

PROPOSED TECHNICAL SPECIFICATION CHANGES

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ANO-1

- 3.5.1.7 The Decay Heat Removal System isolation valve closure setpoints shall be equal to or less than 340 psig for one valve and equal to or less than 400 psig for the second valve in the suction line. The relief valve setting for the DHR system shall be equal to or less than 450 psig.
- 3.5.1.8 The degraded voltage monitoring relay settings shall be as follows:
- a. The 4.16 KV emergency bus undervoltage relay setpoints shall be >3115 VAC but <3177 VAC.
 - b. The 460 V emergency bus undervoltage relay setpoints shall be >423 VAC but <431 VAC with a time delay setpoint of 8 seconds \pm 1 second.
- 3.5.1.9 The following Reactor Trip circuitry shall be operable as indicated:
1. Reactor trip upon loss of Main Feedwater shall be operable (as determined by Specification 4.1.a and item 35 of Table 4.1-1) at greater than 5% reactor power. (May be bypassed up to 10% reactor power.)
 2. Reactor trip upon Turbine Trip shall be operable (as determined by Specification 4.1.a and item 41 of Table 4.1-1) at greater than 5% reactor power. (May be bypassed up to 45% reactor power.)
 3. If the requirements of Specifications 3.5.1.9.1 or 3.5.1.9.2 cannot be met, restore the inoperable trip within 12 hours or bring the plant to a hot shutdown condition.
- 3.5.1.10 Deleted
- 3.5.1.11 For on-line testing of the Emergency Feedwater Initiation and Control (EFIC) system channels during power operation only one channel shall be locked into "maintenance bypass" at any one time. If one channel of the NI/RPS is in maintenance bypass, only the corresponding channel of EFIC may be bypassed.
- 3.5.1.12 The Containment High Range Radiation Monitoring instrumentation shall be operable with a minimum measurement range from 1 to 10⁷ R/hr.

3.5.1.13 Deleted

3.5.1.14 The Main Steam Line Radiation Monitoring Instrumentation shall be operable with a minimum measurement range from 10^{-1} to 10^4 mR/hr, whenever the reactor is above the cold shutdown condition.

3.5.1.15 Initiate functions of the EFIC system which are bypassed at cold shutdown conditions shall have the following minimum operability conditions:

- a. "low steam generator pressure" initiate shall be operable when the main steam pressure exceeds 750 psig.
- b. "loss of 4 RC pumps" initiate shall be operable when neutron flux exceeds 10% power.
- c. "main feedwater pumps tripped" initiate shall be operable when neutron flux exceeds 10% power.

3.5.1.16 The automatic steam generator isolation system within EFIC shall be operable when main steam pressure is greater than 750 psig.

Power is normally supplied to the control rod drive mechanisms from two separate parallel 480 volt sources. Redundant trip devices are employed in each of these sources. If any one of these trip devices fails in the untripped state, on-line repairs to the failed device, when practical, will be made and the remaining trip devices will be tested. Four hours is ample time to test the remaining trip devices and, in many cases, make on-line repairs.

The Degraded Voltage Monitoring relay settings are based on the short term starting voltage protection as well as long term running voltage protection. The 4.16 KV undervoltage relay setpoints are based on the allowable starting voltage plus maximum system voltage drops to the motor terminals, which allows approximately 78% of motor rated voltage at the motor terminals. The 460V undervoltage relay setpoint is based on long term motor voltage requirements plus the maximum feeder voltage drop allowance resulting in a 92% setting of motor rated voltage.

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. This capability is consistent with the recommendation of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."

The subcooled margin monitors (SMM), and core-exit thermocouples (CET), Reactor Vessel Level Monitoring System (RVLMS) and Hot Leg Level Measurement System (HLLMS) are a result of the Inadequate Core Cooling (ICC) instrumentation required by Item II.F.2 NUREG-0737. The function of the ICC instrumentation is to increase the ability of the plant operators to diagnose the approach to and recovery from ICC. Additionally, they aid in tracking reactor coolant inventory. These instruments are included in the Technical Specifications at the request of NRC Generic Letter 83-37 and are not required by the accident analysis, nor to bring the plant to cold shutdown conditions. The Reactor Vessel Level Monitor is provided as a means of indicating level in the reactor vessel during accident conditions. The channel operability of the RVLMS is defined as a minimum of three sensors in the upper plenum region and two sensors in the dome region operable. When Reactor Coolant Pumps are running, all except the dome sensors are interlocked to read "invalid" due to flow induced variables that may offset the sensor outputs. The channel operability of the HLLMS is defined as a minimum of one wide range and any two of the narrow range transmitters in the same channel operable. If the equipment is inaccessible due to health and industrial safety concerns (for example, high radiation area, low oxygen content of the containment atmosphere) or due to physical location of the fault (for example, probe failure in the reactor vessel), then operation may continue until the next scheduled refueling outage and a report filed.

To support loss of main feedwater analyses, steam line/feedwater line break analyses, SBLOCA analyses, and NUREG-0737 requirements, the EFIC system is designed to automatically initiate EFW when:

1. all four RC pumps are tripped
2. both main feedwater pumps are tripped
3. the level of either steam generator is low
4. either steam generator pressure is low
5. ESAS ECCS actuation (high RB pressure or low RCS pressure)

The EFIC system is also designed to isolate the affected steam generator on a steam line/feedwater line break and supply EFW to the intact generator according to the following logic:

- If both SG's are above 600 psig, supply EFW to both SG's
- If one SG is below 600 psig, supply EFW to the other SG.
- If both SG's are below 600 psig, but the pressure difference between the two SG's exceeds 100 psig, supply EFW only to the SG with the higher pressure.
- If both SG's are below 600 psig and the pressure difference is less than 100 psig, supply EFW to both SG's.

At cold shutdown conditions all EFIC initiate and isolate functions are bypassed except low steam generator level initiate. The bypassed functions will be automatically reset at the values or plant conditions identified in Specification 3.5.1.15. "Loss of 4 RC pumps" initiate and "low steam generator pressure" initiate are the only shutdown bypasses to be manually initiated during cooldown. If reset is not done manually, they will automatically reset. Main feedwater pump trip bypass is automatically removed above 10% power.

