PA-LR

From: "Hamer, Mike" <mhamer@entergy.com>
To: "Jonathan Rowley" <JGR@nrc.gov>
Date: Tue, Jan 30, 2007 10:35 AM
Subject: VYNPS TRM

<<VYNPS TRM Revision 25.pdf>>
See Section 4.13.C. for fire hose station requirements.

Mail Envelope Properties (45BF65B5.D70 : 16 : 48496)

Subject:	VYNPS TRM
Creation Date	Tue, Jan 30, 2007 10:35 AM
From:	"Hamer, Mike" <mhamer@entergy.com>
Created By:	mhamer@entergy.com

Recipients
nrc.gov
TWGWPO03.HQGWDO01
JGR (Jonathan Rowley)

Post Office	**Route**
TWGWPO03.HQGWDO01	nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	89	Tuesday, January 30, 2007 10:35 AM
TEXT.htm	1136	
VYNPS TRM Revision 25.pdf	311140	
Mime.822	1	

Options

Expiration Date:	None
Priority:	Standard
ReplyRequested:	No
Return Notification:	None
Concealed Subject:	No
Security:	Standard

Junk Mail Handling Evaluation Results
Message is eligible for Junk Mail handling
This message was not classified as Junk Mail

Junk Mail settings when this message was delivered
Junk Mail handling disabled by User
Junk Mail handling disabled by Administrator
Junk List is not enabled
Junk Mail using personal address books is not enabled
Block List is not enabled

Vermont Yankee Technical Requirements Manual (TRM)

TRM CHANGE FORM

PREPARATION, REVIEW AND PROCESSING OF
TECHNICAL REQUIREMENTS MANUAL CHANGE REQUESTS

TRM Change # 06-02 TRM Revision # 25

Effective Date: 7/6/06

☐ Administrative Change ☑ Technical Change

Prepared by: MITCH McCLUSKIE / [signature] Date: 4/24/06
Printed Name Signature

Approved by: Jim DeVincentis / [signature] Date: 4/24/06
Licensing Manager

Approved by: Edward L. Harms [signature] Date: 4/24/06
Operations Manager

Reviewed by PORC*: N/A Date: N/A
PORC Meeting

5/30/06
Approved**: [signature] Date: 5/30/06
General Manager

* Required for technical changes that contain a 10CFR50.59 Evaluation.

** Required for technical changes only.

Vermont Yankee Technical Requirements Manual
List of Effective Pages
Revision 25

Page	Revision
TOC-1	25
1.0-1	22
3.0-1	25
3.0-2	25
3.2-1	14
3.2-2	21
3.2-3	14
3.2-4	14
3.2-5	14
3.2-6	25
3.2-7	25
3.2-8	21
3.2-9	21
3.2-10	21
3.2-11	21
3.2-12	21
3.2-13	25
3.2-14	25
3.2-15	21
3.2-16	21
3.2-17	24
3.2-18	21
3.5-1	14
3.6-1	14
3.6-2	14
3.6-3	14
3.6-4	14
3.7-1	14
3.7-2	23
3.7-3	18
3.7-4	18
3.10-1	14
3.13-1	14
3.13-2	22
3.13-3	14
3.13-4	19
3.13-5	14
3.13-6	14
3.13-7	20
3.13-8	14
3.13-9	14
3.13-10	14
3.13-11	14
3.13-12	14
6.0-1	19
6.0-2	19
6.0-3	25
6.0-4	25
6.0-5	19
6.0-6	22

TRM RECORD OF REVISION

Revision Number	Description of TRM Change	Affected Pages
Original	Original Issue	All
Rev. 1	Addition of Administrative Control Section 6 per TS Amendment #163	1, 18, and 19 thru 30
Rev. 2	Administrative Change to Section 3.13 per TS Amendment #164	9, 14, and 15
Rev. 3	Technical Change to Fire Water Requirements due to TRM Change No.99-003	1, 11 and 12
Rev. 4	Technical Change to Sections 3.13 and 6.7 to remove 30 day reporting requirement from TRM.	5, 6, 7, 10, 11, 12, 27 and 28
Rev. 5	Administrative Change to remove information relocated to the VOQAM. (Seven pages will be removed.)	1, 19 thru 30
Rev. 6	Administrative Change to relocate information per TS Amendment 186 and delete page 23.	1, 2a thru 2f and 23
Rev. 7	Administrative Change to update to RHR SW pressure required at the outlet of the RHR Heat Exchanger.	3
Rev. 8	Administrative Change to make the VY TRM a General UFSAR reference.	2
Rev. 9	Administrative Change to change the smoke detectors in the Emergency Diesel Generator rooms per MM 99-050.	15
Rev. 10	Administrative Change to relocate information per TS Amendment 190.	1, 3a, 3b
Rev. 11	Administrative Change to relocate information per TS Amendment 193 and revise MOO title to VP.	2, 20, 21, 22
Rev. 12	Administrative Change to accommodate higher conductivities associated with Noble Chemical Injection.	2, 3a, 3b and 3c

TRM RECORD OF REVISION

Revision Number	Description of TRM Change	Affected Pages
Rev. 13	Technical Change to fire protection surveillance frequencies.	5, 6, 7, 9, 10, 12, 13, 14, 17 and 20
Rev. 14	Administrative Change to relocate information from the Tech Specs to the TRM per TS Amendments No. 210 and 211, reformat pages as necessary, renumber all TRM pages and update the Table of Contents.	All pages of the TRM are affected by this change.
Rev. 15	Change to Section 3.7 to delete unnecessary information.	3.7-2, 3.7-4 and 3.7-5
Rev. 16	Technical Change to Control Rod Block Instrumentation Functional Test.	3.2-13
Rev. 17	Technical Change to revise APRM Rod Block specifications.	TOC, 1.1-1 through 1.1-4, 3.2-7, 3.2-15 and 3.2-16
Rev. 18	Technical Change to Table 4.7.2.	3.7-2, 3.7-3, 3.7-4, 3.7-5
Rev. 19	Technical Change to add Table 6.1.2, revise for consistency with License Amendment No. 214 and other minor changes.	1.0-1, 3.13-4, 6.0-1 through 6.0-6
Rev. 20	Technical Change to Fire Barrier Surveillance Frequency	3.13-7
Rev. 21	Technical Changes to add Post-Accident Instrumentation Section and changes related to ARTS/MELLLA License Amendment	3.2-2, 3.2-6 - 3.2-18
Rev. 22	Administrative Change to Titles	1.0-1, 3.13-2, 6.0-4, 6.0-6
Rev. 23	Administrative Change to normal valve position specified in Table 4.7.2	3.7-2

TRM RECORD OF REVISION

Revision Number	Description of TRM Change	Affected Pages
Rev. 24	Administrative Change to implement EPU license amendment 229.	3.2-6, 3.2-17
Rev. 25	Change IRM Rod Block requirements to be consistent with TS requirements. Also make editorial and administrative changes	TOC-1, 3.0-1, 3.0-2, 3.2-6, 3.2-7, 3.2-13, 3.2-14, 6.0-3, 6.0-4

TABLE OF CONTENTS

Introduction:

The TRM is established as part of implementing an NRC approved Safety Evaluation Report. The TRM provides a central location for those items that have been relocated out of Technical Specifications, as well as any other items deemed appropriate by plant management, and may be physically located and maintained in the back of the existing Technical Specifications or in a separate binder on distinctly colored paper. The TRM may contain TRM Limiting Conditions for Operation (TLCOs), lists, cross-references, acceptance criteria, programs or operational conveniences. The controls established by this procedure provide permanent records to document required reviews, implementation and NRC submittal of TRM changes, as applicable.

The definitions contained in Technical Specifications Section 1.0, "Definitions," apply to the TRM. All items relocated from the plant Technical Specifications to the TRM shall retain their existing numbering with a "TRM" added in the front. For example, Surveillance Requirement (SR) 4.13 in the plant Technical Specifications becomes TRM 4.13 upon relocation to the TRM. In addition, the TRM control requirements have been incorporated into the FSAR as FSAR Section 13.10, "Technical Requirements Manual." As such, changes to the TRM are governed by the 10CFR50.59 change process.

