



Monticello Nuclear Generating Plant
2807 West County Road 75
Monticello, MN 55362-9637
Operated by Nuclear Management
Company LLC

February 27, 2001

10 CFR 50, Appendix E
Section V

US Nuclear Regulatory Commission
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Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Emergency Plan Implementing Procedures

Furnished with this letter is a revision to the Monticello Nuclear Generating Plant Emergency Plan Implementing Procedures. The following issues are new or revised:

<u>Procedure No.</u>	<u>Procedure Title</u>	<u>Revision No.</u>
A.2-422	Stack Iodine/Particulate Sampling and Analysis	9
A.2-423	Reactor Building Vents Iodine/Particulate Sampling & Analysis	6

Please post changes in your copy of the Monticello Nuclear Generating Plant Emergency Plan Implementing Procedures. Superseded procedures should be destroyed.

This letter contains no new NRC commitments, nor does it modify any prior commitments.

Please contact Douglas A. Neve, Project Manager – Licensing (Interim), at (763) 295-1353 if you require further information.

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Page 1

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Document Type	Document Number	Revision	Title

NOTE: The documents listed below are new or revised			
1060	A.2-422	9	STACK IODINE/PARTICULATE SAMPLING AND ANALYSIS
1060	A.2-423	6	REACTOR BUILDING VENTS IODINE/PARTICULATE SAMPLING & ANALYSIS

MONTICELLO NUCLEAR GENERATING PLANT		A.2-422
TITLE:	STACK IODINE/PARTICULATE SAMPLING AND ANALYSIS	Revision 9
		Page 1 of 6

EMERGENCY PLAN IMPLEMENTING PROCEDURE - TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 PURPOSE	2
2.0 APPLICABILITY	2
3.0 ORGANIZATION AND RESPONSIBILITIES	2
4.0 DISCUSSION	2
5.0 PRECAUTIONS	2
6.0 INSTRUCTIONS	3
6.1 Obtaining Samples	3
6.2 Analyzing Samples	4
7.0 FIGURES	6
7.1 Forms Utilized in this Procedure	6

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MONTICELLO NUCLEAR GENERATING PLANT		A.2-422
TITLE:	STACK IODINE/PARTICULATE SAMPLING AND ANALYSIS	Revision 9
		Page 2 of 6

1.0 PURPOSE

- 1.1 The purpose of this procedure is to provide instructions, precautions, and guidance for collection, handling and analysis of stack iodine/particulate samples during and following an emergency.

2.0 APPLICABILITY

- 2.1 An emergency (Alert or higher classification) has been declared at Monticello Nuclear Generating Plant which involves abnormal or elevated radiological conditions which preclude use of normal sampling methods.
- 2.2 The REC/CSL has requested sampling and analysis of stack releases.

3.0 ORGANIZATION AND RESPONSIBILITIES

- 3.1 The Radiological Emergency Director (REC) is responsible for:
 - 3.1.1 Overall direction of the Radiation Protection and Chemistry Group activities.
- 3.2 The Chemistry Section Leader (CSL) is responsible for:
 - 3.2.1 Overall direction for stack sampling and analysis.
 - 3.2.2 Overall coordination of Chemistry Group activities.
- 3.3 The Chemistry Coordinator is responsible for:
 - 3.3.1 Coordination of Chemistry Group activities in the Chemistry Lab.
 - 3.3.2 Coordination of sample logging, identification and documentation.
- 3.4 The Radiation Protection Specialists (Chem) are responsible for:
 - 3.4.1 Implementation of this procedure.

4.0 DISCUSSION

None

5.0 PRECAUTIONS

- 5.1 Exposures of sampling and analysis personnel **SHALL** be in accordance with A.2-401 (EMERGENCY EXPOSURE CONTROL).

MONTICELLO NUCLEAR GENERATING PLANT		A.2-422
TITLE:	STACK IODINE/PARTICULATE SAMPLING AND ANALYSIS	Revision 9
		Page 3 of 6

- 5.2 Exposures to all personnel due to sampling and analysis operations should be maintained as low as is reasonably achievable. Techniques such as temporary shielding, remote handling and sample dilution prior to analysis should be considered to reduce exposure to personnel.
- 5.3 When actual or potential radiation levels so warrant, high range portable survey instruments, and self-reading dosimeters should be provided to sampling and analysis personnel. Alarming dosimeters should also be considered.
- 5.4 Appropriate extremity dosimeters should be provided and worn when handling samples which themselves represent high level radiation sources.
- 5.5 Two-person teams should be used to obtain a post-accident sample when possible.

