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June 08, 2000

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: McGuire Nuclear Station Unit 1 Docket No. 50-369
McGuire Nuclear Station Unit 2 Docket No. 50-370
Changes to Emergency Plan Implementing Procedures

Attached to this letter are a revised Emergency Plan Implementing Procedure (EPIP) Index and revised Emergency Plan Implementing Procedures. These procedure changes were evaluated pursuant to the requirements of 10 CFR 50.54 (q). These changes do not constitute a reduction in the effectiveness of the emergency plan and continue to meet the requirements of 10 CFR 50.47 (b) and 10 CFR 50 Appendix E. As such, these changes do not require NRC approval prior to implementation. Revision bars in each individual procedure indicate the procedure changes. The following index and procedure changes have been implemented:

EPIP Index Page 1	RP/0/A/5700/006
EPIP Index Page 2	HP/0/B/1009/006
EPIP Index Page 3	

There are no new regulatory commitments in this document. Duke is also supplying two copies of this submittal to the Regional Administrator of Region II. Questions on this document should be directed to Steve Mooneyhan at (704) 875-4646.

Very truly yours,

H. B. Barron
Vice President, McGuire Nuclear Station
Duke Energy Corporation

HBB:jcm

Attachments

A045

NR-037

U.S. Nuclear Regulatory Commission
June 08, 2000
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xc: (w/attachment)
Mr. Luis Reyes,
Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

(w/o attachment)
NRC Resident Inspector

Frank Rinaldi, USNRC

Lee Keller (EC050)

Electronic Licensing Library (EC050)

EP File 111

DUKE

McGUIRE NUCLEAR SITE

EMERGENCY PLAN IMPLEMENTING PROCEDURES

APPROVED: Bryan Polan
SAFETY ASSURANCE MANAGER

DATE APPROVED 6/1/00

EPIP Index Page 1	Dated 06/01/2000
EPIP Index Page 2	Dated 06/01/2000
EPIP Index Page 3	Dated 06/01/2000
RP/0/A/5700/006	Dated 06/01/2000
HP/0/B/1009/006	Dated 06/01/2000

EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

<u>PROCEDURE #</u>	<u>TITLE</u>	<u>REVISION NUMBER</u>
RP/0/A/5700/000	Classification of Emergency	Rev. 005
RP/0/A/5700/001	Notification of Unusual Event	Rev. 013
RP/0/A/5700/002	Alert	Rev. 013
RP/0/A/5700/003	Site Area Emergency	Rev. 013
RP/0/A/5700/004	General Emergency	Rev. 013
RP/0/A/5700/05	Care and Transportation of Contaminated Injured Individual(s) From Site to Offsite Medical Facility	DELETE
RP/0/A/5700/006	Natural Disasters	Rev. 007
RP/0/A/5700/007	Earthquake	Rev. 006
RP/0/A/5700/008	Release of Toxic or Flammable Gases	Rev. 003
RP/0/A/5700/09	Collisions/Explosions	Rev. 000
RP/0/A/5700/010	NRC Immediate Notification Requirements	Rev. 010
RP/0/A/5700/011	Conducting a Site Assembly, Site Evacuation or Containment Evacuation	Rev. 005
RP/0/A/5700/012	Activation of the Technical Support Center (TSC)	Rev. 017
RP/0/A/5700/013	Activation of the Emergency Operations Facility (EOF)	DELETE
RP/0/A/5700/14	Emergency Telephone Directory	DELETE
RP/0/A/5700/015	Notifications to the State and Counties from the EOF	DELETE
RP/0/A/5700/16	EOF Commodities and Facilities Procedure	DELETE
RP/0/A/5700/17	Emergency Data Transmittal System Access	DELETE
RP/0/A/5700/018	Notifications to the State and Counties from the TSC	Rev. 006
RP/0/A/5700/019	Core Damage Assessment	Rev. 003
RP/0/A/5700/020	Activation of the Operations Support Center (OSC)	Rev. 010
RP/0/A/5700/21	EOF Access Control	DELETE
RP/0/A/5700/022	Spill Response Procedure	Rev. 009
RP/0/A/5700/024	Recovery and Reentry Procedure	Rev. 001
RP/0/A/5700/026	Operations/Engineering Technical Evaluations in the Technical Support Center (TSC)	Rev. 001
RP/0/B/5700/023	Community Relations Emergency Response Plan	Rev. 001
OP/0/B/6200/090	PALSS Operation for Accident Sampling	Rev. 010

EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

<u>PROCEDURE #</u>	<u>TITLE</u>	<u>REVISION NUMBER</u>
HP/0/B/1009/002	Alternative Method for Determining Dose Rate Within the Reactor Building	Rev. 002
HP/0/B/1009/003	Recovery Plan	Rev. 003
HP/0/B/1009/05	Initial Evaluation of Protective Action Guides Due to Abnormal Plant Conditions	DELETED
HP/0/B/1009/006	Procedure for Quantifying High Level Radioactivity Releases During Accident Conditions	Rev. 005
HP/0/B/1009/010	Releases of Radioactive Effluents Exceeding Selected Licensee Commitments	Rev. 005
HP/1/B/1009/015	Unit 1 Nuclear Post-Accident Containment Air Sampling System Operating Procedure	Rev. 003
HP/2/B/1009/015	Unit 2 Nuclear Post-Accident Containment Air Sampling System Operating Procedure	Rev. 003
HP/0/B/1009/016	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release	Rev. 001
HP/0/B/1009/020	Manual Procedure for Offsite Dose Projections	DELETED
HP/0/B/1009/021	Estimating Food Chain Doses Under Post-Accident Conditions	Rev. 001
HP/0/B/1009/022	Accident and Emergency Response	Rev. 002
HP/0/B/1009/023	Environmental Monitoring for Emergency Conditions	Rev. 002
HP/0/B/1009/024	Personnel Monitoring for Emergency Conditions	Rev. 001
HP/0/B/1009/029	Initial Response On-Shift Dose Assessment	Rev. 005
SH/0/B/2005/001	Emergency Response Offsite Dose Projections	Rev. 001
SH/0/B/2005/002	Protocol for the Field Monitoring Coordinator During Emergency Conditions	Rev. 000
SR/0/B/2000/01	Standard Procedure for Public Affairs Response to the Emergency Operations Facility	Rev. 002
SR/0/B/2000/002	Standard Procedure for EOF Commodities and Facilities	Rev. 001
SR/0/B/2000/003	Activation of the Emergency Operations Facility	Rev. 005
SR/0/B/2000/004	Notification to States and Counties from the Emergency Operations Facility	Rev. 000

EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

<u>PROCEDURE #</u>	<u>TITLE</u>	<u>REVISION NUMBER</u>
McGuire Site Directive 280	Site Assembly/Accountability and Evacuation/Containment Evacuation	DELETED
EP Group Manual	Section 1.1 Emergency Organization	Rev. 017
MNS RP Manual:	Section 18.1 Accident and Emergency Response	DELETED
	Section 18.2 Environmental Monitoring for Emergency Conditions	DELETED
	Section 18.3 Personnel Monitoring for Emergency Conditions	DELETED
	Section 18.4 Planned Emergency Exposure	DELETED

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. RP/0/A/5700/006

Revision No. 007

PREPARATION

(2) Station **McGuire Nuclear Station**(3) Procedure Title Natural Disasters(4) Prepared By [Signature] Date 5/24/00

(5) Requires 10CFR50.59 evaluation?

