***During load movements with or over irradiated fuel.

TABLE 3.3-6 (Continued)

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
3. EFFLUENT ACCIDENT MONITORS					
a. Containment High Range	2	1, 2, 3, & 4	Not Applicable	1 - 10^8 R/h	27
b. Plant Stack High Range	1	1, 2, 3, & 4	Not Applicable	10^{-7} - 10^5 μCi/cc	27
c. Condenser Vacuum Pump High Range	1	1, 2, 3, & 4	Not Applicable	10^{-7} - 10^5 μCi/cc	27
d. Fuel Handling Building Exhaust High Range	1	1*, 2*, 3*, & 4*	Not Applicable	10^{-7} - 10^5 μCi/cc	27
e. Main Steam Line High Range	1/steam line	1, 2, 3, & 4	Not Applicable	1 - 10^5 mR/h	27

*With irradiated fuel in the storage pool.

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

ACTION 23 - DELETED

ACTION 24 - DELETED

ACTION 25 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.4.

ACTION 26 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.

ACTION 27 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

1. Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and

2. If the monitor is not restored to OPERABLE status within 7 days after the failure, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days after the failure outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

ACTION 28 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, operation of the plant may continue provided grab samples are taken once per 8 hours and these samples are analyzed for gross activity within 24 hours.

If the monitor is not restored to OPERABLE status within 30 days after the failure, continue sampling and prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 14 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. AREA MONITORS				
a. Deleted				
b. Containment - Purge & Exhaust Isolation	SFCP	SFCP	SFCP	1, 2, 3, 4 & **
2. PROCESS MONITORS				
a. DELETED				
b. Control Room Intake Monitors	SFCP	SFCP	SFCP	ALL MODES & ***
c. Steam Generator Blowdown	SFCP	SFCP	SFCP	1, 2, 3, & 4
d. Component Cooling Water Monitors A&B	SFCP	SFCP	SFCP	ALL MODES
e. Component Cooling Water Monitor A/B	SFCP	SFCP	SFCP	1, 2, 3, & 4

*Deleted
**During CORE ALTERATIONS or load movements with or over irradiated fuel within the containment.
***During load movements with or over irradiated fuel.

TABLE 4.3-3 (Continued)

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3. EFFLUENT ACCIDENT MONITORS				
a. Containment High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4
b. Plant Stack High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4
c. Condenser Vacuum Pump High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4
d. Fuel Handling Building Exhaust High Range	SFCP	SFCP	SFCP	1*, 2*, 3*, & 4*
e. Main Steam Line High Range	SFCP	SFCP	SFCP	1, 2, 3, & 4

*With irradiated fuel in the storage pool.

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PAGES 3/4 3-36
THROUGH
PAGE 3/4 3-40
NOT USED

REMOTE SHUTDOWN INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.5 The remote shutdown monitoring instrumentation channels shown in Table 3.3-9 shall be OPERABLE, with readouts displayed external to the control room.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With the number of OPERABLE remote shutdown system instrumentation channels less than required by Table 3.3-9, either restore the inoperable channel to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours.

b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.5. Each remote shutdown monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-6.

TABLE 3.3-9

REMOTE SHUTDOWN INSTRUMENTATION

INSTRUMENTATION	READOUT LOCATION	MINIMUM CHANNELS OPERABLE
1. Neutron Flux	LCP-43	2
2. Reactor Trip Breaker Indication	Switch Gear Area	1/trip breaker
3. Reactor Coolant Temperature - Cold Leg (T_{Cold})	LCP-43	2
4. Reactor Coolant Temperature - Hot Leg (T_{Hot})	LCP-43	2
5. Pressurizer Pressure	LCP-43	2
6. Pressurizer Level	LCP-43	2
7. Steam Generator Level	LCP-43	2/steam generator
8. Steam Generator Pressure	LCP-43	2/steam generator
9. Shutdown Cooling Flow Rate	LCP-43	1/train
10. Emergency Feedwater Flow Rate	LCP-43	1/steam generator
11. Condensate Storage Pool Level	LCP-43	2

TABLE 4.3-6

REMOTE SHUTDOWN INSTRUMENTATION SURVEILLANCE REQURIEMENTS

INSTRUMENTATION		CHANNEL CHECK	CHANNEL CALIBRATION
1.	Neutron Flux	SFCP	SFCP*
2.	Reactor Trip Breaker Indication	SFCP	N.A.
3.	Reactor Coolant Temperature - Cold Leg (T_{Cold})	SFCP	SFCP
4.	Reactor Coolant Temperature - Hot Leg (T_{Hot})	SFCP	SFCP
5.	Pressurizer Pressure	SFCP	SFCP
6.	Pressurizer Level	SFCP	SFCP
7.	Steam Generator Level	SFCP	SFCP
8.	Steam Generator Pressure	SFCP	SFCP
9.	Shutdown Cooling Flow Rate	SFCP	SFCP
10.	Emergency Feedwater Flow Rate	SFCP	SFCP
11.	Condensate Storage Pool Level	SFCP	SFCP

*Neutron detector may be excluded from CHANNEL CALIBRATION.

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With the number of OPERABLE accident monitoring channels less than the Required Number of Channels shown in Table 3.3-10, take the action identified in Table 3.3-10.

b. With the number of OPERABLE accident monitoring channels less than the Minimum Channels OPERABLE requirements of Table 3.3-10, take the action identified in Table 3.3-10.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.6 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-7.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	ACTION
1. Containment Pressure (Wide Range)	2	1	29,30
2. Containment Pressure (Wide Wide Range)	2	1	29,30
3. Reactor Coolant Outlet Temperature -T_{Hot} (Wide Range)	2	1	29,30
4. Reactor Coolant Inlet Temperature - T_{Cold} (Wide Range)	2	1	29,30
5. Reactor Coolant Pressure - Wide Range	2	1	29,30
6. Pressurizer Water Level	2	1	29,30
7. Steam Generator Water Level - Narrow Range	2/steam generator	1/steam generator	29,30
8. Steam Generator Water Level - Wide Range	2/steam generator	1/steam generator	29,30
9. Containment Water Level (Wide Range)	2	1	29,30
10. Core Exit Thermocouples	4/core quadrant	2/core quadrant	29,30
11. Containment Isolation Valve Position Indicators*	1/valve	N/A	29
12. Condensate Storage Pool Level	2	1	29,30
13. Reactor Vessel Level Monitoring System**	2	1	29,31
14. Log Power Indication (Neutron Flux)***	2	1	29,30

*If the containment isolation valve is declared inoperable and the provisions of Specification 3.6.3 are complied with, action requirements of this specification are not applicable.

**A channel is eight sensors in a probe. A channel is operable if four or more sensors, one or more in the upper three and three or more in the lower five, are operable.

***Channels C and D only (ENIIJI0001C and ENIIJI0001D). These instruments are also covered by Specification 3.3.1, "Reactor Protective Instrumentation."

TABLE 3.3-10

ACTION STATEMENTS

ACTION 29 - With the number of OPERABLE accident monitoring channels less than the Required Number of Channels shown in Table 3.3-10, either restore the inoperable channel to OPERABLE status within 30 days, or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels to OPERABLE status.

ACTION 30 - With the number of OPERABLE accident monitoring channels less than the Minimum Channels OPERABLE requirements of Table 3.3-10; either restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

ACTION 31 - With the number of OPERABLE accident monitoring channels less than the Minimum Channels OPERABLE in Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 7 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels to OPERABLE status.

TABLE 4.3-7

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT		CHANNEL CHECK	CHANNEL CALIBRATION
1.	Containment Pressure (Wide Range)	SFCP	SFCP
2.	Containment Pressure (Wide Wide Range)	SFCP	SFCP
3.	Reactor Coolant Outlet Temperature - T_{Hot} (Wide Range)	SFCP	SFCP
4.	Reactor Coolant Inlet Temperature - T_{Cold} (Wide Range)	SFCP	SFCP
5.	Reactor Coolant Pressure - Wide Range	SFCP	SFCP
6.	Pressurizer Water Level	SFCP	SFCP
7.	Steam Generator Water Level - Narrow Range	SFCP	SFCP
8.	Steam Generator Water Level - Wide Range	SFCP	SFCP
9.	Containment Water Level (Wide Range)	SFCP	SFCP
10.	Core Exit Thermocouples	SFCP	SFCP
11.	Containment Isolation Valve Position	SFCP	SFCP
12.	Condensate Storage Pool Level	SFCP	SFCP
13.	Reactor Vessel Level Monitoring System	SFCP	SFCP
14.	Log Power Indication (Neutron Flux)	SFCP	SFCP

CHEMICAL DETECTION SYSTEMS

CHLORINE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.3.7.1 Two independent chlorine detection systems, with their alarm/trip setpoints adjusted to actuate at a chlorine concentration of less than or equal to 2 ppm, shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

a. With one chlorine detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

b. With no chlorine detection system OPERABLE, within 1 hour initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.1 Each chlorine detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program and a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

INSTRUMENTATION

CHEMICAL DETECTION SYSTEMS

BROAD RANGE GAS DETECTION

LIMITING CONDITION FOR OPERATION

3.3.3.7.3 Two independent broad range gas detection systems shall be OPERABLE ** with their alarm/trip setpoints adjusted to actuate at the lowest achievable Immediately Dangerous to Life or Health gas concentration level of detectable toxic gases* providing reliable operation.

APPLICABILITY: All MODES.

ACTION:

a. With one broad range gas detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

b. With no broad range gas detection system OPERABLE, within 1 hour initiate and maintain operation of the control room ventilation system in the isolate mode of operation.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.3 Each broad range gas detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program, and a CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program. The CHANNEL FUNCTIONAL TEST will include the introduction of a standard gas.

*Including Ammonia

** The requirements of Technical Specification 3.0.1 do not apply during the time (two minutes or less) when the instrument automatic background/reference spectrum check renders the instrument(s) inoperable.

Pages 3/4 3-49 through 3/4 3-59 have been deleted.

INSTRUMENTATION

EXPLOSIVE GAS MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.11 The explosive gas monitoring instrumentation channels shown in Table 3.3-13 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.5 are not exceeded.

APPLICABILITY: As shown in Table 3.3-13.

ACTION:

a. With an explosive gas monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Specification, declare the channel inoperable, and take the ACTION shown in Table 3.3-13.

b. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the following 14 days to explain why this inoperability was not corrected in a timely manner.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.11 Each explosive gas monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-9.

TABLE 3.3-13

EXPLOSIVE GAS MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. WASTE GAS HOLDUP SYSTEM EXPLOSIVE GAS MONITORING SYSTEM			
a. Hydrogen Monitor	1	**	38
b. Oxygen Monitors	2	**	40

Page 3/4 3-62 has been deleted.

TABLE 3.3-13 (Continued)

TABLE NOTATIONS

*Not used.

**During WASTE GAS HOLDUP SYSTEM operation.

ACTION STATEMENTS

ACTION 35 - ACTION 35 has been deleted

ACTION 36 - ACTION 36 has been deleted

ACTION 37 - ACTION 37 has been deleted

ACTION 38 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of the WASTE GAS HOLDUP SYSTEM may continue provided best efforts are made to repair the instrument and that grab samples are collected at least once per 8 hours and analyzed within the following 4 hours for the onservice gas decay tank.

ACTION 39 - ACTION 39 has been deleted

ACTION 40 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of the WASTE GAS HOLDUP SYSTEM may continue provided best efforts are made to repair the instrument and that the system is sampled by either the remaining monitor or by a grab sample at least once per 4 hours and the oxygen concentration remains less than 2%. If there are no monitors OPERABLE, WASTE GAS HOLDUP SYSTEM operation may continue provided best efforts are made to return at least one channel to OPERABLE status and that a grab sample is taken and analyzed from the onservice gas decay tank at least once per 4 hours and the oxygen concentration remains less than 1%. With oxygen concentration exceeding 1%, reduce the oxygen concentration to less than 1% within 48 hours, or be in HOT STANDBY within the next 6 hours.

Page 3/4 3-64 has been deleted

TABLE 4.3-9

EXPLOSIVE GAS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE IS REQUIRED
1. WASTE GAS HOLDUP SYSTEM EXPLOSIVE GAS MONITORING SYSTEM					
a. Hydrogen Monitor	SFCP	N.A.	SFCP(4)	SFCP	**
b. Oxygen Monitors	SFCP	N.A.	SFCP(5)	SFCP	**

Page 3/4 3-66 has been deleted

TABLE 4.3-9 (Continued)

TABLE NOTATIONS

*Not used.

**During WASTE GAS HOLDUP SYSTEM operation.

(1) Note 1 has been deleted

(2) Note 2 has been deleted

(3) Note 3 has been deleted

(4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. Zero volume percent hydrogen, balance nitrogen, and
2. Four volume percent hydrogen, balance nitrogen.

(5) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. Zero volume percent oxygen, balance nitrogen, and
2. Four volume percent oxygen, balance nitrogen.

(6) Note 6 has been deleted.

Page 3/4 3-68 has been deleted

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 Both reactor coolant loops and both reactor coolant pumps in each loop shall be in operation.

APPLICABILITY: MODES 1 and 2.

ACTION:

With less than the above required reactor coolant pumps in operation, be in at least HOT STANDBY within 1 hour.

SURVEILLANCE REQUIREMENTS

4.4.1.1 The above required reactor coolant loops shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 The reactor coolant loops listed below shall be OPERABLE and at least one of these reactor coolant Loops shall be in operation.*

a. Reactor Coolant Loop 1 and its associated steam generator and at least one associated reactor coolant pump.

b. Reactor Coolant Loop 2 and its associated steam generator and at least one associated 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 no reactor coolant loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2 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 to be OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 At least one reactor coolant loop shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

4.4.1.2.3 The required steam generator(s) shall be determined OPERABLE by verifying the secondary side water level to be ≥ 50% of wide range indication in accordance with the Surveillance Frequency Control Program.

*All reactor coolant pumps may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

**See Special Test Exception 3.10.5.

REACTOR COOLANT SYSTEM

HOT SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.4.1.3 At least two of the loop(s)/train(s) listed below shall be OPERABLE and at least one reactor coolant and/or shutdown cooling loops shall be in operation.*

a. Reactor Coolant Loop 1 and its associated steam generator and at least one associated reactor coolant pump,**

b. Reactor Coolant Loop 2 and its associated steam generator and at least one associated reactor coolant pump,**

c. Shutdown Cooling Train A,

d. Shutdown Cooling Train B.

APPLICABILITY: MODE 4

ACTION:

a. With less than the above required reactor coolant and/or shutdown cooling loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; if the remaining OPERABLE loop is a shutdown cooling loop, be in COLD SHUTDOWN within 24 hours.

b. With no reactor coolant or shutdown cooling loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meeting SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2 and immediately initiate corrective action to return the required coolant loop to operation.

---

* All reactor coolant pumps and shutdown cooling pumps (LPSI pumps) may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2, 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 200°F unless (1) the pressurizer water volume is less than 900 cubic feet or (2) the secondary water temperature of each steam generator is less than 100°F above each of the Reactor Coolant System cold leg temperatures.

correction letter of 7-23-2004

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE in accordance with the Surveillance Frequency Control Program 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 the secondary side water level to be ≥ 50% of wide range indication in accordance with the Surveillance Frequency Control Program.

4.4.1.3.3 At least one reactor coolant or shutdown cooling loop shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

COLD SHUTDOWN - LOOPS FILLED

LIMITING CONDITION FOR OPERATION

3.4.1.4 At least two of the loop(s)/trains listed below shall be OPERABLE and at least one reactor coolant and/or shutdown cooling loop shall be in operation.*

a. Reactor Coolant Loop 1 and its associated steam generator and at least one associated reactor coolant pump**,

b. Reactor Coolant Loop 2 and its associated steam generator and at least one associated reactor coolant pump**,

c. Shutdown Cooling Train A,

d. Shutdown Cooling Train B.

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

ACTION:

a. With less than the above required reactor coolant and/or shutdown cooling loops OPERABLE or with less than the required steam generator level, immediately initiate corrective action to return the required loops to OPERABLE status or to restore the required level as soon as possible.

b. With no reactor coolant or shutdown cooling loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2 and immediately initiate corrective action to return the required coolant loop to operation.

---

*All reactor coolant pumps and shutdown cooling pumps (LPSI pumps) may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2, 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 200°F unless (1) the pressurizer water volume is less than 900 cubic feet or (2) the secondary water temperature of each steam generator is less than 100°F above each of the Reactor Coolant System cold leg temperatures.

Correction letter of 7-23-2004

REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS FILLED

SURVEILLANCE REQUIREMENTS

4.4.1.4.1 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments and indicated power availability.

4.4.1.4.2 The required steam generator(s) shall be determined OPERABLE by verifying the secondary side water level to be ≥50% of wide range indication in accordance with the Surveillance Frequency Control Program

4.4.1.4.3 At least one reactor coolant loop or shutdown cooling train shall be verified to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

COLD SHUTDOWN - LOOPS NOT FILLED

LIMITING CONDITION FOR OPERATION

3.4.1.5 Two shutdown cooling loops shall be OPERABLE# and at least one shutdown cooling loop shall be in operation.*

APPLICABILITY: MODE 5 with reactor coolant loops not filled.

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.

b. With no shutdown cooling loop in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2 and immediately initiate corrective action to return the required shutdown cooling loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.5 At least one shutdown cooling loop shall be determined to be in operation and circulating reactor coolant in accordance with the Surveillance Frequency Control Program.

One shutdown cooling loop may be inoperable for up to 2 hours for surveillance testing provided the other shutdown cooling loop is OPERABLE and in operation.

* The shutdown cooling pump (LPSI pump) may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN of Technical Specification 3.1.1.1 or 3.1.1.2, 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 2500 psia ± 3%.*

APPLICABILITY: MODE 4.

ACTION:

With no pressurizer code safety valve OPERABLE, immediately suspend all operations involving positive reactivity changes (except cooldown in shutdown cooling) and place an OPERABLE shutdown cooling loop into operation.

SURVEILLANCE REQUIREMENTS

4.4.2.1 Verify each required pressurizer code safety valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM. Following testing, lift settings shall be within ± 1%.

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

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 2500 psia ± 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 HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.2.2 Verify each required pressurizer code safety valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM. Following testing, lift settings shall be within ± 1%.

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

3/4.4.3 PRESSURIZER

LIMITING CONDITION FOR OPERATION

3.4.3.1 The pressurizer shall be OPERABLE with:

a. A steady-state water volume greater than or equal to 26% indicated level (350 cubic feet) but less than or equal to 62.5% indicated level (900 cubic feet), and,

b. At least two groups of pressurizer heaters powered from Class 1E buses each having a nominal capacity of 150 kW.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With only one group of the above required 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 breakers open within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1.1 The pressurizer water volume shall be determined to be within its limit in accordance with the Surveillance Frequency Control Program.

4.4.3.1.2 The capacity of each of the above required groups of pressurizer heaters shall be verified to be at least 150 kW in accordance with the Surveillance Frequency Control Program.

4.4.3.1.3 The emergency power supply for the pressurizer heaters shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by:

a. Verifying the above pressurizer heaters are automatically shed from the emergency power sources upon the injection of an SIAS test signal.

b. Verifying that the above heaters can be manually placed and energized on the emergency power source from the control room.

REACTOR COOLANT SYSTEM

AUXILIARY SPRAY

LIMITING CONDITION FOR OPERATION

3.4.3.2 Both auxiliary spray valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With only one of the above required auxiliary spray valves OPERABLE, restore both valves to OPERABLE status within 30 days or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With none of the above required auxiliary spray valves OPERABLE, restore at least one valve to OPERABLE status within the next 6 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The auxiliary spray valve shall be verified to have power available to each valve in accordance with the Surveillance Frequency Control Program.

4.4.3.2.2 The auxiliary spray valves shall be cycled in accordance with the Surveillance Frequency Control Program.

3/4.4.4 STEAM GENERATOR (SG) TUBE INTEGRITY

LIMITING CONDITION FOR OPERATION

a. SG tube integrity shall be maintained, and

b. All SG tubes satisfying the tube plugging criteria shall be plugged in accordance with the Steam Generator Program.

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

ACTION:

NOTE: Separate ACTION entry is allowed for each SG tube.

a. With one or more SG tubes satisfying the tube plugging criteria and not plugged in accordance with the Steam Generator Program.

   1. Within 7 days verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection, and

   2. Plug the affected tube(s) in accordance with the Steam Generator Program prior to entering HOT SHUTDOWN following the next refueling outage or SG tube inspection.

b. If the required ACTION and Allowed Outage Time of ACTION a above cannot be met or SG tube integrity cannot be maintained, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.4.1 Verify SG tube integrity in accordance with the Steam Generator Program.

4.4.4.2 Verify that each inspected SG tube that satisfies the tube plugging criteria is plugged in accordance with the Steam Generator Program prior to entering HOT SHUTDOWN following a SG tube inspection.

Pages 3/4 4-12 through 3/4 4-16 have been deleted.

REACTOR COOLANT SYSTEM

3/4.4.5 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.4.5.1 The following Reactor Coolant System leakage detection instrumentation shall be OPERABLE:

a. One containment atmosphere particulate radioactivity monitor, and

b. One containment sump monitor.

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

ACTION:

NOTE: TS 3.0.4 is not applicable.

a. Required containment atmosphere particulate radioactivity monitor inoperable.

NOTE: SR 4.4.5.2.1 is not required until 12 hours after establishment of steady state operation.

