

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320

I. Recovery Operations Plan Change Request No. 19

The licensee requests that the attached changed pages, 4.3-3, 4.3-4, 4.3-6, 4.3-7, 4.3-8, 4.3-10, 4.7-2, 4.7-10, and 4.8-3 be substituted for the existing pages in the Recovery Operations Plan. These changes are proposed based on Technical Specification Change Request No. 39 (TSCR-39). The following list provides a cross reference to the applicable paragraph in TSCR-39.

<u>Affected Page(s)</u>	<u>Subject</u>	<u>TSCR Subparagraph No.</u>
4.1-1	Boron Injection	1
4.3-3, 4.3-4, 4.3-6, 4.3-7, 4.3-8, 4.3-9, 4.3-10, 4.7-10, 4.8-3 4.8-3a	Tables	12
4.6-i	Containment Airlocks	6
4.6-2, 4.6-3	Containment Purge Exhaust System	7

II. Reasons for Change

In accordance with the changes being requested for the Technical Specifications in TSCR-39, several changes will be required in the Recovery Operations Plan. The specific changes proposed are indicated on the attached pages. The reason for each change is given in the applicable paragraph of TSCR-39.

III. Safety Evaluation Justifying Change

The safety evaluations justifying the changes to the Recovery Operations Plan made as a result of TSCR-39 are included in the applicable subparagraph on TSCR-39 as cross-referenced above.

SURVEILLANCE REQUIREMENTS

4.1 WATER INJECTION COOLING AND REACTIVITY CONTROL SYSTEMS

4.1.1 BORATION CONTROL

BORON INJECTION

4.1.1.1 Two systems capable of injecting borated cooling water into the Reactor Coolant System shall be demonstrated OPERABLE:

- a. Deleted.
- b. At least once per 31 days by verifying that each accessible (per occupational exposure considerations) valve (manual, power operated or automatic) in each flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- c. Deleted.
- d. At least once per 31 days by verifying (per occupational exposure considerations), that on recirculation flow, the decay heat removal pump required by Technical Specification 3.1.1.1 develops a discharge pressure of greater than or equal to 151 psig and that each pump operates for at least 15 minutes.
- e. Deleted.
- f. At least once per 7 days when valve DH-V1 or DH-V171 is open by verifying that the makeup pump electrical power supply circuit breakers are "racked out."
- g. At least once per 7 days by:
 1. Deleted.
 2. Verifying the boron concentration in the BWST is between 3000 and 4500 ppm.
 3. Deleted.
 4. Verifying the contained borated water volume of the BWST is at least 100,000 gallons.
 5. Deleted.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. PROCESS MONITORS			
a. Fuel Storage Pool Area			
i. Gaseous Activity	S	R	M
ii. Particulate Activity	S	R	M
iii. Deleted			
2. EPICOR II Purge Monitors (AMS-3)	D	SA	W
3. Reactor Building Purge Monitor (AMS-3)	D	SA	W

TABLE 4.3-4

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MEASUREMENT RANGE</u>	<u>MINIMUM INSTRUMENT OPERABLE</u>
1. Triaxial Time-History Accelerographs					
a. Reactor Building Ring Girder (454'-8")	M*	R	SA	<u>+ 1 G</u>	1
b. Reactor Building Mat (281'-6")	M*	R	SA	<u>+ 1 G</u>	1
2. Triaxial Peak Accelerographs					
a. Reactor Service Structure	R	NA	NA	<u>+ 1 G</u>	1
b. "B" Core Flood Tank Piping	R	NA	NA	<u>+ 1 G</u>	1
c. 2-1E Switchgear	R	NA	NA	<u>+ 1 G</u>	1
3. Triaxial Seismic Switches					
a. Reactor Building Base	M**	R	NA	0.25 G	1**
4. Triaxial Response-Spectrum Recorders					
a. Reactor Building Mat (281'-6")	M	R		(Hz) 2 to 25.4 (Acceleration) 1.6 to 64	1

