Duke Energy

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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 four 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 the plan continues to meet the requirements of 10 CFR 50.47 (b) and 10 CFR 50 Appendix E. Duke implemented these changes on September 12, 2001. A copy of these changes is also being sent to the NRC Office of Nuclear Material Safety and Safeguards as per 10 CFR 72.44 (f). Revision bars in the procedures indicate the procedure changes. The following index and procedure changes have been implemented:

EPIP Index Page 1	RP/0/A/5700/006	Rev. 009
EPIP Index Page 2	RP/0/A/5700/007	Rev. 007
EPIP Index Page 3	HP/0/B/1009/010	Rev. 006
	HP/0/B/1009/016	Rev. 002

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 Kevin Murray at (704) 875-4672.

Very truly yours,

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

HBB:jcm

Attachments

A045

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/attachment)
Mr. Martin J. Virgilio, Director
Office of Nuclear Material Safety and Safeguards
Mail Stop T-8A23
Washington, D.C. 20555-0001

(w/o attachment)
NRC Resident Inspector

R. E. Martin, USNRC

Mike Wilder (EC05O)

Electronic Licensing Library (EC05O)

EP File 111

DUKE

McGUIRE NUCLEAR SITE

EMERGENCY PLAN IMPLEMENTING PROCEDURES

APPROVED: _____
SAFETY ASSURANCE MANAGER

DATE APPROVED 9/17/01

EPIP Index Page 1	Dated	09/17/2001
EPIP Index Page 2	Dated	09/17/2001
EPIP Index Page 3	Dated	09/17/2001
RP/0/A/5700/006	Dated	09/12/2001
RP/0/A/5700/007	Dated	09/12/2001
HP/0/B/1009/010	Dated	09/12/2001
HP/0/B/1009/016	Dated	09/12/2001

EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

PROCEDURE #	TITLE	REVISION NUMBER
RP/0/A/5700/000	Classification of Emergency	Rev. 007
RP/0/A/5700/001	Notification of Unusual Event	Rev. 015
RP/0/A/5700/002	Alert	Rev. 015
RP/0/A/5700/003	Site Area Emergency	Rev. 015
RP/0/A/5700/004	General Emergency	Rev. 015
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. 009
RP/0/A/5700/007	Earthquake	Rev. 007
RP/0/A/5700/008	Release of Toxic or Flammable Gases	Rev. 004
RP/0/A/5700/09	Collisions/Explosions	Rev. 000
RP/0/A/5700/010	NRC Immediate Notification Requirements	Rev. 013
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. 019
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. 009
RP/0/A/5700/019	Core Damage Assessment	Rev. 003
RP/0/A/5700/020	Activation of the Operations Support Center (OSC)	Rev. 011
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. 002
RP/0/A/5700/026	Operations/Engineering Technical Evaluations in the Technical Support Center (TSC)	Rev. 002
RP/0/B/5700/023	Community Relations Emergency Response Plan	Rev. 002
OP/0/B/6200/090	PALSS Operation for Accident Sampling	Rev. 010

PROCEDURE #	TITLE	REVISION NUMBER
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. 006
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. 002
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. 003
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. 001
SR/0/B/2000/01	Standard Procedure for Public Affairs Response to the Emergency Operations Facility	Rev. 003
SR/0/B/2000/002	Standard Procedure for EOF Commodities and Facilities	Rev. 002
SR/0/B/2000/003	Activation of the Emergency Operations Facility	Rev. 008
SR/0/B/2000/004	Notification to States and Counties from the Emergency Operations Facility	Rev. 003

PROCEDURE #	TITLE		REVISION NUMBER
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
PT/0/A/4600/088	Functional Check of Emergency Vehicle and Equipment		Rev. 006

(R04-01)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. RP/0/A/5700/006
Revision No. 009

PREPARATION

(2) Station MCGUIRE NUCLEAR STATION

(3) Procedure Title Natural Disasters

(4) Prepared By _____ Date 8/23/01

(5) Requires NSD 228 Applicability Determination?

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

(6) Reviewed By Alan L. Bewer (QR) Date 9/10/2001

Cross-Disciplinary Review By _____ (QR) NA ACB Date 9/10/2001

Reactivity Mgmt. Review By _____ (QR) NA ACB Date 9/10/2001

Mgmt. Involvement Review By _____ (Ops Supt.) NA ACB Date 9/10/2001

(7) Additional Reviews

Reviewed By Hubert Owen Date 8/29/01

Reviewed By _____ Date _____

(8) Temporary Approval (*if necessary*)

By _____ (OSM/QR) Date _____

By _____ (QR) Date _____

(9) Approved By K. L. Murray Date 9-12-01

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 Required 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*)

Duke Power Company McGuire Nuclear Station **Natural Disasters** **Multiple Use**	Procedure No. RP/**0**/A/5700/006 Revision No. 009 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.
- Solar Magnetic Disturbance Warning: Expected or imminent solar magnetic disturbance of ≥ K-7.

2. Immediate Action

None

3. Subsequent Actions

3.1 Notify the Operations Shift Manager.

3.2 **IF** solar magnetic disturbance warning, **THEN**:

3.2.1 Do not remove from service any diesel generator, vital buss, vital instrumentation & control power components, non-vital instrumentation & control power components or any other equipment deemed important to respond to a loss of offsite power event.