The TLCOs are contained in Section 3.0 and include operational requirements, TRM Surveillance Requirements (TSRs), and Required Actions for inoperable equipment. References to "Specifications" within the TRM refer to the Technical Specifications unless otherwise noted.

While the TLCOs are to be treated like Technical Specifications from an implementation viewpoint, the TLCOs are essentially procedures. Therefore, unless specifically stated in the TLCO, entry into or violation of a TRM Required Action, or violation of a TRM Surveillance Requirement is not specifically reportable per 10 CFR 50.72 or 10 CFR 50.73. Likewise, power reductions and/or plant shutdowns required to comply with TRM ACTIONS are not specifically reportable per 10 CFR 50.72(b)(1)(i)(A) or 10 CFR 50.73(a)(2)(i)(A) or (a)(2)(i)(B). Failure to comply with TLCO requirements shall be treated as a failure to follow procedure and entered into the corrective action program, as appropriate.

TRM 1.0 DEFINITIONS

AA. Vital Fire Suppression Water System - The vital fire suppression water system is that part of the fire suppression system which protects those instruments, components, and systems required to perform a safe shutdown of the reactor. The vital fire suppression system includes the water supply, pumps, and distribution piping with associated sectionalizing valves, which provide immediate coverage of the Reactor Building, Control Room Building, and Diesel Generator Rooms.

JJ. Process Control Program (PCP) - A process control program shall contain the sampling, analysis, tests, and determinations by which wet radioactive waste from liquid systems is assured to be converted to a form suitable for off-site disposal.

TRM 3.0 LIMITING CONDITIONS FOR OPERATION APPLICABILITY

TRM 3.0.1 RESERVED

TRM 4.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

TRM 4.0.1

SRs shall be met during the modes or other specified conditions in the Applicability for individual TLCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the TLCO. Failure to perform a Surveillance within the specified frequency shall be failure to meet the TLCO except as provided in TRM 4.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

TRM 4.0.2

Unless otherwise stated in these specifications, periodic surveillance tests, checks, calibrations, and examinations shall be performed within the specified surveillance intervals. These intervals may be adjusted plus 25%. The operating cycle interval is considered to be 18 months and the tolerance stated above is applicable.

TRM 4.0.3

If it is discovered that a surveillance was not performed within its specified frequency, declaring applicable TRM Limiting Conditions for Operation (TLCOs) not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified frequency, whichever is greater. This delay period is permitted to allow performance of the surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

TRM 3.0 LIMITING CONDITIONS FOR OPERATION APPLICABILITY

TRM 4.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

TRM 4.0.3 (Continued)

If the surveillance is not performed within the delay period, applicable TLCOs must immediately be declared not met, and applicable TLCOs must be entered.

When the surveillance is performed within the delay period and the surveillance is not met (i.e., acceptance criteria are not satisfied), applicable TLCOs must immediately be declared not met, and applicable TLCOs must be entered.

TRM 3.2 TRM LIMITING CONDITIONS FOR OPERATION

TRM 3.2 PROTECTIVE INSTRUMENT SYSTEMS

Applicability:

Applies to the operational status of the plant instrumentation systems which initiate and control a protective function.

Objective:

To assure the operability of protective instrumentation systems.

Specification:

A. Emergency Core Cooling System

When the system(s) it initiates or controls is required in accordance with Specification 3.5, the instrumentation which initiates the emergency core cooling system(s) shall be operable in accordance with Table TRM 3.2.1.

B. Primary Containment Isolation

When primary containment integrity is required, in accordance with Specification 3.7, the instrumentation that initiates primary containment isolation shall be operable in accordance with Table TRM 3.2.2.

C. Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation

The instrumentation that initiates the isolation of the reactor building ventilation system and the actuation of the standby gas treatment system shall be operable in accordance with Table TRM 3.2.3.

TRM 4.2 TRM SURVEILLANCE REQUIREMENTS

TRM 4.2 PROTECTIVE INSTRUMENT SYSTEMS

Applicability:

Applies to the surveillance requirements of the instrumentation systems which initiate and control a protective function.

Objective:

To verify the operability of protective instrumentation systems.

Specification:

A. Emergency Core Cooling System

Instrumentation and logic systems shall be functionally tested and calibrated as indicated in Table TRM 4.2.1.

B. Primary Containment Isolation

Instrumentation and logic systems shall be functionally tested and calibrated as indicated in Table TRM 4.2.2.

C. Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation

Instrumentation and logic systems shall be functionally tested and calibrated as indicated in Table TRM 4.2.3.

TRM 3.2 TRM LIMITING CONDITIONS FOR OPERATION	TRM 4.2 TRM SURVEILLANCE REQUIREMENTS
TRM 3.2 PROTECTIVE INSTRUMENT SYSTEMS	TRM 4.2 PROTECTIVE INSTRUMENT SYSTEMS
E. Control Rod Block Actuation During reactor power operation the instrumentation that initiates control rod block shall be operable in accordance with Table TRM 3.2.5.	E. Control Rod Block Actuation Instrumentation and logic systems shall be functionally tested and calibrated as indicated in Table TRM 4.2.5.
G. Post-Accident Instrumentation During reactor power operation, the instrumentation that displays information in the Control Room for the operator to monitor and assess the systems used during and following a postulated accident or abnormal operating condition shall be operable in accordance with Table TRM 3.2.6.	G. Post-Accident Instrumentation The post-accident instrumentation shall be functionally tested and calibrated in accordance with Table TRM 4.2.6.
L. Reactor Core Isolation Cooling System Actuation When the Reactor Core Isolation Cooling System is required in accordance with Specification 3.5.G, the instrumentation which initiates actuation of this system shall be operable in accordance with Table TRM 3.2.9.	L. Reactor Core Isolation Cooling System Actuation Instrumentation and Logic Systems shall be functionally tested and calibrated as indicated in Table TRM 4.2.9.

TABLE TRM 3.2.1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

High Pressure Coolant Injection System			
Minimum Number of Operable Instrument Channels per Trip System	Trip Function	Trip Level Setting	Required ACTION When Minimum Conditions For Operation Are Not Satisfied
1 (Note 3)	Bus Power Monitor (23A-K41)	--	Note 5

NOTES:

3. One trip system with initiating instrumentation arranged in a one-out-of-two taken twice logic.

5. If the minimum number of operable channels are not available, the system is considered inoperable and the requirements of Technical Specification 3.5 apply.

Automatic Depressurization			
Minimum Number of Operable Instrument Channels per Trip System (Note 4)	Trip Function	Trip Level Setting	Required ACTION When Minimum Conditions For Operation Are Not Satisfied
1	Bus Power Monitor (2E-K1A/B)	--	Note 6

NOTES:

4. One trip system with initiating instrumentation arranged in a one-out-of-two logic.

6. Any one of the two trip systems will initiate ADS. If the minimum number of operable channels in one trip system is not available, the requirements of Technical Specification 3.5.F.2 and 3.5.F.3 shall apply. If the minimum number of operable channels is not available in both trip systems, Technical Specification 3.5.F.3 shall apply.

TABLE TRM 3.2.2

HIGH PRESSURE COOLANT INJECTION SYSTEM ISOLATION INSTRUMENTATION			
Minimum Number of Operable Instrument Channels per Trip System	Trip Function	Trip Level Setting	Required ACTION When Minimum Conditions For Operation Are Not Satisfied
1	Bus Power Monitor (23A-K38)	--	--

REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION INSTRUMENTATION			
Minimum Number of Operable Instrument Channels per Trip System	Trip Function	Trip Level Setting	Required ACTION When Minimum Conditions For Operation Are Not Satisfied
1	Bus Power Monitor (13A-K33)	--	Note 3

NOTES:

3. Close isolation valves in system and comply with Technical Specification 3.5.

TABLE TRM 3.2.3

REACTOR BUILDING VENTILATION ISOLATION & STANDBY GAS TREATMENT SYSTEM INITIATION

Minimum Number of Operable Instrument Channels per Trip System	Trip Function	Trip Setting	Required ACTION When Minimum Conditions For Operation Are Not Satisfied
1	Logic Bus Power Monitor (16A-K52/53)	--	Note 1

NOTES:

1. If the minimum number of operable instrument channels is not available in either trip system, the reactor building ventilation system shall be isolated and the standby gas treatment system operated until the instrumentation is repaired.

