

PANEL 12
RADIATION MONITORING SYSTEM ALARM RESPONSES
THREE MILE ISLAND NUCLEAR STATION - UNIT 2

REVISION 2
11/09/78

ATMOSPHERIC MONITORS

LIQUID MONITORS

AREA MONITORS

Monitor	Date	Rev.	Monitor	Date	Rev.	Monitor	Date	Rev.
HP-R-219	11/09/78	1	MU-R-720	11/09/78	1	HP-R-201	11/09/78	1
HP-R-220	11/09/78	1	IC-R-1091	01/19/78	0	HP-R-202	11/09/78	1
HP-R-221A	11/09/78	1	IC-R-1092	01/19/78	0	HP-R-204	11/09/78	1
HP-R-221B	11/09/78	1	IC-R-1093	11/09/78	1	HP-R-205	11/09/78	1
HP-R-222	11/09/78	1	WDL-R-1311	11/09/78	1	HP-R-206	11/09/78	1
HP-R-223			DC-R-3399	01/19/78	0	HP-R-207	11/09/78	1
HP-R-224			DC-R-3400	01/19/78	0	HP-R-209	11/09/78	1
HP-R-225	11/09/78	1	NS-R-3401	11/09/78	1	HP-R-210	11/09/78	1
HP-R-226	11/09/78	1	SF-R-3402	11/09/78	1	HP-R-211	11/09/78	1
HP-R-227	11/09/78	1	WT-R-3894	01/19/78	0	HP-R-212	11/09/78	1
HP-R-228	11/09/78	1	WT-R-3895	11/09/78	1	HP-R-213	11/09/78	1
HP-R-229	11/09/78	1				HP-R-214	11/09/78	1
WDG-R-1480	11/09/78	1				HP-R-215	11/09/78	1
WDG-R-1485	11/09/78	1				HP-R-218	11/09/78	1
WDG-R-1486	11/09/78	1				HP-R-231	11/09/78	1
VA-R-748	11/09/78	1				HP-R-232	11/09/78	1
						HP-R-233	11/09/78	1
						HP-R-234	11/09/78	1
						HP-R-3236	11/09/78	1
						HP-R-3238	11/09/78	1
						HP-R-3240	11/09/78	1

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* RMS TROUBLE

12.A1 04/21/77 0

FORC Recommends Approval

J. F. Helbock

11/9/78
Date

Approval

J. L. Kellogg
Unit Superintendent

11/9/78
Date

188 075

ALARM:

HP-R-219 (Unit Vent. Monitor)

SETPOINTS:

	ALERT	HI ALARM
Particulate	6.5×10^2 CPM	1.3×10^3 CPM
Iodine	7.9×10^3 CPM	1.58×10^5 CPM
Gas	5.0×10^3 CPM	1.0×10^4 CPM

CAUSES:

1. Airborne Radioactivity in Unit Ventilation

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AUTOMATIC ACTION:

1. The following fans trip:
Soiled Exhaust Fans AH-E-23 A/B
Fuel Handling Bldg. Supply Fans AH-E-9 A/B
Reactor Bldg. Purge Air Supply Fans AH-E-12 A/B
Auxiliary Building Supply Fans AH-E-7 A/B
2. The following valves and dampers actuate:
Waste Gas Decay Tank 1A discharge valve, WDG-V30A, closes
Waste Gas Decay Tank 1B discharge valve, WDG-V30B, closes
Reactor Building Purge Exhaust Fan dampers, D-5129 A/B closes
Reactor Building Purge Exhaust Fan recirculation damper, D-5129C/D, closes

OBSERVATIONS: (Control Room)

1. HP-R-219 "Alert" alarm on Panel 12 (Part, Iodine and/or gas)
2. HP-R-219 "Hi Alarm" alarm on Panel 12 (Part, Iodine and/or gas)
3. HP-R-219 Indication on Panel 12 greater than setpoints
4. Radiation Trouble Alarm on Panel 12

MANUAL ACTION:

1. Notify Health Physics personnel
- ALERT ALARM:
1. Observe the radiation levels on the remaining atmospheric monitors in an effort to determine the source of the increased radiation levels.
 2. Take appropriate corrective action to reduce radiation to acceptable levels.
- HIGH ALARM:
1. Verify Auto Action
 2. Observe other atmospheric monitors to determine source of high radiation levels.
 3. Once source has been found return ventilation to normal per applicable operating procedures in unaffected areas.
 4. If alarm is due to spill, refer to HP 1681, Control of Contaminated Spill.
 5. If there is increased radiation in a work area, refer to HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

HP-R-220 (Control Room Intake Duct)

SETPOINTS:

	<u>ALERT</u>	<u>HI ALARM</u>
Particulate	150 CPM	300 CPM
Iodine	100,000 CPM	200,000 CPM
Gas	130 CPM	260 CPM

CAUSES:

1. Airborne radioactivity in Control Building Ventilation

AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. AH-E-4 A/B Control Room Bypass Supply Fan Running
2. Control Room Outside Air Supply dampers, D-4092 A/D, closes
3. Control Room Bypass Supply Fan dampers, D-4092 B/E, opens
4. Control Room exhaust Duct dampers, D-4098, closes

OBSERVATIONS: (Control Room)

1. HP-R-220 "Alert" alarm on Panel 12 (Part, Iodine and/or gas)
2. HP-R-220 "Hi Alarm" alarm on Panel 12 (Part, Iodine and/or gas)
3. HP-R-220 Indication on Panel 12 greater than setpoints.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION:

1. Notify Health Physics personnel

ALERT ALARM:

1. Using Stayplex Type PF-1A air sampler or equivalent, take air samplers in the Control Room and analyze for gross B-γ activity per Chemistry Procedure 1950, to verify alarm and locate source.
2. Take appropriate corrective action to reduce the radiation to acceptable limits.

HIGH ALARM:

1. Verify Auto Action
2. Perform steps in alert alarm if not already accomplished.
3. If the radiation is due to a radioactive spill, refer to HP 1681, Control of Contaminated Spill.
4. If there is increased radiation in a work area, refer to HPP 1695 Occurrence of Unanticipated High Radiation.

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ALARM:

HP-R-221A (Fuel Handling Bldg. Exhaust Duct Upstream of Filter)

SETPOINTS:

	<u>ALERT</u>	<u>HI ALARM</u>
Particulate	4000 CPM	8000 CPM
Iodine	125,000 CPM	250,000 CPM
Gas	20,000 CPM	40,000 CPM

CAUSES:

1. Fuel Handling Building Airborne Activity

AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. Fuel Handling Building H & V Bypass Duct damper, D-5683, closes
2. Fuel Handling Building H & V Filter Train A Outlet damper, D-5684 A, and Inlet damper, D-5684 B, open
3. Fuel Handling Building H & V Filter Train B outlet damper, D-5671 A and inlet damper, D-5671 B, opens

OBSERVATIONS: (Control Room)

1. HP-R-221A "Alert" alarm on Panel 12
2. HP-R-221A "Hi Alarm" on Panel 12
3. HP-R-221A Indication on Panel 12 greater than setpoints
4. Radiation Trouble Alarm on Panel 12

MANUAL ACTION:

1. Notify Health Physics personnel

ALERT ALARM:

1. Using a Stayplex Type PF-1A Air Sampler or equivalent, take an air sample in the Fuel Handling Building. Analyze for gross B-γ activity per chemistry procedure 1950.
2. Evacuate the Fuel Handling Building if gross activity exceeds 1×10^{-9} uci/cc
3. Take appropriate corrective action to reduce the activity to acceptable limits.
4. If necessary replace contaminated filter units.

HIGH ALARM:

1. Verify Auto Action
2. Clear the Fuel Handling Building of all personnel.
3. Don Scott Air Pack, carry a Rad Owl 0-500 r/hr Portable Ion Chamber or equivalent and a Stayplex High Velocity Sampler or equivalent. Take an air sample and analyze for gross activity per chemistry procedure 1950.
4. Allow re-entry if gross activity is $< 1 \times 10^{-10}$ uci/cc.
5. If gross activity is $> 1 \times 10^{-10}$ uci/cc, have Health Physics personnel make a detailed survey prior to re-entry.
6. If the radiation is due to a radioactive spill, refer to HPP 1681 Control of a Contaminated Spill.
7. If there is increased radiation in a work area, refer to HPP 1695, Occurrence of Unanticipated High Radiation.