Analyze grab samples of the containment atmosphere once per 24 hours or perform SR 4.4.5.2.1 once per 24 hours;

and

Restore required containment atmosphere particulate radioactivity monitor to OPERABLE status within 30 days;

or

Be in MODE 3 in 6 hours and MODE 5 in the following 30 hours.

b. Required containment sump monitor inoperable.

NOTE: SR 4.4.5.2.1 is not required until 12 hours after establishment of steady state operation.

LIMITING CONDITION FOR OPERATION (Continued)

Perform SR 4.4.5.2.1 once per 24 hours and restore the containment sump monitor to OPERABLE status within 30 days;

or

Be in MODE 3 in 6 hours and MODE 5 in the following 30 hours.

c. All required RCS leakage detection instrumentation inoperable.

Initiate ACTION within 1 hour to be in MODE 3 within the next 6 hours and MODE 5 in the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.5.1 The leakage detection systems shall be demonstrated OPERABLE by:

a. Containment atmosphere particulate monitor system - performance of CHANNEL CHECK in accordance with the Surveillance Frequency Control Program, CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program and CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program.

b. Containment sump level and flow monitors - performance of a CHANNEL CHECK (containment sump level monitor only) in accordance with the Surveillance Frequency Control Program and a CHANNEL CALIBRATION in accordance with the Surveillance Frequency Control Program.

REACTOR COOLANT SYSTEM

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION

3.4.5.2 Reactor Coolant System operational leakage shall be limited to:

a. No PRESSURE BOUNDARY LEAKAGE,

b. 1 gpm UNIDENTIFIED LEAKAGE,

c. 75 gallons per day primary to secondary leakage, through any one steam generator (SG),

d. 10 gpm IDENTIFIED LEAKAGE from the Reactor Coolant System, and

e. 1 gpm leakage at a Reactor Coolant System pressure of 2250 $\pm$ 20 psia 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, or primary to secondary leakage not within limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any Reactor Coolant System operational leakage greater than any one of the limits, excluding PRESSURE BOUNDARY LEAKAGE, primary to secondary 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 the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one closed manual or deactivated automatic valve, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

NOTE: Not required to be performed until 12 hours after establishment of steady state operation.

4.4.5.2.1 Reactor Coolant System leakages, except for primary to secondary leakage, shall be demonstrated to be within each of the above limits by performance of a Reactor Coolant System water inventory balance in accordance with the Surveillance Frequency Control Program.

4.4.5.2.2 Primary to secondary leakage shall be verified to be $\leq$75 gallons per day through any one SG in accordance with the Surveillance Frequency Control Program.

SURVEILLANCE REQUIREMENTS (Continued)

4.4.5.2.3 Each Reactor Coolant System pressure isolation valve specified in Table 3.4-1, Section A and Section B, shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. In accordance with the Surveillance Frequency Control Program,

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,

c. Prior to returning the valve to service following maintenance, repair, or replacement work on the valve,

d. Following valve actuation for valves in Section B due to automatic or manual action or flow through the valve:

   1. Within 24 hours by verifying valve closure, and

   2. Within 31 days by verifying leakage rate.

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

4.4.5.2.4 Each Reactor Coolant System pressure isolation valve power-operated valve specified in Table 3.4-1, Section C, shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. In accordance with the Surveillance Frequency Control Program, and

b. Prior to returning the valve to service following maintenance, repair, or replacement work on the valve.

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

SECTION A

SI-329A	SIT Check
SI-329B	"
SI-330A	"
SI-330B	"
SI-336A	Cold Leg Injection Check
SI-336B	"
SI-335A	"
SI-335B	"
SI-510A	Hot Leg Injection Check
SI-512A	"
SI-510B	"
SI-512B	"
SI-241	HPSI Check
SI-242	"
SI-243	"
SI-244	"

SECTION B

SI-142A	LPSI Check
SI-142B	"
SI-143A	"
SI-143B	"

SECTION C POWER-OPERATED VALVES

SI-401A	SDC Suction Isolation
SI-401B	"
SI-405A	"
SI-405B	"
SI-4052A	SDC Suction Bypass Isolation
SI-4052B	SDC Suction Bypass Isolation

(a) Maximum Allowable Leakage (each valve):

1. SI-4052A(B) leakage limit is less than or equal to 0.375 gpm.

2. Except as noted below, leakage rates greater than 1.0 gpm are unacceptable.

3. For SI-401A(B) and SI-405A(B), leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are acceptable if the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between previous measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

4. For SI-401A(B) and SI-405A(B), leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

5. Leakage rates greater than 5.0 gpm are unacceptable.

(b) 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.

(c) Minimum test differential pressure shall not be less than 200 psid.

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3/4.4.7 SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

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

a. Less than or equal to 1.0 microcurie/gram DOSE EQUIVALENT I-131, and

b. Less than or equal to 100/$\bar{E}$ microcuries/gram.

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

ACTION:

MODES 1, 2, and 3*:

a. With the specific activity of the primary coolant greater than 1.0 microcurie/gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuous time interval or exceeding 60 microcuries/gram DOSE EQUIVALENT I-131, be in at least HOT STANDBY with Tavg less than 500°F within 6 hours.

b. With the specific activity of the primary coolant greater than 100/$\bar{E}$ microcuries/gram, be in at least HOT STANDBY with Tavg less than 500°F within 6 hours.

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

c. With the specific activity of the primary coolant greater than 1.0 microcurie/gram DOSE EQUIVALENT I-131 or greater than 100/$\bar{E}$ microcuries/gram, perform the sampling and analysis requirements of item 4 a) of Table 4.4-4 until the specific activity of the primary coolant is restored to within its limits.

SURVEILLANCE REQUIREMENTS

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

* With T_{avg} greater than or equal to 500°F.

TABLE 4.4-4

PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE AND ANALYSIS PROGRAM

TYPE OF MEASUREMENT AND ANALYSIS		SAMPLE AND ANALYSIS FREQUENCY	MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED
1. Gross Activity Determination		SFCP	1, 2, 3, 4
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration		SFCP	1
3. Radiochemical for Ē Determination		SFCP*	1
4. Isotopic Analysis for Iodine Including I-131, I-133, and I-135	a)	Once per 4 hours, whenever the specific activity exceeds 1.0 μCi/gram, DOSE EQUIVALENT I-131 or 100/Ē μCi/gram, 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

* 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 primary coolant system is restored within its limits.

Pages 3/4 4-26 and 3/4 4-27 have been deleted.

3/4.4.8 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.8.1 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 rate of 60°F per hour.

b. A maximum cooldown rate of 100°F per hour.

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 operations 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 psia, respectively, within the following 30 hours.

Correction letter of 7-23-2004

SURVEILLANCE REQUIREMENTS

4.4.8.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits in accordance with the Surveillance Frequency Control Program during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.8.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, at the intervals required by 10 CFR Part 50 Appendix H in accordance with the Reactor Vessel material surveillance program - withdrawal schedule in FSAR Table 5.3-10. The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3.

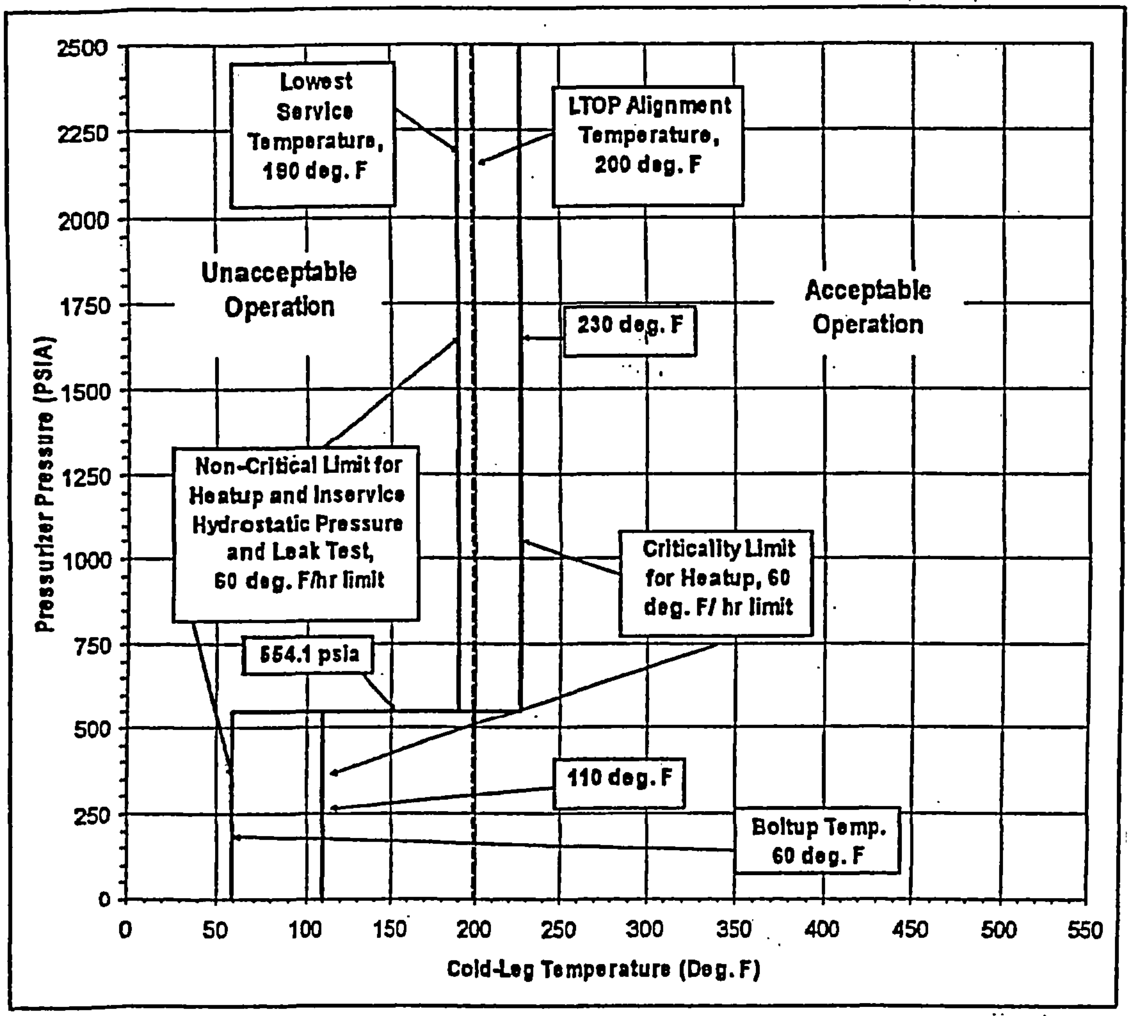

FIGURE 3.4-2

WATERFORD UNIT 3 HEATUP CURVE - 32 EFPY.

REACTOR COOLANT SYSTEM PRESSURE-TEMPERATURE LIMITS

(Curves do not include margins for instrument uncertainties)

Correction letter of 7-23-2004

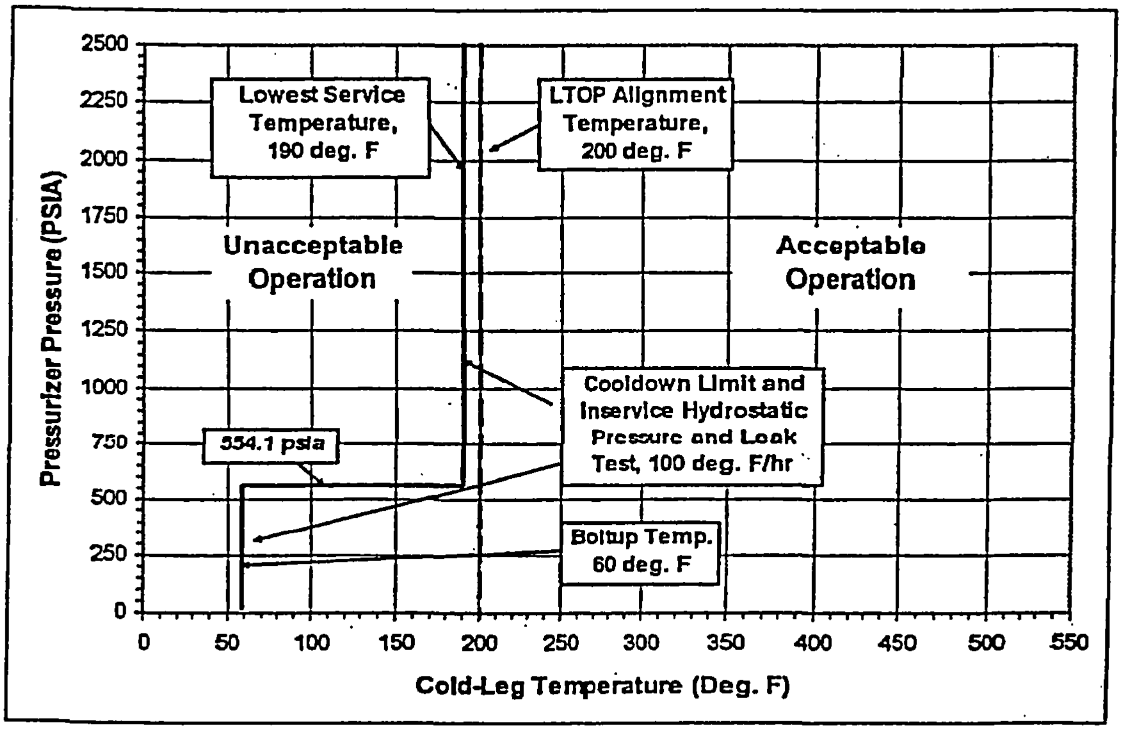

FIGURE 3.4-3

WATERFORD UNIT 3 COOLDOWN CURVE - 32 EFPY

REACTOR COOLANT SYSTEM PRESSURE TEMPERATURE LIMITS

(Curves do not include margins for instrument uncertainties)

Correction letter of 7-23-2004

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LIMITING CONDITION FOR OPERATION

3.4.8.3 Two Shutdown Cooling (SDC) System suction line relief valves (SI-406A and SI-406B) shall be OPERABLE with a lift setting of less than or equal to 430 psia.

APPLICABILITY: MODE 4 when the temperature of any RCS cold leg is less than or equal to 200°F, MODE 5, and MODE 6 when the head is on the reactor vessel and the RCS is not vented through a 5.6 square inch or larger vent.

ACTION:

a. With one SDC System suction line relief valve inoperable in MODE 4, restore the inoperable valve to OPERABLE status within 7 days, or depressurize and vent the RCS through at least a 5.6 square inch vent within the next 8 hours.

b. With one SDC System suction line relief valve inoperable in MODES 5, or 6, either (1) restore the inoperable valve to OPERABLE status within 24 hours, or (2) complete depressurization and venting of the RCS through at least a 5.6 square inch vent within a total of 32 hours.

c. With both SDC System suction line relief valves inoperable, complete depressurization and venting of the RCS through at least a 5.6 square inch vent within 8 hours.

d. In the event either the SDC System suction line relief valve(s) or the RCS vent(s) are 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 SDC System suction line relief valve(s) or RCS vent(s) on the transient, and any corrective action necessary to prevent recurrence.

e. The provisions of Specification 3.0.4 are not applicable.

Correction letter of 7-23-2004

SURVEILLANCE REQUIREMENTS

4.4.8.3.1 For each SDC System suction line relief valve:

a. verify in the control room in accordance with the Surveillance Frequency Control Program that each valve in the suction path between the RCS and the SDC relief valve is open.

b. verify each SDC relief valve is OPERABLE in accordance with the INSERVICE TESTING PROGRAM.

4.4.8.3.2 With the RCS vented per ACTIONS a, b, or c, the RCS vent(s) and all valves in the vent path shall be verified to be open in accordance with the Surveillance Frequency Control Program*.

*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 in accordance with the Surveillance Frequency Control Program.

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3/4.4.10 REACTOR COOLANT SYSTEM VENTS

LIMITING CONDITION FOR OPERATION

3.4.10 At least one Reactor Coolant System vent path consisting of at least two valves in series powered from emergency buses 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 and block valves in the inoperable vent path; restore the inoperable vent path 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.

b. With two or more Reactor Coolant System vent paths inoperable; maintain the inoperable vent paths closed with power removed from the valve actuators of all the vent valves and block 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 the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.10 Each Reactor Coolant System vent path shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program 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 during COLD SHUTDOWN or REFUELING.

c. Verifying flow through the Reactor Coolant System vent paths during venting during COLD SHUTDOWN or REFUELING.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3/4.5.1 SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System safety injection tank shall be OPERABLE with:

a. The isolation valve open,

b. A contained borated water volume of between 40% and 72.8% level,

c. Between 2050 and 2900 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 670 psig.

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

ACTION: MODES 1, 2, 3 and 4 with pressurizer pressure greater than or equal to 1750 psia.

a. With one of the required safety injection tanks inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

a. With one of the required safety injection tanks inoperable due to inability to verify level or pressure, restore the tank to OPERABLE status within 72 hours, or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

c. With one of the required safety injection tanks inoperable for reasons other than ACTION a or b, restore the tank to OPERABLE status within 24 hours, or be in HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

* With pressurizer pressure greater than or equal to 1750 psia. When pressurizer pressure is less than 1750 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 235 psig and a maximum pressure of 670 psig, and a contained borated water volume of between 61% and 72.8% level. With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 235 psig and a maximum pressure of 670 psig, a boron concentration of between 2050 and 2900 ppm boron, and a contained borated water volume of between 39% and 72.8% level. In MODE 4 with pressurizer pressure less than 392 psia (700 psia for remote shutdown from LCP-43), the safety injection tanks may be isolated.

ACTION: (Continued)

MODES 1, 2, 3 and 4 with pressurizer pressure greater than or equal to 1750 psia (continued).

d. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

MODES 3 and 4 with pressurizer pressure less than 1750 psia

e. With one of the required safety injection tanks inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

f. With one of the required safety injection tanks inoperable due to inability to verify level or pressure, restore the tank to OPERABLE status within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

g. With one of the required safety injection tanks inoperable for reasons other than ACTION a or b, restore the inoperable tank to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 hours.

h. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 Each safety injection tank shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

   1. Verifying the contained borated water volume and nitrogen cover-pressure in the tanks, and

   2. Verifying that each safety injection tank isolation valve is open.

b. In accordance with the Surveillance Frequency Control Program by verifying the boron concentration of the safety injection tank solution.

c. 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 safety injection tank solution. This surveillance is not required when the volume increase makeup source is the RWSP.

d. In accordance with the Surveillance Frequency Control Program when the RCS pressure is above 1750 psia, by verifying that the isolation valve operator breakers are padlocked in the open position.

e. In accordance with the Surveillance Frequency Control Program by verifying that each safety injection tank isolation valve opens automatically under each of the following conditions:

   1. When an actual or simulated RCS pressure signal exceeds 535 psia, and

   2. Upon receipt of a safety injection test signal.

3/4.5.2 ECCS SUBSYSTEMS - MODES 1, 2, AND 3

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent emergency core cooling system (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE high-pressure safety injection train,

b. One OPERABLE low-pressure safety injection train, and

c. An independent OPERABLE flow path capable of taking suction from the refueling water storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

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

ACTION:

a. With one ECCS subsystem inoperable due to one low pressure safety injection train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.

b. With one or more ECCS subsystems inoperable due to conditions other than (a) and 100% of ECCS flow equivalent to a single OPERABLE ECCS subsystem available, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.

---

*With pressurizer pressure greater than or equal to 1750 psia.
#With RCS average temperature greater than or equal to 500°F.

LIMITING CONDITION FOR OPERATION

c. With both LPSI trains inoperable due to less than 100% of ECCS flow equivalent to a single OPERABLE ECCS subsystem, restore at least one LPSI train to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.

d. 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. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the following valves are in the indicated positions with the valves key-locked shut:

Valve Number	Valve Functions	Valve Position
a. 2SI-V1556 (SI-506A)	a. Hot Leg Injection	a. SHUT
b. 2SI-V1557 (SI-502A)	b. Hot Leg Injection	b. SHUT
c. 2SI-V1558 (SI-502B)	c. Hot Leg Injection	c. SHUT
d. 2SI-V1559 (SI-506B)	d. Hot Leg Injection	d. SHUT

b. In accordance with the Surveillance Frequency Control Program by:

1. 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.

2. Verifying the ECCS piping is full of water.

c. 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 safety injection system sump and cause restriction of the pump suctions during LOCA conditions. This visual inspection shall be performed:

1. For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY, and

2. Of the areas affected within containment at the completion of containment entry when CONTAINMENT INTEGRITY is established.

d. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the action of the open permissive interlock (OPI) and isolation valve position alarms of the shutdown cooling system when the reactor coolant system pressure (actual or simulated) is between 392 psia and 422 psia.

2. A visual inspection of the safety injection system sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.

3. Verifying that a minimum total of 380 cubic feet of granular trisodium phosphate dodecahydrate (TSP) is contained within the TSP storage baskets.

4. Verifying that when a representative sample of 13.07 ± 0.03 grams of TSP from a TSP storage basket is submerged, without agitation, in 4 ± 0.1 liters of 120 ± 10°F water borated to 3011 ± 30 ppm, the pH of the mixed solution is raised to greater than or equal to 7 within 3 hours.

e. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on SIAS and RAS test signals.

2. Verifying that each of the following pumps start automatically upon receipt of a safety injection actuation test signal:

   a. High pressure safety injection pump.

   b. Low pressure safety injection pump.