TABLE TRM 3.2.5

CONTROL ROD BLOCK INSTRUMENTATION

	Required Channels	Trip Function	Modes in Which Function Must be Operable: Refuel[6]	Startup	Run	Trip Setting
		Source Range Monitor				
	2	a. Upscale[2] (7-40 (A-D))	X	X		≤5 x 10^5 cps[3]
	2	b. Detector Not Fully Inserted (7-11 (A-D) (LS-4))	X	X		
		Intermediate Range Monitor				
(Notes 1,10)	2	a. Upscale (7-41 (A-F))	X	X		≤108/125 Full Scale
	2	b. Downscale[4] (7-41 (A-F))	X	X		≥5/125 Full Scale
	2	c. Detector Not Fully Inserted (7-11 (E,F,G,H,J,K) (LS-4))	X	X		
		Avg. Power Range Monitor (APRM A-F)				
	2	a. Upscale (Flow Bias)			X	**Two loop operation:**[5] S≤0.33W+45.3% power for 0%<W≤30.9% flow S≤1.07W+22.4% power for 30.9%<W≤66.7% flow S≤0.55W+57.1% power for 66.7%<W≤99.0% flow maximum of 108% power for W>99.0% flow **Single loop operation:**[5] S≤0.33W+41.1% power for 0%<W≤39.1% flow S≤1.07W+12.2% power for 39.1%<W≤61.7% flow S≤0.55W+44.3% power for 61.7%<W≤122.3% flow maximum of 108% power for W>122.3% flow
	2	b. Downscale			X	≥2/125 Full Scale
(Notes 10,11)	1 (per volume)	Scram Discharge Volume (LT-3-231A/G (S1))	X	X	X	≤12 Gallons

TABLE TRM 3.2.5 NOTES

1. There shall be two operable or tripped trip systems for each function in the required operating mode. If the minimum number of operable instruments are not available for one of the two trip systems, this condition may exist for up to seven days provided that during the time the operable system is functionally tested immediately and daily thereafter; if the condition lasts longer than seven days, the system shall be tripped. If the minimum number of instrument channels are not available for both trip systems, the systems shall be tripped.

2. One of these trips may be bypassed. The SRM function may be bypassed in the higher IRM ranges when the IRM upscale rod block is operable.

3. This function may be bypassed when count rate is $\geq$100 cps or when all IRM range switches are above Position 2.

4. IRM downscale may be bypassed when it is on its lowest scale.

5. The APRM - Upscale (Flow Bias) Trip Setting is a nominal value.

6. With any control rod withdrawn from a core cell containing one or more fuel assemblies.

10. When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions for Operation and required action notes may be delayed for up to 6 hours provided the associated Trip Function maintains Control Rod Block initiation capability.

11. A. With the number of operable channels one less than required by the minimum operable channels per trip function requirement, place the inoperable channel in the tripped condition within 12 hours.

    B. With the number of operable channels two less than required by the minimum operable channels per trip function requirement, place the Trip System in the tripped condition within 1 hour.

TABLE TRM 3.2.6

POST-ACCIDENT INSTRUMENTATION

Minimum Number of Operable Instrument Channels (Note 5)	Parameter	Type of Indication	Instrument Range
1/valve	Safety Valve Position From Acoustic Monitor	Meter ZI-2-1C	Closed - Open

NOTES:

5. If safety valve position from the acoustic monitor is unavailable, safety valve position can alternatively be determined from safety valve discharge temperature or drywell pressure indication.

TABLE TRM 3.2.9

REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION

Minimum Number of Operable Instrument Channels per Trip System	Trip Function	Trip Level Setting	Required ACTION When Minimum Conditions For Operation Are Not Satisfied
1	Bus Power Monitor (13A-K36)	--	Note 4

NOTES:

4. If the minimum number of operable channels are not available, the system is considered inoperable and the requirements of Technical Specification 3.5 apply.

TABLE TRM 4.2.1

MINIMUM TEST AND CALIBRATION FREQUENCIES

EMERGENCY CORE COOLING ACTUATION INSTRUMENTATION

High Pressure Coolant Injection System			
Trip Function	Functional Test(8)	Calibration(8)	Instrument Check
Bus Power Monitor	(Note 1)	None	Once each day

Automatic Depressurization System			
Trip Function	Functional Test(8)	Calibration(8)	Instrument Check
Bus Power Monitor	(Note 1)	None	Once Each Day

Notes:

1. Initially once per month; thereafter, a longer interval as determined by test results on this type of instrumentation.

8. Functional tests and calibrations are not required when systems are not required to be operable.

TABLE TRM 4.2.2

MINIMUM TEST AND CALIBRATION FREQUENCIES

HIGH PRESSURE COOLANT INJECTION SYSTEM ISOLATION INSTRUMENTATION			
Trip Function	Functional Test(8)	Calibration(8)	Instrument Check
Bus Power Monitor	(Note 1)	None	Once each day

REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION INSTRUMENTATION			
Trip Function	Functional Test(8)	Calibration(8)	Instrument Check
Bus Power Monitor	(Note 1)	None	Once each day

Notes:

1. Initially once per month; thereafter, a longer interval as determined by test results on this type of instrumentation.

8. Functional tests and calibrations are not required when systems are not required to be operable.

TABLE TRM 4.2.3

MINIMUM TEST AND CALIBRATION FREQUENCIES

REACTOR BUILDING VENTILATION AND STANDBY GAS TREATMENT SYSTEM ISOLATION			
Trip Function	Functional Test(8)	Calibration(8)	Instrument Check
Logic Bus Power Monitor	(Note 1)	None	Once Each Day

NOTES:

1. Initially once per month; thereafter, a longer interval as determined by test results on this type of instrumentation.

8. Functional tests and calibrations are not required when systems are not required to be operable.

TABLE TRM 4.2.5

MINIMUM TEST AND CALIBRATION FREQUENCIES

CONTROL ROD BLOCK INSTRUMENTATION		
Trip Function	Functional Test	Calibration
Source Range Monitor[6]		
a. Upscale[4]	Within 31 Days Before Entering STARTUP/HOT STANDBY[7] and Every 31 Days During STARTUP/HOT STANDBY, Every 31 Days During Refueling	Once Per Operating Cycle[7]
b. Detector Not Fully Inserted	Within 31 Days Before Entering STARTUP/HOT STANDBY[7] and Every 31 Days During STARTUP/HOT STANDBY, Every 31 Days During Refueling	N/A
Intermediate Range Monitor[6]		
a. Upscale[4]	Within 31 Days Before Entering STARTUP/HOT STANDBY[7] and Every 31 Days During STARTUP/HOT STANDBY, Every 31 Days During Refueling	Once Per Operating Cycle[7]
b. Downscale[4]	Within 31 Days Before Entering STARTUP/HOT STANDBY[7] and Every 31 Days During STARTUP/HOT STANDBY, Every 31 Days During Refueling	Once Per Operating Cycle[7]
c. Detector Not Fully Inserted	Within 31 Days Before Entering STARTUP/HOT STANDBY[7] and Every 31 Days During STARTUP/HOT STANDBY, Every 31 Days During Refueling	N/A
Average Power Range Monitor		
a. Upscale (Flow Bias)	Every Three Months (Note 4)	Every Three Months
b. Downscale	Every Three Months (Note 4)	Every Three Months
High Water Level in Scram Discharge Volume	Every Three Months	Refueling Outage

TABLE TRM 4.2 5 NOTES

4. This instrumentation is excepted from functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.

6. When a trip function is required to be operable, an instrument check shall be performed on the instrumentation once per day.

7. Not required to be performed when entering STARTUP/HOT STANDBY MODE from RUN MODE until 12 hours after entering STARTUP/HOT STANDBY MODE.

