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Section V

US Nuclear Regulatory Commission
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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 procedures are revised:

<u>Procedure No.</u>	<u>Procedure Title</u>	<u>Revision No.</u>
A.2-204	Off-Site Protective Action Recommendations	13
A.2-504	Emergency Communicator Duties in the TSC and OSC	2
A.2-803	Emergency Communications at the EOF	4
A.2-806	Radiation Protection Support in the EOF	3
A.2-807	Off-Site Dose Assessment and Protective Action Recomm.	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 Superseded procedures should be destroyed.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.

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1060	A.2-204	13	OFFSITE PROTECTIVE ACTION RECOMMENDATIONS
1060	A.2-504	2	EMERGENCY COMMUNICATOR DUTIES IN THE TSC AND OSC
1060	A.2-803	4	EMERGENCY COMMUNICATIONS AT THE EOF
1060	A.2-806	3	RADIATION PROTECTION SUPPORT IN THE EOF
1060	A.2-807	6	OFF-SITE DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

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1.0 PURPOSE

The purpose of this procedure is to provide instructions and guidelines to the Emergency Director (ED) and Radiological Emergency Coordinator (REC) for the formulation of off-site protective action recommendations for the general public during the early phase of an emergency.

2.0 APPLICABILITY

- 2.1 An emergency condition corresponding to an Unusual Event classification or higher has been declared at the MNGP, and
- 2.2 A release of radioactive material has occurred, is occurring, or is likely to occur.

3.0 ORGANIZATION AND RESPONSIBILITIES

- 3.1 The Emergency Director (Duty Shift Manager or designated Emergency Director) is responsible for:
 - 3.1.1 Implementation of this procedure if the REC position is not staffed.
 - 3.1.2 Directing off-site communications with State and Local authorities and Federal agencies (before turnover to the EOF).
 - 3.1.3 Approving off-site Protective Action Recommendations (PARs) to State and/or County authorities (prior to turnover of this responsibility to the Emergency Manager).
- 3.2 The Radiological Emergency Coordinator is responsible for:
 - 3.2.1 Implementation of this procedure.
 - 3.2.2 Making off-site Protective Action Recommendations (PARs) to State and/or County authorities (prior to turnover of this responsibility to the Radiation Protection Support Supervisor).

4.0 DISCUSSION

- 4.1 For definitions related to PARs, see figure 7.1.
- 4.2 For general discussion of PAR, see figure 7.2.

5.0 PRECAUTIONS

- 5.1 Declaration of a General Emergency requires immediate Protective Action Recommendations (PARs) to off-site agencies. Under these circumstances, NO dose projections are required for formulating the initial offsite protective action recommendation.

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- 5.2 Implementation of protective actions for off-site areas is the responsibility of the State of Minnesota. If it is determined by the Emergency Director that immediate protective actions are required, and the State EOC is not activated, the recommendation should be made directly to the local authorities (i.e., Wright and Sherburne Counties). Upon activation of the State EOC all off-site protective action recommendations should be made to the State.
- 5.3 The protective actions outlined in this procedure are limited to actions for minimizing the exposure of the public to external and internal radiation exposure from plume passage, inhalation of the radioactive plume and from internal exposure from drinking water during the early phase of an emergency. Other protective actions for minimizing public exposure via the ingestion pathway will be determined and implemented by the State.
- 5.4 The transmission of Off-site Protective action Recommendations to the State EOC (State Duty Officer and Counties if the State EOC is not activated) **SHALL** be completed within 15 minutes of the PAR authorization.

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6.0 INSTRUCTIONS

CAUTION

No dose projections are required when making initial PAR during GENERAL EMERGENCY CONDITIONS.

6.1 Initial PARs for General Emergency Classification

- 6.1.1 Initiate Form 5790-102-02 (MONTICELLO EMERGENCY NOTIFICATION REPORT FORM).
 - A. Complete Section 1.4 recommending an evacuation of a 2 mile radius and 5 miles downwind and advise the remainder of the plume EPZ to go indoors to monitor EAS broadcasts.
 - B. Determine which geopolitical subareas are affected by referring to the Sector-Subarea Conversion Table on page 2 of Form 5790-102-02.
 - C. Ensure completion of Parts 1.0 and 2.0 of Form 5790-102-02 and submit the completed form to the ED for approval.
- 6.1.2 Ensure transmission of the recommendations, via telephone and telecopy, to the State EOC (State Duty Officer, Wright and Sherburne Counties if the State EOC is not activated) IAW EPIP A.2-501 (COMMUNICATIONS DURING AN EMERGENCY).
- 6.1.3 Approximately 30 minutes after making the recommendation, contact the State Planning Chief or State Duty Officer if State EOC is not activated to determine what protective actions are actually being implemented. Continue to track the status of the protective action until completely implemented and indicate the completion status on the Radiation Protection Status Board.
- 6.1.4 Update the Emergency Director and TSC personnel (if activated and staffed) on the status of off-site Protective Action implementation.
- 6.1.5 After making initial Protective Action Recommendations (at the General Emergency Class) continually assess plant conditions and off-site dose projection results. Make subsequent off-site protective action recommendations based on projected off-site doses using the Protective Action Guidelines (PAGs) listed in FIGURE 7.3.

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6.2 PARS for Sherco Plant

NOTE: To safely shutdown the Sherco Plant requires 8 hours after the unit(s) are tripped.

- 6.2.1 Throughout the event the REC (or Assistant REC) should review off-site projected doses and affected Sectors (Subareas) to determine if the Sherco Plant is or will be in the affected area.

NOTE: The Sherco Plant is located in the 5N subarea.

- 6.2.2 Formulate protective action recommendations for the Sherco Plant as follows:

A. Recommendations based on Projected Dose (whole body):

1. > 500 mrem (TEDE) - recommend evacuation of non-essential personnel from the Sherco site and shelter essential plant personnel during plant operation.
2. > 1 Rem (TEDE) - recommend shutdown of the Sherco Plant(s). Immediate evacuation of non-essential personnel and sheltering of essential personnel during normal plant shutdown.
3. > 5 Rem (TEDE) - recommend immediate evacuation of non-essential personnel and sheltering of essential personnel during emergency plant shutdown. Evacuate all personnel immediately after plant shutdown.

B. Recommendations based on General Emergency:

1. If evacuation is implemented (in 5N) recommend evacuation of all non-essential personnel and sheltering of essential Sherco personnel. Recommend immediate initiation of plant shutdown.

- 6.2.3 If protective actions are required for the Sherco Plant, discuss the recommendations with the Emergency Director (and HQEC Manager (HM) at the HQEC if activated).

NOTE: The HQEC Manager will implement the required protective actions for Sherco personnel through established channels.

- 6.2.4 Monitor the progress of protective action implementation (at Sherco) to determine when they are completed.

- 6.2.5 Indicate any PARs recommended (and implemented) for the Sherco Plant on the RP Status Board in the TSC.

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- 6.2.6 Advise the Emergency Director if conditions change (e.g., significant increase in release rate) which could change the protective action recommendations for the Sherco Plant.

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6.3 Off-site PARs Based on Projected Doses

CAUTION

**Do not delay recommending off-site protective actions while waiting for off-site monitoring results to verify the accuracy of the dose projection model.
Do not delay recommending off-site protective actions while trying to resolve questionable data (MIDAS Data or Field Team Data).**

- 6.3.1 Continuously review dose projection data (4 day integrated maximum TEDE and Thyroid CDE) on Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) and compare with the Protective Action Guidelines in Figure 7.3. If an updated PAR, based on dose projections is required, proceed to Step 6.3.2. Continuously review meteorological data (wind direction and wind speed) on Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) and determine the affected sectors. If an updated PAR, based on meteorological data is required, proceed to Step 6.3.2.
- 6.3.2 Initiate Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) and complete the airborne release section.
- 6.3.3 Using current meteorological data (i.e., wind direction and wind speed), determine the affected Sectors, Geopolitical Subareas (using page 2 of Form 5790-204-01), population centers within the affected area and estimated plume arrival time in those areas.
- 6.3.4 Based on plant conditions, estimate the duration of the existing release or potential release.
- 6.3.5 Using available weather forecast data, evaluate the potential for wind direction and wind speed changes during the estimated duration of the release (and after). Determine what effect potential wind direction and wind speed changes would have on the affected areas identified in 6.3.3.

NOTE: Weather forecast information may be obtained from the National Weather Service. Refer to the Monticello and Prairie Island Emergency Preparedness Telephone Directory for telephone numbers.

NOTE: If data used in the determination of the PAR is/was questionable, attempt to verify the data. DO NOT delay the issuance of the PAR. If after verification of questionable data a PAR revision is necessary, complete section 6.3 of this procedure.

- 6.3.6 If based on dose projections or field team data a PAR beyond the 10 mile EPZ is necessary, immediately contact the State Planning Chief to inform them of this condition. Document the PAR recommendation in the comments section of Form 5790-204-01 and attach a copy of the supporting Follow-up Message.

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6.3.7 Indicate the recommendations on page 3 of Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST). Indicate the recommendation in terms of Sectors and Subareas by completing and circling the applicable information as follows:

- A. Identify the affected keyhole by selecting a 360° out to 2 or 5 miles. Determine the affected Sectors by including both Sectors on either side of the downwind Sector (two Sectors on either side should be included if the downwind direction is on a Sector line). Record the 3 (or 4) affected Sectors on page 3 of the Monticello PAR Checklist.
- B. Identify the affected geopolitical subareas using the Sector-Subarea Conversion Chart (page 2 of Form 5790-204-01) and circle the affected subareas on the PAR Checklist.

6.3.8 Submit the completed page 3 of Form 5790--204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) to the Emergency Director for approval. Review and discuss the recommendations with the Emergency Director as necessary.

NOTE: Prior to activation of the State EOC, protective action recommendations should be made directly to the State Duty Officer and Wright and Sherburne Counties (EOCs if activated). The State Duty Officer will coordinate the EAS message and PANs activation with counties. Once the State EOC is activated, all protective action recommendations SHALL be made directly to the State authorities.

6.3.9 The Emergency Director (or REC) should direct an Emergency Communicator to transmit the approved Monticello Off-Site Protective Action Recommendation Checklist, to the State EOC (Wright and Sherburne County EOCs only if the State EOC is not yet activated) IAW EPIP A.2-501 (COMMUNICATIONS DURING AN EMERGENCY).

6.3.10 When notified by the Emergency Communicator that the transmittal of the protective action recommendation has been made to the State Planning Chief (if State EOC is activated) or the State Duty Officer, Wright County and Sherburne County (if State EOC is not activated), contact either the State Planning Chief or the State Duty Officer, Wright County and Sherburne County. Discuss the recommendations and explain the basis of the recommendations.

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- 6.3.11 Approximately 30 minutes after making the recommendation, contact the State Planning Chief or State Duty Officer prior to State EOC activation, to determine what protective actions are actually being implemented. Continue to track the status of the protective action until completely implemented and indicate the completion status on the Radiation Protection Status Board.
- 6.3.12 If, as a result of continuing assessment, dose projection results or meteorological conditions change significantly, re-evaluate the previously implemented protective actions and, if necessary, update the protective actions by issuing another recommendation.

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6.4 Protective Action Recommendation for Liquid Releases

- 6.4.1 Initiate Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) and complete the Liquid Release Section.
- 6.4.2 Obtain the isotopic analyses of liquid samples taken at the Discharge Canal or release point.