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ALARM:

HP-R-221B (Fuel Handling Bldg. Exhaust Duct Downstream of Filters)

SETPOINTS:

	<u>ALERT</u>	<u>HI ALARM</u>
Particulate	3500 CPM	7000 CPM
Iodine	100,000 CPM	200,000 CPM
Gas	15,000 CPM	30,000 CPM

CAUSES:

1. Fuel Handling Building Airborne Activity
2. Contaminated Fuel Handling Building Exhaust Filter Units

AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. The following fans trip:
Fuel Handling Building Supply Fans AH-E-9A/B

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OBSERVATIONS: (Control Room)

1. HP-R-221B "Alert" alarm on Panel 12
2. HP-R-221B "Hi" alarm on Panel 12
3. HP-R-221B Indication on Panel 12 greater than setpoint
4. Radiation Trouble Alarm on Panel 12

MANUAL ACTION:

1. Notify Health Physics Personnel

ALERT ALARM:

1. Using a Stayplex Type PF-1A Air Sampler or equivalent, take an air sample in the Fuel Handling Building. Analyze the gross B-γ activity per chemistry procedure 1950.
2. Evacuate the Fuel Handling Building if gross activity exceeds 1×10^9 uci/
3. Take appropriate corrective action to reduce the activity to acceptable limits.
4. If necessary replace contaminated filter units.

HIGH ALARM:

1. Verify Auto Action
2. Clear the Fuel Handling Building of all personnel.
3. Don Scott Air Pack, Carry a Rad Owl 0-500 r/hr Portable Ion Chamber or equivalent and a Stayplex High Velocity Sampler or equivalent. Take an air sample and analyze for gross activity per chemistry procedure 1950.
4. Allow re-entry if gross activity is $< 1 \times 10^{-10}$ uci/CC.
5. If gross activity is $> 1 \times 10^{-10}$ uci/CC, have Health Physics personnel make a detailed survey prior to re-entry.
6. If the radiation is due to a radioactive spill, refer to HPP 1681 Control of a Contaminated Spill.
7. If there is increased radiation in a work area, refer to HPP 1695 Occurrence of Unanticipated High Radiation.
8. If necessary replace contaminated filter units.

188 079

ALARM:

HP-R-222 (Auxiliary Building Purge Air Exhaust Upstream of Filters)

SETPOINTS:

	ALERT	HI ALARM
Particulate	2500 CPM	5000 CPM
Iodine	75,000 CPM	150,000 CPM
Gas	10,000 CPM	20,000 CPM

CAUSES:

1. Airborn radioactivity in the Auxiliary Building

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AUTOMATIC ACTION:

On receipt of High Alarm from Part, Iodine, or gas channel.

1. Auxiliary Building Bypass Duct Damper, D-4020A, closes.
2. Auxiliary Building H & V Filter Train A Inlet Damper, D-4020B, opens.
3. Auxiliary Building H & V Filter Train A Outlet Damper, D-4020C, opens.
4. Auxiliary Building H & V Filter Train B Inlet Damper, D-4020D, opens.
5. Auxiliary Building H & V Filter Train B Outlet Damper, D-4020E, opens.

OBSERVATIONS: (Control Room)

1. HP-R-220 "Alert" alarm on Panel 12
2. HP-R-220 "Hi" alarm on Panel 12
3. HP-R-220 Indication on Panel 12 greater than setpoint
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION:

1. Using a Stayplex Type PF-1A Air Sampler or equivalent, take an air sample in the Auxiliary Building. Analyze for gross B-γ Activity per chemistry procedure 1950.
2. Evacuate the Auxiliary Building if gross activity exceeds 1×10^{-9} uci/cc.
3. Take appropriate corrective action to reduce the activity to acceptable limits.

HIGH ALARM:

1. Verify Auto Action
2. Clear the Auxiliary Building of all personnel.
3. Don Scott Air Pack, Carry a Rad Owl 0-500 r/hr Portable Ion Chamber or equivalent and a Stayplex High Velocity Sampler or equivalent. Take an air sample and analyze for gross activity per chemistry procedure 1950.
4. Allow re-entry if gross activity is $< 1 \times 10^{-10}$ uci/cc.
5. If gross activity is $> 1 \times 10^{-10}$ uci/cc have Health Physics personnel make a detailed survey prior to re-entry.
6. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
7. If there is increased radiation in a work area, refer to HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

HP-R-225 (Reactor Building Purge Exhaust Duct "A").

SETPOINT:

	ALERT	HI ALARM
Particulate	5000 CPM	10,000 CPM
Iodine	100,000 CPM	200,000 CPM
Gas	40,000 CPM	80,000 CPM

CAUSES:

1. Improper Purge Flow
2. Contamination of Filters, AH-F-19A, 20A, 21A, 31A.

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AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. Reactor Building Purge Exhaust Fan Discharge Damper, D-5129A, closes.
2. Reactor Building Purge Exhaust Fan Recirculation Damper, D-5129D, opens.
3. Reactor Building Purge Air Supply Fan, AH-E-12A, trips.
4. Reactor Building Purge Air Supply Fan Discharge Damper, D-5128B, closes.

OBSERVATIONS: (Control Room)

1. HP-R-225 "Alert" alarm on Panel 12.
2. HP-R-225 "Hi" alarm on Panel 12.
3. HP-R-225 Indication greater than setpoint
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION:

ALERT ALARM:

1. Notify Health Physics Dept. to sample the Reactor Building at HP-R-227 per HPP 1631.
2. Take corrective action to reduce radiation to acceptable levels.
3. If necessary, secure purge and replace contaminated filter unit.

HIGH ALARM:

1. Verify Auto Action
2. Perform steps in alert alarm, if not already accomplished.

ALARM:

HP-R-226 (Reactor Building Purge Exhaust Duct "B")

SETPOINTS:

Particulate
Iodine
Gas

ALERT
5000 CPM
100,000 CPM
40,000 CPM

HI ALARM
10,000 CPM
200,000 CPM
80,000 CPM

CAUSES:

1. Improper Purge Flow
2. Contamination of Filters AH-E-19B, 20B, 21B, 31B.

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AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. Reactor Building Purge Exhaust Fan Discharge Damper, D-5129B, closes
2. Reactor Building Purge Exhaust Fan Recirculation Damper, D-5129C, opens
3. Reactor Building Purge Air Supply Fan, AH-E-12B, trips
4. Reactor Building Purge Air Supply Discharge Damper, D-5128C, closes

MANUAL ACTION:

ALERT ALARM:

1. Notify Health Physics Dept. to sample the Reactor Building at HP-R-227 per HPP 1631.

2. Take corrective action to reduce radiation to acceptable levels.
3. If necessary secure purge and replace contaminated filter units.

HIGH ALARM:

1. Verify Auto Action
2. Perform steps in alert alarm, if not already accomplished.

ALARM:

HP-R-227 (Reactor Building)

SETPOINTS:

	ALERT	HI ALARM
Particulate	25,000 CPM	50,000 CPM
Iodine	2000 CPM	5000 CPM
Gas	10,000 CPM	20,000 CPM

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CAUSES:

1. RCS leakage into Reactor Building causing high airborne activity while unit is operating.
2. Contaminated or radioactive material present in the Reactor Building.

AUTOMATIC ACTION:

None

OBSERVATION: (Control Room)

1. HP-R-227 "Alert" alarm on Panel 12
2. HP-R-227 "Hi" alarm on Panel 12
3. HP-R-227 Indication on Panel 12 greater than setpoint
4. Radiation Trouble Alarm on Panel 12

MANUAL ACTION:

1. Notify Health Physics personnel.
2. Check Control Room indication for evidence of RCS leakage.
Verify alarm as follows:
 1. If particulate alarm-Advance particulate recorder in fast speed. If airborne particulates are present alarm will repeat.
 2. If particulate, iodine, or gaseous alarm, take Reactor Building grab sample per HPP 1631.
 3. If alarm is verified, Don Scott Air Pack, carry Rad Owl 0-500 R/hr Portable Ion Chamber or equivalent and enter Reactor Building to investigate RCS leakage.