REFERENCE

FSAR, Section 7.1

Table 3.5.1-1 (cont'd)

OTHER SAFETY RELATED SYSTEMS
(Cont'd)

Functional Unit	1 No. of channels	2 No. of channels for sys- tem trip	3 Min. operable channels	4 Min. degree of redundancy	5 Operator action if conditions of column 3 or 4 cannot be met
2. Pressurizer level channels	2	N/A	2	1	Note 10
3. Emergency Feedwater flow channels	2/S.G.	N/A	1	0	Note 10
4. RCS subcooling margin monitors	2	N/A	1	0	Note 10
5. Electromatic relief valve flow monitor	2	N/A	1	0	Note 11
6. Electromatic relief block valve position indicator	1	N/A	1	0	Note 12
7. Pressurizer code safety valve flow monitors	2/valve	N/A	1/valve	0	Note 10
8. Degraded Voltage Monitoring					
a. 4.16 KV Emergency Bus Undervoltage	2/Bus	1/Bus	2/Bus	0	Note 14
b. 460 V Emergency Bus Undervoltage	*1/Bus	1/Bus	1/Bus	0	Notes 13, 14
9. Deleted					
10. Containment High Range Radiation Monitoring	2	N/A	2	0	Note 20
11. Containment Pressure - High Range	2	N/A	2	0	Note 21
12. Containment Water Level - Wide Range	2	N/A	2	0	Note 21

*Two undervoltage relays per bus are used with a coincident trip logic (2-out-of-2)

Table 3.5.1-1 (cont'd)

OTHER SAFETY RELATED SYSTEMS
(Cont'd)

Functional Unit	1	2	3	4	5
	<u>No. of channels</u>	<u>No. of channels for sys- tem trip</u>	<u>Min. operable channels</u>	<u>Min. degree of redundancy</u>	<u>Operator action if conditions of column 3 or 4 cannot be met</u>
13. In core Thermocouples (core-exit thermocouples)	6/core quadrant	N/A	2/core quadrant	0	Note 22
14. Deleted					
15. Reactor Vessel Level Monitoring System	2	N/A	2	0	Note 28, 29
16. Hot Leg Level Measurement System (HLLMS)	2	N/A	2	0	Note 28, 29
17. Main Steam Line Radiation Monitors	1/steam line	N/A	1/steam line	0	Note 30

Table 3.5.1-1 (cont'd)

23. With the number of operable Electronic (SCR) Trip relays one less than the total number of Electronic (SCR) Trip relays in a channel, restore the inoperable Electronic (SCR) Trip relay to operable status in 48 hours or place the SCRs associated with the inoperable Electronic (SCR) Trip relay in trip in the next hour. With two or more Electronic (SCR) Trip relays inoperable, place all Electronic (SCR) Trip relays associated with that channel in trip in the next hour. This requirement does not apply to the Electronic Trip channels associated with Group 8 Regulating Power Supply.
24. With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
 - a. Within 1 hour:
 1. Place the inoperable channel in the tripped condition, or
 2. Remove power supplied to the control rod trip device associated with the inoperable channel.
 - b. One additional channel may be bypassed for up to 4 hours for surveillance testing and the operable channel above may be bypassed for up to 30 minutes in any 24-hour period when necessary to test the trip breaker associated with the logic of the channel being tested. The inoperable channel above shall not be bypassed to test the logic of a channel of the trip system associated with the inoperable channel.
25. With one of the Control Rod Drive Trip Breaker diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status in 48 hours or place the breaker in trip in the next hour.
26. Interrupts motor power to the Safety Groups of control rods only.
27. Deleted

Table 4.1-1 (Cont.)

<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>	<u>Remarks</u>
29. High and Low Pressure Injection Systems: Flow Channels	NA	NA	R	
30. Decay heat removal system isolation valve automatic closure and interlock system	S(1)(2)	M(1)(3)	R	(1) Includes RCS Pressure Analog Channel (2) Includes CFT Isolation Valve Position (3) At least once every refueling shutdown, with Reactor Coolant System Pressure greater than or equal to 200 psig, but less than 300 psig, verify automatic isolation of the decay heat removal system from the Reactor Coolant System on high Reactor Coolant System pressure.
31. Deleted				
32. Diesel generator protective relaying starting interlocks and circuitry	M	Q	NA	
33. Off-site power undervoltage and protective relaying interlocks and circuitry	W	R(1)	R(1)	(1) Shall be tested during refueling shutdown to demonstrate selective load shedding interlocks function during manual or automatic transfer of Unit 1 auxiliary load to Startup Transformer No. 2.
34. Borated water storage tank level indicator	W	NA	R	
35. Reactor trip upon loss of main feedwater circuitry	M	PC	R	

Table 4.1-1 (Cont.)

<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>	<u>Remarks</u>
36. Boric Acid Addition Tank				
a. Level Channel	NA	NA	R	
b. Temperature Channel	M	NA	R	
37. Degraded Voltage Monitoring	W	R	R	
38. Sodium Hydroxide Tank Level Indicator	NA	NA	R	
39. Incore Neutron Detectors	M(1)	NA	NA	(1) Check Functioning
40. Emergency Plant Radiation Instruments	M(1)	NA	R	(1) Battery Check
41. Reactor Trip Upon Turbine Trip Circuitry	M	PC	R	
42. Deleted				

Table 4.1-1 (Cont.)

<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>	<u>Remarks</u>
43. ESAS Manual Trip Functions				
a. Switches & Logic	NA	R	NA	
b. Logic	NA	M	NA	
44. Reactor Manual Trip	NA	P	NA	
45. Reactor Building Sump Level	NA	NA	R	
46. EFW Flow Indication	M	NA	R	

Table 4.i-1 (Cont.)

<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>	<u>Remarks</u>
47. RCS Subcooling Margin Monitor	D	NA	R	
48. Electromatic Relief Valve Flow Monitor	D	NA	R	
49. Electromatic Relief Block Valve Position Indicator	D	NA	R	
50. Pressurizer Safety Valve Flow Monitor	D	NA	R	
51. Pressurizer Water Level Indicator	D	NA	R	
52. Deleted				
53. EFW Initiation				
a. Manual	NA	M	NA	
b. SG Low Level, SGA or B	S	M	R	
c. Low Pressure SGA or B	S	M	R	
d. Loss of both MFW Pumps and PWR > 10%	S	M	R	