*Except seismic trigger

**With reactor control room indication

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>MINIMUM OPERABLE</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
1. WIND SPEED			
a. Nominal Elev. 100 ft.	1	D	SA
2. WIND DIRECTION			
a. Nominal Elev. 100 ft.	1	D	SA
3. AIR TEMPERATURE - DELTA T			
a. Nominal Elev. 33 ft.	1	D	SA
b. Nominal Elev. 150 ft.	1	D	SA

TABLE 4.3-6

REMOTE SHUTDOWN MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>DISPLAY METERS INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>READOUT LOCATION</u>	<u>MEASUREMENT RANGE</u>	<u>MINIMUM OPERABLE CHANNELS</u>
1. RC Inlet Temp.	M	R*	Cab. 217	50-650°F	1/loop
2. Make Up Tank Level	M	R*	Cab. 217	0-100 inches	1
<u>DISPLAY INDICATIONS</u>					
3. Control Rod Drive Trip Breakers	M	N/A	Cable Room	open/closed	1/Breaker
<u>DISPLAY PATCH POINTS INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>PATCH POINT LOCATION</u>	<u>MEASUREMENT RANGE</u>	<u>MINIMUM OPERABLE CHANNELS</u>
4. NI Intermediate Range Level Log N	M	R*	Cab. 217	10 ⁻¹¹ to 10 ⁻³ Amps	1
5. NI Source Range Level	M	R*	Cab. 217	10 ⁻¹ to 10 ⁶ CPS	1
6. Deleted.					
7. Decay Heat Removal Flow	M	R*	Cab. 217	0-5000 GPM	1/loop
8. Steam Generator Pressure A/B	M	R*	Cab. 217	0-1200 Psig	1/St Gen

*Nuclear detectors and all channel components located inside containment and components inaccessible due to occupational exposure considerations may be excluded from CHANNEL CALIBRATION.

TABLE 4.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>MINIMUM CHANNELS OPERABLE</u>
1. Reactor Building Pressure	S	R*	2
2. Deleted			
3. Reactor Coolant Outlet Temperature	S	R*	2
4. Steam Generator Level	N/A	N/A	1/Steam Generator##
5. Borated Water Storage Tank Level	S	R*	1
6. High Pressure Injection Flow	M**	R*	1/loop
7. Low Pressure Injection Flow	M**	R*	1/loop
8. Deleted			
9. Steam Generator Pressure	S	R*	1/Steam Generator
10. Incore Thermocouples	S	R*	All available##
11. Reactor Coolant System Pressure	S	R*	1
12. Reactor Building Water Level	N/A	SA#	1

*Neutron detectors and all channel components located inside containment and components inaccessible due to occupational exposure considerations may be excluded from CHANNEL CALIBRATION.

**When applicable systems are in operation.

#Unless an appropriate engineering evaluation demonstrates the instrument to be in calibration.

##Report all failures pursuant to Specification 6.9.1.8

SURVEILLANCE REQUIREMENTS

FIRE DETECTION

4.3.3.8.1 Each of the required accessible (per occupational exposure considerations) fire detection instruments listed in Table 4.3-11 shall be demonstrated OPERABLE at least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST.

4.3.3.8.2 The NFPA Code 71 supervised circuits supervision associated with the detector alarms of each of the required fire detection instruments listed in Table 4.3-11 shall be demonstrated (per occupational exposure considerations) OPERABLE at least once per 6 months.

4.3.3.8.3 The nonsupervised circuits between the local panels in Surveillance Requirements 4.3.3.8.2 and the control room shall be demonstrated OPERABLE at least once per 31 days.