_____ 3.2.2 Promptly restore any diesel generator, vital buss, vital instrumentation & control power components, non-vital instrumentation & control power components, or any other equipment deemed important to respond to a loss of off site power event.

_____ 3.2.3 End this procedure.

_____ 3.3 **IF** design basis conditions are exceeded which jeopardize the safe operation of the reactor, **THEN** take the units to hot standby.

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

3.4 As directed by OSM, perform the following

_____ 3.4.1 Turn on outside page speakers.

_____ 3.4.2 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.

_____ 3.4.3 Repeat the announcement.

_____ 3.4.4 Turn off outside speakers when announcements are complete.

_____ 3.5 Notify the dispatcher of the actual or imminent condition.

_____ 3.6 Notify Radiation Protection to minimize or stop all handling of radioactive materials.

_____ 3.7 Notify Radwaste Chemistry to minimize or stop all handling of radioactive materials.

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.

_____ 3.8 Minimize or stop all radioactive releases to the environment for the duration of the emergency (VQ, VP, VE, LWRs, GWRs, etc.).

3.9 Contact Station Management to evaluate the following {PIP-M-01-0258}:

_____ 3.9.1 Any high risk evolution in progress.

_____ 3.9.2 **IF** in midloop operation, **THEN** evaluate raising NCS level.

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

——— 3.10.1 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}

——— 3.10.2 Security:

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

——— 3.10.3 Radiation Protection:

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

——— 3.10.4 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.

—— 3.11 Take necessary steps to increase Upper Surge Tanks and Auxiliary Feedwater Condensate Storage Tank.

—— 3.12 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.

3.13 **IF AT ANY TIME** conditions degrade to a point that the Control Room crew determines a reactor trip is prudent, **THEN** perform as follows:

—— 3.13.1 Trip the reactors.

—— 3.13.2 **GO TO** EP/1&2/A/5000/E-0 (Reactor Trip or Safety Injection) while continuing with this procedure.

3.14 For the following conditions, **GO TO** the following sections:

—— 3.14.1 Low Lake Level: **GO TO** Section 4.

—— 3.14.2 High Lake Level, Flood, Seiche: **GO TO** Section 5.

—— 3.14.3 Tornado Watch: **GO TO** Section 6.

—— 3.14.4 Tornado Warning: **GO TO** Section 7.

—— 3.14.5 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 1-864-879-1085 (unpublished).
- Actions may be performed simultaneously.

—— 6.1 Contact the National Weather Service (1-864-879-1085), or Duke Power Meteorological group (704-594-0341), 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 Nuclear Site Services 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 furthermost 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 1-864-879-1085 (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 (1-864-879-1085) or Duke Power Meteorological group (704-594-0541), 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 Nuclear Site Services 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 furthermost 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}

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 1 864-879-1085 (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 (1-864-879-1085) or Duke Power Meteorological group (704-594-0541), 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 missles), 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 furthermost 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

(R04-01)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. RP/0/A/5700/007
Revision No. 007

PREPARATION

(2) Station **MCGUIRE NUCLEAR STATION**

(3) Procedure Title Earthquake

(4) Prepared By _____ Date 8/22/01

(5) Requires NSD 228 Applicability Determination?

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

(6) Reviewed By Alan L. Beaver (QR) Date 9/10/2001

Cross-Disciplinary Review By _____ (QR) NA ACB Date 9/10/2001

Reactivity Mgmt. Review By _____ (QR) NA ACB Date 9/10/2001

Mgmt. Involvement Review By _____ (Ops Supt.) NA ACB Date 9/10/2001

(7) Additional Reviews

Reviewed By Dayna J. Herrick Date 8/29/01

Reviewed By _____ Date _____

(8) Temporary Approval (*if necessary*)

By _____ (OSM/QR) Date _____

By _____ (QR) Date _____

(9) Approved By K.L. Murray Date 9-12-01

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

(10) Compared with Control Copy _____ Date _____

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(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 Required 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***)

Duke Power Company McGuire Nuclear Station	Procedure No. RP/**0**/A/5700/007
Earthquake	Revision No. 007
Multiple Use	Electronic Reference No. MC0094NI

Earthquake

1. Symptoms

1.1 Time History Accelerograph System OAC alarm (M1D2422) "actuated" which indicates one of the following is exceeded:

- Transverse acceleration: ≥0.01g
- Longitudinal: ≥0.01g
- Vertical: ≥0.01g.

1.2 Effects of an earthquake may be seen, heard, or felt.

1.3 "OBE Exceeded" annunciator (1AD-13 - E7) actuated.

2. Immediate Actions

None

3. Subsequent Actions

NOTE: The Reactor Coolant Leakage Detection Systems on each unit are **NOT** seismically qualified and must be assumed to be inoperable following any seismic event. Reactor Coolant Leakage Detection Systems are **NOT** required to be operable during Cold Shutdown.

_____ 3.1 Following any earthquake, including earthquakes smaller than OBE, assume the following Reactor Coolant Leakage Detection Systems, on each unit, (listed below) are inoperable and implement appropriate Tech Spec Action Statement 3.4.15.

- Containment Floor and Equipment Sump Level Monitoring System
- VUCDT Level Monitoring System.