ANO-2

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.2 POWER DISTRIBUTION LIMITS</u>	
3/4.2.1 LINEAR HEAT RATE.....	3/4 2-1
3/4.2.2 RADIAL PEAKING FACTORS.....	3/4 2-2
3/4.2.3 AZIMUTHAL POWER TILT.....	3/4 2-3
3/4.2.4 DNBR MARGIN.....	3/4 2-5
3/4.2.5 RCS FLOW RATE.....	3/4 2-7
3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE.....	3/4 2-8
3/4.2.7 AXIAL SHAPE INDEX.....	3/4 2-9
3/4.2.8 PRESSURIZER PRESSURE.....	3/4 2-10
 <u>3/4.3 INSTRUMENTATION</u>	
3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION.....	3/4 3-1
3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION.....	3/4 3-10
3/4.3.3 MONITORING INSTRUMENTATION	
Radiation Monitoring Instrumentation.....	3/4 3-24
Remote Shutdown Instrumentation.....	3/4 3-36
Post-Accident Instrumentation.....	3/4 3-39
Fire Detection Instrumentation.....	3/4 3-43
Radioactive Gaseous Effluent Monitoring Instrumentation.....	3/4 3-45
Radioactive Liquid Effluent Monitoring Instrumentation.....	3/4 3-54

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.4 REACTOR COOLANT SYSTEM</u>	
3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION.....	3/4 4-1
3/4.4.2 SAFETY VALVES - SHUTDOWN.....	3/4 4-3
3/4.4.3 SAFETY VALVES - OPERATING.....	3/4 4-4
3/4.4.4 PRESSURIZER.....	3/4 4-5
3/4.4.5 STEAM GENERATORS.....	3/4 4-6
3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE	
Leakage Detection Systems.....	3/4 4-13
Reactor Coolant System Leakage.....	3/4 4-14
3/4.4.7 CHEMISTRY.....	3/4 4-15
3/4.4.8 SPECIFIC ACTIVITY.....	3/4 4-18
3/4.4.9 PRESSURE/TEMPERATURE LIMITS	
Reactor Coolant System.....	3/4 4-22
Pressurizer.....	3/4 4-25
3/4.4.10 STRUCTURAL INTEGRITY	
ASME Code Class 1, 2 and 3 Components.....	3/4 4-26
3/4.4.11 REACTOR COOLANT SYSTEM VENTS.....	3/4 4-27
<u>3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)</u>	
3/4.5.1 SAFETY INJECTION TANKS.....	3/4 5-1

INDEX

BASES

<u>SECTION</u>	<u>PAGE</u>
3/4.0 APPLICABILITY.....	B 3/4 0-1
3/4.1 REACTIVITY CONTROL SYSTEMS	
3/4.1.1 BORATION CONTROL.....	B 3/4 1-1
3/4.1.2 BORATION SYSTEMS.....	B 3/4 1-2
3/4.1.3 MOVABLE CONTROL ASSEMBLIES.....	B 3/4 1-3
3/4.2 POWER DISTRIBUTION LIMITS	
3/4.2.1 LINEAR HEAT RATE.....	B 3/4 2-1
3/4.2.2 RADIAL PEAKING FACTORS.....	B 3/4 2-2
3/4.2.3 AZIMUTHAL POWER TILT.....	B 3/4 2-2
3/4.2.4 DNBR MARGIN.....	B 3/4 2-3
3/4.2.5 RCS FLOW RATE.....	B 3/4 2-4
3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE.....	B 3/4 2-4
3/4.2.7 AXIAL SHAPE INDEX.....	B 3/4 2-4
3/4.2.8 PRESSURIZER PRESSURE.....	B 3/4 2-4
3/4.3 INSTRUMENTATION	
3/4.3.1 PROTECTIVE INSTRUMENTATION.....	B 3/4 3-1
3/4.3.2 ENGINEERED SAFETY FEATURE INSTRUMENTATION.....	B 3/4 3-1
3/4.3.3 MONITORING INSTRUMENTATION.....	B 3/4 3-2

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PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

1. Verifying that the cleanup 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 2000 cfm $\pm 10\%$.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
 3. Verifying a system flow rate of 2000 cfm $\pm 10\%$ 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, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 6 inches Water Gauge while operating the system at a flow rate of 2000 cfm $\pm 10\%$.
 2. Verifying that on a control room high radiation test signal, the system automatically isolates the control room within 10 seconds and switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove $\geq 99\%$ of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 2000 cfm $\pm 10\%$.

PLANT SYSTEMS

3/4.7.12 SPENT FUEL POOL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.7.12 The structural integrity of the spent fuel pool shall be maintained in accordance with Specification 4.7.12.

APPLICABILITY: Whenever irradiated fuel assemblies are in the spent fuel pool.

ACTION:

- a. With the structural integrity of the spent fuel pool not conforming to the above requirements, in lieu of any other report, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days of a determination of such non-conformity.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.12.1 Inspection Frequencies - The structural integrity of the spent fuel pool shall be determined per the acceptance criteria of Specification 4.7.12.2 at the following frequencies:

- a. At least once per 92 days after the pool is filled with water. If no abnormal degradation or other indications of structural distress are detected during five consecutive inspections, the inspection interval may be extended to at least once per 5 years.
- b. Within 24 hours following any seismic event which actuates or should have actuated the seismic monitoring instrumentation.

4.7.12.2 Acceptance Criteria - The structural integrity of the spent fuel pool shall be determined by a visual inspection of at least the interior and exterior surfaces of the pool, the struts in the tilt pit, the surfaces of the separation walls, and the structural slabs adjoining the pool walls. This visual inspection shall verify no changes in the concrete crack patterns, no abnormal degradation or other signs of structural distress (i.e, cracks, bulges, out of plumbness, leakage, discolorations, efflorescence, etc.).

3/4.3 INSTRUMENTATION

BASES

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

The PURGE as defined in the definitions section is a release under a purge permit, whereas continuous ventilation is defined as operation of the purge system after the requirements of the purge permit have been satisfied. When securing the containment purge system to meet the ACTION requirements of this Specification, at least one supply valve and one exhaust valve is to be closed, and the supply and exhaust fans secured.

3/4.3.3.2 DELETED

3/4.3.3.3 DELETED

3/4.3.3.4 DELETED

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

INSTRUMENTATION

BASES

3/4.3.3.6 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations."

The Reactor Vessel Level Monitor is provided as a means of indicating level in the reactor vessel during accident conditions. A minimum of two operable level sensors in the upper plenum region and one operable level sensor in the dome region are required for RVLMS channel operability. When Reactor Coolant Pumps are running, all except the dome sensors are interlocked to read "invalid" due to flow induced variables that may offset the sensor outputs. If the equipment is inaccessible due to health and industrial safety concerns (for example, high radiation area, low oxygen content of the containment atmosphere) or due to physical location of the fault (for example, probe failure in the reactor vessel), then operation may continue until the next scheduled refueling outage and a report filed.

INSTRUMENTATION

BASES

measurement assurance activities with NBS. These standards permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration are used.