TABLE TRM 4.2.6

CALIBRATION REQUIREMENTS

POST-ACCIDENT INSTRUMRNTATION

Parameter	Calibration	Instrument Check
Safety Valve Position	Every Refueling Outage (Note 9) (a Functional Test to be performed quarterly)	Once Each Day

NOTES:

9. The thermocouples associated with safety valve position, that may be used for back-up position indication, shall be verified to be operable every operating cycle.

TABLE TRM 4.2.9

MINIMUM TEST AND CALIBRATION FREQUENCIES

REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION			
Trip Function	Functional Test(8)	Calibration(8)	Instrument Check
Bus Power Monitor	(Note 1)	None	Once each day

NOTES:

1. Initially once per month; thereafter, a longer interval as determined by test results on this type of instrumentation.

8. Functional tests and calibrations are not required when systems are not required to be operable.

TRM BASES:

TRM 3.2 PROTECTIVE INSTRUMENTATION

The trip logic for the nuclear instrumentation control rod block logic is 1 out of n; i.e., any trip on one of the six APRMs, six IRMs or four SRMs will result in a rod block. The minimum instrument channel requirements for the IRMs may be reduced by one for a short period of time to allow for maintenance, testing or calibration.

The purpose of the APRM rod block function is to avoid conditions that would require Reactor Protection System action if allowed to proceed. The APRM upscale rod block alarm setting is selected to initiate a rod block before the APRM high neutron flux scram setting is reached. The APRM upscale rod block trip setpoint is varied as a function of reactor recirculation flow. This provides an effective rod block if core average power is increased above the power level specified at any flow rate.

The APRM - Upscale (Flow Bias) control rod block Trip Function is not credited in the safety analysis. The Trip Setting specified in Table TRM 3.2.5 for the APRM - Upscale (Flow Bias) Trip Function is a nominal value (Table TRM 3.2.5 Footnote (5)) and not an operability limit. A "nominal" trip setting is an approximate value within a defined calibration tolerance. Because the instrumentation does not provide a safety function, uncertainty relationships associated with analytical limits do not exist. Nominal trip setpoints have corresponding administrative limits (as-found and as-left tolerances) which can render the field setting above or below the nominal value. These administrative limits are typically based on equipment performance and are required by calibration procedures/data sheets. The nominal value Trip Setting is selected to ensure a control rod block is initiated before the reactor protection system APRM High Flux (Flow Bias) trip setpoint is reached. As with the reactor protection system APRM High Flux (Flow Bias) Trip Setting, the APRM - Upscale (Flow Bias) control rod block Trip Setting is reduced for single recirculation loop operation to account for the difference between the single loop and two loop drive flow at the same core flow. The terms for the Trip Setting of the APRM - Upscale (Flow Bias) Trip Function are defined as follows:

S = Nominal setpoint in percent of rated thermal power (1,912 MWt).

W = percent of rated two loop drive flow where 100% rated drive flow is that flow equivalent to 48 x 10^6 lbs/hr core flow.

Since the purpose of the APRM - Upscale (Flow Bias) Trip Function is to avoid conditions that would require reactor protection system action if allowed to proceed, the APRM - Upscale control rod block Trip Function is required to be operable during reactor power operation.

TRM BASES:

TRM 3.2 PROTECTIVE INSTRUMENTATION (Continued)

For single recirculation loop operation, the APRM rod block trip setting is reduced in accordance with the analysis presented in NEDO-30060, February 1983. This adjustment accounts for the difference between the single loop and two-loop drive flow at the same core flow. The single loop equations are based on a bounding (maximum) difference of 8% between two loop and single loop drive flow at the same core flow.

The IRM rod block function provides local as well as gross core protection. The scaling arrangement is such that trip setting is less than a factor of 10 above the indicated level. Analysis of the worst-case accident results in rod block action before MCPR approaches the fuel cladding integrity safety limit.

A downscale indication on an APRM or IRM is an indication the instrument has failed or the instrument is not sensitive enough. In either case, the instrument will not respond to changes in control rod motion and thus control rod motion is prevented.

Post-Accident Instrumentation

TRM Specification 3.2.G requires that the post-accident monitoring (PAM) instrumentation of Table TRM 3.2.6 be operable during reactor power operation. PAM instrumentation is not required to be operable during shutdown and refueling conditions when the likelihood of an event that would require PAM instrumentation is extremely low. The primary purpose of the PAM instrumentation is to display plant variables that provide information required by the control room operators during accident situations. The operability of the PAM instrumentation ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status and behavior following an accident.

If Table TRM 3.2.6 minimum number of operable instruments for safety valve position from acoustic monitors is not met, a note provides alternate indication to assist the operator in determining safety valve position. One of these alternate indications is drywell pressure. If the alternate instrumentation is not available, the loss of drywell pressure indication will place the plant in a restrictive Technical Speciification LCO. Thus, no instruction is provided for follow-up actions if both the primary and backup instrumentation is not available, as plant operation will be restricted by the Technical Specifications.

TRM 3.5 TRM LIMITING CONDITIONS FOR OPERATION

TRM 3.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability:

Applies to the operational status of the Emergency Cooling Subsystems.

Objective:

To assure adequate cooling capability for heat removal in the event of a loss-of-coolant accident or isolation from the normal reactor heat sink.

TRM 4.5 TRM SURVEILLANCE REQUIREMENTS

TRM 4.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability:

Applied to periodic Testing of the emergency cooling subsystems.

Objective:

To verify the operability of the core containment cooling subsystems.

Specification:

C. Residual Heat Removal (RHR) Service Water System

Surveillance of the RHR Service Water System shall be performed as follows:

1. RHR Service Water Subsystem testing:

   Each RHR service water pump shall deliver at least 2700 gpm and a pressure of at least 105.3 psia shall be maintained at the RHR heat exchanger service water outlet when the corresponding pairs of RHR service water pumps and station service water pumps are operating.

D. Station Service Water and Alternate Cooling Tower Systems

Surveillance of the Station Service Water and Alternate Cooling Tower Systems shall be performed as follows:

1. Each pump shall deliver at least 2700 gpm against a TDH of 250 feet.

TRM 3.6 TRM LIMITING CONDITIONS FOR OPERATION

TRM 3.6 REACTOR COOLANT SYSTEM

Applicability:

Applies to the operating status of the reactor coolant system.

Objective:

To assure the integrity and safe operation of the reactor coolant system.

Specification:

B. Coolant Chemistry

1. Intentionally blank.

2. The reactor coolant water shall not exceed the following limits with steaming rates less than 100,000 pounds per hour except as specified in TRM Specification 3.6.B.3:

Conductivity	5μmho/cm
Chloride ion	0.1 ppm

3. For reactor startups and during the period when Noble Metals are injected into the reactor coolant, the maximum value for conductivity shall not exceed 10 umho/cm and the maximum value for chloride ion concentration shall not exceed 0.1 ppm, in the reactor coolant water for the first 24 hours after placing the reactor in the power operating condition.

4. Except as specified in TRM Specification 3.6.B.3 above, the reactor coolant water shall not exceed the following

TRM 4.6 TRM SURVEILLANCE REQUIREMENTS

TRM 4.6 REACTOR COOLANT SYSTEM

Applicability:

Applies to the periodic examination and testing requirements for the reactor coolant system.

Objective:

To determine the condition of the reactor coolant system and the operation of the safety devices related to it.

Specification:

B. Coolant Chemistry

1. Intentionally blank.

2. During startups and at steaming rates below 100,000 pounds per hour, a sample of reactor coolant shall be taken every four hours and analyzed for conductivity and chloride content.

3. a. With steaming rates greater than or equal to 100,000 pounds per hour, a reactor coolant sample shall be taken at least every 96 hours and when the continuous conductivity monitors indicate abnormal conductivity (other than short-term spikes), and analyzed for conductivity and chloride ion content.

3.6 TRM LIMITING CONDITIONS FOR OPERATION

TRM 3.6 REACTOR COOLANT SYSTEM

limits with steaming rates greater than or equal to 100,000 pounds per hour.