3.2 Determine the operable status of 1(2)EMF38(L) and 1(2)EMF39(L) by the following:

3.2.1 Perform a source check from the Control Room to ensure power is available to the following:

_____ • 1EMF38(L)

_____ • 1EMF39(L)

_____ • 2EMF38(L)

_____ • 2EMF39(L).

3.2.2 Check the following sample pumps are operational, by visual inspection at the skids:

_____ • 1EMF38(L)

_____ • 1EMF39(L)

_____ • 2EMF38(L)

_____ • 2EMF39(L).

_____ 3.2.3 **IF** 1(2)EMF38(L) or 1(2)EMF39(L) are determined to be inoperable, **THEN REFER TO** Tech Spec 3.4.15.

NOTE: Enclosure 4.1 (Seismic Instrument Locations) should be referenced while performing the following step.

3.3 Evaluate the magnitude of the earthquake damage as follows:

_____ 3.3.1 Contact the U.S. Geological Survey Office at (303) 273-8500 to obtain seismic verification.

3.3.2 Contact the SWM to ensure IAE personnel perform the following procedures to evaluate the seismic equipment for verification and classification of the event:

_____ • IP/0/B/3150/001 (Model PRA-103 Peak Recording Accelerometer Calibration and Data Retrieval)

_____ • IP/0/B/3150/002 (Peak Shock Recorder and Annuciator Calibration)

_____ • IP/0/B/3150/004 (SMA-3 Strong Motion Accelerographs System Calibration).

3.3.3 Contact the SWM to ensure the following model work order numbers are performed to check the torque values of the bolting for the Main Feed Isolation Valves (CF-26, 28, 30, 35) as required by the EQ program:

_____ • Unit 1: 85055211; 85055212; 85055213; 85055214

_____ • Unit 2: 85055215; 85055216; 85055217; 85055218.

_____ 3.3.4 Contact Civil Engineering (MCE) to obtain recorded data from Maintenance or Instrumentation Engineering (RES) after it has been returned from the Laboratory/Vendor (plates have to be sent to be read). Civil Engineering (MCE) should perform the comparison analysis required in UFSAR section 3.7.4.4. {PIP -M-01-02069}.

3.4 Based on the magnitude of the earthquake, perform a plant inspection as follows:

_____ • **IF** magnitude is GREATER THAN .01g, **THEN** perform an inspection **PER** Steps 3.14 and 3.15.
OR

_____ • **IF** magnitude is GREATER THAN .08g horizontal or .053g vertical, **THEN** perform an inspection **PER** Steps 3.14,3.15 and 3.16.

NOTE: The following step is a Facility Operating License Amendment , per Docket Nos. 50 - 369,370.

3.5 **IF** the Operational Bases Earthquake (OBE) Exceeded Alarm (1AD-13 - E7) is received AND the effects of an earthquake are felt OR analysis determines an earthquake of greater than .08g horizontal, or .053g vertical, has occurred, **THEN**:

_____ 3.5.1 **IF** time allows. **THEN** visual inspection of essential safe shutdown equipment should be performed to determine its readiness.

_____ 3.5.2 Shutdown the Unit(s) to Hot Standby (Mode 3) within 6 hours.

_____ 3.5.3 **IF** the plant tripped under conditions which would warrant shutdown, **THEN** the plant should remain shutdown for detailed inspections.

NOTE: The following step is a Facility Operating License Amendment , per Docket Nos. 50 - 369,370.

_____ 3.6 **IF** analysis determines that an earthquake of GREATER THAN 0.15g horizontal **OR** GREATER THAN 0.1g vertical has occurred, **THEN** shutdown the Unit(s) to Cold Shutdown (Mode 5) within 30 hours.

_____ 3.7 **REFER TO** RP/0/A/5700/000 (Classification of Emergency).

_____ 3.8 Monitor KC Surge tank levels on both units while performing the following steps.

_____ 3.9 **IF AT ANY TIME** KC Surge tank level is low or is going down, **THEN GO TO** AP/1(2)/A/5500/021 (Loss of KC or KC System Leakage), while continuing with this procedure.

NOTE: The following step is a commitment due to concerns on the seismic qualification of the Reactor Protection System cards.

_____ 3.10 Contact IAE to have the overpower and over temperature delta temperature function generator outputs calibrated for each unit.

3.11 Dispatch operator to close the following:

NOTE: The following valves isolate flow to 1(2)EMF46A(B).

_____ • 1KC-36 (KC Train 1A Radiation Monitor Inlet) (N of KC Pmp 2A2, above EMF 46A)

_____ • 1KC-37 (KC Train 1A Radiation Monitor Outlet) (N of KC Pmp 2A2, above EMF 46A)

_____ • 1KC-45 (KC Train 1B Radiation Monitor Inlet) (N of KC Pmp 2A2, above EMF 46B)

_____ • 1KC-46 (KC Train 1B Radiation Monitor Outlet) (N of KC Pmp 2A2, above EMF 46B)

_____ • 2KC-36 (2EMF-46A Inlet) (750' + 4', 9' W of Col GG57)

_____ • 2KC-37 (2EMF-46A Outlet) (750' +4', Above 2EMF-46A)

_____ • 2KC-45 (2EMF-46B Inlet) (750' + 4', 10' W of Col GG57)

_____ • 2KC-46 (2EMF-46B Outlet) (750' +7', above 2EMF-46B)

CAUTION: Chemistry should be contacted to ensure sample flow is isolated prior to removing KC cooling flow in the next step

