

ATTACHMENT 2

LIMERICK GENERATING STATION

UNIT 1

Docket No. 50-352

License No. NPF-39

PROPOSED TECHNICAL SPECIFICATIONS CHANGES

LIST OF ATTACHED PAGES

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LIST OF CHANGES

	<u>Page</u>	<u>TS Section</u>	<u>Change</u>
1.	3/4 3-16	T 3.3.2-1	Revise Note * as shown.
	3/4 3-31	T 4.3.2.1-1	Revise Note * as shown. Make # symbol a superscript in item 7.c.1 and 2. (editorial).
	3/4 3-15	T 3.3.2-1	Make # symbol a superscript in item 7.c.1 and 2. (editorial).
	3/4 6-50	3.6.5.2.2	Revise Note * as shown. Make "Operational Condition" all capitals (editorial).
2.	3/4 3-68	4.3.7.2.2	Revise as shown.
	3/4 3-70	T 3.3.7.2-1	Revise measurement range of items 1.c.1) and 3.a. as shown. Add location to items 1.c.1) and 4. Change 117 to 177 in item 3.a(editorial). Delete underline under OPERABLE in Note *** (editorial).
	3/4 3-71	T 4.3.7.2-1	Change 117 to 177 in item 1.a.3) (editorial).
	3/4 3-72	T 4.3.7.2-1	Changes "activities" to "activates" in item 1.c.1) (editorial).
3.	3/4 6-54	4.6.5.3g.	Delete "Prior to initial criticality of Unit 2 or."
	3/4 7-7	4.7.2e.3.	Delete * and Note *.
	B 3/4 6-5	3/4.6.5	Delete "prior to initial criticality of Unit 2 or."
4.	3/4 6-52	3.6.5.3	Add "-COMMON SYSTEM" to title. Make "Operational Condition" all capitals in ACTIONS a.2. and b. (editorial).
	3/4 7-2	3.7.1.1	Change "general" to "generator" in Note * (editorial).
	3/4 7-3	3.7.1.2	Add "-COMMON SYSTEM" to title (editorial). This change approved in Amendment 27 but not included on issued TS page.
	3/4 7-4	3.7.1.3	Add "ACTION: (Continued)" to title (editorial).
	3/4 7-5	3.7.1.3	Make "Operational Condition" all capitals in ACTION c. (editorial).
	3/4 7-6	3.7.2	Add "- COMMON SYSTEM" to title. Make "Operational Condition" all capitals in ACTION c. (editorial).
	B 3/4 7-1a	B 3/4.7.2	Add " <u>COMMON SYSTEM</u> " to title.

LIST OF CHANGES (Cont'd)

	<u>Page</u>	<u>TS Section</u>	<u>Change</u>
4.	xiii (Cont'd)	Index	Add "-COMMON SYSTEM" to SGTS. Underline INDEX title (editorial).
	xiv	Index	Add "-COMMON SYSTEM" to CREFAS.
	xxi	Index	Add "-COMMON SYSTEM" to CREFAS. Change page number "B 3/4 7-1" to "B 3/4 7-1a" for Sections 3/4.7.2 and 3/4.7.3 (editorial).
5.	3/4 8-1	3.8.1.1	Change 92 days to 30 days. Add "See also ACTION e." to ACTION a. Delete "Perform requirements of ACTION e." from and add "See also ACTION e." to ACTION b. Delete comma after "maintenance" in ACTION a. (editorial).
	3/4 8-1a	3.8.1.1	Add "See also ACTION e." to ACTION c. and ACTION d. Delete comma after "maintenance" in ACTION d. (editorial). Delete "3/4.8.1 A.C. SOURCES" and "A.C. SOURCES-OPERATING" from titles and add "ACTION: (Continued)" to titles (editorial).
	3/4 8-2	3.8.1.1	Revise ACTION e. as shown. Add "See also ACTION e." to ACTION h.
	3/4 8-2a	3.8.1.1	Add new page with ACTIONs f., g. and h. from previous page (editorial).
	B 3/4 8-1	B 3/4.8	Revise Bases as shown.
6.	B 3/4 4-3	B 3/4.4.3.2	Add sentence as shown.
7.	6-16	6.9.1.6	Add "*" to title.

