February 10, 1983

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Docket No. 50-29
LS05-83-02-028

Mr. James A. Kay
Senior Engineer - Licensing
Yankee Atomic Electric Company
1671 Worcester Road
Framingham, Massachusetts 01701

Dear Mr. Kay:

SUBJECT: NUREG-0737 TECHNICAL SPECIFICATIONS

In a telephone conversation on February 8, 1983, you stated that Yankee Atomic Electric Company (YAEC) had not received our Generic Letter No. 82-16, related to NUREG-0737 Technical Specifications. We have enclosed a copy of the generic letter and request that you respond to it within 60 days of receipt of this letter.

We have taken steps to ensure that future generic letters will be sent directly to you.

Sincerely,

Original signed by/

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

SE01
DSU USE (11)

Enclosure:
As stated

cc w/enclosure:
See next page

OFFICE	DL:ORB#5	DL:ORB#5					
SURNAME	JLyons:ajs	DCrutchfield					
DATE	02/10/83	02/10/83					

cc
Mr. James E. Tribble, President
Yankee Atomic Electric Company
1671 Worcester Road
Framingham, Massachusetts 01701

Chairman
Board of Selectmen
Town of Rowe
Rowe, Massachusetts 01367

Energy Facilities Siting Council
14th Floor
One Ashburton Place
Boston, Massachusetts 02108

U. S. Environmental Protection
Agency
Region I Office
ATTN: Regional Radiation Representative
JFK Federal Building
Boston, Massachusetts 02203

Massachusetts Department of Public
Utilities
ATTN: Chairman
Leverett Saltonstall Building
Government Center
100 Cambridge Street
Boston, Massachusetts 02202

Resident Inspector
Yankee Rowe Nuclear Power Station
c/o U.S. NRC
P. O. Box 28
Monroe Bridge, Massachusetts 01350

Ronald C. Haynes, Regional Administrator
Nuclear Regulatory Commission, Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 20, 1982

TO ALL PRESSURIZED POWER REACTOR LICENSEES

Gentlemen:

SUBJECT: NUREG-0737 TECHNICAL SPECIFICATIONS (GENERIC LETTER NO. 82-16)

NUREG-0737 "Clarification of TMI Action Plan Requirements" identifies those items for which Technical Specifications are required. Technical Specifications are required to provide necessary assurance that facility operation is maintained within the limits determined acceptable following implementation at each facility. The scope and type of specification should include appropriate actions if a limiting condition for operation cannot be met, and for installed equipment, relevant surveillance requirements.

A number of NUREG-0737 items which require Technical Specifications were scheduled for implementation by December 31, 1981. Each of those items is discussed in Enclosure 1. Included in the discussion is guidance on the scope of a specification which the staff would find acceptable. Enclosure 2 are samples in Standard Technical Specification format with blanks or parentheses appearing where the information is plant specific. It includes appropriate pages as background information for facilities that do not have Standard Technical Specifications. These samples are for your information only.

We solicited comments on proposed Technical Specifications from all pressurized water reactor owners groups and Atomic Industrial Forum. Appropriate comments have been incorporated. We request that you review your facility's Technical Specifications to determine if they are consistent with the guidance provided in Enclosure 1. For those items where you identify deviations or absence of a specification, we request that you submit an application for a license amendment. If some of the items are not yet implemented at your facility, you should submit an amendment request at the time they are implemented. Please respond within 90 days of receipt of this letter.

This request for information was approved by the Office of Management and Budget under clearance number 3150-0065 which expires May 31, 1983. Comments on burden and duplication may be directed to the Office of Management and Budget, Reports Management Room 3208, New Executive Office Building, Washington, D.C. 20503.

Sincerely,

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures:
1. Technical Specification
   Guidance
2. Sample Technical Specification

STAFF GUIDANCE OF NUREG-0737 TECHNICAL SPECIFICATIONS

(ITEMS SCHEDULED BY DECEMBER 31, 1981)

(1) STA Training (I.A.1.1.3)

Our July 2, 1980 letter provided model TSs for TMI lessons learned Category "A" items. Included were TSs that specified the qualifications, training and on-duty requirements for the Shift Technical Advisors (STA). STA training requirements are under the consideration by the Commission. Further guidance will be provided pending the decision on the requirements by the Commission.