NOTE: During a liquid release, samples may be taken at the discharge structure, mid-canal sample station, canal out-fall to the river, or as near the source of the release as possible. To ensure samples are representative of the material being released to the river, the Canal Sample Station is the preferred sampling location.

- 6.4.3 Determine the present Discharge Canal flow rate and river flow rate at the plant (refer to the applicable plant computer point for flow rates).
- 6.4.4 Determine the river flow rate at either the Coon Rapids Dam or the Minneapolis-St. Paul water intakes by contacting the Minneapolis Water Department (refer to the Monticello and Prairie Island Nuclear Emergency Telephone Directory for telephone numbers).
- 6.4.5 Using the curve RIVER FLOW vs TIME curve (FIGURE 7.5) estimate the time of release arrival at the Minneapolis-St. Paul water intakes based on current, actual river flow (if actual river flow is not available, use the monthly average river flow in FIGURE 7.5).
- 6.4.6 Using the MIDAS User Manual Procedures access the MIDAS liquid release model. Enter the isotopic and other applicable release data.
- 6.4.7 Using the MIDAS Liquid Release Dose Assessment printout, formulate off-site protective action recommendations IAW the guidelines in FIGURE 7.6.
- 6.4.8 Indicate the recommendations on page 3 of Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) and submit the completed form for Emergency Director approval.
- 6.4.9 Transmit the recommendations to the State Planning Chief (State EOC if activated) IAW EPIP A.2-501 (COMMUNICATIONS DURING AN EMERGENCY).

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- 6.4.10 Contact the State Planning Chief (in the State EOC if activated) to explain the basis for the recommendations.

- 6.4.11 Approximately 30 minutes after making the recommendation, contact the State Planning Chief to determine what protective actions are actually being implemented. Continue to track the status of the protective action until completely implemented.

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7.0 FIGURES

FIGURE

7.1 Definitions Related to Protective Actions Recommendations

1. Affected Area is any area where radiation emanating from a plume, or from material deposited from the plume, can be detected using field instruments (also known as the footprint).
2. Cloudshine is radiation from radioactive materials in an airborne plume.
3. Committed Dose Equivalent (CDE) refers to the dose received over the 50 year period following an intake of radioactive materials.
4. Committed Effective Dose Equivalent (CEDE) is the sum of the products of the weighted factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissue.
5. Dose equivalent means the product of the absorbed dose in tissue, quality factors, and all other necessary modifying factors at the location of interest.
6. Effective dose equivalent (EDE) is the sum of the product of the absorbed dose in tissue, quality factors, and all other necessary modifying factors at the location of interest.

NOTE: Deep Dose Equivalent (DDE) is considered equivalent to EDE if the exposure is uniform.

7. Emergency Planning Zone (EPZ) is a defined area which facilitates emergency planning by State and local authorities to ensure that prompt and effective actions are taken to protect the public in the event of a radioactive release from the plant. The EPZ is defined for two areas:
 - A. Plume Exposure Pathway (10 Mile EPZ) is the 10 mile, 360° radius around the plant in which the primary concern is short-term exposure from the plume. The principal sources of exposure in this area are 1) whole body external exposure to gamma radiation from the plume and deposited material from the plume, and 2) internal exposure from inhaled material from the plume.
 - B. Ingestion Exposure Pathway (50 Mile EPZ) is a 50 mile, 360° radius around the plant in which the principal exposure would be from ingestion of contaminated water or foodstuffs (such as milk or fresh vegetables).
8. Evacuation is the removal of people from an area to avoid or reduce high-level, short term exposure, from a plume or from deposited activity.
9. Geopolitical Subareas are subarea within the 10 Mile EPZ that are defined by predetermined geographic and/or political boundaries.

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10. Groundshine is radiation exposure caused by radioactive materials deposited on the ground.
11. Ingestion Pathway Projected Dose is the projected CEDE (ICRP-30) from consuming contaminated foodstuffs.
12. Keyhole Area an area within the 10 Mile EPZ defined by a 360° radius out to a specified distance of 2 or 5 miles and continuing in the downwind direction in 3 or 4 Sectors.
13. Plume Projected Dose refers to future calculated doses from plume submersion, plume shine, plume inhalation and 4 days of ground deposition exposure.
14. Protective Action is an action taken to avoid or reduce a projected dose.
15. Protective Action Guide (PAG) refers to a dose (or commensurate dose rate) which warrants protective actions.
16. Public Alert and Notification System (PANS) is the system used to alert the public within the 10 Mile EPZ of an emergency condition at the plant. Once alerted, the public would turn to local commercial media broadcast messages for specific protective action instructions. The PANS consists of the following systems:
 - A. Fixed sirens for 100% coverage throughout the 5 mile EPZ and in population centers between 5 and 10 miles.
 - B. Local law enforcement emergency vehicles with sirens and public address capability driving route alerting in the 5 to 10 mile areas not covered by fixed sirens.
 - C. National Oceanic and Atmospheric Administration (NOAA) alert radios in institutional, educational, and commercial facilities.
 - D. The Emergency Alert System (EAS) which accesses local television and radio stations.
17. Recovery is the process of reducing radiation exposure rates and concentration of radioactive material in the environment to levels acceptable for unconditional occupancy.
18. Relocation Projected Dose is the projected effective committed dose from 1 year of exposure to radioactive material deposited as fallout from a plume, including whole body exposure to gamma radiation (groundshine), and internal dose from inhalation of resuspended material, but excluding internal dose from consuming contaminated foodstuffs.
19. Return refers to people permanently reoccupying their normal residence within an area that was evacuated during the emergency condition.

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20. Re-entry refers to temporary entry into a restricted (evacuated) area under controlled conditions.
21. Secondary Evacuation refers to relocating people from areas to avoid or reduce relocation projected dose.
22. Sector is one of 16, 22.5° sectors around the plant which compose the 10 Mile EPZ.
23. Sheltering provides radiation protection from an airborne plume and/or deposited radioactive materials. Sheltering also ensures effective public notification, via media, should the need for evacuation occur.
24. Total Effective Dose Equivalent (TEDE) is the sum of external EDE and CEDE.

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FIGURE

7.2 Discussion of Protective Action Recommendation

The following is a discussion of the various Protective Action Recommendations (PARs) that could be made to off-site authorities. The Protective Action Guidelines (PAGs) listed are derived from EPA guidelines (EPA 400).

A. NO PROTECTIVE ACTIONS

The recommendation for no protective actions is self-explanatory and is appropriate when projected plume doses do not exceed 1000 mrem (TEDE) or 5000 mrem (CDE) thyroid dose. For liquid releases, no protective actions are warranted if the concentration in raw river water at outflow of discharge canal is less than the concentration listed in 10CFR20 Appendix B, Table 2, Column 2.

B. EVACUATION

Evacuation is the movement of a population out of an area in order to reduce or eliminate direct or indirect radiation exposure. Timely evacuation of the population is the most effective protective action.

Initial PARs for a General Emergency involving loss of physical control or core damage are based on NRC Response Technical Manual RTM-93, Vol 1, Rev. 3, Section I. Immediate evacuation of the general public is justified without dose projection.

EPA 400 indicates that evacuation of the general public will usually be justified when the projected dose to an individual is greater or equal to 1000 mrem TEDE (or 5000 Thyroid CDE). At these dose levels, the risk avoided due to the radiation exposure is usually much greater than the risk from evacuation itself.

Using the projected dose criteria stated above, Monticello Nuclear Generating Plant (MNGP) should recommend evacuation to the State. In turn, they will independently assess and implement protective actions based on our recommendation, their independent assessment, and current off-site evacuation constraints.

C. CLOSURE OF WATER INTAKES

Water Intakes PAG: Concentration in raw river water exceeds the value listed in 10CFR20 Appendix B, Table 2, Column 2.

Closure of the water intakes is an appropriate recommendation in the case of a liquid release to the river which is expected to result in river water concentrations exceeding the MPC limits for unrestricted areas.

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FIGURE

7.2 Discussion of Protective Action Recommendation (Cont'd)

D. SECONDARY EVACUATION

Relocation PAG (in mrem): 2000 (TEDE)

To avoid social and family disruption and the complexity of implementing separate PAGs for individual members of the population, the relocation PAG may be applied for all members of the population. While the relocation PAG is based on projected doses to adults, infant relocation projected doses are not more than two times higher than the adult projected dose.

Based on EPA 400 PAGs, MNGP should recommend relocation of the general public from affected areas not previously evacuated when the projected dose is greater or equal to 2000 mrem CEDE from exposure or intake during the first year. This projected dose includes doses from external radiation, and inhalation of resuspended materials.

E. RETURN

Return is allowed at levels below the secondary evaluation PAG (2000 mrem TEDE).

The decision to return segments of the public from previously evacuated areas will be determined by appropriate off-site agencies. Various cautions and dose reduction techniques will be assessed and, if necessary, communicated to the people upon their return.

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FIGURE

7.2 Discussion of Protective Action Recommendations (Cont'd)

F. DESIGNATION OF THE AFFECTED PROTECTIVE ACTION AREA

The designation of the affected protective action area depends on the nature and extent of the incident and existing meteorological conditions. The area will be described by designating an affected keyhole shaped area and the affected geopolitical subareas within the EPZ.

G. Affected Keyhole Area

The affected keyhole area should resemble a keyhole consisting of a 360° area surrounding the plant out to a distance of 2 or 5 miles and continuing in the downwind direction out to a distance determined by the PAGs. The affected downwind portion of the keyhole should include 1 sector on either side of the affected sector (i.e., total of 3 sectors). If the downwind direction is on a sector line then 2 sectors on each side of the affected sector should be included (i.e., total of 4 sectors).

H. Affected Geopolitical Subareas

Geopolitical subareas are subareas of the 10 mile EPZ defined by predetermined geographic and/or political boundaries. The affected geopolitical subareas are defined by any and all subareas that intersect the affected keyhole area.

FIGURE

7.2 Discussion of Protective Action Recommendations (Cont'd)

1. (EXPOSURE PATHWAYS, Incident Phases, and Protective Actions

POTENTIAL EXPOSURE PATHWAYS AND INCIDENT PHASES		PROTECTIVE ACTIONS	
1. External radiation from facility			Sheltering Evacuation Control of access
2. External radiation from plume	EARLY		Sheltering Evacuation Control of access
3. Inhalation of activity in plume			Sheltering Administration of stable iodine Evacuation Control of access
4. Contamination of skin and clothes	INTERMEDIATE		Sheltering Evacuation Decontamination of persons
5. External radiation from ground deposition of activity		LATE	Evacuation Relocation Decontamination of land and property
6. Ingestion of contaminated food and water			Food and water controls
7. Inhalation of resuspended activity			Relocation Decontamination of land and property

NOTE 1: Based on EPA 400-R-92-001, May 1992

NOTE 2: The use of stored animal feed and uncontaminated water to limit the uptake of radionuclides by domestic animals in food chain can be applicable to any of the phases.