TABLE 3.3.2-1 (Continued)
ISOLATION ACTUATION INSTRUMENTATION
ACTION STATEMENTS

- ACTION 20 - Be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 21 - Be in at least STARTUP with the associated isolation valves closed within 6 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- ACTION 22 - Be in at least STARTUP within 6 hours.
- ACTION 23 - In OPERATIONAL CONDITION 1 or 2, verify the affected system isolation valves are closed within 1 hour and declare the affected system inoperable. In OPERATIONAL CONDITION 3, be in at least COLD SHUTDOWN within 12 hours.
- ACTION 24 - Restore the manual initiation function to OPERABLE status within 8 hours or close the affected system isolation valves within the next hour and declare the affected system inoperable or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- ACTION 25 - Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within 1 hour.
- ACTION 26 - Close the affected system isolation valves within 1 hour.

TABLE NOTATIONS

- * Required when (1) handling irradiated fuel in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.
- ** May be bypassed under administrative control, with all turbine stop valves closed.
- # During operation of the associated Unit 1 or Unit 2 ventilation exhaust system.
- (a) See Specification 3.6.3, Table 3.6.3-1 for primary containment isolation valves which are actuated by these isolation signals.
- (b) A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the channel or trip system in the tripped condition provided at least the other OPERABLE channel in the same trip system is monitoring that parameter. In addition, for the HPCI system and RCIC system isolation, provided that the redundant isolation valve, inboard or outboard, as applicable, in each line is OPERABLE and all required actuation instrumentation for that valve is OPERABLE, one channel may be placed in an inoperable status for up to 8 hours for required surveillance without placing the channel or trip system in the tripped condition.
- (c) Actuates secondary containment isolation valves shown in Table 3.6.5.2.1-1 and/or 3.6.5.2.2-1 and signals B, H, S, U, R and T also start the standby gas treatment system.
- (d) RWCU system inlet outboard isolation valve closes on SLCS "B" initiation. RWCU system inlet inboard isolation valve closes on SLCS "A" or SLCS "C" initiation.

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
7. <u>SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level Low, Low - Level 2	S	M	R	1, 2, 3
b. Drywell Pressure - High	S	M	R	1, 2, 3
c. 1. Refueling Area Unit 1 Ventilation Exhaust Duct Radiation - High	S	M	R	*#
2. Refueling Area Unit 2 Ventilation Exhaust Duct Radiation - High	S	M	R	*#
d. Reactor Enclosure Ventilation Exhaust Duct Radiation - High	S	M	R	1, 2, 3
e. Outside Atmosphere To Reactor Enclosure Δ Pressure - Low	N.A.	M	Q	1, 2, 3
f. Outside Atmosphere To Refueling Area Δ Pressure - Low	N.A.	M	Q	*
g. Reactor Enclosure Manual Initiation	N.A.	R	N.A.	1, 2, 3
h. Refueling Area Manual Initiation	N.A.	R	N.A.	*

*Required when (1) handling irradiated fuel in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

**When not administratively bypassed and/or when any turbine stop valve is open.

#During operation of the associated Unit 1 or Unit 2 ventilation exhaust system.

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>ISOLATION SIGNAL (a),(c)</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (b)</u>	<u>APPLICABLE OPERATIONAL CONDITION</u>	<u>ACTION</u>
7. <u>SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level Low, Low-Level 2	B	2	1, 2, 3	25
b. Drywell Pressure - High	H	2	1, 2, 3	25
c. 1. Refueling Area Unit 1 Ventilation Exhaust Duct Radiation - High	R	2	*#	25
2. Refueling Area Unit 2 Ventilation Exhaust Duct Radiation - High	R	2	*#	25
d. Reactor Enclosure Ventilation Exhaust Duct Radiation - High	S	2	1, 2, 3	25
e. Outside Atmosphere To Reactor Enclosure Δ Pressure - Low	U	1	1, 2, 3	25
f. Outside Atmosphere To Refueling Area Δ Pressure - Low	T	1	*	25
g. Reactor Enclosure Manual Initiation	NA	1	1, 2, 3	24
h. Refueling Area Manual Initiation	NA	1	*	25

CONTAINMENT SYSTEMS

REFUELING AREA SECONDARY CONTAINMENT AUTOMATIC ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.5.2.2 The refueling area secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.2-1 shall be OPERABLE with isolation times less than or equal to the times shown in Table 3.6.5.2.2-1.