(2) Limit Overtime (I.A.1.3)

On June 15, 1982 we transmitted to licensees of operating plants a revised version of the Commission's Policy Statement on nuclear power plant staff working hours. In the same letter we also transmitted revised pages of NUREG-0737 (Item I.A.1.3). The administrative section of the technical specifications should be revised to require procedures that follow the policy statement guidelines. An acceptable specification would be "the amount of overtime worked by plant staff members performing safety-related functions must be limited in accordance with the NRC Policy Statement on working hours (Generic Letter No. 82-12)," or following the model TSs in Enclosure 2.

(3) Short Term Auxiliary Feedwater System Evaluation (II.E.1.1)

The objective of this item is to improve the reliability and performance of the auxiliary feedwater (AFW) system. TSs depend on the results of the licensee's evaluation and the staff review, and are being developed separately for each plant. The limiting conditions of operation (LCO's) and surveillance requirements for the AFW system should be similar to other safety-related systems.

(4) Safety Grade AFW System Initiation and Flow Indication (II.E.1.2)

The AFW system automatic initiation system was to have been control grade by June 1, 1980 and safety grade by July 1, 1981; the AFW system flow indication was to have been control grade by January 1, 1980 and safety grade by July 1, 1981. The control grade requirement was part of the short term lessons learned activities, and model TSs were included with our July 2, 1980 letter. These TSs are considered adequate as TSs for the safety grade requirement.

(5) Dedicated Hydrogen Penetrations (II.E.4.1)

Plants that use external recombiners or purge systems for post-accident combustible gas control of the containment atmosphere should provide containment penetrations dedicated to that service. In satisfying this item, some plants may have to add some additional piping and valves. If so, these valves should be subjected to the requirements of Appendix J, and the TSs should be modified accordingly.

(6) Containment Pressure Setpoint (II.E.4.2.5)

The containment pressure setpoint that initiates containment isolation must be reduced to the minimum compatible with normal operating conditions. Most plants provided justification for not changing their setpoint and we approved their justification by separate correspondence. The remaining plants must submit a change to the TSs with the lower containment pressure setpoint and provide justification if this setpoint is more than 1 psi above maximum expected containment pressure during normal operation.

(7) Containment Purge Valve (II.E.4.2.6)

Model TSs are being sent separately to each plant as part of the overall containment purge review. These TSs include the requirement that the containment purge valves be locked closed except for safety-related activities, verified closed at least every 31 days, and be subjected to leakage rate limits.

(8) Radiation Signal on Purge Valves (II.E.4.2.7)

The containment purge valves must close promptly to reduce the amount of radiation released outside containment following a release of radioactive materials to containment. TSs should include the requirement that at least one radiation monitor that automatically closes the purge valves upon sensing high radiation in the containment atmosphere be operable at all times except cold shutdowns and refueling outages. If not operable, either the plant should being proceeding to cold shutdown within 24 hours or the purge valves should be closed within 24 hours. Model TSs are provided in Enclosure 2 in Standard Technical Specifications format for those plants that are using safety-grade components to satisfy the requirement.

(9) Upgrade B&W AFW System (II.K.2.8)

Acceptance criteria for proposed TSs are identical to that described in (2) and (3) above.

(11) B&W Thermal-Mechanical Report (II.K.2.13)

Licensees of B&W operating reactors are required to submit by January 1, 1981 an analysis of the thermal-mechanical conditions in the reactor vessel during recovery from small breaks with an extended loss of all feedwater. TSs, if required, will be determined following staff review.

(12) Reporting SV and RV Failures and Challenges (II.K.3.3)

NUREG-0660 stated that safety and relief valve failures be reported promptly and challenges be reported annually. The sections of your TSs that discuss reporting requirements should be accordingly changed; model TSs are given in Enclosure 2. Note that an acceptable alternative would be to report challenges monthly.

(13) Anticipatory Trip on Turbine Trip (II.K.3.12)

Licensees with Westinghouse-designed operating plants have confirmed that their plants have an anticipatory reactor trip upon turbine trip. Many of these plants already have this trip in their TSs. For those that do not, the anticipatory trip should be added to the TSs. Model TSs are included in Enclosure 2 in the format of Standard Technical Specifications.