ADMINISTRATIVE CONTROLS

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 REPORT

6.9.1.6 Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the Director, Office of Resource Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Office no later than the 15th of each month following the calendar month covered by the report.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Administrator of the Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

- a. ECCS Actuation, Specifications 3.5.2 and 3.5.3.
- b. Deleted
- c. Deleted
- d. Deleted
- e. Inoperable Fire Detection Instrumentation
- f. Inoperable Fire Suppression Systems
- g. Deleted

MARKUP OF CURRENT ANO-1 TECHNICAL SPECIFICATIONS

(FOR INFO ONLY)

- 3.5.1.7 The Decay Heat Removal System isolation valve closure setpoints shall be equal to or less than 340 psig for one valve and equal to or less than 400 psig for the second valve in the suction line. The relief valve setting for the DHR system shall be equal to or less than 450 psig.
- 3.5.1.8 The degraded voltage monitoring relay settings shall be as follows:
- a. The 4.16 KV emergency bus undervoltage relay setpoints shall be >3115 VAC but <3177 VAC.
 - b. The 460 V emergency bus undervoltage relay setpoints shall be >423 VAC but <431 VAC with a time delay setpoint of 8 seconds \pm 1 second.
- 3.5.1.9 The following Reactor Trip circuitry shall be operable as indicated:
1. Reactor trip upon loss of Main Feedwater shall be operable (as determined by Specification 4.1.a and item 35 of Table 4.1-1) at greater than 5% reactor power. (May be bypassed up to 10% reactor power.)
 2. Reactor trip upon Turbine Trip shall be operable (as determined by Specification 4.1.a and item 41 of Table 4.1-1) at greater than 5% reactor power. (May be bypassed up to 45% reactor power.)
 3. If the requirements of Specifications 3.5.1.9.1 or 3.5.1.9.2 cannot be met, restore the inoperable trip within 12 hours or bring the plant to a hot shutdown condition.
- 3.5.1.10 ~~Deleted The control room ventilation chlorine detection system instrumentation shall be operable and capable of actuating control room isolation and filtration systems, with alarm/trip setpoints adjusted to actuate at a chlorine concentration of \leq 5 ppm.~~
- 3.5.1.11 For on-line testing of the Emergency Feedwater Initiation and Control (EFIC) system channels during power operation only one channel shall be locked into "maintenance bypass" at any one time. If one channel of the NI/RPS is in maintenance bypass, only the corresponding channel of EFIC may be bypassed.
- 3.5.1.12 The Containment High Range Radiation Monitoring instrumentation shall be operable with a minimum measurement range from 1 to 10⁷ R/hr.

3.5.1.13 ~~The Seismic Monitoring Instrumentation shall be operable with a minimum measurement range of 0.01 -- 1.0 g for Triaxial Time History Accelerographs, 0.05 -- 1.0 g for Triaxial Peak Accelerographs, and 2-25.4 Hz for Triaxial Response Spectrum Recorders.~~

3.5.1.14 The Main Steam Line Radiation Monitoring Instrumentation shall be operable with a minimum measurement range from 10^{-1} to 10^4 mR/hr, whenever the reactor is above the cold shutdown condition.

3.5.1.15 Initiate functions of the EFIC system which are bypassed at cold shutdown conditions shall have the following minimum operability conditions:

- a. "low steam generator pressure" initiate shall be operable when the main steam pressure exceeds 750 psig.
- b. "loss of 4 RC pumps" initiate shall be operable when neutron flux exceeds 10% power.
- c. "main feedwater pumps tripped" initiate shall be operable when neutron flux exceeds 10% power.

3.5.1.16 The automatic steam generator isolation system within EFIC shall be operable when main steam pressure is greater than 750 psig.

Power is normally supplied to the control rod drive mechanisms from two separate parallel 480 volt sources. Redundant trip devices are employed in each of these sources. If any one of these trip devices fails in the untripped state, on-line repairs to the failed device, when practical, will be made and the remaining trip devices will be tested. Four hours is ample time to test the remaining trip devices and, in many cases, make on-line repairs.

The Degraded Voltage Monitoring relay settings are based on the short term starting voltage protection as well as long term running voltage protection. The 4.16 KV undervoltage relay setpoints are based on the allowable starting voltage plus maximum system voltage drops to the motor terminals, which allows approximately 78% of motor rated voltage at the motor terminals. The 460V undervoltage relay setpoint is based on long term motor voltage requirements plus the maximum feeder voltage drop allowance resulting in a 92% setting of motor rated voltage.

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. This capability is consistent with the recommendation of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."

~~The OPERABILITY of the chlorine detection system ensures that sufficient capability is available to promptly detect and initiate protective action in the event of an accidental chlorine release. This capability is required to protect control room personnel and is consistent with the recommendations of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators against an Accidental Chlorine Release," February 1975.~~

The subcooled margin monitors (SMM), and core-exit thermocouples (CET), Reactor Vessel Level Monitoring System (RVLMS) and Hot Leg Level Measurement System (HLLMS) are a result of the Inadequate Core Cooling (ICC) instrumentation required by Item II.F.2 NUREG-0737. The function of the ICC instrumentation is to increase the ability of the plant operators to diagnose the approach to and recovery from ICC. Additionally, they aid in tracking reactor coolant inventory. These instruments are included in the Technical Specifications at the request of NRC Generic Letter 83-37 and are not required by the accident analysis, nor to bring the plant to cold shutdown conditions. The Reactor Vessel Level Monitor is provided as a means of indicating level in the reactor vessel during accident conditions. The channel operability of the RVLMS is defined as a minimum of three sensors in the upper plenum region and two sensors in the dome region operable. When Reactor Coolant Pumps are running, all except the dome sensors are interlocked to read "invalid" due to flow induced variables that may offset the sensor outputs. The channel operability of the HLLMS is defined as a minimum of one wide range and any two of the narrow range transmitters in the same channel operable. If the equipment is inaccessible due to health and industrial safety concerns (for example, high radiation area, low oxygen content of the containment atmosphere) or due to physical location of the fault (for example, probe failure in the reactor vessel), then operation may continue until the next scheduled refueling outage and a report filed.