APPLICABILITY: OPERATIONAL CONDITION *.

ACTION:

With one or more of the refueling area secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.2-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 8 hours either:

- a. Restore the inoperable valves to OPERABLE status, or
- b. Isolate each affected penetration by use of at least one deactivated valve secured in the isolation position, or
- c. Isolate each affected penetration by use of at least one closed manual valve, blind flange, or slide gate damper.

Otherwise, in OPERATIONAL CONDITION *, suspend handling of irradiated fuel in the refueling area secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.5.2.2 Each refueling area secondary containment ventilation system automatic isolation valve shown in Table 3.6.5.2.2-1 shall be demonstrated OPERABLE:

- a. 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 cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.
- b. At least once per 18 months by verifying that on a containment isolation test signal each isolation valve actuates to its isolation position.
- c. By verifying the isolation time to be within its limit at least once per 92 days.

*Required when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

INSTRUMENTATION

SEISMIC MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.7.2 The seismic monitoring instrumentation shown in Table 3.3.7.2-1* shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

- a. With one or more of the above required seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.
- b. The provisions of Specifications 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.2.1 Each of the above required seismic monitoring instruments shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.7.2-1.

4.3.7.2.2 Each of the above required seismic monitoring instruments which is accessible during power operation and which is actuated during a seismic event greater than or equal to 0.01g shall be restored to OPERABLE status within 24 hours and a CHANNEL CALIBRATION performed within 5 days following the seismic event. Data shall be retrieved from actuated instruments and analyzed to determine the magnitude of the vibratory ground motion. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 10 days describing the magnitude, frequency spectrum and resultant effect upon unit features important to safety.

Each of the above seismic monitoring instruments which is actuated during a seismic event greater than or equal to 0.01 g but is not accessible during power operation shall be restored to OPERABLE status and a CHANNEL CALIBRATION performed the next time Unit 1 enters OPERATIONAL CONDITION 4 or below. A supplemental report shall then be prepared and submitted to the Commission within 14 days pursuant to Specification 6.9.2 describing the additional data from these instruments.

*Shared with Unit 2.

TABLE 3.3.7.2-1 (Continued)

SEISMIC MONITORING INSTRUMENTATION

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>MEASUREMENT RANGE</u>	<u>MINIMUM INSTRUMENTS OPERABLE</u>
c. Triaxial Seismic Trigger (S/T)		
1) XSH-VA-001 (Activates Items 1.b.1) thru 5) above); (Loc. Area 16, El 177')	NA [†]	1
2. Triaxial Peak Recording Accelerograph (P/A's)		
a. XR-VA-151 Reactor Equipment (Top of reactor vessel head)	0 - 2 g	1***
b. XR-VA-152 Reactor Piping (Mn. Stm. Line 'D', El 313', in containment)	0 - 2 g	1
c. XR-VA-153 Reactor Equipment Outside Containment (RHR Heat Exchanger, Loc. 203-R15-201)	0 - 2 g	1
3. Triaxial Seismic Switches		
a. XSHH-VA-001 Primary Containment Foundation (Loc. 118-R16-177)	NA ^{††}	1*
4. Triaxial Response Spectrum Analyzer (RSA); (Loc. Control Room)	1-33.5 Hz	1*, **

[†]The triaxial seismic trigger setpoint is 0.005g.

^{††}This switch triggers at $\leq 0.15g$ horizontal and $\leq 0.10g$ vertical.

*With reactor control room indication and annunciation.