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FIGURE

7.3 Protective Action Guidelines (PAGs)

	PAG VALUES ¹	RECOMMENDED PROTECTIVE ACTIONS	COMMENTS
WHOLE BODY ² (TEDE) PROJECTED DOSE	Less than <1 REM (TEDE)	None required	The State may choose to implement sheltering at their discretion. No recommendations are required from MNGP.
	Greater than ≥1 REM (TEDE)	Recommend evacuation of the general public.	The State may choose to implement sheltering of the general public up to 5 REM (TEDE) or special population groups up to 10 REM (TEDE) if immediate evacuation is not practicable due to off-site constraints. No sheltering recommendations are required from MNGP.
THYROID ³ (CDE) PROJECTED DOSE	Less than <5 REM (CDE)	None required	The State may choose to implement sheltering at their discretion. No recommendations are required from MNGP.
	Greater than ≥5 REM (CDE)	Recommend evacuation of the general public.	The State may choose to implement sheltering of the general public if immediate evacuation is not practicable due to off-site constraints. No sheltering recommendations are required from MNGP.

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FIGURE

7.3 Protective Action Guidelines (PAGs) (Cont'd)

	PAG VALUES ¹	RECOMMENDED PROTECTIVE ACTIONS	COMMENTS
SKIN ⁴ (CDE) PROJECTED DOSE	Less than <50 REM (CDE)	None required	The State may choose to implement simple personal protective actions (washing). No recommendations are required from MNGP.
	Greater than ≥50 REM (CDE)	Recommend evacuation of the general public	The State may choose to implement sheltering of the general public or simple personal protective actions if immediate evacuation is not practicable.
NOTE 1:	Protective Action Guides are based on EPA 400-R-92-001, May 1992.		
NOTE 2:	TEDE = Total Effective Dose Equivalent; is the sum of the effective dose equivalent from exposure to external source and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the Early Phase.		
NOTE 3:	CDE = Committed Dose Equivalent to the Thyroid from radioiodine.		
NOTE 4:	Committed Dose Equivalent to the skin from exposure to beta radiation from radioiodines and particulates.		

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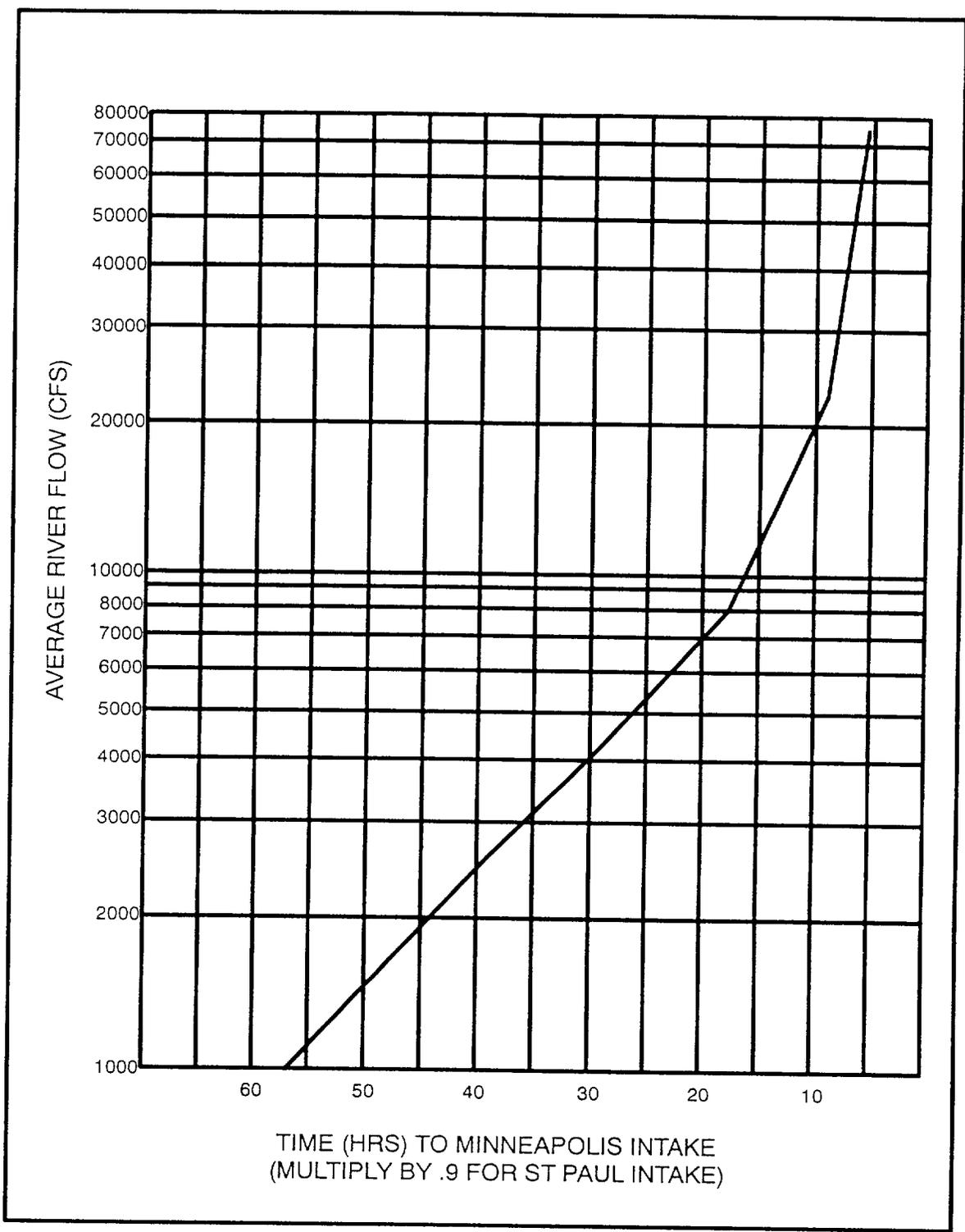
FIGURE

7.4 Emergency Worker Exposure Limits

EXPOSURE LIMIT ¹	EMERGENCY ACTIVITY ¹	COMMENTS
5 REM (TEDE) ⁽²⁾⁽³⁾	All emergency activities	This dose limit applies when a lower dose is not practicable through application of ALARA practices.
10 REM (TEDE) ⁽²⁾⁽³⁾	Protection of valuable property	This dose limit applies when a lower dose is not practicable through application of ALARA practices.
≥ 25 REM (TEDE) ⁽²⁾⁽³⁾	Life saving or protection of large populations	Doses in excess of 25 REM should be on a voluntary basis to persons fully aware of the risks involved.
NOTE 1:	Dose limits for emergency workers and activities are based on EPA 400-92-001, May 1992.	
NOTE 2:	Sum of external effective dose equivalent and committed effective dose equivalent to non-pregnant adults from external exposure and intake during the duration of an emergency.	
NOTE 3:	Exposure to the lens of the eye should be limited to <u>3</u> times the value listed and doses to the skin and/or extremities should be limited to <u>10</u> times the value listed.	

FIGURE

7.5 Transport Time and Monthly Average Flowrates



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FIGURE

7.5 Transport Time and Monthly Average Flowrates (Cont'd)

<u>MONTH</u>	<u>AVG RIVER FLOWRATE (CFS)</u>
JANUARY	4663
FEBRUARY	4579
MARCH	6336
APRIL	10890
MAY	10157
JUNE	7369
JULY	5352
AUGUST	3506
SEPTEMBER	3334
OCTOBER	5690
NOVEMBER	5438
DECEMBER	4555

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FIGURE

7.6 Liquid Release Protective Action Criteria

A. PROTECTIVE ACTION BASED ON PROJECTED INTERNAL DOSE

- A. Concentration in Raw River: < Value listed in 10CFR20, Appendix B. - No protective action required.
- B. Concentration in Raw River: > Value listed in 10CFR20, Appendix B. - Recommend closure of water intakes.
- C. Projected Internal (Drinking) Dose:
 - ≤ 250 mrem - No protective action required.
 - > 250 mrem - Preventive protective actions are necessary.
 - > 1000 mrem - Emergency protective actions are necessary.

B. PROTECTIVE ACTION BASED ON PROJECTED EXTERNAL DOSE

- A. Projected Total External Doses
 - ≤250 mrem - No protective action required.
 - > 250 mrem - Preventive protective actions are necessary.
 - > 1000 mrem - Emergency protective actions are necessary.

NOTE: Obtain total external projected dose by calculating the swimming, boating and standing projected doses using the following time assumptions for shoreline activities.

- Swimming - 3 hrs/day**
- Boating - 1 hrs/day**
- Standing - 6 hrs/day**

RECOMMENDED PREVENTIVE PROTECTIVE ACTIONS

- A. Close Raw Water Intakes
- B. Restrict Intake of Drinking Water, and Foodstuffs obtained from River.
- C. Restrict swimming and boating on River.
- D. Restrict access to River.
- E. Restrict use of River for irrigation and industry.

RECOMMENDED EMERGENCY PROTECTIVE ACTIONS

- A. Close Raw Water Intakes
- B. Condemn drinking water obtained from river.
- C. Condemn affected foodstuffs (milk or meat from animals consuming contaminated water or foodstuffs).
- D. Prevent access to river.
- E. Condemn use of river for irrigation and industry.
- F. Substitute uncontaminated water and foodstuffs for contaminated water and foodstuffs.
- G. Condemn water usage from river.

Reference: Minnesota Department of Health, Dose Assessment Manual: Part 2, Liquid Releases.

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FIGURE

7.7 Forms Utilized in Procedure

<u>NUMBER</u>	<u>TITLE</u>	
1. 5790-102-02	MONTICELLO EMERGENCY NOTIFICATION REPORT FORM	
2. 5790-204-01	MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST	



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1.0 PURPOSE

This procedure provides instructions and guidance for the conduct of various communication functions at the Technical Support Center (TSC) and Operations Support Center (OSC) during an emergency at the MNGP.

2.0 APPLICABILITY

An Alert or higher emergency has been declared at the MNGP and the TSC/OSC has been activated.

3.0 ORGANIZATION AND RESPONSIBILITIES

3.1 TSC/OSC Emergency Communicators and Technical Emergency Communicators are responsible for performing the duties described in this procedure as directed by the appropriate TSC or OSC personnel.

4.0 DISCUSSION

Personnel qualified to fill these positions are identified in the Emergency Communicators section of Form 5790-001-01 (EMERGENCY RESPONSE ORGANIZATION).

5.0 PRECAUTIONS

- 5.1 The initial notifications to the State and Counties must be completed within 15 minutes after the declaration or re-classification of an emergency. The initial notification of the NRC should be completed immediately after State, County, and ERO notifications and must be completed within 1 hour after declaring or re-classification of an emergency.
- 5.2 The transmission of off-site Protective Action Recommendations (PARs) to the State EOC (State Duty Officer and Counties if the State is not activated) **SHALL** be completed within 15 minutes of the PAR authorization by the Emergency Director.
- 5.3 All inquiries from the news media and/or general public should be directed to the Joint Public Information Center (JPIC) at the State Emergency Operations Center (EOC). Emergency response organization personnel should not release information to the media or general public without prior approval of the Chief Nuclear Officer or designee.
- 5.4 Communications regarding the existence or severity of the event, or protective action recommendations should be made on circuits that cannot be readily intercepted by persons outside the established emergency organizations. Telephone circuits **SHALL** serve as the primary means with radio as a backup method.
- 5.5 Communications by radio should be brief, factual, free of exclamatory or alarming expressions and worded so as to not cause undue anxiety.