Conductivity	5 μhmo/cm
Chloride ion	0.5 ppm

5. If TRM Specification 3.6.B is not met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.

G. Single Loop Operation

1. The reactor may be started and operated or operation may continue with a single recirculation loop provided that:

   a. The designated adjustments for rod block trip settings (Specification 2.1.B.1, and Table 3.2.5) are initiated within 8 hours. During the next 12 hours, either these adjustments must be completed or the reactor brought to Hot Shutdown.

4.6 TRM SURVEILLANCE REQUIREMENTS

TRM 4.6 REACTOR COOLANT SYSTEM

b. When the continuous conductivity monitor is inoperable, a reactor coolant sample shall be taken every four hours and analyzed for conductivity and chloride ion content.

TRM BASES:

TRM 3.6 and 4.6 Reactor Coolant System

B. Coolant Chemistry

Materials in the primary system are primarily 304 stainless steel and Zircaloy. The reactor water chemistry limits are established to prevent damage to these materials. The limit placed on chloride concentration is to prevent stress corrosion cracking of the stainless steel.

When conductivity is in its proper normal range (approximately 10 μmho/cm during reactor startup and 5 μmho/cm during power operation), pH and chloride and other impurities affecting conductivity must also be within their normal range. When and if conductivity becomes abnormal, then chloride measurements are made to determine whether or not they are also out of their normal operating values. This would not necessarily be the case. Conductivity could be high due to the presence of a neutral salt, e.g., Na2SO4, which would not have an effect on pH or chloride. In such a case, high conductivity alone is not a cause for shutdown. In some types of water-cooled reactors, conductivities are in fact high due to purposeful addition of additives. In the case of BWRs, however, no additives are used and where neutral pH is maintained, conductivity provides a very good measure of the quality of the reactor water. Significant changes therein provide the operator with a warning mechanism so he can investigate and remedy the condition causing the change before limiting conditions, with respect to variables affecting the boundaries of the reactor coolant, are exceeded. Methods available to the operator for correcting the off-standard condition include operation of the reactor cleanup system reducing the input of impurities and placing the reactor in the cold shutdown condition. The major benefit of cold shutdown is to reduce the temperature dependent corrosion rates and provide time for the cleanup system to reestablish the purity of the reactor coolant. During startup periods, which are in the category of less than 100,000 pounds per hour, conductivity may exceed 5 μmho/cm because of the initial evolution of gases and the initial addition of dissolved metals. During this period of time when the conductivity exceeds 5 μmho (other than short term spikes), samples will be taken to assure the chloride concentration is less than 0.1 ppm.

The NobleChem application process increases the conductivity of the reactor water due to the ionic characteristics of the injected compounds of platinum and rhodium. During the application process, the major species that contribute to increased conductivity are sodium, nitrate/nitrite and hydroxide. These reaction by-products are expected to cause reactor coolant conductivity to approach 10umho/cm. Studies and observations have indicated that the relatively low temperature, the limited time frame of application and the non-aggressive ionic species resulting from noble metal injection have little threat of any enhanced crack initiation in the resulting high conductivity environment.

TRM BASES:

TRM 3.6 and 4.6 Reactor Coolant System

B. Coolant Chemistry (Continued)

The conductivity of the reactor coolant is continuously monitored. The samples of the coolant which are taken every 96 hours will serve as a reference for calibration of these monitors and is considered adequate to assure accurate readings of the monitors. If conductivity is within its normal range, chlorides and other impurities will also be within their normal ranges. The reactor coolant samples will also be used to determine the chlorides. Therefore, the sampling frequency is considered adequate to detect long-term changes in the chloride ion content.

The conductivity of the feedwater is continuously monitored and alarm set points, consistent with Regulatory requirements given in Regulatory Guide 1.56, "Maintenance of Water Purity in Boiling Water Reactors," have been determined. The results from the conductivity monitors on the feedwater can be correlated with the results from the conductivity monitors on the reactor coolant water to indicate demineralizer breakthrough and subsequent conductivity levels in the reactor vessel water.

TRM 3.7 TRM LIMITING CONDITIONS FOR OPERATION

TRM 3.7 STATION CONTAINMENT SYSTEMS

Applicability:

Applies to the operating status of the primary and secondary containment systems.

Objective:

To assure the integrity of the primary and secondary containment systems.

TRM 4.7 TRM SURVEILLANCE REQUIREMENTS

TRM 4.7 STATION CONTAINMENT SYSTEMS

Applicability:

Applies to the primary and secondary containment system integrity.

Objective:

To verify the integrity of the primary and secondary containments.

Specification:

D. Primary Containment Isolation Valves

1. Surveillance of the primary containment isolation valves should be performed as follows:

a. The operable isolation valves that are power operated and automatically initiated shall be tested for automatic initiation and the closure times specified in Table TRM 4.7.2 at least once per operating cycle.

TABLE TRM 4.7.2

POWER OPERATED
PRIMARY CONTAINMENT ISOLATION VALVES
WITH GROUP ISOLATION SIGNALS

Isolation Group (1)	Valve Identification	Maximum Operating Time (sec)	Normal Position
1	Main Steam Line Isolation (2-80A-D & 2-86A-D)	5 (Note 2)	Open
1	Main Steam Line Drain (2-74, 2-77)	35	Closed
1	Recirculation Loop Sample Line (2-39, 2-40)	5	Closed
2(A)	RHR Discharge to Radwaste (10-66)	25	Closed
2(A)	Drywell Floor Drain (20-82, 20-83)	20	Open
2(A)	Drywell Equipment Drain (20-94, 20-95)	20	Open
2(A)	TIP Probe (BV-7-1, 2, 3)	5	Closed
2(A)	TIP PURGE (SOV-7-107)	5	Open
2(B)	RHR Return to Suppression Pool (10-39A, B)	70	Closed
2(B)	RHR Return to Suppression Pool (10-34A, B)	120	Closed
2(B)	RHR Drywell Spray (10-26A, B & 10-31A, B)	70	Closed
2(B)	RHR Suppression Chamber Spray (10-38A, B)	45	Closed
3	Drywell Air Purge Inlet (16-19-9)	10	Closed
3	Drywell Air Purge Inlet (16-19-8)	10	Closed
3	Drywell Purge & Vent Outlet (16-19-7A)	10	Closed
3	Drywell Purge & Vent Outlet Bypass (16-19-6A)	10	Closed
3	Drywell & Suppression Chamber Main Exhaust (16-19-7)	10	Closed
3	Suppression Chamber Purge Supply (16-19-10)	10	Closed
3	Suppression Chamber Purge & Vent Outlet (16-19-7B)	10	Closed

TABLE TRM 4.7.2
(Cont'd)

POWER OPERATED
PRIMARY CONTAINMENT ISOLATION VALVES
WITH GROUP ISOLATION SIGNALS

Isolation Group (1)	Valve Identification	Maximum Operating Time (sec)	Normal Position
3	Suppression Chamber Purge & Vent Outlet Bypass (16-19-6B)	10	Open
3	Exhaust to Standby Gas Treatment System (16-19-6)	10	Open
3	Containment Purge Supply (16-19-23)	10	Closed
3	Containment Makeup Supply (16-20-22A)	5	Closed
3	Containment Makeup Supply (16-20-20, 16-20-22B)	5	Open
3	Containment Air Sampling (VG 23, VG 26, 109-76A&B)	5	Open
3	Containment Air Compressor Suction (72-38A, B)	20	Open
3	Containment Air Dilution (VG-22A, B)	20	Closed
3	Containment Air Dilution (VG-9A, B; NG-11A, B; NG-12A, B; NG-13A, B)	5	Closed
4	RHR Shutdown Cooling Supply (10-18, 10-17)	28	Closed
5	Reactor Cleanup System (12-15, 12-18)	25	Open
6	HPCI (23-15, 23-16)	55	Open
6	RCIC (13-15, 13-16)	20	Open

TABLE TRM 4.7.2 NOTES

1. Isolation signals are as follows:

   Group 1: The valves in Group 1 are closed upon any one of the following conditions:

   1. Low-low reactor water level
   2. High main steam line flow
   3. High main steam line tunnel temperature
   4. Low main steam line pressure (run mode only)
   5. Condenser low vacuum

   Group 2(A): The valves in Group 2(A) are closed upon any one of the following conditions:

   1. Low reactor water level
   2. High drywell pressure

   Group 2(B): The valves in Group 2(B) are closed upon any one of the following conditions:

   1. Low-low reactor water level with low reactor pressure
   2. High drywell pressure

   Group 3: The valves in Group 3 are closed upon any one of the following conditions:

   1. Low reactor water level
   2. High drywell pressure
   3. High/low radiation - reactor building ventilation exhaust plenum or refueling floor

   Group 4: The valves in Group 4 are closed upon any one of the following conditions:

   1. Low reactor water level
   2. High drywell pressure
   3. High reactor pressure

   Group 5: The valves in Group 5 are closed upon low reactor water level.