☒ Yes (New procedure or revision with major changes)☐ No (Revision with minor changes)☐ No (To incorporate previously approved changes)(6) Reviewed By [Signature] (QR) Date 5/31/2000Cross-Disciplinary Review By Thad Williams (QR) NA Date 5-30-00Reactivity Mgmt. Review By [Signature] (QR) NA Date 5/31/2000

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval (if necessary)

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By [Signature] Date 6/1/00**PERFORMANCE** (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

☐ Yes ☐ N/A Check lists and/or blanks initialed, signed, dated or filled in NA, as appropriate?☐ Yes ☐ N/A Listed enclosures attached?☐ Yes ☐ N/A Data sheets attached, completed, dated and signed?☐ Yes ☐ N/A Charts, graphs, etc. attached, dated, identified, and marked?☐ Yes ☐ N/A Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks (attach additional pages, if necessary)

Duke Power Company McGuire Nuclear Station Natural Disasters Multiple Use	Procedure No. RP/0/A/5700/006
	Revision No. 007
	Electronic Reference No. MC0094MH

Natural Disasters

1. Symptoms

The following conditions are observed on the site or notification from the National Weather Service, System Dispatcher, or local radio broadcast has been received that the condition is imminent or occurring:

- Hurricane Watch or Warning for Mecklenburg County: As reported by the National Weather Service.
- High Wind Speed: Sustained (greater than 15 minutes) wind speed >60 mph as reported by the National Weather Service or from the environmental tower (Environmental tower wind speed over-ranged).
- Flood or Seiche: Flood on site or an earthquake induced tidal wave on the lake.
- Tornado Watch in Mecklenburg County: A tornado watch means conditions are favorable for a tornado to occur.
- Tornado Warning in Mecklenburg County: A tornado warning indicates that an actual tornado has been reported to the National Weather Service or has been sighted on radar.
- Low Lake Level: Lake Normal level has dropped to the ≤ 745 foot elevation.
- High Lake Level: Lake Normal level has risen to the ≥ 767.9 foot elevation.

2. Immediate Action

None

3. Subsequent Actions

- 3.1 Notify the Operations Shift Manager.
- 3.2 **IF** design basis conditions are exceeded which jeopardize the safe operation of the reactor, **THEN** take the units to hot standby.

Design Basis	Sustained Winds	High Lake Level	Low Lake Level
Conditions	>95 mph	≥ 767.9 ft.	≤ 745 ft.

- 3.3 As directed by OSM, perform the following
 - _____ 3.3.1 Turn on outside page speakers.
 - _____ 3.3.2 Using any plant phone in the Control Room horse shoe, or extension 4021, dial 710; pause, dial 80, and announce actual or impending condition over the plant page system and give a brief description.
 - _____ 3.3.3 Repeat the announcement.
 - _____ 3.3.4 Turn off outside speakers when announcements are complete.
- _____ 3.4 Notify the dispatcher of the actual or imminent condition.
- _____ 3.5 Notify Radiation Protection to minimize or stop all handling of radioactive materials.
- _____ 3.6 Notify Radwaste Chemistry to minimize or stop all handling of radioactive materials.

<p>NOTE: It may be necessary to operate systems that release radioactivity such as VQ to maintain the plant, but operation of these systems should be minimized.</p>

- _____ 3.7 Minimize or stop all radioactive releases to the environment for the duration of the emergency (VQ, VP, VE, LWRs, GWRs, etc.).

3.8 Notify the following groups to ensure the following doors are closed unless the event is Low Lake Level:

—— 3.8.1 Work Control Center:

- Warehouse doors
- All breached fire doors
- VE doors
- IF no obstructions prevent timely closure, THEN the equipment hatch should be closed for tornado protection. Consult Operations Shift Manager to evaluate closure requirements (fully closed or partially closed) in present mode of operation. {PIP 0-M96-1572}
- IF equipment hatch is unable to be closed, THEN the personnel airlock doors (inner or outer door) should be placed into service, if available. Consult Operations Shift Manager to evaluate closure requirements in present mode of operation. {PIP 0-M96-1572}

—— 3.8.2 Security:

- All CAD doors except for normal transit
- Spent Fuel Building Rollup doors.

—— 3.8.3 Radiation Protection:

- All Waste Shipping Facility Rollup and personnel access doors
- Staging Building Rollup door.

—— 3.8.4 Operations:

- All Turbine Building Rollup doors (truck corridor, by the Atmospheric Steam Dump valves, by the Auxiliary Electric Boiler, unit two turbine floor, north end)
- And all Turbine Building personnel access doors.

- 3.9 Take necessary steps to increase Upper Surge Tanks and Auxiliary Feedwater Condensate Storage Tank.
- 3.10 Classify the emergency per RP/0/A/5700/000 (Classification of Emergency) and commence notification and other protective measures as directed by appropriate Emergency Response Procedure.
- 3.11 **IF AT ANY TIME** conditions degrade to a point that the Control Room crew determines a reactor trip is prudent, **THEN** perform as follows:
 - 3.11.1 Trip the reactors.
 - 3.11.2 **GO TO** EP/1&2/A/5000/E-0 (Reactor Trip or Safety Injection) while continuing with this procedure.
- 3.12 For the following conditions, **GO TO** the following sections:
 - 3.12.1 Low Lake Level: **GO TO** Section 4.
 - 3.12.2 High Lake Level, Flood, Seiche: **GO TO** Section 5.
 - 3.12.3 Tornado Watch: **GO TO** Section 6.
 - 3.12.4 Tornado Warning: **GO TO** Section 7.
 - 3.12.5 High Winds or Hurricane: **GO TO** Section 8.

4. Subsequent Actions For Low Lake Level

- 4.1 **IF** Loss of RN suction from low level intake is imminent, **THEN GO TO** AP/1&2/A/5500/020 (Loss of Nuclear Service Water System) while continuing with procedure.
- 4.2 **REFER TO** RP/0/A/5700/000 (Classification of Emergency).
- 4.3 Consult with station management to consider shutting down both units, consider staffing the Technical Support Center and the Operations Support Center, or consider placing additional personnel on shift.

5. Subsequent Actions For High Lake Level, Flood Or Seiche

- NOTE:**
- Seiche is same as High Lake Level.
 - Actions may be performed simultaneously.