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- 5.6 Messages should be worded to avoid possible errors in transcription or interpretation. Avoid the use of technical jargon (particularly in communications with off-site agencies), ensure the message is complete, avoid the use of abbreviations (i.e., millirem vs. MR) and read numbers individually (i.e., 100 as one-zero-zero).
- 5.7 All communications during drills, exercises, or tests should begin and end with "THIS IS A DRILL" or "THIS IS A TEST".

6.0 INSTRUCTIONS

6.1 Initial Activation Instructions

- 6.1.1 Upon activation of the TSC/OSC all communicators should report to the TSC.
- 6.1.2 The Communicator positions should be staffed in the following order.

NOTE: The Assembly Point Coordinator position should be staffed immediately IF a plant or site evacuation is in progress. The Assembly Point Coordinator position may be staffed prior to the declaration of a plant or site evacuation in anticipation of the need for a plant or site evacuation.

- A. Lead Emergency Communicator - Tagboard #20
- B. Assistant Emergency Communicators - Tagboard #21 & #22
- C. Emergency Director Communicator - Tagboard #23
- D. Plant Status Communicator - TSC - Tagboard #25
- E. Plant Status Communicator - Control Room - Tagboard #26
- F. OSC Plant Status Communicator - OSC Tagboard #2
- G. TSC Work Status Communicator - Tagboard #27
- H. OSC Work Status Communicator - OSC Tagboard #3
- I. OSC Radio console Communicator
- J. Emergency Notification System (ENS) Communicator
- K. Assembly Point Coordinator - Tagboard #24

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6.2 Lead Emergency Communicator Instructions

- 6.2.1 Report to the TSC Tagboard, review the instructions on Tag #20, and assume the Lead Emergency Communicator duties by turning over Tag #20.
- 6.2.2 The Lead Emergency Communicator should establish residence in the TSC Communications Room.
- 6.2.3 Determine the status of initial notifications in progress.
 - A. Assess the notifications in progress or completed by the duty Shift Emergency Communicator(s) (SECs) via Form 5790-104-04 (EMERGENCY CALL LIST - ALERT/SITE AREA/GENERAL) and provide necessary assistance to the SEC in completion of the initial notifications.
- 6.2.4 Obtain staffing of the TSC Emergency Communicator positions.
 - A. 2 Assistant Emergency Communicators should be assigned (TSC Tagboard #21, #22). If these positions are not filled, contact the Engineering Coordinator or Support Group Leader and request that these positions are filled.
- 6.2.5 Activate the 3 incoming 3739 extensions in the TSC communications room prior to or during the initial notification process.
- 6.2.6 When time permits, activate the TSC - Control Room Intercom and the TSC - State EOC Low Band Radio. This equipment is in the TSC communications room.
- 6.2.7 Assume responsibilities for off-site notifications.
 - A. Once the 2 Assistant Emergency Communicator positions are filled and the SECs are ready to turnover communication duties, assume responsibility for all off-site communications from the TSC. The duty SECs should be released to their assigned emergency response duties once this transfer has occurred.
 - B. The Lead Emergency Communicator should review all emergency forms, used for off-site communications, for accuracy and completeness prior to their transmission.

NOTE: Upon completion of the initial emergency notifications, Emergency Follow-up Messages should be transmitted at 30 minute intervals or as directed by the State.

- C. Transmit Emergency Notification Follow-up Messages in accordance with the instructions provided in A.2-501 (COMMUNICATIONS DURING AN EMERGENCY).

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- D. Maintain the emergency Call Log in accordance with the instructions provided in A.2-501.
- E. If or when changes in emergency classification occur (i.e., escalation or termination), make the notifications in accordance with A.2-501.

6.2.8 Transfer of off-site communications to the EOF.

- A. An EOF Off-Site Communicator should contact you to determine the status of off-site notifications and determine the appropriate timing for transfer of off-site communication responsibilities. Transfer should not occur while emergency notifications are in progress (i.e., notification of a classification change).

CAUTION

Do not transfer off-site communications responsibilities to the EOF until you have completed Part B (Immediate Notifications) and Part C (NRC Notifications) of Form 5790-104-04(EMERGENCY CALL LIST - ALERT/SITE AREA/GENERAL) for the current emergency classification.

- B. Transfer responsibilities as appropriate.
- C. After the transfer of off-site communications to the EOF a TSC Emergency Communicator should monitor transmissions and communications from the EOF (i.e., Emergency Follow-up Messages, Classification Changes etc.) and ensure that copies of the transmissions are routed to the appropriate personnel in the TSC.

6.3 Emergency Director Communicator Instructions

- 6.3.1 Report to the TSC Tagboard, review the instructions on Tag #23, and assume the duties by turning over Tag #23.
- 6.3.2 Assist the Emergency Director with the use of Emergency Plan Implementing Procedures.
- 6.3.3 Review and monitor the implementation of A.2-213 (RESPONSIBILITIES OF THE EMERGENCY DIRECTOR).
- 6.3.4 Monitor and inform the ED of emergency communications in progress.

6.4 TSC Plant Status Technical Communicator (5-way link) Instructions

- 6.4.1 Report to the TSC Tagboard, review the instructions on Tag #25, and assume the duties by turning over Tag #25.
- 6.4.2 This communicator will establish communications with Technical Communicators in the Control Room (Simulator Control Room for drills/exercises), OSC, EOF, and utility HQEC.

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- 6.4.3 The assigned communicator should establish residence at the phone near the TSC Operational Status Board. If a white board is covering the status board it must be removed. A headset is stored at the communicator's phone. Directions for use of the headset are posted near the phone.
- 6.4.4 When the communication link has been established with the Control Room or Simulator Control Room obtain technical and operational data related to the event including:
- A. Reactor and containment systems and component status.
 - B. Critical plant parameters (i.e., temperatures, flows, water levels, etc.).
 - C. EOP/SAMG implementation status.
 - D. Accident mitigation strategies employed by the Control Room.
 - E. As necessary, monitor the SPDS terminal to supplement the information obtained from the Control Room.
 - F. Continuously update and maintain the TSC Operational Status Board.

NOTE: Use the Bell to obtain the attention of the TSC staff prior to announcing significant operational events.

- G. If significant operational events occur (i.e., ECCS failure, radioactive release, etc.), immediately announce the event in the TSC.
- 6.4.5 Adding other technical communicators to the 5-way link.
- A. As the technical communicator positions are staffed in the OSC, EOF, and utility HQEC they will be calling into the TSC to join the communication link. Complete the following steps to add another communicator to the link.
 1. When an in-coming call is received, inform the party(s) currently on the link that you will be adding another and placing them on hold. Push the phone's conference button once, this places members currently on the link on hold.
 2. Answer the in-coming call by pushing the phone's 1126 button that is flashing slowly. Determine who is being added to the link and ask them to hold while you add them to the link.
 3. Push the phone's conference button once and verify that all of the conference members are on the link.

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4. Repeat the above steps as necessary to complete the 5-way link.

6.5 Plant Status Technical Communicator (Control Room - Simulator Control Room for drills) Instructions

- 6.5.1 Report to the TSC Tagboard, review the instructions on Tag #26, and assume the duties by turning over Tag #26.
- 6.5.2 This communicator will establish communications with Technical Communicator in the TSC.
- 6.5.3 Obtain a telephone headset and necessary administrative supplies from the TSC cabinet.
- 6.5.4 The assigned communicator should establish residence at the Control Room or Simulator Control Room back-counter.
- 6.5.5 Install the headset on the Plant Status Communicator telephone (Control Room extension 1478, Simulator Control Room extension 1815) and establish the link with the TSC Technical Communicator by calling extension 1126.
- 6.5.6 When the communication link has been established, obtain the technical and operational data related to the event as requested by other members of the 5-way link.

6.6 OSC Plant Status Technical Communicator Instructions

- 6.6.1 Report to the OSC Tagboard, review the instructions on Tag #2, and assume the duties by turning over Tag #2.
- 6.6.2 Obtain necessary administrative supplies (markers, etc.) from the OSC File cabinet.
- 6.6.3 Establish residence near the OSC Operational Status Board.
- 6.6.4 Install the headset on the Plant Status Communicator telephone (1260) and establish the link with the TSC Technical Communicator by calling extension 1126.
- 6.6.5 When the communication link has been established, obtain technical and operational data related to the event including:
 - A. Reactor and containment systems and component status.
 - B. Critical plant parameters (i.e., temperatures, flows, water levels, etc.).
 - C. EOP/SAMG implementation status.

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- D. Accident mitigation strategies employed by the Control Room.
- E. As necessary, monitor the SPDS terminal to supplement the information obtained from the Control Room.
- F. Continuously update and maintain the OSC Operational Status Board.
- G. If significant operational events occur (i.e., ECCS failure, radioactive release, etc.), immediately announce the event in the OSC.

6.7 TSC Emergency Work Status Communicator Instructions

- 6.7.1 Report to the TSC Tagboard, review the instructions on Tag #27, and assume the duties by turning over Tag #27.
- 6.7.2 Obtain necessary administrative supplies (markers, etc.).
- 6.7.3 Establish residence near the TSC Emergency Work Status Board.
- 6.7.4 Install the headset on the TSC-OSC Communicator telephone (1461) and establish contact with the OSC Team Tracking Board by calling extension 1219.
- 6.7.5 When the 2-way link is established begin updating the TSC Emergency Work Status Board with available information on emergency teams already dispatched by the Control Room or OSC (if any).
- 6.7.6 Monitor emergency response discussions in the TSC to determine when Operators or an OSC Team may be needed.
- 6.7.7 When the TSC requests an Emergency Team be dispatched (Operators from the Control Room or an OSC Team), notify the OSC Communicator (via the 2-way link) and:
 - A. Inform the OSC Communicator that a team has been requested and the details of the team assignment and the priority assigned to the task (by the TSC).
 - B. Identify the Team Number (next team number in order) assigned by the OSC Communicator. Do not reuse OSC Team numbers to avoid confusion.
- 6.7.8 Update the TSC Emergency Work Status Board with the Team Number, Priority and task description.
- 6.7.9 When the team is dispatched, monitor the team progress via the 2-way link. Inform the TSC of team progress as requested.

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- 6.7.10 Report any problems encountered by the team immediately to the TSC Group Leaders.
- 6.7.11 Continuously maintain the TSC Emergency Work Status Board.
- 6.7.12 As teams complete their missions and report back to the OSC, obtain missions results and update the TSC Emergency Work Status Board by indicating the completion status on the team on the Board.

NOTE: Do not erase completed tasks from the Board unless space is needed for new team and then erase the oldest completed task from the Board.

6.8 OSC Emergency Work Status Communicator Instructions

- 6.8.1 Report to the OSC Tagboard, review the instructions on Tag #3, and assume the duties by turning over Tag #3.
- 6.8.2 Obtain necessary administrative supplies (markers, etc.) from the OSC File cabinet.
- 6.8.3 Establish residence near the OSC Personnel Availability Board and the OSC Team Tracking Board.
- 6.8.4 Install the headset on the OSC-TSC Communicator telephone (1219) and establish contact with the TSC Emergency Work Status Board Communicator (1461).

NOTE: When the 2-way link is established and the operational test of the OSC radio console is complete, inform the OSC Coordinator that you are prepared to direct OSC teams.

