Arkansas Nuclear One - Administrative Services
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Thursday, April 24, 2003

Document Update Notification

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ADDRESS:	**OS-DOCUMENT CONTROL, WASHINGTON, D.C. 20555**
DOCUMENT NO:	**TRM-U2**
TITLE:	**TECHNICAL REQUIREMENTS MANUAL (UNIT 2)**
CHANGE NO:	**012-R1**
ADDITIONAL INFO:	***RE-DISTRIBUTION OF ENTIRE TRM-U2***

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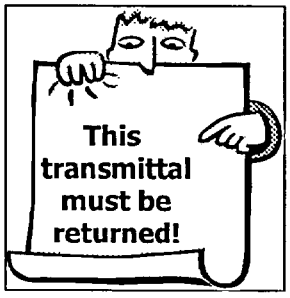

☐ *ANO-1 Docket 50-313*

☐ *ANO-2 Docket 50-368*

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TECHNICAL REQUIREMENTS MANUAL REVISION na

ARKANSAS NUCLEAR ONE, UNIT NO 2

Replace the following pages of the associated Technical Requirements Manual with the attached pages. This is a **RE-ISSUE ONLY** and does not change the technical content of the TRM.

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	ALL	ALL
Technical Requirements Pages		
	ALL	ALL

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1.0 USE AND APPLICATIONS

1.0.1 Introduction

Based on the NRC's Final Policy Statement on Technical Specification Improvements for nuclear power plants, and 10 CFR 50.36, certain requirements may be relocated from the Technical Specifications (TS) to other licensee controlled documents (SAR, ODCM, administrative procedures). The Technical Requirements Manual (TRM) has been developed in an effort to centralize the requirements relocated from the TS and to ensure the necessary administrative controls are applied to these requirements.

The TRM is intended for use as an operator aid that provides a central location for relocated items in a TS format. The individual TRM specifications are called Technical Requirements (TRs) and may be written in the current or standard TS format. In addition to the TS numbering and format for relocated items, the TRM provides a reference to the TS when appropriate to assist the user in connecting the relocated information to the applicable TS. Some of the information in the TRM may also be duplicated in other ANO documents, such as, the SAR, ODCM, or Fire Protection Program.

1.0.2 TRM Format

The TRM format is sectioned and numbered similar to the TS. The TRs relocated from the TS will retain the same numbering as when they were in the TS, where possible. Maintaining the same numbering system will minimize unnecessary burden and reduce the probability of error produced by the relocation process. This system minimizes procedure changes necessary for the relocation and allows the TRM users a similar numbering system that they are already familiar with. However, this format produces a TRM without a sequenced numbering system for the TRs and the associated sections. An example of this condition would be in the instrumentation section where TR 3.3.3.3 is found without a preceding TR 3.3.3.2. The page numbering in the TRM is sequential. An example of this would be the first page in the 3.3 section (TR 3.3.3.3) is 3.3-1. The index can be reviewed if there are any questions regarding the TR numbering and their associated page numbers.

1.0.3 Regulatory Status and Requirements

The requirements in the TRM are considered as part of the licensing basis (a part of the SAR) and are to be treated as such. Failure to comply with a TR should be evaluated in accordance with the ANO corrective action program. These deviations from the TRM will be reviewed for operability and reportability in accordance with the applicable administrative procedures and regulatory requirements.

These controls are necessary because the purpose of relocating the requirements from TS is not to reduce the level of control on these items. The purpose of relocating the requirements is to provide the flexibility for their modification without requiring a TS change.

1.0.4 Changes to the TRM

Design modifications, procedure changes, license amendments, etc. have the potential to affect the TRM. If this occurs, the initiating department should complete a License Based Document Change form for submitting changes to the TRM. TRM changes are subject to the requirements of 10 CFR 50.59 due to the TRM being considered a part of the SAR and therefore a licensing basis document. Changes to the TRM will be issued on a replacement page basis to controlled document holders following approval of the change in accordance with site procedures on document control.