- 5.1 Notify the Work Control Center to take prudent actions to expedite the restoration of important plant systems and components (such as safety systems and electrical systems) which are out of service for maintenance or testing.
- 5.2 Determine the status of Electrical Power Sources (buslines, emergency diesels, SSF diesel generator, vital and non-vital batteries) and take any prudent actions to ensure their availability.
- 5.3 Monitor Groundwater Sumps and ensure sump levels are being maintained.
- 5.4 Monitor Turbine Building Sumps and ensure sump levels are being maintained.
- 5.5 Consult with station management to consider shutting down both units, consider staffing the Technical Support Center and the Operations Support Center or consider placing additional personnel on shift.
- 5.6 Operators should review EP/1&2/A/5000/ECA-0.0 (Loss of All AC Power) and AP/1&2/5500/007 (Loss of Electrical Power) and take any prudent actions to ensure equipment required for station blackout response is available.
- 5.7 **WHEN** conditions permit, **THEN** contact the Work Control Center or the TSC (if activated), to organize a team to survey plant structures and equipment to determine the extent of damage if any and to develop contingency plans to repair any damaged structures or equipment.

6. Subsequent Actions For Tornado Watch

- NOTE:**
- A Tornado Watch indicates conditions are favorable for a tornado to occur.
 - Wind speed information > 90 mph shall be obtained from National Weather Service at 864-879-1085 (unpublished).
 - Actions may be performed simultaneously.

- 6.1 Contact the National Weather Service (864-879-1085), or Duke Power Meteorological group (594-0341), as required to obtain the latest information.
- 6.2 Ensure fuel handling activities are secured.
- 6.3 Notify the Work Control Center to take prudent actions to expedite the restoration of important plant systems and components (such as safety systems and electrical systems) which are out of service for maintenance or testing.
- 6.4 Determine the status of Electrical Power Sources (buslines, emergency diesel generators, SSF diesel generator, vital and non-vital batteries) and take any prudent actions to ensure their availability.

CAUTION: The site inspection is meant to be done before a tornado arrives on sight. It would **NOT** be prudent to send a team out to survey the site in the middle of a tornado. Operations Shift Manager discretion based on safety considerations should determine sending personnel for any site inspection.

- 6.5 **IF** time and personnel safety permit, **THEN** notify the Work Control Center, SWM, and C&F personnel (ext. 4303) to have appropriate personnel inspect the site (including the switchyard) for the following items and secure, or relocate them away from the site, or relocate to the NE side of the plant, if possible: {PIP 0-M96-0716}
 - Large cranes (lower boom to ground, if possible)
 - Lifting devices secured
 - Vehicles (ensure materials stacked on truck are tied down)
 - Hazardous Material containers
 - Trash bin or equipment on wheels
 - Compressed gas cylinders
 - Loose lumber or material near critical equipment.
- 6.6 Operators should review EP/1&2/A/5000/ECA-0.0 (Loss of All AC Power) and AP/1&2/5500/007 (Loss of Electrical Power) and take any prudent actions to ensure equipment required for station blackout response is available.

- 6.7 Notify the Work Control Center to have Maintenance stop use of the Turbine Building Cranes and park and anchor the cranes furthestmost from the Auxiliary Building.
- 6.8 **IF** Loss of RN suction from low level intake is imminent, **THEN GO TO** AP/1&2/A/5500/020 (Loss of Nuclear Service Water System) while continuing with this procedure.
- 6.9 Send an operator to ensure the equipment windows (2) on the north wall of each Turbine Building 786 ft. elevation are closed and locked.
- 6.10 This procedure remains in effect until one of the following conditions are met:
 - • Termination of Tornado Watch for Mecklenburg County by National Weather Service
 - OR**
 - • Duke Power Meteorological Group (704-594-0341) verifies that a tornado threat to the McGuire Nuclear Site no longer exists.

7. Subsequent Actions For Tornado Warning

- NOTE:**
- Tornado Warning indicates that an actual tornado has been reported to NWS or has been sighted on radar.
 - Wind speed information > 90 mph shall be obtained from National Weather Service at 864-879-1085 (unpublished).
 - Actions may be performed simultaneously.

- _____ 7.1 Turn on outside page speakers.
- _____ 7.2 Using any plant phone in the Control Room horse shoe, or extension 4021, dial 710, pause, dial 80, and announce one of the following:
- **IF** the tornado is **NOT** expected to pass over the Site, **THEN** announce the following:

“Attention all plant personnel. Attention all plant personnel. This is the Operations Control Room. A tornado warning has been issued for Mecklenburg County. Be prepared to take shelter should a tornado develop on site. Further updates will be provided as conditions warrant.”
 - **IF** the tornado is expected to pass over the Site, **THEN** announce the following:

“Attention all plant personnel. Attention all plant personnel. This is the Operations Control Room. A tornado warning has been issued for Mecklenburg County. Take shelter immediately. Do **NOT** take shelter in temporary buildings or trailers. Further updates will be provided as conditions warrant.”
- _____ 7.3 Turn off outside page speakers when announcements are complete.
- _____ 7.4 Contact the National Weather Service (864-879-1085) or Duke Power Meteorological group (594-0541), as required to obtain the latest information.
- _____ 7.5 Ensure fuel handling activities are secured.
- _____ 7.6 Notify the Work Control Center to take prudent actions to expedite the restoration of important plant systems and components (such as safety systems and electrical systems) which are out of service for maintenance or testing.

- 7.7 Determine the status of Electrical Power Sources (buslines, emergency diesel generators, SSF diesel generator, vital and non-vital batteries) and take any prudent actions to ensure their availability.

CAUTION: The site inspection is meant to be done before a tornado arrives on sight. It would NOT be prudent to send a team out to survey the site in the middle of a tornado. Operations Shift Manager discretion based on safety considerations should determine sending personnel for any site inspection.

- 7.8 **IF** time and personnel safety permit, **THEN** notify the Work Control Center, SWM and C&F personnel (ext. 4303) to have appropriate personnel inspect the site (including the switchyard) for the following items and secure or relocate them away from the site or relocate to the NE side of the plant, if possible: {PIP 0-M96-0716}
- Large Cranes (lower boom to ground, if possible)
 - Lifting devices secured
 - Vehicles (ensure materials stacked on truck are tied down)
 - Hazardous Material containers
 - Trash bin or equipment on wheels
 - Compressed gas cylinders
 - Loose lumber or material near critical equipment
- 7.9 Operators should review EP/1&2/A/5000/ECA-0.0 (Loss of All AC Power) and AP/1&2/5500/007 (Loss of Electrical Power) and take any prudent actions to ensure equipment required for station blackout response is available.
- 7.10 Notify the Work Control Center to have Maintenance stop use of the Turbine Building Cranes and park and anchor the cranes furthest from the Auxiliary Building.
- 7.11 **IF** Loss of RN suction from low level intake is imminent, **THEN GO TO** AP/1&2/A/5500/020 (Loss of Nuclear Service Water System) while continuing with this procedure.
- 7.12 Send an operator to ensure the equipment windows (2) on the north wall of each Turbine Building 786 ft. elevation is closed and locked.

NOTE: Considerations should be given to the potential for difficulty to travel to the site following tornado due to debris.