- 6.8.5 When the TSC requests an OSC Team be dispatched (via the 2-way link or MGL-OSC Coordinator hotline):
 - A. Inform the OSC Coordinator an OSC Team has been requested and the details of the team assignment (if requested via the 2-way link).
 - B. Assign a Team Number (next team number in order) and inform the TSC Emergency Work Status Board keeper via the 2-way link. Do not reuse OSC Team numbers to avoid confusion.
 - C. Record the job (team mission) on the OSC Team Tracking Board (adjacent to the team number).
 - D. As the OSC Coordinator assigns personnel to the team, relocate their name tag from the OSC Personnel Availability Board to the OSC Team Tracking Board.
- 6.8.6 Provide information regarding the OSC emergency team progress to the TSC via the 2-way link.

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- 6.8.7 Report problems encountered by the OSC teams immediately to the OSC Coordinator.
- 6.8.8 Continuously maintain the OSC Team tracking Board and the OSC Personnel Availability Board.
- 6.8.9 As OSC teams complete their missions and report back to the OSC, remove their entry from the OSC Team Tracking Board and relocate the name tags to the OSC Personnel Availability Board.

NOTE: Do not erase completed tasks from the Board unless space is needed for new team and then erase the oldest completed task from the Board.

6.9 OSC Radio Console Communicator Instructions

- 6.9.1 Activate the OSC radio console and perform an operations test of the console as follows:
 - A. Set the console to the scan mode (indicated by a triangle being highlighted on the LED display above the SCAN button).
 - B. Contact one of the OSC portable radios on Talk Groups 1A (Cont. Room) and 5D (Misc.).
- 6.9.2 As teams are dispatched from the OSC ensure that they are issued a portable radio (set to talk group 5D) and establish radio communications with the team prior to the team's departure from the OSC.
- 6.9.3 Maintain continuous radio contact with the OSC team(s) and direct the team(s) as directed by the OSC Coordinator.
- 6.9.4 If necessary, when communicating with the OSC teams, use the phonetic alphabet:

A	ALPHA	J	JULIET	S	SIERRA
B	BRAVO	K	KILO	T	TANGO
C	CHARLIE	L	LIMA	U	UNIFORM
D	DELTA	M	MIKE	V	VICTOR
E	ECHO	N	NOVEMBER	W	WHISKEY
F	FOXTROT	O	OSCAR	X	X-RAY
G	GOLF	P	PAPA	Y	YANKEE
H	HOTEL	Q	QUEBEC	Z	ZULU
I	INDIA	R	ROMEO		

- 6.9.5 Report problems encountered by the OSC teams immediately to the OSC Coordinator.

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6.10 Emergency Notifications System (ENS) Communicator Instructions

NOTE: The ENS link with the NRC Headquarters *SHALL* be continuously staffed at the Alert classification (or higher) as requested by the NRC. The link could be maintained in the Control Room, TSC, or EOF depending on the resources available and the availability of timely information.

6.10.1 Obtain a telephone headset and necessary administrative supplies from the TSC Supply cabinet.

6.10.2 Establish residence in the TSC Engineering Support area, near the FTS-ENS telephone.

NOTE: The NRC may request continuous staffing of the ENS link upon completion of the initial NRC notification.

6.10.3 If staffing the ENS during initial TSC activation, determine if the initial NRC notification has been completed by the TSC Emergency Communicator staff. If the initial notification has not been completed, provide assistance as necessary to complete the notification. If the initial notification is complete, determine if continuous staffing of the ENS is required.

6.11 Assembly Point Coordinator Instructions

6.11.1 Report to the TSC Tagboard, review the instructions on Tag #24, and assume the duties by turning over Tag #24.

6.11.2 Perform the duties of the Assembly Point Coordinator in accordance with A.2-302 (ACTIVATION OF THE ASSEMBLY POINTS).

6.12 Communicator Shift Turnover Instructions

6.12.1 Check in with the Engineering Coordinator upon arrival at the TSC to determine communication assignments.

6.12.2 Oncoming Communicators should review the TSC Chronological Flipcharts, Status Boards, and other available information prior to or during their turnover discussions.

6.12.3 When generally familiar with the event status the oncoming Communicator(s) should conduct a turnover review with their counterparts which should include (as applicable):

A. The status of communication activity in-progress in their respective areas including telephone notifications and fax transmissions.

B. Recently transmitted forms or notifications.

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- C. The status of links and the names of individual contacts on the link.
- D. Emergency Call Logs for their respective area.
- E. The status of ENS links and NRC counterparts.

6.12.4 Upon completion of the turnover the oncoming Communicator should assume the duties and inform the Support Group Leader of the turnover.

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*This is a major rewrite, therefore, no sidelines are required.

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1.0 PURPOSE

This procedure provides instructions and guidance for the conduct of various communication functions at the EOF during an emergency at the MNGP.

Steps in this procedure satisfy commitment M90125A. Procedure steps satisfying these commitments are identified with a \$.

2.0 APPLICABILITY

- 2.1 An Alert has been declared at the Monticello plant and the EOF has been activated and staffed, and;
- 2.2 The EOF will be assuming responsibility for emergency communications including off-site communications and direction of the MNGP and PI Field Teams.

3.0 ORGANIZATION AND RESPONSIBILITIES

- 3.1 The Emergency Manager is responsible for:
 - 3.1.1 Overall direction and coordination of MNGP's emergency response activities (after turnover from the Emergency Director).
- 3.2 The EOF Off-Site Communicators are responsible for:
 - 3.2.1 The conduct of Emergency (off-site) communications with State and local authorities and federal agencies (after turnover from the TSC).
 - 3.2.2 Transmitting emergency communications generated by the EOF including emergency classification changes, Off-site Protective Action Recommendations and Emergency Followup Messages.
- 3.3 The EOF-TSC-CR Technical Communicator is responsible for:
 - 3.3.1 Establishing and maintaining a communications link between the Control Room, Technical Support Center, OSC, HQEC, and EOF for the purpose of obtaining technical and operational information.
 - 3.3.2 Maintaining the Operational Status Board in the EOF Command Center.
- 3.4 The EOF-HQEC-JPIC Technical Communicator is responsible for:
 - 3.4.1 Establishing and maintaining a three-way communications link between the Joint Public Information Center, Headquarters Emergency Center and EOF for the purpose of keeping Utility Executive Management informed.

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3.5 The ENS Communicator is responsible for:

3.5.1 Establishing and maintaining an open communications link with the NRC (as directed) using the FTS-Emergency Notification System (ENS) for the purpose of transmitting operational and technical data and information pertinent to the event.

3.6 The HPN Communicator is responsible for:

3.6.1 Establishing and maintaining an open communications link with the NRC (as directed) using the FTS-HPN line for the purpose of transmitting radiological data and information pertinent to the event.

3.7 The Field Team Radio Communicator is responsible for:

3.7.1 Establishing and maintaining radio contact with MNGP and PI off-site monitoring (field) teams and directing team activities.

4.0 DISCUSSION

This procedure provides guidance for the various communicator positions staffed in the Emergency Operations Facility. It also provides instructions for the processing and transmittal of the forms used for Emergency Notification Followup Messages, Emergency Classification Changes, Off-Site Protective Action Recommendations and NRC notifications made throughout the course of an emergency from the EOF.

The Emergency (Off-Site) Communicators are responsible to ensure that Emergency Notifications Followup Messages, emergency classification changes and Protective Action Recommendations are properly communicated to off-site authorities under the direction of the Emergency Manager and supervision of the EOF Coordinator.

The Xcel Communications Department is responsible to provide briefings and press releases to the news media in conjunction with state and federal authorities. The Emergency Manager (and EOF-HQEC-JPIC Technical Communicator) will provide information on plant status to the Communications Department as necessary. The Emergency Manager (and Technical Communicator) are responsible to ensure information provided to the HQEC and JPIC is current and consistent with information provided to off-site emergency organizations.

5.0 PRECAUTIONS

5.1 All inquiries from the news media or general public should be directed to the Joint Public Information Center. Emergency Response Organization personnel should not release information to the news media or general public without prior approval of the Chief Nuclear Officer or designee.

5.2 Communications regarding the existence or severity of the event, or protective action recommendations should be made on circuits which cannot be readily intercepted by persons outside the established emergency organizations. Telephone circuits **SHALL** serve as the primary means with radio as a backup method.

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- 5.3 Communications by radio should be brief, factual, free of exclamatory or alarming expressions and worded so as to not cause undue anxiety.
- 5.4 Messages should be worded to avoid possible errors in transcription or interpretation. Avoid the use of technical jargon (particularly in communications with off-site agencies), ensure the message is complete, avoid the use of abbreviations (e.g., milli-rem vs. mR), and read numbers individually (e.g., 100 as one-zero-zero).
- 5.5 During radio communications, preface each transmission with your title or name and the title or name of the receiving party (e.g., Monticello Field Team Communicator to Monticello Monitoring Team Number One).
- 5.6 All communications during drills, exercises or tests should begin and end with "THIS IS A DRILL" or "THIS IS A TEST".

6.0 INSTRUCTIONS

6.1 Off-site Communicator Instructions

NOTE: There are two communicators assigned as Off-site Communicators. The two assigned individuals share the responsibilities associated with the position.

- 6.1.1 Report to the EOF Tagboard, review the instructions on Tag #12 or Tag #13 and assume the duties by turning over the appropriate tag and signing on the Tagboard.
- 6.1.2 Obtain the Off-site Communicators 3-ring binder. This binder contains the procedural guidance and forms required to conduct the off-site communicator job.
- 6.1.3 Monitor communications transmissions (initial and follow-up messages) from the TSC.
- 6.1.4 Through communications with the Lead Emergency Communicator in the TSC, monitor the status of off-site agency activation (e.g., State and County Emergency Operations Centers).
- 6.1.5 When directed by the EOF Coordinator (or Emergency Manager), prepare to transfer the responsibility for off-site communications as follows:
 - A. Contact the Lead Emergency Communicator in the TSC to determine the status of communications in progress and which off-site agencies are currently being contacted (i.e., are the State County EOC's activated). Verify that the TSC has completed Parts B and C of Form 5790-104-04 for the initial classification/notification.
 - B. Inform the EOF Coordinator when you are prepared to assume off-site communication responsibilities from the TSC.

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6.1.6 . When directed by the EOF Coordinator, assume the responsibility for off-site communications from the TSC as follows:

CAUTION

Do not assume off-site communications for off-site communications until you have verified that Parts B (Immediate Notifications) and Part C (NRC Notifications) of Form 5790-104-04 (EMERGENCY CALL LIST - ALERT/SITE AREA/GENERAL) have been completed by the TSC and that there are no emergency notifications in progress during the time of transfer.

- A. Contact the Lead Emergency Communicator in the TSC and verify that they are ready to transfer off-site communications. If the Lead Emergency Communicator concurs, assume the responsibility for off-site communications.

NOTE: Since the State and Counties come to full operation at different times, you should inform the individuals or facilities that are in control at the time of the transfer of off-site responsibilities.

- B. Contact the State (Duty Officer or Emergency Operations Center) and Counties (Sheriffs Dispatchers or Emergency Operations Centers). Inform them that the EOF has assumed off-site communications responsibility and that all requests for information and transmission of data should be directed to the EOF. Confirm the status of their activation, who has responsibility now and if applicable when their EOC(s) will be activated.
- C. Notify the HQEC that the EOF has assumed responsibility for off-site communications.
- D. Notify the NMC Executive Spokesperson, at the State EOC, that the EOF has assumed responsibility for off-site communications.