_____ • 1KC-873 (Liquid Sample Panel Outlet Isolation) (733'+6', 6' N of Col. JJ, 2' W of Col 55)

_____ • 1KC-973 (Liquid Sample Panel Inlet Isolation) (733' + 5' N of 1A2 KC Pump)

_____ • 2KC-973 (Liquid Sample Panel Inlet Isolation) (750' + 7' Between GG56 and south end at 2A KC HX)

_____ • 2KC-974 (Liquid Sample Panel Coolers Outlet) (750 +10' JJ58).

3.12 Contact Chemistry to stop the following pumps:

_____ • NB Evaporator Concentrates Pump

_____ • WL Evaporator Concentrates Pump.

CAUTION: Evaporators should be removed from service per appropriate Chemistry procedures prior to removing KC flow.

3.13 Contact Chemistry to close the following:

____ • 1KC-906 (NB Evap Conc Pump Mech Seal Cooling Water HX Inlet)

____ • 1KC-908 (NB Evap Conc Pump Mech Seal Cooling Water HX Outlet)

____ • 1KC-909 (WL Evap Conc Pump Mech Seal Cooling Water HX Inlet)

____ • 1KC-911 (WL Evap Conc Pump Mech Seal Cooling Water HX Outlet).

NOTE: All normally monitored plant parameters should be closely observed to ensure stable plant status.

CAUTION: The site inspection is meant to be done after the seismic event occurs. It would **NOT** be prudent to send a team out to survey the site during a seismic event. Operations Shift Manager discretion based on safety considerations should determine sending personnel for any site inspection.

NOTE: The following step performs a site inspection for earthquake GREATER THAN .01g.

3.14 Perform the following to tour the station for damages being particularly observant for wall cracks, bent/broken hangers, pipe ruptures, bends or cracks, structural damage:

_____ 3.14.1 Contact Engineering to assist with the site inspection in the following steps.

_____ 3.14.2 **IF AT ANY TIME** any of the following exists, **THEN GO TO** AP/1(2)/A/5000/020 (Loss Of RN), while continuing with this procedure:

- damage to LLI piping to the RN system
- damage to the structural integrity of Cowans Ford Dam or any earthen support structures associated with the dam visible from the McGuire Site
- loss of lake level instrumentation
- actual lake level going down.

_____ 3.14.3 Include in the tour, but do **NOT** limit it to, the following areas:

- Reactor Building (outside)
- Auxiliary and Turbine Buildings
- Auxiliary Liquid Waste Processing Building
- Gas and oil storage areas
- Refueling Water Storage Tanks
- Reactor Makeup Water Storage Tanks
- Spent Fuel Pool areas
- Diesel Generator Rooms
- Standby Shutdown Facility
- Main Step-up and Auxiliary Transformers (bus lines included)
- Low Level Intake Supply Piping to RN System.

_____ 3.14.4 Dispatch operator and Engineering to visually inspect the structural integrity of Cowans Ford Dam and any earthen support structures associated with the dam visible from the McGuire Site.

NOTE:
- Lake Level indication may **NOT** be reliable during a seismic event. **IF** indication is erratic or fails high or low, **THEN** consider it failed.
- Ladder rungs at the Main Intake RC Pump Bays are spaced at 1 foot centers per MC-1341-3. Counting the number of ladder rungs from present water level to determine if lake level is changing is used to determine lake level fluctuations.

_____ 3.14.5 **IF** applicable, locally check Lake Norman water level remains stable, by performing the following:

_____ 3.15.5.1 Count the number of ladder rungs from the grating to surface of water in any of the RC Pump bays.

_____ 3.15.5.2 Re-count the number of ladder rungs in the same the RC Pump bay periodically over 30 minutes to determine if lake level is going down over time.

3.15 After evaluating the extent of the earthquake and the results of station tour, the Station Manager shall decide whether or not to preclude startup on one, or both units, in order to inspect the following:

_____ • Structures Inside Containment

_____ • Reactor Coolant System

_____ • Control Rod Drive Mechanisms.

CAUTION: The site inspection is meant to be done after the seismic event occurs. It would **NOT** be prudent to send a team out to survey the site during a seismic event. Operations Shift Manager discretion based on safety considerations should determine sending personnel for any site inspection.

NOTE: The following step performs additional site inspections for earthquakes GREATER THAN .08g horizontal, or .053g vertical.

3.16 Perform the following to tour the station for damages being particularly observant for wall cracks, bent/broken hangers, pipe ruptures, bends or cracks, structural damage, etc.:

_____ 3.16.1 Include in the tour, but do **NOT** limit it to, the following areas:

- Emergency Core Cooling Systems
- Switch Gear, MCC and cable rooms
- Underground piping such as RC, RF, RL, RN
- Acid and Caustic Storage Tanks.

_____ 3.17 Notify Radiation Protection to survey Reactor, Auxiliary and Fuel Pool Buildings to ensure shielding integrity.

_____ 3.18 **IF** Control Room evacuation becomes imminent, **THEN** activate Standby Shutdown Facility **PER** AP/1(2)/A/5500/024 (Loss of Plant Control Due to Fire).

