

BWR MODEL TECHNICAL SPECIFICATIONS
FOR
NUREG-0737 TMI ACTION PLAN REQUIREMENTS

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NUREG-073
NUMBER

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DEFINITIONS

OPERATIONAL CONDITIONS

<u>CONDITION</u>	<u>MODE SWITCH POSITION</u>	<u>AVERAGE REACTOR COOLANT TEMPERATURE</u>
1. POWER OPERATION	Run	Any Temperature
2. STARTUP	Startup/Hot Standby	Any Temperature
3. HOT SHUTDOWN	Shutdown#,***	>200°F
4. COLD SHUTDOWN	Shutdown#,##,***	≤200°F
5. REFUELING*	Shutdown or Refuel**,#	≤140°F

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

The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that the control rods are verified to remain fully inserted by a second licensed operator or other technically qualified member of the unit technical staff.

The reactor mode switch may be placed in the Refuel position while a single control rod drive is being removed from the reactor pressure vessel per Specification 3.9.10.1.

*Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

**See Special Test Exceptions 3.10.1 and 3.10.3.

***The reactor mode switch may be placed in the Refuel position while a single control rod is being recoupled provided that the one-rod-out interlock is OPERABLE.

SURVEILLANCE FREQUENCY NOTATION

<u>NOTATION</u>	<u>FREQUENCY</u>
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.
A	At least once per 366 days.
R	At least once per 18 months (550 days).
S/U	Prior to each reactor startup.
N.A.	Not applicable.

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REACTOR COOLANT SYSTEM

REACTOR COOLANT SYSTEM VENTS

LIMITING CONDITION FOR OPERATION

3.4.11 At least one reactor coolant system vent path consisting of at least two valves in series powered from emergency buses shall be OPERABLE and closed at each isolation condenser high point.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3

ACTION:

- a. With one of the above reactor coolant system vent paths inoperable, STARTUP and/or POWER OPERATION may continue provided the inoperable vent path is maintained closed with power removed from the valve actuator of all valves in the inoperable vent path; restore the inoperable vent path to OPERABLE status within 30 days or be in HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With two or more of the above reactor coolant system vent paths inoperable, maintain the inoperable vent paths closed with power removed from the valve actuators of all the valves in the inoperable vent paths; restore at least (two) of the vent paths to OPERABLE status within 14 days or be in HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

- 4.4.11 Each reactor coolant system vent path shall be demonstrated OPERABLE at least once per 18 months by:
1. Verifying that all manual isolation valves in each vent path are locked in the open position.
 2. Cycling each valve in the vent path through at least one complete cycle of full travel from the control room during COLD SHUTDOWN or REFUELING.
 3. Verifying flow through the reactor coolant vent system vent paths during venting during COLD SHUTDOWN or REFUELING.

6.8.4 The following programs shall be established, implemented, and maintained:

(e) Postaccident Sampling

A program* which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

- (i) Training of personnel,
- (ii) Procedures for sampling and analysis,
- (iii) Provisions for maintenance of sampling and analysis

* It is acceptable if the license maintains details of the program in plant operation manuals.

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.7.5 The accident monitoring instrumentation channels shown in Table 3.3.7.5-1 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1,2, and 3*

ACTION:

With one or more accident monitoring instrumentation channels inoperable, take the ACTION required by Table 3.3.7.5-1.

SURVEILLANCE REQUIREMENTS

4.3.7.5 Each of the above required accident monitoring instrumentation channels shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.7.5-1.

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

*Operational Condition 3 is applicable only to the instrumentation for radiation monitoring.