3. Verifying that on a recirculation actuation test signal, the low pressure safety injection pumps stop, the safety injection system sump isolation valves open.

f. By verifying that each of the following pumps required to be OPERABLE performs as indicated on recirculation flow when tested pursuant to the INSERVICE TESTING PROGRAM:

1. High pressure safety injection pump differential pressure greater than or equal to 1429 psid.

2. Low pressure safety injection pump differential pressure greater than or equal to 168 psid.

SURVEILLANCE REQUIREMENTS (Continued)

g. By verifying the correct position of each electrical and/or mechanical position stop for the following ECCS throttle valves by verifying that each ECCS throttle valve opens to the proper throttled position each time the valve is cycled:

HPSI System Valve Number				LPSI System Valve Number	
a.	SI-225A	e.	SI-227A	a.	SI-138A
b.	SI-225B	f.	SI-227B	b.	SI-138B
c.	SI-226A	g.	SI-228A	c.	SI-139A
d.	SI-226B	h.	SI-228B	d.	SI-139B

h. By performing a flow balance test, during shutdown, following completion of modifications to the ECCS subsystems that alter the subsystem flow characteristics and verifying the following flow characteristics:

HPSI System - Single Pump (Cold leg injection mode)

The sum of the injection lines flow rates, excluding the highest flow rate, is greater than or equal to 675 gpm.

HPSI SYSTEM - Single Pump (Hot/cold leg injection mode)

With the system operating in the hot/cold leg injection mode, the hot leg flow must be greater than or equal to 436 gpm and within ± 10% of the cold leg flow.

LPSI System - Single Pump

Flow for each pump is greater than or equal to 4810 with the total developed head greater than or equal to 268 feet but less than or equal to 292 feet.

SURVEILLANCE REQUIREMENTS (Continued)

i. Each time HPSI Pump A/B is placed in or taken out of service in place of HPSI Pump A or B, the pump being placed in service shall be demonstrated OPERABLE by:

1. Verifying that each valve in the flow path is in its correct position; and

2. Verifying the pump starts manually and upon receipt of a SIAS test signal; and

3. Performing Surveillance Requirement 4.5.2f.1., if not previously accomplished within the required frequency.

j. Following any maintenance which drains portions of the system, by verifying the ECCS piping is full of water.

3/4.5.3 ECCS SUBSYSTEMS - MODES 3 AND 4

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

a. One OPERABLE high pressure safety injection pump, and

b. An OPERABLE flow path capable of taking suction from the refueling water storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

APPLICABILITY: MODES 3* and 4.

ACTION:

a. With no ECCS subsystem OPERABLE, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.

b. 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. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

SURVEILLANCE REQUIREMENTS

4.5.3 The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

*With pressurizer pressure less than 1750 psia and the RCS average temperature less than 500°F.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.4 REFUELING WATER STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.5.4 The refueling water storage pool shall be OPERABLE with:

a. A minimum contained borated water volume of 83% indicated level,

b. Between 2050 and 2900 ppm of boron, and

c. A solution temperature of greater than or equal to 55°F and less than or equal to 100°F.

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

ACTION:

With the refueling water storage pool inoperable, restore the pool 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.

SURVEILLANCE REQUIREMENTS

4.5.4 The RWSP shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the contained borated water volume in the pool, and
2. Verifying the boron concentration of the water.

b. In accordance with the Surveillance Frequency Control Program by verifying the RWSP temperature when the RAB air temperature is less than 55°F or greater than 100°F.

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 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. In accordance with the Surveillance Frequency Control Program 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 positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. After each closing of each penetration subject to Type B testing, except containment air locks, if opened following a Type A or B test, by leak rate testing the seal in accordance with the Containment Leakage Rate Testing Program.

*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 LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 The overall containment leakage rate and the secondary containment bypass leakage rate shall be in accordance with the Containment Leakage Rate Testing Program.

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

ACTION:

With the overall containment leakage rate and/or the secondary containment bypass leakage rate not within limits, restore containment leakage rate(s) to within 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

4.6.1.2 The overall containment leakage rate and the secondary bypass leakage rate shall be determined in accordance with the Containment Leakage Rate Testing Program.

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NOT USED

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, 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.

4. The provisions of Specification 3.0.4 are not applicable.

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.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

a. By verifying seal leakage in accordance with the Containment Leakage Rate Testing Program,

b. By conducting overall air lock leakage tests in accordance with the Containment Leakage Rate Testing Program.

c. In accordance with the Surveillance Frequency Control Program 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 less than 27 inches H_2O gauge and greater than 14.275 psia.

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 in accordance with the Surveillance Frequency Control Program.

Figure 3.6-1 Deleted

CONTAINMENT SYSTEMS

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall be ≥ 95°F* and ≤ 120 °F.

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

ACTION:

a. If the minimum containment average air temperature is less than 95°F* but greater than or equal to 90°F*, then within 8 hours either restore containment air temperature to greater than or equal to 95°F or reduce the peak linear heat generation rate limit in accordance with the COLR. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. If the minimum containment average air temperature is less than 90°F, then restore containment air temperature to greater than or equal to 95°F within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. If maximum containment average air temperature is greater than 120°F, then restore containment air temperature to less than or equal to 120°F 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 any three of the following locations and shall be determined in accordance with the Surveillance Frequency Control Program:

Location

a. Containment Fan Cooler No. 1A Air Intake

b. Containment Fan Cooler No. 1B Air Intake

c. Containment Fan Cooler No. 1C Air Intake

d. Containment Fan Cooler No. 1D Air Intake

* The minimum containment average air temperature limit is only applicable at greater than 70% RATED THERMAL POWER.

CONTAINMENT VESSEL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.6 The structural integrity of the containment vessel 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:

With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.6 The structural integrity of the containment vessel shall be determined during the shutdown for each Type A containment leakage rate test and at the intervals as specified in the Containment Leakage Rate Testing Program by a visual inspection of the exposed accessible interior and exterior surfaces of the vessel and verifying no apparent changes in appearance of the surfaces or other abnormal degradation in accordance with the Containment Leakage Rate Testing Program.

CONTAINMENT SYSTEMS

CONTAINMENT VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.7 Each containment purge supply and exhaust isolation valve (CAP 103, CAP 104, CAP 203, and CAP 204) shall be OPERABLE and may be open at no greater than the 52° open position allowed by the mechanical stop for less than 90 hours per 365 days.

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

ACTION:

a. With a containment purge supply and/or exhaust isolation valve(s) open for greater than or equal to 90 hours per 365 days at any open position, 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 Surveillance Requirement 4.6.1.7.2, restore the inoperable valve(s) to OPERABLE status 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 The cumulative time that the purge supply or exhaust isolation valves are open during the past 365 days shall be determined in accordance with the Surveillance Frequency Control Program.

4.6.1.7.2 Each containment purge supply and exhaust isolation valve with resilient material seals shall be demonstrated OPERABLE in accordance with the Containment Leakage Rate Testing Program.

4.6.1.7.3 Each containment purge supply and exhaust isolation valve shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by verifying that the mechanical stops limit the valve opening to a position < 52° open.

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 RWSP on a containment spray actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal. Each spray system flow path from the safety injection system sump shall be via an OPERABLE shutdown cooling heat exchanger.

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

ACTION:

a. With one containment spray system inoperable, restore the inoperable spray system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours; restore the inoperable spray system to OPERABLE status within the next 48 hours or be 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 be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each containment spray system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the water level in the containment spray header riser is > 149.5 feet MSL elevation.

b. In accordance with the Surveillance Frequency Control Program 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 correctly positioned to take suction from the RWSP.

c. By verifying, that on recirculation flow, each pump develops a total head of greater than or equal to 219 psid when tested pursuant to the INSERVICE TESTING PROGRAM.

*With Reactor Coolant System pressure > 400 psia.

SURVEILLANCE REQUIREMENTS (Continued)

d. In accordance with the Surveillance Frequency Control Program by:

   1. Verifying that each automatic valve in the flow path actuates to its correct position on a CSAS test signal.

   2 Verifying that upon a recirculation actuation test signal, the safety injection system sump isolation valves open and that a recirculation mode flow path via an OPERABLE shutdown cooling heat exchanger is established.

   3. Verifying that each spray pump starts automatically on a CSAS test signal.

e. In accordance with the Surveillance Frequency Control Program by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent trains of containment cooling shall be OPERABLE with one fan cooler to each train.

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

ACTION:

With one train of containment cooling inoperable, restore the inoperable train to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable containment cooling train to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each train of containment cooling shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by:

   1. Starting each operational fan not already running from the control room and verifying that each operational fan operates for at least 15 minutes.

   2. Verifying a cooling water flow rate of greater than or equal to 625 gpm to each cooler.

b. In accordance with the Surveillance Frequency Control Program by:

   1. Verifying that each fan starts automatically on an SIAS test signal.

   2. Verifying a cooling water flow rate of greater than or equal to 1200 gpm to each cooler.

   3. Verifying that each cooling water control valve actuates to its full open position on a SIAS test signal.

CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 Each containment isolation valve shall be OPERABLE.*

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

ACTION:

With the isolation valve inoperable for penetration(s) with closed system(s) either:

a. Restore the inoperable valve to OPERABLE status within 72 hours, or

b. Isolate each affected penetration within 72 hours by use of at least one deactivated automatic valve secured in the isolation position and verify the affected penetration flow path is isolated once per 31 days, or

c. Isolate each affected penetration within 72 hours by use of at least one closed manual valve or blind flange and verify the affected penetration flow path is isolated once per 31 days, or

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

Note: Isolation devices in a high radiation area may be verified by use of administrative means.

For all other penetrations, with one or more of the isolation valve(s) inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

e. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or

f. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position and verify the affected penetration flow path is isolated once per 31 days, or

g. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange and verify the affected penetration flow path is isolated once per 31 days, or

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

The provisions of Specification 3.0.4 do not apply.

* Locked or sealed closed valves may be opened on an intermittent basis under administrative control.

SURVEILLANCE REQUIREMENTS

4.6.3.1 Each containment isolation valve 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.

SURVEILLANCE REQUIREMENTS (Continued)

4.6.3.2 Each containment isolation valve shall be demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by:

a. Verifying that on a containment isolation test signal, each isolation valve actuates to its isolation position.

b. Verifying that on a containment Radiation-High test signal, each containment purge valve actuates to its isolation position.

4.6.3.3 The isolation time of each power-operated or automatic containment isolation valve shall be determined to be within its limit when tested pursuant to the INSERVICE TESTING PROGRAM.

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THROUGH
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NOT USED

CONTAINMENT SYSTEMS

3/4.6.5 VACUUM RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.6.5 Two vacuum relief lines shall be OPERABLE.

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

ACTION:

With one vacuum relief line inoperable, restore the vacuum relief line 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.

SURVEILLANCE REQUIREMENTS

4.6.5 No additional Surveillance Requirements other than those required by the INSERVICE TESTING PROGRAM.

3/4.6.6 SECONDARY CONTAINMENT

SHIELD BUILDING VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6.1 Two independent shield building ventilation systems shall be OPERABLE.

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

ACTION:

With one shield building ventilation system inoperable, restore the inoperable system 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

4.6.6.1 Each shield building ventilation system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 hours continuous with the heaters on.

b. In accordance with the Surveillance Frequency Control Program or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the ventilation system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 10,000 cfm ± 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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

3. Verifying a system flow rate of 10,000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation by 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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

d. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the system at a flow rate of 10,000 cfm ± 10%.

2. Verifying that the system starts on a safety injection actuation test signal.

3. Verifying that the filter cooling bypass valves can be manually cycled.

4. Verifying that each system produces a negative pressure of greater than or equal to 0.25 inch water gauge in the annulus within 1 minute after a start signal.

5. Verifying that the heaters dissipate 60 + 6.0, -6.0 kW when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS (Continued)

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 10,000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 10,000 cfm ± 10%.

SHIELD BUILDING INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.6.2 SHIELD BUILDING INTEGRITY shall be maintained with an annulus negative pressure greater than 5 inches water gauge.

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

ACTION:

Without SHIELD BUILDING INTEGRITY, restore SHIELD BUILDING INTEGRITY within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.2 SHIELD BUILDING INTEGRITY shall be demonstrated:

a. In accordance with the Surveillance Frequency Control Program by verifying the annulus pressure to be within its limits.

b. In accordance with the Surveillance Frequency Control Program by verifying that each door in each access opening is closed except when the access opening is being used for normal transit entry and exit, then at least one door shall be closed.

SHIELD BUILDING STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.6.3 The structural integrity of the shield building shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.6.3.

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

ACTION

With the structural integrity of the shield building not conforming to the above requirements, restore the structural integrity to within the limits within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.3 The structural integrity of the shield building shall be determined during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of the exposed accessible interior and exterior surfaces of the shield building and verifying no apparent changes in appearance of the concrete surfaces or other abnormal degradation. Any abnormal degradation of the shield building detected during the above required inspections shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days.

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 shall be OPERABLE with lift settings as specified in Table 3.7-1.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one or more main steam line code safety valve inoperable, within 4 hours reduce indicated power to less than or equal to the applicable percent RATED THERMAL POWER listed in Table 3.7-2 and within 12 hours reduce the Linear Power Level - High trip setpoint in accordance with Table 3.7-2, otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours.

b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.1 Verify each required main steam line code safety valve lift setpoint per Table 3.7-1 in accordance with the INSERVICE TESTING PROGRAM. Following testing, lift settings shall be within ± 1%.

TABLE 3.7-1

STEAM LINE SAFETY VALVES PER LOOP

	VALVE NUMBER		LIFT SETTING (± 3%)*
	Line No. 1	Line No. 2	
a.	2MS-R613A (MS-106A)	2MS-R619B (MS-106B)	1070 psig
b.	2MS-R614A (MS-108A)	2MS-R620B (MS-108B)	1085 psig
c.	2MS-R615A (MS-110A)	2MS-R621B (MS-110B)	1100 psig
d.	2MS-R616A (MS-112A)	2MS-R622B (MS-112B)	1115 psig
e.	2MS-R617A (MS-113A)	2MS-R623B (MS-113B)	1125 psig
f.	2MS-R618A (MS-114A)	2MS-R624B (MS-114B)	1135 psig

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

TABLE 3.7-2

MAXIMUM ALLOWABLE POWER AND LINEAR POWER LEVEL-HIGH TRIP SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES

MAXIMUM NUMBER OF INOPERABLE SAFETY VALVES ON ANY OPERATING STEAM GENERATOR	MAXIMUM ALLOWABLE POWER (% RTP)	LINEAR POWER LEVEL - HIGH TRIP SETPOINT (% RTP)
1	85.3	$\leq$ 93.3
2	66.7	$\leq$ 74.7

PLANT SYSTEMS

EMERGENCY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 Three emergency feedwater (EFW) pumps and two flow paths shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one steam supply to the turbine-driven EFW pump inoperable, restore the steam supply 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.

b. With one steam supply to the turbine-driven EFW pump and one motor-driven EFW pump inoperable and the EFW flow paths able to deliver at least 100% flow to their respective steam generators, restore the steam supply or motor-driven EFW pump to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With one steam supply to the turbine-driven EFW pump and both motor-driven EFW pumps inoperable and the EFW flow paths able to deliver at least 100% flow to their respective steam generators, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

d. With the EFW system inoperable for reasons other than those described in ACTION (a), (b), or (c), and able to deliver at least 100% flow to either steam generator, restore the EFW system 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.

e. With the EFW system inoperable for reasons other than those described in ACTION (a), (b), or (c), and able to deliver at least 100% combined flow to the steam generators, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

f. With the EFW system inoperable and unable to deliver at least 100% combined flow to the steam generators, immediately initiate action to restore the ability to deliver at least 100% combined flow to the steam generators. LCO 3.0.3 and all other LCO ACTIONs requiring MODE changes are suspended until the EFW system is capable of delivering at least 100% combined flow to the steam generators.

g. Only as allowed by Surveillance Requirements 4.7.1.2(b) and 4.7.1.2(c), the provisions of Specifications 3.0.4 and 4.0.4 are not applicable to the turbine-driven EFW pump for entry into Mode 3.

SURVEILLANCE REQUIREMENTS

4.7.1.2 The emergency feedwater system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each manual, power-operated, and automatic valve in each water flow path and in both steam supply flow paths to the turbine-driven EFW pump steam turbine, that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 92 days by testing the EFW pumps pursuant to the INSERVICE TESTING PROGRAM. This surveillance requirement is not required to be performed for the turbine-driven EFW pump until 24 hours after exceeding 750 psig in the steam generators.

c. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an actual or simulated actuation signal.

NOTE: This surveillance requirement is not required to be performed for the turbine-driven EFW pump until 24 hours after exceeding 750 psig in the steam generators.

2. Verifying that each EFW pump starts automatically upon receipt of an actual or simulated actuation signal.

d. Prior to entering MODE 2, whenever the plant has been in MODE 4, 5, 6 or defueled, for 30 days or longer, or whenever feedwater line cleaning through the emergency feedwater line has been performed, by verifying flow from the condensate storage pool through both parallel flow legs to each steam generator.

PLANT SYSTEMS

CONDENSATE STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.7.1.3 The condensate storage pool (CSP) shall be OPERABLE with:

a. A minimum contained volume of at least 92% indicated level.*

b. A water temperature of greater than or equal to 55°F and less than or equal to 100°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

In MODES 1, 2, and 3:

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

In MODE 4:

With the condensate storage pool inoperable, within 4 hours restore the CSP to OPERABLE status or be in at least COLD SHUTDOWN within the next 24 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.3.1 The condensate storage pool shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying the contained water volume is within its limits.

b. In accordance with the Surveillance Frequency Control Program by verifying CSP temperature when the RAB air temperature is less than 55°F or greater than 100°F.

*In MODE 4, the CSP shall be OPERABLE with a minimum contained volume of at least 11% indicated level.

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 microcuries/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

TYPE OF MEASUREMENT AND ANALYSIS	SAMPLE AND ANALYSIS FREQUENCY
1. Gross Activity Determination	In accordance with the Surveillance Frequency Control Program
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	a) 1 per 31 days, whenever the gross activity determination indicates iodine con-concentrations greater than 10% of the allowable limit. b) 1 per 6 months, whenever the gross activity determination indicates iodine concentrations below 10% of the allowable limit.

PLANT SYSTEMS

MAIN STEAM LINE ISOLATION VALVES (MSIVs)

LIMITING CONDITION FOR OPERATION

3.7.1.5 Two MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1, and
MODES 2, 3, and 4, except when all MSIVs are closed and deactivated.

ACTION:

MODE 1

With one MSIV inoperable, restore the valve to OPERABLE status within 8 hours or be in STARTUP within the next 6 hours.

MODES 2, 3 and 4

With one MSIV inoperable, close the valve within 8 hours and verify the valve is closed once per 7 days. Otherwise, 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.

SURVEILLANCE REQUIREMENTS

Note: Required to be performed for entry into MODES 1 and 2 only.

4.7.1.5 Each MSIV shall be demonstrated OPERABLE:

a. By verifying full closure within 8.0 seconds when tested pursuant to the INSERVICE TESTING PROGRAM.

b. By verifying each MSIV actuates to the isolation position on an actual or simulated actuation signal in accordance with the Surveillance Frequency Control Program.

PLANT SYSTEMS

MAIN FEEDWATER ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.6 Each Main Feedwater Isolation Valve (MFIV) shall be OPERABLE.

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

ACTION:

Note: Separate Condition entry is allowed for each valve.

With one or more MFIV inoperable, close and deactivate, or isolate the inoperable valve within 72 hours and verify inoperable valve closed and deactivated or isolated once every 7 days; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The provisions of Specification 3.0.4 do not apply.

SURVEILLANCE REQUIREMENTS

4.7.1.6 Each main feedwater isolation valve shall be demonstrated OPERABLE:

a. By verifying isolation within 6.0 seconds when tested pursuant to the INSERVICE TESTING PROGRAM.

b. By verifying actuation to the isolation position on an actual or simulated actuation signal in accordance with the Surveillance Frequency Control Program.

3/4.7 PLANT SYSTEMS

3/4.7.1.7 ATMOSPHERIC DUMP VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.7 Each Atmospheric Dump Valve (ADV) shall be OPERABLE*.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

a. With the automatic actuation channel for one ADV inoperable, restore the inoperable ADV to OPERABLE status within 72 hours or reduce power to less than or equal to 70% RATED THERMAL POWER within the next 6 hours.

b. With the automatic actuation channels for both ADVs inoperable, restore one ADV to OPERABLE status within 1 hour or reduce power to less than or equal to 70% RATED THERMAL POWER within the next 6 hours.

c. With one ADV inoperable, for reasons other than above, restore the ADV 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.

The provisions of Specification 3.0.4 are not applicable provided one ADV is OPERABLE.

SURVEILLANCE REQUIREMENTS

4.7.1.7 The ADVs shall be demonstrated OPERABLE:

a. By performing a CHANNEL CHECK in accordance with the Surveillance Frequency Control Program when the automatic actuation channels are required to be OPERABLE.

b. By verifying each ADV automatic actuation channel is in automatic with a setpoint of less than or equal to 1040 psia in accordance with the Surveillance Frequency Control Program when the automatic actuation channels are required to be OPERABLE.

c. By verifying one complete cycle of each ADV when tested pursuant to the INSERVICE TESTING PROGRAM.