ALERT ALARM: (Unit Shutdown)

1. Using Stayplex Type PF-1A air sample or equivalent. Analyze for gross activity per Chemistry Procedure 1950. Clear Reactor Building if gross activity exceeds 1×10^{-9} uci/CC.

HI ALARM: (Unit Shutdown)

1. Clear Reactor Building of all personnel.
2. Don Scott Air Pack, carry Rad-Owl 0-500 r/hr Portable Ion Chamber or equivalent and Stayplex High Velocity Air Sampler or equivalent. Take air sample and analyze for gross activity per chemistry procedure 1950.
3. Allow re-entry to Reactor Building if gross activity is $< 1 \times 10^{-10}$ uci/CC. If $> 1 \times 10^{-10}$ uci/CC, have HP personnel make detailed analysis prior to re-entry.
4. If the radiation is due to a radioactive spill, refer to HPP 1681, control of a Contaminated Spill.
5. If there is increased radiation in a work area, refer to HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

HP-R-228 (Auxiliary Building Exhaust Down Stream of Filters)

SETPOINTS:

	ALERT	HI ALARM
Particulate	2000 CPM	4000 CPM
Iodine	50,000 CPM	100,000 CPM
Gas	10,000 CPM	20,000 CPM

CAUSES:

1. Airborne radioactivity in Auxiliary Building
2. Contaminated filter banks AH-F-8A, 9A, 10A, 30A or AH-F-8B, 9B, 10B, 30B.

AUTOMATIC ACTION:

1. The following fans trip;
Auxiliary Building Supply Fan AH-E-7A,B

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OBSERVATIONS: (Control Room)

1. HP-R-228 "Alert alarm on Panel 12
2. HP-R-228 "High" alarm on Panel 12.
3. HP-R-228 Indication on Panel 12 greater than setpoint
4. Radiation Trouble Alarm on Panel 12

MANUAL ACTION:

1. Notify Health Physics personnel.
2. Check HPP 222 Indication

ALERT ALARM:

1. Using a Stayplex Type PF-1A Air Sampler or equivalent, take an air sample in the Auxiliary Building. Analyze for gross B-γ activity per chemistry procedure 1950.
2. Evacuate the Auxiliary Building if gross activity exceeds 1×10^{-9} uci/cc.
3. Take appropriate corrective action to reduce the activity to acceptable limits.
4. If necessary replace contaminated filter units.

HIGH ALARMS:

1. Verify Auto Action
2. Clear the Auxiliary Building of all personnel.
3. Don Scott Air Pack, carry a Rad Owl 0-500 r/hr Portable Ion Chamber or equivalent and a Stayplex High Velocity Sampler or equivalent. Take an air sample and analyze for gross activity per chemistry procedure 1950.
4. Allow re-entry if gross activity is $< 1 \times 10^{-10}$ uci/cc.
5. If gross activity is $> 1 \times 10^{-10}$ uci/cc, have Health Physics personnel make a detailed survey prior to re-entry.
6. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
7. If there is increased radiation in a work area, refer to HPP 1695 Occurrence of Unanticipated High Radiation.
8. If necessary replace contaminated filter units.

188 084

11/09/78

ALARM:

HP-R-229 (Hydrogen Purge Duct)

SETPOINTS:

	ALERT	HI ALARM
Particulate	80,000 CPM	160,000 CPM
Iodine	200,000 CPM	400,000 CPM
Gas	60,000 CPM	120,000 CPM

CAUSES:

1. Airborne radioactivity in the Reactor Building
2. Contaminated filters AH-F-36, 33, 34, 35

AUTOMATIC ACTION:

None

OBSERVATIONS: (Control Room)

1. HP-R-229 "Alert" alarm on Panel 12.
2. HP-R-229 "High" alarm on Panel 12
3. HP-R-229 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble alarm on Panel 12.

MANUAL ACTION:

1. Stop hydrogen purge.
 2. Notify Health Physics personnel.
- Verify alarm as follows:
1. If particulate alarm - Advance particulate recorder in fast speed. If airborne particulates are present alarm will repeat.
 2. If particulate, iodine, or gaseous alarm, take Reactor Building grab sample per HPP 1631.
 3. If alarm is verified, Don Scott Air Pack, carry Rad Owl 0-500 r/hr Portable Ion Chamber or equivalent and enter Reactor Building to investigate RCS leakage.

ALERT ALARM: (Unit Shutdown)

1. Using Stayplex Type PF-1A air sample or equivalent analyze for gross activity per Chemistry Procedure 1950.
2. Clear Reactor Building if gross activity exceeds 1×10^{-9} $\mu\text{Ci}/\text{CC}$.

HI ALARM: (Unit Shutdown)

1. Clear Reactor Building of all personnel.
2. Don Scott Air Pack, carry Rad Owl 0-500 r/hr Portable Ion Chamber or equivalent and Stayplex High Velocity Air Sampler or equivalent. Take air sample and analyze for gross activity per Chemistry Procedure 1950.
3. Allow re-entry to Reactor Building if gross activity is $< 1 \times 10^{-10}$ $\mu\text{Ci}/\text{CC}$.
4. If $> 1 \times 10^{-10}$ $\mu\text{Ci}/\text{CC}$, have HP personnel make detailed analysis prior to re-entry.
5. If the radiation is due to a radioactive spill, refer to HPP 1681 Control of a Contaminated Spill.
6. If there is increased radiation in a work area, refer to HPP 1695 Occurrence of Unanticipated High Radiation.

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ALARM:

WDG-R-1480 (Waste Gas Discharge)

SETPOINTS:

Gas	ALERT 200,000 CPM	HIGH ALARM 400,000 CPM

CAUSES:

1. High activity being released from waste gas system.

AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. Waste Gas Decay Tank 1A Discharge Valve WDG-V30A closes
2. Waste Gas Decay Tank 1B Discharge Valve, WDG-V30B closes

OBSERVATIONS: (Control Room)

1. WDG-R-1480 "Alert" alarm on Panel 12
2. WDG-R-1480 "Hi" alarm on Panel 12
3. WDG-R-1480 Indication on Panel 12 greater than setpoint
4. Radiation Trouble Alarm on Panel 12

MANUAL ACTIONS:

1. Notify Health Physics personnel

ALERT ALARM:

1. Stop waste gas release by closing isolation valve WDG-30A/B.
2. Notify HP Department to sample the waste decay tanks per HPP 1631.
3. Recheck gas release rate calculations specified on the Gas Release Permit.
4. Observe WDG-R-1485 and 1486 indication. Check HP-R-219 indication on Panel 12 to insure ventilation discharge is within limits specified in HPP 1622 "Releasing Radioactive Gaseous Waste."

CAUTION: Do not reinitiate release until a new lower release rate has been calculated, based on sample results.

HIGH ALARM:

1. Verify Automatic Action
2. Perform steps in alert alarm if not already accomplished.

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ALARM:
WDG-R-1485 (Waste Decay Tank 1A Discharge)

SETPOINTS:

	<u>ALERT</u>	<u>HIGH ALARM</u>
Gas	150,000 CPM	300,000 CPM

CAUSES:

1. High activity being released from waste decay tank 1A.

AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. Waste Decay Tank 1A Discharge Valve WDG-V30A closes.
2. Waste Decay Tank 1B Discharge Valve WDG-V30B closes.