~~The OPERABILITY of the Seismic Monitoring Instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility to determine if plant shutdown is required pursuant to Appendix "A" of 10CFR Part 100. The instrumentation is consistent with the recommendations of Safety Guide 12, "Instrumentation for Earthquake," published March 19, 1971, and NUREG-0800 Section 3.7.4, "Seismic Instrumentation."~~

To support loss of main feedwater analyses, steam line/feedwater line break analyses, SBLOCA analyses, and NUREG-0737 requirements, the EFIC system is designed to automatically initiate EFW when:

1. all four RC pumps are tripped
2. both main feedwater pumps are tripped
3. the level of either steam generator is low
4. either steam generator pressure is low
5. ESAS ECCS actuation (high RB pressure or low RCS pressure)

The EFIC system is also designed to isolate the affected steam generator on a steam line/feedwater line break and supply EFW to the intact generator according to the following logic:

- If both SG's are above 600 psig, supply EFW to both SG's.
- If one SG is below 600 psig, supply EFW to the other SG.
- If both SG's are below 600 psig, but the pressure difference between the two SG's exceeds 100 psig, supply EFW only to the SG with the higher pressure.
- If both SG's are below 600 psig and the pressure difference is less than 100 psig, supply EFW to both SG's.

At cold shutdown conditions all EFIC initiate and isolate functions are bypassed except low steam generator level initiate. The bypassed functions will be automatically reset at the values or plant conditions identified in Specification 3.5.1.15. "Loss of 4 RC pumps" initiate and "low steam generator pressure" initiate are the only shutdown bypasses to be manually initiated during cooldown. If reset is not done manually, they will automatically reset. Main feedwater pump trip bypass is automatically removed above 10% power.

REFERENCE

FSAR, Section 7.1
~~FSAR, Section 2.7.6~~

Table 3.5.1-1 (cont'd)

OTHER SAFETY RELATED SYSTEMS
(Cont'd)

Functional Unit	1 No. of channels	2 No. of channels for sys- tem trip	3 Min. operable channels	4 Min. degree of redundancy	5 Operator action if conditions of column 3 or 4 cannot be met
2. Pressurizer level channels	2	N/A	2	1	Note 10
3. Emergency Feedwater flow channels	2/S.G.	N/A	1	0	Note 10
4. RCS subcooling margin monitors	2	N/A	1	0	Note 10
5. Electromatic relief valve flow monitor	2	N/A	1	0	Note 11
6. Electromatic relief block valve position indicator	1	N/A	1	0	Note 12
7. Pressurizer code safety valve flow monitors	2/valve	N/A	1/valve	0	Note 10
8. Degraded Voltage Monitoring					
a. 4.16 KV Emergency Bus Undervoltage	2/Bus	1/Bus	2/Bus	0	Note 14
b. 460 V Emergency Bus Undervoltage	*1/Bus	1/Bus	1/Bus	0	Notes 13, 14
9. Deleted Chlorine Detection Systems	2	1	2	0	Notes 17, 18
10. Containment High Range Radiation Monitoring	2	N/A	2	0	Note 20
11. Containment Pressure - High Range	2	N/A	2	0	Note 21
12. Containment Water Level - Wide Range	2	N/A	2	0	Note 21

*Two undervoltage relays per bus are used with a coincident trip logic (2-out-of-2)

Table 3.5.1-1 (cont'd)

OTHER SAFETY RELATED SYSTEMS
(Cont'd)

Functional Unit	1 No. of channels	2 No. of channels for sys- tem trip	3 Min. operable channels	4 Min. degree of redundancy	5 Operator action if conditions of column 3 or 4 cannot be met
13. In core Thermocouples (core-exit thermocouples)	6/core quadrant	N/A	2/core quadrant	0	Note 22
14. Deleted Seismic Monitoring Instrumentation					
a. Triaxial Time History Accelerographs					
1. ACS-8001, Unit 1 Containment Base (Slab, Elev. 335'*)	1	N/A	1	0	Note 27
2. ACS-8002, Unit 1 Top of Containment, Elev. 531'6"	1	N/A	1	0	Note 27
b. Triaxial Peak Accelerographs					
1. 2XR-8347, Unit 2 Containment Base Slab, Elev. 336'6"	1	N/A	1	0	Note 27
2. 2XR-8348, Unit 2 Primary Shield O/S Reactor Cavity, Elev. 366'3"	1	N/A	1	0	Note 27
3. 2XR-8349, Unit 2 Top of Containment, Elev. 531'6"	1	N/A	1	0	Note 27
* With Unit 1 control room indication/or alarm					
15. Reactor Vessel Level Monitoring System	2	N/A	2	0	Note 28, 29
16. Hot Leg Level Measurement System (HLIMS)	2	N/A	2	0	Note 28, 29
17. Main Steam Line Radiation Monitors	1/steam line	N/A	1/steam line	0	Note 30

Table 3.5.1-1 (cont'd)

OTHER SAFETY RELATED SYSTEMS

(Cont'd)	1	2	3	4	5
		No. of channels	Min. for sys- tem trip	Min. operable degree of redundancy	Operator action if conditions of column 3 or 4 cannot be met
Functional Unit		No. of channels			
e. Triaxial Response Spectrum Recorders					
1. 2XR-8350, Unit 2 Containment Base Slab, Elev. 335' 6" O/S Containment)	1	N/A	1	0	Note 27
15. Reactor Vessel Level Monitoring System	2	N/A	2	0	Note 28, 29
16. Hot Leg Level Measurement System (HLIMS)	2	N/A	2	0	Note 28, 29
17. Main Steam Line Radiation Monitors	1 /steam line	N/A	1/steam line	0	Note 30

(Numbers 15, 16, and 17 have been moved to page 45d1 & this page will be deleted)

Table 3.5.1-1 (cont'd)

23. With the number of operable Electronic (SCR) Trip relays one less than the total number of Electronic (SCR) Trip relays in a channel, restore the inoperable Electronic (SCR) Trip relay to operable status in 48 hours or place the SCRs associated with the inoperable Electronic (SCR) Trip relay in trip in the next hour. With two or more Electronic (SCR) Trip relays inoperable, place all Electronic (SCR) Trip relays associated with that channel in trip in the next hour. This requirement does not apply to the Electronic Trip channels associated with Group 8 Regulating Power Supply.
24. With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. Within 1 hour:
 - 1. Place the inoperable channel in the tripped condition, or
 - 2. Remove power supplied to the control rod trip device associated with the inoperable channel.
 - b. One additional channel may be bypassed for up to 4 hours for surveillance testing and the operable channel above may be bypassed for up to 30 minutes in any 24-hour period when necessary to test the trip breaker associated with the logic of the channel being tested. The inoperable channel above shall not be bypassed to test the logic of a channel of the trip system associated with the inoperable channel.
25. With one of the Control Rod Drive Trip Breaker diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status in 48 hours or place the breaker in trip in the next hour.
26. Interrupts motor power to the Safety Groups of control rods only.
27. ~~Deleted~~With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.12.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status. The provisions of Specification 3.0.3 are not applicable.