* ADV automatic actuation channels (one per ADV, in automatic with a setpoint of less than or equal to 1040 psia) are not required to be OPERABLE when less than or equal to 70% RATED THERMAL POWER for greater than 6 hours.

SURVEILLANCE REQUIREMENTS (continued)

d. By performing a CHANNEL CALIBRATION of each ADV automatic actuation channel in accordance with the Surveillance Frequency Control Program.

e. By verifying actuation of each ADV to the open position on an actual or simulated automatic actuation signal in accordance with the Surveillance Frequency Control Program.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

LIMITING CONDITION FOR OPERATION

3.7.2 The temperature of the secondary coolant in the steam generators shall be greater than 115°F when the pressure of the secondary coolant is greater than 210 psig.

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied:

a. Reduce the steam generator pressure to less than or equal to 210 psig within 30 minutes, and

b. Perform an engineering evaluation to determine the effect of the overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation prior to increasing its temperatures above 200°F.

SURVEILLANCE REQUIREMENTS

4.7.2 The pressure of the steam generators shall be determined to be less than 210 psig at least once per hour when the temperature of the secondary coolant is less than 115°F.

3/4.7.3 COMPONENT COOLING WATER AND AUXILIARY COMPONENT COOLING WATER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.3 At least two independent component cooling water and associated auxiliary component cooling water trains shall be OPERABLE.

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

ACTION:

With only one component cooling water and associated auxiliary component cooling water train OPERABLE, restore at least two trains 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.

SURVEILLANCE REQUIREMENTS

4.7.3 Each component cooling water and associated auxiliary component cooling water train shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. In accordance with the Surveillance Frequency Control Program by verifying that each automatic valve servicing safety-related equipment actuates to its correct position on SIAS and CSAS test signals.

c. In accordance with the Surveillance Frequency Control Program by verifying that each component cooling water and associated auxiliary component cooling water pump starts automatically on an SIAS test signal.

3/4.7.4 ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.4 Two independent trains of ultimate heat sink (UHS) cooling towers shall be OPERABLE with each train consisting of a dry cooling tower (DCT) and a wet mechanical draft cooling tower (WCT) and its associated water basin with:

a. A minimum water level in each wet tower basin of 97% (-9.86 ft MSL)

b. An average basin water temperature of less than or equal to 89°F.

c. Fans as required by Table 3.7-3.

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

ACTION:

a. With 1 UHS train inoperable, restore the inoperable train 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.

b. With both UHS trains inoperable, restore at least one UHS train to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

c. With a Tornado Watch in effect, all 9 DCT fans under the missile protected portion of the DCT shall be OPERABLE. If the number of fans OPERABLE is less than required, restore the inoperable fan(s) to OPERABLE status within 1 hour, or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

d. With any UHS fan inoperable, determine the outside ambient temperature at least once every 2 hours and verify that the minimum fan requirements of Table 3.7-3 are satisfied (required only if the associated UHS is OPERABLE).

SURVEILLANCE REQUIREMENTS

4.7.4. Each train of UHS shall be determined OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying the average water temperature and water level to be within specified limits.

b. In accordance with the Surveillance Frequency Control Program, by verifying that each wet tower and dry tower fan that is not already running, starts and operates for at least 15 minutes.

TABLE 3.7-3

ULTIMATE HEAT SINK MINIMUM FAN REQUIREMENTS PER TRAIN

DRY COOLING TOWER

AMBIENT CONDITION	DRY BULB $\geq$ 97°F	< 97°F DRY BULB $\geq$ 91°F	< 91°F DRY BULB
Fan Requirements[1]	15	14*	12*

WET COOLING TOWER

Fan Requirements - 8

[1] With any of the above required DCT Fans inoperable comply with ACTION d.

* With a tornado watch in effect, all 9 DCT fans under the missile protected portion of the DCT shall be OPERABLE.

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PLANT SYSTEMS

3/4.7.6 CONTROL ROOM AIR CONDITIONING SYSTEM

CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 Two control room emergency air filtration trains (S-8) shall be OPERABLE. (Note 1)

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6
During load movements with or over irradiated fuel assemblies.

ACTION:

a. With one control room emergency air filtration train inoperable for reasons other than ACTION b, restore the inoperable train to OPERABLE status within 7 days.

b. With one or more control room emergency air filtration trains inoperable due to inoperable control room envelope boundary in MODES 1, 2, 3, or 4, then perform the following:

   1. Immediately initiate action to implement mitigating actions; and
   2. Within 24 hours, verify mitigating actions ensure control room envelope occupant exposures to radiological, chemical, and smoke hazards will not exceed limits; and
   3. Within 90 days, restore the control room envelope boundary to OPERABLE status.

c. If the required ACTION and associated allowable outage times of ACTION a or b are not met in MODES 1, 2, 3, or 4, then be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. If the required ACTION and the associated allowable outage time of ACTION a is not met in MODES 5 or 6, or during load movements with or over irradiated fuel assemblies, then perform the following:

   1. Immediately place OPERABLE control room emergency air filtration train in emergency radiation protection mode (or toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable); or
   2. Immediately suspend load movements with or over irradiated fuel assemblies and operations involving CORE ALTERATIONS.

ACTION (Continued):

e. With one or more control room emergency air filtration trains inoperable due to an inoperable control room envelope boundary in MODES 5 or 6, or during load movements with or over irradiated fuel assemblies, immediately suspend load movements with or over irradiated fuel assemblies and operations involving CORE ALTERATIONS.

f. With two control room emergency air filtration trains inoperable in MODES 1, 2, 3, or 4 for reasons other than ACTION b, immediately enter LCO 3.0.3.

g. With two control room emergency air filtration trains inoperable in MODES 5 and 6 or during load movements with or over irradiated fuel assemblies, immediately suspend load movements with or over irradiated fuel assemblies and operations involving CORE ALTERATIONS.

SURVEILLANCE REQUIREMENTS

4.7.6.1 Each control room air filtration train (S-8) shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters on.

b. In accordance with the Surveillance Frequency Control Program or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the filtration train satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 4225 cfm ±10%.

Note 1: The control room envelope (CRE) boundary may be opened intermittently under administrative control.

SURVEILLANCE REQUIREMENTS (Continued)

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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

3. Verifying a system flow rate of 4225 cfm ±10% during train operation when tested in accordance with ANSI N510-1975.

c. After every 720 hours of charcoal adsorber operation by 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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

d. In accordance with the Surveillance Frequency Control Program by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the train at a flow rate of 4225 cfm ±10%.

2. Verifying that on a safety injection actuation test signal or a high radiation test signal, the train automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks and the normal outside airflow paths isolate.

3. Verifying that heaters dissipate 10 +1.0, -1.0 kW when tested in accordance with ANSI N510-1975.

4. Verifying that on a toxic gas detection signal, the system automatically switches to the isolation mode of operation.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm ±10%.

f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm ±10%.

g. Perform required control room envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

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PLANT SYSTEMS

CONTROL ROOM AIR TEMPERATURE - OPERATING

LIMITING CONDITION FOR OPERATION

3.7.6.3 Two independent control room air conditioning units shall be OPERABLE.

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

ACTION:

a. With one control room air conditioning unit inoperable, restore the inoperable unit 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.

b. With two control room air conditioning units inoperable, return one unit to an 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

4.7.6.3 Each control room air conditioning unit shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that the operating control room air conditioning unit is maintaining average control room air temperature less than or equal to 80°F.

b. At least quarterly, if not performed within the last quarter, by verifying that each control room air conditioning unit starts and operates for at least 15 minutes.

*During load movements with or over irradiated fuel assemblies, TS 3.7.6.4 is also applicable.

PLANT SYSTEMS

CONTROL ROOM AIR TEMPERATURE - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.7.6.4 Two independent control room air conditioning units shall be OPERABLE.

APPLICABILITY: MODES 5 and 6, and during load movements with or over irradiated fuel assemblies.

ACTION:

a. With one control room air conditioning unit inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE control room air conditioning unit.

b. With both control room air conditioning units inoperable, or with the OPERABLE control room air conditioning unit, required to be in operation by ACTION a, not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS and load movements with or over irradiated fuel assemblies.

SURVEILLANCE REQUIREMENTS

4.7.6.4 The control room air conditioning units shall be demonstrated OPERABLE per the Surveillance Requirements of 4.7.6.3.

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PLANT SYSTEMS

3/4.7.7 CONTROLLED VENTILATION AREA SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent controlled ventilation area systems shall be OPERABLE.

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

ACTION:

With one controlled ventilation area system inoperable, restore the inoperable system 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

4.7.7 Each controlled ventilation area system shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 hours continuous with the heaters on.

b. In accordance with the Surveillance Frequency Control Program or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

   1. Verifying that the controlled ventilation area system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 3000 cfm ± 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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

   3 Verifying a system flow rate of 3000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975.

SURVEILLANCE REQUIREMENTS (Continued)

c. After every 720 hours of charcoal adsorber operation by 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, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.

d. In accordance with the Surveillance Frequency Control Program by:

  1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the system at a flow rate of 3000 cfm ± 10%.

  2. Verifying that the system starts on a Safety Injection Actuation Test Signal and achieves and maintains a negative pressure of ≥ 0.25 inch water gauge within 45 seconds.

  3. Verifying that the filter cooling bypass valves can be manually cycled.

  4. Verifying that the heaters dissipate 20 + 2.0, -2.0 kW when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 3000 cfm ± 10%.

f. After each complete or partial replacement of a charcoal absorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 3000 cfm ± 10%.

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PLANT SYSTEMS

3/4.7.12 ESSENTIAL SERVICES CHILLED WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.12 Two independent essential services chilled water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

With only one essential services chilled water loop OPERABLE, restore two loops 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.

SURVEILLANCE REQUIREMENTS

4.7.12.1 Each of the above required essential services chilled water loop shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. In accordance with the Surveillance Frequency Control Program by verifying that the water outlet temperature is $\leq$ 42°F at a flow rate of $\geq$ 500 gpm.

c. Deleted

d. In accordance with the Surveillance Frequency Control Program, by verifying that each essential services chilled water pump and compressor starts automatically on a safety injection actuation test signal.

4.7.12.2 The backup essential services chilled water pump and chiller shall be demonstrated OPERABLE in accordance with Specification 4.7.12.1 whenever it is functioning as part of one of the required essential services chilled water loops.

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 physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and

b. Two separate and independent diesel generators, each with:

1. Diesel oil feed tanks containing a minimum one hour supply of fuel, and

2. A separate diesel generator fuel oil storage tank, and

3. A separate fuel transfer pump.

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

ACTION:

a. With one offsite circuit of 3.8.1.1a inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. circuit by performing Surveillance Requirement 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter. Restore the offsite A.C. circuit 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 one diesel generator of 3.8.1.1b inoperable:

(1) Demonstrate the OPERABILITY of the remaining A.C. circuits by performing Surveillance Requirements 4.8.1.1.1a (separately for each offsite A.C. circuit) 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 maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generator (unless it has been successfully tested in the last 24 hours) by performing Surveillance Requirement 4.8.1.1.2a.4 within 8 hours unless the absence of any potential common mode failure for the remaining diesel generator is demonstrated.

(2) Restore the diesel generator 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, unless the following condition exists:

ACTION: (Continued)

(a) The requirement for restoration to OPERABLE status within 72 hours may be extended to 10 days if a temporary emergency diesel generator is verified available, and

(b) If at any time the temporary emergency diesel generator availability cannot be met, either restore the temporary emergency diesel generator to available status within 72 hours (not to exceed 10 days from the time the permanent plant EDG originally became inoperable), or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one offsite A.C. circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. circuit by performing Surveillance Requirement 4.8.1.1.1a within 1 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 maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generator by performing Surveillance Requirement 4.8.1.1.2a.4 within 8 hours (unless it is already operating) unless the absence of any potential common mode failure for the remaining diesel generator is demonstrated. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. power source (offsite A.C. circuit or diesel generator) to OPERABLE status in accordance with the provisions of 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. A successful test of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2a.4 performed under this ACTION statement satisfies the diesel generator test requirement of ACTION statement a or b.

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 that depend on the remaining OPERABLE diesel generator as a source of emergency power are also OPERABLE, and

(2) When in MODE 1, 2, or 3, the steam-driven emergency feed pump is OPERABLE.

If these conditions are 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.

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

e. With two of the above required offsite A.C. circuits inoperable, restore one of the inoperable offsite A.C. circuits to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. Following restoration of one offsite A.C. circuit, follow ACTION statement a with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable offsite A.C. circuit. A successful test of diesel generator OPERABILITY per Surveillance Requirement 4.8.1.1.2a.4 performed under this ACTION statement satisfies the diesel generator test requirement of ACTION statement a.

f. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter; restore 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. Following restoration of one diesel generator, follow ACTION statement b with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable diesel generator.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Determined OPERABLE in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments, indicated power availability, and

b. Demonstrated OPERABLE in accordance with the Surveillance Frequency Control Program by transferring manually and automatically unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE*:

a. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the fuel level in the diesel oil feed tank,

2. Deleted,

3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the diesel oil feed tank,

4. Verifying the diesel starts**. The generator voltage and frequency shall be at least 3920 volts and 58.8 Hz in $\leq$ 10 seconds after the start signal. The steady state voltage and frequency shall be maintained at 4160 + 420, -240 volts and 60 $\pm$ 1.2 Hz. The diesel generator shall be started for this test by using one of the following signals:

    a) Manual.

    b) Simulated loss-of-offsite power by itself.

    c) Simulated loss-of-offsite power in conjunction with an ESF actuation test signal.

    d) An ESF actuation test signal by itself.

*All planned starts for the purpose of surveillance in this section may be preceded by a prelube period as recommended by the manufacturer.

**A modified diesel generator start involving idling and gradual acceleration to synchronous speed may be used for this surveillance requirement as recommended by the manufacturer. When modified start procedures are not used, the time, speed, voltage, and frequency tolerances of this surveillance requirement must be met.

SURVEILLANCE REQUIREMENTS (Continued)

5. Verifying the generator is synchronized, loaded to an indicated 4000-4400 Kw* in accordance with the manufacturer's recommendation and operates for at least an additional 60 minutes#, and

6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

b. In accordance with the Surveillance Frequency Control Program 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 diesel oil feed tanks.

c. Deleted

*This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variation due to changing bus loads shall not invalidate the test.

#This surveillance requirement shall be preceded by and immediately follow without shutdown a successful performance of 4.8.1.1.2a.4 or 4.8.1.1.2d.

d. In accordance with the Surveillance Frequency Control Program a diesel generator fast start test shall be performed in accordance with TS 4.8.1.1.2a.4. Performance of the fast start test satisfies the testing requirements specified in TS 4.8.1.1.2a.4.

e. In accordance with the Surveillance Frequency Control Program by:

1. Verifying the generator capability to reject a load of greater than or equal to 498 kW while maintaining voltage at 4160 +420, -240 volts and frequency at 60 +4.5, -1.2 Hz.

2. Verifying the generator capability to reject a load of an indicated 4000-4400 kW without tripping. The generator voltage shall not exceed 5023 volts during and following the load rejection.

3. During shutdown, simulating a loss-of-offsite power by itself, 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 and the permanently connected loads within 10 seconds after the auto-start signal, 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 shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 +420, -240 volts and 60 +1.2, -0.3 Hz during this test.

4. Verifying that on an SIAS 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 steady-state generator voltage and frequency shall be 4160 +420, -240 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the generator voltage and frequency shall be maintained within these limits during this test.

SURVEILLANCE REQUIREMENTS (Continued)

5. During shutdown, simulating a loss-of-offsite power in conjunction with an SIAS 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 and the permanently connected loads within 10 seconds after the auto-start signal, energizes the auto-connected emergency loads through the load sequencer and operates for greater than or equal to 5 minutes. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 +420, -240 volts and 60 +1.2, -0.3 Hz during this test.

   c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a safety injection actuation signal.

6. Verifying the diesel generator operates for an interval of not less than 24 hours. During 2 hours of this test, the diesel generator shall be loaded to an indicated 4700 to 4900 Kw* and during 22 hours of this test, the diesel generator shall be loaded to an indicated 4000 to 4400 Kw.* The generator voltage and frequency shall be 4160 +420, -240 volts and 60 ± 1.2 Hz within 10 seconds after the start signal; the steady-state generator voltage and frequency shall be 4160 ± 420 volts and 60 +1.2, -0.3 Hz during this test. Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement 4.8.1.1.2.a.4.**

7. During shutdown, verifying that the auto-connected loads and permanently connected loads to each diesel generator do not exceed the 2000-hour rating of 4400 kW.

*This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variation due to changing bus loads shall not invalidate the test.

**If Surveillance Requirement 4.8.1.1.2.a.4 is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead, the diesel generator may be operated at an indicated 4000-4400 kw* for 2 hours or until internal operating temperatures have stabilized. Within 5 minutes of securing the diesel generator, perform Surveillance Requirement 4.8.1.1.2.a.4.

8. During shutdown, 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.

9. During shutdown, verifying that with 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 energizes the emergency loads with offsite power.

10. Verifying that each fuel transfer pump transfers fuel to its associated diesel oil feed tank by taking suction from the opposite train fuel oil storage tank via the installed cross connect.

11. During shutdown, verifying that the automatic load sequence timer is OPERABLE with the time of each load block within ±10% of the sequenced load block time.

12. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

    a) turning gear engaged
    b) emergency stop
    c) loss of D.C. control power
    d) governor fuel oil linkage tripped

f. Deleted

g. In accordance with the Surveillance Frequency Control Program or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 600 rpm (60 ± 1.2 Hz) in less than or equal to 10 seconds.

h. Deleted

SURVEILLANCE REQUIREMENTS (Continued)

i. Deleted

4.8.1.1.3 Reports - (Not Used)

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ELECTRICAL POWER SYSTEMS

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 circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. One diesel generator with:

1. A diesel oil feed tank containing a minimum one hour supply of fuel, and

2. The diesel fuel oil storage tanks, and

3. A fuel transfer pump.

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, operations involving positive reactivity additions that could result in loss of required SHUTDOWN MARGIN or boron concentration, or load movements with or over irradiated fuel. 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 top of the fuel seated in the reactor pressure vessel, immediately initiate corrective action to restore the required sources to OPERABLE status.

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 Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 (except for Surveillance Requirement 4.8.1.1.2a.5.)

ELECTRICAL POWER SYSTEMS

DIESEL FUEL OIL

LIMITING CONDITION FOR OPERATION

3.8.1.3 The stored diesel fuel oil shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTION: (Note: Separate ACTION entry is allowed for each DG.)

a. With the fuel oil storage tank volume less than a 7 day supply and greater than a 6 day supply, restore fuel oil storage tank volume to greater than or equal to a 7 day supply within 5 days (provided replacement fuel oil is onsite within the first 48 hours).

b. With one or more DGs with stored fuel oil total particulates not within limits, restore fuel oil total particulates to within limits within 7 days.

c. With one or more DGs with new fuel oil properties not within limits, restore stored fuel oil properties to within limits within 30 days.

d. If any of the above ACTIONS cannot be met, or
if the diesel fuel oil is not within limits for reasons other than the above ACTIONS, immediately declare the associated DG(s) inoperable.

SURVEILLANCE REQUIREMENTS

4.8.1.3.1 In accordance with the Surveillance Frequency Control Program verify each fuel oil storage tank volume.

4.8.1.3.2 Verify fuel oil properties of new or stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.

3/4.8.2 D.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

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

a. 125-volt Battery Bank No. 3A-S and one associated full capacity charger (3A1-S or 3A2-S).

b. 125-volt Battery Bank No. 3B-S and one associated full capacity charger (3B1-S or 3B2-S).

c. 125-volt battery Bank No. 3AB-S and one associated full capacity charger (3AB1-S or 3AB2-S).

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

ACTION:

a. With one of the required battery banks inoperable, restore the inoperable battery bank 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.

b. With one of the required full capacity chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1a.1 within 1 hour, and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each 125-volt battery bank and at least one associated charger shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program 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 125 volts on float charge.

b. In accordance with the Surveillance Frequency Control Program and within 7 days after a battery discharge with battery terminal voltage below 110-volts, or battery overcharge with battery terminal voltage above 150 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 of these items is less than 150×10^{-6} ohms, and

   3. The average electrolyte temperature of a random sample of at least ten of the connected cells is above 70°F.

c. In accordance with the Surveillance Frequency Control Program by verifying that:

   1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

   2. The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,

   3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohms, and

   4. The battery charger will supply at least 150 amperes for 3A1-S, 3A2-S, 3B1-S and 3B2-S and 200 amperes for 3AB1-S and 3AB2-S at greater than or equal to 132 volts for at least 8 hours.

d. In accordance with the Surveillance Frequency Control Program, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

e. In accordance with the Surveillance Frequency Control Program, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Surveillance Requirement 4.8.2.1d.

f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

TABLE 4.8-2

BATTERY SURVEILLANCE REQUIREMENTS

	CATEGORY A[1]	CATEGORY B[2]	
Parameter	Limits for each designated pilot cell	Limits for each connected cell	Allowable[3] 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[c]	> 2.07 volts
Specific Gravity[a]	≥ 1.200[b]	≥ 1.195 Average of all connected cells > 1.205	Not more than 0.020 below the average of all connected cells Average of all connected cells ≥ 1.195[b]

(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, declare the battery inoperable.

(a) Corrected for electrolyte temperature and level.

(b) Or battery charging current is less than 2 amps when on charge.