ENCLOSURE 2

PWR MODEL TECHNICAL SPECIFICATIONS

FOR

NUREG-0737 TMI-2 LESSONS LEARNED

INDEX

DEFINITION OF OPERATIONAL MODES FOR COMBUSTION ENGINEERING PLANTS

OPERATIONAL MODE	REACTIVITY CONDITION, K_{eff}	% OF RATED THERMAL POWER*	AVERAGE COOLANT TEMPERATURE
1. POWER OPERATION	$\geq$ 0.99	> 5%	$\geq$ 300°F
2. STARTUP	$\geq$ 0.99	$\leq$ 5%	> 300°F
3. HOT STANDBY	< 0.99	0	$\geq$ 300°F
4. HOT SHUTDOWN	< 0.99	0	300°F> T_{avg} >200°F
5. COLD SHUTDOWN	< 0.99	0	$\leq$ 200°F
6. REFUELING**	$\leq$ 0.95	0	$\leq$ 140°F

*Excluding decay heat.

**Reactor vessel head unbolted or removed and fuel in the vessel.

This page is provided as background for plants that do not have Standard Technical Specifications.

DEFINITION OF OPERATIONAL MODES FOR BABCOCK AND WILCOX PLANTS

OPERATIONAL MODE	REACTIVITY CONDITION, K_{eff}	% OF RATED THERMAL POWER*	AVERAGE COOLANT TEMPERATURE
1. POWER OPERATION	$\geq$ 0.99	> 5%	$\geq$ 305°F
2. STARTUP	$\geq$ 0.99	$\leq$ 5%	$\geq$ 305°F
3. HOT STANDBY	< 0.99	0	$\geq$ 305°F
4. HOT SHUTDOWN	< 0.99	0	305°F> T_{avg} >200°F
5. COLD SHUTDOWN	< 0.99	0	$\leq$ 200°F
6. REFUELING**	$\leq$ 0.95	0	$\leq$ 140°F

*Excluding decay heat.

**Reactor vessel head unbolted or removed and fuel in the vessel.

This page is provided as background for plants that do not have Standard Technical Specifications.

DEFINITION OF OPERATIONAL MODES FOR WESTINGHOUSE PLANTS

OPERATIONAL MODE	REACTIVITY CONDITION, K_{eff}	% OF RATED THERMAL POWER*	AVERAGE COOLANT TEMPERATURE
1. POWER OPERATION	$\geq$ 0.99	> 5%	$\geq$ 350°F
2. STARTUP	$\geq$ 0.99	$\leq$ 5%	$\geq$ 350°F
3. HOT STANDBY	< 0.99	0	$\geq$ 350°F
4. HOT SHUTDOWN	< 0.99	0	350°F> T_{avg} >200°F
5. COLD SHUTDOWN	< 0.99	0	$\leq$ 200°F
6. REFUELING**	$\leq$ 0.95	0	$\leq$ 140°F

*Excluding decay heat.

**Reactor vessel head unbolted or removed and fuel in the vessel.

This page is provided as background for plants that do not have Standard Technical Specifications.

FREQUENCY NOTATION

NOTATION	FREQUENCY
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days
Q	At least once per 92 days.
SA	At least once per 184 days.
R	At least once per 18 months.
S/U	Prior to each reactor startup.
N.A.	Not applicable.

This page is provided as background for plants that do not have Standard Technical Specifications.

TRIP ACTUATING DEVICE OPERATIONAL TEST

A TRIP ACTUATING DEVICE OPERATIONAL TEST shall consist of operating the Trip Actuating Device and verifying OPERABILITY of alarm, interlock and/or trip functions. The TRIP ACTUATING DEVICE OPERATIONAL TEST shall include adjustment, as necessary, of the Trip Actuating Device such that it actuates at the required setpoint within the required accuracy.

CHANNEL CALIBRATION

A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

ACTUATION LOGIC TEST

An ACTUATION LOGIC TEST shall be the application of various simulated input combinations in conjunction with each possible interlock logic state and verification of the required logic output. The ACTUATION LOGIC TEST shall include a continuity check, as a minimum, of output devices.

ANALOG CHANNEL OPERATIONAL TEST

An ANALOG CHANNEL OPERATIONAL TEST shall be the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY of alarm, interlock and/or trip functions. The ANALOG CHANNEL OPERATIONAL TEST shall include adjustments, as necessary, of the alarm, interlock and/or trip setpoints such that the setpoints are within the required range and accuracy.

LL/STS-PWR

This page is provided as background for plants that do not have Standard Technical Specifications.