**Receives signal from playback unit fed with data from the Triaxial Accelerographs, Item 1.a above.

***Not required to be OPERABLE when reactor vessel head is removed.

TABLE 4.3.7.2-1

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Triaxial Time-History Accelerographs (T/A's)			
a. Sensors			
1) XE-VA-102 Primary Containment Foundation (Loc. 109-R15-177)	N.A.	SA	R
2) XE-VA-103 Containment Structure (Diaphragm Slab)	N.A.	SA	R
3) XE-VA-104 Reactor Enclosure Foundation (Loc. 111-R11-177)	N.A.	SA	R
4) XE-VA-105 Reactor Piping Support (Mn. Stm. Line 'D,' El 313', in containment)	N.A.	SA	R
5) XE-VA-106 Outside Containment on Seismic Category I Equipment, (RHR Heat Exchanger, Loc. 102-R15-177)	N.A.	SA	R
6) XRSH-VA-107* Foundation of an Independent Seismic Category I Structure (Spray Pond Pump House, El 237')	N.A.	SA	R
b. Recorders (Panel 00C693)			
1) XR-VA-102 for XE-VA-102	N.A.	SA	R
2) XR-VA-103 for XE-VA-103	N.A.	SA	R
3) XR-VA-104 for XE-VA-104	N.A.	SA	R
4) XR-VA-105 for XE-VA-105	N.A.	SA	R
5) XR-VA-106 for XE-VA-106	N.A.	SA	R

*Includes sensor, trigger, recorder, and backup power supply.

TABLE 4.3.7.2-1 (Continued)

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
c. Triaxial Seismic Trigger (S/T)			
1) XSH-VA-001 (Activates Items 1.b.1) thru 5) above)	N.A.	SA	R
2. Triaxial Peak Recording Accelerograph (P/A's)			
a. XR-VA-151 Reactor Equipment (Top of reactor vessel head)	N.A.	N.A.	R
b. XR-VA-152 Reactor Piping (Mn. Stm. Line 'D,' El 313', in containment)	N.A.	N.A.	R
c. XR-VA-153 Reactor Equipment Outside Containment (RHR Heat Exchanger, Loc. 203-R15-201)	N.A.	N.A.	R
3. Triaxial Seismic Switches			
a. XSHH-VA-001 Primary Containment Foundation (Loc. 118-R16-177)	N.A.	SA	R
4. Triaxial Response Spectrum Analyzer (RSA)	N.A.	SA	R

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying that the fan starts and isolation valves necessary to draw a suction from the refueling area or the reactor enclosure recirculation discharge open on each of the following test signals:
 - a) Manual initiation from the control room, and
 - b) Simulated automatic initiation signal.
3. Verifying that the temperature differential across each heater is $\geq 15^{\circ}\text{F}$ when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the inplace penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 3000 cfm \pm 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the inplace penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 3000 cfm \pm 10%.
- g. After any major system alteration:
 1. Verify that when the SGTS fan is running the subsystem flowrate is 2800 cfm minimum from each reactor enclosure (Zones I and II) and 2200 cfm minimum from the refueling area (Zone III).
 2. Verify that one standby gas treatment subsystem will drawdown reactor enclosure Zone I secondary containment to greater than or equal to 0.25 inch of vacuum water gauge in less than or equal to 121 seconds with the reactor enclosure recirculation system in operation and the adjacent reactor enclosure and refueling area zones are in their isolation modes.

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, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and
 3. Verifying a subsystem flow rate of 3000 cfm \pm 10% during subsystem operation when tested in accordance with ANSI N510-1980.
- d. 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, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%.
- e. At least once per 18 months by:
1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the subsystem at a flow rate of 3000 cfm \pm 10%; verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.
 2. Verifying that on each of the below chlorine isolation mode actuation test signals, the subsystem automatically switches to the chlorine isolation mode of operation and the isolation valves close within 5 seconds:
 - a) Outside air intake high chlorine, and
 - b) Manual initiation from the control room.
 3. Verifying that on each of the below radiation isolation mode actuation test signals, the subsystem automatically switches to the radiation isolation mode of operation and the control room is maintained at a positive pressure of at least 1/8 inch water gauge relative to the turbine enclosure and auxiliary equipment room and outside atmosphere during subsystem operation with an outdoor air flow rate less than or equal to 525 cfm:
 - a) Outside air intake high radiation, and
 - b) Manual initiation from control room.

BASES

3/4.6.5 SECONDARY CONTAINMENT

Secondary containment is designed to minimize any ground level release of radioactive material which may result from an accident. The Reactor Enclosure and associated structures provide secondary containment during normal operation when the drywell is sealed and in service. At other times the drywell may be open and, when required, secondary containment integrity is specified.

Establishing and maintaining a vacuum in the reactor enclosure secondary containment with the standby gas treatment system once per 18 months, along with the surveillance of the doors, hatches, dampers and valves, is adequate to ensure that there are no violations of the integrity of the secondary containment.