(c) Corrected for average electrolyte temperature.

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, one 125-volt battery bank (3A-S or 3B-S) and one associated full capacity charger shall be OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

a. With the required battery bank inoperable, immediately suspend all operations involving CORE ALTERATIONS, operations involving positive reactivity additions that could result in loss of required SHUTDOWN MARGIN or boron concentration or load movements with or over irradiated fuel; initiate corrective action to restore the required battery bank to OPERABLE status as soon as possible.

b. With the required full capacity charger inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1a.1. within 1 hour, and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The above required 125-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.1.

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following Engineered Safety Features (ESF) and Static Uninterruptible Power Supply (SUPS) busses shall be energized in the specified manner. The tie breakers from the Train AB Busses shall be connected to either Train A or Train B.

a. Train A A.C. ESF busses consisting of:
   1. 4160-volt ESF Bus #3A3-S
   2. 480-volt ESF Bus #3A31-S

b. Train B A.C. ESF busses consisting of:
   1. 4160-volt ESF Bus #3B3-S
   2. 480-volt ESF Bus #3B31-S

c. Train AB A.C. ESF busses consisting of:
   1. 4160-volt ESF Bus #3AB3-S
   2. 480-volt ESF Bus #3AB31-S

d. 120-volt A.C. SUPS Bus #3MA-S energized from its associated inverter connected to D.C. Bus #3A-DC-S*.

e. 120-volt A.C. SUPS Bus #3MB-S energized from its associated inverter connected to D.C. Bus #3B-DC-S*.

f. 120-volt A.C. SUPS Bus #3MC-S energized from its associated inverter connected to D.C. Bus #3A-DC-S*.

g. 120-volt A.C. SUPS Bus #3MD-S energized from its associated inverter connected to D.C. Bus #3B-DC-S*.

h. 120-volt A.C. SUPS Bus #3A-S energized from its associated inverter connected to D.C. Bus #3A-DC-S.

i. 120-volt A.C. SUPS Bus #3B-S energized from its associated inverter connected to D.C Bus #3B-DC-S.

j. 125-volt D.C. Bus #3A-DC-S connected to Battery Bank #3A-S.

k. 125-volt D.C. Bus #3B-DC-S connected to Battery Bank #3B-S.

l. 125-volt D.C. Bus #3AB-DC-S connected to Battery Bank #3AB-S.

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

*Two inverters may be disconnected from their D.C. bus for up to 24 hours, as necessary, for the purpose of performing an equalizing charge on their associated battery bank provided (1) their SUPS busses are energized, and (2) the SUPS busses associated with the other battery bank are energized from their associated inverters and connected to their associated D.C. bus.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION:

a. With one of the required divisions of A.C. ESF busses not fully energized, reenergize the division 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 one A.C. SUPS bus either not energized from its associated inverter, or with the inverter not connected to its associated D.C. bus: (1) reenergize the A.C. SUPS bus within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours and (2) reenergize the A.C. SUPS bus from its associated inverter connected to its associated D.C. bus within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one D.C. bus not connected to its associated battery bank, reconnect the D.C. bus from its associated OPERABLE battery bank within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.1 The specified busses shall be determined energized in the required manner in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated voltage on the busses.

LIMITING CONDITION FOR OPERATION

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

a. One division of A.C. ESF busses consisting of one 4160 volt and one 480-volt A.C. ESF bus (3A3-S and 3A31-S or 3B3-S and 3B31-S).

b. Two 120-volt A.C. SUPS busses energized from their associated inverters connected to their respective D.C. busses (3MA-S, 3MB-S, 3MC-S, or 3MD-S).

c. One 120-volt A.C. SUPS Bus (3A-S or 3B-S) energized from its associated inverter connected to its respective D.C. bus.

d. One 125-volt D.C. bus (3A-DC-S or 3B-DC-S) connected to its associated battery bank.

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, operations involving positive reactivity additions that could result in loss of required SHUTDOWN MARGIN or boron concentration, or load movements with or over irradiated fuel, initiate corrective action to energize the required electrical busses in the specified manner as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.3.2 The specified busses shall be determined energized in the required manner in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignment and indicated voltage on the busses.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 Primary and backup containment penetration conductor overcurrent protective devices associated with each containment electrical penetration circuit shall be OPERABLE. The scope of these protective devices excludes those circuits for which credible fault currents would not exceed the electrical penetration design rating.

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

ACTION:

a. With one or more of the above required containment penetration conductor overcurrent devices inoperable:

   1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and

   2. Declare the affected system or component inoperable, and

   3. Verify at least once per 7 days thereafter the alternate device is tripped, racked out, or removed, or the device is racked out or removed.

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

b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 The above noted primary and backup containment penetration conductor overcurrent protective devices shall be demonstrated OPERABLE:

a. In accordance with the Surveillance Frequency Control Program:

   1. By verifying that the medium voltage (4-15 kV) circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers of each voltage level, and performing the following:

      (a) A CHANNEL CALIBRATION of the associated protective relays, and

      (b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed.

(c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers, except for those breakers with external trip devices,* shall consist of injecting a current in excess of the breakers' nominal setpoint and measuring the response time. The measured response time will be compared to the manufacturer's data to ensure that it is less than or equal to a value specified by the manufacturer. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

b. In accordance with the Surveillance Frequency Control Program by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

*Testing of these circuit breakers (i.e., the 480 volts power from low voltage switchgear) shall be performed in accordance with the manufacturer's recommendations.

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NOT USED

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION AND BYPASS DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection and bypass devices, integral with the motor starter, of each valve used in safety systems shall be OPERABLE.

APPLICABILITY: Whenever the motor operated valve is required to be OPERABLE.

ACTION:

With one or more of the thermal overload protection and/or bypass devices inoperable, declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) for the affected valve(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2 The above required thermal overload protection and bypass devices shall be demonstrated OPERABLE.

a. In accordance with the Surveillance Frequency Control Program, by the performance of a CHANNEL FUNCTIONAL TEST of the bypass circuitry for those thermal overload devices which are either:

   1. Continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, or

   2. Normally in force during plant operation and bypassed under accident conditions.

b. In accordance with the Surveillance Frequency Control Program by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of:

   1. All thermal overload devices which are not bypassed, such that each nonbypassed device is calibrated in accordance with the Surveillance Frequency Control Program.

   2. All thermal overload devices which are continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, and thermal overload devices normally in force and bypassed under accident conditions such that each thermal overload is calibrated and each valve is cycled through at least one complete cycle of full travel with the motor-operator when the thermal overload is OPERABLE and not bypassed, in accordance with the Surveillance Frequency Control Program.

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NOT USED

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 With the reactor vessel head closure bolts less than fully tensioned or with the head removed, 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 reactivity conditions specified in the COLR is met.

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 action to restore boron concentration to within COLR limits.

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 CEA in excess of 3 feet from its fully inserted position within the reactor pressure vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis in accordance with the Surveillance Frequency Control Program.

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

REFUELING OPERATIONS

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two source range neutron flux monitors shall be OPERABLE and operating, each with continuous visual indication in the control room and one with audible indication in the containment and control room.

APPLICABILITY: MODE 6.

ACTION:

a. With one of the above required monitors inoperable or not operating, immediately suspend all operations involving CORE ALTERATIONS or operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of Technical Specification 3.9.1.

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 source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL CHECK in accordance with the Surveillance Frequency Control Program,

b. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS, and

c. A CHANNEL FUNCTIONAL TEST in accordance with the Surveillance Frequency Control Program.

REFUELING OPERATIONS

3/4.9.3 DECAY TIME

LIMITING CONDITION FOR OPERATION

3.9.3 The reactor shall be subcritical for at least 72 hours.

APPLICABILITY: During load movements with or over irradiated fuel in the reactor pressure vessel.

ACTION:

With the reactor subcritical for less than 72 hours, suspend all operations involving load movements with or over irradiated fuel in the reactor pressure vessel.

SURVEILLANCE REQUIREMENTS

4.9.3 The reactor shall be determined to have been subcritical for at least 72 hours by verification of the date and time of subcriticality prior to load movements with or over irradiated fuel in the reactor pressure 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 is closed,

b. A minimum of one door in each airlock is capable of being closed, and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1. Closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. Capable of being closed by an OPERABLE containment purge and exhaust isolation system.

Note: Penetration flow path(s) described in a, b, and c above, that provides direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls.

APPLICABILITY: During CORE ALTERATIONS or load movements with or over irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or load movements with or over irradiated fuel in the containment building.

SURVEILLANCE REQUIREMENTS

4.9.4.1 Verify each required containment penetration is in the required status prior to the start of and in accordance with the Surveillance Frequency Control Program during CORE ALTERATIONS or load movements with or over irradiated fuel within containment.

4.9.4.2 Verify each required containment purge and exhaust valve actuates to the isolation position on an actual or simulated actuation signal in accordance with the Surveillance Frequency Control Program or load movements with or over irradiated fuel within containment.

NOTE - SR 4.9.4.2 is not required to be met for containment purge and exhaust valve(s) in penetrations closed to comply with LCO 3.9.4.c.1.

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REFUELING OPERATIONS

3/4.9.8 SHUTDOWN COOLING AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one shutdown cooling train shall be OPERABLE and in operation.*

APPLICABILITY: MODE 6 when the water level above the top of the fuel seated in the reactor pressure vessel is greater than or equal to 23 feet.

ACTION:

With no shutdown cooling train OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of Technical Specification 3.9.1 and immediately initiate corrective action to return the required shutdown cooling train to OPERABLE and operating status. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 4000 gpm** at least once per 12 hours.

*The shutdown cooling loop may be removed from operation for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs, provided no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the minimum required boron concentration of Technical Specification 3.9.1.

**The minimum flow may be reduced to 3000 gpm after the reactor has been shut down for greater than or equal to 175 hours or by verifying at least once per hour that the RCS temperature is less then 135°F. The minimum flow may be reduced to 2000 gpm after the reactor has been shut down for greater than or equal to 375 hours.

REFUELING OPERATIONS

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.2 Two# independent shutdown cooling trains shall be OPERABLE and at least one shutdown cooling train shall be in operation.*

APPLICABILITY: MODE 6 when the water level above the top of the fuel seated in the reactor pressure vessel is less than 23 feet.

ACTION:

a. With one of the required shutdown cooling trains inoperable, immediately initiate corrective action to return the required train to OPERABLE status, or to establish greater than or equal to 23 feet of water above the top of the fuel seated in the reactor pressure vessel.

b. With no shutdown cooling train OPERABLE and in operation, suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of Technical Specification 3.9.1 and immediately initiate corrective action to return the required shutdown cooling train to OPERABLE and operating status. 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 shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 4000 gpm** in accordance with the Surveillance Frequency Control Program.

#Only one shutdown cooling train is required to be OPERABLE and in operation provided there are no irradiated fuel assemblies seated within the reactor pressure vessel.

*The shutdown cooling loop may be removed from operations for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs, provided no operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the minimum required boron concentration of Technical Specification 3.9.1.

**The minimum flow may be reduced to 3000 gpm after the reactor has been shut down for greater than or equal to 175 hours or by verifying at least once per hour that the RCS temperature is less than 135°F. The minimum flow may be reduced to 2000 gpm after the reactor has been shut down for greater than or equal to 375 hours.

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REFUELING OPERATIONS

3/4.9.10 WATER LEVEL - REACTOR VESSEL

FUEL ASSEMBLIES

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: During movement of fuel assemblies within the reactor pressure vessel when either the fuel assemblies being moved or the fuel assemblies seated within the reactor pressure vessel are irradiated.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies within the pressure vessel.

SURVEILLANCE REQUIREMENTS

4.9.10.1 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and in accordance with the Surveillance Frequency Control Program thereafter during movement of fuel assemblies.

REFUELING OPERATIONS

CEAs

LIMITING CONDITION FOR OPERATION

3.9.10.2 At least 23 feet of water shall be maintained over the top of the fuel seated in the reactor pressure vessel.

APPLICABILITY: During movement of CEAs within the reactor pressure vessel, when the fuel assemblies seated within the reactor pressure vessel are irradiated.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of CEAs within the pressure vessel.

SURVEILLANCE REQUIREMENTS

4.9.10.2 The water level shall be determined to be at least its minimum required depth within 2 hours prior to the start of and in accordance with the Surveillance Frequency Control Program thereafter during movement of CEAs.

3/4.9.11 WATER LEVEL - SPENT FUEL POOL

LIMITING CONDITION FOR OPERATION

3.9.11 At least 23 feet of water shall be maintained over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: Whenever irradiated fuel assemblies are in the spent fuel pool.

ACTION:

With the requirement of the 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.

SURVEILLANCE REQUIREMENTS

4.9.11 The water level in the spent fuel pool shall be determined to be at least its minimum required depth in accordance with the Surveillance Frequency Control Program when irradiated fuel assemblies are in the spent fuel pool.

3/4.9.12 SPENT FUEL POOL (SFP) BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.12 The spent fuel pool boron concentration shall be $\geq$ 1900 ppm.

APPLICABILITY: When fuel assemblies are stored in the SFP.

ACTION:

a. With the spent fuel pool boron concentration not within limits immediately suspend movement of fuel in the SFP and immediately initiate actions to restore boron concentration to within limits.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12 Verify the spent fuel pool concentration is within limits in accordance with the Surveillance Frequency Control Program.

REFUELING OPERATIONS

3/4.9.13 SPENT FUEL STORAGE

LIMITING CONDITION FOR OPERATION

3.9.13 Storage of fuel assemblies in the spent fuel storage racks of Region 1 (cask storage pit) and Region 2 (spent fuel pool and refueling canal) shall be stored within the limitations of Specification 5.6.1.

APPLICABILITY: Whenever a fuel assembly is stored in a spent fuel storage rack.

ACTION:

a. With the requirements of the LCO not met, immediately initiate action to restore the non-complying fuel assembly within requirements.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.13 Verify by administrative means that each fuel assembly meets fuel storage requirements contained in Specification 5.6.1 prior to storing the fuel assembly in a spent fuel storage rack.

Pages 3/4 9-14 through 3/4 9-16 are deleted.

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 or 3.1.1.2 may be suspended for measurement of CEA worth and SHUTDOWN MARGIN provided reactivity equivalent to at least the highest estimated CEA worth is available for trip insertion from OPERABLE CEA(s).

APPLICABILITY: MODES 2 AND 3*.

ACTION:

a. With any CEA not fully inserted and with less than the above reactivity equivalent available for trip insertion, immediately initiate boration to restore the SHUTDOWN MARGIN required by Specification 3.1.1.1.

b. With all CEAs fully inserted and the reactor subcritical by less than the above reactivity equivalent, immediately initiate boration to restore the SHUTDOWN MARGIN required by Specification 3.1.1.2.

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each CEA required either partially or fully withdrawn shall be determined in accordance with the Surveillance Frequency Control Program.

4.10.1.2 Each CEA 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.

*Operation in MODE 3 shall be limited to 6 consecutive hours.

SPECIAL TEST EXCEPTIONS

3/4.10.2 MODERATOR TEMPERATURE COEFFICIENT, GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

3.10.2 The moderator temperature coefficient, group height, insertion, and power distribution limits of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, and the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 may be suspended during the performance of PHYSICS TESTS provided:

a. The THERMAL POWER is restricted to the test power plateau which shall not exceed 85% of RATED THERMAL POWER, and

b. The limits of Specification 3.2.1 are maintained and determined as specified in Specification 4.10.2.2 below.

APPLICABILITY: MODES 1 and 2.

ACTION:

With any of the limits of Specification 3.2.1 being exceeded while the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, and the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended, either:

a. Reduce THERMAL POWER sufficiently to satisfy the requirements of Specification 3.2.1, or

b. Be in HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.10.2.1 The THERMAL POWER shall be determined in accordance with the Surveillance Frequency Control Program during PHYSICS TESTS in which the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, or the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended and shall be verified to be within the test power plateau.

4.10.2.2 The linear heat rate shall be determined to be within the limits of Specification 3.2.1 by monitoring it continuously with the Incore Detection Monitoring System pursuant to the requirements of Specifications 4.2.1.2 during PHYSICS TESTS above 5% of RATED THERMAL POWER in which the requirements of Specifications 3.1.1.3, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.2.2, 3.2.3, 3.2.7, or the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 are suspended.

SPECIAL TEST EXCEPTIONS

3/4.10.3 REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.3 The noted requirements of Tables 2.2-1 and 3.3-1 may be suspended during the performance of startup and PHYSICS TESTS, provided:

a. The THERMAL POWER does not exceed 5% of RATED THERMAL POWER, and either

b. The reactor trip setpoints of the OPERABLE power level channels are set at less than or equal to 20% of RATED THERMAL POWER, or

c. The core protection calculator operating bypass permissive setpoints are increased to greater than the logarithmic power-hi trip setpoint specified in Table 2.2-1 and less than 5% RATED THERMAL POWER.

APPLICABILITY: During startup and PHYSICS TESTS.

ACTION:

With the THERMAL POWER greater than 5% of RATED THERMAL POWER, immediately trip the reactor.

SURVEILLANCE REQUIREMENTS

4.10.3.1 The THERMAL POWER shall be determined to be less than or equal to 5% of RATED THERMAL POWER in accordance with the Surveillance Frequency Control Program during startup and PHYSICS TESTS.

4.10.3.2 Each wide range logarithmic and power level neutron flux monitoring channel shall be subjected to a CHANNEL FUNCTIONAL TEST within 12 hours prior to initiating startup and PHYSICS TESTS.

SPECIAL TEST EXCEPTIONS

3/4.10.4 CENTER CEA MISALIGNMENT

LIMITING CONDITION FOR OPERATION

3.10.4 The requirements of Specifications 3.1.3.1 and 3.1.3.6 may be suspended during the performance of PHYSICS TESTS to determine the isothermal temperature coefficient, moderator temperature coefficient, and power coefficient
provided:

a. Only the center CEA (CEA #1) is misaligned, and

b. The limits of Specification 3.2.1 are maintained and determined as specified in Specification 4.10.4.2 below.

APPLICABILITY: MODES 1 and 2.

ACTION:

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

a. Reduce THERMAL POWER sufficiently to satisfy the requirements of Specification 3.2.1, or

b. Be in HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.10.4.1 The THERMAL POWER shall be determined at least once per hour during PHYSICS TESTS in which the requirements of Specifications 3.1.3.1 and/or 3.1.3.6 are suspended and shall be verified to be within the test power plateau.

4.10.4.2 The linear heat rate shall be determined to be within the limits of Specification 3.2.1 by monitoring it continuously with the Incore Detection Monitoring System pursuant to the requirements of Specifications 4.2.1.2 during PHYSICS TESTS above 5% of RATED THERMAL POWER in which the requirements of Specifications 3.1.3.1 and/or 3.1.3.6 are suspended.

SPECIAL TEST EXCEPTIONS

3/4.10.5 NATURAL CIRCULATION TESTING

LIMITING CONDITION FOR OPERATION

3.10.5 The limitation of Specification 3.4.1.2 may be suspended during the performance of natural circulation testing, provided the Reactor Coolant System saturation margin is maintained greater than or equal to 20°F.

APPLICABILITY: MODE 3 during natural circulation testing.

ACTION:

With the Reactor Coolant System saturation margin less than 20°F, immediately place at least one reactor coolant loop in operation, with at least one reactor coolant pump.

SURVEILLANCE REQUIREMENTS

4.10.5.1 The saturation margin shall be determined to be within the above limits by continuous monitoring with the saturation margin monitors required by Table 3.3-10 or, by calculating the saturation margin in accordance with the Surveillance Frequency Control Program.

4.10.5.2 The saturation margin monitor shall be demonstrated OPERABLE by performance of a CHANNEL CHECK within 24 hours prior to initiating natural circulation testing.

Pages 3/4 11-1 through 11-7 have been deleted.

RADIOACTIVE EFFLUENTS

LIQUID HOLDUP TANKS

LIMITING CONDITION FOR OPERATION

3.11.1.4 The quantity of radioactive material contained in each of the following unprotected outdoor tanks shall be limited to less than or equal to 7.85×10^{-4} curies,* excluding tritium and dissolved or entrained noble gases. For outside temporary storage tanks, the curie content shall be limited such that a rupture will not result in exceeding 10 CFR Part 20 limits at the UNRESTRICTED AREA boundary.

a. PWST
b. Outside temporary tank

APPLICABILITY: At all times.

ACTION:

a. With the quantity of radioactive material in any of the above listed tanks 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.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.4 The quantity of radioactive material contained in each of the above listed tanks shall be determined to be within the above limit by analyzing a representative sample of the tank's contents at least once per 7 days when radioactive materials are being added to the tank.

*Based on 80% tank capacity and the effluent concentration (EC) of 1.0×10^{-6} µCi/mL Cesium-137 equivalent, 10 CFR Part 20, Appendix B, Table 2, Column 2.

Pages 3/4 11-9 through 11-15 have been deleted.

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.11.2.5 The concentration of oxygen in the WASTE GAS HOLDUP SYSTEM 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 WASTE GAS HOLDUP SYSTEM 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 WASTE GAS HOLDUP SYSTEM greater than 4% by volume and the hydrogen concentration greater than 4% by volume, immediately suspend all additions of waste gases to the system and immediately reduce the concentration of oxygen to less than or equal to 4% by volume and then take the ACTION in a. above.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.5 The concentrations of hydrogen and oxygen in the WASTE GAS HOLDUP SYSTEM shall be determined to be within the above limits by monitoring the waste gases in the WASTE GAS HOLDUP SYSTEM with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.11.

RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS

LIMITING CONDITION OR OPERATION

3.11.2.6 The quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to 8.5×10^4 curies noble gases (considered as Xe-133 equivalent).

APPLICABILITY: At all times.

ACTION:

a. With the quantity of radioactive material in any gas storage tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank. Within 48 hours reduce the tank contents to within the limits and describe the events leading to this condition in the next Radioactive Effluent Release Report, pursuant to Specification 6.9.1.8.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.6 The quantity of radioactive material contained in each gas storage tank on-service shall be determined to be within the above limit in accordance with the Surveillance Frequency Control Program until the quantity exceeds 4.25×10^4 curies noble gases (50% of allowed limit) and then at least once per 24 hours when radioactive materials are being added to the tank. Tanks isolated for decay will be sampled to verify above limit is met within 24 hours following removal from service.

SECTION 5.0

DESIGN FEATURES

5.0 DESIGN FEATURES

5.1 SITE

EXCLUSION AREA

5.1.1 The exclusion area shall be as shown in Figure 5.1-1.

LOW POPULATION ZONE

5.1.2 The low population zone shall be as shown in Figure 5.1-2.

MAP DEFINING UNRESTRICTED AREAS FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS

5.1.3 Information regarding radioactive gaseous and liquid effluents, which will allow identification of structures and release points as well as definition of UNRESTRICTED AREAS within the SITE BOUNDARY that are accessible to MEMBERS OF THE PUBLIC, shall be as shown in Figure 5.1-3.

The definition of UNRESTRICTED AREA used in implementing these Technical Specifications has been expanded over that in 10 CFR 20.1003. The UNRESTRICTED AREA boundary may coincide with the Exclusion (fenced) Area boundary, as defined in 10 CFR 100.3(a), but the UNRESTRICTED AREA does not include areas over water bodies. For calculations performed pursuant to 10 CFR 50.36a, the concept of UNRESTRICTED AREAS, established at or beyond the SITE BOUNDARY, is utilized in the Controls to keep levels of radioactive materials in liquid and gaseous effluents as low as is reasonably achievable.

5.2 NOT USED

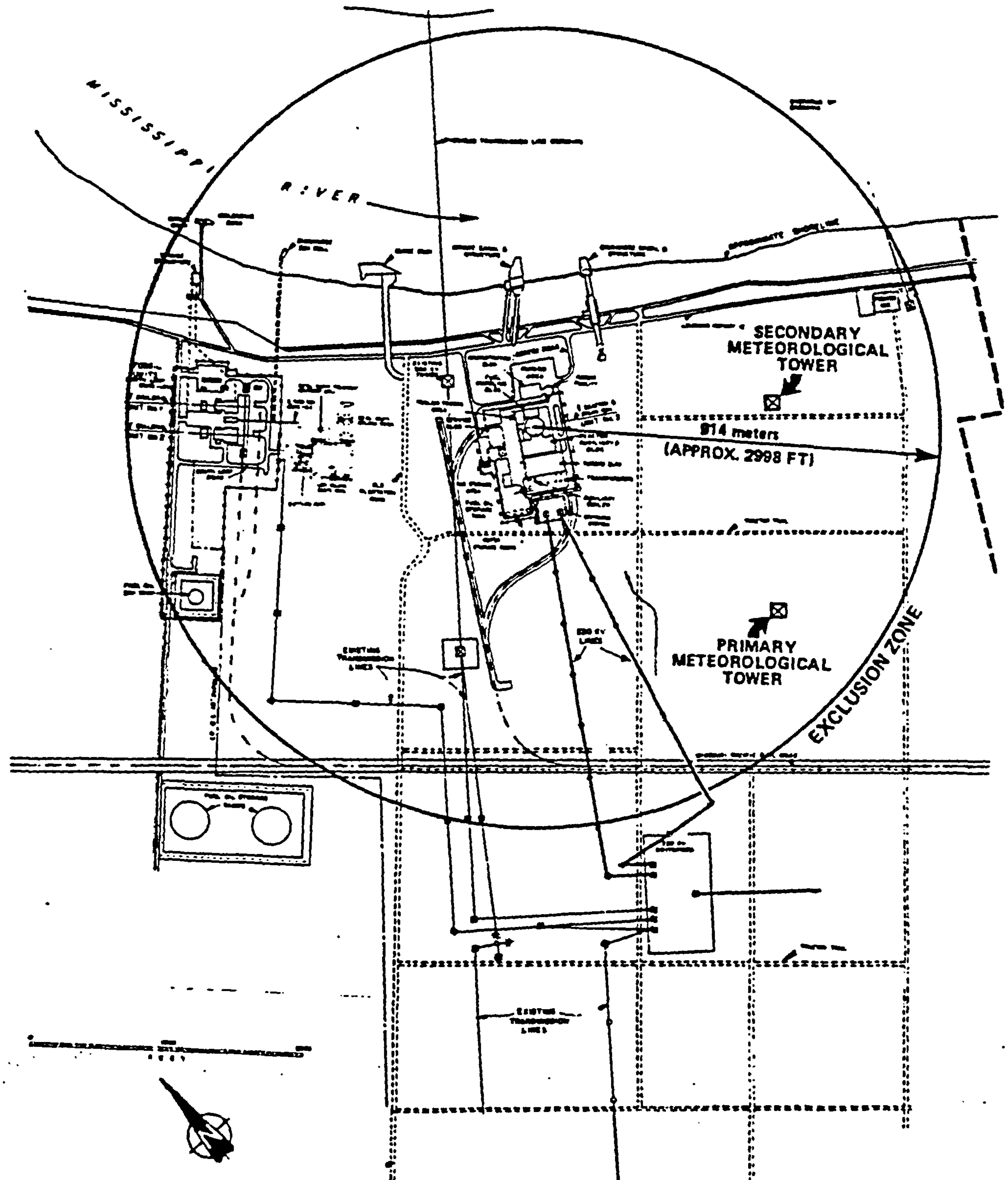


FIGURE 5.1-1

EXCLUSION AREA

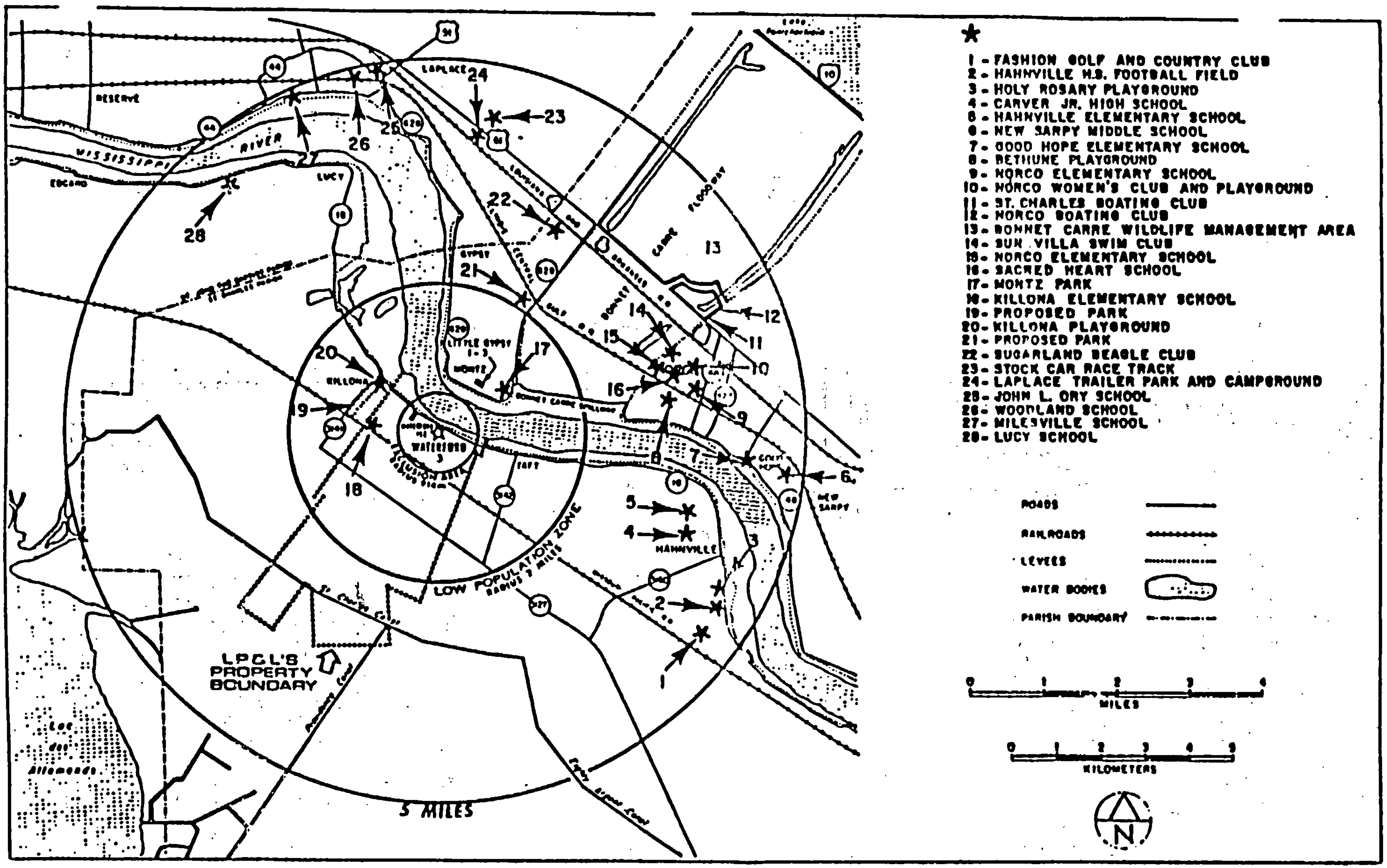


FIGURE 5.1-2 LOW POPULATION ZONE

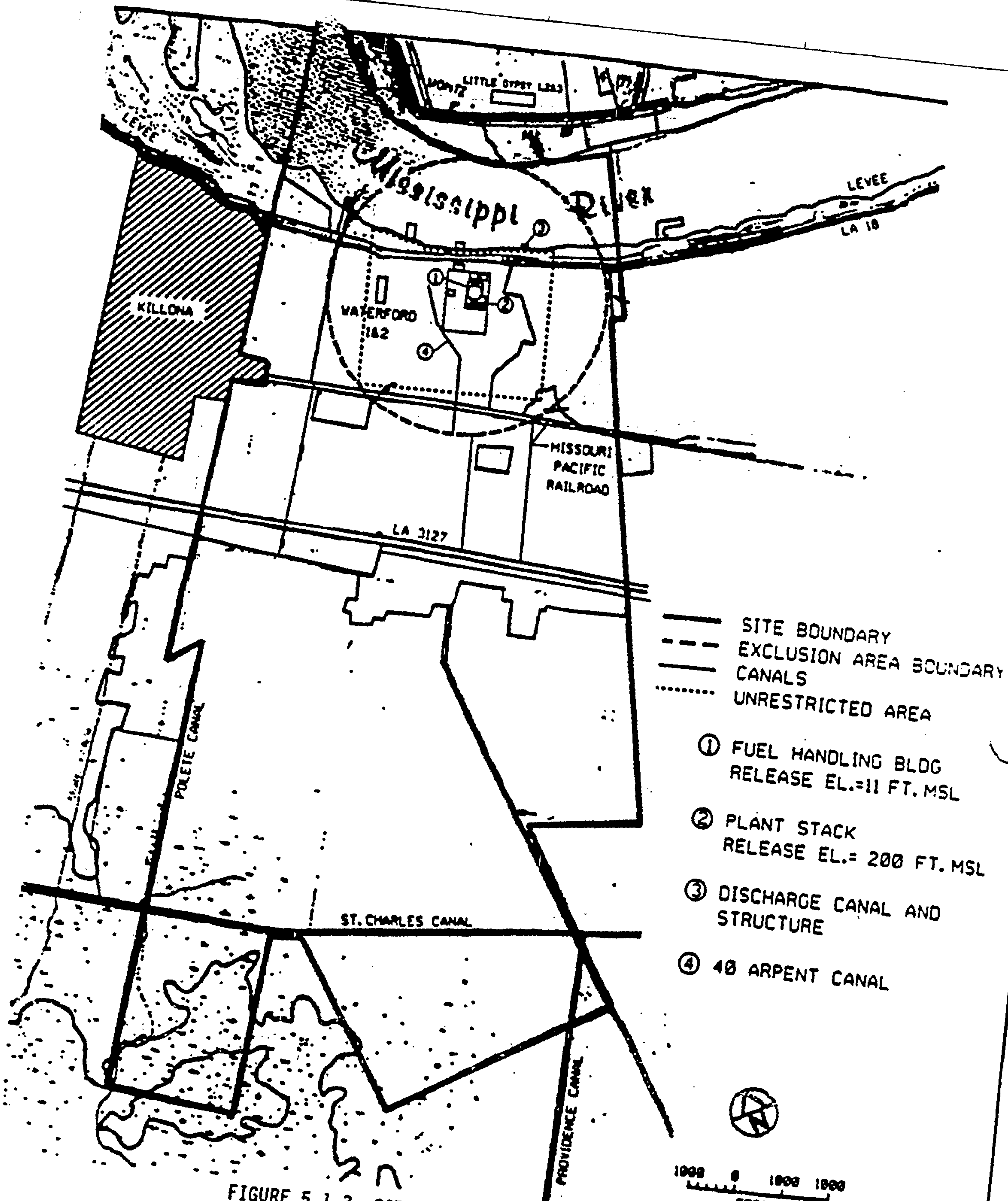


FIGURE 5.1-3 SITE BOUNDARY FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS

5.0 DESIGN FEATURES

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor shall contain 217 fuel assemblies. Each assembly shall consist of a matrix of Zircaloy-4 or ZIRLO or Optimized ZIRLO™ fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in non-limiting core regions.

CONTROL ELEMENT ASSEMBLIES

5.3.2 The reactor core shall contain 87 control element assemblies.

5.4 NOT USED

5.5 METEOROLOGICAL TOWERS LOCATION

5.5.1 The primary and backup meteorological towers shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1 The spent fuel storage racks are designed and shall be maintained with:

a. For Region I (cask storage pit) and Region 2 (spent fuel pool and refueling canal) racks, a maximum k_{eff} of less than 1.00 when flooded with unborated water, and less than, or equal to, 0.95 when flooded with water having a boron concentration of 524 ppm.

b. A nominal 10.185 inch center-to-center distance between fuel assemblies placed in Region 1 (cask storage pit) spent fuel storage racks.

c. A nominal 8.692 inch center-to-center distance between fuel assemblies in the Region 2 (spent fuel pool and refuelling canal) racks, except for the four southern-most racks in the spent fuel pool which have an increased N-S center-to-center nominal distance of 8.892 inches.

d. Fresh and irradiated fuel assemblies may be allowed unrestricted storage in Region 1 racks.

e. Fresh fuel assemblies may be stored in the Region 2 racks provided that they are stored in a "checkerboard pattern" with empty cells as illustrated in Figure 5.6-1, Pattern 1. Irradiated fuel assemblies with any burnup may also be stored with empty cells in the checkerboard configuration of Figure 5.6-1, Pattern 1.

f. Irradiated fuel assemblies with a burnup in the "accceptable range" of Figure 5.6-2 may be allowed unrestricted storage in the Region 2 racks.

g. Irradiated fuel assemblies with a burnup of $\geq$27 GWd/MTU in the "unacceptable range" of Figure 5.6-2 may be stored in the Region 2 racks in a "checkerboard pattern", as illustrated in Figure 5.6-1, Pattern 2 with irradiated fuel in the "acceptable range" of Figure 5.6-3.

h. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent.

5.6.2 The k_{eff} for fresh fuel stored in the new fuel storage racks shall be less than or equal to 0.95 when flooded with unborated water and shall not exceed 0.98 when aqueous foam moderation is assumed.

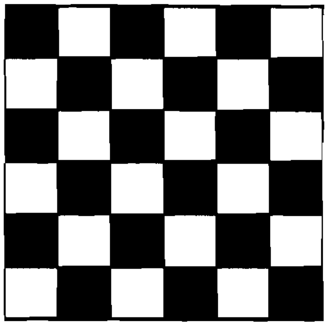
DRAINAGE

5.6.3 The spent fuel pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation +40.0 MSL. When fuel is being stored in the cask storage pit and/or the refueling canal, these areas will also be maintained at +40.0 MSL.

CAPACITY

5.6.4 The spent fuel pool is designed and shall be maintained with a storage capacity limited to no more than 1849 fuel assemblies in the main pool, 255 fuel assemblies in the cask storage pit and after permanent plant shutdown 294 fuel assemblies in the refueling canal. The heat load from spent fuel stored in the refueling canal racks shall not exceed 1.72x10E6 BTU/Hr. Fuel shall not be stored in the spent fuel racks in the cask storage pit or the refueling canal unless all of the racks are installed in each respective area per the design.

5.7 NOT USED

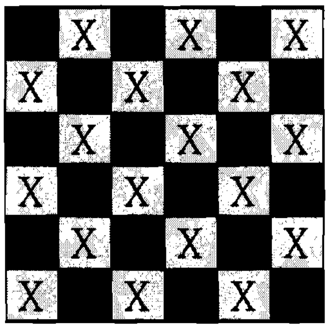


Cells loaded with fresh or irradiated fuel of less than, or equal to, 5 wt% initial U-235 enrichment

Water-filled, empty cells

Pattern 1

Checkerboard of Fresh or Irradiated Fuel Assemblies and Empty Storage Cells



Cells loaded with irradiated fuel of 27 GWd/MTU burnup, or higher

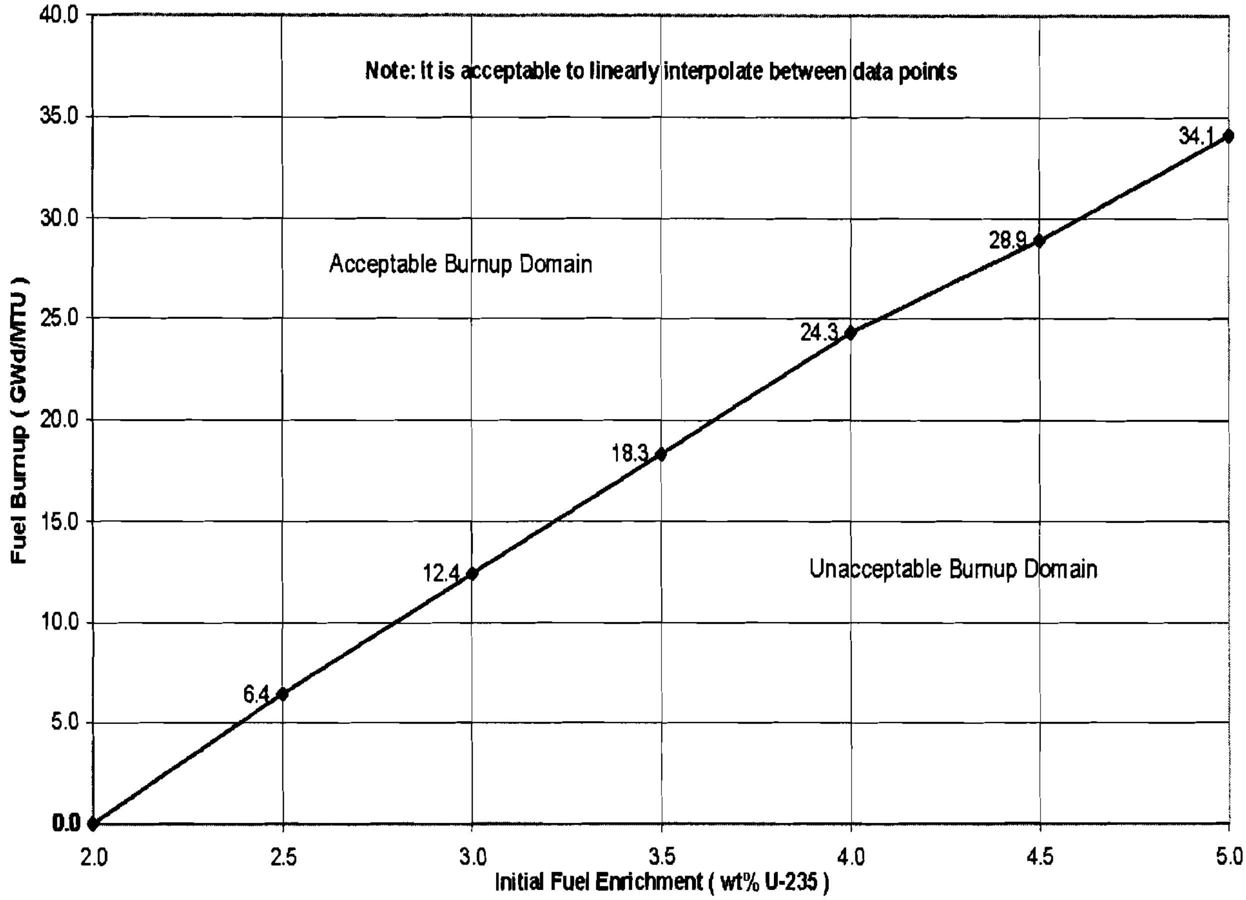
Cells loaded with fuel having the enrichment-burnup combinations specified in Figure 5.6-3