OBSERVATIONS: (Control Room)

1. WDG-R-1485 "Alert" alarm on Panel 12.
2. WDG-R-1485 "Hi" alarm on Panel 12.
3. WDG-R-1485 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION:

1. Notify Health Physics personnel

ALERT ALARM:

1. Stop waste gas release by closing WDG-V30A.
2. Notify H.P. Department to sample the Waste Decay Tank per HPP 1631.
3. Recheck gas release rate calculations specified on the Gas Release Permit.
4. Check WDG-R-1480 indication on Panel 12.
5. Check HP-R-219 indication on Panel 12 to ensure ventilation discharge is within limits specified in HPP 1622 "Releasing Radioactive Gaseous Waste."

HIGH ALARM:

1. Verify Automatic Action.
2. Perform steps in Alert Alarm, if not already accomplished.

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ALARM:

WDG-R-1486 (Waste Decay Tank 1B Discharge)

SETPOINTS:

Gas

ALERT
150,000 CPM

HIGH ALARM
300,000 CPM

CAUSES:

1. High activity being released from waste decay tank 1B.

AUTOMATIC ACTION:

ALERT ALARM:

None

HIGH ALARM:

1. Waste Decay Tank 1A Discharge Valve WDG-V30A closes
2. Waste Decay Tank 1B Discharge Valve WDG-V30B closes.

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OBSERVATIONS: (Control Room)

1. WDG-R-1486 "Alert" alarm on Panel 12
2. WDG-R-1486 "Hi" alarm on Panel 12
3. WDG-R-1486 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12

MANUAL ACTION:

1. Notify Health Physics personnel

ALERT ALARM:

1. Stop waste gas release by closing WDG-V30B.
2. Notify HP Department to sample the Waste Decay Tank per HPP 1631.
3. Recheck gas release rate calculations specified on the Gas Release Permit.
4. Check WDG-R-1480 indication on Panel 12.
5. Check HP-R-219 indication on Panel 12 to insure ventilation discharge is within limits specified in HPP 1622, Releasing Radioactive Gaseous Waste.

HIGH ALARM:

1. Verify Automatic Action
2. Perform steps in Alert Alarm, if not already accomplished.

ALARM:

VA-R-748-G (Condenser Vacuum pump exhaust)

SETPOINTS:

Gas	<u>ALERT</u> 1000 CPM	<u>ALARM</u> 2000 CPM
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CAUSES:

1. Primary to secondary leak.

AUTOMATIC ACTION:

None

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OBSERVATIONS:

1. VA-R-748-G "Alert" alarm on panel 12
2. VA-R-748-G High Alarm on Panel 12
3. VA-R-748-G Indication greater than Setpoint on panel 12
4. Radiation trouble alarm on Panel 12

MANUAL ACTION:

1. Notify Health Physics Personnel

ALERT/HIGH ALARM:

1. Sample the main condensers in accordance with 2104-2.8, secondary plant sampling to verify alarm.
2. If alarm is verified, follow steps in 2202-2.6, OTSG Tube Rupture

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TMI UNIT 2

ALARM:

MU-R-720

Primary Coolant Letdown

SET POINTS

	<u>Alert</u>	<u>Hi Alarm</u>
Gross Channel	2.5×10^5 CPM	5.0×10^5 CPM
Analyzer Switch	2.5×10^5 CPM	5.0×10^5 CPM

CONTROLLED COPY
CENTRAL FILECAUSES:

1. Gross Channel Alert - 0.1% Failed Fuel.
2. Gross Channel High Alarm - 0.1% Failed Fuel.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. MU-R-720 "Alert Alarm" on Pnl 12.
2. MU-R-720 "Hi Alarm" on Pnl 12.
3. MU-R-720 Indication on Pnl 12 greater than setpoints.
4. Radiation Trouble Alarm on Annunciator.

MANUAL ACTION:

1. Notify Health Physics personnel.

Alert/High Alarm:

1. Take RCS sample in accordance with 2104-1.11, Nuclear Plant Sampling.
2. Count the sample in accordance with Station Chemistry Procedures.
3. If sample analysis indicates activity 10X normal, reduce power to 50%.
4. Increase purification flow to 140 gpm if possible.
5. Notify Chemistry Department to run isotopic analyses on RCS. If the results of the isotopic analyses indicate RCS activity $>100/\bar{E}$ uci/gram place the plant in Hot Standby condition per TMI Unit 2 Technical Specifications section 3.4.8.

188 090

ALARM:

12-IC-R-1091

Intermediate Cooling Water Letdown Cooler MU-C-1B

SET POINTS:

1000 CPM- Alert Alarm on IC-R-1091 *

5000 CPM- High Alarm on IC-R-1091 *

Instrument String Electrical Failure - Fail Alarm.

*NOTE: For basis of alarm setpoints see 2105-1.12.

CAUSES:ALERT/HIGH ALARM:

1. Tube rupture in B Letdown Cooler, MU-C-1B.
2. High activity in Intermediate Closed Cooling Water system indicating tube rupture in A Letdown Cooler, MU-C-1A, concurrent with alarms on IC-R-1091 and IC-R-1093.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

None.

OBSERVATION (CONTROL ROOM):

1. IC-R-1091- Alert alarm light energized on Panel 12.
2. IC-R-1091- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or bvt setpoints (IC-R-1091).
4. IC-R-1091- Fail alarm light de-energized.
5. Increasing water inventory in Intermediate Closed Cooling Water System as indicated by Intermediate Closed Cooling Water Surge Tank Level indicator IC-3-LI on Panel 8.
6. High Intermediate Closed Cooling Water Temperature as indicated on the following:
Panel 8- Intermediate Closed Cooling Water Temp. IC-TI-828
Computer Point 916- Intermediate Closed Cooling Water Temp.
Computer Point 456- IC Cooling Water Outlet of MU-C-1B.
7. Increasing Intermediate Closed Cooling Water suction pressure as indicated on, IC-PI-470, on Panel 8.

MANUAL ACTION REQUIRED:Alert/High Alarms:

1. Monitor Intermediate Closed Cooling Water Surge Tank level and pump suction for concurrent indication of a tube rupture in B Letdown Cooler.
2. If possible isolate B Letdown Cooler per 2104-1.2.
3. Notify Health Physics to draw a sample for the Intermediate Closed Cooling Water System at IC-V187 and IC-V188, sample point S35, to determine extent of system contamination per SCP 1950.

Fail Alarm:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

CONTROL ROOM
CENTRAL FILE

188 091

ALARM:

12-IC-R-1092

Intermediate Cooling Water Letdown Cooler MU-C-1A

SET POINTS:

1000 CPM- Alert Alarm on IC-R-1092 *

5000 CPM- High Alarm on IC-R-1092 *

Instrument String Electrical Failure - Fail Alarm.

*NOTE: For basis of alarm setpoints see 2105-1.12.

CONTROLLED
CENTRALCAUSES:ALERT/HIGH ALARM:

1. Tube rupture in A Letdown Cooler, MU-C-1A.
2. High activity in Intermediate Closed Cooling Water system indicating tube rupture in B Letdown Cooler, MU-C-1A, concurrent with alarms on IC-R-1092 and IC-R-1093.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

None.

OBSERVATION (CONTROL ROOM):

1. IC-R-1092- Alert alarm light energized on Panel 12.
2. IC-R-1092- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or both setpoints (IC-R-1092).
4. IC-R-1092- Fail alarm light de-energized.
5. Increasing water inventory in Intermediate Closed Cooling Water System as indicated by Intermediate Closed Cooling Water Surge Tank Level indicator IC-3-LI on Panel 8.
6. High Intermediate Closed Cooling Water Temperature as indicated on the following:
Panel 8- Intermediate Closed Cooling Water Temp. IC-TI-828.
Computer Point 916- Intermediate Closed Cooling Water Temp.
Computer Point 455- IC Cooling Water Outlet of MU-C-1A.
7. Increasing Intermediate Closed Cooling Water suction pressure as indicated on, IC-PI-470, on Panel 8.

MANUAL ACTION REQUIRED:Alert/High Alarms:

1. Monitor Intermediate Closed Cooling Water Surge Tank level and pump suction for concurrent indication of a tube rupture in A Letdown Cooler.
2. If possible isolate A Letdown Cooler per 2104-1.2.
3. Notify Health Physics to draw a sample for the Intermediate Closed Cooling Water System at IC-V187 and IC-V188, sample point S35, to determine extent of system contamination per SCP 1950.