TABLE 3.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>REQUIRED NUMBER OF CHANNELS</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ACTION</u>
1. Reactor Vessel Pressure	2	1	80
2. Reactor Vessel Water Level	2	1	80
3. Suppression Chamber Water Level	2	1	80
4. Suppression Chamber Water Temperature	2/sector	1/sector	80
5. Suppression Chamber Air Temperature	2	1	80
6. Drywell Pressure	2	1	80
7. Drywell Air Temperature	2	1	80
8. Drywell Oxygen Concentration	2	1	80
9. Drywell Hydrogen Concentration Analyzer and Monitor	2	1	82
10. Safety/Relief Valve Position Indicators	2/valve	1/valve	80
11. In-Core Thermocouples	(4)/(1 per core quadrant)	(2)/(1 each of two core quadrants)	80
12. Primary Containment Gross Radiation Monitors	2	2	81
13. Reactor Building Ventilation Exhaust Monitor#	1	1	81
14. Offgas and Radwaste Area Exhaust Monitor#	1	1	81
15. Fuel Handling Area Ventilation Exhaust Monitor#	1	1	81
16. Turbine Building Ventilation Exhaust Monitor#	1	1	81
17. Standby Gas Treatment System Exhaust Monitor#	1	1	81

#High range noble gas monitors.

Table 3.3.7.5-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION
ACTION STATEMENTS

ACTION 80 -

- a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
- b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

ACTION 81 -

With the number of OPERABLE channels less than required by the minimum channels OPERABLE requirements, initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours, and:

- 1) either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or
- 2) prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

ACTION 82 -

- a. With the number of OPERABLE channels one less than the required number of channels shown in Table 3.3.7.5-1, restore the inoperable channel to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.
- b. With the number of OPERABLE channels less than the minimum channels OPERABLE requirements of Table 3.3.7.5-1, restore at least one channel to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

TABLE 4.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
1. Reactor Vessel Pressure	M	R
2. Reactor Vessel Water Level	M	R
3. Suppression Chamber Water Level	M	R
4. Suppression Chamber Water Temperature	M	R
5. Suppression Chamber Air Temperature	M	R
6. Primary Containment Pressure	M	R
7. Drywell Air Temperature	M	R
8. Drywell Oxygen Concentration	M	R
9. Drywell Hydrogen Concentration Analyzer and Monitor	M	Q*
10. Safety/Relief Valve Position Indicators	M	R
11. In-Core Thermocouples	M	R
12. Primary Containment Gross Radiation Monitors	M	R**
13. Reactor Building Ventilation Exhaust Monitor#	M	R
14. Offgas and Radwaste Area Exhaust Monitor#	M	R
15. Fuel Handling Area Ventilation Exhaust Monitor#	M	R
16. Turbine Buidling Ventilation Exhaust Monjtor#	M	R
17. Standby Gas Treatment System Exhaust Monitor#	M	R

*Using sample gas containing:

- a. One volume percent hydrogen, balance nitrogen.
- b. Four volume percent hydrogen, balance nitrogen.

**CHANNEL CALIBRATION shall consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr and a one point calibration check of the detector below 10 R/hr with an installed or portable gamma source.

#High range noble gas monitors.

INSTRUMENTATION

CHLORINE (AND AMMONIA) DETECTION SYSTEM (Optional)

LIMITING CONDITION FOR OPERATION

3.3.7.8 Two independent chlorine (and ammonia) detection system subsystems shall be OPERABLE with their (alarm) (trip) setpoints adjusted to actuate at a:

- a. Chlorine concentration of less than or equal to (5) ppm, and
- b. Ammonia concentration of less than or equal to () ppm.

APPLICABILITY: All OPERATIONAL CONDITIONS.

ACTION:

- a. With one chlorine (and/or one ammonia) detection subsystem inoperable, restore the inoperable detection system to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room emergency filtration system subsystem in the (isolation) mode of operation.
- b. With both chlorine (and/or ammonia) detection subsystems inoperable, within one hour initiate and maintain operation of at least one control room emergency filtration system subsystem in the (isolation) mode of operation.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.8 Each of the above required chlorine (and ammonia) detection system subsystems shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 12 hours,
- b. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- c. CHANNEL CALIBRATION at least once per 18 months.