1.0.5 NRC Reporting of TRM Revisions

Like the SAR, changes to the TRM are controlled under 10 CFR 50.59 and therefore do not require prior NRC approval unless the change involves a change to the TS or the need for a license amendment in accordance with 10 CFR 50.59 is required. The most recent revision of the TRM will be sent to the NRC as part of the periodic SAR update process.

1.0.6 TS Applicability to the TRM

The TRM may reference a TS LCO or Surveillance Requirement (SR) that applies to the relocated information. All TRM references to the TS will be preceded by "TS or Technical Specification" and then the associated specification number. The 3.0 and 4.0 sections of the TS and their associated bases are applicable to the TRM. Any exemptions to the associated TS section 3.0 and 4.0 requirements will be listed in the associated TR. The defined terms in TS section 1.0 are also applicable to the TRM.

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR TRIP SETPOINTS

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

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

ACTION:

With a reactor protective instrumentation setpoint less conservative than the value shown in the Allowable Values column of TRM Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of TRM Specification 3.3.1.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
Steam Generator Level – High	≤ 85.8% (1)	≤ 86.5% (1)

TABLE NOTATION

(1) % of the distance between steam generator upper and lower narrow range level instrument nozzles.

2.2.1 Steam Generator Level - High

The Steam Generator Level – High trip is provided to protect the turbine from excessive moisture carry over. Since the turbine is automatically tripped when the reactor is tripped, this trip provides a reliable means for providing protection to the turbine from excessive moisture carry over. This trip's setpoint does not correspond to a Safety Limit and no credit was taken in the accident analyses for operation of the trip.

FLOW PATHS – SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.1 As a minimum, one of the following boron injection flow paths shall be OPERABLE:

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

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

APPLICABILITY: MODES 5 and 6.

ACTION:

With none of the above flow paths OPERABLE, suspend all operations involving CORE ALTERATIONS or operations that could introduce into the RCS, coolant with boron concentration less than required by Technical Specification 3.1.1.2 or 3.9.1 as applicable until at least one injection path is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the temperature of the flow path from the discharge of the boric acid makeup tank to the suction of the charging pump is above 55°F when a flow path from the boric acid makeup tanks is used.

b. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

FLOW PATHS – OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.2 The following boron injection flow paths shall be OPERABLE, depending on the volume available in the boric acid makeup Tanks.

a. If the contents of ONE boric acid makeup tank meet the volume requirements of TRM Figure 3.1-1, two of the following three flow paths to the Reactor Coolant System shall be OPERABLE:

1. One flow path from the appropriate boric acid makeup tank via a boric acid makeup pump and a charging pump.

2. One flow path from the appropriate boric acid makeup tank via a gravity feed connection and a charging pump.

3. One flow path from the refueling water tank via a charging pump.

OR

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

1. One flow path from boric acid makeup tank A via a boric acid makeup pump and a charging pump.

2. One flow path from boric acid makeup tank B via a boric acid makeup pump and a charging pump.

3. One flow path from boric acid makeup tank A via a gravity feed connection and a charging pump.

4. One flow path from boric acid makeup tank B via a gravity feed connection and a charging pump.

5. One flow path from the refueling water tank via a charging pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one of the boron injection flow paths to the Reactor Coolant System required in (a) or (b) above inoperable, restore the inoperable flow path to the Reactor Coolant System to OPERABLE status within 72 hours. If not restored within 72 hours or with more than one required flow path inoperable, initiate a condition report to document the condition and determine any limitations for the continued operation of the plant.

4.1.2.2 The above required flow paths shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the temperature of the flow path from the discharge of the boric acid makeup tank(s) to the suction of the charging pumps is above 55°F.

b. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

c. At least once per 18 months during shutdown by verifying that each actuated valve in the flow path actuates to its correct position on a SIAS test signal.

CHARGING PUMPS – SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.3 At least one charging pump in the boron injection flow path required OPERABLE pursuant to TRM Specification 3.1.2.1 shall be OPERABLE and capable of being powered from an OPERABLE emergency bus.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no charging pump OPERABLE, suspend all operations involving CORE ALTERATIONS or operations that could introduce into the RCS, coolant with boron concentration less than required by Technical Specification 3.1.1.2 or 3.9.1 as applicable until at least one of the required pumps is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.3 No additional Surveillance Requirements other than those required by the Inservice Testing program.

