Davis-Besse Technical Requirements Manual

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6.0 INTRODUCTION

6.1 BACKGROUND

Based on the NRC's Final Policy Statement on Technical Specification Improvements for nuclear power plants, and 10 CFR 50.36, "Technical Specifications, " as amended in the Final Rule published in the Federal Register dated July 13, 1995, certain requirements may be relocated from the Operating License Technical Specifications to other licensee-controlled documents. In an effort to centralize the requirements relocated from the Technical Specifications and to ensure the necessary administrative controls are applied to these requirements, these requirements have been relocated as "Technical Requirements" into the Davis-Besse Technical Requirements Manual (TRM).

The TRM provides one location for relocated items in a consistent format. The Technical Requirements are formatted in a manner consistent with NRC Regulatory Issue Summary 2005-20: Revision To Guidance Formerly Contained in NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections On Resolution of Degraded and Nonconforming Conditions and on Operability." Although many of the terms defined in the Technical Specifications apply within the TRM, the TRM contains additional Definitions which are specific to the TRM and not defined in the Technical Specification Definitions.

6.2 REGULATORY STATUS/REQUIREMENTS

The requirements in the TRM are part of the licensing basis for the Davis-Besse Nuclear Power Station. Furthermore, the TRM is incorporated by reference in the Updated Safety Analysis Report (USAR) and is considered to be part of the USAR. Violations of the TRM requirements should be documented by the corrective action process. Deviations from the TRM will be screened for reportability in accordance with the corrective action process.

These controls are in place because the purpose of relocating the requirements for Technical Specifications is not to reduce the level of control on the items, but to provide flexibility for change under 10 CFR 50.59, Changes, Tests and Experiments.

Technical Requirements Manual Section 10.6, Reporting Requirements has been developed to provide a central location for various Technical Specification reports. These reports are not controlled or revised under the change process for the Technical Requirements Manual. The reports contained in Section 10.6 are revised and issued as required by Technical Specification Section 5.6.

6.3 CHANGES TO THE TRM

Design modifications, procedure changes, license amendments, etc. have the potential to affect the TRM. If this occurs, the initiating department must follow the administrative controls in NOP-LP-4008, "Licensing Documents Change Process." This program requires that the TRM's Technical Requirements be considered in a manner similar to the USAR when evaluating changes. Changes to the TRM will be reported, as a minimum, to the NRC as part of the USAR update submittal in accordance with 10 CFR 50.71(e). Related 10 CFR 50.59 evaluations will be reported as part of the 10 CFR 50.59(d) report to the NRC.

6.4 TECHNICAL VERIFICATION REQUIREMENTS

Each Verification Requirement shall be performed within the specified time interval with a maximum allowable extension not to exceed 25% of the specified Technical Verification Requirement interval.

The provisions of this requirement provide allowable tolerances for performing technical verification activities beyond those specified in the nominal Technical Verification Requirement interval. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The phrase "at least" associated with a Technical Verification Requirement frequency does not negate this allowable tolerance value and permits the performance of more frequent verification activities.

The allowable tolerance for performing verification activities is sufficiently restrictive to ensure that the reliability associated with the verification activity is not significantly degraded beyond that obtained from the nominal specified interval. It is not intended that the allowable tolerance be used as a convenience to repeatedly schedule the performance of verification requirements at the allowable tolerance limit.

The allowable tolerance for performing verification activities also provides flexibility to accommodate the length of a fuel cycle for Technical Verification Requirements that are specified to be performed at least once each 24 Months. It is the intent that 24 Month verification requirements be performed in a MODE consistent with safe plant operation.

7.0 USE AND APPLICATION

7.1 Definitions

--NOTES--

1. Definitions are defined in Section 1.1 of the Technical Specifications and are applicable throughout the Technical Requirements Manual (TRM) and Bases. Only definitions specific to the TRM will be defined in this section.

2. The defined terms of this section and the Technical Specifications (TS) appear in capitalized type and are applicable throughout the TRM and the TRM Bases.

3. When a term is defined in both the TS and the TRM, TRM definition takes precedence within the TRM and the TRM Bases.

Term	Definition
FUNCTIONAL — FUNCTIONALITY	A structure, system or component (SSC), shall be FUNCTIONAL or have FUNCTIONALITY when it is capable of performing its specified function(s) as set forth in the Current License Basis. FUNCTIONALITY does not apply to specified safety functions, but does apply to the ability of non-TS SSCs to perform other specified functions that have a necessary support function.
TECHNICAL NORMAL CONDITIONS (TNC)	Specify minimum requirements for ensuring safe operation of the Unit. The Contingency Measures associated with a TNC state Nonconformances that typically describe the ways in which the requirements of the TNC can fail to be met. Specified with each stated Nonconformance are Contingency Measures and Restoration Time(s).

7.0 USE AND APPLICATION

7.2 Logical Connectors/Restoration Times

Logical Connectors are discussed in Section 1.2 of the Technical Specifications and are applicable throughout the Technical Requirements Manual and Bases.

Completion Times are discussed in Section 1.3 of the Technical Specifications and are applicable throughout the Technical Requirements Manual and Bases. Completion Times in the Technical Specifications are equivalent to Restoration Times in the Technical Requirements Manual.

When "Immediately" is used as a Restoration Time, the Contingency Measure should be pursued without delay in a controlled manner.

7.0 USE AND APPLICATION

7.3 Failure to Meet a Technical Normal Condition (TNC) or Technical Verification Requirement (TVR).

When a TNC and the associated Contingency Measures are not met, an associated Contingency Measure is not provided, or if directed by the associated Contingency Measures, action shall be initiated immediately to communicate the situation to the Shift Manager and document the condition in accordance with the FENOC corrective action program. The safety significance of the condition shall be evaluated per NOP-OP-1009 “Operability Determinations and Functionality Assessments” and appropriate corrective actions initiated, within the time frame determined by the Shift Manager that shall not exceed 48 hours from the time of entry into TRM 7.3. The time frame for completion of the corrective actions shall be commensurate with the safety significance of the condition, consistent with the guidance of NOP-OP-1009.

Where corrective measures are completed that permit operation in accordance with the TNC or Contingency Measures, completion of the actions required by TRM 7.3 is not required.

When it is discovered that a TVR frequency (including the 1.25 times extension) has not been met, the equipment subject to the TVR is in a nonconforming condition. In this situation, a Condition Report shall be initiated and, if indicated, determination to evaluate the impact on plant safety shall be performed in a timely fashion and in accordance with plant procedures.

Actions should be taken to restore conformance with the TNCs / TVRs in a timely fashion.

If equipment has been removed from service or declared nonfunctional, it may be returned to service under administrative control to perform testing required to demonstrate its functionality.

7.0 USE AND APPLICATION

7.4 Frequency

Frequency is discussed in Section 1.4 of the Technical Specifications and is applicable throughout the Technical Requirements Manual and Bases, with the exception that Technical Verification Requirements are used in the place of Surveillance Requirements.

8.1 REACTIVITY CONTROL SYSTEMS

8.1.1 Boration Systems - Operating

TECHNICAL NORMAL CONDITIONS

TNC 8.1.1 The Boration Systems shall be FUNCTIONAL consisting of the following:

a. A flow path from the concentrated FUNCTIONAL boric acid addition system (BAAS) via a FUNCTIONAL boric acid pump and a FUNCTIONAL makeup pump to the Reactor Coolant System (RCS);

<u>AND</u>

b. A flow path from the OPERABLE borated water storage tank via a FUNCTIONAL makeup pump to the RCS System.

--NOTES--

Separate Makeup pumps are required to be FUNCTIONAL in MODES 1, 2 and 3, and in MODE 4 when RCS pressure is ≥ 150 psig.

A FUNCTIONAL decay heat removal (DHR) pump may be used in place of a makeup pump in MODE 4 when RCS pressure is < 150 psig.

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

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A One Boron System flow path Nonfunctional.	A.1	Restore the nonfunctional flow path to FUNCTIONAL status.	72 hours
B. Contingency Measures and associated Restoration Time of Nonconformance A not met.	B.1	Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

CONTINGENCY MEASURES (continued)

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
C. The boron injection flow path from the borated water storage tank is Nonfunctional.	C.1 Restore the nonfunctional flow path to FUNCTIONAL status.	1 hour
D. Contingency Measures and associated Restoration Time of Nonconformance C not met.	D.1 Be in MODE 3 AND D.2 Be in MODE 5	6 hours 36 hours

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.1.1.1	Verify BAAS solution temperature is $\geq$ 105°F.	7 days
8.1.1.2	----------------------------NOTE---------------------------------- If the 7 day verification falls during transfers of makeup water or dilute boron solutions (fluid source concentration of less than 5000 ppmB), the verification period may be extended up to 8 hours after the addition of dilute boron solution has been stopped for a period of at least 8 hours. --- Verify the pipe temperature of the heat traced portion of the boron injection flow path from the concentrated boric acid storage system is ≥ 105°F.	7 days
8.1.1.3	Verify borated water volume of BAAS is in accordance with TRM Figure 8.1.1-1.	31 days
8.1.1.4	Verify the boron concentration in BAAS is $\geq$ 7,875 ppm and $\leq$ 13,125 ppm.	31 days
8.1.1.5	Verify each valve (manual, power operated or automatic) in the boron injection flow path that is not locked, sealed or otherwise secured in position, is in its correct position.	31 days

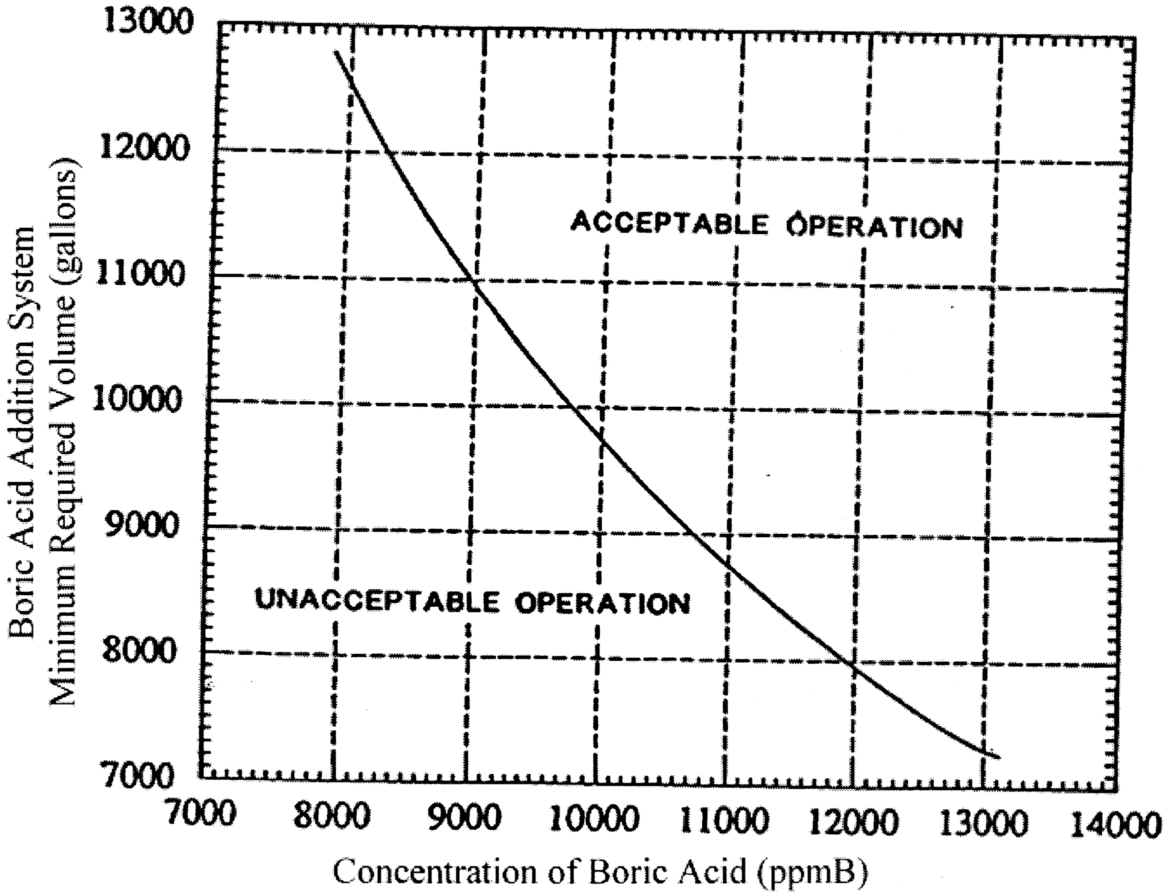

Figure 8.1.1-1

Boric Acid Addition System Volume vs Boric Acid Concentration in Modes 1-4

BASES

8.1.1 Boration Systems – Operating

The boron injection system ensures that negative reactivity control is available during each mode of facility operation.

The boric acid addition system (BAAS) is one of the borated water sources for the boron injection system. The maximum boration capability requirement occurs from full power equilibrium xenon conditions and requires the equivalent of 12,200 gallons of 7875 ppm borated water from the BAAS, or borated water from the BWST at a volume and concentration as specified in Technical Specification 3.5.4. The minimum value for the BAAS of 12,200 gallons at a concentration of 7875 ppm boron is a lower value than that shown in TRM Figure 8.1.1-1 because the Bases value is the minimum required actual value, whereas TRM Figure 8.1.1-1 shows the minimum indicated value, which was conservatively increased to account for instrument and chemical analysis tolerance.

The components required for the boron injection function, depending on operating conditions, include (1) borated water sources, (2) makeup or DHR pumps, (3) separate flow paths, (4) boric acid pumps, and (5) associated heat tracing systems.