- 7.13 Consult with station management to consider staffing the Technical Support Center and the Operations Support Center, or consider placing additional personnel on shift.

- 7.14 Consult with station management to evaluate conducting a site assembly and/or a site evacuation. **IF** a site assembly is **NOT** conducted, **THEN** evaluate evacuating site trailers.

NOTE: The following step places VA and VC in Tech Spec 3.0.3. {PIP-0-M-99-4081}
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- 7.15 **IF** a tornado has been determined to be on site, **THEN** perform the following:
- 7.15.1 Shut down all VA fans.
- 7.15.2 Shut down all VF fans.
- 7.15.3 Close VC1A, 2A, 3B, 4B, 9A, 10A, 11B and 12B (Outside Air Intake Valves).
- 7.16 **IF** a tornado has been observed touching down on, or near site, **THEN REFER TO** RP/0/A/5700/000 (Classification of Emergency).
- 7.17 **IF** a tornado has been determined to be onsite, **THEN** notify the Work Control Center or TSC (if activated) to organize a team to survey the plant when conditions permit. Survey plant structures (including the switchyard) and equipment to determine the extent of the damage and develop contingency plans to repair any damaged structures or equipment.
- 7.18 If applicable, discuss the extent of plant damage caused by tornado with site management and determine the need for plant shutdown and/or repair.
- 7.19 After condition clears, realign any systems shutdown previously as desired.
- 7.20 This procedure remains in effect until one of the following conditions are met:
- • Termination of Tornado Warning for Mecklenburg County by National Weather Service
- OR**
- • Duke Power Meteorological Group (704-594-0341) verifies that a tornado threat to the McGuire Nuclear Site no longer exists

8. Subsequent Actions For High Winds Or Hurricane

- NOTE:**
- Wind speed information > 90 mph shall be obtained from National Weather Service at 864-879-1085 (unpublished).
 - Actions may be performed simultaneously.

- 8.1 **WHEN** the hurricane is within 24 hours from arriving onsite, **THEN** turn on the outside page speakers.
- 8.2 Using any plant phone in the Control Room horse shoe, or extension 4021, dial 710; pause, dial 80, and announce:
- “Attention all plant personnel. Attention all plant personnel. This is the Operations Control Room. Hurricane force winds are projected to be on site within 24 hours. Be prepared to take shelter should the hurricane force winds develop on site. Further updates will be provided as conditions warrant.”
- 8.3 Turn off the outside page speakers.
- 8.4 Operators should review EP/1&2/A/5000/ECA-0.0 (Loss of All AC Power) and AP/1&2/5500/007 (Loss of Electrical Power) and take any prudent actions to ensure equipment required for station blackout response is available.
- 8.5 Contact the National Weather Service (864-879-1085) or Duke Power Meteorological group (594-0541), as required to obtain the latest information.
- 8.6 Discussions should be held with the Station Manager so that a decision can be made on when and how to place the plant in a safe shutdown condition two hours before the anticipated hurricane arrival at the site (i.e., sustained wind speeds in excess of 73 mph). {PIP 0-M96-2508}

- NOTE:** Considerations should be given to the potential for difficulty to travel to the site following storm due to storm debris. {PIP 0-M96-2508}

- 8.7 **IF** not performed in RP/0/B/5700/027 (Hurricane Preparation), **THEN** consult with station management to consider staffing the Technical Support Center and the Operations Support Center, or consider placing additional personnel on shift.
- 8.8 **IF** Loss of RN suction from low level intake is imminent, **THEN GO TO** AP/1&2/A/5500/020 (Loss of Nuclear Service Water System) while following this procedure.
- 8.9 Ensure fuel handling activities are secured.

- 8.10 Notify the Work Control Center to take prudent actions to expedite the restoration of important plant systems and components (such as safety systems and electrical systems) which are out of service for maintenance or testing.
- 8.11 Any out of service battery chargers should be returned to service. {PIP 0-M96-2508}
- 8.12 Consult station management to evaluate testing on the onsite Diesel Powered VI compressors prior to arrival of hurricane onsite. {PIP 0-M96-2508}
- 8.13 Consult station management to evaluate starting, loading and testing D/Gs within 24 hours of hurricane force winds arriving on site. Previous run history of the D/Gs should be utilized when making this determination, it would be unnecessary to run any D/G ran within the previous 24 hours. {PIP 0-M96-2508}
- 8.14 Determine the status of Electrical Power Sources (buslines, emergency diesel generators, SSF diesel generator, vital and non-vital batteries) and take any prudent actions to ensure their availability.

CAUTION: The site inspection is meant to be done before high winds arrive on sight. It would NOT be prudent to send a team out to survey the site in the middle of high winds (sustained wind speed >60 mph). Operations Shift Manager discretion based on safety considerations should determine sending personnel for any site inspection.

- 8.15 IF not performed in RP/0/B/5700/027 (Hurricane Preparation), AND time and personnel safety permit, THEN notify the Work Control Center and SWM to have appropriate personnel inspect the site (including the switchyard) for the following items and secure or relocate them away from the site or relocate to the NE side of the plant (to reduce the potential for missiles), if possible: {PIP 0-M96-2508}
 - Large cranes (lower boom to ground, if possible)
 - Lifting devices (Outside Lift if being used for SGRP) secured
 - Vehicles (ensure materials stacked on truck are tied down)
 - Hazardous Material containers
 - Trash bin or equipment on wheels
 - Compressed gas cylinders
 - Loose lumber or material near critical equipment
- 8.16 Notify the Work Control Center to have Maintenance stop use of the Turbine Building Cranes and park and anchor the cranes furthestmost from the Auxiliary Building.
- 8.17 Send an operator to ensure the equipment windows (2) on the north wall of each Turbine Building 786 ft. elevation are closed and locked.
- 8.18 Monitor Groundwater Sumps and ensure sump levels are being maintained.

- 8.19 Monitor Turbine Building Sumps and ensure sump levels are being maintained.
 - 8.20 Consult with station management to evaluate conducting a site assembly and/or a site evacuation. **IF** a site assembly is **NOT** conducted, **THEN** evaluate evacuating site trailers.
 - 8.21 **REFER TO** RP/0/A/5700/000 (Classification of Emergency).
 - 8.22 **WHEN** conditions permit, contact the Work Control Center or the TSC (if activated) to organize a team to survey plant structures (including the switchyard) and equipment to determine the extent of damage, if any, and to develop contingency plans to repair any damaged structures or equipment.
 - 8.23 If applicable, discuss the extent of plant damage caused by hurricane with site management and determine the need for plant shutdown and/or repair.
 - 8.24 After condition clears, realign any systems shutdown previously as desired.
 - 8.25 This procedure remains in effect until one of the following conditions are met:
 - • Termination of Hurricane Conditions for Mecklenburg County by National Weather Service
- OR**
- • Duke Power Meteorological Group (704-594-0341) verifies that a hurricane threat to the McGuire Nuclear Site no longer exists

End Of Body

Duke Power Company
PROCEDURE PROCESS RECORD(1) ID No HP/0/B/1009/006Revision No. 005

PREPARATION

(2) Station McGuire Nuclear Station(3) Procedure Title Procedure for Quantifying High Level Radioactivity Releases During Accident Conditions(4) Prepared By Ronald R Miller Date 5-4-00

(5) Requires 10CFR50.59 evaluation?