The OPERABILITY of the reactor enclosure recirculation system and the standby gas treatment systems ensures that sufficient iodine removal capability will be available in the event of a LOCA or refueling accident (SGTS only). The reduction in containment iodine inventory reduces the resulting SITE BOUNDARY radiation doses associated with containment leakage. The operation of this system and resultant iodine removal capacity are consistent with the assumptions used in the LOCA and refueling accident analyses. Provisions have been made to continuously purge the filter plenums with instrument air when the filters are not in use to prevent buildup of moisture on the adsorbers and the HEPA filters.

Although the safety analyses assumes that the reactor enclosure secondary containment draw down time will take 135 seconds, these surveillance requirements specify a draw down time of 121 seconds. This 14 second difference is due to the diesel generator starting and sequence loading delays which is not part of this surveillance requirement.

The reactor enclosure secondary containment draw down time analyses assume a starting point of 0.25 inch of vacuum water gauge and worst case SGTS dirty filter flow rate of 2800 cfm. The surveillance requirements satisfy this assumption by starting the drawdown from ambient conditions and connecting the adjacent reactor enclosure and refueling area to the SGTS to split the exhaust flow between the three zones and verifying a minimum flow rate of 2800 cfm from the test zone. This simulates the worst case flow alignment and verifies adequate flow is available to drawdown the test zone within the required time. The Technical Specification Surveillance Requirement 4.6.5.3.b.3 is intended to be a multi-zone air balance verification without isolating any test zone.

The SGTS fans are sized for three zones and therefore, when aligned to a single zone or two zones, will have excess capacity to more quickly drawdown the affected zones. There is no maximum flow limit to individual zones or pairs of zones and the air balance and drawdown time are verified when all three zones are connected to the SGTS.

The three zone air balance verification and drawdown test will be done after any major system alteration, which is any modification which will have an effect on the SGTS flowrate such that the ability of the SGTS to drawdown the reactor enclosure to greater than or equal to 0.25 inch of vacuum water gage in less than or equal to 121 seconds could be affected.

CONTAINMENT SYSTEMS

STANDBY GAS TREATMENT SYSTEM - COMMON SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.5.3 Two independent standby gas treatment subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, and *.

ACTION:

- a. With one standby gas treatment subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days, or:
 1. In OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 2. In OPERATIONAL CONDITION *, suspend handling of irradiated fuel in the secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.
- b. With both standby gas treatment subsystems inoperable in OPERATIONAL CONDITION *, suspend handling of irradiated fuel in the secondary containment, CORE ALTERATIONS or operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.5.3. Each standby gas treatment subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates with the heaters OPERABLE.

*Required when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

5. With two RHRSW pump/diesel generator pairs* inoperable, restore at least one inoperable RHRSW pump/diesel generator pair* to OPERABLE status within 30 days, or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours. The provisions of specification 3.0.4 are not applicable.
 6. With three RHRSW pump/diesel generator pairs* inoperable, restore at least one inoperable RHRSW pump/diesel generator pair* to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.
 7. With four RHRSW pump/diesel generator pairs* inoperable, restore at least one inoperable RHRSW pump/diesel generator pair* to OPERABLE status within 8 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 3 or 4 with the RHRSW subsystem(s), which is associated with an RHR loop required OPERABLE by Specification 3.4.9.1 or 3.4.9.2, inoperable, declare the associated RHR loop inoperable and take the ACTION required by Specification 3.4.9.1 or 3.4.9.2, as applicable.
 - c. In OPERATIONAL CONDITION 5 with the RHRSW subsystem(s), which is associated with an RHR loop required OPERABLE by Specification 3.9.11.1 or 3.9.11.2, inoperable, declare the associated RHR system inoperable and take the ACTION required by Specification 3.9.11.1 or 3.9.11.2, as applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.1 At least the above required residual heat removal service water system subsystem(s) shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

* A RHRSW pump/diesel generator pair consists of a RHRSW pump and its associated diesel generator. If either a RHRSW pump or its associated diesel generator becomes inoperable, then the RHRSW pump/diesel generator pair is inoperable.