Table 4.1-1 (Cont.)

<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>	<u>Remarks</u>
29. High and Low Pressure Injection Systems: Flow Channels	NA	NA	R	
30. Decay heat removal system isolation valve automatic closure and interlock system	S(1)(2)	M(1)(3)	R	(1) Includes RCS Pressure Analog Channel (2) Includes CFT Isolation Valve Position (3) At least once every refueling shutdown, with Reactor Coolant System Pressure greater than or equal to 200 psig, but less than 300 psig, verify automatic isolation of the decay heat removal system from the Reactor Coolant System on high Reactor Coolant System pressure.
31. Deleted Turbine overspeed trip mechanism	NA	R	NA	(1) The provisions of Specification 4.0.4 are not applicable.
32. Diesel generator protective relaying starting interlocks and circuitry	M	Q	NA	
33. Off-site power undervoltage and protective relaying interlocks and circuitry	W	R(1)	R(1)	(1) Shall be tested during refueling shutdown to demonstrate selective load shedding interlocks function during manual or automatic transfer of Unit 1 auxiliary load to Startup Transformer No. 2.
34. Borated water storage tank level indicator	W	NA	R	
35. Reactor trip upon loss of main feedwater circuitry	M	PC	R	

Table 4.1-1 (Cont.)

Channel Description	Check	Test	Calibrate	Remarks
36. Boric Acid Addition Tank				
a. Level Channel	NA	NA	R	
b. Temperature Channel	M	NA	R	
37. Degraded Voltage Monitoring	W	R	R	
38. Sodium Hydroxide Tank Level Indicator	NA	NA	R	
39. Incore Neutron Detectors	M(1)	NA	NA	(1) Check Functioning
40. Emergency Plant Radiation Instruments	M(1)	NA	R	(1) Battery Check
41. Reactor Trip Upon Turbine Trip Circuitry	M	PC	R	
42. Deleted Seismic Monitoring Instruments				
 a. Triaxial Time-History				
 Accelerographs				
 1. ACS-8001, Unit 1	M(1)	SA	R	(1) Except Seismic Trigger
 Containment Base				
 Slab, Elev. 335'				
 (with Unit 1 control				
 room indication)				
 2. ACS-8002, Unit 1	M(1)	SA	R	
 Top of Containment				
 Elev. 531'6"				

Table 4.1-1 (Cont.)

Channel Description	Check	Test	Calibrate	Remarks
b. Triaxial Peak Accelerographs				
1. 2XR-8347, Unit 2 Containment Base Slab, Elev. 336'6"	NA	NA	R	
2. 2XR-8348, Unit 2 Primary Shield O/S Reactor Cavity, Elev. 366'3"	NA	NA	R	
3. 2XR-8349, Unit 2 Top of Containment, Elev. 531'6"	NA	NA	R	
c. Triaxial Response Spectrum Recorders				
1. 2XR-8350, Unit 2 Containment, Base Slab, Elev. 335'6" (O/S Containment)	NA	R	R	
43. ESAS Manual Trip Functions				
a. Switches & Logic	NA	R	NA	
b. Logic	NA	M	NA	
44. Reactor Manual Trip	NA	P	NA	
45. Reactor Building Sump Level	NA	NA	R	
46. EFW Flow Indication	M	NA	R	

Table 4.1-1 (Cont.)

<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>	<u>Remarks</u>
47. RCS Subcooling Margin Monitor	D	NA	R	
48. Electromatic Relief Valve Flow Monitor	D	NA	R	
49. Electromatic Relief Block Valve Position Indicator	D	NA	R	
50. Pressurizer Safety Valve Flow Monitor	D	NA	R	
51. Pressurizer Water Level Indicator	D	NA	R	
52. Deleted Control Room Chlorine Detector	D	M	R	
53. EFW Initiation				
a. Manual	NA	M	NA	
b. SG Low Level, SGA or B	S	M	R	
c. Low Pressure SGA or B	S	M	R	
d. Loss of both MFW Pumps and PWR > 10%	S	M	R	

MARKUP OF CURRENT ANO-2 TECHNICAL SPECIFICATIONS

(FOR INFO ONLY)

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.2 POWER DISTRIBUTION LIMITS</u>	
3/4.2.1 LINEAR HEAT RATE.....	3/4 2-1
3/4.2.2 RADIAL PEAKING FACTORS.....	3/4 2-2
3/4.2.3 AZIMUTHAL POWER TILT.....	3/4 2-3
3/4.2.4 DNBR MARGIN.....	3/4 2-5
3/4.2.5 RCS FLOW RATE.....	3/4 2-7
3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE.....	3/4 2-8
3/4.2.7 AXIAL SHAPE INDEX.....	3/4 2-9
3/4.2.8 PRESSURIZER PRESSURE.....	3/4 2-10
<u>3/4.3 INSTRUMENTATION</u>	
3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION.....	3/4 3-1
3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION.....	3/4 3-10
3/4.3.3 MONITORING INSTRUMENTATION	
Radiation Monitoring Instrumentation.....	3/4 3-24
Seismic Instrumentation.....	3/4 3-30
Meteorological Instrumentation.....	3/4 3-33
Remote Shutdown Instrumentation.....	3/4 3-36
Post-Accident Instrumentation.....	3/4 3-39
Chlorine Detection Systems.....	3/4 3-42
Fire Detection Instrumentation.....	3/4 3-43
Radioactive Gaseous Effluent Monitoring Instrumentation.....	3/4 3-45
<u>Radioactive Liquid Effluent Monitoring Instrumentation.....</u>	<u>3/4 3-54</u>

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
3/4.3.3 (Continued)	
Radioactive Liquid Effluent Monitoring	
Instrumentation (Moved to page V)	3/4 3-54
3/4.3.4 TURBINE OVERSPEED PROTECTION	3/4 3-58
<u>3/4.4 REACTOR COOLANT SYSTEM</u>	
3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION.....	3/4 4-1
3/4.4.2 SAFETY VALVES - SHUTDOWN.....	3/4 4-3
3/4.4.3 SAFETY VALVES - OPERATING.....	3/4 4-4
3/4.4.4 PRESSURIZER.....	3/4 4-5
3/4.4.5 STEAM GENERATORS.....	3/4 4-6
3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE	
Leakage Detection Systems.....	3/4 4-13
Reactor Coolant System Leakage.....	3/4 4-14
3/4.4.7 CHEMISTRY.....	3/4 4-15
3/4.4.8 SPECIFIC ACTIVITY.....	3/4 4-18
3/4.4.9 PRESSURE/TEMPERATURE LIMITS	
Reactor Coolant System.....	3/4 4-22
Pressurizer.....	3/4 4-25
3/4.4.10 STRUCTURAL INTEGRITY	
ASME Code Class 1, 2 and 3 Components.....	3/4 4-26
3/4.4.11 REACTOR COOLANT SYSTEM VENTS.....	3/4 4-27
<u>3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)</u>	
3/4.5.1 SAFETY INJECTION TANKS.....	3/4 5-1