CHARGING PUMPS – OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.4 At least two charging pumps shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With only one charging pump OPERABLE, restore at least two charging pumps to OPERABLE status within 72 hours. If not restored within 72 hours or with more than one of the required charging pumps inoperable, initiate a condition report to document the condition and determine any limitations for the continued operation of the plant.

SURVEILLANCE REQUIREMENTS

4.1.2.4 No additional Surveillance Requirements other than those required by Specification 4.0.5.

BORIC ACID MAKEUP PUMPS – SHUTDOWN

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODES 5 and 6.

ACTION:

With no boric acid makeup pump OPERABLE as required to complete the flow path of TRM Specification 3.1.2.1a, suspend all operations involving CORE ALTERATIONS or operations that could introduce into the RCS, coolant with boron concentration less than required by Technical Specification 3.1.1.2 or 3.9.1 as applicable until at least one boric acid makeup pump is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.5 No additional Surveillance Requirements other than those required by the Inservice Testing program.

BORIC ACID MAKEUP PUMPS – OPERATING

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one boric acid makeup pump required for the boron injection flow path(s) pursuant to TRM Specification 3.1.2.2 inoperable, restore the boric acid makeup pump to OPERABLE status within 72 hours. If not restored within 72 hours or with more than one boric acid makeup pump required in support of TRM Specification 3.1.2.2 inoperable, initiate a condition report to document the condition and determine any limitations for the continued operation of the plant.

SURVEILLANCE REQUIREMENTS

4.1.2.6 No additional Surveillance Requirements other than those required by Specification 4.0.5.

BORATED WATER SOURCES – SHUTDOWN

LIMITING CONDITION FOR OPERATION

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

a. One boric acid makeup tank with:

1. A minimum indicated tank level of 36%,
2. A boric acid concentration between 3.0 WT% and 3.5 WT%, and
3. A minimum solution temperature of 55°F.

b. The refueling water tank with:

1. A minimum indicated tank level of 7.5%,
2. A minimum boron concentration of 2500 ppm, and
3. A minimum solution temperature of 40°F.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no borated water sources OPERABLE, suspend all operations involving CORE ALTERATIONS or operations that could introduce into the RCS, coolant with boron concentration less than required by Technical Specification 3.1.1.2 or 3.9.1 as applicable until at least one borated water source is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