PLANT SYSTEMS

EMERGENCY SERVICE WATER SYSTEM - COMMON SYSTEM

LIMITING CONDITION FOR OPERATION

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

- a. Two OPERABLE emergency service water pumps, and
- b. An OPERABLE flow path capable of taking suction from the emergency service water pumps wet pits which are supplied from the spray pond or the cooling tower basin and transferring the water to the associated Unit 1 and common safety-related equipment,

shall be OPERABLE:

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

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

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3:
 1. With one emergency service water pump inoperable, restore the inoperable pump to OPERABLE status within 45 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 2. With one emergency service water pump in each loop inoperable, restore at least one inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 3. With one emergency service water system loop otherwise inoperable, declare all equipment aligned to the inoperable loop inoperable**, restore the inoperable loop to OPERABLE status with at least one OPERABLE pump within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*When handling irradiated fuel in the secondary containment.

**The diesel generators may be aligned to the OPERABLE emergency service water system loop provided confirmatory flow testing has been performed. Those diesel generators not aligned to the OPERABLE emergency service water system loop shall be declared inoperable and the actions of 3.8.1.1 taken.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

4. With three ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 72 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 5. With four ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 8 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 4 or 5:
1. With only one emergency service water pump and its associated flowpath OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated safety related equipment inoperable and take the ACTION required by Specifications 3.5.2 and 3.8.1.2.
- c. In OPERATIONAL CONDITION *
1. With only one emergency service water pump and its associated flow path OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or verify adequate cooling remains available for the diesel generators required to be OPERABLE or declare the associated diesel generator(s) inoperable and take the ACTION required by Specification 3.8.1.2. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.2 At least the above required emergency service water system loop(s) shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. At least once per 18 months by verifying that:
 1. Each automatic valve actuates to its correct position on its appropriate ESW pump start signal.
 2. Each pump starts automatically when its associated diesel generator starts.

* When handling irradiated fuel in the secondary containment.

** An ESW pump/diesel generator pair consists of an ESW pump and its associated diesel generator. If either an ESW pump or its associated diesel generator becomes inoperable, then the ESW pump/diesel generator pair is inoperable.

PLANT SYSTEMS

ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.1.3 The spray pond shall be OPERABLE with:

- a. A minimum pond water level at or above elevation 250' 10" Mean Sea Level, and
- b. A pond water temperature of less than or equal to 88°F.

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

ACTION:

With the requirements of the above specification not satisfied:

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

SURVEILLANCE REQUIREMENTS

4.7.1.3 The spray pond shall be determined OPERABLE:

- a. By verifying the pond water level to be greater than its limit at least once per 24 hours.
- b. By verifying the water surface temperature (within the upper two feet of the surface) to be less than or equal to 88°F:
 1. at least once per 4 hours when the spray pond temperature is greater than or equal to 80°F; and
 2. at least once per 2 hours when the spray pond temperature is greater than or equal to 85°F; and
 3. at least once per 24 hours when the spray pond temperature is greater than 32°F.
- c. By verifying all piping above the frost line is drained within 1 hour after being used.

*When handling irradiated fuel in the secondary containment.

3/4.7.2 CONTROL ROOM EMERGENCY FRESH AIR SUPPLY SYSTEM - COMMON SYSTEMLIMITING CONDITION FOR OPERATION

3.7.2 Two independent control room emergency fresh air supply system subsystems shall be OPERABLE.

APPLICABILITY: All OPERATIONAL CONDITIONS and *.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3 with one control room emergency fresh air supply subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 4, 5, or *:
 1. With one control room emergency fresh air supply subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or initiate and maintain operation of the OPERABLE subsystem in the radiation isolation mode of operation.
 2. With both control room emergency fresh air supply subsystems inoperable, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- c. The provisions of Specification 3.0.3 are not applicable in OPERATIONAL CONDITION *.

SURVEILLANCE REQUIREMENTS

4.7.2 Each control room emergency fresh air supply subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying the control room air temperature to be less than or equal to 85°F effective temperature.
- b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates with the heaters OPERABLE.
- c. At least once per 18 months 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 subsystem by:
 1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in 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 \pm 10%.

*When irradiated fuel is being handled in the secondary containment.

PLANT SYSTEMS

BASES

3/4.7.2 CONTROL ROOM EMERGENCY FRESH AIR SUPPLY SYSTEM - COMMON SYSTEM

The OPERABILITY of the control room emergency fresh air supply system ensures that the control room will remain habitable for operations personnel during and following all design basis accident conditions. Constant purge of the system at 1 cfm is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50.