6.1.7 Initiate and maintain an emergency call log using Form 5790-501-01 (EMERGENCY CALL LOG FORM) as follows:

- A. The following information should be recorded for all incoming or outgoing communications with non-NMC organizations which are handled by the Off-site Emergency Communicator and are not recorded on the forms or checklist.
 1. The date/time of the communication.
 2. The name of the organization or individual contacted.
 3. A brief description of the reason for the communication and/or the data exchanged.

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4. The initials of the Emergency Communicator making the communication.
- 6.1.8 As directed, transmit Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) as follows:
 - A. Receive the approved Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) from the Emergency Manager or the Radiation Protection Support Supervisor.
 - B. Review the form for completeness and verify the form was approved by the Emergency Manager (EM) for transmission.
 - C. Transmit the approved Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) in accordance with the instructions provided in Form 5790-803-02 (EOF PAR/FOLLOW-UP MESSAGE CALL-LIST).

CAUTION

Notifications of reclassification to the State and Counties **SHALL** be completed within 15 minutes of the reclassification declaration.

- 6.1.9 If changes in emergency classification occur (e.g., escalation or termination), transmit Form 5790-102-02 (MONTICELLO EMERGENCY NOTIFICATION REPORT FORM) as follows:
 - A. Receive the approved Form 5790-102-02 (MONTICELLO EMERGENCY NOTIFICATION REPORT FORM) from the Emergency Manager or the Radiation Protection Support Supervisor.
 - B. Review the form for completeness and verify the form was approved by the Emergency Manager (EM) for transmission.
 - C. Transmit the approved Form 5790-102-02 (MONTICELLO EMERGENCY NOTIFICATION REPORT FORM) in accordance with the instructions provided in Form 5790-803-01 (EOF RECLASSIFICATION CALL-LIST).

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CAUTION

Off-site Protective Action Recommendations (PARs) **SHALL** be communicated to the State and Counties within 15 minutes of the PAR authorization.

CAUTION

Initial Off-site Protective Action Recommendations (PARs) for a General Emergency **SHALL** be included and transmitted with the classification change on Form 5790-102-02 (MONTICELLO EMERGENCY NOTIFICATION REPORT FORM) in accordance with section 6.1.9 of this procedure.

- 6.1.10 If Off-site Protective Action Recommendations are required, transmit Form 5790-204-01 (OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) as follows:
- A. Receive the approved Form 5790-204-01 (OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) from the Emergency Manager or the Radiation Protection Support Supervisor.
 - B. Review the form for completeness and verify the form was approved by the Emergency Manager (EM) for transmission.
 - C. Transmit the approved Form 5790-204-01 (OFF-SITE PROTECTION ACTION RECOMMENDATION CHECKLIST) in accordance with the instructions provided in Form 5790-803-02 (EOF PAR/FOLLOW-UP MESSAGE CALL-LIST).

6.2 EOF-TSC-CR Technical Communicator Instructions

- 6.2.1 Report to the EOF Tagboard, review the instructions on Tag #24 and assume the duties by turning over the tag and signing in on the Tagboard.
- 6.2.2 Establish residence at the phone near the EOF Operational Status Board.
- 6.2.3 Install the headset on the Technical Communicator phone (ext. 1431) and establish the link with the TSC Technical Communicator by calling extension 1126. Directions for the use of the headset are posted near the phone. If you have problems with the phone contact the EOF Coordinator.
- 6.2.4 When the communication link has been established, obtain technical and operational data related to the event including:
 - A. Reactor and containment systems and component status.

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- B. Critical plant parameters (i.e., temperatures, flows, water levels, etc.).
- C. EOP/SAMG implementation status.
- D. Accident mitigation strategies employed by the Control Room.
- E. As necessary, monitor the SPDS terminal to supplement the information obtained from the communication link.
- F. Continuously update and maintain the EOF Operations Status Board.

NOTE: Use the bell to obtain the attention of EOF staff prior to announcing significant operational events.

- G. If significant operational events occur (ECCS failure, radioactive release, etc.), immediately announce the event in the EOF.

6.3 EOF-HQEC-JPIC Technical Communicator Instructions

- 6.3.1 Report to the EOF Tagboard, review the instructions on Tag #25 and assume the duties by turning over the tag and signing in on the Tagboard.
- 6.3.2 Establish residence at the Technical Communicator phone, portable telephone extension 1506, near the Technical Communicator Station.

NOTE: The HQEC and JPIC phone (612-330-2923) is a shared line. Contact can only be established with one of the parties and the other (HQEC or JPIC) is added. If you have difficulties establishing this link, call the HQEC Coordinator at 612-330-7789 or JPIC Executive Spokesman at 651-229-2525.

- 6.3.3 Using the Technical Communicator phone (ext. 1506), establish contact with the HQEC by calling 612-330-2923. If you have problems with the phone, contact the EOF Coordinator.
- 6.3.4 When the communication link has been established, obtain technical and operational data related to the event from the EOF Operational Status Board, EOF SPDS, Emergency Manager, and other information sources available in the EOF. Continuously update the HQEC and JPIC.
- 6.3.5 If requests for information are made from the HQEC or JPIC, obtain and provide the necessary information or forward the request to EOF personnel that can provide the information.
- 6.3.6 If significant operational events occur (ECCS failure, radioactive release, etc.), verify the information is accurate and once verified pass the information on via the link.

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- 6.3.7 Forward requests for HQEC support (logistics, etc.) to the HQEC. Ensure requests for HQEC support are documented on Form 5790-804-01 (LOGISTICS INFORMATION FORM).

NOTE: A copy of Form 5790-801-02 (EMERGENCY MANAGER STATUS UPDATE CHECKLIST) may be used to compile information during the EOF Status Update.

- 6.3.8 Following EOF Status Updates, provide a summary of the information provided in the update to the HQEC and JPIC.

6.4 Field Team Radio Communicator Instructions

- 6.4.1 Report to the EOF Tagboard, review the instructions on Tag #8 and assume the duties by turning over the tag and signing in on the Tagboard.
- 6.4.2 Obtain the necessary administrative supplies (pens, and board markers) from the EOF Administrative Supply Locker.
- 6.4.3 Obtain a supply of Form 5790-202-01 (OFF-SITE SURVEY RESULTS DATA SHEET) and Form 5790-410-03 (GROUND DEPOSITION SAMPLE RESULTS LOG) from the EOF controlled forms file.
- 6.4.4 Establish residence in the EOF Dose Assessment Room.
- 6.4.5 Activate the Field Team Radio console and perform an operational test of the console by contacting the Field Team Communicator (in the TSC) and the Field Teams.
- 6.4.6 Monitor TSC-Field Team transmissions and begin updating the Off-Site Survey Results board and Survey Point Map (in the Dose Assessment Room) with survey results and Field Team location information.
- 6.4.7 If necessary, obtain current information (wind direction, wind speed, release rates, etc.) from recently issued Emergency Notification Follow-up Messages (issued by the TSC) faxed to the EOF to aid in familiarization with current release rates, meteorology and field team survey results.
- 6.4.8 When radio operational tests are complete and radio contact established with the Off-Site Field Teams, inform the Rad Prot Sup Supv.
- 6.4.9 When directed by the Rad Prot Sup Supv (Assistant Rad Prot Sup Supv or EOF Coordinator) coordinate the transfer of Field Team control to the EOF as follows:
- A. Contact the Field Team Communicator in the TSC to coordinate the transfer.

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- B. Confirm (check) radio contact with all Field Teams.
 - C. Confirm cellular telephone numbers with Field Teams for back-up communications.
 - D. When directed, assume control of the Field Teams and inform all Field Teams (by radio) that they are under your direction.
 - E. Notify the Rad Prot Sup Supv when transfer of Field Team control is complete.
- 6.4.10 Designate Field Teams as Monticello Field Teams (1 and 2) and Prairie Island Teams (3 and 4).
- 6.4.11 Direct the Field Teams to conduct plume search and survey/sampling activities as directed by the Rad Prot Sup Supv (or Assistant Rad Prot Sup Supv). Refer to A.2-410 (OUT-OF-PLANT SURVEYS) for specific information regarding the types of surveys/samples that may be requested of the Field Teams.
- 6.4.12 When communicating sample point locations to the Field Teams use the phonetic alphabet as follows:
- | | | |
|-----------|------------|-----------|
| A ALPHA | J JULIET | S SIERRA |
| B BRAVO | K KILO | T TANGO |
| C CHARLIE | L LIMA | U UNIFORM |
| D DELTA | M MIKE | V VICTOR |
| E ECHO | N NOVEMBER | W WHISKEY |
| F FOXTROT | O OSCAR | X X-RAY |
| G GULF | P PAPA | Y YANKEE |
| H HOTEL | Q QUEBEC | Z ZULU |
| I INDIA | R ROMEO | |
- 6.4.13 Continuously maintain the Off-Site Survey Results board and Survey Point Map with information obtained from the field teams.
- 6.4.14 Record all survey/sample results on the Form 5790-202-01 (OFF-SITE SURVEY RESULTS DATA SHEET) or Form 5790-410-03 (GROUND DESPOSITION SAMPLE RESULTS LOG) as applicable.
- 6.4.15 If requested by the Rad Prot Sup Supv (or Assistant Rad Prot Sup Supv) fill-in the off-site survey results portion (top of page 2) of Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOWUP MESSAGE) and forward the form to the Rad Prot Sup Supv for review.

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- 6.4.16 Periodically update all Field Teams with current information regarding:
- A. Meteorological data including wind direction and wind speed.
 - B. Radiological release rates and dose projection information (e.g., projected dose rates, etc.)
 - C. Emergency classification changes.
 - D. Off-Site Protective Actions including recommendations made and actions implemented by off-site authorities.
 - E. Current plant conditions.
- 6.4.17 When directing the teams, observe the radiological precautions outlined in A.2-410 (OUT-OF-PLANT SURVEYS) regarding exposure limits, protective clothing, respirator use and cold weather instrument operating instructions.
- 6.4.18 Periodically prompt the teams to read their dosimeters and report individual cumulative exposure received. Inform the Rad Prot Sup Supv if any Field Team members approach administrative exposure limits.

6.5 Emergency Notifications System (ENS) Communicator Instructions

NOTE: The ENS link with NRC Headquarters **SHALL** be continuously staffed at the Alert classification (or higher) as requested by the NRC. The link could be maintained in the Control Room, TSC or EOF depending on the resources available and availability of timely information.

- 6.5.1 Report to the EOF Tagboard, review the instructions on Tag #26 and assume the duties by turning over the tag and signing in on the Tagboard.
- 6.5.2 Establish residence at the phone (FTS phone extension 380-7010) near the Technical Communicator station in the EOF.
- 6.5.3 If manning the FTS-ENS during initial EOF activation, determine if the one-hour NRC notification has been made (by the plant) by contacting the Lead Emergency Communicator in the TSC. If the NRC notification has been made, determine if continuous manning of the FTS-ENS is required.

NOTE: The NRC may request continuous manning of the ENS link upon completion of the one-hour NRC notification.

- 6.5.4 If continuous manning of the FTS-ENS has been requested (by the NRC), determine which MNGP emergency response facility will be the "primary" ENS contact point.