With the RCS average temperature above 200°F, a minimum of two separate and redundant boron injection systems are provided to ensure single functional capability in the event an assumed failure renders one of the systems nonfunctional. Allowable out-of-service periods ensure that minor component repair or corrective action may be completed without undue risk to overall facility safety from injection system failures during the repair period.

The boration capability of either system is sufficient to provide a SHUTDOWN MARGIN from all operating conditions of 1.0% $\Delta k/k$ after xenon decay and cooldown to 200°F. The available borated water volume range and boron concentration range for the Boric Acid Addition System (BAAS), required to support this boration capability, are provided in the Updated Safety Analysis Report. The requirements relative to the Borated Water Storage Tank (BWST) are provided in Technical Specification 3.5.4.

8.1 REACTIVITY CONTROL SYSTEMS

8.1.2 Boration Systems - Shutdown

TECHNICAL NORMAL CONDITIONS

TNC 8.1.2 The Boration Systems shall be FUNCTIONAL consisting of the following:

a. A flow path from the FUNCTIONAL boric acid addition system (BAAS) via a FUNCTIONAL boric acid pump and a FUNCTIONAL makeup pump to the Reactor Coolant System (RCS); or

b. A flow path from the borated water storage tank via a FUNCTIONAL makeup pump to the RCS.

--NOTE--

The makeup pump is only required to be FUNCTIONAL in MODE 5 with the RCS pressure ≥ 150 psig.

A FUNCTIONAL decay heat removal (DHR) pump may be used in place of a makeup pump when RCS pressure is < 150 psig

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APPLICABILITY: MODES 5 and 6

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Required Boration System flow path Nonfunctional.	A.1 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	A.3 Initiate actions to restore Boration System flow path to functional status.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.1.2.1	Verify BWST solution temperature $\geq$ 35°F.	24 hours, if the BWST is used as a borated water source and the outside air temperature is < 35°F
8.1.2.2	Verify boron concentration in BWST is $\geq$ 2600 ppm.	7 days, if the BWST is used as a borated water source
8.1.2.3	-----------------------------NOTE------------------------------------ If the 7 day verification falls during transfers of makeup water or dilute boron solutions (fluid source concentration of less than 5000 ppmB), the verification period may be extended up to 8 hours after the addition of dilute boron solution has been stopped for a period of at least 8 hours. --- Verify the pipe temperature of the heat traced portion of the boron injection flow path is ≥ 105°F.	7 days, when a flow path from the concentrated boric acid storage system is used
8.1.2.4	Verify BAAS solution temperature is $\geq$ 105°F.	7 days, if the BAAS is used as borated source
8.1.2.5	Verify BWST water volume is $\geq$ 3000 gallons	7 days, if the BWST is used as a borated water source
8.1.2.6	Verify available borated water volume $\geq$ 900 gallons.	31 days, if the BAAS is used as borated source

TECHNICAL VERIFICATION REQUIREMENTS (continued)

TVR	VERIFICATION	FREQUENCY
8.1.2.7	Verify the boron concentration in BAAS is $\geq$ 7,875 ppm and $\leq$ 13,125 ppm.	31 days, if the BAAS is used as borated source
8.1.2.8	Verify each valve (manual, power operated or automatic) in the boron injection flow path that is not locked, sealed or otherwise secured in position, is in its correct position.	31 days

BASES

8.1.2 Boration Systems - Shutdown

A description of the boration system and component requirements is provided in the Bases for TRM 8.1.1, “Boration Systems – Operating.”

With the RCS temperature below 200°F, one injection system is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting movement of irradiated fuel assemblies and positive reactivity changes in the event the single injection system becomes nonfunctional.

The boration capability required below 200°F is sufficient to provide a SHUTDOWN MARGIN of 1% $\Delta k/k$ after xenon decay and cooldown from 200°F to 70°F. This condition requires either 900 gallons of 7875 ppm borated water from the BAAS or 3,000 gallons of 2600 ppm borated water from BWST.

The FUNCTIONALITY of one boron injection system during REFUELING ensures that this system is available for reactivity control while in MODE 6.

8.1 REACTIVITY CONTROL SYSTEMS

8.1.3 Rod Program

TECHNICAL NORMAL CONDITIONS

TNC 8.1.3 Each control rod assembly (safety, regulating and APSR) shall be programmed to operate in the core location and rod group specified in the CORE OPERATING LIMITS REPORT.

---NOTES---

During the performance of PHYSICS TESTS in MODE 1, the requirements of TNC 8.1.3 may be suspended, if the requirements of Technical Specification 3.1.8 are in effect.

During the performance of PHYSICS TESTS, in MODE 2, the requirements of TNC 8.1.3 may be suspended, if the requirements of Technical Specification 3.1.9 are in effect.

APPLICABILITY: MODES 1 and 2.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Any control rod assembly not programmed to operate as specified above.	A.1 Be in MODE 3.	1 hour

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.1.3.1	Verify all control rod assemblies are programmed to operate in the specified core location and rod group by selection and actuation from the control room and verification of movement of the proper rod as indicated by both the absolute and relative position indicators.	After the control rod drive patches are locked subsequent to test, reprogramming or maintenance within the panels

TECHNICAL VERIFICATION REQUIREMENTS (continued)

TVR	VERIFICATION	FREQUENCY
8.1.3.2	Verify that the specifically affected individual control rod assemblies are programmed to operate in the specified core location and rod group by selection and actuation from the control room and verification of movement of the proper rod as indicated by both the absolute and relative position indicators.	After maintenance, test, reconnection or modification of power or instrumentation cables from the control rod drive control system to the control rod drive
8.1.3.3	Verify each control rod assembly cable has been properly matched and reconnected to the specified control rod drive.	After disconnection of control rod assembly cable
8.1.3.4	Verify the control rod drive patch panels are locked.	7 days

BASES

None

8.3 INSTRUMENTATION

8.3.1 Reactor Protection System Instrumentation Parameters

TECHNICAL NORMAL CONDITIONS

TNC 8.3.1	The Reactor Protection System (RPS) instrumentation RPS RESPONSE TIMES listed in TRM Table 8.3.1-1 shall be maintained in the manner specified in Technical Specification 3.3.1. <u>AND</u> The RPS instrumentation RPS SETPOINTS listed in TRM Table 8.3.1-2 shall be maintained in the manner specified in Technical Specification 3.3.1.

APPLICABILITY: As specified in Technical Specification Table 3.3.1-1.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME

NONE

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY

NONE

Table 8.3.1-1 (page 1 of 1)
Reactor Protection System Instrumentation Response Times

FUNCTION	RESPONSE TIMES [b] (seconds)
1. High Flux [a]	$\leq$ 0.266
2. RC High Temperature	Not Applicable
3. RC High Pressure	$\leq$ 0.341
4. RC Low Pressure	$\leq$ 0.341
5. RC Pressure – Temperature – Constant Temperature	Not applicable
6. Containment High Pressure	Not applicable
7. High Flux / Number of Reactor Coolant Pumps On [a][c]	$\leq$ 0.631
8. Flux - ΔFlux – Flow [a]	
a. Variable Flow	$\leq$ 1.77
b. Constant Flow	$\leq$ 0.266

(a) Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.
(b) Including sensor (except as noted), RPS instrument delay and the breaker delay.
(c) A delay time has been assumed for the Reactor Coolant Pump monitor in the determination of the response time of the High Flux / Number of Reactor Coolant Pumps On functional unit.

Table 8.3.1-2 (page 1 of 1)
Reactor Protection System Instrumentation Trip Setpoints

FUNCTION (Note 1)	Setpoint
1.a High Flux	
Four Pump Limiting Trip Setpoint (Ultrasonic)	104.5875% FP
Four Pump Limiting Trip Setpoint (Venturi)	102.9875% FP
Three Pump Limiting Trip Setpoint (Ultrasonic or Venturi)	80.2875% FP
Four Pump Normal Trip Setpoint (Note 2) (Ultrasonic)	104.5% FP
Four Pump Normal Trip Setpoint (Note 2) (Venturi)	102.9% FP
Three Pump Normal Trip Setpoint (Note 2) (Ultrasonic or Venturi)	80.1% FP
As-Found Acceptance Criteria (Note 3)	[Previous As-Left – Current As-Found] NTSP $\leq$ 0.3125% Power
As-Left Acceptance Criteria (Note 3)	NTSP ± 0.0875% Power
5. RC Pressure – Temperature	
Limiting Trip Setpoint (LTSP)	16.25 T_{out} – 7886.602 psig
Nominal Trip Setpoint (NTSP) (Note 2)	16.25 T_{out} – 7885.5 psig
As-Found Acceptance Criteria Band (Note 3)	[Previous As-Left – Current As-found] ≤11.2 psi
As-Left Setpoint Tolerance Band (Note 3)	NTSP ± 6.0 psi

Note 1 Setpoint information is not provided for Tech Spec Table 3.3.1-1 Functions 2, 3, 4, 6, 7, 8, 9.

Note 2 Nominal Trip Setpoint is a value more conservative than the Limiting Trip Setpoint. Conservative margin is added (subtracted) to the Limiting Trip Setpoint to generate the Nominal Trip Setpoint.

Note 3 Compliance with the As-Found Acceptance Criteria Band is determined by taking the absolute value of the difference between the As-Left value from the previous surveillance test and the As-Found value from the current surveillance test. This must be evaluated separate from compliance with the Technical Specification Allowable Value. (Applicable to Functional Unit 5 only).

BASES

8.3.1 Reactor Protection System Instrumentation Parameters

The measurement of response time at the specified frequencies provides assurance that the RPS action function associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

The measurement of trip setpoints at the specified frequencies provides assurance that the RPS function associated with each channel is in conformance with the trip requirements assumed in the safety analysis. The trip setpoint is established by addition (or subtraction depending on the conservative direction) of instrument uncertainties to the Analytical Limit (value used in the safety analysis).

This assurance is based on compliance with the methodology for establishment of nuclear safety related setpoints. The setpoint and acceptance criteria are established in compliance with Regulatory Guide 1.105, “Setpoints for Safety-Related Instrumentation.” The setpoint and acceptance criteria are established using Method 1 or Method 2 from Section 7 of ISA RP67.04.02-2000, “Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation.” Reset of the setpoint within the assumed As-Left Setpoint Tolerance Band will provide assurance that the channel is in compliance with the methodology and the calculation establishing the setpoint. Additional assurance is provided by repeated, successful setpoint verification at the prescribed surveillance frequency.

Setpoints found outside of the prescribed values require evaluation to ensure the equipment is able to perform within the calculational values and to determine if the equipment is able to perform the intended protective function.

8.3 INSTRUMENTATION

8.3.2 Incore Detectors

TECHNICAL NORMAL CONDITIONS

TNC 8.3.2 The Incore Detection System shall be FUNCTIONAL as specified below:

a. $\geq$ 75% of the Symmetric Incore Detectors in each core quadrant shall be FUNCTIONAL for QUADRANT POWER TILT measurements.

b. $\geq$ 75% of all incore detectors in each core quadrant shall be FUNCTIONAL for AXIAL POWER IMBALANCE, $F^N \Delta H$ and F_Q measurements.

APPLICABILITY: When the Incore Monitoring System is used for measurement of:

a. AXIAL POWER IMBALANCE;

b. QUADRANT POWER TILT;

c. $F^N \Delta H$; or

d. F_Q.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Less than the specified number of incore detectors FUNCTIONAL.	A.1 Do not use the Incore Monitoring System for the above applicable measurement.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.3.2.1	Perform CHANNEL CHECK.	Within 7 days prior to its use for measurement of the AXIAL POWER IMBALANCE or the QUADRANT POWER TILT <u>AND</u> 7 days thereafter
8.3.2.2	------------------------------NOTE----------------------------------- Channel calibration does not include neutron detectors. --- Perform CHANNEL CALIBRATION.	24 months

BASES

8.3.2 Incore Detectors

The FUNCTIONALITY of the incore detectors ensures that the measurements obtained from the Incore Monitoring System accurately represent the spatial neutron flux distribution of the reactor core.

Technical Specification 3.2.4, Quadrant Power Tilt becomes applicable in plant MODE 1 above 20% of Rated Thermal Power. This requires a determination of Quadrant Power Tilt at least once every 7 days, under Technical Specification SR 3.2.4.1. The channel check of the incore detector system (TRM TVR 8.3.2.1) must be performed within 7 days prior to this initial performance of TS SR 3.2.4.1, without the benefit of TRM 6.4. Therefore, assuming the continued applicability of TS 3.2.4, for each subsequent performance of TRM TVR 8.3.2.1, the 25 percent allowable verification test interval extension of TRM 6.4 may be applied.

REFERENCES

1. NRC Letter Log No. 5382, dated December 3, 1998, to Centerior Service Company

8.3 INSTRUMENTATION

8.3.3 Seismic Instrumentation

TECHNICAL NORMAL CONDITIONS

TNC 8.3.3 The seismic monitoring instrumentation for each Location in TRM Table 8.3.3-1 shall be FUNCTIONAL.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

---NOTE---
Separate Nonconformance entry is allowed for each channel.