- ☒ Yes (New procedure or revision with major changes)
☐ No (Revision with minor changes)
☐ No (To incorporate previously approved changes)

(6) Reviewed By GFTerrell (QR) Date 5-4-00Cross-Disciplinary Review By _____ (QR) NA GFT Date 5-4-00Reactivity Mgmt. Review By _____ (QR) NA GFT Date 5-4-00

(7) Additional Reviews

Reviewed By Alan L. Beaver Date 5/31/00Reviewed By J. J. Wengert Date 6/1/2000

(8) Temporary Approval (if necessary)

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By K.L. Murray Date 6/1/00

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

- ☐ Yes ☐ NA Check lists and/or blanks initialed, signed, dated, or filled in NA, as appropriate?
☐ Yes ☐ NA Listed enclosures attached?
☐ Yes ☐ NA Data sheets attached, completed, dated, and signed?
☐ Yes ☐ NA Charts, graphs, etc. attached dated, identified, and marked?
☐ Yes ☐ NA Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks (Attach additional pages, if necessary)

<p>Duke Power Company McGuire Nuclear Station</p> <p>Procedure for Quantifying High Level Radioactivity Releases During Accident Conditions</p> <p>Multiple Use</p>	Procedure No. HP/0/B/1009/006
	Revision No. 005
	Electronic Reference No. MC0045FZ

Procedure for Quantifying High Level Radioactivity Releases During Accident Conditions

1. Purpose

This procedure describes methods for collecting samples and taking radiation measurements for estimating noble gas, particulates, and radioiodine concentrations if the existing effluent instrumentation goes offscale during accident conditions. Enclosure 5.1 through 5.6 are designated as: **REFERENCE USE**, and must be at the sample location at all times during sampling. The remaining portions of this procedure are designated as: **INFORMATION USE** and are not required to be at sample locations during sampling.

2. References

- 2.1 NUREG-0737, Table 2.F.1-2
- 2.2 Remote Unit Vent Sampler Activity Buildup and Dose Assessment Calculations
MCC1229.00-33 and MCC1227.00-23
- 2.3 HP/0/B/1004/019, Preparation of Samples for Count Room Analysis
- 2.4 HP/0/B/1001/035, Operation of the Gamma Spectroscopy System
- 2.5 HP/0/B/1003/036, Unit Vent
- 2.6 SH/0/B/2000/004, Taking, Counting and Recording Surveys.

3. Limits and Precautions

- 3.1 This procedure is written for use under abnormal conditions, which could involve extremely high radiation levels. Individuals collecting the samples shall be aware of the possibility of airborne contamination and high radiation levels in sampling areas.
- 3.2 When taking samples, as much as practical, keep individual exposures < 5 rem Total Effective Dose Equivalent and extremities < 50 rem Shallow Dose Equivalent per year. Obtain dose extension through the OSC as appropriate.
- 3.3 Only the Station Radiation Protection Manager/designee shall authorize the use of this procedure when needed and shall ensure appropriate surveillance and control of people taking the samples.
- 3.4 All commitments are denoted at the end of the referenced section of this procedure by brackets { } with a number inside. They are specifically listed on Enclosure 5.8.

- 3.5 Unless otherwise directed by RP Supervisor, or qualified designee, follow all steps of this procedure. All deviations from this procedure shall meet the intent of this procedure.
- 3.6 Do not dispose of silver zeolite cartridges in radioactive waste. Contact RP Staff for disposal of used silver zeolite cartridges.

4. Procedure

- 4.1 RWP 5020 is provided for performance of this task.
- Read and logon to RWP 5020.
 - Comply with all RWP requirements.
- 4.2 Obtain the following equipment necessary for remote Unit Vent sampling:
- 4.2.1 Survey instrument, preferably an Ion Chamber.
- 4.2.2 Sample train equipment:
- particulate holder with filter
 - iodine cartridge holder with silver zeolite cartridge
 - 95cc gas bomb with two sections of small gauge tygon tubing
- 4.3 Using Enclosure 5.1, set up remote vent sampling. {16}
- 4.3.1 The actions described on Enclosure 5.1, steps 1.1.1.1 -1.1.1.5, are an effort to place equipment in a maximum safe condition. It is not mandatory and should only be performed if dose rates and manpower permit. Check with the OSC and check EMF23 (Unit Vent Area Monitor) to determine appropriate actions and travel path. If the normal unit vent cannot be secured, proceed to Enclosure 5.1, step 1.1.2.
- 4.4 Using Enclosure 5.2, repeat sampling at 30 minute intervals or as directed by Station Radiation Protection Manager/designee. {16}
- 4.4.1 This interval will depend on the contact dose rates on the sample train and the severity of the accident.
- 4.4.2 If long term unit vent sampling using the remote sample train is to take place, consult supervision regarding channel checks, weekly requirements, inoperable requirements, etc.

- 4.5 When remote sampling is no longer required, resume normal vent sampling using Enclosure 5.3. {16}
- 4.6 After each sample, transfer applicable data from Enclosure 5.1, 5.2, or 5.3 to Dose Rate Logsheet (Enclosure 5.5).
- 4.7 With the individual sample holders separated, obtain closed window contact dose rates from each holder; particulate, iodine cartridge and gas bomb. Record on Dose Rate Logsheet.
- 4.8 If samples can be counted in the Count Room (i.e. < 10 mr/hr), report analysis results to the TSC or EOF.
- 4.9 If samples cannot be counted in the Count Room, iodine, particulate, and noble gas concentrations will be determined by completion of Enclosure 5.6 as follows:
 - 4.9.1 Using Enclosure 5.4, select DCF for the time after Reactor shutdown for the most recent sample off time and record on Enclosure 5.6.
 - 4.9.2 Using Enclosure 5.5, subtract G/A readings from the return line readings and record on Enclosure 5.6 at DR(RL)-GA. Record the particulate housing reading, iodine housing reading, at DR(PH) and DR(IH) respectively.
 - 4.9.3 Complete the calculations on Enclosure 5.6.
- 4.10 Report results from the Unit Vent Effluent Worksheet to the TSC or EOF.
- 4.11 Gas bombs not analyzed shall be purged unless otherwise directed by TSC.
- 4.12 All particulate filters shall be saved for compositing.
 - If doserates > 100 mr/hr at 12", store in a pig in the Source Room.
- 4.13 When remote sampling is terminated, assemble completed procedure package.