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- 6.5.5 When the FTS-ENS is required to be continuously manned, inform the Technical Support Supervisor and EOF Coordinator.
- 6.5.6 Continuously man the FTS-ENS (in the EOF Command Center) and provide operational and technical information requested by the NRC.
- 6.5.7 Continuously monitor the EOF Status boards, SPDS, trend charts and other EOF information sources to obtain the necessary information.
- 6.5.8 Forward technical and/or operational questions (posed by the NRC) to appropriate members of the EOF Technical Support staff.

NOTE: The ENS Communicator is responsible for the completion of Form 3195 (EVENT NOTIFICATION WORKSHEET). Assistance may be provided by others in the EOF Technical Support area or Radiation Protection Support area.

- 6.5.9 If changes in emergency classification occur (escalation or termination), complete Form 3195 (EVENT NOTIFICATION WORKSHEET). If necessary, refer to 4AWI-04.08.02 (10CFR50.72 and 10CFR73.71 IMMEDIATE NOTIFICATION) for instructions on completing Form 3195. The completed Form 3195 **SHALL** be reviewed and signed by the Emergency Manager prior to communicating the information to the NRC. Communicate the classification change to the NRC via the ENS link.
- \$ 6.5.10 Serve as the liaison with the NRC FTS-ENS Monitor (located in Classroom 9 of the EOF) and assist in clarifying information or responding to questions posed by the NRC.
- 6.5.11 Report any operational problems encountered with the ENS link to the Technical Support Supervisor.

6.6 Health Physics Network (HPN) Communicator Instructions

- 6.6.1 Report to the EOF Tagboard, review the instructions on Tag #6 and assume the duties by turning over the tag and signing in on the Tagboard.
- 6.6.2 Obtain a headset (for an analog telephone) and any necessary administrative supplies from the EOF Administrative Supply Locker.
- 6.6.3 Establish residence at the Radiation Protection Support Supervisor station in the EOF Command Center (near the FTS-HPN telephone).

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- 6.6.4 Contact the Monitoring Section Leader (MSL) or Radiological Emergency Coordinator (REC) in the TSC to determine if continuous manning of the FTS-HPN link is required (if requested by the NRC).

NOTE: The emergency response facility responsible for off-site communications (e.g., Follow-up Messages, PARs, etc.) should man the HPN link since the information transmitted on the HPN is primarily focused on health physics implications, such as, PARs, dose projections, etc.

- 6.6.5 Coordinate the continuous manning of the FTS-HPN link with the MSL (or REC) in the TSC.
- 6.6.6 When directed, man the FTS-HPN link in the EOF and provide health physics related information to the NRC via the link including:
- A. On-site protective actions taken (e.g., plant evacuation, etc.)
 - B. Over-exposures, personnel contaminations, etc.
 - C. Radiological release rates, projected doses off-site and the results of environmental surveys taken by Field Teams.
 - D. Results of State survey teams (if known).
- 6.6.7 Continuously monitor the EOF RP Status board, Emergency Notification Follow-up Messages, Off-Site Survey Results Status Board and other sources to obtain the necessary information for the HPN.
- 6.6.8 Forward health physics (PAR, etc.) questions (posed by the NRC to the Radiation Protection Support Supervisor (Rad Prot Sup Supv).
- 6.6.9 If off-site protective actions are recommended, ensure the NRC is notified of the recommendations and the actual off-site protective actions taken by the State (and counties).
- § 6.6.10 Serve at the liaison with the NRC HPN Monitor (located in Classroom 9 of the EOF) and assist in clarifying information or responding to questions posed by the NRC over the HPN link.
- 6.6.11 Report any operational problems encountered with the HPN link to the Radiation Protection Support Supervisor.

6.7 Communicator Shift Turnover Instructions

- 6.7.1 Upon arrival in the EOF, oncoming Communicator(s) should check-in with the EOF Coordinator to determine communications assignments.
- 6.7.2 Oncoming Communicators should review the Chronological Flipchart and all EOF Status Boards prior to or during their turnover discussions.

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- 6.7.3 When generally familiar with the event status the oncoming Communicator(s) should conduct a turnover review with their off-going counterparts which includes (as applicable):
- A. The status of communications activities in-progress in their respective areas including telephone notifications and fax transmissions.
 - B. Recently transmitted forms or notifications (e.g., Emergency Follow-up Messages, PARs, Classification Changes, etc.)
 - C. The status of 3-way links and the name(s) of individual contacts on the link.
 - D. Emergency Call Log(s) for their respective areas.
 - E. Field Team location(s) and status including surveys/samples requested and recent survey/sample results.
 - F. The status of ENS/HPN links and NRC counterparts.
- 6.7.4 Upon completion of the turnover, review the oncoming Communicator should assume the duties and inform the EOF Coordinator of the turnover.
- 6.7.5 Ensure the EOF Organizational Status Board is updated as necessary with the on-duty Communicator(s).

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1.0 PURPOSE

This procedure provides instructions and guidance to the Radiation Protection Support Supervisor for the direction and coordination of EOF Radiation Protection Support Group activities.

Steps in this procedure satisfy commitment M90125A. Procedure steps satisfying this commitment are identified with a \$.

2.0 APPLICABILITY

2.1 An Alert has been declared at the Monticello plant and the EOF has been activated.

3.0 ORGANIZATION AND RESPONSIBILITIES

3.1 The Emergency Manager is responsible for:

3.1.1 Overall direction and coordination of the MNGP emergency response activities (after turnover from the Emergency Director).

3.2 The Radiation Protection Support Supervisor is responsible for:

3.2.1 Implementation of this procedure.

3.2.2 Overall direction and coordination of EOF RP Support Group activities including off-site dose projection and assessment, EOF Countroom operation, EOF radiological control and EOF personnel monitoring.

3.2.3 Making recommendations regarding off-site Protective Actions to the Emergency Manager and discussing the basis for off-site Protective Action Recommendations with the State Planning Chief.

3.2.4 The establishment of ERO shift schedules for the EOF Rad Prot Support Group when requested by the EOF Coordinator.

3.3 The Assistant Rad Prot Sup Supv is responsible for:

3.3.1 Assisting the Rad Prot Sup Supv with the coordination of EOF Rad Prot Support Group activities IAW this and other procedures.

4.0 DISCUSSION

This procedure provides instructions for the initial activation, staffing and continuing coordination of EOF Radiation Protection Group activities throughout the course of an emergency. When fully staffed, the primary responsibilities of the EOF Radiation Protection Support staff are to provide radiological advice and support to the Emergency Manager and serve as the primary interface with off-site (State and local governments) regarding off-site dose assessment and protective actions.

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In addition, the EOF Radiation Protection Support Group is responsible for monitoring and control in the EOF and, in certain cases, assisting the TSC Radiation Protection staff with the coordination of activities such as evacuation.

5.0 PRECAUTIONS

None

6.0 INSTRUCTIONS

6.1 Initial Activation and Staffing

- 6.1.1 Upon notification of an Alert (or higher) emergency classification, Rad Prot Sup Supv qualified individuals should report directly to the EOF and coordinate the staffing of the Rad Prot Sup Supv position with the REC.
- 6.1.2 Upon arrival in the EOF, refer to the EOF Tag Board and determine the initial Radiation Protection Support Supervisor (Rad Prot Sup Supv) assignment as follows:
 - A. If no one has assumed the Rad Prot Sup Supv position, turn the Rad Prot Sup Supv tag and sign in as Rad Prot Sup Supv.
 - B. If the Rad Prot Sup Supv position is already staffed, refer to other EOF positions (for which you're qualified) to determine staffing need in those areas. If unfilled positions exist, turn the applicable tag and assume that position. If not, report directly to the Rad Prot Sup Supv.
- 6.1.3 Contact the Radiological Emergency Coordinator (REC) in the TSC and coordinate the staffing of the Rad Prot Sup Supv position with the REC.

NOTE: The Rad Prot Sup Supv position may be staffed by Training Center or plant personnel that are REC qualified. The staffing of the REC and Rad Prot Sup Supv positions should be coordinated to optimize available personnel resources (i.e., experience and qualification) and pace qualified resources based on the estimated duration of the event.

- 6.1.4 Assume the duties of Radiation Protection Support Supervisor and initiate Form 5790-806-01 (RAD PROT SUP SUPV ACTIVATION CHECKLIST) (FIGURE 7.1).
- 6.1.5 Obtain the Rad Prot Sup Supv Log Book, ballcap, and necessary administrative supplies from the EOF storage cabinet and setup residence at the Rad Prot Sup Supv area in the EOF Command Center.
- 6.1.6 Initiate the Rad Prot Sup Supv Log Book and maintain the log and record significant information IAW section 6.3.

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6.1.7 Assess Radiation Protection Group staffing and augment as necessary by contacting additional group personnel by telephone. Request the assistance of EOF Support Group personnel (if present).

NOTE: Form 5790-001-01 (EMERGENCY RESPONSE ORGANIZATION) contains the list of qualified EOF Radiation Protection Support Group personnel. The Monticello and Prairie Island Nuclear EP Telephone Directory contains home/pager telephone numbers for all ERO personnel.

6.1.8 As Radiation Protection Group personnel report, verify their fitness-for-duty through questioning and/or during initial EOF Command Center status announcements (conducted by the EOF Coordinator).

NOTE: The fitness-for-duty of individuals should be assessed prior to their engaging in safety-related emergency response activities. The assessment should include, at a minimum, a determination of whether individuals have consumed alcohol within the last 5 hours.

6.1.9 Monitor Radiation Protection Group staffing and, as personnel become available, assign individuals to perform the following activities:

NOTE: During initial EOF activation Rad Prot group assignments are established by use of the EOF ERO Tagboard; however, the Rad Prot Sup Supv should monitor initial staffing and coordinate as necessary.

- A. Ensure an Assistant Rad Prot Sup Supv is assigned to assist with Rad Prot Sup Supv duties including the coordination of EOF personnel monitoring and habitability surveys IAW A.2-808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF).
- B. Ensure the EOF Radiation Protection Specialist (Rad Prot Spec) position is filled (from the plant or PI) to conduct EOF habitability surveys and general radiation protection duties in the EOF. Contact the REC to coordinate staffing the EOF Rad Prot Spec position.
- C. Ensure the MIDAS Operator position is staffed (by a plant Chemistry Rad Prot Spec) and prepared to conduct off-site dose projections IAW A.2-406 (OFF-SITE DOSE PROJECTION).
- D. Assign a Radiation Protection Status Board Keeper (from the EOF Support Group or Rad Prot Group) to maintain the EOF Rad Prot Status Board. Coordinate staffing with the EOF Coordinator, if necessary.
- E. Ensure the EOF Countroom Rad Prot Spec position is staffed (by a plant Chemistry Rad Prot Spec and activates the EOF Countroom IAW A.2-424 (EOF COUNTROOM PROCEDURES)).