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. -------------NOTE------------- Contingency Measures A.2, A.3, and A.4 shall be completed whenever Nonconformance A is entered. --------------------------------- One or more seismic monitoring instrumentation Nonfunctional due to being actuated during a seismic event.	A.1 Restore instrument to FUNCTIONAL status.	24 hours
	<u>AND</u>	
	A.2 Perform TVR 8.3.3.3 and TVR 8.3.3.4	5 days
	<u>AND</u>	
	A.3 Analyze data retrieved from instrument to determine the magnitude of the vibratory ground motion.	10 days
	<u>AND</u>	
	A.4 Prepare and submit a special report to the Commission describing the magnitude, frequency, spectrum, and resultant effect upon the facility features important to safety.	10 days

CONTINGENCY MEASURES (continued)

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
B. One or more seismic monitoring instrumentations Nonfunctional for reasons other than Nonconformance A.	B.1 Restore instrument to FUNCTIONAL status.	30 days
C. Contingency Measures and associated Restoration Time of Nonconformance B not met.	C.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

--NOTE--
Refer to TRM Table 8.3.3-1 to determine which TVRs apply for each seismic monitoring instrumentation.

TVR	VERIFICATION	FREQUENCY
8.3.3.1	--------------------------------NOTES------------------------------ 1. Channel Check for Instrument 1 does not include seismic trigger. 2. Channel Check for Instrument 3 includes cabinet room indication. -- Perform CHANNEL CHECK for Instrument 1 and 3.	31 days
8.3.3.2	Perform CHANNEL FUNCTIONAL TEST for Instruments 1 and 3.	184 days
8.3.3.3	Perform CHANNEL CALIBRATION for Instruments 1.c, 1.d, 2, and 3.	18 months
8.3.3.4	Perform CHANNEL CALIBRATION for Instruments 1.a and 1.b.	24 months

Table 8.3.3-1 (page 1 of 1)
Seismic Monitoring Instrumentation

INSTRUMENTS AND SENSOR LOCATIONS	MINIMUM INSTRUMENT FUNCTIONAL	MEASUREMENT RANGE
1. Strong Motion Triaxial Accelerographs		
a. Containment Concrete Foundation, Elev. 565 (inside containment)	1	± 1g
b. Containment Interior Secondary Shield Wall Elev. 653 (inside containment)	1	± 1g
c. Auxiliary Building Basement Floor, Elev. 545 (outside containment)	1	± 1g
d. Station site – Minimum of 300 feet from containment vessel within the site boundary (outside containment)	1	± 1g
2. Peak Recording Accelerometers		
a. Shield Building Top, Minimum Elev. 812	1	± 1g
b. Auxiliary Building Roof, Elev. 660	1	± 1g
c. Control Room, Elev. 623	1	± 1g
3. Seismic Trigger		
a. Station site – Minimum of 300 feet from containment vessel within the site boundary	1 [(b)]	1-10 Hz [(a)] 0.005g – 0.02g [(c)]

(a) Minimum Frequency Response Range
(b) With cabinet room indication
(c) Actuation Range

BASES

8.3.3 Seismic Instrumentation

The FUNCTIONALITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event so that the response of those features important to safety may be evaluated. This capability is required to permit comparison of the measured response to that used in the design basis for the facility. This instrumentation is consistent with the recommendations of Regulatory Guide 1.12 "Instrumentation for Earthquakes," April 1974.

8.3 INSTRUMENTATION

8.3.4 Meteorological Instrumentation

TECHNICAL NORMAL CONDITIONS

TNC 8.3.4 The meteorological monitoring instrumentation channels for each function shown in TRM Table 8.3.4-1 shall be FUNCTIONAL.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

---NOTE---
Separate entry is allowed for each instrumentation channel.

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. One or more meteorological monitoring instrumentation channels Nonfunctional.	A.1 Restore channels to FUNCTIONAL status.	7 days
B. Contingency Measures and associated Restoration Time of Nonconformance A not met.	B.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.3.4.1	Perform CHANNEL CHECK of each required channel.	24 hours
8.3.4.2	--------------------------------NOTE----------------------------- Wind direction and wind speed sensors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION of each required channel.	 184 days

Table 8.3.4-1 (page 1 of 1)
Meteorological Monitoring Instrumentation

FUNCTION	LOCATION	REQUIRED CHANNELS
1. Wind Speed		
a. Nominal Elev.	612’	1
b. Nominal Elev.	827’	1
2. Wind Direction		
a. Nominal Elev.	612’	1
b. Nominal Elev.	827’	1
3. Air Temperature - Delta T		
a. Nominal Elev.	827’ – 612’	1

BASES

8.3.4 Meteorological Instrumentation

The FUNCTIONALITY 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 or 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. This instrumentation is consistent with the recommendations of Regulatory Guide 1.23 "Meteorological Programs in Support of Nuclear Power Plants," September 1980.

TVR 8.3.4.2 includes a Note. The Note indicates that the sensors for wind speed and wind direction are excluded from CHANNEL CALIBRATION. This note is necessary because the sensors are pre-calibrated by a vendor in offsite wind tunnel facilities. The vendor certified calibrations are valid for 5 years after the date of performance when stored in a temperature controlled storage, and are valid for 1 year in service.

8.3 INSTRUMENTATION

8.3.5 Safety Features Actuation System Response Times

TECHNICAL NORMAL CONDITIONS

TNC 8.3.5 The Safety Features Actuation System (SFAS) instrumentation RESPONSE TIMES listed in TRM Table 8.3.5-1 shall be maintained in the manner specified in Technical Specification 3.3.5.

APPLICABILITY: As specified in Technical Specification Table 3.3.5-1.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME

NONE

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY

NONE

Table 8.3.5-1 (Page 1 of 7)
Safety Features System Instrumentation Response Times

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME (seconds)
1 Manual			
a.	Fans		
	1.	Emergency Vent Fan	NA
	2.	Containment Cooler Fan	NA
b.	HV & AC Isolation Valves		
	1.	ECCS Room	NA
	2.	Emergency Ventilation	NA
	3.	Containment Air Sample	NA
	4.	Penetration Room Purge	NA
c.	Control Room HV & AC Units		NA
d.	High Pressure Injection		
	1.	High Pressure Injection Pumps	NA
	2.	High Pressure Injection Valves	NA
e.	Component Cooling Water		
	1.	Component Cooling Water Pumps	NA
	2.	Component Cooling Aux. Equip. Inlet Valves	NA
	3.	Component Cooling to Makeup Pump Header Inlet Valve	NA
f.	Service Water System		
	1.	Service Water Pumps	NA
	2.	Service Water From Component Cooling Heat Exchanger Isolation Valves	NA
g.	Containment Spray Isolation Valves		NA
h.	Emergency Diesel Generator		NA
i.	Containment Isolation Valves		
	1.	Vacuum Relief	NA
	2.	Normal Sump	NA
	3.	RCS Letdown Delay Coil Outlet	NA
	4.	RCS Letdown High Temperature	NA

(1) Diesel generator starting and sequence loading delays included when applicable. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

Table 8.3.5-1 (page 2 of 7)
Safety Features System Instrumentation Response Times

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME (seconds)
i.	Containment Isolation Valves (cont'd)		
	5.	Pressurizer Sample	NA
	6.	Service Water to Cooling Water	NA
	7.	Vent Header	NA
	8.	Drain Tank	NA
	9.	Core Flood Tank Vent	NA
	10.	Core Flood Tank Fill	NA
	11.	Steam Generator Sample	NA
	12	Quench Tank	NA
	13.	Emergency Sump	NA
	14.	RCP Seal Return	NA
	15.	Air Systems	NA
	16.	N_2 System	NA
	17.	Quench Tank Sample	NA
	18.	RCP Seal Inlet	NA
	19.	Core Flood Tank Sample	NA
	20.	RCP Standpipe Demin Water Supply	NA
	21.	Containment H_2 Dilution Inlet	NA
	22.	Containment H_2 Dilution Outlet	NA
j.	BWST Outlet Valves		NA
k.	Low Pressure Injection		
	1.	Decay Heat Pumps	NA
	2.	Low Pressure Injection Valves	NA
	3.	Decay Heat Pump Suction Valves	NA
	4.	Decay Heat Cooler Outlet Valves	NA
	5.	Decay Heat Cooler Bypass Valves	NA
l.	Containment Spray Pump		NA

(1) Diesel generator starting and sequence loading delays included when applicable. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

Table 8.3.5-1 (page 3 of 7)
Safety Features System Instrumentation Response Times

INITIATING SIGNAL AND FUNCTION				RESPONSE TIME (seconds)
	m.	Component Cooling Isolation Valves		
		1.	Inlet to Containment	NA
		2.	Outlet from Containment	NA
		3.	Inlet to CRDM's	NA
		4.	CRDM Booster Pump Suction	NA
		5.	Component Cooling from Decay Heat Coolers	NA
2.	Containment Pressure - High			
	a.	Fans		
		1.	Emergency Vent Fans	≤ 25(1)
		2.	Containment Cooler Fans	≤ 45(1)
	b.	HV & AC Isolation Valves		
		1.	ECCS Room	≤ 75(1)
		2.	Emergency Ventilation	≤ 75(1)
		3.	Containment Air Sample	≤ 30(1)
		4.	Penetration Room Purge	≤ 75(1)
	c.	Control Room HV & AC Units		≤ 10(1)
	d.	High Pressure Injection		
		1.	High Pressure Injection Pumps	≤ 30(1)
		2.	High Pressure Injection Valves	≤ 30(1)
	e.	Component Cooling Water		
		1.	Component Cooling Water Pumps	≤ 180(1)
		2.	Component Cooling Aux. Equip. Inlet Valves	≤ 180(1)
		3.	Component Cooling to Makeup Pump Header Inlet Valve	≤ 180(1)
		4.	Component Cooling from Decay Heat Cooler	NA(1)
	f.	Service Water System		
		1.	Service Water Pumps	≤ 45(1)
		2.	Service Water From Component Cooling Heat Exchanger Isolation Valves	NA(1)
	g.	Containment Spray Isolation Valves		≤ 80(1)
	h.	Emergency Diesel Generator		≤ 15(1)

(1) Diesel generator starting and sequence loading delays included when applicable. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

Table 8.3.5-1 (page 4 of 7)
Safety Features System Instrumentation Response Times

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME (seconds)
2.	Containment Pressure - High (Continued)		
	i.	Containment Isolation Valves	
	1.	Vacuum Relief	≤ 30(1)
	2.	Normal Sump	≤ 30(1)
	3.	RCS Letdown Delay Coil Outlet	≤ 30(1)
	4.	RCS Letdown High Temperature	≤ 30(1)
	5.	Pressurizer Sample	≤ 45(1)
	6.	Service Water to Cooling Water	≤ 45(1)
	7.	Vent Header	≤ 15(1)
	8.	Drain Tank	≤ 15(1)
	9.	Core Flood Tank Vent	≤ 15(1)
	10.	Core Flood Tank Fill	≤ 15(1)
	11.	Steam Generator Sample	≤ 15(1)
	12.	Quench Tank	≤ 15(1)
	13.	Emergency Sump	NA(1)
	14.	RCP Seal Return	≤ 45(1)
	15.	Air System	≤ 15(1)
	16.	N_2 System	≤ 15(1)
	17.	Quench Tank Sample	≤ 35(1)
	18.	RCP Seal Inlet	≤ 17(1)
	19.	Core Flood Tank Sample	≤ 15(1)
	20.	RCP Standpipe Demin Water Supply	≤ 15(1)
	21.	Containment H_2 Dilution Inlet	≤ 75(1)
	22.	Containment H_2 Dilution Outlet	≤ 75(1)
	j.	BWST Outlet Valves	NA(1)
	k.	Low Pressure Injection	
	1.	Decay Heat Pumps	≤ 30(1)
	2.	Low Pressure Injection Valves	≤ NA(1)
	3.	Decay Heat Pump Suction Valves	≤ NA(1)
	4.	Decay Heat Cooler Outlet Valves	≤ NA(1)
	5.	Decay Heat Cooler Bypass Valves	≤ NA(1)

(1) Diesel generator starting and sequence loading delays included when applicable. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

Table 8.3.5-1 (page 5 of 7)
Safety Features System Instrumentation Response Times

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME (seconds)
3. Containment Pressure--High-High	
a. Containment Spray Pump	≤ 80(1)
b. Component Cooling Isolation Valves	
1. Inlet to Containment	≤ 30(1)
2. Outlet from Containment	≤ 30(1)
3. Inlet to CRDM's	≤ 35(1)
4. CRDM Booster Pump Suction	≤ 35(1)
4. RCS Pressure-Low	
a. Fans	
1. Emergency Vent Fans	≤ 25(1)
2. Containment Cooler Fans	≤ 45(1)
b. HV & AC Isolation Valves	
1. ECCS Room	≤ 75(1)
2. Emergency Ventilation	≤ 75(1)
3. Containment Air Sample	≤ 30(1)
4. Penetration Room Purge	≤ 75(1)
c. Control Room HV & AC Units	≤ 10(1)
d. High Pressure Injection	
1. High Pressure Injection Pumps	≤ 30(1)
2. High Pressure Injection Valves	≤ 30(1)
e. Component Cooling Water	
1. Component Cooling Water Pumps	≤ 180(1)
f. Service Water System	
1. Service Water Pumps	≤ 45(1)
2. Service Water from Component Cooling Heat Exchanger Isolation Valves	≤ NA(1)
g. Containment Spray Isolation Valves	≤ 80(1)
h. Emergency Diesel Generator	≤ 15(1)

(1) Diesel generator starting and sequence loading delays included when applicable. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

Table 8.3.5-1 (page 6 of 7)
Safety Features System Instrumentation Response Times