3/4.7.3 REACTOR CORE ISOLATION COOLING SYSTEM

The reactor core isolation cooling (RCIC) system is provided to assure adequate core cooling in the event of reactor isolation from its primary heat sink and the loss of feedwater flow to the reactor vessel without requiring actuation of any of the emergency core cooling system equipment. The RCIC system is conservatively required to be OPERABLE whenever reactor pressure exceeds 150 psig. This pressure is substantially below that for which low pressure core cooling systems can provide adequate core cooling.

The RCIC system specifications are applicable during OPERATIONAL CONDITIONS 1, 2, and 3 when reactor vessel pressure exceeds 150 psig because RCIC is the primary non-ECCS source of emergency core cooling when the reactor is pressurized.

With the RCIC system inoperable, adequate core cooling is assured by the OPERABILITY of the HPCI system and justifies the specified 14 day out-of-service period.

The surveillance requirements provide adequate assurance that RCIC will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation during reactor operation, a complete functional test requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to start cooling at the earliest possible moment.

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

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. Four separate and independent diesel generators, each with:
 1. A separate day tank containing a minimum of 200 gallons of fuel,
 2. A separate fuel storage system containing a minimum of 33,500 gallons of fuel, and
 3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1a. within 24 hours and at least once per 7 days thereafter. If the diesel generator became inoperable for any reason other than preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining operable diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 for one diesel generator at a time, within 24 hours* and at least once per 7 days thereafter. Restore the inoperable diesel generator to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. See also ACTION e.
- b. With two diesel generators of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter. Demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 for one diesel generator at a time, within 8 hours. Restore at least one of the inoperable diesel generators to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN with the next 12 hours and in COLD SHUTDOWN within the following 24 hours. See also ACTION e.

*Contrary to the provisions of Specification 3.0.3, this test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY for failure that are potentially generic to the remaining Unit 1 diesel generators and for which appropriate alternative testing cannot be designed.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- c. With three diesel generators of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter; and perform Surveillance Requirement 4.8.1.1.2.a.4 for the remaining diesel generator, within 1 hour. Restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. See also ACTION e.
- d. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable for any reason other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 for one diesel generator at a time, within 8 hours*. Restore at least two offsite circuits to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. See also ACTION e.

* Contrary to the provisions of Specification 3.0.2, this test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY for failures that are potentially generic to the remaining Unit 1 diesel generators and for which appropriate alternative testing cannot be designed.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

e. In addition to the ACTIONS above:

1. For two train systems, with one or more diesel generators of the above required A.C. electrical power sources inoperable, verify within 2 hours and at least once per 12 hours thereafter that at least one of the required two train system subsystem, train, components, and devices is OPERABLE and its associated diesel generator is OPERABLE. Otherwise, restore either the inoperable diesel generator or the inoperable system subsystem to an OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
2. For the LPCI systems, with two or more diesel generators of the above required A.C. electrical power sources inoperable, verify within 2 hours and at least once per 12 hours thereafter that at least two of the required LPCI system subsystems, trains, components, and devices are OPERABLE and its associated diesel generator is OPERABLE. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

This ACTION does not apply for those systems covered in Specifications 3.7.1.1. and 3.7.1.2.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- f. With one offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1a. and 4.8.1.2a.4, for one diesel generator at a time, within 1 hour and at least once per 8 hours thereafter; restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- g. With two of the above required offsite circuits inoperable, demonstrate the OPERABILITY of all of the above required diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4, for one diesel generator at a time, within 8 hours unless the diesel generators are already operating; restore at least one of the inoperable offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- h. With one offsite circuit and two diesel generators of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter; demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 for one diesel generator at a time, within 8 hours. Restore at least one of the above required inoperable A.C. sources to OPERABLE status within 12 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore at least two offsite circuits and at least three of the above required diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. See also ACTION e.

3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least two of the onsite A.C. and the corresponding D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. and D.C. source. At least two onsite A.C. and their corresponding D.C. power sources and distribution systems providing power for at least two ECCS divisions (1 Core Spray loop, 1 LPCI pump and 1 RHR pump in suppression pool cooling) are required for design basis accident mitigation as discussed in FSAR Table 6.3-3. Onsite A.C. operability requirements for common systems such as RHRSW and ESW are addressed in the appropriate system specification action statements.