INDEX

BASES

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.0 APPLICABILITY.....</u>	B 3/4 0-1
<u>3/4.1 REACTIVITY CONTROL SYSTEMS</u>	
3/4.1.1 BORATION CONTROL.....	B 3/4 1-1
3/4.1.2 BORATION SYSTEMS.....	B 3/4 1-2
3/4.1.3 MOVABLE CONTROL ASSEMBLIES.....	B 3/4 1-3
<u>3/4.2 POWER DISTRIBUTION LIMITS</u>	
3/4.2.1 LINEAR HEAT RATE.....	B 3/4 2-1
3/4.2.2 RADIAL PEAKING FACTORS.....	B 3/4 2-2
3/4.2.3 AZIMUTHAL POWER TILT.....	B 3/4 2-2
3/4.2.4 DNBR MARGIN.....	B 3/4 2-3
3/4.2.5 RCS FLOW RATE.....	B 3/4 2-4
3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE.....	B 3/4 2-4
3/4.2.7 AXIAL SHAPE INDEX.....	B 3/4 2-4
3/4.2.8 PRESSURIZER PRESSURE.....	B 3/4 2-4
<u>3/4.3 INSTRUMENTATION</u>	
3/4.3.1 PROTECTIVE INSTRUMENTATION.....	B 3/4 3-1
3/4.3.2 ENGINEERED SAFETY FEATURE INSTRUMENTATION.....	B 3/4 3-1
3/4.3.3 MONITORING INSTRUMENTATION.....	B 3/4 3-2
3/4.3.4 TURBINE OVERSPEED PROTECTION.....	B 3/4 3-5

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INSTRUMENTATION

SEISMIC INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

~~3.3.3.3 The seismic monitoring instrumentation shown in Table 3.3-7 shall be OPERABLE.~~

~~APPLICABILITY: At all times.~~

ACTION:

- ~~a. With one or more 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

~~4.3.3.3.1 Each of the above seismic monitoring instruments shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-4.~~

~~4.3.3.3.2 Each of the above seismic monitoring instruments actuated during a seismic event 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 facility features important to safety.~~

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TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>MEASUREMENT</u>	<u>MINIMUM</u>
	<u>RANGE</u>	<u>INSTRUMENT</u> <u>OPERABLE</u>
1. Triaxial Time History Accelerographs		
a. ACS-8001, Unit 1 Containment Base Slab, Elev. 335'*	0.01-1.0g	1
b. ACS-8002, Unit 1 Top of Containment, Elev. 531'6"	0.01-1.0g	1
2. Triaxial Peak Accelerographs		
a. 2XR-8347, Containment Base Slab, Elev. 336'6"	0.05-1.0g	1
b. 2XR-8348, Primary Shield O/S Reactor Cavity, Elev. 366'3"	0.05-1.0g	1
c. 2XR-8349, Top of Containment, Elev. 531'6"	0.05-1.0g	1
3. Triaxial Response Spectrum Recorders		
a. 2XR-8350, Containment Base Slab, Elev. 335'6" (O/S Containment)	2-25.4 Hz	1

*With Unit 1 control room indication/or alarm

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TABLE 4.3-4

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL</u>	<u>CHANNEL</u>	<u>CHANNEL</u>
	<u>CHECK</u>	<u>CALIBRATION</u>	<u>FUNCTIONAL TEST</u>
1. <u>Triaxial Time History Accelerographs</u>			
a. <u>ACS-8001, Unit 1 Containment Base</u>	<u>M*</u>	<u>R</u>	<u>SA</u>
<u>Slab, Elev. 335'1**</u>		<u>R</u>	<u>SA</u>
b. <u>ACS-8002, Unit 1 Top of Containment</u>			
<u>Elev. 531'6"</u>	<u>M*</u>	<u>R</u>	<u>SA</u>
2. <u>Triaxial Peak Accelerographs</u>			
a. <u>2XR-8347, Containment Base Slab,</u>			
<u>Elev. 336'6"</u>	<u>NA</u>	<u>R</u>	<u>NA</u>
b. <u>2XR-8348, Primary Shield O/S Reactor</u>			
<u>Cavity, Elev. 366'3"</u>	<u>NA</u>	<u>R</u>	<u>NA</u>
c. <u>2XR-8349, Top of Containment, Elev.</u>			
<u>531'6"</u>	<u>NA</u>	<u>R</u>	<u>NA</u>
3. <u>Triaxial Response Spectrum Recorders</u>			
a. <u>2XR-8350, Containment Base Slab,</u>			
<u>Elev. 335'6" (O/S Containment)</u>	<u>NA</u>	<u>R</u>	<u>R</u>

* Except seismic trigger

** With Unit 1 control room indication

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INSTRUMENTATION

METEOROLOGICAL INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

~~3.3.3.4 The meteorological monitoring instrumentation channels shown in Table 3.3-8 shall be OPERABLE.~~

~~APPLICABILITY: At all times.~~

ACTION:

- ~~a. With one or more required meteorological monitoring channels inoperable for more than 7 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 channel(s) to OPERABLE status.~~
- ~~b. The provisions of Specifications 3.0.3 are not applicable.~~

SURVEILLANCE REQUIREMENTS

~~4.3.3.4 Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-5.~~

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TABLE 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

		MINIMUM
		CHANNELS
<u>INSTRUMENT</u>	<u>LOCATION</u>	<u>OPERABLE</u>
1. WIND SPEED		
a. Nominal Elev. 540'	_____	1
b. Nominal Elev 394'	_____	1
2. WIND DIRECTION		
a. Nominal Elev. 540'	_____	1
b. Nominal Elev. 394'	_____	1
3. AIR TEMPERATURE — DELTA T		
a. Nominal Elev 394' to 540'	_____	1

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TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL		CHANNEL CALIBRATION
	CHECK		
1. WIND SPEED			
a. Nominal Elev. 540'	D		SA
b. Nominal Elev. 394'	D		SA
2. WIND DIRECTION			
a. Nominal Elev. 540'	D		SA
b. Nominal Elev. 394'	D		SA
3. AIR TEMPERATURE - DELTA T			
a. Nominal Elev. 394' to 540'	D		SA