6.0 INSTRUCTIONS

6.1 Obtaining Samples

- 6.1.1 Obtain key No. 179 from the Radiation Protection key cabinet to access stack.
- 6.1.2 Obtain a small screwdriver to adjust stack timer in Control Room.
- 6.1.3 Initiate Form 5790-422-01 (STACK IODINE/PARTICULATE ANALYSIS CHECKLIST).
- 6.1.4 Verify that the Hot Lab South Exhaust Hood is functioning.
IF the hood is not working,
THEN notify the Chemistry Coordinator and continue.
- 6.1.5 Proceed to the Control Room and record the process flow (monitor item 029), sample flow (monitor item 028 for high flow or 033 for low flow) and Release Activity (LOW, MID, HIGH buttons) on Form 5790-422-01.
- 6.1.6 Set the timer on Stack Wide Range Gas Monitor according to the following chart. Record the timer setting on Form 5790-422-01:

<u>PUMP</u>	<u>ACTIVITY</u>	<u>TIMER SETTING</u>
high flow	up to 0.1 $\mu\text{Ci/cc}$	1.0 Min
low flow	0.1 to 50 $\mu\text{Ci/cc}$	10 Sec
low flow	50 to 1E5 $\mu\text{Ci/cc}$	5 Sec

- 6.1.7 Start the sample by pushing the timer pushbutton. The sample will automatically stop when the timer times out. Record time started on Form 5790-422-01.

MONTICELLO NUCLEAR GENERATING PLANT		A.2-422
TITLE:	STACK IODINE/PARTICULATE SAMPLING AND ANALYSIS	Revision 9
		Page 4 of 6

- 6.1.8 Don the required protective clothing and dosimetry as specified by the Radiation Protection Coordinator.
- 6.1.9 Proceed to the stack sample area while observing radiation protection precautions.
- 6.1.10 Close the four valves on the Grab Sample Filter Apparatus. Disconnect and remove the Grab Sample filter holder. Leave the filters in the holder and transport to the Hot Lab, keeping filters as far away from your body as possible.

6.2 Analyzing Samples

- 6.2.1 Place the filter set into the south hood.
- 6.2.2 Connect the sample filter holder to the purge air fitting in south hood of Hot Lab. Open the plant air supply valve in the hood and purge the filter holder set into the hood for 5 minutes.
- 6.2.3 Remove the charcoal filter from the filter holder and place in a poly bag labeled as directed by the Chemistry Coordinator.
- 6.2.4 Remove the particulate filter from the filter holder and place in a petri dish labeled as directed by the Chemistry Coordinator.
- 6.2.5 Count the filters IAW Chem Procedure I.03.39 (MCA OPERATION/GAMMA ISOTOPIC ANALYSIS).
- 6.2.6 IF the charcoal filter < 10% Dead Time,
THEN from the gamma isotopic printout record the Iodine Release Rate on Form 5790-422-01.
- 6.2.7 IF the charcoal filter > 10% Dead Time,
THEN measure the dose rate at one foot. Calculate the $\mu\text{Ci/Sec}$ as I-131 using the following equation:

$$\text{Iodine Release Rate } (\mu\text{Ci/Sec}) = \frac{420 \times \text{Dose Rate (mR/HR)} \times \text{Process Flow (cfm)}}{\text{Sample Flow (cfm)} \times \text{Timer Setting (Sec)}}$$

Record the I-131 $\mu\text{Ci/Sec}$ on Form 5790-422-01.
- 6.2.8 Store the charcoal filter in the shielded storage area when not required for analysis.
- 6.2.9 IF the particulate filter < 10% Dead Time,
THEN from the gamma isotopic print out record the Release Rate on Form 5790-422-01.

MONTICELLO NUCLEAR GENERATING PLANT		A.2-422
TITLE:	STACK IODINE/PARTICULATE SAMPLING AND ANALYSIS	Revision 9
		Page 5 of 6

- 6.2.10 IF the particulate filter is > 10% Dead Time,
THEN measure the dose rate at 1 foot. Calculate the particulate activity in $\mu\text{Ci/Sec}$ using the following equation:

Particulate Release Rate ($\mu\text{Ci/Sec}$) =

$$\frac{620 \times \text{Dose Rate (mRem/HR)} \times \text{Process Flow (cfm)}}{\text{Sample Flow (cfm)} \times \text{Timer Setting (Sec)}}$$

Record the activity on Form 5790-422-01.

- 6.2.11 Place the sample into the shielded storage area.
- 6.2.12 Provide the release rate information and checklist to the Chemistry Coordinator.
- 6.2.13 Install fresh charcoal and particulate filters into the filter holder.