TABLE 4.3-11
FIRE DETECTION INSTRUMENTS

Instrument Location	Required Instruments Operable			Alternate Instrument		
	Heat	Flame	Smoke	Heat	Flame	Smoke
1. Auxiliary Building	N/A	N/A	2	N/A	N/A	2
2. Control Building						3
351' Elevation	N/A	N/A	1	N/A	N/A	1
331' Elevation (Control Room)	N/A	N/A	1	N/A	N/A	7
305', 293', 280' Elevations	N/A	N/A	1	N/A	N/A	3
3. Control Building Area	N/A	N/A	1	N/A	N/A	3
4. Diesel Generator Building						1
A Diesel	N/A	1	1	N/A	N/A	1
B Diesel	N/A		1	N/A	N/A	1
5. Fuel Handling Building	N/A	N/A	3	N/A	N/A	1
6. Reactor Building	N/A	N/A	1	N/A	N/A	1
RC-P-1A/2A	N/A	N/A	1	N/A	N/A	2
RC-P-1B/2B	N/A	N/A	1	N/A	N/A	2
7. River Water Pump Hose	N/A	1	1	N/A	N/A	2
8. Service Building	N/A	N/A	3	N/A	N/A	3
9. Deleted						

SURVEILLANCE REQUIREMENTS

4.6 CONTAINMENT SYSTEMS

4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

- a. At least once per 31 days by verifying that:
 1. All accessible (per occupational exposure considerations) penetrations not required to be open per approved procedures during RECOVERY MODE are closed by valves, blind flanges, or deactivated automatic valves secured in their positions.
 2. The equipment hatch is closed and sealed.
- b. By verifying that each containment air lock is OPERABLE per Specification 3.6.1.3.

CONTAINMENT AIR LOCKS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

- a. After each opening, except when the air lock is being used for multiple entries, then at least once per 72 hours, by verifying less than or equal to 0.01 L_a seal leakage when the volume between the door seals is stabilized to a pressure of 6.5 psig.
- b. At least once per three months by performing a mechanical operability check of each airlock, including a visual inspection of the components and lubrication if necessary.
- c. At least once per 6 months by conducting an overall air lock leakage test at P_a , 6.5 psig, and by verifying that the overall air lock leakage rate is within its limit. (Per occupational exposure considerations)

4.6.1.3.1 When both equipment hatch personnel airlock doors are opened simultaneously, verify the following conditions:

- a. The capability exists to expeditiously close at least one airlock door.
- b. The airlock doors and containment purge are configured to restrict the outflow of air in accordance with procedures approved pursuant to Tech Spec 6.8.2.
- c. The airlock doors are cycled to ensure mechanical operability within seven days prior to opening both doors.

SURVEILLANCE REQUIREMENTS

INTERNAL PRESSURE

4.6.1.4 The primary containment internal pressure shall be determined to within the limits at least once per 12 hours.

AIR TEMPERATURE

4.6.1.5 The primary containment average air temperature shall be the arithmetical average of the temperatures at the following locations and shall be determined at least once per 24 hours:

Location

- a. RB nominal Elev. 350' (1 temperature indication)
- b. RB nominal Elev. 330' (1 temperature indication)
- c. RB nominal Elev. 305' (1 temperature indication)

4.6.3 The Containment Purge Exhaust System shall be demonstrated OPERABLE:

- a. At least once per 31 days during operation by verifying that the Purge Exhaust System in the normal operating mode meets the following conditions:
 1. Filter Pressure Drop: The d/p across the combined HEPA filters shall not exceed 6-inches water gage while the system is operating.
- b. At least once per 18 months by verifying that the ventilation system meets the following conditions:
 1. Visually inspect each filter train and associated components in accordance with Section 5 of ANSI N510 - 1980, as required by Regulatory Position C.5.a of Regulatory Guide 1.52, Revision 2, March 1978. The inspection should be performed prior to the DOP test of this section.

SURVEILLANCE REQUIREMENTS

2. DOP Test: Each filter train shall be tested in accordance with Section 10 of ANSI N510 - 1980, as required by Regulatory Position C.5.c of Regulatory Guide 1.52, Revision 2, March 1978.

NOTE: Installed system flow instrumentation is adequate for the test described in 4.6.3.b.2 above.

