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ANO-1 Docket 50-313

ANO-2 Docket 50-368

Signature Date

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This TRM has been approved
with an effective date of

August 12, 1998.

The requirements contained in this

TRM should NOT to be applied

before **August 12, 1998.**

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ATTACHMENT TO REVISION NO. "0"

FOR ANO-1

TECHNICAL REQUIREMENTS MANUAL (TRM)

Revise the following pages of the TRM for ANO-1 with the attached pages. The revised pages are identified by Revision number and contain vertical lines indicating the area of change.

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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. Another example would be that the TRM contains a 1.0 section without a 2.0 section. 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 follow the administrative controls prescribed in procedure 1000.150, "Licensing Document Maintenance" for submitting changes to the TRM. To ensure that the information in the TRM remains current, the TRM Responsibility Matrix has been developed and is included in procedure 1000.150. This matrix identifies the lead organization responsible for each of the TRs including their bases. 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 an unreviewed safety question. 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.

3.5 INSTRUMENTATION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.5.1 Operational Instrumentation

Applicability

Applies to unit instrumentation.

Objectives

To delineate the conditions of the unit instrumentation.

Requirements

- 3.5.1.1 Startup and operation are not permitted unless the requirements of Table 3.5.1-1, columns 3 and 4 are met.
- 3.5.1.2 In the event the number of protection channels operable falls below the limit given under Table 3.5.1-1, Columns 3 and 4, operation shall be limited as specified in Column 5.
- 3.5.1.10 The control room ventilation chlorine detection system instrumentation shown in Table 3.5.1-1 shall be operable and capable of actuating control room isolation and filtration systems, with alarm/trip setpoints adjusted to actuate at a chlorine concentration of ≤ 5 ppm.
- 3.5.1.13 The Seismic Monitoring Instrumentation shown in Table 3.5.1-1 shall be operable with a minimum measurement range of 0.01 - 1.0 g for Triaxial Time - History Accelerographs, 0.05 - 1.0 g for Triaxial Peak Accelerographs, and 2-25.4 Hz for Triaxial Response Spectrum Recorders.

BASES

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

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

References

SAR, Section 2.7.6

Table 3.5.1-1

OPERATIONAL INSTRUMENTATION SYSTEMS

Column	1	2	3	4	5
<u>Functional Unit</u>	<u>No. of channels</u>	<u>No. of channels for system trip</u>	<u>Minimum operable channels</u>	<u>Minimum degree of redundancy</u>	<u>Operator action if conditions of column 3 or 4 cannot be met</u>
9. Chlorine Detection Systems	2	1	2	0	Notes 17, 18
14. Seismic Monitoring Instrumentation					
a. Triaxial Time-History Accelerographs					
1. ACS-8001, Unit 1 Containment Base Slab, Elev. 335**	1	N/A	1	0	Note 27
2. ACS-8002, Unit 1 Top of Containment, Elev. 531'6"	1	N/A	1	0	Note 27
b. Triaxial Peak Accelerographs					
1. 2XR-8347, Unit 2 Containment Base Slab, Elev. 336'6"	1	N/A	1	0	Note 27
2. 2XR-8348, Unit 2 Primary Shield O/S Reactor Cavity, Elev. 366'3"	1	N/A	1	0	Note 27
3. 2XR-8349, Unit 2 Top of Containment, Elev. 531'6"	1	N/A	1	0	Note 27

* With Unit 1 control room indication/or alarm

Table 3.5.1-1 (continued)

OPERATIONAL INSTRUMENTATION SYSTEMS

Column	1	2	3	4	5
<u>Functional Unit</u>	No. of channels	No. of Channels for system trip	Minimum operable channels	Minimum degree of redundancy	Operator action if conditions of column 3 or 4 cannot be met
c. Triaxial Response-Spectrum Recorder					
1. 2XR-8350, Unit 2 Containment Base Slab, Elev. 335' 6" (O/S Containment)	1	N/A	1	0	Note 27

Notes:

- 17. With no channel operable, within 1 hour restore the inoperable channels to operable status, or initiate and maintain operation of the control room emergency ventilation system in the recirculation mode of operation.
- 18. With one channel inoperable, restore the inoperable channel 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.
- 27. With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Technical Specification 6.12.5 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to operable status. The provisions of Technical Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

Applicability

Applies to items directly related to limiting conditions for operation.

Objective

To specify the minimum frequency and type of surveillance to be applied to unit equipment and conditions.

Requirements

- a. The minimum frequency and type of surveillance required for instrumentation when the reactor is critical shall be as stated in Table 4.1-1.
- c. Discrepancies noted during surveillance testing will be corrected and recorded.

Table 4.1-1

Instrument Surveillance Requirements

	<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>
31.	Turbine overspeed trip mechanism	NA	R(1)	NA
42.	Seismic Monitoring Instruments			
	a. Triaxial Time-History Accelerographs			
	1. ACS-8001, Unit 1 Containment Base Slab, Elev. 335' (with Unit 1 control room indication)	M(2)	SA	R
	2. ACS-8002, Unit 1 Top of Containment Elev. 531'6"	M(2)	SA	R
	b. Triaxial Peak Accelerographs			
	1. 2XR-8347, Unit 2 Containment Base Slab, Elev. 336'6"	NA	NA	R
	2. 2XR-8348, Unit 2 Primary Shield O/S Reactor Cavity, Elev. 366'3"	NA	NA	R
	3. 2XR-8349, Unit 2 Top of Containment, Elev. 531'8"	NA	NA	R
	c. Triaxial Response-Spectrum Recorder			
	1. 2XR-8350, Unit 2 Containment, Base Slab, Elev. 335'6" (O/S Containment)	NA	R	R
52.	Control Room Chlorine Detector	D	M	R

NOTES:

- (1) The provisions of Technical Specification 4.0.4 are not applicable.
- (2) Except Seismic Trigger

D - Daily
M - Monthly
NA - Not Applicable
SA - Twice per Year
R - Once every 18 months

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ATTACHMENT TO REVISION NO. "0"

FOR ANO- 2

TECHNICAL REQUIREMENTS MANUAL (TRM)

Revise the following pages of the TRM for ANO-2 with the attached pages. The revised pages are identified by Revision number and contain vertical lines indicating the area of change.

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INSTRUMENTATION

SEISMIC INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

- a. With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Technical Requirement 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.
- b. The provisions of 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. A Special Report shall be prepared and submitted to the Commission pursuant to Technical Requirement 6.9.2 within 10 days describing the magnitude, frequency spectrum and resultant effect upon facility features important to safety.

TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>MEASUREMENT RANGE</u>	<u>MINIMUM INSTRUMENT OPERABLE</u>
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. 333'6"	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

	<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
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 Table 3.3-8 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

- a. With one or more required meteorological monitoring channels inoperable for more than 7 days, prepare and submit a Special Report to the Commission pursuant to Technical Requirement 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.
- b. The provisions of 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 Table 4.3-5.

TABLE 3.3-8

METEROLOGICAL MONITORING INSTRUMENTATION

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

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
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 control room emergency air filtration 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 and switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.

INSTRUMENTATION

TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

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

SURVEILLANCE REQUIREMENTS

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

3.3 INSTRUMENTATION

TR BASES

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.

6.9 Reporting Requirements

6.9.2 Special Reports

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

- a. Inoperable Seismic Monitoring Instrumentation, Technical Requirement 3.3.3.3.
- b. Seismic event analysis, Technical Requirement 4.3.3.3.2.
- c. Inoperable Meteorological Monitoring Instrumentation, Technical Requirement 3.3.3.4.