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4 and with RESPONSE TIMES as shown in Table 3.3-5.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

a. With an ESFAS instrumentation channel or interlock trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value.

b. With an ESFAS instrumentation channel or interlock inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by the performance of the engineered safety feature actuation system instrumentation surveillance requirements specified in Table 4.3-2.

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3.

This page is provided as background for plants that do not have Standard Technical Specifications.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT		TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
CONTAINMENT ISOLATION						
Purge (and Exhaust) Isolation						
(W and B&W)	Containment Radioactivity-High	(4)	(2)	(3)	1, 2, 3, 4	*
(CE)	Containment Radiation-High					
	Gaseous Monitor	(1)	(1)	(1)	1, 2, 3, 4	*
	Particulate Monitor	(1)	(1)	(1)	1, 2, 3, 4	*
	Area Monitor	(1)	(1)	(1)	1, 2, 3, 4	*

*With less than the Minimum Channels Operable, operation may continue provided the containment purge (and exhaust) valves are maintained closed.

See page 3.2-2 for pre[illegible]

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES*
CONTAINMENT ISOLATION		
Purge (and Exhaust) Isolation		
Containment Radioactivity--High	( )	( )

*Operation with a trip set less conservative than its Trip Setpoint but within its specified Allowable value is acceptable on the basis that the difference between each Trip Setpoint and the Allowable Value is equal to or less than the drift allowance for all trips including those trips assumed in the safety analyses.

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
Containment Radioactivity - High	
a. Purge (and Exhaust) Isolation	≤ ( )* / ( )**

*Diesel generator starting and sequence loading delays included. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

**Diesel generator starting and sequence loading delays not included. Offsite power available. Response time limit includes movement of valves and attainment of pump or blower discharge pressure.

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEMS INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
CONTAINMENT ISOLATION				
Containment Purge (and Exhaust) Isolation				
Containment Radioactivity-High	S	R	M	1, 2, 3, 4

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITORS					
Containment - Purge (and Exhaust) Isolation)	(1)	6	($\leq$ 2 x background)	(1 - 10^5) cpm	*
2. PROCESS MONITORS					
Containment					
i. Gaseous Activity Purge (and Exhaust) Isolation	(1)	6	($\leq$ 2 x background)	(1 - 10^5) cpm	*
ii. Particulate Activity Purge (and Exhaust) Isolation	(1)	6	($\leq$ 2 x background)	(1 - 10^5) cpm	*

*With the number of OPERABLE channels less than the Minimum Channels OPERABLE requirement, close each of the purge (and exhaust) penetrations providing direct access from the containment atmosphere to the outside atmosphere. The provisions of Specification 3.0.4 are not applicable.

6.9 REPORTING REQUIREMENTS

ANNUAL REPORTS [1/]

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include:

c. Documentation of all challenges to the pressurizer power operated relief valves (PORVs) or safety valves.

PROMPT NOTIFICATION WITH WRITTEN FOLLOWUP

6.9.1.8 The types of events listed below shall be reported within 24 hours by telephone and confirmed by telegraph, mailgram, or facsimile transmission to the NRC Regional Administrator, of his designate no later than the first working day following the event, with a written followup report within 14 days. The written followup report shall include, as a minimum, a completed copy of a licensee event report form. Information provided on the licensee event report form shall be supplemented, as needed, by additional narrative material to provide complete explanation of the circumstances surrounding the event.

j. Failure of the pressurizer PORVs or safety valves.

[1/] A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS

2.2.1 The reactor trip system instrumentation and interlocks setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2-1.

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

ACTION:

With a reactor trip system instrumentation or interlock setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

This page is provided as background for plants that do not have Standard Technical Specifications.

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
Turbine Trip		
A. Low Trip System Pressure	$\geq$ (900) psig	$\geq$ (800) psig
B. Turbine Stop Valve Closure	$\geq$ 1% open	$\geq$ 1% open

BASES

Turbine Trip

A Turbine Trip initiates a reactor trip. On decreasing power the turbine trip is automatically blocked by P-7 (a power level of approximately 10 percent of RATED THERMAL POWER with a turbine impulse chamber at approximately 10 percent of full power equivalent); and on increasing power, reinstated automatically by P-7.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor trip system instrumentation channel and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the reactor trip system instrumentation surveillance requirements specified in Table 4.3-1.

4.3.1.2 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

This page is provided as background for plants that do not have Standard Technical Specifications.