The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one or more diesel generators are inoperable, there is an additional ACTION requirement to verify that all remaining systems, subsystems, trains, components, and devices, that depend on the remaining OPERABLE diesel generators as a source of emergency power, are also OPERABLE. The LPCI mode of the RHR system is considered a four train system, of which only two trains are required. The verification for LPCI is not required until two diesel generators are inoperable. This requirement is intended to provide assurance that a loss-of-offsite power event will not result in a complete loss of safety function of critical systems during the period when one or more of the diesel generators are inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for extended time periods and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, Regulatory Guide 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979 and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977 except for paragraphs C.2.a(3), C.2.c(1), C.2.c(2), C.2.d(3) and C.2.d(4). The exceptions to Regulatory Guide 1.108 allow for gradual loading of diesel generators during testing and decreased surveillance test frequencies (in response to Generic Letter 84-15).

REACTOR COOLANT SYSTEM

BASES

3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE

3/4.4.3.1 LEAKAGE DETECTION SYSTEMS

The RCS leakage detection systems required by this specification are provided to monitor and detect leakage from the reactor coolant pressure boundary. These detection systems are consistent with the recommendations of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973. In conformance with Regulatory Guide 1.45, the channel calibration tests will verify the ability to detect a 1 gpm leak in less than 1 hour and an atmospheric gaseous radioactivity system sensitivity of 10^{-6} uC/cc.

3/4.4.3.2 OPERATIONAL LEAKAGE

The allowable leakage rates from the reactor coolant system have been based on the predicted and experimentally observed behavior of cracks in pipes. The normally expected background leakage due to equipment design and the detection capability of the instrumentation for determining system leakage was also considered. The evidence obtained from experiments suggests that for leakage somewhat greater than that specified for UNIDENTIFIED LEAKAGE the probability is small that the imperfection or crack associated with such leakage would grow rapidly. However, in all cases, if the leakage rates exceed the values specified or the leakage is located and known to be PRESSURE BOUNDARY LEAKAGE, the reactor will be shutdown to allow further investigation and corrective action.

The ACTION requirements for pressure isolation valves (PIVs) are used in conjunction with the system specifications for which PIVs are listed in Table 3.4.3.2-1 and with primary containment isolation valve requirements to ensure that plant operation is appropriately limited.

The Surveillance Requirements for the RCS pressure isolation valves provide added assurance of valve integrity thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS pressure isolation valves is IDENTIFIED LEAKAGE and will be considered as a portion of the allowed limit.

3/4.4.4 CHEMISTRY

The water chemistry limits of the reactor coolant system are established to prevent damage to the reactor materials in contact with the coolant. Chloride limits are specified to prevent stress corrosion cracking of the stainless steel. The effect of chloride is not as great when the oxygen concentration in the coolant is low, thus the 0.2 ppm limit on chlorides is permitted during POWER OPERATION. During shutdown and refueling operations, the temperature necessary for stress corrosion to occur is not present so a 0.5 ppm concentration of chlorides is not considered harmful during these periods.

Conductivity measurements are required on a continuous basis since changes in this parameter are an indication of abnormal conditions. When the conductivity is within limits, the pH, chlorides and other impurities affecting conductivity must also be within their acceptable limits. With the conductivity meter inoperable, additional samples must be analyzed to ensure that the chlorides are not exceeding the limits.

The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

ANNUAL REPORTS (Continued)

dosimeter, thermoluminescent dosimeter (TLD), or film badge measurements. Small exposures totaling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole-body dose received from external sources should be assigned to specific major work functions;

- b. Documentation of all challenges to safety/relief valves; and
- c. Any other unit unique reports required on an annual basis.
- d. The results of specific activity analysis in which the primary coolant exceeded the limits of Specification 3.4.5. The following information shall be included: (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) Cleanup 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 the steady-state level; and (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

MONTHLY OPERATING REPORTS*

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

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT*

6.9.1.7 Routine Annual Radiological Environmental Operating Reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following initial criticality.

The Annual Radiological Environmental Operating Reports shall include summaries, interpretations, and an analysis of trends of the results of the radiological

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