Pattern 2

Checkerboard of Fuel Assemblies with Burnups of 27 GWd/MTU, or higher, and Fuel Assemblies of Specified Enrichment-Burnup Combinations

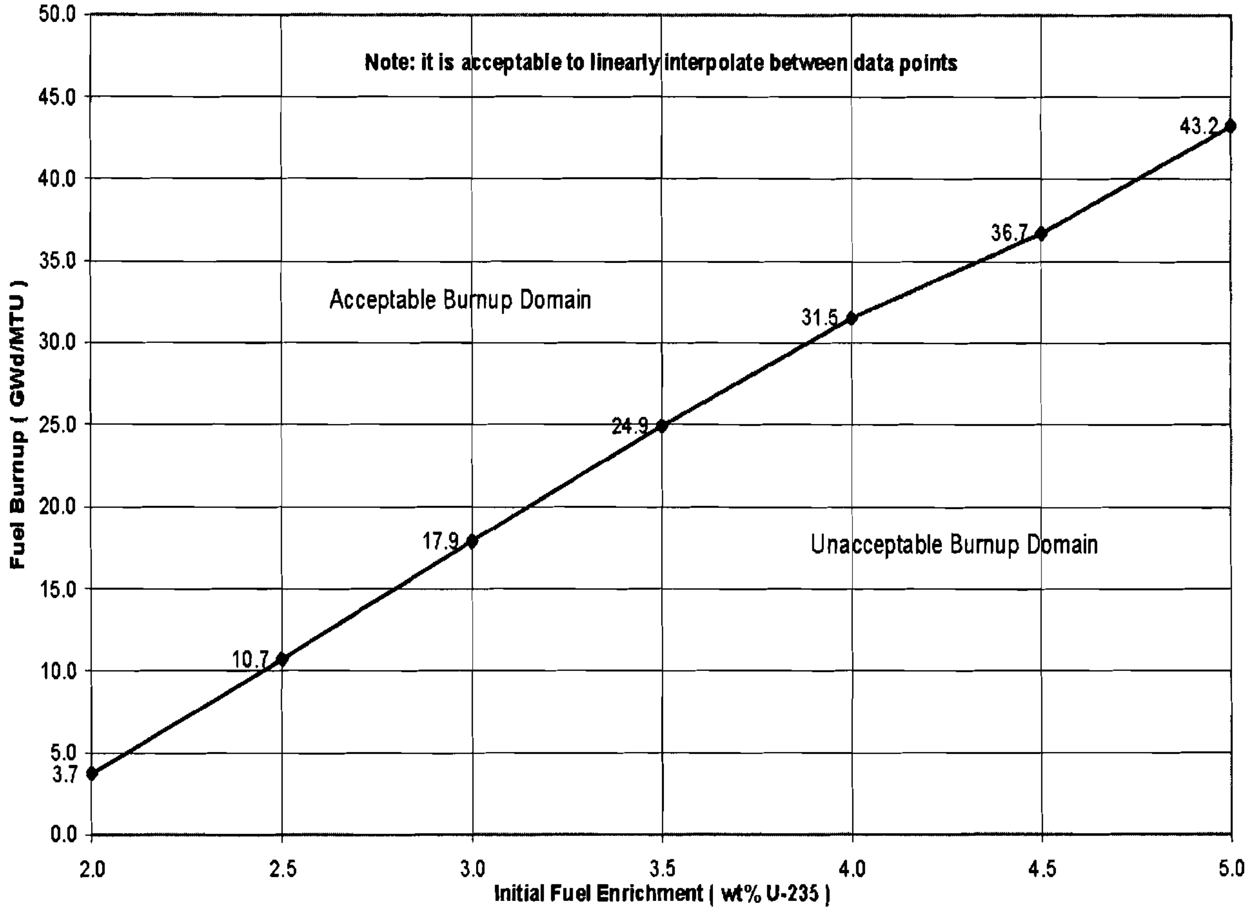
Note: Either of these checkerboard arrangements may be used in areas contiguous to areas of unrestricted storage in Region 2 (Figure 5.6-2). For interfaces between a Pattern 1 checkerboard and a Pattern 2 checkerboard, each high-reactivity irradiated assembly (e.g., 27 GWd/MTU) in a Pattern 2 configuration may be face-adjacent to no more than one fresh (or irradiated) fuel assembly; each fresh (or irradiated) fuel assembly in a Pattern 1 configuration may be face-adjacent with up to two high-reactivity irradiated fuel assemblies. See Figure 5.6-4 for examples of contiguous Pattern 1 and Pattern 2 fuel checkerboards which meet these requirements.

Figure 5.6-1 Alternative Checkerboard Storage Arrangements



Note: For enrichments lower than 2 wt%, apply the burnup value at 2 wt%.

Figure 5.6-2 Acceptable Burnup Domain for Unrestricted Storage of Irradiated Fuel in Region 2 of the Spent Fuel Pool



Note: For enrichments lower than 2 wt%, apply the burnup value at 2 wt%.

Figure 5.6-3 Acceptable Burnup Domain for Irradiated Fuel in a Checkerboard Arrangement with Fuel of 5 wt% Enrichment, or Less, at 27 GWd/MTU Burnup, or Higher, in Region 2 of the Spent Fuel Pool

A		A		A		A
	A		A		A	
A		B	C	B		A
	A	C	B	C	A	
A		B	C	B		A
	A		A		A	
A		A		A		A

	≤ 5 wt% U-235, ≥ 27 GWd/MTU irradiated fuel
A	Irradiated fuel at, or above, the curve in Figure 5.6-3
B	≤ 5 wt% U-235 fresh or irradiated fuel at any burnup
C	Empty storage cell

	A		B	C	B	C
A		A	C	B	C	B
	A		B	C	B	C
A		A	C	B	C	B
	A		B	C	B	C
A		A	C	B	C	B
	A		B	C	B	C

	≤ 5 wt% U-235, ≥ 27 GWd/MTU irradiated fuel
A	Irradiated fuel at, or above, the curve in Figure 5.6-3
B	≤ 5 wt% U-235 fresh or irradiated fuel at any burnup
C	Empty storage cell

Figure 5.6-4 Examples of Contiguous Checkerboard Configurations Which Meet Interface Requirements

PAGES 5-7, 5-8, and 5-9 NOT USED

SECTION 6.0

ADMINISTRATIVE CONTROLS

6.1 RESPONSIBILITY

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

The General Manager Plant Operations or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that may affect nuclear safety.

6.1.2 The Shift Manager, 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 – WF3, shall be reissued to all station personnel on an annual basis.

6.2 ORGANIZATION

6.2.1 OFFSITE AND ONSITE ORGANIZATIONS

Onsite and offsite organizations shall be established for unit operation and corporate management, respectively. The onsite and offsite organizations 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. These relationships shall be documented and updated, as appropriate, in the form of organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements shall be documented in the FSAR.

b. The General Manager Plant Operations shall be responsible for overall unit safe operation and shall have control over those onsite activities necessary for safe operation and maintenance of the plant.

c. The Site Vice President – WF3 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.

d. The individuals who train the operating staff and those who carry out health physics and quality assurance functions may report to the appropriate onsite manager; however, they shall have sufficient organizational freedom to ensure their independence from operating pressures.

6.2.2 UNIT STAFF

a. Each on-duty shift shall be composed of at least the minimum shift crew composition shown in Table 6.2-1;

UNIT STAFF (Continued)

b. At least one licensed Operator shall be in the control room when fuel is in the reactor. In addition, while the reactor is in MODE 1, 2, 3, or 4, at least one licensed Senior Operator shall be in the control room.

c. A Health Physics Technician* shall be on site when fuel is in the reactor.

d. All CORE ALTERATIONS shall be observed and directly supervised by either a licensed Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.

e. The Operations Manager or the Operations Manager - Shift shall hold a senior reactor operator license.

*This requirement tolerates Health Physics Technician unexpected absences for not more than 2 hours, provided management takes immediate action to fill the required Health Physics Technician position.

Page 6-2a
Not Used.

Figure 6.2-1

This Figure has been deleted.

Figure 6.2-2

This Figure has been deleted.

TABLE 6.2-1

MINIMUM SHIFT CREW COMPOSITION

POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	MODE 1, 2, 3, OR 4	MODE 5 OR 6
SM	1*	1
SRO	1*	None
RO	2	1
AO	2	1
STA	1*	None

SM - Shift Manager 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

Except for the Shift Manager, 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 Shift Manager from the control room while the 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 Shift Manager from the control room while the unit is in MODE 5 or 6, an individual with a valid Senior Operator or Operator license shall be designated to assume the control room command function.

*An individual with SRO/STA qualifications can satisfy the SM/STA or SRO/STA position requirements simultaneously.

6.2.3 Not Used

6.2.4 SHIFT TECHNICAL ADVISOR

When in MODES 1, 2, 3, or 4 an individual shall provide advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operations of the unit. This individual shall meet the qualifications specified by ANSI/ANS 3.1-1993 as endorsed by RG 1.8, Rev. 3, 2000.

6.3 UNIT STAFF QUALIFICATIONS

6.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI/ANS 3.1-1978 for comparable positions with exceptions specified in the Entergy Quality Assurance Program Manual (QAPM).

6.3.2 For the purpose of 10 CFR 55.4, a licensed Senior Reactor Operator (SRO) and a licensed Reactor Operator (RO) are those individuals who, in addition to meeting the requirements of Specification 6.3.1, perform the functions described in 10 CFR 50.54(m).

6.4 NOT USED.

6.5 PROGRAMS

The following programs shall be established, implemented, and maintained.

6.5.1 through 6.5.4 will be used later.

6.5.5 COMPONENT CYCLIC OR TRANSIENT LIMIT

This program provides controls to track Technical Requirements Manual Section 5.7 cyclic and transient occurrences to ensure that components are maintained within the design limits.

6.5.6 Will be used later.

6.5.7 REACTOR COOLANT PUMP FLYWHEEL INSPECTION PROGRAM

This program shall provide for the inspection of each reactor coolant pump flywheel per the recommendation of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975. The volumetric examination per Regulatory Position C.4.b.1 will be performed on approximately 10-year intervals.

6.5.8 DELETED

6.5.9 STEAM GENERATOR (SG) PROGRAM

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged to confirm that the performance criteria are being met.

STEAM GENERATOR (SG) PROGRAM (Continued)

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational leakage.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary to secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary to secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Primary to secondary leakage is not to exceed 540 gpd through any one SG.

3. The operational leakage performance criterion is specified in LCO 3.4.5.2, "Reactor Coolant System Operational Leakage."

c. Provisions for SG tube plugging criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

STEAM GENERATOR (SG) PROGRAM (Continued)

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet and that may satisfy the applicable tube plugging criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A degradation assessment shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG installation.

2. After the first refueling outage following SG installation, inspect each SG at least every 72 effective full power months or at least every third refueling outage (whichever results in more frequent inspections). In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a, b, c and d below. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube repair criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.

   a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period;

   b) During the next 120 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period;

STEAM GENERATOR (SG) PROGRAM (Continued)

c) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the third inspection period; and

d) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the fourth and subsequent inspection periods.

3. If crack indications are found in any SG tube, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever results in more frequent inspections). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary leakage.

6.5.10 not used
6.5.11 not used
6.5.12 not used

6.5.13 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 ASTM 2D fuel oil, and

   3. A clear and bright appearance with proper color or a water and sediment content within limits,

b. Within 31 days following addition of new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

c. Total particulate concentration of the fuel oil is $\leq$ 10 mg/l when tested every 31 days.

The provisions of SR 4.0.2 and SR 4.0.3 are applicable to the Diesel Fuel Oil Testing Program surveillance frequencies.

6.5.14 not used
6.5.15 not used
6.5.16 not used

6.5.17 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Air Filtration System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

6.5.17 Control Room Envelope Habitability Program (Continued)

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the control room emergency air filtration, operating at the flow rate required by SR 4.7.6.1.b, in accordance with the Surveillance Frequency Control Program. The results shall be trended and used as part of the assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 4.0.2 are applicable to the FREQUENCIES for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

6.5.18 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-informed Method for Control of Surveillance Frequencies, "Revision 1.

c. The provisions of Surveillance Requirements 4.0.2 and 4.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

Pages 6-11
through
page 6-13
not used

6.6 NOT USED

6.7 NOT USED

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 and Emergency Operating Procedures required to implement the requirements of NUREG-0737 and NUREG-0737, Supplement 1, as stated in Generic Letter 82-33.
b. Refueling operations.
c. Surveillance and test activities of safety-related equipment.
d. Not used.
e. Not used.
f. Not used.
g. Modification of Core Protection Calculator (CPC) Addressable Constants, including independent verification of modified constants.

NOTES:

(1) Modification to the CPC addressable constants based on information obtained through the Plant Computer - CPC data link shall not be made without prior approval of the On-Site Safety Review Committee.

(2) Modifications to the CPC software (including algorithm changes and changes in fuel cycle specific data) shall be performed in accordance with the most recent version of CEN-39(A)-P, "CPC Protection Algorithm Software Change Procedure," that has been determined to be applicable to the facility. Additions or deletions to CPC Addressable Constants or changes to Addressable Constant software limits values shall not be implemented without prior NRC approval.

h. Administrative procedures implementing the overtime guidelines of Specification 6.2.2e., including provisions for documentation of deviations.

i. PROCESS CONTROL PROGRAM implementation.

PROCEDURES AND PROGRAMS (Continued)

j. OFFSITE DOSE CALCULATION MANUAL implementation.

k. Quality Assurance Program for effluent and environmental monitoring, using the guidance in Regulatory Guide 1.21, Revision 1, June 1974 and Regulatory Guide 4.1, Revision 1, April 1975.

6.8.2 Not Used

6.8.3 Not Used

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 containment spray, safety injection, hydrogen analyzer, post-accident sampling (pending a modification to eliminate PASS as a potential leakage path), and portions of the containment vacuum relief and primary sampling systems. 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. In-Plant Radiation Monitoring

A program which will ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:

1. Training of personnel,

2. Procedures for monitoring, and

3. Provisions for maintenance of sampling and analysis equipment.

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PROCEDURES AND PROGRAMS (Continued)

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,
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. Basemat Monitoring

A program for monitoring of the Nuclear Plant Island Structure (NPIS) Common Foundation Basemat to ensure the continued integrity of the Basemat. The program shall include:

1. settlement of the basemat
2. changes in ground water chemistry that could effect corrosion of reinforcing steel
3. seasonal variation in ground water levels
4. monitoring of significant cracking in the basemat.

PROCEDURES AND PROGRAMS (Continued)

f. Radioactive Effluent Controls Program

A program shall be provided conforming with 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 (1) shall be contained in the ODCM, (2) shall be implemented by operating procedures, and (3) 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 10 times the concentration values in Appendix B, Table 2, Column 2, to 10 CFR 20.1001-20.2402,

3. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents pursuant to 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 Appendix I to 10 CFR Part 50,

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 the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,

7. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas beyond the SITE BOUNDARY shall be limited to the following:

   a. For noble gases: Less than or equal to a dose rate of 500 mrem/year to the total body and less than or equal to a dose rate of 3000 mrem/year to the skin, and,

   b. For Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form with half lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/year to any organ.

PROCEDURES AND PROGRAMS (Continued)

6.8.4 f. Radioactive Effluent Controls Program (Continued)

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 Appendix I to 10 CFR Part 50,

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 Appendix I to 10 CFR Part 50, and

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 Part 190.

g. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

1. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,

2. A Land Use Census to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the monitoring program are made if required by the results of this census, and

3. Participation in a Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurement of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 The following reports shall be submitted in accordance with 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 plant.

6.9.1.2 The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or 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.

6.9.1.3 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

6.9.1.4 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. The initial report shall be submitted prior to March 1 of the year following initial criticality.

The results of specific activity analysis in which the primary coolant exceed the limits of Specification 3.4.7 shall be submitted annually in accordance with the aforementioned time frame. The following information shall be included:

ANNUAL REPORTS (Continued)

(1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded;

(2) Results of the last isotopic analysis for radioiodine performed prior to exceeding the limit, results of analysis while limit was exceeded and results of one analysis after the radioiodine activity was reduced to less than limit. Each result should include date and time of sampling and the radioiodine concentrations;

(3) Clean-up system flow history starting 48 hours prior to the first sample in which the limit was exceeded;

(4) Graph of the I-131 concentration and one other radioiodine isotope concentration in microcuries per gram as a function of time for the duration of the specific activity above steady-state level; and

(5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

6.9.1.5 STEAM GENERATOR TUBE INSPECTION REPORT

A report shall be submitted within 180 days after the initial entry into HOT SHUTDOWN following completion of an inspection performed in accordance with the Specification 6.5.9, Steam Generator (SG) Program. The report shall include:

a. The scope of inspections performed on each SG,

b. Degradation mechanisms found,

c. Nondestructive examination techniques utilized for each degradation mechanism,

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,

e. Number of tubes plugged during the inspection outage for each degradation mechanism,

f. The number and percentage of tubes plugged to date, and the effective plugging percentage in each steam generator,

g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

6.9.1.6 DELETED

ANNUAL RADIOLOGICAL ENVIORNMENTAL OPERATING REPORT

6.9.1.7 The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted before May 1 of each year. The report shall include summaries, interpretations, and analysis 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 ODCM and (2) Sections IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR Part 50.

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

6.9.1.8 The Annual Radioactive Effluent Release Report covering the operation of the unit during the previous year of operation shall be submitted prior to May 1 of each year. 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 (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

INDUSTRIAL SURVEY OF TOXIC OR HAZARDOUS CHEMICALS REPORT

6.9.1.9 Surveys and analyses of major industries in the vicinity of Waterford 3 which could have significant inventories of toxic chemicals onsite to determine impact on safety shall be performed and submitted to the Commission at least once every 4 years.

6.9.1.10 A survey of major pipelines ($\geq$ 4 inches) within a 2-mile radius of Waterford 3, which contain explosive or flammable materials and may represent a hazard to Waterford 3, including scaled engineering drawings or maps which indicate the pipeline locations, shall be performed and submitted to the Commission at least once every 4 years.

CORE OPERATING LIMITS REPORT COLR

6.9.1.11 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT prior to each reload cycle or any remaining part of a reload cycle for the following:

3.1.1.1	SHUTDOWN MARGIN – ANY CEA WITHDRAWN
3.1.1.2	SHUTDOWN MARGIN – ALL CEAS FULLY INSERTED
3.1.1.3	MODERATOR TEMPERATURE COEFFICIENT
3.1.2.9	BORON DILUTION
3.1.3.1	CEA POSITION
3.1.3.6	REGULATING AND GROUP P CEA INSERTION LIMITS
3.2.1	LINEAR HEAT RATE
3.2.3	AZIMUTHAL POWER TILT – T_q
3.2.4	DNBR MARGIN
3.2.7	AXIAL SHAPE INDEX
3.6.1.5	AIR TEMPERATURE, CONTAINMENT (Linear Heat Rate, 3.2.1)
3.9.1	BORON CONCENTRATION

6.9.1.11.1 The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC as follows:

1) "Qualification of the PHOENIX-P/ANC Nuclear Design System for Pressurized Water Reactor Cores" (WCAP-11596-P-A), "ANC: A Westinghouse Advanced Nodal Computer Code" (WCAP-10965-P-A), and "ANC: A Westinghouse Advanced Nodal Computer Code: Enhancements to ANC Rod Power Recovery" (WCAP-10965-P-A Addendum 1) (Methodology for Specifications 3.1.1.1 and 3.1.1.2 for Shutdown Margins, 3.1.1.3 for MTC, 3.1.3.6 for Regulating and Group P CEA Insertion Limits, 3.2.4.b for DNBR Margin, 3.1.2.9 for Boron Dilution, and 3.9.1 for Boron Concentrations).

2) "CE Method for Control Element Assembly Ejection Analysis," CENPD-0190-A (Methodology for Specification 3.1.3.6 for Regulating and Group P CEA Insertion Limits and 3.2.3 for Azimuthal Power Tilt).

CORE OPERATING LIMITS REPORT COLR (Continued)

3) "Modified Statistical Combination of Uncertainties, CEN-356(V)-P-A, Revision 01-P-A (Methodology for Specification 3.2.4.c and 3.2.4.d for DNBR Margin and 3.2.7 for ASI).

4) "Calculative Methods for the CE Large Break LOCA Evaluation Model," CENPD-132-P (Methodology for Specification 3.1.1.3 for MTC, 3.2.1 for Linear Heat Rate, 3.2.3 for Azimuthal Power Tilt, and 3.2.7 for ASI).

5) "Calculative Methods for the CE Small Break LOCA Evaluation Model," CENPD-137-P (Methodology for Specification 3.1.1.3 for MTC, 3.2.1 for Linear Heat Rate, 3.2.3 for Azimuthal Power Tilt, and 3.2.7 for ASI).

6) "Technical Manual for the CENTS Code," WCAP-15996-P-A, Rev. 1 (Methodology for Specifications 3.1.1.1 and 3.1.1.2 for Shutdown Margin, 3.1.1.3 for MTC, 3.1.3.1 for CEA Position, 3.1.3.6 for Regulating and Group P Insertion Limits, and 3.2.4.b for DNBR Margin).

7) "Implementation of ZIRLO Material Cladding in CE Nuclear Power Fuel Assembly Designs," CENPD-404-P-A (Methodology for Specification 3.1.1.3 for MTC, 3.2.1 for Linear Heat Rate, 3.2.3 for Azimuthal Power Tilt, and 3.2.7 for ASI).