MONTICELLO NUCLEAR GENERATING PLANT		A.2-422
TITLE:	STACK IODINE/PARTICULATE SAMPLING AND ANALYSIS	Revision 9
		Page 6 of 6

7.0 FIGURES

FIGURE

7.1 Forms Utilized in this Procedure

5790-422-01 (STACK IODINE/PARTICULATE ANALYSIS CHECKLIST)

MONTICELLO NUCLEAR GENERATING PLANT		A.2-423
TITLE:	REACTOR BUILDING VENTS IODINE / PARTICULATE SAMPLING & ANALYSIS	Revision 6
		Page 1 of 6

EMERGENCY PLAN IMPLEMENTING PROCEDURE - TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 PURPOSE	2
2.0 APPLICABILITY	2
3.0 ORGANIZATION AND RESPONSIBILITIES	2
4.0 DISCUSSION	2
5.0 PRECAUTIONS	3
6.0 INSTRUCTIONS	3
6.1 Obtaining Samples	3
6.2 Analyzing Sample	4
7.0 FIGURES	6
7.1 Forms Utilized in this Procedure	6

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MONTICELLO NUCLEAR GENERATING PLANT		A.2-423
TITLE:	REACTOR BUILDING VENTS IODINE / PARTICULATE SAMPLING & ANALYSIS	Revision 6
		Page 2 of 6

1.0 PURPOSE

The purpose of this procedure is to provide instructions, precautions, and guidance for collection, handling and analysis of Reactor Building vent iodine/particulate samples during and following an emergency.

2.0 APPLICABILITY

- 2.1 An emergency (Alert or higher classification) has been declared at Monticello Nuclear Generating Plant which involves abnormal or elevated radiological conditions which preclude use of normal sampling methods.
- 2.2 The REC/CSL has requested sampling and analysis of Reactor Building vent releases.

3.0 ORGANIZATION AND RESPONSIBILITIES

- 3.1 The Radiological Emergency Coordinator (REC) is responsible for:
 - 3.1.1 Overall direction of the Radiation Protection and Chemistry Group activities.
- 3.2 The Chemistry Section Leader (CSL) is responsible for:
 - 3.2.1 Overall direction for Reactor Building vent sampling and analysis.
 - 3.2.2 Overall coordination of Chemistry Group activities.
- 3.3 The Chemistry Coordinator is responsible for:
 - 3.3.1 Coordination of Chemistry Group activities in the Chemistry Lab.
 - 3.3.2 Coordination of sample logging, identification and documentation.
- 3.4 The Radiation Protection Specialists (Chem) are responsible for:
 - 3.4.1 Implementation of this procedure.

4.0 DISCUSSION

None

MONTICELLO NUCLEAR GENERATING PLANT		A.2-423
TITLE:	REACTOR BUILDING VENTS IODINE / PARTICULATE SAMPLING & ANALYSIS	Revision 6
		Page 3 of 6

5.0 PRECAUTIONS

- 5.1 Exposure of sampling and analysis personnel **SHALL** be in accordance with A.2-401 (EMERGENCY EXPOSURE CONTROL).
- 5.2 Exposures to all personnel due to sampling and analysis operations should be maintained as low as is reasonably achievable. Techniques such as temporary shielding, remote handling and sample dilution prior to analysis should be considered to reduce exposure to personnel.
- 5.3 When actual or potential radiation levels so warrant, high range portable survey instruments, and self-reading dosimeters should be provided to sampling and analysis personnel. Alarming dosimeters should also be considered.
- 5.4 Appropriate extremity dosimeters should be provided and worn when handling samples which themselves represent high level radiation sources.
- 5.5 Two Rad Prot Specs should be used to obtain a post-accident sample when possible.

6.0 INSTRUCTIONS

6.1 Obtaining Samples

- 6.1.1 Prior to sampling, notify the Control Room and advise Shift Supervisor of your intentions.
- 6.1.2 Plan the route to the 1001' level,

IF area radiation levels prohibit access to the 1001' level by normal access routes,
THEN access should be from the Third Floor Admin Building H&V Room into the 962' Reactor Building MG Set Room. From the MG Set Room Air Lock, up the northeast stairs to the 1001' level.
- 6.1.3 To access through the third floor Admin Building H&V Room, obtain Vital Key 211 from the Shift Supervisor and notify Security for access through Door 211.
- 6.1.4 Obtain a small screwdriver to adjust Reactor Building vent timer in Control Room.
- 6.1.5 Initiate Form 5790-423-01 (REACTOR BUILDING VENTS IODINE/PARTICULATE ANALYSIS CHECKLIST) (FIGURE 7.1).
- 6.1.6 Verify that the Hot Lab South Exhaust Hood is functioning,

IF the hood is not working,
THEN notify the Chemistry Coordinator and continue.