_____ 3.19 A thorough evaluation of the extent of the earthquake damage shall be made prior to startup.

4. Enclosures

4.1 Seismic Instrument Locations

End Of Body

Enclosure - 4.1
Seismic Instrument Locations

Seismic Instrument	Location
Time-History Accelerograph recorder	1MC-9
• The seismic switch (MIMT-5060). • The time-history Accelerograph starter unit (MIMT-5020). • One of the time-history Accelerograph sensor units (MIMT-5000). • The response spectrum recorder to be coupled with the peak shock annunciator (MIMT-5070).	All on the Containment basement slab, in the annulus under the first ring girder at azimuth 0°, (Elev. 725 ± 0").
The second time-history Accelerograph sensor unit (MIMT-5010).	Directly above MIMT-5000 at azimuth 0°, (Elev. 786 ± 5") and bolted to the ring girder at this position.
One Response Spectrum Recorder, instrument number MIMT-5070.	On the Pressurizer Low Support Structure at Elev. 751' 8¼".
One Response Spectrum Recorder, instrument number MIMT-5090.	In the Auxiliary Building at Elev. 750' 0", column lines QQ and 56.
Peak Recording Accelerometer (MIMT-5030).	Strap mounted to the 6" CA elbow just off the 1D Steam Generator CA nozzle at Elev. 786' 8 9/16".
Peak Recording Accelerometer (MIMT-5040).	On pipe hanger for the Pressurizer Surge line at Elev. 746' 2½".
Peak Recording Accelerometer (MIMT-5050).	At base of NI Pump 1A at Elev. 716' 6".

End Of Enclosure

(R04-01)

Duke Power Company

PROCEDURE PROCESS RECORD

(1) ID No. HP/0/B/1009/010

Revision No. 006

PREPARATION

(2) Station **McGuire Nuclear Station**

(3) Procedure Title **Releases of Radioactive Effluents Exceeding Selected License Commitment**

(4) Prepared By Gary Terrell Gary F. Terrell Date 8/16/01

(5) Requires NSD 228 Applicability Determination?

- [X] Yes (New procedure or revision with major changes)
- [ ] No (Revision with minor changes)
- [ ] No (To incorporate previously approved changes)

(6) Reviewed By Hanie C Britton (QR) Date 8/16/01

Cross-Disciplinary Review By _____ (QR) NA RZB Date 8/27/01

Reactivity Mgmt. Review By _____ (QR) NA DCB Date 8/16/01

Mgmt. Involvement Review By _____ (Ops. Supt.) NA DCB Date 8/16/01

(7) Additional Reviews

Reviewed By _____ Date 08/24/2001

Reviewed By _____ Date _____

(8) Temporary Approval *(if necessary)*

By _____ (OSM/QR) Date _____

By _____ (QR) Date _____

(9) Approved By _____ Date 09-12-01

PERFORMANCE ***(Compare with control copy every 14 calendar days while work is being performed.)***

(10) Compared with Control Copy _____ Date _____

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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 Required 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)***

Duke Power Company McGuire Nuclear Station **Releases of Radioactive Effluents Exceeding Selected Licensee Commitments** **Reference Use**	Procedure No. HP/0/B/1009/010 Revision No. 006 Electronic Reference No. MC0045G3

Releases of Radioactive Effluents Exceeding Selected Licensee Commitments

1. Purpose

1.1 This procedure describes the method for determining if Environmental Protection Agency (EPA) Reportable Quantities have been exceeded when effluent liquid or gaseous release rate limits have been exceeded.

1.2 This procedure also provides direction for the sampling of affected waterways and local area water supply intakes following an accidental liquid release, and the subsequent actions to be taken if the concentration exceeds Selected Licensee Commitments (SLCS).

1.3 The level of use for this procedure is "Reference Use".

2. References

2.1 HP/0/B/1009/023, Environmental Monitoring for Emergency Conditions

2.2 10CFR20 Appendix B, Table 2, Column 2

2.3 40CFR302, EPA requirements for Reportable Quantities of Radionuclides

2.4 McGuire Nuclear Station, Selected Licensee Commitment Manual Section 16.11

2.5 SH/0/B/2001/004, Investigation of Unusual Radiological Occurrences

3. Limits and Precautions

3.1 This procedure shall be used in an emergency situation which could result in shutdown of area water supply intakes.

3.2 The Radiation Protection Manager (RPM)/qualified designee shall authorize any offsite recommendations as a result of the use of this procedure.

3.3 This procedure should be used in conjunction with HP/0/B/1009/023, Environmental Monitoring for Emergency Conditions (Reference 2.1). Sampling of affected waterways and intakes should be requested through the Field Monitoring Coordinator

3.4 SH/0/B/2001/004, Investigation of Unusual Radiological Occurrences (Reference 2.5), provides an alternate method for determining if Reportable Quantities have been exceeded.

3.5 Verify counting equipment to be used has been calibrated and daily response checks have been performed.

3.6 This procedure is written for use under abnormal radiological conditions. Appropriate radiological controls shall be observed during sample collection.

4. Procedure

4.1 IF SLCS release rate limits for liquid or gaseous releases are exceeded, use RETDAS to determine if Reportable Quantities have been exceeded.

4.1.1 Select RETDAS icon.

4.1.2 On RETDAS Launcher Screen, ensure top dropdown box says "McGuire".

NOTE: The next step requires the use of the "Backup" database vs. the "Production database as an extra precaution to prevent any unnecessary manipulations of record data.