- c. After structural maintenance of the HEPA filter or charcoal adsorber housings, or following fire or chemical release in any ventilation zone communicating with the system by verifying that the ventilation system meets the following conditions:
 1. Filter Pressure Drop: Reverify the filter pressure drop surveillance prescribed in Section 4.6.3.a.1 for the affected filter train(s).
 2. DOP Test: Each affected filter train shall be retested in accordance with Section 4.6.3.b.2.
- d. After each complete or partial replacement of a HEPA filter bank by verifying that the ventilation system meets the following conditions:
 1. DOP Test: Each affected filter train shall be retested in accordance with Section 4.6.3.b.2.

4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN ANALYZERS

4.6.4.1 The gas partitioner shall be demonstrated OPERABLE at least once per 31 days by performing a CHANNEL CALIBRATION using sample gases containing:

- a. One volume percent hydrogen, balance air.
- b. Four volume percent hydrogen, balance air.
- c. deleted

TABLE 4.7-4

FIRE HOSE STATIONS

Auxiliary Building

1. Fire hose near stairway at South end of building near Decay Heat Closed Cooling Surge Tank, 328' elevation.
2. Fire hose near entrance to Chemical Addition Area, 328' elevation.
3. Fire hose near Miscellaneous Waste Holdup Tank room, 305' elevation.
4. Fire hose near Intermediate Closed Coolers, 305' elevation.
5. Fire hose near Evaporator Condensate Test Tank Room, 280' elevation.
6. Fire hose near Reactor Building Emergency Cooling Booster Pumps, 280' elevation.

Control Building Area

1. Fire hose near 480 Volt Bus 2-34 282'6" elevation.
2. Fire hose near entrance to Service Building 282'6" elevation.

Reactor Building*

1. Fire hose near west stairway 282' elevation.**
2. Fire hose near southeast stairway 282' elevation.**
3. Fire hose near west stairway 305' elevation.
4. Fire hose near southwest stairway 305' elevation.
5. Fire hose on east D-ring 367' elevation.
6. Fire hose on west D-ring 367' elevation.

Control Building

1. Fire hose near doorway on North wall 305' elevation.

Fuel Handling Building

1. Fire hose on east wall 347'6" elevation.

*Fire hose stations in the Reactor Building shall be OPERABLE prior to initiating operations which generate combustible materials, and prior to initiating operations which involve the use of open flames, welding, burning, grinding, etc.

**Inoperable until accessible (per occupational exposure considerations).

SURVEILLANCE REQUIREMENTS

A.C. SOURCES (Continued)

4.8.1.1.4 Deleted.

4.8.2 ONSITE POWER DISTRIBUTION SYSTEMS

A.C. DISTRIBUTION

4.8.2.1 The following A.C. electrical busses shall be determined OPERABLE with tie breakers open between redundant busses at least once per 7 days by verifying correct breaker alignment and indicated power availability:

- 4160 volt Emergency Bus # 2-1E and 2-3E
- 4160 volt Emergency Bus # 2-2E and 2-4E
- 4160 volt Busses # 2-3 and 2-4
- 480 volt Emergency Bus # 2-11E, 2-12E and 2-31E
- 480 volt Emergency Bus # 2-21E, 2-22E and 2-41E
- 480 volt Busses # 2-32, 2-42, 2-35, 2-36, 2-45, and 2-46
- 120 volt A.C. Vital Bus # 2-1V
- 120 volt A.C. Vital Bus # 2-2V
- 120 volt A.C. Vital Bus # 2-3V
- 120 volt A.C. Vital Bus # 2-4V

D.C. DISTRIBUTION

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized with tie breakers open at least once per 7 days by verifying correct breaker alignment and indicated power availability.

SURVEILLANCE REQUIREMENTS

4.8.2.3.2 Each 250/125-volt battery bank and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks.
 2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level, is greater than or equal to 1.20.
 3. The pilot cell voltage is greater than or equal to 2.13 volts.
 4. The overall battery voltage is greater than or equal to 250/125-volts.