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

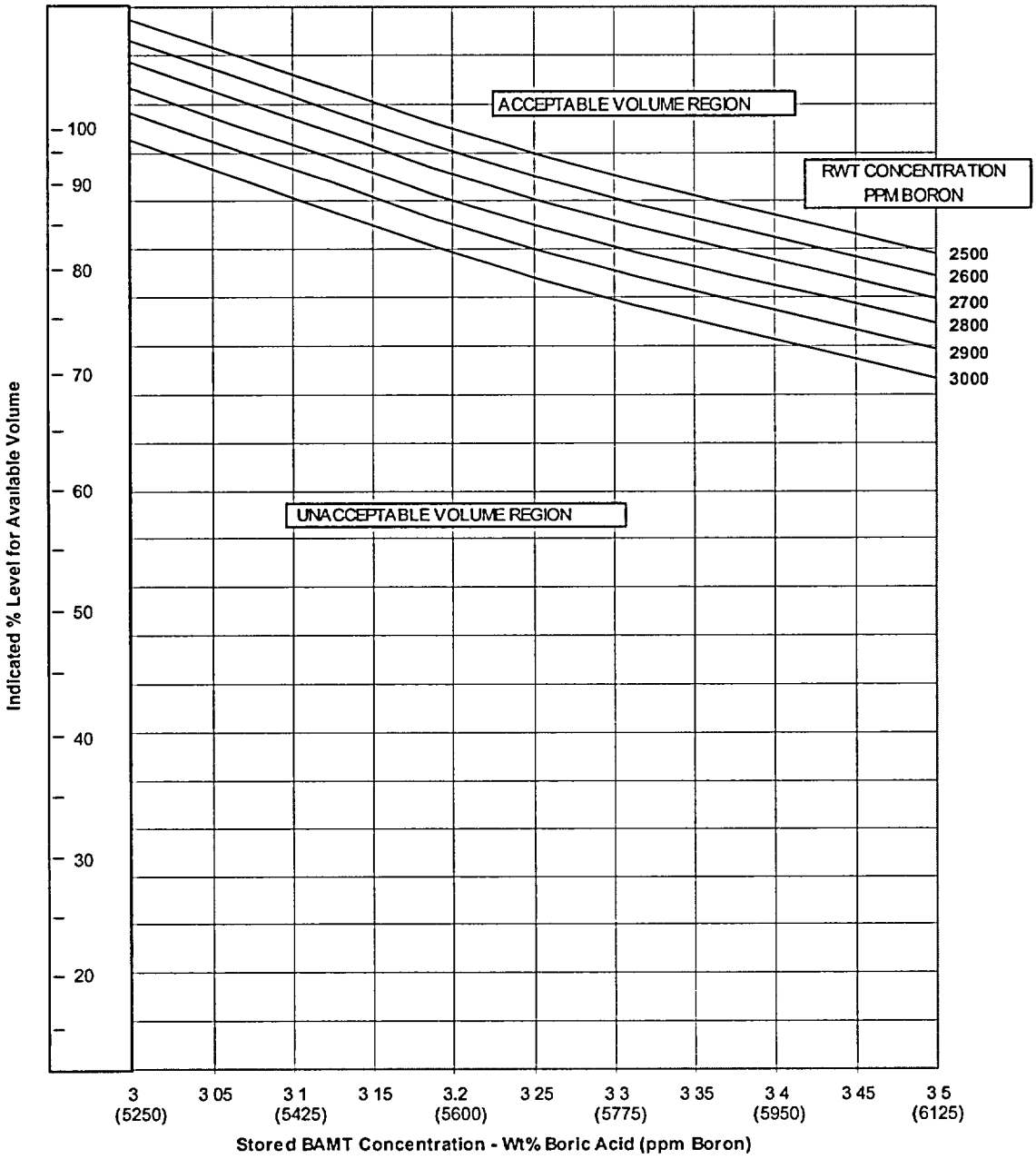
a. At least once per 7 days by:

1. Verifying the boron concentration of the water,
2. Verifying the contained borated water volume of the tank, and
3. Verifying the boric acid makeup tank solution temperature is greater than 55°F.

b. At least once per 24 hours by verifying the RWT temperature when it is the source of borated water and the outside air temperature is < 40°F.

Figure 3.1-1

Minimum Boric Acid Makeup Tank Volume as a Function of Stored BAMT Concentration and Refueling Water Storage Tank Concentration



BORATED WATER SOURCES – OPERATING

LIMITING CONDITION FOR OPERATION

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

a. At least one of the following sources with a minimum solution temperature of 55°F.

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

2. Two boric makeup tanks, with the combined contents of the tanks in accordance with TRM Figure 3.1-1, and

b. The refueling water tank with:

1. An indicated tank level of between 91.7% and 100%,

2. Between 2500 and 3000 ppm of boron,

3. A minimum solution temperature of 40°F, and

4. A maximum solution temperature of 110°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With the above required boric acid makeup tank(s) inoperable, restore the make up tank(s) to OPERABLE status within 72 hours or initiate a condition report to document the condition and determine any limitations for the continued operation of the plant.

b. With the refueling water tank inoperable, enter the action of Technical Specification 3.5.4.

4.1.2.8 Each of the above required borated water sources shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the boron concentration in each water source,

2. Verifying the contained borated water volume in each water source, and

3. Verifying the boric acid makeup tank(s) solution temperature is greater than 55°F.

b. At least once per 24 hours by verifying the RWT temperature.

INSTRUMENTATION

REACTOR PROTECTIVE INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: As shown in TRM Table 3.3-1.

ACTION:

As shown in TRM Table 3.3-1.