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME (seconds)
4. RCS Pressure-Low (continued)	
i. Containment Isolation Valves	
1. Vacuum Relief	$\leq 30^{(1)}$
2. Normal Sump	$\leq 30^{(1)}$
3. RCS Letdown Delay Coil Outlet	$\leq 30^{(1)}$
4. RCS Letdown High Temperature	$\leq 30^{(1)}$
5. Pressurizer Sample	$\leq 45^{(1)}$
6. Service Water to Cooling Water	$\leq 45^{(1)}$
7. Vent Header	$\leq 15^{(1)}$
8. Drain Tank	$\leq 15^{(1)}$
9. Core Flood Tank Vent	$\leq 15^{(1)}$
10. Core Flood Tank Fill	$\leq 15^{(1)}$
11. Steam Generator Sample	$\leq 15^{(1)}$
12. Quench Tank	$\leq 15^{(1)}$
13. Emergency Sump	$\leq$ NA$^{(1)}$
14. Air Systems	$\leq 15^{(1)}$
15. N_2 System	$\leq 15^{(1)}$
16. Quench Tank Sample	$\leq 35^{(1)}$
17. Core Flood Tank Sample	$\leq 15^{(1)}$
18. RCP Standpipe Demin Water Supply	$\leq 15^{(1)}$
19. Containment H_2 Dilution Inlet	$\leq 75^{(1)}$
20. Containment H_2 Dilution Outlet	$\leq 75^{(1)}$
j. BWST Outlet Valves	NA$^{(1)}$

(1) Diesel generator starting and sequence loading delays included when applicable. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

Table 8.3.5-1 (page 7 of 7)
Safety Features System Instrumentation Response Times

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME (seconds)
5. RCS Pressure--Low-Low	
a. Low Pressure Injection	
1. Decay Heat Pumps	≤ 30(1)
2. Low Pressure Injection Valves	≤ NA(1)
3. Decay Heat Pump Suction Valves	≤ NA(1)
4. Decay Heat Cooler Outlet Valves	≤ NA(1)
5. Decay Heat Cooler Bypass Valves	≤ NA(1)
b. Component Cooling Isolation Valves	
1. Auxiliary Equipment Inlet	≤ 90(1)
2. Inlet to Makeup Pump Header	≤ 90(1)
3. Component Cooling from Decay Heat Cooler	≤ NA(1)
c. Containment Isolation Valves	
1. RCP Seal Return	≤ 45(1)
2. RCP Seal Inlet	≤ 17(1)

(1) Diesel generator starting and sequence loading delays included when applicable. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

BASES

8.3.5 Safety Features Actuation System Instrumentation

The measurement of response time at the specified frequencies provides assurance that the SFAS action function associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

8.3 INSTRUMENTATION

8.3.6 Waste Gas System Oxygen Monitoring

TECHNICAL NORMAL CONDITIONS

TNC 8.3.6 Waste Gas System Oxygen monitoring shall be FUNCTIONAL with its alarm setpoints set to ensure the limits of TRM 8.7.5 are not exceeded.

APPLICABILITY: During additions to the waste gas surge tank.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Both Waste gas system oxygen monitor alarm setpoint less conservative than required by TRM 8.7.5.	A.1 Declare the channel Nonfuntional and comply with Contingency Measures B.1 and B.2.	Immediately
B. Both Waste gas system oxygen monitor Nonfunctional.	B.1 Additions to waste gas surge tank may continue provided another method for ascertaining oxygen concentrations, such as grab sample analysis, is implemented to provide measurements.	Every 4 hours during degassing <u>AND</u> 24 hours during operations other than degassing
	<u>AND</u>	
	B.2 Exert best efforts to return the waste gas system oxygen monitor to FUNCTIONAL status.	30 days
C. Contingency Measures and associated Restoration Time of Nonconformance B not met.	C.1 Explain in the next Radioactive Effluent Release Report why the Nonconformance was not corrected in a timely manner.	Date of next Radioactive Effluent Release Report

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.3.6.1	Perform CHANNEL CHECK.	24 hours during additions to the waste gas surge tank
8.3.6.2	Perform CHANNEL CALIBRATION using standard gas samples containing a nominal: a. 1 volume % oxygen, balance nitrogen; and b. 4 volume % oxygen, balance nitrogen.	92 days

BASES

8.3.6 Waste Gas System Oxygen Monitor

The waste gas system oxygen monitor is provided to monitor oxygen concentration of gaseous radwaste being admitted to the waste gas surge tank. Oxygen concentration is monitored to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas treatment system is maintained below the flammability limits of hydrogen with oxygen.

8.3 INSTRUMENTATION

8.3.7 Post Accident Monitoring (PAM) Instrumentation

TECHNICAL NORMAL CONDITIONS

TNC 8.3.7 The PAM instrumentation for each Function in Table 8.3.7-1 shall be FUNCTIONAL.

APPLICABILITY: MODES 1, 2 and 3.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. One or more Functions with one required channel Nonfunctional.	A.1	Restore required channel to FUNCTIONAL status.	30 days
B. Contingency Measure and associated Restoration Time of Nonconformance A not met.	B.1	Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

---NOTE---
The below TVRs apply to each PAM instrumentation Function in Table 8.3.7-1.

TVR	VERIFICATION	FREQUENCY
8.3.7.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
8.3.7.2	Perform CHANNEL CALIBRATION.	24 months

Table 8.3.7-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS
1. RC System Subcooling Margin Monitor	1
2. PORV Position Indicator	1
3. PORV Block Valve Position Indicator	1
4. Pressurizer Safety Valve Position Indicator	1/valve
5. Containment Normal Sump Level	1

BASES

8.3.7 Post Accident Monitoring (PAM) Instrumentation

The primary purpose of the PAM instrumentation is to display unit variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for Design Basis Events.

The FUNCTIONALITY of the accident monitoring instrumentation ensures that there is sufficient information available on selected unit parameters to monitor and to assess unit status and behavior following an accident.

The availability of accident monitoring instrumentation is important so that responses to corrective actions can be observed, and so that the need for and magnitude of further actions can be determined. These essential instruments are identified by UFSAR Section 7.13 (Ref. 1) addressing the recommendations of Regulatory Guide 1.97 (Ref. 2) as required by Supplement 1 to NUREG-0737 (Ref. 3).

Only those instruments monitoring Type A and Category 1 variables are required to be included in Technical Specifications. The instruments in this Technical Requirement did not meet the criterion for inclusion into Technical Specifications.

8.3 INSTRUMENTATION

8.3.8 EDG Loss of Power Start

TECHNICAL NORMAL CONDITIONS

TNC 8.3.8	The EDG Loss of Power Start (LOPS) instrumentation setpoints listed in TRM Table 8.3.8-1 shall be maintained in the manner specified in Technical Specification 3.3.8.

APPLICABILITY: As specified in Technical Specification 3.3.8.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME

NONE

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY

NONE

Table 8.3.8-1 (page 1 of 1)
EDG Loss of Power Start Setpoints

FUNCTIONS	TRIP SETPOINTS
Degraded Voltage Function	3734 Volts, +/- 7 Volts (Dropout) 3759 Volts, Max (Pickup) 7.5 +/- 0.2 Seconds (Delay)
Loss of Voltage Function	2429 Volts, +/- 7 Volts (Dropout) 2466 Volts, Max (Pickup) 0.5 +/- 0.05 Seconds (Delay)

BASES

8.3.8 EDG Loss of Power Start Instrumentation

Compliance with TNC 8.3.8 provides assurance that the SFAS function associated with each channel is in conformance with the trip requirements assumed in the safety analysis. The trip setpoint is established by addition (or subtraction depending on the conservative direction) of instrumentation uncertainties to the Analytical Limit (value used in the AC Power System Analysis).

This assurance is based on compliance with the methodology for establishment of nuclear safety related setpoints. The setpoint and acceptance criteria are established in compliance with Regulatory Guide 1.105, "Setpoints for Safety-Related Instrumentation." The setpoint and acceptance criteria are established using Method 2 from section 7 of ISA RP67.04.02-2000, "Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation." Reset of the setpoint within the assumed Setpoint Tolerance Band will provide assurance that the channel is in compliance with the methodology and the calculation establishing the setpoint. Additional assurance is provided by repeated, successful setpoint verification at the prescribed surveillance frequency.

8.3 INSTRUMENTATION

8.3.10 Source and Intermediate Range Overlap

TECHNICAL NORMAL CONDITIONS

TNC 8.3.10 The requirements of TVR 8.3.10.1 shall be performed.

APPLICABILITY: When transitioning between the source range and intermediate range neutron flux instrumentation during a reactor startup.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. TVR 8.3.10.1 not met.	A.1 Evaluate OPERABILITY requirements of Technical Specifications 3.3.9 and 3.3.10.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.3.10.1	Verify at least one decade overlap between Source and Intermediate Range Monitors.	Each reactor startup during the transition between source and intermediate range monitors, if not verified in previous 7 days

BASES

8.3.10 Source and Intermediate Range Overlap

The overlap check requires an expectation of one decade of overlap when transitioning between the source range and intermediate range neutron flux instrumentation during a reactor startup. During a power increase near the top scale for the source range monitors, an intermediate range monitor reading is expected with at least on decade overlap. Without such an overlap, the intermediate range monitors are considered inoperable unless it is clear that a source range monitor inoperability is responsible for the lack of the expected overlap.

8.3 INSTRUMENTATION

8.3.11 Steam And Feedwater Rupture Control System Instrumentation Parameters

TECHNICAL NORMAL CONDITIONS

TNC 8.3.11 The Steam and Feedwater Rupture Control System (SFRCS) instrumentation RESPONSE TIMES listed in TRM Table 8.3.11-1 shall be maintained in the manner specified in Technical Specification 3.3.11.

AND

The SFRCS Trip Setpoints listed in TRM Table 8.3.11-2 shall be maintained in the manner specified in Technical Specification 3.3.11.

APPLICABILITY: As specified in Technical Specification Table 3.3.11-1.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME

NONE

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY

NONE

Table 8.3.11-1 (page 1 of 1)
Steam and Feedwater Rupture Control System Response Time

ACTUATED EQUIPMENT	RESPONSE TIME (seconds)
1. Auxiliary Feed Pump	≤ 40
2. Main Steam Isolation Valves [(1)]	
a. Main Steam Low Pressure Channels	≤ 6
b. Feedwater/Steam Generator High Differential Pressure Channels	≤ 6.5
3. Main Feedwater Valves	
a. Main Control	≤ 8
b. Startup Control	≤ 13
c. Stop Valve	≤ 16
4. Turbine Stop Valves [(2)]	≤ 1

(1) The response time is to be the time elapsed from the monitored variable exceeding the trip setpoint until the Main Steam Isolation Valve is fully closed.

(2) The response time is to be the time elapsed from the Main Steam Line Pressure Low trip condition until the Turbine Stop Valve is fully closed.

Table 8.3.11-2 (page 1 of 1)
Steam and Feedwater Rupture Control System (SFRCS) Trip Setpoints

FUNCTION

1. Main Steam Line Pressure – Low (3)

Limiting Trip Setpoint (LTSP)	625.65 psig
Nominal Trip Setpoint (NTSP)	630 psig
As-Found Acceptance Criteria Band	NTSP +/- 14.0 psig
As-Left Setpoint Tolerance Band	NTSP +/- 10.0 psig

2. Feedwater / Steam Generator Differential Pressure – High (2, 3)

Limiting Trip Setpoint (LTSP)	132.90 psid
Nominal Trip Setpoint (NTSP)	125.0 psid
As-Found Acceptance Criteria Band	NTSP +/- 10.0 psid
As-Left Setpoint Tolerance Band	NTSP +/- 7.14 psid

3. Steam Generator Level – Low (1, 3)

Limiting Trip Setpoint (LTSP)	23.30 inches Indicated
Nominal Trip Setpoint (NTSP)	23.50 inches Indicated
As-Found Acceptance Criteria Band	NTSP +/- 0.25 inches
As-Left Setpoint Tolerance Band	NTSP +/- 0.135 inches

4. Loss of Reactor Coolant Pumps-

Trip Setpoint - High ≤ 1384.6 amps
Trip Setpoint - Low ≥ 106.5 amps

(1) Steam Generator Level - Low Function references actual water level above the lower steam generator tubesheet, with this setpoint being consistent with the Allowable Value listed in the Technical Specifications.

(2) Differential Pressure is steam generator pressure minus feedwater pressure.

(3) Compliance with the As-Found Acceptance Criteria Band is determined by evaluating the current surveillance test value and comparing it to the As-Found Acceptance Criteria Band with respect to the Nominal Trip Setpoint. This must be evaluated separate from compliance with the Technical Specification Allowable Value.

BASES

8.3.11 Steam And Feedwater Rupture Control System Instrumentation

The measurement of response time at the specified frequencies provides assurance that the SFRCS action function associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

The SFRCS response time for the turbine stop valve closure is based on the combined response times of main steam line low pressure sensors, logic cabinet delay for main steam line low pressure signals and closure time of the turbine stop valves. This SFRCS response time ensures that the auxiliary feedwater to the unaffected steam generator will not be isolated due to a SFRCS low pressure trip during a main steam line break accident.

The measurement of trip setpoints at the specified frequencies provides assurance that the SFRCS function associated with each channel is in conformance with the trip requirements assumed in the safety analysis. The trip setpoint is established by addition (or subtraction depending on the conservative direction) of instrument uncertainties to the Analytical Limit (value used in the safety analysis).

This assurance is based on compliance with the methodology for establishment of nuclear safety related setpoints. The setpoint and acceptance criteria are established in compliance with Regulatory Guide 1.105, “Setpoints for Safety-Related Instrumentation.” The setpoint and acceptance criteria are established using Method 1 or Method 2 from Section 7 of ISA RP67.04.02-2000, “Methodologies for the Determination of Setpoints for Nuclear Safety-Related Instrumentation.” Reset of the setpoint within the assumed As-Left Setpoint Tolerance Band will provide assurance that the channel is in compliance with the methodology and the calculation establishing the setpoint. Additional assurance is provided by repeated, successful setpoint verification at the prescribed surveillance frequency.