Fail Alarm:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

188-092

ALARM:

12-IC-R-1093

Intermediate Cooling Water Cooler Outlet

SET POINTS:

400CPM- Alert Alarm on IC-R-1093 *

2000 CPM- High Alarm on IC-R-1093 *

Instrument String Electrical Failure - Fail Alarm.

*NOTE: For basis of alarm setpoints see 2105-1.12.

CAUSES:ALERT/HIGH ALARM:

1. High activity in Intermediate Closed Cooling Water system indicating a tube rupture in A and/or B Letdown Cooler, MU-C-1A and/or MU-C-1B, concurrent with alarms on IC-R-1091 and/or IC-R-1092.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

None.

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CENTRAL FILEOBSERVATION (CONTROL ROOM):

1. IC-R-1093- Alert alarm light energized on Panel 12.
2. IC-R-1093- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or both setpoints (IC-R-1093).
4. IC-R-1093- Fail alarm light de-energized.
5. Increasing water inventory in Intermediate Closed Cooling Water System as indicated by Intermediate Closed Cooling Water Surge Tank Level indicator IC-3-LI on Panel 8.
6. High Intermediate Closed Cooling Water Temperature as indicated on the following:
Panel 8- Intermediate Closed Cooling Water Temp. IC-T-I-828.
Computer Point 916- Intermediate Closed Cooling Water Temp.
Computer Point 455- IC Cooling Water Outlet of MU-C-1A.
Computer Point 456- IC Cooling Water Outlet of MU-C-1B.
7. Increasing Intermediate Closed Cooling Water suction pressure as indicated on, IC-PI-470, on Panel 8.

MANUAL ACTION REQUIRED:ALERT/HIGH ALARMS:

1. Monitor Intermediate Closed Cooling Water Surge Tank level and pump suction for concurrent indication of a tube rupture in A and/or B Letdown Cooler.
2. Determine which Letdown Cooler is leaking, and isolate, if possible, per 2104-1.2.
3. If both Letdown Coolers are leaking, notify the Unit Superintendent for a determination of followup action.
4. Notify Health Physics to draw a sample from the Intermediate Closed Cooling Water System at IC-V187 and IC-V188, sample point 535, to determine extent of system contamination, per SCP 1950.

FAIL ALARM:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

TMI UNIT 2

ALARM:

12-WDL-R-1311

Liquid Effluent Plant No. 2

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CENTRAL FILE

SET POINTS:

1800 CPM - Alert Alarm on WDL-R-1311 *

9000 CPM - High Alarm on WDL-R-1311 *

*NOTE 1- Instrument string electrical failure - Fail Alarm
For basis of alarm setpoint adjustment see 2105-1.12.
During release see HPP 1621.2, releasing radioactive liquid waste, for determination of setpoint, since the setpoint will vary depending on concentration to be released.

NOTE 2-

CAUSES:

ALERT/HIGH ALARM:

1. High activity in Unit #2 discharge line from the following:
 - a. Evaporator Condensate Test Tanks.
 - b. Neutralizer Tanks WDL-T-8A/B.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

1. High Alarm Close WDLV99, WDL-V100, WDLV93A and WDLV93B, stop WDLP8A&B and WDLP11A&B.

OBSERVATION (CONTROL ROOM):

1. WDL-R-1311- Alert alarm light energized on Panel 12.
2. WDL-R-1311- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or both setpoints (WDL-R-1311).
4. WDL-R-1311- Fail alarm light de-energized.
5. Indication of WDL-V99 position on Panel 12.

MANUAL ACTION REQUIRED:

ALERT/HIGH ALARMS:

1. Upon High Alarm verify automatic action to secure release, and notify Health Physics to sample the release and analogy per SCP 1950 to verify alarm.

2. Upon Alert Alarm secure release manually. Notify Health Physics to sample the release and analyze per SCP 1950 to verify alarm.

FAIL ALARM:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

ALARM:

12-DC-R-3399

Decay Heat Closed Cooling Water - Loop A

SET POINTS:

400 CPM- Alert Alarm on DC-R-3399 *

2000CPM- High Alarm on DC-R-3399 *

Instrument String Electrical Failure - Fail Alarm.

*NOTE: For basis of alarm setpoint see 2105-1.12.

CONTROL
CENTRAL FILECAUSES:ALERT/HIGH ALARM:

1. High activity in the Decay Heat Closed Cooling Water Loop A, while on Decay Heat Removal, due to a tube rupture in the A Decay Heat Removal Cooler.
2. High activity in the Decay Heat Closed Cooling Water Loop A, while in the Leakage Closed Cooling Water mode of operation due to a tube rupture in the A Leakage Coolers.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

None.

OBSERVATION (CONTROL ROOM):

1. DC-R-3399- Alert alarm light energized on Panel 12.
2. DC-R-3399- High alarm light energized on Panel 12.
3. Indication or ratemeter that reading is greater than one or both setpoints (DC-RI-3399).
4. DC-R-3399- Fail alarm light de-energized.
5. Increasing pressure in Decay Heat Closed Cooling Water Loop on Panel B, DC-PI-956.
6. Increasing water inventory in A Decay Heat Closed Cooling Water Loop as indicated by Decay Heat Closed Cooling Surge Tank level indicator, DC-LI-3481, and/or corresponding alarms on Panel 8.
7. RMS Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:ALERT/HIGH ALARMS:

1. Monitor A Decay Heat Closed Cooling Surge Tank for increasing level.
 2. Monitor A Decay Heat Closed Cooling Water Loop for abnormal operating pressure conditions.
 3. If the A Decay Heat Closed Cooling Water Loop is operating in the Decay Heat Removal Mode and is not necessary for cooling operations, switch Decay Heat Removal to Loop B per 2104-1.3 "Decay Heat Removal System."
- NOTE: With one Decay Heat Closed Cooling Water Loop inoperable, restore the inoperable loop to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
4. If the A Decay Heat Closed Cooling Water Loop is operating in the leakage Closed Cooling Mode and is not necessary for cooling operations, switch the Leakage Closed Cooling Water/Decay Heat Closed Cooling Water System to Loop B per 2104-3.3.
 5. Notify Health Physics personnel to draw a sample for the A Decay Heat Closed Cooling Water Loop at DC-V24A and DC-V63A, local sample point S-537, and analyze per SCP 1950.
 6. Take corrective actions to reduce activity levels.

FAIL ALARM:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

188-095

ALARM:

12-DC-R-3400

Decay Heat Closed Cooling Water - Loop B

SET POINTS:

400 CPM- Alert Alarm on DC-R-3400 *

2000CPM- High Alarm on DC-R-3400 *

Instrument String Electrical Failure - Fail Alarm.

*NOTE: For basis of alarm setpoint see 2105-1.12.CONTROLLED
CENTRAL FILECAUSES:ALERT/HIGH ALARM:

1. High activity in the Decay Heat Closed Cooling Water Loop B, while on Decay Heat Removal, due to a tube rupture in the B Decay Heat Removal Cooler.
2. High activity in the Decay Heat Closed Cooling Water Loop B, while in the Leakage Closed Cooling Water mode of operation due to a tube rupture in the B Leakage Coolers.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

None.