SURVEILLANCE REQUIREMENTS

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

4.3.1.1.2 The logic for the bypasses shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total bypass function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

TABLE 3.3-1

REACTOR PROTECTIVE INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
Steam Generator Level – High	4/SG	2/SG	3/SG	1, 2	1, 2

TABLE 3.3-1

ACTION STATEMENTS

ACTION 1 – With the number of channels OPERABLE one less than the Total Number of Channels, operation in the applicable MODES may continue provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour. If the inoperable channel is bypassed for greater than 48 hours, the desirability of maintaining this channel in the bypassed condition shall be reviewed at the next regularly scheduled OSRC meeting in accordance with the QA Manual Operations. The channel shall be returned to OPERABLE status prior to startup following the next COLD SHUTDOWN.

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

ACTION 2 – With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement, operation in the applicable MODES may continue provided the following conditions are satisfied:

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

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

Operation in the applicable MODES may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent operation in the applicable MODES may continue if one channel is restored to OPERABLE status and the provisions of ACTION 1 are satisfied.

TABLE 4.3-1

REACTOR PROTECTIVE INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TESTS	MODES IN WHICH SURVEILLANCE REQUIRED
Steam Generator Level – High	S	R	TA (1)	1, 2

(1) On a STAGGERED TEST BASIS.

INSTRUMENTATION

SEISMIC INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

a. With one or more seismic monitoring instruments inoperable for more than 30 days, immediately initiate a condition report to document the condition and determine any limitations for continued operation of the plant.

b. The provisions of Technical Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

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

4.3.3.3.2 Each of the above seismic monitoring instruments actuated during a seismic event shall be restored to OPERABLE status within 24 hours and a CHANNEL CALIBRATION performed within 5 days following the seismic event. Data shall be retrieved from actuated instruments and analyzed to determine the magnitude of the vibratory ground motion.

TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

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

* With Unit 1 control room indication/or alarm

TABLE 4.3-4

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

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

* Except seismic trigger
** With Unit 1 control room indication

INSTRUMENTATION

METEOROLOGICAL INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

a. With one or more required meteorological monitoring channels inoperable for more than 7 days, immediately initiate a condition report to document the condition and determine any limitations for continued operation of the plant.

b. The provisions of Technical Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

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

TABLE 3.3-8

METEROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT AND SENSOR LOCATIONS	MINIMUM CHANNELS OPERABLE
1. WIND SPEED	
a. Nominal Elev. 540'	1
b. Nominal Elev. 394'	1
2. WIND DIRECTION	
a. Nominal Elev. 540'	1
b. Nominal Elev. 394'	1
3. AIR TEMPERATURE – DELTA T	
a. Nominal Elev. 394' to 540'	1

TABLE 4.3-5

METEROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

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

INSTRUMENTATION

CHLORINE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

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

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

SURVEILLANCE REQUIREMENTS

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

4.3.3.7.2 Each detection system shall be demonstrated OPERABLE at least once per 18 months by verifying that on a control room high chlorine test signal, the system automatically isolates the control room within 10 seconds.

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one stop valve and/or one control valve inoperable, and/or one reheat stop valve and/or one intercept valve inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close the inoperable valve(s) or isolate the turbine from the steam supply within the next 12 hours.

b. With the above required turbine overspeed protection system otherwise inoperable, within 24 hours isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1.1 The provisions of Technical Specification 4.0.4 are not applicable.

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

a. At least once per 92 days[1] by direct observation of the movement of each of the following valves through at least one complete cycle from the running position:

   1. Four high pressure turbine stop valves.

   2. Four high pressure turbine control valves.

   3. Four low pressure turbine reheat stop and intercept valves.

b. At least once per 18 months by performance of a CHANNEL CALIBRATION on the turbine overspeed protection systems.

c. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

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[1] The 92 day frequency may be extended on a case by case basis for the main turbine control valves, stop valves, and reheat stop/intercept valves with an approved engineering evaluation that has been evaluated under 10 CFR 50.59.

CONTAINMENT RECIRCULATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.4.3 At least two independent containment recirculation fans shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one containment recirculation fan inoperable, restore the inoperable fan to OPERABLE status within 30 days. If not restored within 30 days or with more than one containment recirculation fan inoperable, initiate a condition report to document the condition and determine any limitations for continued operation of the plant.