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INSTRUMENTATION

CHLORINE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

~~3.3.3.7 Two independent chlorine detection systems, with their alarm/trip setpoints adjusted to actuate at a chlorine concentration of ≤ 5 ppm, shall be OPERABLE.~~

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

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

SURVEILLANCE REQUIREMENTS

~~4.3.3.7 Each chlorine detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.~~

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INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

~~3.3.4.1 At least one turbine overspeed protection system shall be OPERABLE.~~

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

ACTION:

- ~~a. With one stop valve and/or one control valve inoperable, within 4 hours either restore the inoperable valve(s) to OPERABLE status or close the inoperable valve(s); otherwise, isolate the turbine from the steam supply within the next 6 hours.~~
- ~~b. With one combined stop and intercept valve inoperable, within 4 hours either restore the inoperable valve to OPERABLE status or close the inoperable valve; otherwise, isolate the turbine from the steam supply within the next 6 hours.~~
- ~~c. With the above required turbine overspeed protection system otherwise inoperable, within 6 hours either restore the system to OPERABLE status or isolate the turbine from the steam supply.~~

SURVEILLANCE REQUIREMENTS

~~4.3.4.1.1 The provisions of Specification 4.0.4 are not applicable.~~

~~4.3.4.1.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE:~~

- ~~a. At least once per 92 days by direct observation of the movement of each of the following valves through at least one complete cycle from the running position:
 - ~~1. Four high pressure turbine stop valves.~~
 - ~~2. Four high pressure turbine control valves.~~
 - ~~3. Four low pressure turbine combined stop and intercept valves.~~~~
- ~~b. At least once per 18 months by performance of a CHANNEL CALIBRATION on the turbine overspeed protection systems.~~
- ~~c. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.~~

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PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

1. Verifying that the cleanup 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 2000 cfm $\pm 10\%$.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
 3. Verifying a system flow rate of 2000 cfm $\pm 10\%$ 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, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is < 6 inches Water Gauge while operating the system at a flow rate of 2000 cfm $\pm 10\%$.
 2. Verifying that on a control room high radiation ~~or high chlorine~~ test signal, the system automatically isolates the control room within 10 seconds and switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove $\geq 99\%$ of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of 2000 cfm $\pm 10\%$.

PLANT SYSTEMS

3/4.7.12 SPENT FUEL POOL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.7.12 The structural integrity of the spent fuel pool shall be maintained in accordance with Specification 4.7.12.

APPLICABILITY: Whenever irradiated fuel assemblies are in the spent fuel pool.

ACTION:

- a. With the structural integrity of the spent fuel pool not conforming to the above requirements, in lieu of any other report, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days of a determination of such non-conformity.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.12.1 Inspection Frequencies - The structural integrity of the spent fuel pool shall be determined per the acceptance criteria of Specification 4.7.12.2 at the following frequencies:

- a. At least once per 92 days after the pool is filled with water. If no abnormal degradation or other indications of structural distress are detected during five consecutive inspections, the inspection interval may be extended to at least once per 5 years.
- b. Within 24 hours following any seismic event which actuates or should have actuated the seismic monitoring instrumentation ~~of Specification 3.3.3.3.~~

4.7.12.2 Acceptance Criteria - The structural integrity of the spent fuel pool shall be determined by a visual inspection of at least the interior and exterior surfaces of the pool, the struts in the tilt pit, the surfaces of the separation walls, and the structural slabs adjoining the pool walls. This visual inspection shall verify no changes in the concrete crack patterns, no abnormal degradation or other signs of structural distress (i.e, cracks, bulges, out of plumbness, leakage, discolorations, efflorescence, etc.).

3/4.3 INSTRUMENTATION

BASES

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

The PURGE as defined in the definitions section is a release under a purge permit, whereas continuous ventilation is defined as operation of the purge system after the requirements of the purge permit have been satisfied. When securing the containment purge system to meet the ACTION requirements of this Specification, at least one supply valve and one exhaust valve is to be closed, and the supply and exhaust fans secured.

3/4.3.3.2 DELETED

3/4.3.3.3 DELETEDSEISMIC INSTRUMENTATION

~~The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility to determine if plant shutdown is required pursuant to Appendix "A" of 10 CFR Part 100. The instrumentation is consistent with the recommendations of Safety Guide 12, "Instrumentation for Earthquakes," March, 1971.~~

3/4.3.3.4 DELETEDMETEOROLOGICAL INSTRUMENTATION

~~The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23 "Onsite Meteorological Programs," February 1972.~~

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

INSTRUMENTATION

BASES

3/4.3.3.6 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations."

The Reactor Vessel Level Monitor is provided as a means of indicating level in the reactor vessel during accident conditions. A minimum of two operable level sensors in the upper plenum region and one operable level sensor in the dome region are required for RVLMS channel operability. When Reactor Coolant Pumps are running, all except the dome sensors are interlocked to read "invalid" due to flow induced variables that may offset the sensor outputs. If the equipment is inaccessible due to heat and industrial safety concerns (for example, high radiation area, low oxygen content of the containment atmosphere) or due to physical location of the fault (for example, probe failure in the reactor vessel), then operation may continue until the next scheduled refueling outage and a report filed.

~~3/4.3.3.7 CHLORINE DETECTION SYSTEMS~~

~~The OPERABILITY of the chlorine detection system ensures that sufficient capability is available to promptly detect and initiate protective action in the event of an accidental chlorine release. This capability is required to protect control room personnel and is consistent with the recommendations of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release," February 1975.~~

~~3/4.3.3.8 FIRE DETECTION INSTRUMENTATION~~

~~DELETED~~

INSTRUMENTATION

BASES

measurement assurance activities with NBS. These standards permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration are used.

3/4.3.4 TURBINE OVERSPEED PROTECTION

~~— This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety related components, equipment or structures.~~

ADMINISTRATIVE CONTROLS

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 REPORT

6.9.1.6 Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the Director, Office of Resource Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Office no later than the 15th of each month following the calendar month covered by the report.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Administrator of the Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

- a. ECCS Actuation, Specifications 3.5.2 and 3.5.3.
- b. ~~Deleted~~Inoperable Seismic Monitoring Instrumentation, Specification ~~3.3.3.3.~~
- c. ~~Deleted~~Inoperable Meteorological Monitoring Instrumentation, Specification ~~3.3.3.4.~~
- d. ~~Deleted~~Seismic event analysis, Specification ~~4.3.3.3.2.~~
- e. Inoperable Fire Detection Instrumentation
- f. Inoperable Fire Suppression Systems
- g. Deleted