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
Turbine Trip					
A. Low Fluid Oil Pressure	3	2	2	1	7#
B. Turbine Stop Valve Closure	4	4	1	1	14

TABLE 3.3-1 (Continued)

TABLE NOTATION

*With the reactor trip system breakers in the closed position, the control rod drive system capable of rod withdrawal.

**The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.

#The provisions of Specification 3.0.4 are not applicable.

##Below the P-6 (Intermediate Range Neutron Flux Interlock) setpoint.

###Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels per Specification 4.3.1.1.

c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux trip setpoint is reduced to less than or equal to (85)% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.2.

This page is provided as background for plants that do not have Standard Technical Specifications.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Intermediate Range Neutron Flux Interlock) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Intermediate Range Neutron Flux Interlock) setpoint but below 10 percent of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10 percent of RATED THERMAL POWER.

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement suspend all operations involving positive reactivity changes.

ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels per Specification 4.3.1.1.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

ACTION 8 - With less than the Minimum Number of Channels OPERABLE, within one hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

This page is provided as background for plants that do not have Standard Technical Specifications.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTION 9 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours. One channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.

ACTION 10 - With the number of OPERABLE Channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 2 hours or reduce THERMAL POWER to below the P-8 (Power Range Neutron Flux Interlock) setpoint within the next 2 hours. Operation below the P-8 setpoint may continue pursuant to ACTION 11.

ACTION 11 - With the number of OPERABLE Channels one less than the Minimum Channels OPERABLE requirement, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour.

ACTION 12 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

ACTION 13 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPEARABLE status within 48 hours or open the reactor trip breakers within the next hour.

ACTION 14 - With the number of OPERABLE channels less than the TOTAL NO. of CHANNELS operation may continue provided the inoperable channels are placed in the tripped condition within 1 hour.

TABLE 3.3-2 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME
Turbine Trip	
A. Low Fluid Oil Pressure	Not Applicable
B. Turbine Stop Valve Closure	Not Applicable

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
Turbine Trip						
A. Low Fluid Oil Pressure	N.A.	R	N.A.	S/U(1, 10)	N.A.*	1
B. Turbine Stop Valve Closure	N.A.	R	N.A.	S/U(1, 10)	N.A.*	1

*For plants with Automatic Trip Logic, actuation logic testing is to be performed monthly.

TABLE 4.3-1 (Continued)

TABLE NOTATION

* - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.

- Below P-6 (Intermediate Range Neutron Flux Interlock) setpoint.

- Below P-10 (Low Setpoint Power Range Neutron Flux Interlock) setpoint.

(1) - If not performed in previous 7 days.

(2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.

(3) - Compare incore to excore axial flux difference above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference is greater than or equal to (3) percent.

(4) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(5) - Detector plateau curves shall be obtained and evaluated. For the Intermediate Range and Power Range Neutron Flux Channels the provisions of Specification 4.0.4 are not applicable for entry into MODE 2 or 1.

(6) - Incore - Excore Calibration.

(7) - Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.

(8) - With power gr ater than or equal to the interlock setpoint the required OPERATIONAL TEST shall consist of verifying that the interlock is in the required state by observing the permissive annunciator window.

(9) - Monthly Surveillance in MODES 3*, 4* and 5* shall also include verification that permissives P-6 and P-10 are in their required state for existing plant conditions by observation of the permissive annunciator window.

(10) - Setpoint verification is not required.

This page is provided as background for plants that do not have Standard Technical Specifications.

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS

2.2.1 The Reactor Protection System instrumentation setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2-1.

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

ACTION:

With a Reactor Protection System instrumentation setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

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TABLE 2.2-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTION UNIT	TRIP SETPOINT	ALLOWABLE VALUES
Turbine Trip	≤ ( ) psig	≤ ( ) psig
Trip of Both Main Feedwater Pumps	≤ ( ) psig	≤ ( ) psig

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the Reactor Protection System instrumentation channels and bypasses of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Table 3.3-2.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Protection System instrumentation channel and bypass shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1.

4.3.1.2 The REACTOR PROTECTION SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

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TABLE 3.3-1 (continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
Turbine Trip	4	2(C)	3	1	3#
Trip of Both Main Feedwater Pumps	4	2(C)	3	1	3#

TABLE 3.3-1 (Continued)

TABLE NOTATION

*With the control rod drive trip breakers in the closed position, the control rod drive system capable of rod withdrawal, and fuel in the reactor vessel.

#The provisions of Specification 3.0.4 are not applicable.