Setpoints found outside of the prescribed values require evaluation to ensure the equipment is able to perform within the calculational values and to determine if the equipment is able to perform the intended protective function.

8.3 INSTRUMENTATION

8.3.12 Ultrasonic Flow Meter Instrumentation

TECHNICAL NORMAL CONDITIONS

TNC 8.3.12 Ultrasonic Flow Meter Instrumentation shall be FUNCTIONAL.

APPLICABILITY: MODE 1 when greater than 50% RATED THERMAL POWER.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Ultrasonic Flow Meter instrumentation Nonfunctional.	A.1 Restore Ultrasonic Flow Meter to FUNCTIONAL status.	Prior to the next required daily calorimetric heat balance measurement
B. Contingency Measure and associated Restoration Time is not met.	B.1 Comply with the applicable actions of Technical Specification 3.3.1.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.3.12.1	Perform CHANNEL CHECK for Ultrasonic Flow Meter instrumentation.	24 hours

BASES

8.3.12 Ultrasonic Flow Meter instrumentation

The LEFM includes a flow meter measurement section in each of the two main feedwater flow headers. Each measurement section consists of sixteen ultrasonic transducers. With any transducer nonfunctional, the Ultrasonic Flow Meter instrumentation system is considered nonfunctional.

The daily CHANNEL CHECK utilizes the on-line verification and self-diagnostic features of the LEFM to ensure the instrumentation is performing as designed.

8.4 REACTOR COOLANT SYSTEM

8.4.1 Chemistry

TECHNICAL NORMAL CONDITIONS

TNC 8.4.1 The Reactor Coolant System chemistry shall be maintained within the limits specified in TRM Table 8.4.1-1.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
---------------NOTE--------------- Only applicable in MODES 1, 2, 3, or 4. --------------------------------------- A. With any one or more chemistry parameter in excess of its Steady State Limit but within its Transient Limit.	A.1 Restore the parameter to within its Steady State Limit.	24 hours
---------------NOTE--------------- Only applicable in MODES 1, 2, 3, or 4. --------------------------------------- B. Contingency Measures and associated Restoration Time of Nonconformance A not met <u>OR</u> With any one or more chemistry parameter in excess of its Transient Limit.	B.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

CONTINGENCY MEASURES (continued)

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
---------------NOTE--------------- Not applicable in MODES 1, 2, 3, or 4. --------------------------------------- C. With the concentration of either chloride or fluoride in the Reactor Coolant System in excess of its Steady State Limit for more than 24 hours or in excess of its Transient Limit.	C.1 Reduce the Reactor Coolant System pressure to ≤ 500 psig, if applicable. <u>AND</u> C.2 Initiate action to perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System. <u>AND</u> C.3 Determine that the Reactor Coolant System remains acceptable for continued operation.	Immediately Immediately Prior to increasing the system pressure above 500 psig or prior to proceeding to MODE 4
D. ----------NOTE---------- Not applicable in MODES 1, 2, 3, 4, 5, or 6. ---------------------------- Unable to determine limits of chloride and fluoride in the Reactor Coolant System due to the inability to sample the RCS.	D.1 ------------NOTE--------------- Applicable only when the ability to sample the RCS is restored ------------------------------------- Initiate action to perform TVR 8.4.1.1	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.4.1.1	Determine by analysis, the parameters listed in TRM Table 8.4.1-1 are within their specified limits.	72 hours

TABLE 8.4.1-1 (page 1 of 1)
REACTOR COOLANT SYSTEM CHEMISTRY LIMITS

PARAMETER	STEADY STATE LIMIT	TRANSIENT LIMIT
Dissolved Oxygen[(1)]	≤ 0.10 ppm	≤ 1.00 ppm
Chloride	≤ 0.15 ppm	≤ 1.50 ppm
Fluoride	≤ 0.15 ppm	≤ 1.50 ppm

(1) Limit not applicable with T_{avg} ≤ 250° F.

BASES

8.4.1 CHEMISTRY

The limitations on Reactor Coolant System chemistry ensure that corrosion of the Reactor Coolant System is minimized and reduce the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the chemistry within the Steady State Limits shown on TRM Table 8.4.1-1 provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady State Limits.

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

8.4 REACTOR COOLANT SYSTEM

8.4.2 Pressurizer

TECHNICAL NORMAL CONDITIONS

TNC 8.4.2 The pressurizer temperature shall be limited to:

a. A maximum heatup and cooldown of 100°F in any one hour period;

b. A maximum spray water temperature differential of 410°F and

c. A minimum temperature of 120°F when the pressurizer pressure is ≥ 625 psig.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Pressurizer temperature limits in excess of any of the above limits.	A.1 Restore the temperature to within limits.	30 minutes
	AND	
	A.2 Initiate action to perform an engineering evaluation to determine the effects of the out-of-limit condition on the fracture toughness properties of the pressurizer.	Immediately
B. Pressurizer not acceptable for continued operation.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Reduce pressurizer pressure to < 500 psig.	36 hours

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.4.2.1	---------------------------------NOTE------------------------------ Only required during heatup or cooldown operation. --- Determine pressurizer temperature within limits.	30 minutes
8.4.2.2	---------------------------------NOTE------------------------------ Only required during spray operation with pressurizer temperature ≥ 440°F. --- Determine spray water temperature differential within limits.	12 hours

BASES

8.4.2 Pressurizer

The conditions, actions and verification requirements for the pressurizer temperature limits define the limitations on the pressurizer heatup and cooldown, spray water temperature differential, and minimum temperature when pressure is greater than 625 psig to assure that the pressurizer remains within the design criteria assumed for the pressurizer fatigue analysis. As discussed in Section 5.5.10 of the Davis-Besse UFSAR, the total stresses resulting from thermal expansion, pressure and mechanical and seismic loadings are considered in the design of the pressurizer. The total stresses expected in the pressurizer are within the maximum allowed by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III.

8.4 REACTOR COOLANT SYSTEM

8.4.3 Pressurizer Heater Interlock

TECHNICAL NORMAL CONDITIONS

TNC 8.4.3 Two Pressurizer Heater Interlock channels shall be FUNCTIONAL.

APPLICABILITY: MODE 3 when either decay heat removal (DHR) isolation valve DH-11 or DH-12 is open.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. One or more Pressurizer Heater Interlock channels Nonfunctional.	A.1	Place nonfunctional channel(s) in trip.	Immediately
	<u>OR</u>		
	A.2	---------------NOTE-------------- Only applicable if RCS pressure < 328 psig. ------------------------------------- Restore nonfunctional channel(s) to FUNCTIONAL status.	Prior to increasing RCS pressure ≥ 328 psig

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.4.3.1	Perform CHANNEL CHECK.	12 hours
8.4.3.2	Perform CHANNEL CALIBRATION. The Allowable Value shall be < 328 psig and is referenced to the RCS Pressure instrumentation tap.	24 months
8.4.3.3	Verify Pressurizer Heater Interlock deenergizes the pressurizer heaters on a actual or simulated RCS pressure which is greater than the Allowable Value with either DH-11 or DH-12 open.	24 months

BASES

8.4.3 Pressurizer Heaters

Pressurizer Heater Interlock setpoint is based on preventing over-pressurization of the Decay Heat Removal System normal suction line piping. The value stated is the RCS pressure at the sensing instrument's tap. It has been adjusted to reflect the elevation difference between the sensor's location and the pipe of concern.

8.4 REACTOR COOLANT SYSTEM

8.4.4 Reactor Coolant System Vents

TECHNICAL NORMAL CONDITIONS

TNC 8.4.4 The following Reactor Coolant System vent paths shall be FUNCTIONAL:

a. Reactor Coolant System Loop 1 with vent path through valves RC 4608A and RC 4608B;

b. Reactor Coolant System Loop 2 with vent path through valves RC 4610A and RC 4610B; and

c. Pressurizer with vent path through either valves RC11 and RC2A (PORV) or valves RC 239A and RC 200.

APPLICABILITY: MODES 1, 2, and 3.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. One vent path Nonfunctional.	A.1 Restore the Nonfunctional vent path to FUNCTIONAL status.	30 days
B. Two or more vent paths Nonfunctional.	B.1 Restore all but one Nonfunctional vent paths to FUNCTIONAL status.	72 hours
C. Contingency Measure and associated Restoration Time of Nonconformance A or B not met.	C.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.4.4.1	Verify all manual isolation valves in each required vent path are locked in the open position.	24 months
8.4.4.2	Cycle each valve in each required vent path through at least one complete cycle of full travel from the Control Room.	24 months
8.4.4.3	Verify flow through each required reactor coolant vent system vent paths.	24 months

BASES

8.4.4 High Point Vents

The Reactor Coolant System high point vents are installed per NUREG-0737 item II.B.1 requirements. The functionality of the system ensures capability of venting steam or noncondensable gas bubbles in the reactor cooling system to restore natural circulation following a small break loss of coolant accident.

8.4 REACTOR COOLANT SYSTEM

8.4.5 Pressurizer Pilot Operated Relief Valve (PORV)

TECHNICAL NORMAL CONDITIONS

TNC 8.4.5 — The requirement of TVR 8.4.5.1 shall be performed with an Allowable Value of ≥ 2435 psig.

APPLICABILITY: As specified in Technical Specification 3.4.11.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. TVR 8.4.5.1 not met.	A.1 Evaluate PORV OPERABILITY in accordance with Technical Specification 3.4.11.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.4.5.1	Perform CHANNEL CALIBRATION of the PORV opening setpoint.	24 months

BASES

8.4.5 Pilot Operated Relief Valve (PORV)

None.

8.4 REACTOR COOLANT SYSTEM

8.4.6 ASME Code Class 1, 2, and 3 Components

TECHNICAL NORMAL CONDITIONS

TNC 8.4.6 The structural integrity of ASME Code Class 1, 2, and 3 components shall be maintained in accordance with the Inservice Inspection Program.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Structural integrity of one or more ASME Code Class 1 not meeting the TNC.	A.1 Isolate the affected component.	Prior to increasing the RCS temperature to > 50°F above the minimum temperature required by NDT considerations
B. Structural integrity of one or more ASME Code Class 2 not meeting the TNC.	B.1 Isolate the affected component.	Prior to increasing the RCS temperature to > 200°F
C. Structural integrity of one or more ASME Code Class 3 not meeting the TNC.	C.1 Isolate the affected component.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.4.6.1	Verify the structural integrity of ASME Code Class 1, 2, and 3 components.	In accordance with the Inservice Inspection Program

BASES

8.4.6 ASME Code Class 1, 2, and 3 Components

The inspection and testing programs for ASME Code Class 1, 2, and 3 components, except the Steam Generator tubes, ensure that the structural integrity of these components will be maintained at an acceptable level throughout the life of the plant. To the extent possible, the inspection program for these components is in compliance with Section XI of the ASME Boiler and Pressure Vessel Code.

If containment air cooling (CAC) service water (SW) piping is ever isolated due to a breach of the piping in containment, that system is no longer acting as a penetration boundary. Because the CAC SW piping does not connect with either the reactor coolant system or the containment atmosphere, and post LOCA operation is for the system to be in service, CAC SW penetrations are not subject to testing under the Containment Leakage Rate Testing Program. Therefore, breached CAC SW piping in containment that is isolated would represent unquantifiable secondary containment bypass leakage for the associated CAC SW outlet penetration (LCO 3.6.3).

8.5 EMERGENCY CORE COOLING SYSTEMS

8.5.1 ECCS Subsystems - Operating

TECHNICAL NORMAL CONDITIONS

TNC 8.5.1 The requirements of TVR 8.5.1.1 and 8.5.1.2 shall be performed.

APPLICABILITY: MODES 1, 2 and 3.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. TNC 8.5.1 not met.	A.1 Comply with the applicable ACTIONS of Technical Specification 3.5.2.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.5.1.1	---------------------------------NOTE-------------------------------- Only the subsystem(s) directly affected by the flowpath modification needs to be tested in accordance with this Verification Requirement. --- Each HPI and LPI ECCS subsystem shall be demonstrated OPERABLE by performing a flow test, during shutdown, to verify the injection phase flow rate and flow distribution (for HPI only) meet or exceed the LOCA requirements.	Following completion of a modification to the subsystem flowpath that could alter the subsystem flow characteristics

TECHNICAL VERIFICATION REQUIREMENTS (continued)

TVR	VERIFICATION	FREQUENCY
8.5.1.2	---------------------------------NOTE--------------------------------- The inspection port on the watertight enclosure may be opened without requiring performance of the vacuum leakage rate test, to perform inspections. After use, the inspection port must be verified as closed in its correct position. Provisions of TS 3.0.3 are not applicable during these inspections. --- Each ECCS subsystem shall be demonstrated OPERABLE by performing a vacuum leakage rate test of the watertight enclosure for valves DH-11 and DH-12 that assures the motor operators on valves DH-11 and DH-12 will not be flooded for at least 7 days following a LOCA.	24 months <u>AND</u> After each opening of the watertight enclosure <u>AND</u> After any maintenance on or modification to the watertight enclosure which could affect its integrity

BASES

8.5.1 ECCS Subsystems - Operating

The verification requirement for flow and flow distribution (HPI only) testing provides assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) ensure an amount of ECCS flow that is equal to or greater than the flow assumed in the ECCS-LOCA analyses, and (3) ensure proper flow distribution between HPI injection points, in accordance with the assumptions used in the ECCS-LOCA analyses.