4.1.2.1 Ensure the middle dropdown box is changed to "Backup".

4.1.2.2 Ensure the bottom dropdown box has the correct year (normally the current year).

4.1.3 Select "Main" (a reminder box will appear stating: "This is BACKUP data and you will not be able to save these changes to the server.")

4.1.4 Select "OK".

4.1.5 Enter the correct User Name and Password, then "OK".

4.1.6 Select "Miscellaneous Reports".

4.1.7 Select "Reports".

4.1.8 Select "EPA Reportable Quantity", then "Add".

4.1.9 Select "Release Type" and "Release Mode".

4.1.10 Select "Release ID".

4.1.11 Select applicable release type, then "OK".

4.1.12 Select "Permit/Sample Number"

4.1.13 Select applicable Permit/Sample Number, then "OK".

4.1.14 Select "OK" on the "40CFR302 EPA Reportable Quantity Report" screen.

4.1.15 Select "OK" on the "Report Generation" screen.

4.1.16 Verify the header data is correct and print the report.

NOTE: It will be approximately 30 seconds before the report appears on the screen.

4.1.17 **IF** the sum of the ratios is ≥ 1 the release is reportable per 40CFR302 (Reference 2.3).

4.1.18 **IF** the release is reportable, contact the Radiation Protection Manager/qualified designee and Operations Shift Manager.

4.1.19 Release of a Reportable Quantity is reportable to the EPA as soon as possible. Environmental Management Personnel shall make this report. An Environmental Management reporting hotline is available 24 hours a day at extension 4232. Directions concerning contact of duty Environmental Management personnel, via offsite pager, will be given if the call is made after normal working hours.

4.2 Radionuclide Concentration at Area Water Supply Intakes

4.2.1 Radiation Protection shall collect and evaluate samples per Reference 2.1.

4.2.2 Radiation Protection shall determine the discharge point concentration from EMF data and/or environmental samples.

4.2.3 **IF** sampling data indicates that a release through the RC System to Lake Norman is likely to exceed 10 times the limits specified in 10CFR20, Appendix B, Table 2, Column 2, (Reference 2.2) at affected area water intakes, the Emergency Coordinator shall:

4.2.3.1 Have the Control Room request maximum possible water flow at Cowans Ford Hydro Station from System Load Dispatcher.

4.2.3.2 Notify the area water supply pumping stations (Enclosure 5.1) to cease pumping operations until the contamination levels have passed or have been diluted to within acceptable limits. For any unknown mixture in water, the limit is 1E-7 μCi/ml or 10 times the effluent concentrations specified in 10CFR20, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases.

4.2.4 **IF** sampling data indicates that a release through the Conventional Waste Water Treatment (CWWT) to the Catawba River is likely to exceed 10 times the limits specified in 10CFR20, Appendix B, Table 2, Column 2 (Reference 2.2) limits at the Charlotte or Mt. Holly Water intakes, the Emergency Coordinator shall:

4.2.4.1 Have the Control Room request minimum water flow at Cowans Ford Hydro Station and Mountain Island Dam from System Load Dispatcher.

A. Transit time to Charlotte and Mt. Holly Water intakes is approximately 79 days with the minimum flow (80 cfs) through Cowans Ford.

4.2.4.2 Notify both the Charlotte and Mt. Holly Water Departments that a release of radioactive materials has occurred into the Catawba River and that sampling and evaluation of samples is being undertaken (Enclosure 5.1).

4.2.4.3 In the event that sampling confirms that contamination levels at the Charlotte or Mt. Holly intake will exceed 10 times the limits specified in 10CFR20, Appendix B, Table 2, Column 2, (Reference 2.2) recommend the Charlotte and Mt. Holly Water Departments cease pumping operations during the period of time contaminated water supplies are passing the respective pumping station intakes.

4.2.5 People notified in the appropriate emergency procedures shall be responsible to decide what protective measure shall be taken in the interest of public health and safety. The state agency is responsible for appropriate long-term public health action (North Carolina Department of Crime Control and Public Safety).

4.2.6 Actual field measurements of exposure (TEDE) shall be compared to dose projections by the Radiation Protection Manager or the Radiological Assessment Manager.

5. Enclosures

5.1 Emergency Plan Implementing Procedures Telephone List.

Emergency Plan Implementing Procedures
Telephone List

CHARLOTTE WATER	
River Pumping Station	(704) 399-2331
Administration Building	(704) 399-2221
Plant Supervision	(704) 399-2426 (Work)
Emergency Radio Call Sign	KVB 704

MT. HOLLY WATER	
Pumping Station	(704) 822-2928
Chief Operator	(704) 822-2928 (704) 822-1526 (Home)
City Manager	(704) 827-3931 (Office)

RADIATION PROTECTION	
Shift Technician	4282 / 2892
	Beeper #600

(R04-01)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. HP/0/B/1009/016
Revision No. 002

PREPARATION

(2) Station **McGuire Nuclear Station**

(3) Procedure Title **Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release**

(4) Prepared By **Gary Terrell** Gary Terrell Date **July 9, 2001**

(5) Requires NSD 228 Applicability Determination?
- ☒ Yes (New procedure or revision with major changes)
- ☐ No (Revision with minor changes)
- ☐ No (To incorporate previously approved changes)