   Group 6: The valves in Group 6 are closed upon any signal representing a steam line break in the HPCI system's or RCIC system's respective steam line. The signals indicating a steam line break for the respective steam line are as follows:

   1. High steam line space temperature
   2. High steam line flow
   3. Low steam line pressure
   4. High temperature in the main steam line tunnel (30 minute delay for the HPCI and the RCIC)

2. The closure time shall not be less than 3 seconds.

TRM 3.10 TRM LIMITING CONDITIONS FOR OPERATION

TRM 3.10 AUXILIARY ELECTRICAL POWER SYSTEMS

Applicability:

Applies to the auxiliary electrical power systems.

Objective:

To assure an adequate supply of electrical power for operation of those systems required for reactor safety.

Specification:

B. Operation With Inoperable Components

Whenever the reactor is in Run Mode or Startup Mode with the reactor not in the Cold Condition, the requirements of Technical Specification 3.10.A shall be met except:

2. Batteries

d. From and after the date that the AS-2 125 Volt battery system is made or found to be inoperable for any reason, continued reactor operation is permissible provided a fire watch is established to inspect the cable vault a minimum of every two hours.

TRM 4.10 TRM SURVEILLANCE REQUIREMENTS

TRM 4.10 AUXILIARY ELECTRICAL POWER SYSTEMS

Applicability:

Applies to the periodic testing requirements of the auxiliary electrical power systems.

Objective:

To verify the operability of the auxiliary electrical power systems.

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION

TRM 3.13 FIRE PROTECTION SYSTEM

Applicability:

Applies to the operational status of the fire protection systems.

Objective:

To assure adequate capability to detect and suppress a fire which could affect the safe shutdown of the reactor.

Specification:

A. Fire Detection

1. Except as specified in TRM Specification TRM 3.13.A.2 below, the minimum number of fire detection sensors and their associated instrument for each location shall be operable in accordance with Table TRM 3.13.A.1, whenever the equipment it protects is required to be operable.

2. From and after the date that less than the minimum number of sensors or their associated instruments are found to be operable, a fire watch shall be established to inspect the location with the inoperable sensor or instruments at least once every hour.

TRM 4.13 TRM SURVEILLANCE REQUIREMENTS

TRM 4.13 FIRE PROTECTION SYSTEM

Applicability:

Applies to the surveillance requirements of the fire protection systems.

Objective:

To verify the operability of the fire protection systems.

Specification:

A. Fire Detection

1. Each of the sensors specified in TRM 3.13.A.1 and their associated instruments including the supervisory circuitry shall be demonstrated operable at least once per 24 months.

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION

B. Vital Fire Suppression Water System

1. Except as specified in TRM Specification TRM 3.13.B.2 and TRM 3.13.B.3 below, the Vital Fire Suppression Water System shall be operable with:

   a. Both fire pumps operable and lined up to the fire suppression loop.

   b. Water available from the Connecticut River.

   c. An operable flow path capable of taking suction from the Connecticut River and transferring the water through the distribution piping with operable sectionalizing control or isolation valves to the yard hydrant curb valves and the hose station isolation valves.

2. From and after the date that less than the above required equipment is operable, restore the component to operable status within 7 days or initiate an Operability Determination (OD) to be approved within 30 days if the equipment is not first restored to operable status. The OD shall outline the plans and procedures to be used to provide for the loss of redundancy in this system.

TRM 4.13 TRM SURVEILLANCE REQUIREMENTS

B. Vital Fire Suppression Water System

1. The Vital Fire Suppression Water System shall be demonstrated operable:

   a. At least once per month by starting each pump and operating it for 15 minutes.

   b. At least once per 6 months by verifying each valve in the flow path is in its correct position. (For electrically supervised valves, adequate verification is a visual check of electrical indication. Also see B.1.e.3)

   c. At least once per year by performance of a system flush of the yard fire loop.

   d. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

   e. At least once per 18 months:

      1) By performing a system functional test by simulating sequential automatic start of the fire pumps as applicable to maintain the Vital Fire Suppression Water System pressure of at least 125 psig.

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION

3. With both fire pumps inoperable, OR with a total loss of the supply water from the Connecticut River, OR a complete loss of a flow path to all fire suppression systems, THEN;

   a. Establish a backup fire suppression water system within 24 hours.

   b. If a. above cannot be fulfilled, place the reactor in hot standby within the next six (6) hours and in cold shutdown with the following thirty (30) hours.

TRM 4.13 TRM SURVEILLANCE REQUIREMENTS

   2) By verifying that each pump will develop a flow of at least 2500 gpm at a discharge pressure of at least 115 psig corrected for river water level.

   3) By cycling and verifying the correct position of each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

f. At least once per 3 years by performing a flow test in accordance with Chapter 5, Section II, of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association.

2. The fire pump diesel engine shall be demonstrated OPERABLE:

   a. At least once per month by verifying;

      1) The fuel storage tank contains at least 150 gallons of fuel, and

      2) The diesel starts from ambient conditions and operates for at least 20 minutes.

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION

TRM 4.13 TRM SURVEILLANCE REQUIREMENTS

b. At least once per quarter by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-02 with respect to viscosity, water content, and sediment.

c. At least once per 18 months by verifying the diesel starts from ambient conditions on the auto-start signal and operates for $\geq$ 20 minutes while loaded with the fire pump.

3. The fire pump diesel starting 24-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per week by verifying that:

1) The electrolyte level of each battery is above the plates, and

2) The overall battery voltage is $\geq$ 24 volts.

b. At least once per quarter by verifying that the specific gravity is appropriate for continued service of the battery.

c. At least once per 18 months by verifying that:

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION	TRM 4.13 TRM SURVEILLANCE REQUIREMENTS
	1) The batteries, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration, and
	2) The battery-to-battery and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material.
C. Fire Hose Stations	C. Fire Hose Stations
1. Except as specified in TRM 3.13.C.2 below, all hose stations inside the Reactor Building, Turbine Building, and those inside the Administration Building which provided coverage of the Control Room Building shall be operable whenever equipment in the areas protected by the fire hose stations is required to be operable.	1. Each fire hose station shall be verified to be operable:
	a. At least once per 6 months by visual inspection of the station to assure all equipment is available, except as allowed by TRM 4.13.C.1.f below.
	b. At least once per 18 months by removing the hose for inspection and replacing degraded coupling gaskets and reracking.
2. With one or more of the fire hose stations specified in TRM 3.13.C.1 above inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an operable hose station within one hour.	c. At least once per 24 months by hydro-statically testing each outside hose at 250 lbs.
	d. At least once per 3 years by hydro-statically testing inside hose at 150 lbs.

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION

TRM 4.13 TRM SURVEILLANCE REQUIREMENTS

e. At least once per 3 years, partially open hose station valves to verify valve operability and no blockage.

f. At least once per 18 months by visual inspection of the station to assure all equipment is available for areas that are not testable during plant operation.

D. CO_2 Systems

1. Except as specified in Specification TRM 3.13.D.2, the CO_2 systems located in the cable vault, east and west switchgear rooms, and diesel fire pump day tank room shall be operable, whenever equipment in the area protected by the system is required to be operable.