MONTICELLO NUCLEAR GENERATING PLANT		A.2-423
TITLE:	REACTOR BUILDING VENTS IODINE / PARTICULATE SAMPLING & ANALYSIS	Revision 6
		Page 4 of 6

- 6.1.7 Proceed to the Control Room and verify that the Reactor Building Vent Wide Range Gas Monitors are selected to Operating Vent Exhaust Fans, then record the process flow on both channels (monitor item 029), sample flow on the channel being sampled (monitor item 028 for high flow or 033 for low flow) and Release Activity (LOW, MID, HIGH buttons) on Form 5790-423-01.
- 6.1.8 Set the timer on Reactor Building Vents Wide Range Gas Monitor according to the following chart. Record the timer settings on Form 5790-423-01.

<u>PUMP</u>	<u>ACTIVITY</u>	<u>TIMER SETTING</u>
high flow	up to 0.1 $\mu\text{Ci/cc}$	1.0 Min
low flow	0.1 to 50 $\mu\text{Ci/cc}$	10 Sec
low flow	50 to 1E5 $\mu\text{Ci/cc}$	5 Sec

- 6.1.9 Start the sample by pushing the timer pushbutton. The sample will automatically stop when the timer times out. Record time started on Form 5790-423-01.
- 6.1.10 Don the required protective clothing and dosimetry as set by the Radiation Protection Coordinator.
- 6.1.11 Proceed to the Reactor Building Vent sample area while observing radiation protection precautions.
- 6.1.12 Close the four valves on the Grab Sample Filter Apparatus. Disconnect and remove the Grab Sample filter holder. Leave the filters in the holder and transport to the Hot Lab, keeping filters as far away from your body as possible.

6.2 Analyzing Sample

- 6.2.1 Place the filter set into the south hood.
- 6.2.2 Connect the sample filter holder to the purge air fitting in south hood of Hot Lab. Open the plant air supply valve in the hood and purge the filter holder set into the hood for 5 minutes.
- 6.2.3 Remove the charcoal filter from the filter holder and place in a poly bag labeled as directed by the Chemistry Coordinator.
- 6.2.4 Remove the particulate filter from the filter holder and place in a petri dish labeled as directed by the Chemistry Coordinator.
- 6.2.5 Count the filters IAW Chem Procedure I.03.39 (MCA OPERATION/GAMMA ISOTOPIC ANALYSIS).

MONTICELLO NUCLEAR GENERATING PLANT		A.2-423
TITLE:	REACTOR BUILDING VENTS IODINE / PARTICULATE SAMPLING & ANALYSIS	Revision 6
		Page 5 of 6

6.2.6 IF the charcoal filter < 10% dead time,
THEN from the gamma isotopic printout record the Iodine Release Rate on Form 5790-423-01.

6.2.7 IF the charcoal filter > 10% dead time,
THEN measure the dose rate at one foot. Calculate the $\mu\text{Ci}/\text{Sec}$ as I-131 using the following equation:

Iodine Release Rate ($\mu\text{Ci}/\text{Sec}$) =

$$\frac{420 \times \text{Dose Rate (mR/HR)} \times \text{Process Flow (cfm)}}{\text{Sample Flow (cfm)} \times \text{Timer Setting (Sec)}}$$

Record the I-131 $\mu\text{Ci}/\text{Sec}$ on Form 5790-423-01.

6.2.8 Place the charcoal filter in the shielded storage area.

6.2.9 IF the particulate filter < 10% dead time,
THEN from the gamma isotopic printout record the Release Rate on Form 5790-423-01.

6.2.10 IF the particulate filter > 10% dead time,
THEN measure the dose rate at 1 foot. Calculate the particulate activity in $\mu\text{Ci}/\text{Sec}$ using the following equation:

Particulate Release Rate ($\mu\text{Ci}/\text{Sec}$) =

$$\frac{620 \times \text{Dose Rate (mRem/HR)} \times \text{Process Flow (cfm)}}{\text{Sample Flow (cfm)} \times \text{Timer Setting (Sec)}}$$

Record the activity on Form 5790-423-01.

6.2.11 Place the sample into the shielded storage area.

6.2.12 Provide the release rate information and checklist to the Chemistry Coordinator.

6.2.13 Install fresh charcoal and particulate filters into the filter holder.

MONTICELLO NUCLEAR GENERATING PLANT		A.2-423
TITLE:	REACTOR BUILDING VENTS IODINE / PARTICULATE SAMPLING & ANALYSIS	Revision 6
		Page 6 of 6

7.0 FIGURES

FIGURE

7.1 Forms Utilized in this Procedure

1. 5790-423-01 (REACTOR BUILDING VENTS IODINE/PARTICULATE ANALYSIS CHECKLIST)