8) "Qualification of the Two-Dimensional Transport Code PARAGON," WCAP-16045-P-A (may be used as a replacement for the PHOENIX-P lattice code as the methodology for Specifications 3.1.1.1 and 3.1.1.2 for Shutdown Margins, 3.1.1.3 for MTC, 3.1.3.6 for Regulating and Group P CEA Insertion Limits, 3.2.4.b for DNBR Margin, 3.1.2.9 for Boron Dilution, and 3.9.1 for Boron Concentrations).

9) "Implementation of Zirconium Diboride Burnable Absorber Coatings in CE Nuclear Power Fuel Assembly Designs," WCAP-16072-P-A (Methodology for Specification 3.1.1.3 for MTC, 3.2.1 for Linear Heat Rate, 3.2.3 for Azimuthal Tilt, and 3.2.7 for ASI).

10) "CE 16 x 16 Next Generation Fuel Core Reference Report," WCAP-16500-P-A (Methodology for Specification 3.1.1.3 for MTC, 3.2.1 for Linear Heat Rate, 3.2.3 for Azimuthal Power Tilt, 3.2.4.b, 3.2.4.c and 3.2.4.d for DNBR Margin, and 3.2.7 for ASI).

11) "Optimized ZIRLO™," WCAP-12610-P-A and CENPD-404-P-A Addendum 1-A (Methodology for Specification 3.1.1.3 for MTC, 3.2.1 for Linear Heat Rate, 3.2.3 for Azimuthal Power Tilt, and 3.2.7 for ASI).

12) "Westinghouse Correlations WSSV and WSSV-T for Predicting Critical Heat Flux in Rod Bundles with Side-Supported Mixing Vanes," WCAP- 16523-P-A (Methodology for Specification 3.2.4.b, 3.2.4.c and 3.2.4.d for DNBR Margin).

13) "ABB Critical Heat Flux Correlations for PWR Fuel," CENPD-387-P-A (Methodology for Specification 3.2.4.b, 3.2.4.c and 3.2.4.d for DNBR Margin and 3.2.7 for ASI).

CORE OPERATING LIMITS REPORT COLR (Continued)

6.9.1.11.2 The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

6.9.1.11.3 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.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted in accordance with 10 CFR 50.4 within the time period specified for each report.

6.10 Not Used

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Not Used

6.11 RADIATION PROTECTION PROGRAM

6.11.1 Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by 10 CFR Part 20.1601, each high radiation area in which the intensity of radiation is greater than 100 mrem/h but less than 1000 mrem/h 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)*. 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.

*Health physics personnel or personnel escorted by health physics personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they are otherwise following plant radiation protection procedures for entry into high radiation areas.

HIGH RADIATION AREA (Continued)

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 level in the area has been established and personnel have been made knowledgeable of them.

c. A health physics qualified individual (i.e., 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 facility Radiation Protection Manager in the RWP.

6.12.2 In addition to the requirements of Specification 6.12.1, areas accessible to personnel with radiation levels such that a major portion of the body could receive in one hour a dose greater than 1000 mrems* but less than 500 rads** shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the Shift Superintendent on duty and/or health physics supervision/designee. 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 area and the maximum allowable stay time for individuals in that area. For individual areas accessible to personnel with radiation levels such that a major portion of the body could receive in 1 hour a dose in excess of 1000 mrems* but less than 500 rads** that are located within large areas, such as PWR containment, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device. In lieu of the stay time specification of the RWP, direct or remote (such as use of closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities within the area.

6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 The PCP shall be approved by the Commission prior to implementation.

6.13.2 Licensee-initiated changes to the PCP:

a Shall be documented and records of reviews performed shall be retained as required by the Quality Assurance Program Manual. This documentation shall contain:

*Measurement made at 30 centimeters from the radiation source or from any surface that the radiation penetrates.
**Measurement made at 1 meter from the radiation source or from any surface that the radiation penetrates.

PROCESS CONTROL PROGRAM (Continued)

1. Sufficient information to support the change together with the appropriate analyses or evaluation justifying the change(s) and

2. A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.

b. Shall become effective after the approval of the General Manager Plant Operations.

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 The ODCM shall be approved by the Commission prior to implementation.

6.14.2 Licensee-initiated changes to the ODCM:

a. Shall be documented and records of reviews performed shall be retained as required by the Quality Assurance Program Manual. This document shall contain:

1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and

2. A determination that the change will maintain the level of radioactive effluent control required pursuant to 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose or setpoint calculations.

b. Shall become effective after the approval of the General Manager Plant Operations.

c. Shall be submitted to the Commission 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 to 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 (e.g., month/year) the change was implemented.

6.15 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, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," dated October, 2008. The next Type A test performed after the May 21, 2005 Type A test shall be performed no later than May 20, 2020.

CONTAINMENT LEAKAGE RATE TESTING PROGRAM (Continued)

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 44 psig.

The maximum allowable containment leakage rate, L_a, is 0.5% of containment air weight per day at P_a.

Leakage rate acceptance criteria are:

a. Overall containment leakage rate acceptance criteria is $\leq$ 1.0 L_a. During the first unit startup following each test performed in accordance with this program, the overall containment leakage rate acceptance criteria are $\leq$ 0.60 L_a for the Type B and Type C tests and $\leq$ 0.75 L_a for Type A tests.

b. Air lock acceptance criteria are:

   1. Overall air lock leakage rate is $\leq$ 0.05 L_a when tested at $\geq$ P_a.

   2. Leakage rate for each door seal is $\leq$ 0.005 L_a when pressurized to $\geq$ 10 psig.

c. Secondary containment bypass leakage rate acceptance criteria is $\leq$ 0.06 L_a when tested at $\geq$ P_a.

d. Containment purge valves with resilient seals acceptance criteria is $\leq$ 0.06 L_a when tested at $\geq$ P_a.

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

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

6.16 TECHNICAL SPECIFICATIONS BASES CONTROL PROGRAM

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the Technical Specifications shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:

   1. A change in the Technical Specifications incorporated in the license; or

   2. A change to the UFSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.

d. Proposed changes that meet the criteria of Specification 6.16.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e) and exemptions thereto.

APPENDIX B

TO FACILITY OPERATING LICENSE NO. NPF-38

WATERFORD STEAM ELECTRIC STATION – UNIT NO. 3

ENTERGY LOUISIANA, INC.

DOCKET NO. 50-382

ENVIRONMENTAL PROTECTION PLAN

(NONRADIOLOGICAL)

WATERFORD STEAM ELECTRIC STATION - UNIT NO. 3
ENVIRONMENTAL PROTECTION PLAN
(NON-RADIOLOGICAL)

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1.0 Objectives of the Environmental Protection Plan

The Environmental Protection Plan (EPP) is to provide for protection of environmental values during operation of the nuclear facility. The principal objectives of the EPP are as follows:

(1) Verify that the plant is operated in an environmentally acceptable manner, as established by the FES-OL and other NRC environmental impact assessments.

(2) Coordinate NRC requirements and maintain consistency with other Federal, State, and local requirements for environmental protection.

(3) Keep NRC informed of the environmental effects of facility and of actions taken to control those effects.

Environmental concerns identified in the FES-OL which relate to water quality matters and regulated by way of the licensee's NPDES or LPDES permit.

2.0 Environmental Protection Issues

In the FES-OL dated September 1981, the staff considered the environmental impacts associated with the operation of Waterford Steam Electric Station Unit No. 3. The environmental resources which were evaluated, and the corresponding NRC staff decisions regarding the protection of each resource are as follows:

2.1 Aquatic Resources Issues

Effluent limitations and monitoring requirements are contained in the NPDES or LPDES Permit issued by the Federal or State permitting authority. The NRC will rely on these agencies for regulation of matters involving the protection of water quality and aquatic biota.

2.2 Terrestrial Resources Issues

No terrestrial resources issues were raised by the staff in the FES-OL.

2.3 Cultural Resources Issues

There are two archaeological sites on the licensee's property which have been determined to be eligible for the National Register of Historic Places. Protection for these two sites will be provided through a Cultural Resources Protection Plan. NRC requirements with regard to the cultural resources issue are specified in Subsection 4.2.1 of this EPP.

3.0 Consistency Requirements

3.1 Plant Design and Operation

The licensee may make changes in station design or operation or perform tests or experiments affecting the environment, provided such activities do not involve an unreviewed environmental question and do not involve a change in the EPP. Changes in plant design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Section 3.3 are not subject to the requirements of this Section.

Before engaging in construction or operation activities which may significantly affect the environment, the licensee shall prepare and record an environmental evaluation of such activity. Activities are excluded from this requirement if all measurable nonradiological effects are confined to the on-site areas previously disturbed during site preparation and plant construction. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activity and obtain prior NRC approval. When such activity involves a change in the EPP, such activity and change to the EPP may be implemented only in accordance with an appropriate license amendment as set forth in Section 5.3 of this EPP.

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns: (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the FES-OL, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level [in accordance with 10 CFR Part 51.5(b)(2)] or (3) a matter, not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a 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 Subection. These records shall include written evaluations which provide bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question or constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0.

3.2 Reporting Related to the NPDES or LPDES Permit and State Certification

The NRC shall be provided with a copy of the current NPDES or LPDES permit or State Clean Water Act, Section 401 certification within 30 days of approval. Changes to the NPDES or LPDES permit or state certification shall be reported to the NRC within 30 days of the date the change is approved.

3.3 Changes Required for Compliance with Other Environmental Regulations

Changes in plant design or operation and performance of tests or experiments that are either regulated or mandated by other federal, state, and local environmental regulations are not subject to the requirements of Section 3.1. However, if any environmental impacts of a change are not evaluated under other federal, state, or local environmental regulations, then those impacts are subject to the requirements of Section 3.1.

4.0 Environmental Conditions

4.1 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 plant operation shall be recorded and reported to the NRC Operations Center within 24 hours, followed by a written report per Subsection 5.4.2. If an event is reportable under 10 CFR 50.72, then a duplicate immediate report under this Subsection is not required. However, the follow-up written report per Subsection 5.4.2 is still required. The following are examples: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, increase in nuisance organisms or conditions, and unanticipated or emergency discharge of waste water or chemical substances.

No routine monitoring programs are required to implement this condition.

4.2 Environmental Monitoring

4.2.1 Cultural Resources Protection Plan

The licensee, the NRC and the State Historic Preservation Officer (SHPO) concur that the appropriate action to be taken to negate any possible adverse effects to the Waterford 3 cultural resources by the operation and maintenance activities of the licensee will be through a Cultural Resources Protection Plan that provides documentation of a "no adverse effect" determination. This Cultural Resources Protection Plan was transmitted to the NRC and the SHPO by a letter from L. V. Maurin to G. W. Knighton, dated April 15, 1983 for final review and concurrence, after which the NRC submitted the plan to the Advisory Council on Historic Preservation (ACHP) for comment on September 28, 1983. ACHP concurrence was received by the NRC, on October 18, 1983 without change.

The Cultural Resources Protection Plan, as referenced above, is the binding document to which the licensee will adhere and this Section of the EPP is considered fully satisfied with no further action required.

5.0 Administrative Procedures

5.1 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 organizational structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

Records associated with this EPP shall be made and retained in a manner convenient for review and inspection. These records shall be made available to the 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 until the date of the termination of the license. All other records relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

Request for a 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.

5.4 Plant Reporting Requirements

5.4.1 Deleted

5.4.2 Nonroutine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of any event described in Section 4.1 of this Plan. The reports shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and plant 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 and their preliminary responses.

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 at the same time it is submitted to the other agency.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DO NOT REMOVE

APPENDIX C

ANTITRUST CONDITIONS
FACILITY OPERATING LICENSE NO. NPF-38

(1) (a) As used herein, "entity" shall mean any municipality, rural electric cooperative, public or private corporation, governmental agency such as TVA and Southwest Power Administration, or lawful association of any of the foregoing (a) which lawfully exists and owns and operates or proposes in good faith to own or operate facilities for generation of electric power and energy; (b) which, with exception of municipalities, rural electric cooperatives and governmental agencies, is or will upon commencement of operations be a public utility (or in the case of an association each member thereof, excepting municipalities, rural electric cooperatives and governmental agencies, is a public utility) under the law of Louisiana and the Federal Power Act and provides or upon commencement of operations will provide electric service under contracts or rate schedules on file with and subject to regulation of the Louisiana Public Service Commission and the FPC; and (c) with which applicant has or may feasibly have a physical interconnection within the State of Louisiana.

For the purposes of paragraphs 5 and 6 hereof, any person who would otherwise qualify as an "entity" herein above except for not meeting the requirements of 1(a) shall be considered an "entity" if that person owns or operates or proposes in good faith to own or operate facilities for generation, transmission and/or distribution of electric power and energy.

(b) "Cost" means any operating and maintenance expenses involved together with any ownership costs which are reasonably allocable to the transaction consistent with power pooling practices (where applicable). No value shall be included for loss of revenues from sale of power at wholesale or retail by one party to a customer which another party might otherwise serve. Cost shall include a reasonable return on the applicant's investment. The sale of a portion of the capacity of a generating unit shall be upon the basis of a rate that will recover to the seller the pro rata part of the fixed costs and operating and maintenance expenses of the unit, provided that, in circumstances in which the applicant and one or more entities in Louisiana take an undivided interest in a unit in fee, construction costs and operation and maintenance expenses shall be paid pro rata.

(2) (a) The applicant shall interconnect and share reserves on an equalized percentage reserve basis with any entity in Louisiana which engages in or proposes to engage in electric generation and/or bulk power purchases on terms that will provide for the applicant's costs, and allow the other participant(s) full access to the benefits of reserve sharing coordination, and in addition, shall include but not be limited to emergency service, scheduled maintenance service, and establishing reserves. Such interconnection shall be at a voltage and capacity requested by such entity whenever it is economically feasible for the parties.

(b) Emergency service and/or scheduled maintenance service to be provided by each party shall be furnished to the fullest extent available from the supplying party and desired by the party in need. The applicant and each party(ies) shall provide to the other emergency service and/or scheduled maintenance service if and when available from its own generation and from generation of others to the extent it can do so without impairing service to its customers including other electric systems to whom it has firm commitments.

(c) The applicant and the other party(ies) to a reserve sharing arrangement shall from time to time jointly establish the minimum reserves to be installed and/or provided under contractual arrangements as necessary to maintain in total a reserve margin sufficient to provide adequate reliability of power supply to the interconnected systems of the parties. If the applicant plans its reserve margin on a pooled basis with other Middle South System companies, the reserves jointly established hereunder shall be on the same basis. Unless otherwise agreed upon, minimum reserves shall be calculated as a percentage of estimated peak load responsibility. No party to the arrangement shall be required to maintain greater reserves than the percentage of its estimated peak load responsibility which results from the aforesaid calculation, provided that, if the reserve requirements of the applicant are increased over the amount the applicant would be required to maintain without such interconnection, then the other party(ies) shall be required to carry or provide for as its (their) reserves the full amount in kilowatts of such increase.

(d) The parties to such a reserve sharing arrangement shall provide such amounts of ready reserve capacity as may be adequate to avoid the imposition of unreasonable demands on the other in meeting the normal contingencies of operating its system. However, in no circumstances shall the ready reserve requirement exceed the installed reserve requirement.

(e) Interconnections will not be limited to low voltages when higher voltages are available from the applicant's installed facilities in the area where interconnection is desired, when the proposed arrangement is found to be technically and economically feasible. Control and telemetering facilities shall be provided as required for safety and prudent operation of the interconnected systems.

(f) Interconnection and coordination agreements shall not embody any restrictive provisions pertaining to intersystem coordination. Good industry practice as developed in the area from time to time (if non-restrictive) will satisfy this provision.

(3) The applicant will purchase (when needed) or sell (when available) "unit power" or "deficiency power" at mutually agreed upon delivery points on or adjacent to its transmission system from or to any entity engaging in or proposing to engage in electric generation and/or bulk power purchases at the cost (including a reasonable return) of new power supply, as distinguished from average system cost, when such transaction would serve to reduce the overall cost of new bulk power supply for itself and the other participant to the transaction.

(4) With respect to Waterford Unit No. 3 and any future nuclear generating plant or unit of the applicant, or any plant or unit in which the applicant may acquire an interest in Louisiana, any entity that expresses an interest in participation will be offered (1) for Waterford Unit No. 3 and for any future nuclear generating plant or unit of the applicant, the opportunity to have access* to a portion of the plant or unit capacity, or (2) with respect to any plant or unit in which the applicant may acquire an interest, the opportunity to have access* to a portion of the plant or unit capacity to the extent the applicant is able; in either event, upon the basis of a rate that will recover to the applicant the average fixed costs (including a reasonable return) of the

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*"The opportunity to have access" shall be for a period of one year after the applicant has provided to each enquiring entity financial data, which in the opinion of the Regulatory staff of the Commission is sufficient to enable such entity to make a feasibility study as to participation. The applicant shall provide such financial data as soon as reasonably feasible after receiving an inquiry. As to any entity or some or all entities in Louisiana the applicant can start the running of the aforesaid one year period by supplying to it or them, without waiting for an inquiry, the aforesaid financial data.

plant or unit or the applicant's interest in any plant or unit.** The entity receiving such power will pay the associated energy, maintenance, and operating costs incurred for the power it receives. In connection with this access, the applicant will also offer transmission service to the geographic extent of its then existing transmission system for delivery of such power to such purchasing entity on a basis that will fully compensate the applicant for its transmission costs (including a reasonable return).

In the event that the law of Louisiana should be changed to the extent that property owned jointly is not susceptible to partition and that such joint ownership is not otherwise an impediment to financing, the Company must, in accordance with the provisions of its Commitment 4, offer joint ownership in any future nuclear generating plant or unit owned by it (or in which it may acquire an interest in Louisiana) to any entity requesting such access.

In the event that during the term of the instant license, or any extension or renewal thereof, the applicant participates in the ownership of or obtains rights to, and obligations in, a portion of the output of one or more nuclear generating units constructed, owned or operated by an affiliate or subsidiary of the Middle South Utilities System other than the applicant or by any successor in title to the Waterford Nuclear Unit, the applicant shall exert its best efforts to obtain participation in such nuclear unit by an entity(ies) in the State of Louisiana requesting such participation on terms equivalent to the terms of the applicant's participation therein. In connection with such participation, the applicant will also offer transmission service to the geographic extent of its then existing transmission system for delivery of such power to such purchasing entity on a basis that will fully compensate the applicant for its transmission cost (including a reasonable return).

For the purposes of this paragraph, any person who would otherwise qualify as an "entity" except for the lack of a physical interconnection with the applicant shall be considered an "entity" if that person is or will be interconnected with an "entity" or member of the Southwest Power Pool which is interconnected with the applicant.

**Nothing herein shall be deemed to exclude the participation of an entity through a prepaid unit power basis should such participation be economically, technically and legally feasible. Moreover, nothing herein shall be deemed to exclude participation of an entity on a joint venture basis in Waterford Unit 3 if the Company shall in its sole discretion decide to enter into such a joint venture.

(5) The applicant shall transmit power and energy over its transmission facilities among entities in the State of Louisiana with which it is interconnected and has or will have a transmission schedule in effect. For each coordinating group of entities there shall be a single transmission charge. In addition, for any entity with whom applicant is interconnected, the applicant will transmit to or from that entity's then existing interconnection with the applicant, power delivered to the applicant by another entity (or from the applicant to another entity) whose transmission facilities adjoin those of the applicant, provided (1) there is or will be a transmission schedule in effect, and (2) the arrangements reasonably can be accommodated from a functional and technical standpoint. The transmission of such power and energy shall be at a rate that will fully compensate the applicant for its costs (including a reasonable return) for the use of its system. Any entity or group of entities requesting such transmission arrangements shall give reasonable advance notice of its schedule and requirements. (The foregoing applies to any entities to which the applicant may be interconnected in the future as well as those to which it is now interconnected.)

The applicant shall include in its planning and construction program sufficient transmission capacity as required for the transactions referred to in the above paragraph, and in those instances where such transactions are consummated, a transmission schedule(s) shall be placed in effect; provided that any entity in the State of Louisiana give the applicant sufficient advance notice as may be necessary to accommodate its requirements from a functional and technical standpoint and that such entity fully compensates the applicant for its cost (including a reasonable return). The applicant shall not be required to construct transmission facilities which will be of no demonstrable present or future benefit to the applicant.

For the purposes of this paragraph, (1) any person in the State of Louisiana who would otherwise qualify as an "entity" except for the lack of a physical interconnection with the applicant shall be considered an "entity" if that person is or will be interconnected with an "entity" or member of the Southwest Power Pool which is interconnected with the applicant; and (2) Arkansas Power and Light Company, Mississippi Power and Light Company, and Mississippi Power Company, or any successor thereof, shall also be considered "entities."

(6) The applicant will enter into arrangements mutually agreed upon for the sale of power and energy under its effective [rate schedule] tariffs to any entity that owns an electric distribution system and has or may feasibly have a physical interconnection within the State of Louisiana. In connection with such arrangements, the applicant shall not be required to construct facilities which will be of no demonstrable present or future benefit to the applicant.

(7) It is recognized that the foregoing conditions are to be implemented in a manner consistent with the provisions of the Federal Power Act to the extent applicable, and all rates, charges or practices in connection therewith are to be subject to the approval of regulatory agencies having jurisdiction over them.