2. From and after the date that the CO_2 system in the cable vault or a switchgear room is inoperable, within one hour a fire watch shall be established to inspect the location at least once every hour, provided that the fire detection system is operable in accordance with TRM 3.13.A. If the fire detection system is also inoperable, within one hour a continuous fire watch shall be established with backup fire suppression equipment.

D. CO_2 Systems

1. The CO_2 systems located in the cable vault, east and west switchgear rooms, and diesel fire pump day tank room shall be demonstrated operable.

a. At least once per 24 months by verifying each CO_2 cylinder associated with the cable vault and diesel fire pump day tank room CO_2 systems does not contain less than 90% of its initial charge.

b. At least once per 18 months by verifying that the system, including associated ventilation dampers, will actuate automatically to a simulated actuation signal.

c. Deleted.

d. At least once per 7 days by verifying the CO_2 storage tank associated with the switchgear rooms does not contain less than 50% level and a minimum pressure of 270 psig.

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION	TRM 4.13 TRM SURVEILLANCE REQUIREMENTS
3. From and after the date that the CO_2 system in the diesel fire pump day tank room is inoperable, within one hour a fire watch shall be established to inspect the location at least once every hour.	
E. Vital Fire Barrier Penetration Fire Seals	E. Vital Fire Barrier Penetration Fire Seals
1. Except as specified in TRM Specification TRM 3.13.E.2 below, vital fire barrier penetration seals protecting the Reactor Building, Control Room Building, and Diesel Generator Rooms shall be intact.	1. Vital fire barrier penetration seals shall be verified to be functional by visual inspection at least once every four operating cycles (approximately 25% per operating cycle) and following any repair.
2. From and after the date a vital fire barrier penetration fire seal is not intact, within 1 hour either a) establish a continuous fire watch on at least one side of the affected penetration, or b) IF an operable fire detection system is on at least one side of the affected penetration, THEN establish an hourly fire watch. The hourly fire watch will be established on at least one side of the affected penetration.	

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION

F. Sprinkler Systems

1. Except as specified in TRM Specification TRM 3.13.F.2 below, those sprinkler systems listed in Table TRM 3.13.F.1 shall be operable whenever equipment in the area protected by those sprinklers is required to be operable.

2. From and after the date that one of the sprinkler systems specified in Table TRM 3.13.F.1 is inoperable, a fire watch shall be established within one hour to inspect the location with the inoperable sprinkler system at least once every hour.

TRM 4.13 TRM SURVEILLANCE REQUIREMENTS

F. Sprinkler Systems

1. Each of the sprinkler systems specified in Table TRM 3.13.F.1 shall be demonstrated operable:

   a. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

   b. At least once per 6 months by verifying each valve in the flow path is in its correct position. (For electrically supervised valves, adequate verification is a visual check of electrical indication.)

   c. Perform the following:

      1. Cycle each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel once per 18 months.

      2. Visually inspect the sprinkler headers to verify their integrity once per 24 months.

      3. Visually inspect each nozzle's spray area to verify that the spray pattern is not obstructed once per 24 months.

      4. Verify that automatic valves actuate to their correct position from a test signal once per 18 months.

   d. At least once per 3 years by performing a flow test through each open head sprinkler header and verifying each open head sprinkler nozzle is unobstructed.

TRM 3.13 TRM LIMITING CONDITIONS FOR OPERATION

G. Foam Systems

1. Except as specified in TRM Specification TRM 3.13.G.2 below, the Recirculation M.G. Set Foam System shall be operable with its foam concentrate tank full (150 gallons) whenever the Recirculation M.G. Sets are operating.

2. From and after the date that the Recirculation M.G. Set Foam System is inoperable, a fire watch shall be established to inspect the location at least once every hour; and a foam nozzle shall be brought to the Reactor Building elevation containing the Recirculation M.G. Sets. A 150 gallon foam concentrate supply shall be available on site.

3. Except as specified in TRM Specification TRM 3.13.G.4 below, the Turbine Building Foam System shall be operable with its foam concentrate tank full (150 gallons).

4. From and after the date that the Turbine Building Foam System is inoperable a portable foam nozzle shall be brought to the Turbine Building Foam System location. A 150 gallon foam concentrate supply shall be available on-site.

TRM 4.13 TRM SURVEILLANCE REQUIREMENTS

G. Foam Systems

1. The foam system specified in TRM 3.13.G shall be demonstrated operable.

   a. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

   b. Perform the following:

      1. Cycle each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel once per 18 months.

      2. Visually inspect the foam system and equipment to verify integrity once per 24 months.

      3. Visually inspect the Recirculation M.G. Set Foam System foam nozzle area to verify that the spray pattern is not obstructed once per 24 months.

      4. Foam concentrate samples shall be taken and analyzed for acceptability once per 18 months.

   c. Deleted.

TABLE TRM 3.13.A.1

FIRE DETECTION SENSORS

	Sensor Location	Minimum No. of Sensors Required to Be Operable		
		Heat	Flame	Smoke
1.	Cable Spreading Room & Station Battery Room	-	-	23
2.	Switchgear Room (East)	-	-	10
3.	Switchgear Room (West)	-	-	10
4.	Diesel Generator Room (A)	-	3	-
5.	Diesel Generator Room (B)	-	3	-
6.	Intake Structure (Service Water)	1	1	1
7.	Recirc Motor Generator Set Area	3	-	8
8.a	Control Room Zone 1 (Control Room Ceiling)	-	-	14
8.b	Control Room Zone 2 (Control Room Panels)	-	-	18
8.c	Control Room Zone 3 (Control Room Panels)	-	-	25
8.d	Control Room Zone 4 (Control Room Panels)	-	-	10
8.e	Control Room Zone 5 (Exhaust & Supply Ducts)	-	-	2
9.a	Rx Bldg. Corner Rm NW 232	-	-	1
9.b	Rx Bldg. Corner Rm NW 213 (RCIC)	-	-	1
9.c	Rx Bldg. Corner Rm NE 232	-	-	1
9.d	Rx Bldg. Corner Rm NE 213	-	-	1
9.e	Rx Bldg. Corner Rm SE 232	-	-	1
9.f	Rx Bldg. Corner Rm SE 213	-	-	1
9.g	Rx Bldg. Corner Rm SW 232	-	-	1
10.	HPCI Room	-	-	8
11.	Torus area	12	-	16
12.	Rx Bldg. Cable Penetration Area	-	-	7
13.	Refuel Floor	-	-	13
14.	Diesel Oil Day Tank Room (A)	-	1*	1*
15.	Diesel Oil Day Tank Room (B)	-	1*	1*
16.	Turbine Loading Bay (vehicles)	-	3	-

*NOTE: The Diesel Day Tank Rooms require only one detector operable (1 flame or 1 smoke).

TABLE TRM 3.13.F.1

SPRINKLER SYSTEMS

1. Reactor Building Penetration Area Preaction System
2. Diesel Generator Room A System
3. Diesel Generator Room B System
4. Turbine Loading Bay System
5. Diesel-driven Fire Pump System

TRM BASES:

TRM 3.13 & TRM 4.13 FIRE PROTECTION SYSTEMS

On May 11, 1976, Vermont Yankee received a letter from the NRC requesting that an in-depth evaluation of the existing fire protection systems be performed using Branch Technical Position (BTP) APCSB 9.5-1 as a guide. Concurrent with this evaluation a fire hazards analysis of the entire plant complex was required. In an effort to clarify the BTP an Appendix A was subsequently issued to specifically address operating plants. Enclosed with this Appendix the NRC requested that proposed Technical Specifications on fire protection also be submitted. The subject section TRM 3.13/4.13 and the following specific bases are those specifications evolving from these efforts.

A. The smoke, heat and flame detectors provide the early warning fire detection capability necessary to detect problems in vital areas of the plant. Surveillance requirements assure these sensors and their associated instruments to be operable. When the equipment protected by the detectors is not required to be operable, specifications covering the sensors and instruments do not apply.

B,C, D,F, and G The Vital Fire Suppression Water System, CO_2 systems, sprinkler systems and foam systems specifications are provided to meet pre-established levels of system operability in the event of a fire. These systems provide the necessary protection to assure safe reactor shutdown. Periodic surveillance testing provides assurance that vital fire suppression systems are operable.