5. Enclosures

- 5.1 Unit Vent Normal to Remote Transfer
- 5.2 Unit Vent Remote Sampling
- 5.3 Unit Vent Remote to Normal Transfer
- 5.4 Dose Conversion Factors
- 5.5 Dose Rate Logsheet

- 5.6 Unit Vent Effluent Worksheet
- 5.7 Unit 1 & 2 Vent Sampling Schematics
- 5.8 Commitments for HP/0/B/1009/006

Enclosure 5.1
Unit Vent Normal to Remote Transfer

HP/0/B/1009/006
Page 1 of 2

COMPARED WITH CONTROL COPY BY _____ DATE: _____

- 1.1 Notify the affected Unit's Reactor Operator that they should receive a loss of flow alarm on the Unit Vent P&C sampling device while remote unit vent sampling takes place. {39}

CAUTION: Steps 11.1.1 through 1.1.1.5 may be eliminated if dose rates in the area of the normal vent sample point are prohibitive.

- 1.1.1 While monitoring general area and contact dose rates, secure normal unit vent continuous P&C as follows:

- 1.1.1.1 Locate the normal vent sample point. **Unit 1 or Unit 2** (circle affected unit).
- 1.1.1.2 Record flowrate _____, and vacuum _____ on the sample bags.
- 1.1.1.3 Turn off vacuum pump and record time _____ on the sample bags.
- 1.1.1.4 Close **Sample Supply** valve located on column JJ-51 (Unit 1) or JJ-61 (Unit 2) (Enclosure 5.5). Leave the Sample Return valve open.
- 1.1.1.5 Remove P&C filters and place in sample bags. Retain normal vent samples for Count Room analysis, if dose rates permit.

- 1.1.2 Locate Remote Vent sample point, 767 Elevation, Column HH-53 (Unit 1) or FF-58 (Unit 2). **Unit 1 or Unit 2** (circle affected unit).

- 1.1.3 Connect the sample train.

- 1.1.4 Verify gas bomb isolation valves open, if applicable

- 1.1.5 Close valve **From Normal Pump Discharge**. This will isolate the normal sample flow.

- 1.1.6 Open Vent Remote Supply valve

- 1.1.7 Open Vent Return valve

- 1.1.8 Start Remote sample pump and record start time. _____

Unit Vent Normal to Remote Transfer

NOTE: The sample volume used in the calculations on Enclosure 5.4 are derived from a 25 lpm flow rate at 5" Hg for 30 minutes. If you change these variables you will need to recalculate the volume.

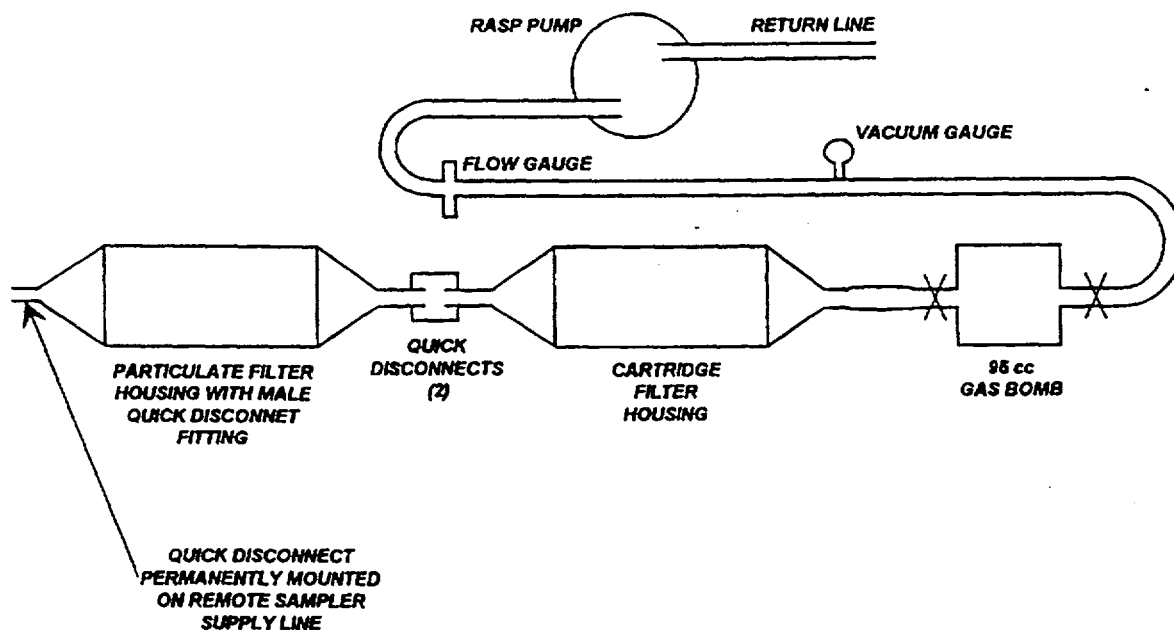
- 1.1.9 Adjust flowrate on sample pump to 25 ± 5 lpm. Vacuum should read 5 ± 1 " Hg. If vacuum gauge reading is less than required, verify that there is not a restriction in the flowpath (i.e., closed sample valves). {19}

1.1.9.1 Record flowrate _____ and vacuum _____.

- 1.1.10 Record "Sample Number" and Sample On Date/Time" on Dose Rate Logsheet (Enclosure 5.5).

Performed By _____ Date _____

Unit 1 & 2 Remote Vent Sample Train
Schematics



Enclosure 5.2
Unit Vent Remote Sampling
767 Elev, HH-53 (U-1) FF-58 (U-2) Circle One

HP/0/B/1009/006
Page 1 of 2

COMPARED WITH CONTROL COPY BY _____ DATE: _____

WARNING: High dose may be encountered on sample media.