OBSERVATION (CONTROL ROOM):

1. DC-R-3400- Alert alarm light energized on Panel 12.
2. DC-R-3400- High alarm light energized on Panel 12.
3. Indication or ratemeter that reading is greater than one or both setpoints (DC-RI-3400).
4. DC-R-3400- Fail alarm light de-energized.
5. Increasing pressure in B Decay Heat Closed Cooling Water Loop on Panel B, DC-PI-969.
6. Increasing water inventory in B Decay Heat Closed Cooling Water Loop as indicated by B Decay Heat Closed Cooling Surge Tank level indicator, DC-LI-3480, and/or corresponding alarms on Panel 8.
7. RMS Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:ALERT/HIGH ALARMS:

1. Monitor B Decay Heat Closed Cooling Surge Tank for increasing level.
 2. Monitor B Decay Heat Closed Cooling Water Loop for abnormal operating pressure conditions.
 3. If the B Decay Heat Closed Cooling Water Loop is operating in the Decay Heat Removal Mode and is not necessary for cooling operations, switch Decay Heat Removal to Loop A per 2104-1.3 "Decay Heat Removal System."
- NOTE: With one Decay Heat Closed Cooling Water Loop inoperable, restore the inoperable loop to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
4. If the B Decay Heat Closed Cooling Water Loop is operating in the leakage Closed Cooling Mode and is not necessary for cooling operations, switch the Leakage Closed Cooling Water/Decay Heat Closed Cooling Water System to Loop B per 2104-3.3. See note step 3.
 5. Notify Health Physics personnel to draw a sample for the B Decay Heat Closed Cooling Water Loop at DC-V24B and DC-V63B, local sample point S-S38, and analyze per SCP 1950.
 6. Take corrective actions to reduce activity levels.

FAIL ALARM:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action and return the monitor to service.

188-096

TMI UNIT 2

ALARM:

12-NS-R-3401

Nuclear Services Closed Cooling Water

SET POINTS:

- 400 CPM- Alert Alarm on NS-R-3401 *
2000CPM- High Alarm on NS-R-3401 *
Instrument String Electrical Failure - Fail Alarm.
* NOTE: For basis of Alarm Setpoints, see 2105-1.12.

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CENTRAL FILE

CAUSES:

ALERT/HIGH ALARMS:

1. Tube rupture in A and/or B Spent Fuel Cooler.
2. Tube rupture in A and/or B Seal Return Cooler.
3. Tube rupture in A and/or B Waste Gas Compressor Seal Water Cooler.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

None

OBSERVATION (CONTROL ROOM):

1. NS-R-3401- Alert alarm light energized on Panel 12.
2. NS-R-3401- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or both setpoints (NS-RI-3401).
4. Increasing water inventory in Nuclear Services Closed Cooling Water System as indicated by Nuclear Services Closed Cooling Water Surge Tank level indicator (NS-LI-3576).
5. NS-R-3401- Fail alarm light de-energized.

MANUAL ACTION REQUIRED:

ALERT/HIGH ALARMS:

1. Monitor Nuclear Services Closed Cooling Water Surge Tank level for indication of a tube rupture in A and/or B Spent Fuel Cooler, A and/or B Seal Return Cooler, and/or A and/or B Waste Gas Compressor Seal Water Cooler.
2. Determine which component(s) are causing the increased activity and isolate, if possible, per the appropriate operating procedures.
3. Notify Health Physics to obtain a sample of the Nuclear Services Closed Cooling Water System at NS-V85 and NS-V188, sample point S-S36, and analyze per SCP 1950.

FAIL ALARM:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

11/09/78

TMI UNIT 2

ALARM:

12-SF-R-3402

Spent Fuel Cooling Water System

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CENTRAL FILESET POINTS:

4000 CPM- Alert alarm SF-R-3402 *

10,000 CPM- High alarm SF-R-3402 *

Instrument String Electrical Failure - Fail Alarm SF-R-3402.

*NOTE: For basis of alarm setpoint see 2105-1.12.

CAUSES:ALERT/HIGH ALARMS:

1. High activity in Spent Fuel Cooling System due to
 - a. Failed Fuel
 - b. Increased inventory of Spent Fuel

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:

None.

OBSERVATIONS (CONTROL ROOM):

1. SF-R-3402- Alert alarm light energized on Panel 12.
2. SF-R-3402- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or both setpoints (SF-RI-3402).
4. SF-R-3402- Fail alarm light de-energized on Panel 12.

MANUAL ACTION REQUIRED:ALERT/HIGH ALARMS:

1. Notify Health Physics to take a sample of the Spent Fuel Cooling Water at sample point S-N14, SF-V126, in accordance with SCP 1950 to verify alarm.
2. Clean up the Spent Fuel Cooling Water System in accordance with 2104-1.5.

FAIL ALARM:

1. Ensure instrument string is not under calibration/repair.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

188 098

ALARM:

12-WT-R-3894

Water Treatment and Condensate Polishing

SET POINTS:

- 1000 CPM- Alert alarm on WT-R-3894 *
2000 CPM- High alarm on WT-R-3894 *
Instrument String Electrical Failure - Fail Alarm WT-R-3894.

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CENTRAL FILECAUSES:ALERT/HIGH ALARMS:

1. High activity in Condensate Polisher Resin rinse water due to possible OTSG Tube Leak.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:Alert and Fail Alarm:

None.

High Alarm:

1. WT-V118 CLOSES
2. WT-V119 OPENS

OBSERVATIONS (WT-R-3894):

1. WT-R-3894- Alert alarm light energized on Panel 12.
2. WT-R-3894- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or both setpoints (WT-RI-3894).
4. WT-R-3894- Fail alarm light de-energized.

MANUAL ACTION REQUIRED:ALERT/HIGH ALARMS:

1. High Alarm, verify automatic action.
2. Notify the Shift Supervisor/Foreman of a potential OTSG Tube leak.
3. Notify Health Physics to draw a sample from the radiation monitor flush valves and analyze per SCP 1950 to verify alarm.

FAIL ALARM:

1. Ensure the monitor is not being calibrated/repared.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

ALARM:

12-WT-R-3895

Water Treatment and Condensate Polishing

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CENTRAL FILESET POINTS:

750 CPM- Alert alarm on WT-R-3895 *

1500 CPM- High alarm on WT-R-3895 *

Instrument String Electrical Failure - Fail Alarm WT-R-3895.

CAUSES:ALERT/HIGH ALARMS:

1. High activity in Condensate Polisher Resin rinse water due to possible OTSG Tube Leak.

FAIL ALARM:

1. Electrical failure or malfunction in the detector, pulse processing, power supply or analog output circuitry.

AUTOMATIC ACTION:Alert and Fail Alarm:

None.

High Alarm:

1. WT-VI15 CLOSES
2. WT-VI21 OPENS

OBSERVATIONS (WT-R-3895):

1. WT-R-3895- Alert alarm light energized on Panel 12.
2. WT-R-3895- High alarm light energized on Panel 12.
3. Indication on ratemeter that reading is greater than one or both setpoints (WT-R-3895).
4. WT-R-3895- Fail alarm light de-energized.

MANUAL ACTION REQUIRED:ALERT/HIGH ALARMS:

1. Verify automatic action.
2. Notify the Shift Supervisor/Foreman of a potential OTSG Tube leak.
3. Notify Health Physics to draw a sample from the radiation monitor flush valves and analyze per SCP 1950 to verify alarm.

FAIL ALARM:

1. Ensure the monitor is not being calibrated/repared.
2. Verify electrical alignment in accordance with 2105-1.8.
3. Notify Instrument Foreman to take the necessary corrective action to return the monitor to service.

ALARM:

12-HP-R-201 (Control Room)

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CENTRAL FILESET POINTS:

0.7 MR/hr - Alert Alarm on 12-HP-R-201*

1.4 MR/hr - High Alarm on 12-HP-R-201*

*NOTE: For basis of Alarm Setpoint, see 2105-1.12.

CAUSES:

Contaminated or radioactive material present in the Control Room.

AUTOMATIC ACTION:

None.

OBSERVATIONS (CONTROL ROOM):

1. HP-R-201 "Alert" alarm on Panel 12.
2. HP-R-201 "Hi" alarm on Panel 12.
3. HP-R-201 Indication greater than setpoint on Panel 12.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.

NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.

2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Control Room to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-202 (Cable Room)

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CENTRAL FILESET POINTS:

0.7 MR/hr-Alert Alarm on 12-HP-R-202*

1.4 MR/hr-High Alarm on 12-HP-R-202*

*NOTE: For basis of Alarm Setpoints, see 2105-1.12.

CAUSES:

Contaminated or radioactive material in the Cable room.

AUTOMATIC ACTION:

None.