(6) Reviewed By Robert E. Beckham (QR) Date 8-22-01

Cross-Disciplinary Review By _____ (QR) NA REB Date 8-22-01

Reactivity Mgmt. Review By _____ (QR) NA REB Date 8-22-01

Mgmt. Involvement Review By _____ (OPS Supt.) NA REB Date 8-22-01

(7) Additional Reviews

Reviewed By _____ Date 08/24/01

Reviewed By _____ Date _____

(8) Temporary Approval (*if necessary*)

By _____ (OSM) Date _____

By _____ (QR) Date _____

(9) Approved By _____ Date 09-12-01

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

(10) Compared with Control Copy _____ Date _____

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(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 Required 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.*)

Duke Power Company McGuire Nuclear Station **Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release** **Reference Use**	Procedure No. HP/0/B/1009/016 Revision No. 002 Electronic Reference No. MC0045G9

Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

1. Purpose

1.1 This procedure provides information necessary to distribute Active Potassium Iodide (KI) tablets to personnel in the event of a release of radioiodine resulting from emergency conditions. Also, it outlines storage and supply information to assure sufficient quality and quantity of thyroid blocking material.

1.2 The level of use for this procedure is "Reference Use".

2. References

2.1 NCRP Report No. 55; Protection of the Thyroid Gland in the Event of Releases of Radioiodine 1977

2.2 NCRP Report No. 65; Management of Persons Accidentally Contaminated with Radioiodine 1980

2.3 BRH Report; Recommendations of Thyroid Blocking EKI, HHS Pub. FDA 81-8158

2.4 SH/0/B/2001/001, Internal Dose Assessment

3. Limits and Precautions

3.1 Persons who are known to be allergic to KI or iodine shall **NOT** receive these tablets.

3.2 Nursing mothers who receive KI tablets shall be advised to use nutrient substitutes (ex. milk or a formula) for children for the duration of the ten-day tablet use period.

3.3 Personnel shall be advised **NOT** to deviate from prescribed dosages and dosage rates.

3.4 Best results shall be achieved when KI tablets are administered prior to an exposure or immediately after an exposure (within 2 hours). Administration as late as 24 hours after the exposure is of less value but still significant enough to justify the administering.

3.5 Discolored or disfigured tablets and bottles of KI with loose tops shall be discarded.

3.6 Hands of personnel shall be free from contamination prior to taking KI tablets.

4. Procedure

4.1 Responsibilities for Distribution

4.1.1 The Radiation Protection Manager, in conjunction with available medical advice, shall control the distribution of KI tablets.

4.1.2 Station personnel suspected of having been in the affected area prior to detection and during the release, personnel present in the affected area, and personnel who shall enter the area while radioiodine is present shall be instructed by the Radiation Protection Manager to report immediately and register at a KI distribution area.

4.1.3 KI shall be distributed only to prevent a significant uptake of radioiodine. A "significant uptake" is defined as follows:

4.1.3.1 A significant amount of radioiodine exposure (both in-plant and off-site) is that amount taken into the body that would result in a Committed Dose Equivalent (CDE) of 25 rem or more to the thyroid. 25 rem CDE to the thyroid is equal to 1000 DAC-hrs of iodine exposure. Use Enclosure 5.4 to document expected DAC-hrs of exposure. **IF** it is expected that there will be 1000 DAC-hrs or greater, the use of KI is recommended.

4.2 Registration of Personnel Exposed to Radioiodine

4.2.1 **WHEN** personnel that have been notified by Radiation Protection arrive at a distribution area, record appropriate data per Enclosure 5.1.

4.2.2 The Radiation Protection Manager or his designee shall give one (1) tablet to each affected person and shall give instructions concerning the use of the tablets. Then, each affected person shall be issued one bottle containing nine (9) KI tablets along with the package insert which describes the use of the KI tablets (see Enclosure 5.2).

4.2.2.1 A sufficient quantity of small sample bottles shall be in emergency kits to permit ample distribution of tablets.

4.2.2.2 Tablets are to be taken only as directed. One (1) tablet per day for ten (10) days is the recommended dosage.

4.2.2.3 After the initial dose of KI, subsequent doses shall be taken on a daily basis. Tablets shall be taken as close to a 24 hour time period as possible.

4.2.3 Tablets removed from full bottles of KI shall be stored in small plastic sample bottles. The expiration date on the bottle from which the tablets were taken and the name of the Radiation Protection representative shall be recorded on the small bottles. Tablets stored in small plastic sample bottles shall then be distributed to affected personnel.

4.3 Thyroid Burden Analysis Following Radioiodine Exposure

4.3.1 All employees receiving KI tablets should receive a thyroid burden analysis. **IF** the number of people involved render this step impractical, then the Count Room Supervisor shall draw a representative sample of persons listed on Enclosure 5.1 who have received KI tablets.

4.3.1.1 Subsequent action involving thyroid burden analysis shall follow guidelines established in the System Radiation Protection Manual.

4.3.2 Records of thyroid burden analyses shall be maintained.

4.3.3 Thyroid burden analyses immediately after an accident could lengthen KI distribution time and cause confusion among personnel. Distribute KI before analyzing thyroid concentration.