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding Specifications is required during the OPERATIONAL CONDITIONS or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a Specification shall exist when the requirements of the Limiting Condition for Operation and associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the Action requirements is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in an OPERATIONAL CONDITION in which the Specification does not apply by placing it, as applicable, in:

1. At least STARTUP within the next 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

This specification is not applicable in OPERATIONAL CONDITION 4 or 5.

3.0.4 Entry into an OPERATIONAL CONDITION or other specified condition shall not be made unless the conditions for the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through or to OPERATIONAL CONDITIONS as required to comply with ACTION requirements. Exceptions to these requirements are stated in the individual Specifications.

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

3/4.7.2 CONTROL ROOM EMERGENCY FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.2 Two independent control room emergency filtration system subsystems shall be OPERABLE.

APPLICABILITY: All OPERATIONAL CONDITIONS and *.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2 or 3 with one control room emergency filtration subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 4, 5 or *:
 1. With one control room emergency filtration subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or initiate and maintain operation of the OPERABLE subsystem in the (isolation) mode of operation.
 2. With both control room emergency filtration subsystems inoperable, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- c. The provisions of Specification 3.0.3 are not applicable in Operational Condition *.

SURVEILLANCE REQUIREMENTS

4.7.2 Each control room emergency filtration subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to (80)°F.
- b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates for at least 10 hours with the heaters OPERABLE.

*When irradiated fuel is being handled in the secondary containment.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the subsystem by:
1. Verifying that with the subsystem operating at a flow rate of (2000) cfm + 10% and exhausting through the HEPA filters and charcoal adsorbers, the total bypass flow of the system to the facility vent, including leakage through the subsystem diverting valve, is less than or equal to 1% when the subsystem is tested by admitting cold DOP at the system intake.
 2. Verifying that the subsystem satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is (2000) cfm + 10%.
 3. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
 4. Verifying a subsystem flow rate of (2000) cfm + 10% during subsystem operation when tested in accordance with ANSI N510-1975.
- d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.
- e. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than (6) inches Water Gauge while operating the subsystem at a flow rate of (2000) cfm + 10%.
 2. Verifying that on each of the below (isolation) mode actuation test signals, the subsystem automatically switches to the (isolation) mode of operation and the isolation valves close within () seconds:
 - a) (Chlorine detection),
 - b) (Ammonia detection),
 - c) _____, and
 - d) _____.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that on each of the below (pressurization) mode actuation test signals, the subsystem automatically switches to the (pressurization) mode of operation and the control room is maintained at a positive pressure (of (1/8 inch W.G.) relative to the outside atmosphere during subsystem operation at a flow rate less than or equal to (2,000) cfm:
 - a) (Smoke detection)
 - b) Air intake radiation monitors, and
 - c) _____.
4. Verifying that the heaters dissipate $(7.5) \pm (0.75)$ Kw when tested in accordance with ANSI N510-1975.
- f. After each complete or partial replacement of a HEPA filter bank by verifying that penetration or bypass leakage of the HEPA filter bank is equal to or less than $(0.05)\%$ * of a DOP test aerosol when tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of (2000) cfm $\pm 10\%$.
- g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bypass or leakage is equal to or less than 0.05% of a halogenated hydrocarbon refrigerant test gas when tested in-place in accordance with ANSI N510-1975 while operating the system at a flow rate of (2000) cfm $\pm 10\%$.

*0.05% applicable when a filter efficiency of 99% is assumed in the safety analyses; 1% when a filter efficiency of 90% is assumed.

3.4.11 Reactor Coolant System Vents

Reactor Coolant System Vents are provided to exhaust noncondensable gases and/or steam from the primary system that could inhibit natural circulation core cooling. The OPERABILITY of at least one reactor coolant system vent path from the (isolation condenser high point) ensures the capability exists to perform this function.

The valve redundancy of the reactor coolant system vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve, power supply or control system does not prevent isolation of the vent path.

The function, capabilities, and testing requirements of the reactor coolant system vent systems are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirements", November 1980.