The frequency of Technical Verification Requirement 8.5.1.1 ensures that changes in system performance are detected and verified not to degrade the subsystem's ability to provide the flows that are required for accident mitigation. The HPI and LPI pumps are monitored in accordance with other surveillance requirements that specifically measure pump performance. Therefore, this surveillance does not apply to subsystem modifications that are limited to only the pumps.

The intent of Technical Verification Requirement 8.5.1.1 is to verify that the subsystem flow characteristics have not been unacceptably altered by modifications that could affect the resistance of the subsystem flowpath. Taken together, the pump verifications and this verification ensure that the LOCA analyses remain valid.

Technical Verification Requirement 8.5.1.1 requires verification of flow rate and flow distribution (HPI only) for the injection phase. This may be accomplished by testing in an alternate system lineup (e.g., RCS recirculation) and verifying equivalent flow rates by calculation, as long as the affected portion of the flowpath is in the tested flowpath.

Decay Heat Removal System valves DH-11 and DH-12 are located in an area that would be flooded following a LOCA. These valves are located in a watertight enclosure to ensure their functionality up to seven days following a LOCA. Verification Requirements are provided to verify the acceptable leak tightness of this enclosure. An inspection port is located on this watertight enclosure, which is typically used for performing inspections inside the enclosure. During the vacuum leakage rate test, the inspection port is in a closed position and subject to the test. This inspection port may be subsequently opened for use in viewing inside the enclosure. Opening this inspection port will not require performance of the vacuum leakage rate test because of the design of the closure fitting, which will preclude leakage under LOCA conditions, when properly installed. Proper installation includes independent verification.

8.5 EMERGENCY CORE COOLING SYSTEMS

8.5.2 ECCS Subsystems - Shutdown

TECHNICAL NORMAL CONDITIONS

TNC 8.5.2 The requirements of TVR 8.5.2.1 and 8.5.2.2 shall be performed.

APPLICABILITY: MODE 4.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. TNC 8.5.2 not met.	A.1 Comply with the applicable ACTIONS of Technical Specification 3.5.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.5.2.1	---------------------------------NOTE-------------------------------- Only the subsystem(s) directly affected by the flowpath modification needs to be tested in accordance with this Verification Requirement. --- Each LPI ECCS subsystem shall be demonstrated OPERABLE by performing a flow test, during shutdown, to verify the injection phase flow rate meets or exceeds the LOCA requirements.	Following completion of a modification to the subsystem flowpath that could alter the subsystem flow characteristics

TECHNICAL VERIFICATION REQUIREMENTS (continued)

TVR	VERIFICATION	FREQUENCY
8.5.2.2	--------------------------------NOTE-------------------------------- The inspection port on the watertight enclosure may be opened without requiring performance of the vacuum leakage rate test, to perform inspections. After use, the inspection port must be verified as closed in its correct position. Provisions of TS 3.0.3 are not applicable during these inspections. -- Each LPI ECCS subsystem shall be demonstrated OPERABLE by performing a vacuum leakage rate test of the watertight enclosure for valves DH-11 and DH-12 that assures the motor operators on valves DH-11 and DH-12 will not be flooded for at least 7 days following a LOCA.	24 months <u>AND</u> After each opening of the watertight enclosure <u>AND</u> After any maintenance on or modification to the watertight enclosure which could affect its integrity

BASES

8.5.2 ECCS Subsystems - Shutdown

The verification requirement for flow testing provides assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to:
(1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, and (2) ensure an amount of ECCS flow that is equal to or greater than the flow assumed in the ECCS-LOCA analyses.

The frequency of Technical Verification Requirement 8.5.2.1 ensures that changes in system performance are detected and verified not to degrade the subsystem's ability to provide the flows that are required for accident mitigation. The LPI pumps are monitored in accordance with other surveillance requirements that specifically measure pump performance. Therefore, Technical Verification Requirement 8.5.2.1 does not apply to subsystem modifications that are limited to only the pumps.

The intent of Technical Verification Requirement 8.5.2.1 is to verify that the subsystem flow characteristics have not been unacceptably altered by modifications that could affect the resistance of the subsystem flowpath. Taken together, the pump surveillances and this verification ensure that the LOCA analyses remain valid.

Technical Verification Requirement 8.5.2.1 requires verification of flow rate for the injection phase. This may be accomplished by testing in an alternate system lineup (e.g., RCS recirculation) and verifying equivalent flow rates by calculation, as long as the affected portion of the flowpath is in the tested flowpath.

Decay Heat Removal System valves DH-11 and DH-12 are located in an area that would be flooded following a LOCA. These valves are located in a watertight enclosure to ensure their operability up to seven days following a LOCA. Verification Requirements are provided to verify the acceptable leak tightness of this enclosure. An inspection port is located on this watertight enclosure, which is typically used for performing inspections inside the enclosure. During the vacuum leakage rate test, the inspection port is in a closed position and subject to the test. This inspection port may be subsequently opened for use in viewing inside the enclosure. Opening this inspection port will not require performance of the vacuum leakage rate test because of the design of the closure fitting, which will preclude leakage under LOCA conditions, when properly installed. Proper installation includes independent verification.

8.5 EMERGENCY CORE COOLING SYSTEMS

8.5.3 Emergency Sump Debris

TECHNICAL NORMAL CONDITIONS

TNC 8.5.3 The requirements of TVR 8.5.3.1 and TVR 8.5.3.2 shall be met.

APPLICABILITY: MODES 1, 2, 3 and 4.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. TNC 8.5.3 not met.	A.1 Evaluate OPERABILITY of ECCS per Technical Specification 3.5.2 and 3.5.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.5.3.1	Perform a visual inspection of all accessible areas of the containment to verify that no loose debris (rags, trash, clothing, etc) is present in the containment which could be transported to the containment emergency sump and cause restriction of the pump suction during LOCA conditions.	Prior to establishing Containment OPERABILITY
8.5.3.2	Perform a visual inspection of all areas of containment affected by an entry to verify that no loose debris (rags, trash, clothing, etc) is present in the containment which could be transported to the containment emergency sump and cause restriction of the pump suction during LOCA conditions.	24 hours while work is ongoing <u>AND</u> During final exit after completion of work (containment closeout) when containment OPERABILITY is established

BASES

8.5.3 Emergency Sump Debris

None

8.6 CONTAINMENT SYSTEMS

8.6.1 Combustible Gas Control – Hydrogen Analyzers

TECHNICAL NORMAL CONDITIONS

TNC 8.6.1 Two independent containment hydrogen analyzers shall be FUNCTIONAL.

APPLICABILITY: MODES 1 and 2.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. One hydrogen analyzer Nonfunctional.	A.1	Restore the non-functional analyzer to FUNCTIONAL status.	30 days
B. Both hydrogen analyzers Nonfunctional.	B.1	Restore one analyzer to FUNCTIONAL status.	72 hours
C. Contingency Measures and associated Restoration Time of Nonconformance A or B not met.	C.1	Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.6.1.1	Perform a CHANNEL CHECK.	31 days
8.6.1.2	Perform a CHANNEL CALIBRATION using sample gases containing: a. 0 volume % hydrogen, balance nitrogen; and b. 2.0 to 3.0 volume % hydrogen, balance nitrogen.	46 days on a STAGGERED TEST BASIS

BASES

8.6.1 Combustible Gas Control – Hydrogen Analyzers

Two redundant hydrogen analyzers are available to determine the content of hydrogen within the containment vessel. The hydrogen analyzers provide diagnostic capability for beyond design-basis accidents.

A rule change to 10 CFR 50 dated September 16, 2003 (68 FR 54123) eliminated the requirement that the hydrogen analyzers be safety-related components, and allowed their requirements to be relocated from the Technical Specifications. Section III.D of the final rule (68 FR 54127) categorized the hydrogen monitoring system as “Category 3” of Regulatory Guide 1.97 because the monitors are required to diagnose the course of significant beyond design-basis accidents. Section III.D further stated that “Category 3” applies to high-quality, off-the-shelf backup and diagnostic instrumentation.

8.7 PLANT SYSTEMS

8.7.1 Steam Generator Pressure / Temperature Limitation

TECHNICAL NORMAL CONDITIONS

TNC 8.7.1 The temperature of the secondary coolant in the steam generators shall be > 110°F when the pressure of the secondary coolant in the steam generator is > 237 psig.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. Requirements of TNC not met.	A.1	Reduce the steam generator pressure of the applicable side to $\leq$ 237 psig.	30 minutes
	AND		
	A.2	Determine by engineering evaluation the effects of the overpressurization on the structural integrity of the steam generator and that the steam generator remains acceptable for continued operation.	Prior to increasing steam generator pressure > 237 psig

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.7.1.1	--------------------------------NOTE-------------------------------- Only required when the secondary pressure in the steam generator is > 237 psig and T_{avg} is < 200°F -- Verify temperature of secondary coolant in each steam generator is > 110°F.	1 hour

BASES

8.7.1 Steam Generator Pressure / Temperature Limitation

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 110°F and 237 psig are based on a steam generator RT_{ndt} of 40°F and are sufficient to prevent brittle fracture.

8.7 PLANT SYSTEMS

8.7.2 Sealed Source Contamination

TECHNICAL NORMAL CONDITIONS

TNC 8.7.2 Each sealed source containing radioactive material > 100 μCi of beta and/or gamma emitting material or > 5 μCi of alpha emitting material, shall be free of $\geq$ 0.005 μCi of removable contamination.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

-----NOTE-----
Separate Nonconformance entry is allowed for each sealed source.

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. One or more sealed sources with removable contamination not within limits.	A.1	Withdraw the sealed source from use.	Immediately
	AND		
	A.2.1	Initiate action to decontaminate and repair the sealed source.	Immediately
	OR		
	A.2.2	Initiate action to dispose of the sealed source in accordance with NRC Regulations.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

---NOTES---

1. The TVRs shall be performed by FENOC personnel or other personnel specifically authorized by the NRC or Agreement State.

2. The test method used shall have a detection sensitivity of $\leq$ 0.005 μCi per test sample.

TVR	VERIFICATION	FREQUENCY
8.7.2.1	--------------------------------NOTE-------------------------------- Startup sources and fission detectors previously subjected to core flux are excluded. -- Perform leakage and contamination testing on each sealed source in use containing radioactive materials with a half-life > 30 days (excluding Hydrogen 3) and in any form other than gas.	184 days
8.7.2.2	Perform leakage and contamination testing for each sealed source and fission detector not in use.	Prior to placing in use or transferring to another licensee, if not performed within the previous 184 days
8.7.2.3	Perform leakage and contamination testing on each sealed source and fission detector not in use that was received without a certificate indicating the last test date.	Prior to placing in use
8.7.2.4	Perform leakage and contamination testing on each sealed startup source and fission detector.	Once within 31 days prior to being subjected to core flux or installed in the core <u>AND</u> Following repair or maintenance to the sealed source
8.7.2.5	Submit report to NRC for sealed source or fission detector leakage tests revealing the presence of ≥ 0.005 μCi of removable contamination.	12 months

BASES

8.7.2 Sealed Source Contamination

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, are based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from by-product, source and special nuclear material sources will not exceed allowable intake values.

8.7 PLANT SYSTEMS

8.7.3 Snubbers

TECHNICAL NORMAL CONDITIONS

TNC 8.7.3 Each safety related snubber shall perform its associated support function(s).

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

CONTINGENCY MEASURES

---NOTE---

Separate entry is allowed for each snubber.

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. One or more required snubbers unable to perform their associated support function.	A.1 Declare the supported system or train LCO(s) not met.	Immediately
	<u>OR</u>	
	A.2.1 Enter LCO 3.0.8.	Immediately
	<u>AND</u>	
	A.2.2 Verify at least one train (or subsystem) of systems supported by the inoperable snubbers would remain capable of performing their required safety or support function for postulated design loads other than seismic loads.	Immediately
	<u>AND</u>	

CONTINGENCY MEASURES (continued)

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. (continued)	A.2.3 ---------NOTE------------------ Only applicable if LCO 3.0.8.a is used in MODES 1,2,3 or 4. ------------------------------------	
	Verify at least one EFW train not associated with the inoperable snubber is available.	Immediately
	AND	
	A.2.4 ---------NOTE------------------ Only applicable if LCO 3.0.8.b is used in MODES 1,2,3 or 4. ------------------------------------	
	Verify at least one EFW train not associated with the inoperable snubber(s), or some alternative means of core cooling is available.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.7.3.1	Perform snubber inservice inspections in accordance to Inservice Testing Program.	In accordance with Table 8.7.3-1

Table 8.7.3-1 (page 1 of 4)
Snubber Inservice Testing Program

Safety-related snubbers are listed in the latest revision of applicable verification test procedure(s). Snubbers may be added to, or removed from, safety-related systems and their assigned groups without a License Amendment.

In accordance with 10 CFR 50.55a(b)(3)(v)B with Conditions and Clarifications – the snubber population, as defined in ASME OM Code, 2004 Edition with OMa 2005 and OMb 2006 Addenda, Section IST, Subsection ISTA, article ISTA-1100(c) – complies with the requirements for Examination and Testing of the ASME OM Code, 2004 Edition with OMa-2006 and OMb-2006 Addenda, Section IST, Subsections ISTA and ISTD. The Snubber IST Program complies with the requirements set forth in the Snubber Program Plan and the Snubber Program Procedure.

A. <u>Visual Inspection Program</u>

1. General Requirements

   At least once per inspection interval, each group of snubbers in use in the plant shall be visually inspected in accordance with Section A.2 and A.3. Visual inspections may be performed with binoculars, or other visual support devices, for those snubbers that are difficult to access and where required to keep exposure as low as reasonably achievable. Response to failures shall be in accordance with Section A.4.