The east and west switchgear rooms low pressure CO_2 storage tank TRM Specification minimum level of 50% provides for sufficient CO_2 quantity to achieve and maintain design concentration, in accordance with NFPA 12 (1993), in the east or west switchgear rooms. The TRM Specification minimum tank pressure of 270 psig will provide the minimum pressure to meet system design.

E. Vital fire barrier penetration fire seals are provided to assure that the fire resistance rating of barriers is not reduced by a penetration. Surveillance inspections shall be performed to insure that the integrity of these seals is maintained.

The diesel fire pump has a design consumption rate of 18 gallons of fuel per hour; therefore, 150 gallons provides for greater than 8 hours of operation. Additional fuel can be delivered in about one hour and additional fuel is on site. When the equipment protected by the fire protection systems is not required to be operable, the specifications governing the fire protection system do not apply.

The fire protection testing frequencies have been adjusted to utilize performance based testing. The goal is to achieve an availability factor of 99.0%. Based on this goal, the test frequencies may be increased up to the limits indicated, if the testing data supports the goal of a 99.0% availability factor. The Fire Protection Engineer will review test data to ensure that a 99.0% availability factor is met or exceeded and to recommend additional testing when this goal is not achieved.

TRM 6.0 ADMINISTRATIVE CONTROLS

Administrative controls are the written rules, orders, instructions, procedures, policies, practices, and the designation of authorities and responsibilities by the management to obtain assurance of safety and quality of operation and maintenance of a nuclear power reactor. These controls shall be adhered to.

TRM 6.1 ORGANIZATION

D. Conduct of operations of the plant will be in accordance with the following.

2. Minimum shift staffing on-site shall be in accordance with Table TRM 6.1.1.

3. A dedicated, licensed Senior Operator shall be in charge of any reactor core alteration.

4. The plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in Technical Specifications are documented in Table TRM 6.1.2.

7. If the Manager, Operations does not possess a Senior Operator License, then an Assistant Operations Manager shall be designated that does possess a Senior Operator License. All instructions to the shift crews involving licensed activities shall then be approved by designated Assistant Operations Manager.

E. A Fire Brigade of at least 5 members shall be maintained on-site at all times.[#] This excludes 2 members of the minimum shift crew necessary for safe shutdown of the plant and any personnel required for other essential functions during a fire emergency.

[#] Fire Brigade composition may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence of Fire Brigade members provided immediate action is taken to restore the Fire Brigade to within the minimum requirements.

TABLE TRM 6.1.1

Vermont Yankee staff positions that shall be filled by personnel holding Senior Operator and Operator licenses are indicated in the following table:

Title	License Requirements
Manager, Operations	Licensed Senior Operator (Except as specified in TRM Specification 6.1.D.7)
Manager, Shift	Licensed Senior Operator
Control Room Supervisor	Licensed Senior Operator
Control Room Operator	Licensed Operator

	CONDITIONS	
MINIMUM SHIFT STAFFING ON-SITE	Plant Startup and Normal Operation (Note 1)	Cold Shutdown or Refueling With Fuel in the Reactor (Note 2)
Manager, Shift	1	1
Control Room Supervisor	1	-
Control Room Operator	2	1
Auxiliary Operator	2	1
Shift Technical Advisor	1	-

NOTES:

(1) At least one Senior Licensed Operator and one Licensed Operator, or two Senior Licensed Operators, shall be in the Control Room.

(2) At least one Licensed Operator, or one Senior Licensed Operator, shall be in the Control Room.

Table TRM 6.1.2

The following table provides the link between TS generic position titles and Vermont Yankee plant-specific position titles, as specified in TS 6.2.A.1.

Generic Title	**Plant-Specific Title**
plant manager	General Manager, Plant Operations
shift supervisor	Manager, Shift
site vice president	Site Vice President
operations manager	Manager, Operations
assistant operations manager	Assistant Operations Manager
shift engineer	Shift Technical Advisor
radiation protection manager	Manager, Radiation Protection

Reference: License Amendment No. 214, NVY 03-19, dated 2/27/03.

TRM 6.3 ACTION TO BE TAKEN IN THE EVENT OF A REPORTABLE OCCURRENCE IN PLANT OPERATION

Applies to administrative action to be followed in the event of a reportable occurrence in plant operation.

Any reportable occurrence shall be reported to the Site Vice President, reviewed by the On-site Safety Review Committee and approved by the General Manager, Plant Operations.

Copies of all such reports shall be submitted to the Safety Review Committee for review.

TRM 6.4 ACTION TO BE TAKEN IF A SAFETY LIMIT IS EXCEEDED

If a safety limit is exceeded, an immediate report shall be made to the Site Vice President. A complete analysis of the circumstances leading up to and resulting from the situation together with recommendations by the On-site Safety Review Committee shall also be prepared. This report shall be submitted to the Site Vice President and the Safety Review Committee.

Reactor operation shall not be resumed until authorized by the U.S. Nuclear Regulatory Commission.

TRM 6.5 PLANT OPERATING PROCEDURES

A. Detailed written procedures, involving both nuclear and non-nuclear safety, including applicable check-off lists and instructions, covering areas listed below shall be prepared and approved.

All procedures shall be adhered to.

7. Fire protection program implementation including minimum fire brigade requirements and training. The training program shall meet or exceed the requirements of 10CFR50 Appendix R with NFPA 27 1976 as reference.

F. Licensed radioactive sealed sources shall be leak tested for contamination. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically authorized by the Commission or an agreement state as follows:

1. Each licensed sealed source, except startup sources previously subjected to core flux, containing radioactive materials, other than Hydrogen 3, with half-life greater than thirty days and in any form, other than gas, shall be tested for leakage and/or contamination at intervals not to exceed six months.

2. The periodic leak test required does not apply to sealed sources that are stored and are not being used. The sources exempted from this test shall be tested for leakage prior to any use or transfer to another user unless they have been leak tested within six months prior to the date of use or transfer. In the absence of a certificate from a transferrer indicating that a leak test has been made within six months prior to the transfer, sealed sources shall not be put into use until tested.

3. Each sealed startup source shall be tested within 31 days prior to being subjected to core flux and following repair or maintenance to the source.

The leakage test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, it shall immediately be withdrawn from use, decontaminated, and repaired, or be disposed of in accordance with Commission regulations.

Notwithstanding the periodic leak tests required by this section, any licensed sealed source is exempt from such leak test when the source contains 100 microcuries or less of beta and/or gamma emitting material or 5 microcuries or less of alpha emitting material.

A special report shall be prepared and submitted to the Commission within 90 days if source leakage tests reveal the presence of $\geq$0.005 microcuries of removable contamination.

TRM 6.7 REPORTING REQUIREMENTS

In addition to the applicable reporting requirements of Title 10 Code of Federal Regulations, the following identified reports shall be submitted to the Director of the appropriate Regional Office of Inspection and Enforcement unless otherwise noted.

A. 1. Startup Report

A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal or hydraulic performance of the plant. The report shall address each of the tests identified in the FSAR and shall, in general, include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption of commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the startup report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

TRM 6.11 IODINE MONITORING

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

A. Training of personnel.

B. Procedures for monitoring.

C. Provisions for maintenance of sampling and analysis equipment.

TRM 6.12 PROCESS CONTROL PROGRAM (PCP)

A process control program shall contain the sampling, analysis, tests, and determinations by which wet radioactive waste from liquid systems is assured to be converted to a form suitable for off-site disposal.

A. Licensee initiated changes to the PCP:

1. Shall be submitted to the Commission in the Annual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:

   a. Sufficiently detailed information to support the rationale for the change without benefit of additional or supplemental information.

   b. A determination that the change did not reduce the overall conformance of the dewatered spent resins/filter media waste product to existing criteria for solid waste shipments and disposal.

   c. Documentation of the fact that the change has been reviewed by OSRC and approved by the Site Vice President.

2. Shall become effective upon review by OSRC and approval by the Site Vice President.

Areas requiring personnel access for establishing hot shutdown conditions.