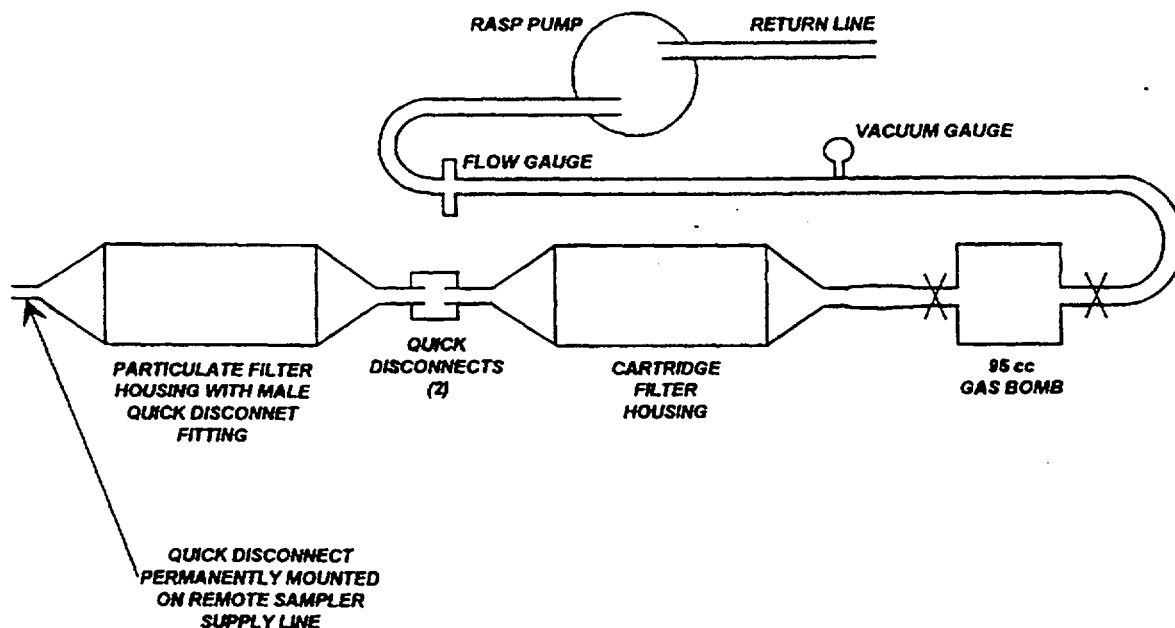
- 1.1 Transport shielded containers with initial sample collection and thereafter as needed.
- 1.2 Collect a 30 minute sample (± 6 min) or as directed by the Station Radiation Protection Manager or qualified designee.
- 1.3 Turn Remote sample pump off, allow vacuum to return to 0.
- 1.4 Close Vent Remote Supply valve.
- 1.5 Close Vent Return valve.
- 1.6 Record off time _____.
- 1.7 Isolate gas bomb.
- 1.8 Disconnect sample train.
- 1.9 Set sample train away from sample lines to minimize dose and prevent interference with general area and return line dose rates.
 - Use of the shielded containers may be necessary.
- 1.10 Connect new sample train.
- 1.11 Verify gas bomb isolation valves open, if applicable.
- 1.12 Open Vent Remote Supply valve.
- 1.13 Open Vent Return valve.
- 1.14 Start Remote sample pump and record start time _____.
- 1.15 Adjust flowrate on sample pump to 25 ± 5 lpm. Vacuum should read 5 ± 1 " Hg.
- 1.16 If vacuum gauge reading is less than required, verify that there is not a restriction in the flowpath (i.e., closed sample valves). { 19 }
- 1.17 Record flowrate _____ and vacuum _____.

Unit Vent Remote Sampling
767 Elev, HH-53 (U-1) FF-58 (U-2) Circle One

- 1.18 After a short purge time, obtain return line dose rates at point marked "Return Line Sample Point". Return line dose rate _____.
- 1.19 Obtain general area dose rate approximately three feet away from unit vent lines.
General Area dose rate _____.
- 1.20 If contact dose rate on removed sample >100 mr/hr, evaluate transporting sample back to the lab in shielded container(s).
- 1.21 Transport sample train to the Shift Lab, place under hood.
- 1.22 Go to step 4.6 in the body of this procedure.

Performed by _____ Date _____

**Unit 1 & 2 Remote Vent Sample Train
Schematics**



Unit Vent Remote to Normal Transfer

COMPARED WITH CONTROL COPY BY _____ DATE: _____

WARNING: High dose may be encountered on Remote *and* Normal sample media.Normal Vent Sample Point

- 1.1 If normal vent composite sampler was left running, evaluate condition of sample apparatus.
 - Pump may be damaged.
 - Pump power source breakers may have tripped (Unit-1: Panel 1L11, breaker 25 / Unit-2: Panel 2L10, breaker 24).
 - Tygon may be contaminated.
 - Shielded containers may be needed for transport.
 - This list is not all inclusive.
- 1.1.1 Record flowrate _____, and vacuum _____.
- 1.1.2 Turn off the sample pump and record the time _____.
- 1.1.3 Close **Sample Supply** valve.
- 1.1.4 Remove the P&C filters.

Remote Vent Sample Point

- 1.2 Turn Remote sample pump off, allow vacuum to return to 0.
- 1.3 Close Vent Remote Supply valve.
- 1.4 Close Vent Return valve.
- 1.5 Open **From Normal Pump Discharge**.
- 1.6 Record off time _____.
- 1.7 Isolate gas bomb.
- 1.8 Disconnect sample train.
 - Evaluate the need for transport in shielded container(s).

Unit Vent Remote to Normal Transfer

Normal Vent Sample Point

- 1.9 Place new P&C in holder.
- 1.10 Open the **Sample Supply** valve.
- 1.11 Ensure Sample Return valve is open.
- 1.12 Start the sample pump.
- 1.13 Acquire a sample using the flowrate of ≈ 20 LPM.
- 1.14 Record the time _____, flowrate _____, and vacuum _____ on the P&C sample bags and leave the bags at the sample location.
- 1.15 If the vacuum gauge reading is > 4.5 "Hg, verify that there is not a restriction in the flow path (i.e., closed sample valves, etc.) {19}
- 1.16 Notify the affected unit's Reactor Operator that remote sampling is complete and sample is in normal vent sampling configuration.
- 1.17 Verify loss of flow alarm cleared.
- 1.18 Transport sample(s) to the Shift Lab.
- 1.19 Go to 4.6 in the body of this procedure.

Performed by: _____ Date _____

Enclosure 5.4
Dose Conversion Factors
(DCF)

HP/0/B/1009/006
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Time (hrs) <u>After</u> <u>Shutdown</u>	Iodine <u>Housing</u> $\left(\frac{\mu\text{Ci}}{\text{cc}} / \frac{\text{mR}}{\text{hr}} \right)$	Particulate <u>Housing</u> $\left(\frac{\mu\text{Ci}}{\text{cc}} / \frac{\text{mR}}{\text{hr}} \right)$	Return <u>Line</u> $\left(\frac{\mu\text{Ci}}{\text{cc}} / \frac{\text{mR}}{\text{hr}} \right)$
.0	5.9E-03	3.1E-2	5.20E-1
.25	6.4E-03	3.1E-2	5.20E-1
.5	7.0E-03	3.2E-2	5.20E-1
1	8.1E-03	3.3E-2	5.20E-1
1.5	9.3E-03	3.5E-2	5.20E-1
2	1.0E-02	3.7E-2	5.20E-1
3	1.2E-02	4.1E-2	5.20E-1
4	1.4E-02	4.3E-2	5.20E-1
5	1.6E-02	4.3E-2	5.20E-1
8	2.0E-02	4.4E-2	5.20E-1
12	2.5E-02	4.4E-2	5.20E-1
16	2.9E-02	4.4E-2	5.20E-1
24	3.7E-02	4.4E-2	5.20E-1
30	4.4E-02	4.7E-2	5.20E-1
50	6.3E-02	4.7E-2	5.20E-1
100	1.0E-01	4.8E-2	5.20E-1
250	1.2E-01	5.0E-2	5.20E-1
500	1.2E-01	5.5E-2	5.20E-1
720	1.2E-01	5.8E-2	5.20E-1

Use the higher DCF value for intervals between time after shutdown.