**High voltage to detector may be de-energized above 10^{-10} amps on both Intermediate Range channels.

(a) Trip may be manually bypassed when the RCS pressure is less than or equal to (1720) psig by actuating Shutdown Bypass provided that:

(1) The Nuclear Overpower Trip Setpoint is less than or equal to 5% of RATED THERMAL POWER.

(2) The Shutdown Bypass RCS Pressure--High Trip Setpoint of less than or equal to (1720) psig is imposed.

(3) The Shutdown Bypass is removed when the RCS pressure is greater than (1800) psig.

(b) Trip may be bypassed during testing pursuant to Special Test Exception 3.10.4.

(c) Trip automatically bypassed below 20 percent of RATED THERMAL POWER.

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and/or open the control rod drive trip breakers.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels STARTUP and/or POWER OPERATION may proceed provided all of the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within one hour.

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1, and the inoperable channel above may be bypassed for up to 30 minutes in any 24 hour period when necessary to test the trip breaker associated with the logic of the channel being tested per Specification 4.3.1.1.

TABLE 3.3-1 (Continued)

ACTION STATEMENTS (Continued)

ACTION 2 (Continued)

c. Either, THERMAL POWER is restricted to less than or equal to (75)% of RATED THERMAL POWER and the Nuclear Overpower Trip Setpoint is reduced to less than or equal to (85)% of RATED THERMAL POWER within 4 hours or the QUADRANT POWER TILT is monitored at least once per 12 hours.

ACTION 3 - With the number of OPERABLE channels one less than the Total Number of Channels STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within one hour.

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1, and the inoperable channel above may be bypassed for up to 30 minutes in any 24-hour period when necessary to test the trip breaker associated with the logic of the channel being tested per Specification 4.3.1.1.

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL Power level:

a. Less than or equal to 5% of RATED THERMAL POWER restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

b. Greater than 5% of RATED THERMAL POWER, POWER OPERATION may continue.

c. Above 10% of RATED THERMAL POWER, the provisions of Specification 3.0.3 are not applicable.

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Less than or equal to 10^{-10} amps on the Intermediate Range (IR) instrumentation, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10^{-10} amps on the IR instrumentation.

b. Greater than 10^{-10} amps on the IR instrumentation, operation may continue.

ACTION 6 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 within one hour and at least once per 12 hours thereafter.

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TABLE 3.3-2

REACTOR PROTECTION SYSTEM INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIMES
Trip of Main Turbine	Not Applicable
Trip of Both Main Feedwater Pumps	Not Applicable

TABLE 4.3-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
Turbine Trip	S	R	M	1
Trip of Both Main Feedwater Pumps	S	R	M	1

BASES

ANTICIPATORY REACTOR TRIP

Safety-grade anticipatory reactor trips above 20% power are initiated by a turbine trip or trip of both main feedwater pumps. These anticipatory trips will operate in advance of the reactor coolant system high pressure reactor trip to reduce the peak reactor coolant system pressure and thus reduce challenges to the power operated relief valve. These anticipatory trips were installed to satisfy Item II.K.2.10 of NUREG-0737.

6.2 ORGANIZATION

UNIT STAFF

6.2.2 The Unit organization shall be as shown in Figure 6.2-2 and:

f. Administrative procedures shall be developed and implemented to limit the working hours of unit staff who perform safety-related functions; e.g., senior reactor operators, reactor operators, health physicists, auxiliary operators, and key maintenance personnel.

Adequate shift coverage shall be maintained without routine heavy use of overtime. The objective shall be to have operating personnel work a normal 8-hour day, 40-hour week while the plant is operating. However, in the event that unforseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance or major plant modifications, on a temporary basis, the following guidelines shall be followed:

a. An individual should not be permitted to work more than 16 hours straight, excluding shift turnover time.

b. An individual should not be permitted to work more than 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, nor more than 72 hours in any seven day period, all excluding shift turnover time.

c. A break of at least eight hours should be allowed between work periods, including shift turnover time.

d. Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on a shift.

Any deviation from the above guidelines shall be authorized by the (Plant Superintendent) or his deputy, or higher levels of management, in accordance with established procedures and with documentation of the basis for granting the deviation. Controls shall be included in the procedures such that individual overtime shall be reviewed monthly by the (Plant Superintendent) or his designee to assure that excessive hours have not been assigned. Routine deviation from the above guidelines is not authorized.