OBSERVATIONS (CONTROL ROOM):

1. HP-R-202 "Alert" alarm on Panel 12.
2. HP-R-202 "Hi" alarm on Panel 12.
3. HP-R-202 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent. Survey the Cable Room to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-204 (Reactor Building Emerg. Cooling Booster Pump Area)

SET POINTS:

Alert - 1.0 MR/hr *

High - 2.0 MR/hr *

*NOTE: For basis of Alarm Setpoint, see 2105-1.12.

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CENTRAL FILE

CAUSES:

Contaminated or radioactive material present in the Reactor Building Emergency Cooling Booster Pump Area.

AUTOMATIC ACTION:

None.

OBSERVATIONS (CONTROL ROOM):

1. HP-R-204 "Alert" alarm on Panel 12.
2. HP-R-204 "Hi" alarm on Panel 12.
3. HP-R-204 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIREDAlert Alarm:

Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading, verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent. Survey the Reactor Building Emergency Cooling Booster Pump Area to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

TMI UNIT 2

ALARM:

12-HP-R-205 (Reactor Coolant Evaporator Control Panel Area)

SET POINTS:

Alert - 1.0 MR/hr *

High - 2.0 MR/hr *

* NOTE: For basis of Alarm Setpoint, see 2105-1.12.

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CENTRAL FILE

CAUSES:

Contaminated or radioactive material in Reactor Coolant Evaporator Control Panel Area.

AUTOMATIC ACTION:

None.

OBSERVATIONS (CONTROL ROOM)

1. HP-R-205 "Alert" alarm on Panel 12.
2. HP-R-205 "Hi" alarm on Panel 12.
3. HP-R-205 Indication greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Reactor Coolant Evaporator Control Panel Area to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

TMI UNIT 2

ALARM:

12-HP-R-206 (Make-up Tank Area)

SET POINTS:

Alert - 10.0 MR/hr *

High - 20.0 MR/hr *

* NOTE For basis of Alarm Setpoint, see 2105-1.12.

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CAUSES:

Contaminated or radioactive material in Makeup Tank Area.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-206 "Alert" alarm on Panel 12.
2. HP-R-206 "Hi" alarm on Panel 12.
3. HP-R-206 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION:

Alert Alarm:

Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Makeup Tank Area to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

TMI UNIT 2

ALARM:

12-HP-R-207 (Intermediate Cooling Pump Area)

SET POINTS:

Alert - 1.0 MR/hr *

High - 2.0 MR/hr *

* NOTE: For basis of Alarm Setpoint, see 2105-1.12.

CAUSES:

Contaminated or radioactive material in Intermediate Cooling Pump Area.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-207 "Alert" alarm on Panel 12.
2. HP-R-207 "Hi" alarm on Panel 12.
3. HP-R-207 Indication greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent Survey the Intermediate Cooling Pump Area to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

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ALARM:

12-HP-R-209 (Main Fuel Handling Bridge-Reactor Building)

SET POINTS:

	Modes 1-5	Mode 6
Alert -	2.0 R/hr	100.0 MR/hr *
High -	5.0 R/hr	1.0 R/hr *

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* NOTE: For basis of Alarm Setpoints, see 2105-1.12.

CAUSES:

1. Damaged fuel element.
2. Low water level in fuel transfer canal.
3. High Reactor Coolant System activity.
4. Reactor Coolant System Leak (at other than Refueling Mode).

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-209 "Alert" Alarm on Panel 12.
2. HP-R-209 "Hi" Alarm on Panel 12.
3. HP-R-209 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Initiate the Reactor Bldg. evacuation Alarm.
2. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Immediately secure any fuel handling operations in progress.
2. Initiate the Reactor Building Evacuation Alarm.
3. Verify green fail lamp on. Radiation detection instrument is on.
NOTE: If the green lamp is out, a detector failure or power loss is indicated.
1. Announce the alarm over the paging system.
5. Notify Health Physics personnel.
5. Enter the Reactor Building under the guidance of Health Physics personnel. Comply with HPP 1630.2, Reactor Bldg. Entry (Unit #2 only).
7. Using a RO-2, 0-500 R/hr Portable Ion Chamber or equivalent, survey the Fuel Handling bridge area to verify the alarm and locate the source.
8. Take appropriate corrective action to reduce the radiation to acceptable levels.
9. If plant is not in Refueling Mode, monitor Control Room indication for possible RCS Leakage.

TMI UNIT 2

ALARM:

12-HP-R-210 (Aux. Fuel Handling Bridge - Reactor Building)

SET POINTS:

	Modes 1-5	Mode 6
Alert -	2.0 R/hr	100.0 MR/hr *
High -	5.0 R/hr	1.0 R/hr *

* NOTE: For basis of Alarm Setpoint, see 2105-1.12.

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CAUSES:

1. Damaged fuel element.
2. Low water level in fuel transfer canal.
3. High Reactor Coolant System activity.
4. Reactor Coolant System Leak (at other than refueling mode).

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-210 "Alert" Alarm on Panel 12.
2. HP-R-210 "Hi" Alarm on Panel 12.
3. HP-R-210 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Initiate the Reactor Building evacuation alarm.
2. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Immediately secure any fuel handling operations in progress.
2. Initiate the Reactor Building evacuation alarm.

3. Verify green fail lamp on Radiation detection instrument is on.

NOTE: If the green lamp is out, a detector failure or power loss is indicated.

4. Announce the alarm over the paging system.
5. Notify Health Physics personnel.
6. Enter the Reactor Building under the guidance of Health Physics personnel. Comply with HPP 1630.2, Reactor Building entry (Unit #2 only).
7. Using a Radout RO-2 0-500 R/hr portable ion chamber or equivalent, survey the Fuel Handling Bridge area to verify the alarm and locate the source.
8. Take appropriate corrective action to reduce the radiation to acceptable levels.
9. If the plant is not in the refueling mode, monitor Control Room indication for possible RCS Leakage.

188 108

ALARM:

12-HP-R-211 (Personnel Access Hatch)

SET POINTS:

Alert - 25.0 MR/hr *

High - 50.0 MR/hr *

* NOTE: For basis of Alarm Setpoint, see 2105-1.12.

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CAUSES:

1. Contaminated or Radioactive material near the personnel Access Hatch.
2. Reactor Coolant System Leak.

AUTOMATIC ACTION

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-211 "Alert" alarm on Panel 12.
2. HP-R-211 "Hi" alarm on Panel 12.
3. HP-R-211 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Reactor Building Personnel Access Hatch to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-212 (Equipment Access Hatch)

SET POINTS:

Alert - 25.0 MR/hr *

High - 50.0 MR/hr *

* NOTE: For basis of Alarm Setpoint, see 2105-1.12.

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CAUSES:

1. Contaminated or radioactive material near the equipment access hatch.
2. Reactor Coolant System Leak.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM)

1. HP-R-212 "Alert" alarm on Panel 12.
2. HP-R-212 "Hi" alarm on Panel 12.
3. HP-R-212 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Reactor Building Equipment Access Hatch To verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1631, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-213 (In-Core Instrument Panel Area)

SET POINTS:

Alert - 25.0 MR/hr *

High - 50.0 MR/hr *

* NOTE: For basis of Alarm Setpoint, see 2105-1.12.

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CAUSES:

1. RCS Leakage into Reactor Building.
2. Incore detector not properly shielded during withdrawal.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-213 "Alert" alarm on Panel 12.
2. HP-R-213 "Hi" alarm on Panel 12.
3. HP-R-213 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Secure withdrawing the incore instruments (if in progress).
2. Clear the area of all non-essential personnel.
3. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
4. Announce the alarm over the paging system.
5. Notify Health Physics Personnel.
6. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Incore Instrument Panel area to verify the alarm and locate the source.
7. Take the appropriate corrective action to reduce the radiation to acceptable levels.
8. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
9. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.
10. If not in Refueling Mode, check Control Room Indication for indication of a Reactor Coolant System Leak.

ALARM:

12-HP-R-214 (Reactor Building Dome)

SET POINTS:

Alert - 25.0 MR/hr *
High - 8.0 R/hr *

NOTE: Detector has a 100 to 1 attenuation.