4.4 Storage Requirements for KI Tablets

4.4.1 There are three major storage requirements to be observed:

4.4.1.1 Store in a temperature range of 68 to 77 degrees F.

4.4.1.2 Store in a low humidity area (avoid direct exposure to liquids).

4.4.1.3 Store in an area protected from exposure to light.

4.4.2 Upon receiving a shipment of KI, boxes shall be opened as soon as possible and the bottles examined to ensure that an airtight seal has been maintained. Bottles shall be returned to the boxes, and the boxes shall be sealed shut so as to avoid exposure to light.

4.5 Shelf Life and Changeout of KI Tablets

4.5.1 Thyro Block ™ tablet bottles are labeled with an expiration date from the factory. As tablets reach the expiration dates, they shall be discarded, unless a shelf life extension is authorized by the FDA.

4.5.2 Replacement tablets shall be ordered at least three (3) months prior to the date of expiration listed on the bottles of KI.

4.5.3 Upon receiving a shipment of KI tablets, ensure that old tablets are used before new tablets.

4.5.4 After a radioiodine emergency, the tablets in the small plastic sample bottles that were **NOT** distributed shall be discarded.

5. Enclosures

5.1 Potassium Iodide Tablet Distribution Data Sheet

5.2 Package Insert for Thyro-Block™ Tablets

5.3 KI Storage Location List and Distribution

5.4 DAC-Hour Determination

Enclosure 5.1
Potassium Iodide Tablet Distribution Data Sheet

RP Badge Number	Name	Department	Date & Time of Suspected Exposure	Date & Time of Initial Issuance

Patent Package Insert For

THYRO-BLOCK™

(POTASSIUM IODIDE)
(pronounced poe-TASS-e-um EYE-oh-dyed)
(abbreviated: KI)
TABLETS U.S.P.

TAKE POTASSIUM IODIDE ONLY WHEN PUBLIC HEALTH OFFICIALS TELL YOU. IN A RADIATION EMERGENCY. RADIOACTIVE IODINE COULD BE RELEASED INTO THE AIR. POTASSIUM IODIDE (A FORM OF IODINE) CAN HELP PROTECT YOU.

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO **NOT** TAKE IT MORE OFTEN. MORE WILL **NOT** HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. *DO **NOT** TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC TO IODIDE.* (SEE SIDE EFFECTS BELOW.)

INDICATIONS

THYROID BLOCKING IN A RADIATION EMERGENCY ONLY

DIRECTIONS FOR USE

Use only as directed by State or local public health authorities in the event of a radiation emergency.

DOSE

Tablets: ADULTS AND CHILDREN 1 YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children.
BABIES UNDER 1 YEAR OF AGE: One-half (1/2) tablet once a day. Crush first.

Take for 10 days unless directed otherwise by State or local public health authorities.
Store at controlled room temperature between 20° and 25°C (68°- 77°F). Keep container tightly closed and protect from light.

WARNING

*Potassium iodide should **NOT** be used by people allergic to iodide.*
Keep out o the reach of children. In case of overdose or allergic reaction , contact a physician or the public health authority.

DESCRIPTION

Each THYRO-BLOCK™ TABLET contains 130mg of potassium iodide.

Other ingredients:
Magnesium stearate, microcrystalline cellulose, silica gel, and sodium thiosulfate

HOW POTASSIUM IODIDE WORKS

Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods, like iodized salts or fish. The thyroid can "store" or hold only a certain amount of iodine.

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably **NOT** show itself for years. Children are most likely to have thyroid damage.

IF you take potassium iodide, it will fill-up your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

WHO SHOULD **NOT** TAKE POTASSIUM IODIDE

The only people who should **NOT** take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or antithyroid drug). Pregnant and nursing women and babies and children may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE

Potassium Iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will **NOT** help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told **NOT** to take the drug for more than 10 days.

SIDE EFFECTS

Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful **NOT** to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will taking the drug.

Possible side effects include skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR

IF the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED

THYRO-BLOCK™ TABLETS (Potassium Iodide. U.S.P) are white round tablets, one side scored, other debossed 472 Wallace, each containing 130 mg potassium iodide. Available in bottles of 14 tablets (NDC 0037-0472-20).

WALLACE LABORATORIES
Division of
CARTER-WALLACE, INC.
Cranbury, New Jersey 08512

Enclosure 5.3
Potassium Iodine Location and Distribution List

(1)	Cowan's Ford Dam Recovery Kit	470 bottles
(2)	Cowan's Ford Dam Personnel Survey Kit	2 bottles
(3)	Control Room	150 bottles
(4)	Training & Technology Center Recovery Kit	150 bottles
(5)	Training & Technology Center Personnel Survey Kit	2 bottles
(6)	Environmental Survey Kits (4 kits)	4 bottles
(7)	RP Instrument Cal Lab	1 bottle
(8)	South PAP	150 bottles
(9)	Technical Support Center Kit	25 bottles
(10)	Operations Support Center Kit	25 bottles
	TOTAL:	979 bottles

Enclosure 5.4
DAC-Hour Determination

Nuclide	Conc (µCi/ml)		DAC (µCi/ml)		Expected Exposure Time Hrs		DAC Hours
I-131	_____	÷	2E-8	x	_____	=	_____
I-133	_____	÷	1E-7	x	_____	=	_____
I-135	_____	÷	7E-7	x	_____	=	_____

Total DAC-Hrs → [ ]

IF total DAC-hrs is 1000 or greater, the use of KI is recommended.