2. Inspection Interval

   The inspection interval may be applied on the basis of snubber groups. The snubber groups may be established based on physical characteristics and accessibility. Inaccessible snubbers are defined as those located: (a) inside containment, (b) in high radiation exposure zones, or (c) in areas where accessibility is limited by physical constraints such as the need for scaffolding.

   Each of the groups may be inspected independently according to the schedule determined by ASME OM Code, ISTD Table 4252-1, Visual Examination Table, not to exceed 48 months.

3. Acceptance Criteria

   A snubber shall be considered able to perform its associated support function as a result of visual inspection if: (1) there is no visible indication of damage or inoperability, and (2) attachments to the foundation or supporting structure are secure.

Table 8.7.3-1 (page 2 of 4)
Snubber Inservice Testing Program

4. Response to Failures

   For each snubber unit which does not meet the visual inspection acceptance criteria of Section A.3:

   a. Determine the snubber is able to perform its associated support function by functionally testing the snubber in the as-found condition per Section B, unless the (hydraulic) snubber was determined Nonfunctional because the fluid port was found uncovered; <u>and</u>

   b. Perform an evaluation to determine the cause of the unacceptability.

5. Transient Event Inspection

   An inspection shall be performed of all hydraulic and mechanical snubbers attached to sections of systems that have experienced unexpected, potentially damaging transients as determined from a review of operational data. The affected snubber(s) and system(s) shall be reviewed and any appropriate corrective action taken. In addition to satisfying the visual inspection acceptance criteria, freedom-of-motion of mechanical snubbers shall be verified using at least one of the following: (1) manually induced snubber movement; or (2) evaluation of in-place snubber piston setting; or (3) stroking the mechanical snubber through its full range of travel.

Table 8.7.3-1 (page 3 of 4)
Snubber Inservice Testing Program

B. Functional Test Program

1. General Requirements

   At least once per inspection interval, a representative sample of each group of snubbers in use in the plant shall be functionally tested in accordance with Section B.2 and B.3. Response to the failures shall be in accordance with Section B.4.

   For all snubbers, functional testing shall consist of either bench testing or in-place testing.

2. Inspection Interval and Sample Criteria

   The snubbers may be categorized into groups based on physical characteristics and accessibility. Each group may be tested independently from the standpoint of performing additional tests if failures are discovered. The snubbers (if any) attached to the Steam Generators and Reactor Coolant Pumps shall be considered their own group.

   The inspection interval for functional testing shall be every fuel cycle, and may not begin any earlier than 60 days before a scheduled refueling outage.

   Snubbers which are scheduled for removal for seal maintenance may be included in the test sample prior to any maintenance on the snubber.

   The representative sample shall consist of at least 10 percent (rounded off to next highest integer) of each group of snubbers in use in the Plant.

3. Acceptance Criteria

   For hydraulic snubbers (either inplace testing or bench testing), the test shall verify that:

   a. Snubber piston will allow the hydraulic fluid to "bypass" from one side of the piston to the other to assure unrestrained action is achieved within the specified range of velocity or acceleration in both tension and compression.

   b. When the snubber is subjected to a movement which creates a load condition that exceeds the specified range of velocity or acceleration, the hydraulic fluid is trapped in one end of the snubber causing suppression of that movement.

   c. Snubber release rate or bleed rate, where required, occurs in compression and tension.

Table 8.7.3-1 (page 4 of 4)
Snubber Inservice Testing Program

For mechanical snubber in place and bench testing, the test shall verify that:

a. The force that initiates free movement of the snubber rod in either tension or compression is less than the specified maximum drag force.

b. Activation (restraining action) is achieved in both tension and compression within the specified range.

4. Response to Failures

For each snubber failure per Section B.3:

a. Declare the supported system or train LCO(s) not met or enter Tech Spec 3.0.8 and TNC 8.7.3; and

b. Within the specified inspection interval, functionally test an additional sample of at least 5 percent of the snubber units from the group that the Nonfunctional snubber unit is in.

The functional testing of an additional sample of at least 5 percent from the Nonfunctional snubber's group is required for each snubber unit determined to be Nonfunctional in subsequent functional tests, or until all snubbers in that group have been tested; and

d. The cause of the snubber failure will be evaluated and, if caused by a manufacturing or design deficiency, all snubbers of the same or similar design subject to the same defect shall be functionally tested within the current inspection interval.

BASES

8.7.3 Snubbers

The following basis has been left largely intact as a historical reference that also complies with the current ASME OM Code snubber requirements. The historical snubber bases for Davis-Besse has been based in the Technical Specifications and/or Technical Requirements manual under approved relief requests. The 4th 10 year Interval for Inservice Inspection (ISI) and Inservice Testing (IST) began on September 21st, 2012 and will expire on September 20th, 2022. During this time interval, the snubber program will comply with all requirements of the 2004 edition of the ASME OM Code with the 2005 OMa and 2006 OMb Addenda. This requires a Snubber Program Plan and Snubber Program Procedure. Both of these documents are available in the document management system and contain the additional detail for implementatioin of the Davis-Besse Snubber Program in accordance with the ASME OM Code.

All safety-related snubbers are required to meet their associated support function(s) to ensure the structural integrity of the reactor coolant system and all other safety-related systems is maintained during and following a dynamic event. Snubbers excluded from this inspection program are those installed on safety-related systems for loads other than dynamic or on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety related system during a dynamic event.

A Nonfuntional Snubber is defined as:

1. For Visual test

   a. The fluid no longer is supplied to the valve block, or

   b Mounting pins are disengaged from the snubber.

   c. Attachment to foundation or supporting structure is not secure.

2. For Functional test:

   a. The snubber (excluding and anchors, i.e., pin-to-pin) does not meet specified test criteria.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval is determined by the number of nonfunctional snubbers found during and inspection, the total population or group size for each snubber type, and the previous inspection interval. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified by functional testing, that snubber may be exempted from being counted as nonfunctional.

BASES

8.7.3 Snubbers (Con’t)

When a snubber is found not meeting its associated support function through a visual inspection or functional test, entry into Tech Spec 3.0.8 and TNC 8.7.3 is required and an engineering evaluation is performed as part of the Corrective Action Program response, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the nonfunctional snubber.

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested every fuel cycle. Observed failures of these sample snubbers shall require functional testing of additional units. When a snubber is found not meeting its associated support function due to failure to lock up or failure to move (i.e., frozen in place), the cause will be evaluated for further action or testing.

In cases where the case of failure has been identified, additional snubbers that have a high probability for the same type of failure or are being used in the same application that caused the failure shall be tested. This requirement increases the probability of locating snubbers not meeting its associated support function without testing 100% of the snubbers.

Hydraulic snubbers and mechanical snubbers may each be treated as a different entity for the above programs.

Contingency Measures A.2.2, A.2.3, and A.2.4 are described below. Those verifications are required to satisfy regulatory commitment O21964.

Every time the provisions of LCO 3.0.8 are used, verification of at least one train (or subsystem) of systems supported by the inoperable snubbers would remain capable of performing their required safety or support functions for postulated design loads other than seismic loads is required. LCO 3.0.8 does not apply to non-seismic snubbers. In addition, a record of the design function of the inoperable snubber (i.e., seismic vs. non-seismic), implementation of any restrictions, and the associated plant configuration shall be available on a recoverable basis for NRC inspection.

When LCO 3.0.8.a is used in MODES 1,2,3 or 4, at least one EFW train (including a minimum set of supporting equipment required for its successful operation) not associated with the inoperable snubber(s), must be available.

When LCO 3.0.8.b is used in MODES 1,2,3 or 4, at least one EFW train (including a minimum set of supporting equipment required for its successful operation) not associated with the inoperable snubber(s), or some alternative means of core cooling (e.g., feed and bleed, fire water system or "aggressive secondary cooldown" using the steam generators) must be available.

8.7 PLANT SYSTEMS

8.7.4 Liquid Storage Tanks

TECHNICAL NORMAL CONDITIONS

TNC 8.7.4 The quantity of radioactivity contained in each outdoor liquid storage tank that is not surrounded by liners, dikes, or walls, capable of holding the tank contents and that does not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System, shall be within the limit of Technical Specification 5.5.11.b.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

-----NOTE-----
Separate Nonconformance entry is allowed for each unprotected outdoor liquid storage tank.

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. The quantity of radioactivity contained in any unprotected outdoor liquid storage tank not within limit.	A.1	Suspend addition of radioactive material to the tank.	Immediately
	<u>AND</u>		
	A.2	Reduce tank contents to within the limit.	48 hours
	<u>AND</u>		
	A.3	Describe the event leading to this condition.	In the next Radioactive Effluent Release Report

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.7.4.1	Verify the quantity of radioactivity contained in each unprotected outdoor liquid storage tank is within the limit by analyzing a representative sample of the tank contents.	7 days when radioactive materials are being added to the tank

BASES

8.7.4 Liquid Storage Tanks

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tank contents, the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area.

8.7 PLANT SYSTEMS

8.7.5 Explosive Gas Mixture

TECHNICAL NORMAL CONDITIONS

TNC 8.7.5 The concentration of oxygen in the Waste Gas System shall be limited to ≤ 2% by volume when the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. Oxygen concentration in the Waste Gas System > 2% by volume and ≤ 4% by volume.	A.1	Reduce Waste Gas System oxygen concentration to within the limit.	48 hours
B. Contingency Measure and associated Restoration Time of Nonconformance A not met. <u>OR</u> Oxygen concentration contained in the waste gas system is > 4% by volume, and Hydrogen is > 4% by volume.	B.1	Suspend additions of waste gases to the system.	Immediately
	<u>AND</u>		
	B.2	Initiate action to reduce the oxygen concentration to ≤ 2% by volume.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.7.5.1	Verify the oxygen concentration contained in the Waste Gas System is within the limit by monitoring the waste gases in the Waste Gas System.	Continuously

BASES

8.7.5 Explosive Gas Mixture

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas system is maintained below the flammability limits of hydrogen with oxygen. Maintaining the concentration of hydrogen or oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

TVR 8.7.5.1, which requires continuous monitoring of the Waste Gas System, is performed by the instrumentation covered in TNC 8.3.6, Waste Gas System Oxygen Monitoring. The contingency measures in TNC 8.3.6 address loss of monitoring.

8.7 PLANT SYSTEMS

8.7.6 Auxiliary Feedwater System

TECHNICAL NORMAL CONDITIONS

TNC 8.7.6 The following Auxiliary Feedwater System features shall be FUNCTIONAL or in the required condition:

a. Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks;

b. Auxiliary Feed Pump Suction Pressure Interlocks; and

c. CW 196, CW 197, FW 32, FW 91, and FW 106 in the closed position.

APPLICABILITY: MODES 1, 2, and 3.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlock Nonfunctional.	A.1	Restore Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlock to FUNCTIONAL status.	7 days
B. Contingency Measure and associated Restoration Time of Nonconformance A not met.	B.1	Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately
C. TNC 8.7.6 not met for reasons other than Nonconformance A.	C.1	Evaluate OPERABILITY of associated AFW train per Technical Specification 3.7.5.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.7.6.1	Not Used	
8.7.6.2	----------------------------NOTE-------------------------------- Not required to be performed until 24 hours after steam line pressure is > 275 psig. --- Perform CHANNEL FUNCTIONAL TEST on the Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlock.	 31 days
8.7.6.3	Perform CHANNEL FUNCTIONAL TEST on the Auxiliary Feed Pump Suction Pressure Interlocks.	31 days
8.7.6.4	Not Used	
8.7.6.5	Verify valves CW 196, CW 197, FW 32, FW 91, and FW 106 are in the closed position.	31 days
8.7.6.6	Perform CHANNEL CALIBRATION on the Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks.	24 months
8.7.6.7	Perform CHANNEL CALIBRATION on the Auxiliary Feed Pump Low Suction Pressure Interlocks.	12 months
8.7.6.8	Perform CHANNEL CALIBRATION on the Auxiliary Feed Pump Low-Low Suction Pressure Interlocks.	24 months

BASES

8.7.6 Auxiliary Feedwater System

Verification of the turbine plant cooling water valves (CW 196 and CW 197), the startup feedwater pump suction valves (FW 32 and FW 91), and the startup feedwater pump discharge valve (FW 106) in the closed position is required to address the concerns associated with potential pipe failures in the auxiliary feedwater pump rooms, that could occur during operation of the startup feedwater pump.

The FUNCTIONALITY of the Auxiliary Feed Pump Turbine Inlet Steam Pressure Interlocks is required only for high energy line break concerns and does not affect Auxiliary Feedwater System OPERABILITY. However, an additional feature is provided for the Train 2 interlocks. A separate relay prevents actuation of the Train 2 interlocks until after a 25 second time delay. This feature provides protection for the specific scenario of a steam line break on OTSG 1, concurrent with a loss of offsite power and a single failure of AFP 1. Failure of this time delay relay (a non Tech Spec support feature) should be addressed under Nonconformance C (Ref. 1).

The Service Water System is the safety-related secondary source of the water and must be available for the associated Auxiliary Feedwater System train to be OPERABLE. The transfer is initiated upon detection of a low suction pressure at the suction of the auxiliary feedwater pumps by suction pressure interlock switches. These pressure switches, upon sensing low suction pressure, will automatically transfer the suction of the auxiliary feedwater pumps to the Service Water System. On a sustained low-low suction pressure, additional Auxiliary Feedwater Pump Suction Pressure Interlocks will operate to close the steam supply valves to protect the turbine driven auxiliary feedwater pumps from cavitation. Both the low and the low-low suction Auxiliary Feed Pump Suction Pressure Interlocks are non Tech Spec support features that are required for OPERABILITY of the associated auxiliary feedwater train.