Enclosure 5.5

Dose Rate Logsheet

HP/0/B/1009/006
Page 1 of 1

[illegible]

Enclosure 5.6

Unit Vent Effluent Worksheet

HP/0/B/1009/006

Page 1 of 1

DCF(IH) = Dose Conversion Factor for Iodine Housing

DCF(PH) = Dose Conversion Factor for Particulate Housing

DCF(RL) = Dose Conversion Factor for Return Line

DR(IH) = Dose Rate on Iodine Housing

DR(PH) = Dose Rate on Particulate Housing

DR(RL)-GA = Dose Rate on Return Line minus General Area

$$9.6E-5^* = \frac{\text{Collection Media Volume (65cc)}}{\text{Sampled Volume (6.8E5cc)}}$$

**Sampled Volume (6.8E5cc) is derived from 25 lpm flow rate at 5" Hg for 30 minutes.*

If the flow rate, vacuum, and/or sampling time time varies, the sample volume must be corrected.

Unit Vent Concentration Calculations

Time After Shutdown _____(hrs) Sample # _____

$$\text{Iodine Concentration } (\mu\text{Ci/cc}) = \frac{\text{_____}}{\text{DCF(IH)}} \times \frac{\mu\text{Ci}}{\text{cc}} \div \frac{\text{mR}}{\text{hr}} \times \frac{\text{_____}}{\text{DR(IH)}} \times \frac{\text{mR}}{\text{hr}} \times 9.6E-5^* = \text{_____} \mu\text{Ci/cc}$$

$$\text{Particulate Concentration } (\mu\text{Ci/cc}) = \frac{\text{_____}}{\text{DCF(PH)}} \times \frac{\mu\text{Ci}}{\text{cc}} \div \frac{\text{mR}}{\text{hr}} \times \frac{\text{_____}}{\text{DR(PH)}} \times \frac{\text{mR}}{\text{hr}} \times 9.6E-5^* = \text{_____} \mu\text{Ci/cc}$$

$$\text{Return Line Concentration } (\mu\text{Ci/cc}) = \frac{0.52}{\text{DCF(RL)}} \times \frac{\mu\text{Ci}}{\text{cc}} \div \frac{\text{mR}}{\text{hr}} \times \frac{\text{_____}}{\text{DR(RL)-GA}} \times \frac{\text{mR}}{\text{hr}} = \text{_____} \mu\text{Ci/cc}$$

For Noble Gas

Unit Vent Activity Based on Count Room Analysis

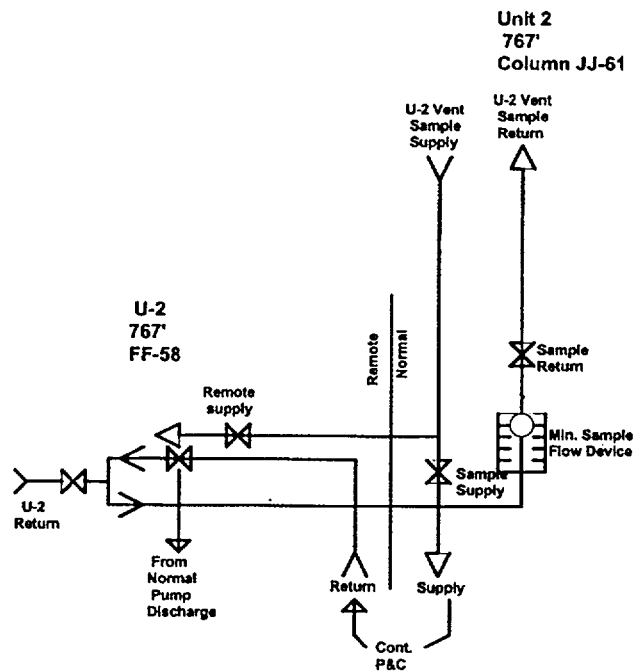
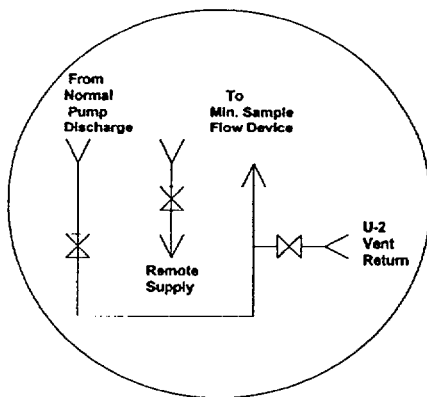
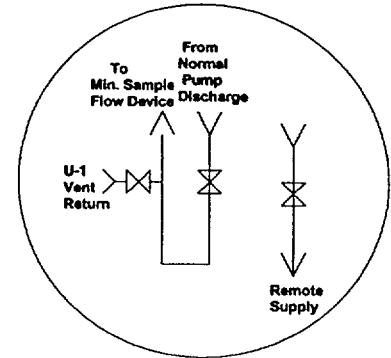
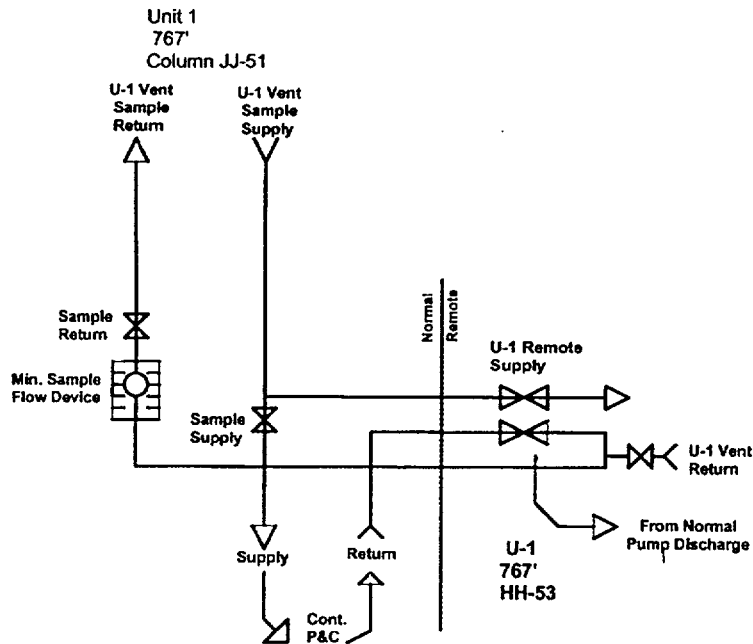
Grand Total Activity : Particulate = _____ $\mu\text{Ci/cc}$

Iodine = _____ $\mu\text{Ci/cc}$

Noble Gas = _____ $\mu\text{Ci/cc}$

Enclosure 5.7
Unit 1 & 2 Vents Sampling Schematics

HP/0/B/1009/006
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Enclosure 5.8
Commitments for HP/0/B/1009/006

HP/0/B/1009/006
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{16}	LER 369/90-03	Sampling enclosures required in the field.
{19}	LER 369/09-08	Observe and correct higher than expected vacuum on sample trains.
{39}	PIR 1-M92-0506	Notify U-1 and U-2 Control Room Operators separately for alarms during sample changeout.