SURVEILLANCE REQUIREMENTS

4.6.4.3 Each of the above containment recirculation fans shall be demonstrated OPERABLE:

a. At least once per 92 days on a STAGGERED TEST BASIS BY:

   1. Verifying that the fan can be started on operator action in the control room, and

   2. Verifying that the fan operates for at least 15 minutes.

b. At least once per 18 months by verifying a flow rate of at least 4500 cfm per fan.

REFUELING OPERATIONS

DECAY TIME AND SPENT FUEL STORAGE

LIMITING CONDITION FOR OPERATION

3.9.3 The total heat load in the SFP shall remain within the limits specified in Figure 3.9.3-1.

APPLICABILITY: During movement of irradiated fuel between the reactor pressure vessel and the spent fuel pool.

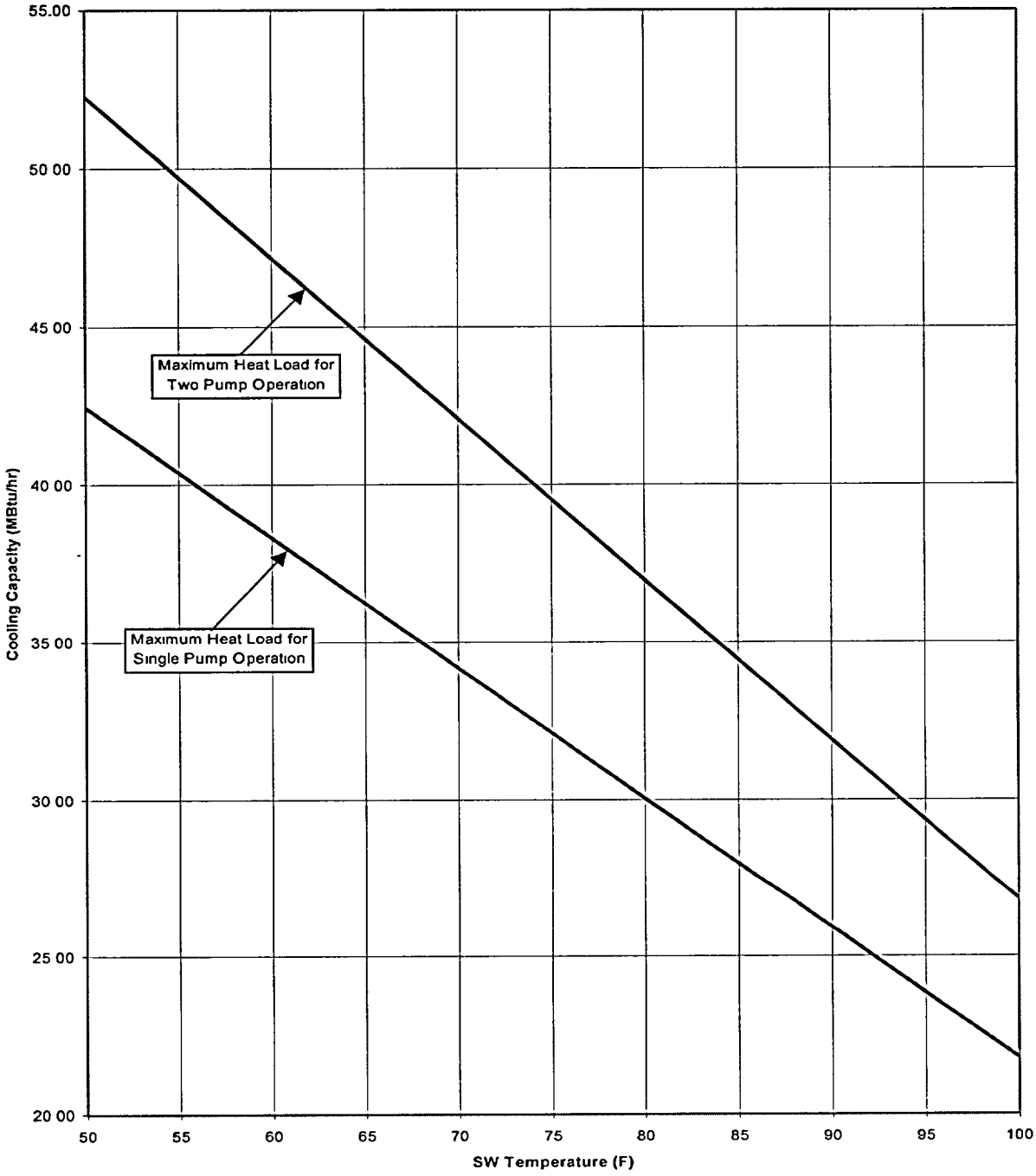
ACTION:

With the total heat load exceeding the requirements in Figure 3.9.3-1, or with no SFP cooling pump in operation, suspend all transfer of irradiated fuel to the SFP until the limits are restored.

SURVEILLANCE REQUIREMENTS

4.9.3 The total heat load in the pool shall be determined to be less than the limits specified in Figure 3.9.3-1.

Figure 3.9.3-1 Spent Fuel Pool Cooling Capacity



3/4.1.2 BORATION SYSTEMS

The boron injection system ensures that negative reactivity control is available during each mode of facility operations. The components required to perform this function include 1) borated water sources, 2) charging pumps, 3) separate flow paths, 4) boric acid makeup pumps, 5) an emergency power supply from OPERABLE diesel generators.

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 inoperable. 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 expected operating conditions of that specified in the CORE OPERATING LIMITS REPORT after xenon decay and cooldown to 200°F. The maximum expected boration capability requirement occurs at EOL from full power equilibrium xenon conditions and requires boric acid solution from the boric acid makeup tanks in the allowable concentrations and volumes of TRM Specification 3.1.2.8 and a small fraction of the borated water from the refueling water tank required in TRM Specification 3.1.2.8.

The requirement in TRM Specification 3.1.2.8 for a minimum available volume of borated water in the refueling water tank ensures the capability for borating the RCS to the desired concentration. The value listed is consistent with the plant ECCS requirements.

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 CORE ALTERATIONS and positive reactivity change in the event the single injection system becomes inoperable.

The boron capability required below 200°F is based upon providing a sufficient SHUTDOWN MARGIN after xenon decay and cooldown from 200°F to 140°F. This condition requires either borated water from the refueling water tank or boric acid solution from the boric acid makeup tank(s) in accordance with the requirements of TRM Specification 3.1.2.7. The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

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

The limits on water volume and boron concentration of the boric acid sources, when mixed with the trisodium phosphate, ensures a long term pH value of ≥ 7.0 for the solution recirculated within containment after a LOCA. This pH limit minimizes the evolution of iodine and helps to inhibit stress corrosion cracking of austenitic stainless steel components in containment during the recirculation phase following an accident.

3/4.1.2 BORATION SYSTEMS (continued)

Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Coolant added must be from sources that have a boron concentration greater than that required for minimum SDM or boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM.

3/4.3.1.1 REACTOR PROTECTIVE INSTRUMENTATION

The OPERABILITY of the protective instrumentation systems and bypasses ensure that 1) the associated reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy and diversity assumed available in the facility design for the protection of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. The triannual channel functional testing frequency is to be performed on a STAGGERED TEST BASIS.

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

Plant Protective System (PPS) logic is designed for operation as a 2-out-of-3 logic, although normally it is operated in a 2-out-of-4 mode.

The bypass term in the RPS LCOs applies to the automatic operating bypass removal feature and not the PPS trip channel bypass feature. If the bypass enable function is failed so as to prevent entering a bypass condition, operation may continue.

3/4.3.3.3 SEISMIC INSTRUMENTATION

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

3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

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

3/4.3.3.7 CHLORINE DETECTION SYSTEMS

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

3/4.3.4.1 TURBINE OVERSPEED PROTECTION

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

3/4.9.3 DECAY TIME

The total heat load in the SFP consists of the fuel currently stored in the pool and that to be transferred from the reactor pressure vessel. The decay time for movement of irradiated fuel assemblies to the SFP is controlled by the maximum heat load in the SFP required to maintain temperature within design limits. The parameters impacting the cooling capacity of the SFP are the number of pumps in operation and the service water temperature. Figure 3.9.3-1 depicts the cooling capacity limits for spent fuel pool based upon these parameters.

6.9 None.