REFERENCES

1. UFSAR, Section 9.2.7.3

8.7 PLANT SYSTEMS

8.7.7 Motor Driven Feedwater Pump (MDFP) Lube Oil Interlocks

TECHNICAL NORMAL CONDITIONS

TNC 8.7.7 The requirements of TVR 8.7.7.1 shall be performed.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. TNC 8.7.7.1 not met.	A.1 Evaluate OPERABILITY of MDFP train per Technical Specification 3.7.5.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.7.7.1	Verify proper operation of the Motor Driven Feedwater Pump lube oil interlocks.	24 months

BASES

8.7.7 None

8.8 ELECTRICAL POWER SYSTEMS

8.8.1 AC Sources - Operating

TECHNICAL NORMAL CONDITIONS

TNC 8.8.1 a. The requirements of TVR 8.8.1.1 and TVR 8.8.1.2 shall be performed.

AND

b. The switchyard shall not be in a single point vulnerable configuration.

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

CONTINGENCY MEASURES

Nonconformance	Contingency Measures	Restoration Time
A. TVR 8.8.1.1 or TVR 8.8.1.2 not met.	A.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately
	AND	
	A.2 Evaluate EDG(s) for OPERABILITY requirements of Technical Specification 3.8.1.	Immediately
B. Switchyard in a single point vulnerable configuration.	B.1 Enter Technical Specification 3.8.1 Condition for one inoperable offsite circuit.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.8.1.1	For each EDG verify that the auto-connected loads do not exceed the 2000 hour rating of 2838 kw.	24 months
8.8.1.2	For each EDG, perform inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations.	------------NOTE----------- Extension allowance per TRM 6.4 is not allowed. ------------------------------- 30 months

BASES

8.8.1 AC Sources - Operating

Technical Verification Requirement 8.8.1.1 ensures that the emergency diesel generators are capable of supplying all automatically connected loads.

NRC Log Number 5668, dated May 31, 2000 provides guidance relative to the operability of the offsite A.C. electrical power sources. Switchyard equipment can be removed from service or switchyard breakers can be opened that leaves the remaining switchyard equipment vulnerable to a single point failure that would result in a loss of offsite power. These configurations do not satisfy GDC 17 requirements. In these cases, the switchyard is considered to be in a Vulnerable Configuration that does not satisfy TNC 8.8.1.b. TS 3.8.1 Condition A must be entered and the appropriate actions taken as specified.

Whenever switchyard components are out of service, the resulting configuration must be evaluated to determine if a vulnerable switchyard configuration exists. The 345 kV system operating procedure provides additional details.

8.8 ELECTRICAL POWER SYSTEMS

8.8.2 Station Blackout Diesel Generator (SBODG) Availability

TECHNICAL NORMAL CONDITIONS

TNC 8.8.2 The requirements of TVR 8.8.2.1 and TVR 8.8.2.2 shall be performed.

APPLICABILITY: MODES 1, 2, 3, and 4, with an emergency diesel generator (EDG) removed from service for preventive maintenance activities of greater than 72 hours.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. SBODG Nonfunctional.	A.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.8.2.1	Verify the SBODG is capable of connection to the essential bus associated with an emergency diesel generator removed from service for preventive maintenance.	8 hours prior to removing an emergency diesel generator from service for preventive maintenance of greater than 72 hours <u>AND</u> Once per 8 hours thereafter

TVR	VERIFICATION	FREQUENCY
8.8.2.2	Verify performance of SBODG test DB-SC-04271 within the previous 30 days.	8 hours prior to removing emergency diesel generator from service for preventive maintenance of greater than 72 hours

BASES

8.8.2 SBODG Availability

The Contingency Measures provide verification that the Alternate A. C. (AAC) power source, the Station Blackout Diesel Generator, is functional and capable of being connected to the safety bus associated with the inoperable Emergency Diesel Generator. These actions are consistent with the NRC criteria for ensuring that the probability of a core damage accident given a Station Blackout event is not significantly increased due to the performance of Emergency Diesel Generator preventive maintenance of greater than 72 hours during power operations. These actions are applicable only when an Emergency Diesel Generator becomes inoperable for the performance of preventive maintenance. (Reference NRC Safety Evaluation for License Amendment 206, dated February 26, 1996)

8.9 REFUELING OPERATIONS

8.9.1 Communications

TECHNICAL NORMAL CONDITIONS

TNC 8.9.1	Direct communications shall be maintained between the control room and personnel at the refueling station.

APPLICABILITY: During movement of irradiated fuel assemblies in containment.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. Direct communications between the control room and personnel at the refueling station not maintained.	A.1 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.9.1.1	Verify direct communications between the control room and personnel at the refueling station.	1 hour prior to the start of movement of irradiated fuel assemblies in containment <u>AND</u> Once per 12 hours thereafter

BASES

8.9.1 Communications

The requirements for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during movement of irradiated fuel assemblies in containment.

8.9 REFUELING OPERATIONS

8.9.2 Crane Travel – Fuel Handling Building

TECHNICAL NORMAL CONDITIONS

TNC 8.9.2	Loads > 2430 pounds shall be prohibited from travel over fuel assemblies in the spent fuel pool.

APPLICABILITY: With fuel assemblies in the spent fuel pool.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. TNC 8.9.2 not met.	A.1 Place the crane load in a safe condition.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.9.2.1	Verify the weight of each load, other than a fuel assembly, is ≤ 2430 pounds.	Prior to moving each load over fuel assemblies in the spent fuel pool

BASES

8.9.2 Crane Travel – Fuel Handling Building

The restriction on movement of loads in excess of the nominal weight of a fuel assembly in a failed fuel container over other fuel assemblies in the spent fuel pool ensures that in the event this load is dropped (1) the activity release will not exceed the source term assumed in the design basis fuel handling accident for outside containment, and (2) any possible distortion of fuel in the storage racks will not result in a critical array.

8.9 REFUELING OPERATIONS

8.9.3 Spent Fuel Assembly Storage

TECHNICAL NORMAL CONDITIONS

TNC 8.9.3 The following limits apply to spent fuel assembly storage:

a. The heat generation rate of each spent fuel assembly stored in the spent fuel pool shall be ≤ 80,209 watts, and the heat generation rate per heat transfer surface area of assembly cladding shall be ≤ 445 watts/ft^2; and

b. The total decay heat load of stored spent fuel assemblies following a discharge of fuel assemblies to the spent fuel pool shall be ≤ 30.15 x 10^6 BTU/hr.

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

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES	RESTORATION TIME
A. A fuel assembly exceeding the heat generation rate limit or heat generation rate per heat transfer surface area limit is stored in the spent fuel pool.	A.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately
B. The total decay heat load of stored spent fuel assemblies following a discharge of fuel assemblies to the spent fuel pool exceeds the limit.	B.1 Initiate action to evaluate failure to meet TNC per TRM Section 7.3.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.9.3.1	Verify by administrative means that the fuel assembly heat generation rate and heat generation rate per heat transfer surface area are within limits.	Prior to storing the fuel assembly in the spent fuel pool
8.9.3.2	Verify by administrative means that the total decay heat load of stored spent fuel assemblies following a discharge of fuel assemblies to the spent fuel pool is within the limit.	Prior to discharging fuel assemblies to the spent fuel pool

BASES

8.9.3 Spent Fuel Assembly Storage

The restriction on the heat generation rate and the heat generation rate per heat transfer surface area of assembly cladding of each stored spent fuel assembly is consistent with the thermal-hydraulic analyses.

The restrictions on the total decay heat load of stored spent fuel assemblies are consistent with the thermal-hydraulic analyses.

8.9 REFUELING OPERATIONS

8.9.4 Fuel Handling Bridge

TECHNICAL NORMAL CONDITIONS

TNC 8.9.4 The control rod hoist and fuel assembly hoist of the fuel handling bridge shall be used for movement of control rods or fuel assemblies, and shall be FUNCTIONAL with:

a. The control rod hoist having:

1. A capacity of ≥ 3000 pounds; and

2. An overload cutoff limit of ≤ 2650 pounds.

b. The fuel assembly hoist having:

1. A capacity of ≥ 3000 pounds; and

2. An overload cutoff limit of ≤ 2700 pounds.

APPLICABILITY: During movement of control rods or fuel assemblies within the reactor pressure vessel.

CONTINGENCY MEASURES

NONCONFORMANCE	CONTINGENCY MEASURES		RESTORATION TIME
A. One or more hoists Nonfunctional.	A.1	Suspend use of any nonfunctional hoist from operations involving the movement of control rods or fuel assemblies within the reactor pressure vessel.	Immediately

TECHNICAL VERIFICATION REQUIREMENTS

TVR	VERIFICATION	FREQUENCY
8.9.4.1	For each control rod hoist used for movement of control rods or fuel assemblies within the reactor pressure vessel, perform a hoist load test of ≥ 3000 pounds and verify an automatic overload cutoff when the control rod hoist load exceeds 2650 pounds.	Once within 100 hours prior to start of movement of control rods or fuel assemblies within the reactor pressure vessel
8.9.4.2	For each fuel assembly hoist used for movement of control rods or fuel assemblies within the reactor pressure vessel, perform a hoist load test of ≥ 3000 pounds and verify an automatic overload cutoff when the fuel assembly hoist load exceeds 2700 pounds.	Once within 100 hours prior to start of movement of control rods or fuel assemblies within the reactor pressure vessel

BASES

8.9.4 Fuel Handling Bridge

The FUNCTIONALITY requirements of the hoist bridges used for movement of fuel assemblies ensures that: 1) fuel handling bridges will be used for movement of control rods and fuel assemblies, 2) each hoist has sufficient load capacity to lift a fuel element, and 3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

10.0 ADMINISTRATIVE CONTROLS

10.2 ORGANIZATION

10.2.1 Facility Staff

Each on duty shift shall be composed of at least the following minimum shift crew composition:

LICENSE CATEGORY	APPLICABLE MODES	
	1, 2, 3, and 4	5 and 6
Senior Operating License	2	1(1)
Shift Technical Advisor	1	
Operating License	2	1

(1) Does not include the licensed Senior Operator or Senior Operator Limited to Fuel Handling.

10.0 ADMINISTRATIVE CONTROLS

10.4 PROCEDURES

10.4.1 Process Control Program Procedures

Written procedures shall be established, implemented and maintained covering process control program activities.

10.0 ADMINISTRATIVE CONTROLS

10.5 PROGRAMS AND MAUAL

10.5.1 Process Control Program (PCP) Changes

a. Changes to the PCP shall be documented, and records of reviews performed, shall be retained as required by the USAR, Chapter 17, "Quality Assurance Program". This documentation shall contain:

   1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s); and

   2. A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.

b. Changes to the PCP shall become effective after review and acceptance by the PORC and the approval of the plant manager.

10.0 ADMINISTRATIVE CONTROLS

10.5 PROGRAMS AND MANUALS

10.5.2 In-Plant Radiation Monitoring

A program shall be provided which will ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:

1. Training of personnel;
2. Procedures for monitoring; and
3. Provisions for maintenance of sampling and analysis equipment.

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

Technical Requirements Manual Section 10.6, Reporting Requirements has been developed to provide a central location for various Technical Specification reports. These reports are not controlled or revised under the change process for the Technical Requirements Manual. The documents contained in Section 10.6 are revised and issued as required by Technical Specification Section 5.6.

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

10.6.1 Annual Radiological Environmental Operating Report

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

10.6.2 Radioactive Effluent Release Report

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

10.6.3 Core Operating Limits Report (COLR)

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

10.6.4 Reactor Coolant System (RCS) Pressure and Temperature Limits Report (PTLR)

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

10.6.5 Post Accident Monitoring Report

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

10.6.6 Steam Generator Tube Inspection Report

10.0 ADMINISTRATIVE CONTROLS

10.6 REPORTING REQUIREMENTS

10.6.7 Remote Shutdown System Report

Table A-1 (page 1 of 1)
Access Openings Required to be Closed to Ensure Shield Building Area Negative Pressure Boundary is Intact (as required by Technical Specification 3.7.12)

Air Tight Doors

Door No.	Description	Elevation (ft)
100	Access Door from the No. 1 ECCS Pump Room (Room 105) to Pipe Tunnel 101	545
104A	Access Door from Stair AB-3 to the No.1 ECCS Pump Room (Room 105)	555
105	Access Door from Passge 110A to the area above the Decay Heat Coolers	555
107	Access Door from the No.2 ECCS Pump Room (Room 115) to the Miscellaneous Waste Monitor Tank and Pump Room (Room114)	555
108	Access Door from the No.2 ECCS Pump Room (Room 115) to the Detergent Waste Drain Tank and Pump Room (Room 125)	565
201-A	Access Door from Corridor 209 to the No.1 Mechanical Penetration Room (Room 208)	565
204	Access Door from Passage 227 to the Makeup Pump Room (Room 225)	565
205	Access Door from Passage 227 to the No.2 Mechanical Penetration Room (Room 236)	565
307	Access Door from Corridor 304 to the No.3 Mechanical Penetration Room (Room 303)	585
308	Access Door from Corridor 304 to the No.4 Mechanical Penetration Room (Room 314)	585

Blowout Panels

Total No.	Location	Elevation (ft)
1	No. 2 Mechanical Penetration Room (Room 236)	565
6	No. 3 Mechanical Penetration Room (Room 303)	585
6	No. 4 Mechanical Penetration Room (Room 314)	585