* NOTE: For basis of Alarm Setpoint, see 2105-1.12.

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CAUSES:

1. Reactor Coolant System leakage.

AUTOMATIC ACTION:

If a loss of Coolant Accident occurs, ESFAS will actuate.

OBSERVATIONS (CONTROL ROOM):

1. HP-R-214 "Alert" Alarm on Panel 12.
2. HP-R-214 "High" Alarm on Panel 12.
3. HP-R-214 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Initiate the Reactor Building evacuation alarm.
2. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. If there is evidence of a Reactor Coolant Leak, refer to 2202-1.3, Loss of Reactor Coolant/Reactor Coolant Pressure.
5. Take appropriate corrective action to reduce the radiation to acceptable levels.

ALARM:

12-HP-R-215 (Fuel Handling Building-Fuel Handling Bridge)

SET POINTS:

Alert - 10 MR/hr *

High - 20 MR/hr *

*NOTE: For basis of Alarm Setpoint, see 2105-1.12.

CAUSES:

1. Damaged fuel element.
2. Low water level in spent fuel pool.
3. High Spent Fuel Pool activity.

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AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-215 "Alert" Alarm on Panel 12.
2. HP-R-215 "High" Alarm on Panel 12.
3. HP-R-215 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain radiation levels within acceptable limits.

High Alarm:

1. Immediately secure any fuel handling operation in progress.
2. Evacuate the Fuel Handling Building.
3. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
4. Announce the alarm over the paging system.
5. Notify Health Physics Personnel.
6. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Fuel Handling Building Fuel Handling Bridge to verify the alarm and locate the source.
7. Take the appropriate corrective action to reduce the radiation to acceptable levels.
8. If the radiation is due to a radioactive spill, refer to HPP 1601, Control of a Contaminated Spill.
9. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-218 (Waste Disposal Storage Area)

SET POINTS:

Alert - 25.0 MR/hr *

High - 50.0 MR/hr *

*NOTE: For basis of Alarm Setpoint, see 2105-1.12

CAUSES:

1. Leakage of solid waste disposal drum.
2. High radiation level of solid waste drum.
3. Contaminate or radioactive material in area.

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AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-218 "Alert" Alarm on Panel 12.
2. HP-R-218 "Hi" Alarm on Panel 12.
3. HP-R-218 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the waste disposal storage area to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-231 (Aux. Bldg. Sump Tank Filter Room)

SET POINTS:

Alert - 500.0 MR/hr *

High - 1.0 R/hr *

*NOTE: For basis of Alarm Setpoint, see 2105-1.12

CAUSES:

1. Contaminate or radioactive material in room.
2. Leakage of radioactive liquid.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-231 "Alert" alarm on Panel 12.
2. HP-R-231 "High" alarm on Panel 12.
3. HP-R-231 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Auxiliary Building Sump Tank Filler Room to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

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ALARM:

Revision 1
11/09/78

12-HP-R-232 (Mezzanine Area Above Reactor Building Sump Filters)

SET POINTS:

Alert - 1.2 MR/hr *

High - 2.0 MR/hr *

*NOTE: For basis of Alarm Setpoint, see 2105-1.12.

CAUSES:

1. Contaminated or radioactive material in area.

AUTOMATIC ACTION:

None

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OBSERVATIONS (CONTROL ROOM):

1. HP-R-232 "Alert" alarm on Panel 12.
2. HP-R-232 "High" alarm on Panel 12.
3. HP-R-232 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent Survey the Mezzanine Area above Reactor Building Sump Filler to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-233 (Mezzanine Area above the Spent Fuel Cooling Filters)

SET POINTS:

Alert - 1.0 MR/hr *

High - 2.0 MR/hr *

*NOTE: For basis of Alarm Setpoint, see 2105-1.12.

CAUSES:

1. Contaminated or radioactive material in area.

AUTOMATIC ACTION:

None

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CENTRAL FILEOBSERVATIONS (CONTROL ROOM):

1. HP-R-233 "Alert" alarm on Panel 12.
2. HP-R-233 "High" alarm on Panel 12.
3. HP-R-233 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline Rad Owl RO-2 0-500 R/hr Portable Ior Chamber or equivalent survey the area about the Spent Fuel Cooling Filters to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

11/09/78

ALARM:

12-HP-R-234 (Contaminated Drain Tank Room Area)

SET POINTS:

Alert - 1.0 MR/hr *

High - 2.0 MR/hr *

*NOTE: For basis of Alarm Setpoints, see 2105-1.12.CAUSES:

1. Contaminated or radioactive material in area.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-234 "Alert" alarm on Panel 12.
2. HP-R-234 "High" alarm on Panel 12.
3. HP-R-234 Indication on Panel 12 greater than setpoint.
4. Radiation Trouble alarm on Panel 12.

MANUAL ACTION REQUIRED:Alert/High Alarm:

1. Announce alarm over the page system.
2. Clear area of all non-essential personnel.

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the contaminated Drain Tank Room to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

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ALARM:

12-HP-R-3236 (Reactor Building Purge Unit Area)

SET POINTS:

Alert
10.0 MR/hr*

High
20.0 MR/hr*

*NOTE: For basis of Alarm Setpoints, see 2105-1.12.

CAUSES:

1. Contaminated or radioactive material in area.
2. Leak in Reactor Building Purge Units.

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AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-3236 Alert Alarm on Panel 12.
2. HP-R-3236 High Alarm on Panel 12.
3. HP-R-3236 Indication greater than setpoint on Panel 12.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Secure Reactor Building purge, if in progress.
2. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
3. Announce the alarm over the paging system.
4. Clear all non-essential personnel from the area.
5. Notify Health Physics Personnel.
6. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Reactor Building Purge Unit area to verify the alarm and locate the source.
7. Take the appropriate corrective action to reduce the radiation to acceptable levels.
8. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
9. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-3238 (Auxiliary Building Exhaust Unit area)

SET POINTS:

Alert
10.0 MR/hr *

High
20.0 MR/hr *

*NOTE: For basis of Alarm Setpoints, see 2105-1.12.

CAUSES:

1. Contaminated or Radioactive Material in area.

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AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-3238 Alert Alarm on Panel 12.
2. HP-R-3238 High Alarm on Panel 12.
3. HP-R-3238 Indication greater than setpoint on Panel 12.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey the Auxiliary Building Exhaust Unit Area to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

ALARM:

12-HP-R-3240 (Fuel Handling Building-Exhaust Unit Area)

SET POINTS:

Alert

10.0 MR/hr *

High

20.0 MR/hr *

*NOTE: For basis of Alarm Setpoints, see 2105-1.12.

CAUSES:

1. Contaminated or Radioactive Material in area.

AUTOMATIC ACTION:

None

OBSERVATIONS (CONTROL ROOM):

1. HP-R-3240 Alert Alarm on Panel 12.
2. HP-R-3240 High Alarm on Panel 12.
3. HP-R-3238 Indication greater than setpoint on Panel 12.
4. Radiation Trouble Alarm on Panel 12.

MANUAL ACTION REQUIRED:

Alert Alarm:

1. Take action to determine cause of increasing radiation levels and take appropriate steps to maintain Radiation Levels within acceptable limits.

High Alarm:

1. Observe detector reading. Verify that green fail lamp is on.
NOTE: If the green lamp is out, a detector failure, or power loss, is indicated.
2. Announce the alarm over the paging system.
3. Clear all non-essential personnel from the area.
4. Notify Health Physics Personnel.
5. Using an Eberline RO-2 0-500 R/hr Portable Ion Chamber or equivalent survey Fuel Handling Building Exhaust Unit Area to verify the alarm and locate the source.
6. Take the appropriate corrective action to reduce the radiation to acceptable levels.
7. If the radiation is due to a radioactive spill, refer to HPP 1681, Control of a Contaminated Spill.
8. Comply with HPP 1695, Occurrence of Unanticipated High Radiation.

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TMI DOCUMENTS

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