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- F. Assign a Health Physics Network (HPN) Communicator to man the FTS-HPN when requested by the NRC and provide radiological information and data to the NRC IAW A.2-803 (EMERGENCY COMMUNICATIONS AT THE EOF). Prior to continuous manning of the HPN the communicator may be assigned to assist with other Rad Prot activities as necessary. Coordinate staffing with the EOF Coordinator, if necessary.
 - G. Ensure the Field Team Coordinator position is staffed (from the EOF Support Group or Rad Prot Group) to direct off-site monitoring activities IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).
 - H. Ensure the Field Team Communicator position is staffed (from the EOF Support Group or Rad Prot Group) to coordinate off-site monitoring activities (via radio) as directed by the Field Team Coordinator IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).
 - I. Ensure two Nuclear Plant Helpers are provided (by the OSC) to function as Field Team Drivers for the Prairie Island Field Teams (when they arrive). These positions should be staffed prior to PI F/T arrival (approximately 3 hours after declaration of an Alert). Coordinate staffing with the OSC Coordinator, if necessary.
 - J. Ensure one (or two) Nuclear Plant Helpers are provided (by the OSC) to function as Sample Couriers for the Field Teams IAW A.2-410 (OUT-OF-PLANT SURVEYS). This position should be staffed anytime Field Teams are conducting off-site monitoring activities and samples may be returned to the EOF Countroom for analysis.
- 6.1.10 If necessary, contact the REC to coordinate the staffing of the EOF Rad Prot Spec, EOF Countroom Chemistry Rad Prot Spec and MIDAS Operator positions.
- 6.1.11 When all Radiation Protection group positions are filled, inform the Emergency Manager and the EOF Coordinator that Radiation Protection Group staffing is complete.
- 6.1.12 Contact the Radiological Emergency Coordinator (REC) (or Assistant REC) to determine plant conditions, the extent of radiological surveys completed, off-site dose estimates, and any off-site protective actions recommended or implemented.
- 6.1.13 Obtain any Emergency Notification Report Form(s) and/or Emergency Notification Followup Messages (transmitted by the TSC) from the EOF fax and direct the Rad Prot Status Board Keeper to begin updating the Rad Prot Status board with information from the forms and/or SPDS.

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- 6.1.14 Direct the Field Team Coordinator (and Communicator) to establish radio contact with the Monticello Field Teams and begin monitoring Field Team activities (as directed by the TSC). The Survey Point Map and Off-site Survey Results Board should be updated with information obtained by monitoring radio communications.
- 6.1.15 Direct the EOF Countroom Rad Prot Spec to activate the EOF Countroom and prepare for analysis of samples IAW A.2-424 (EOF COUNTROOM PROCEDURES).
- 6.1.16 Perform an initial assessment to determine if radiological monitoring and controls should be immediately established in the EOF by reviewing the current Stack and Vent release rates on SPDS (or contacting the REC). If releases in excess of the Alert levels (specified in A.2-101, Guideline 1 for Stack and Vent effluents) has occurred or is occurring (or is imminent based on deteriorating plant conditions):
 - A. Recommend the EOF Coordinator shift the EOF ventilation system to the emergency mode.
 - B. Direct the EOF Rad Prot Spec to position and activate the EOF Continuous Air Monitor (CAM) in the hallway outside the EOF Command Center (near the mechanical room entrance) IAW A.2-808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF).
 - C. Direct the EOF Rad Prot Spec to position and activate the EOF Dosimeter Area Radiation Monitor (DARM) in the EOF Command Center (or adjacent to the CAM) IAW A.2 808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF).
- 6.1.17 If radiological releases have occurred (or are occurring) or if contaminated personnel or samples will be arriving at the EOF, advise the EOF Coordinator to establish access to the EOF at the Receiving Area entrance. Direct the EOF Rad Prot Spec to assist with setup of the Receiving Area IAW A.2-808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF).
- 6.1.18 Direct the EOF MIDAS Operator to establish contact with the TSC MIDAS Operator and begin monitoring dose projection activities (conducted by the TSC) including obtaining Emergency Notification Followup Messages transmitted (faxed) to the EOF.
- 6.1.19 When directed by the Emergency Manager, coordinate the transfer of responsibility for off-site dose assessment (MIDAS, Field Team direction and off-site communications) with the REC (and EOF Coordinator) IAW section 6.2.
- 6.1.20 Determine the status of the Prairie Island Field Team response to the Monticello EOF by contacting the PI Shift Supervisor (or Control Room).

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- 6.1.21 Evaluate available data and information relative to the event to determine the actual and potential implications of the event (from a radiation protection perspective) IAW the applicable sections of this procedure, A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS) and A.2-808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF).
- 6.1.22 Complete Form 5790-806-01 (RADIATION PROTECTION SUPPORT SUPERVISOR ACTIVATION CHECKLIST) and file in the container provided for emergency records.

6.2 Turnover of Off-site Dose Assessment From the TSC

- 6.2.1 When the EOF is fully staffed and operational, assist in coordinating the transfer of off-site responsibilities (from the TSC) to the EOF as follows:
 - A. Verify the Field Team Communicator position is manned and an operational check of the EOF radio console is complete.
 - B. Verify the MIDAS Operator position is manned and the MIDAS terminal is operable.
 - C. Ensure a sufficient supply of controlled forms (used for off-site notifications and PARs) are available.
 - D. Check the status (timing) of Emergency Followup Message transmissions with the REC.
- 6.2.2 Inform the EOF Coordinator and Emergency Manager when prepared to assume responsibility for MIDAS and the control of the Field Teams.
- 6.2.3 When directed by the Emergency Manager, assume the responsibility for MIDAS and the Field Teams. Ensure the MIDAS Operator and Field Team Communicator is aware of the transfer and coordinate with their respective counterparts in the TSC.
- 6.2.4 Direct the Field Team Communicator to inform all Field Teams of the transfer of responsibility and direct off-site monitoring activities IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).
- 6.2.5 Direct the MIDAS Operator to perform off-site dose projections (IAW A.2-406 (OFF-SITE DOSE PROJECTION) and generate Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOWUP MESSAGE FORM).
- 6.2.6 Inform the Emergency Manager and EOF Coordinator when the transfer of MIDAS and control of the Field Teams is complete.
- 6.2.7 Notify the State Planning Chief in the State EOC of the transfer of off-site responsibilities.

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- 6.2.8 Note the time of the transfer in the Rad Prot Sup Supv Log Book.
- 6.2.9 Initiate and complete the associated forms for emergency classification changes, followup messages and off-site protective action recommendations IAW section 6.8 of this procedure and A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).

6.3 Rad Prot Sup Supv Recordkeeping

- 6.3.1 Upon activation initiate the Radiation Protection Support Supervisor Log Book.
- 6.3.2 Record data, trends, and other information of radiological significance in the log IAW the following guidance:
 - A. Significant events and the time(s) which they occur including changes in plant conditions, radiological releases, and trends.
 - B. Failures of plant systems, components or equipment crucial to achieving accident mitigation objectives and the time(s) those failures occur.
 - C. Summarize the results of radiological evaluations, dose projections, PARs and/or recommendations made to the Emergency Manager or REC.
 - D. Record key operational decisions and strategies developed (or implemented).
 - E. Log contacts with off-site agencies (e.g., State Planning and Assessment Center, etc.) technical vendors or contractors and consultants (e.g., contract health physics services) whose services have been requested including status reports of their response to the site.
- 6.3.3 Periodically monitor the distribution of completed forms in the Radiation Protection area (of the EOF) to ensure accurate, consistent, approved information is used by Radiation Protection personnel.
- 6.3.4 Ensure all completed forms are filed in the appropriate container provided and retained as emergency records.

6.4 Rad Prot Support Group Shift Scheduling

- 6.4.1 If the duration of the event could exceed 12 hours, evaluate Radiation Protection group staffing required to support 24-hour coverage.
- 6.4.2 If and when requested by the EOF Coordinator, coordinate the assignment of ERO shifts for the group by completing Form 5790-802-05 (ERO SHIFT SCHEDULE - EOF RP SUPPORT GROUP) and forwarding the completed schedule to the EOF Coordinator.

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6.4.3 If 24-hour coverage is required, coordinate the departure of "next shift" Technical Support group personnel as follows:

- A. Ensure ERO personnel are informed of their next ERO shift IAW the ERO Shift Schedule.
- B. Ensure personnel are instructed to contact the EOF if their final destination, after departing the site, is a location other than their permanent residence. In this case, they should provide a telephone number at which they can be reached if needed sooner than their next scheduled shift.
- C. Ensure ERO personnel are instructed to carry their company ID card to gain access to the site (in the event road blocks are established by off-site authorities).

6.4.4 Next shift ERO personnel should depart the EOF as follows depending on the situation:

- A. If no releases (above Tech Spec limits) are occurring and no off-site protective actions are in effect, personnel may depart the EOF and site as normal.
- B. If significant releases are occurring and/or off-site protective actions are in effect, coordinate the departure of next shift ERO personnel with the local county authorities (Sheriff Dispatcher or County EOC). The departure route should take personnel upwind of any releases.

6.5 EOF Status Updates

6.5.1 When notified of an EOF status update, use Form 5790-806-02 (Rad Prot Sup Supv STATUS UPDATE CHECKLIST) to prepare for radiation protection portion of the update. Record the date and time of the status update in the spaces provided on the form.

6.5.2 During EOF updates, the Rad Prot Sup Supv should provide a status of the following topics using Form 5790-806-02 as a guide:

- A. Review the current radioactive release rates, release paths, recent trends in release rates, estimated release duration, source term, and the potential for changes in the magnitude of the source term.
- B. Review the potential for emergency classification changes (escalations) based on radiological conditions.
- \$ C. Review the most recent off-site dose projection results (Followup Message) including projected doses and dose rates and the results of any dose projection model comparisons with the State and/or NRC.

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- D. Review the most recent off-site survey results from Rad Prot Status Board, Followup Message, or Survey Results board and any comparative survey results from the State Field Teams, EPA or DOE.
 - E. Review the current and forecast meteorology including wind speed, direction precipitation and the potential for change.
 - F. Review the status of off-site protective actions recommended to or implemented by the State (or Counties).
 - G. Review current EOF habitability conditions including dose rates, CAM, ARM readings and the potential for protective actions in the EOF (e.g., PC use, evacuation, etc.).
 - H. Review personnel status including overexposures and/or personnel contaminations.
 - I. Review current Rad Prot Group staffing and potential staffing needs including the status of ERO shift scheduling (if applicable).
- § 6.5.3 If the NRC is present (in the EOF), your NRC counterpart should provide input immediately after the Rad Prot Sup Supv portion of the status update.
- 6.5.4 On Form 5790-806-02, note significant items reviewed during the TSS, EOF Coordinator and EM portion of the status update.
- 6.5.5 Upon completion of the status update, note the time of the next status update (if established by the EM).

6.6 General Instructions

- 6.6.1 Continuously assess radiological conditions and provide advice to the Emergency Manager (and other EOF Group Leaders).
- 6.6.2 Continuously maintain the Rad Prot Sup Supv Log and enter significant events/decisions as they occur throughout the event.
- 6.6.3 Ensure the Dose Assessment Room is continuously staffed and the Survey Point Map and Off-site Survey Results board are maintained current.
- 6.6.4 Ensure the EOF Countroom is continuously staffed and off-site sample analysis results are delivered to the Rad Prot Sup Supv (or Assistant Rad Prot Sup Supv) for review.
- 6.6.5 Ensure the Radiation Protection Status Board in the EOF is continuously updated throughout the event with information obtained from approved Emergency Notification Follow-up Messages, the SPDS terminal and the Field Team Survey Results Board.

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- 6.6.6 If, and when requested by the EOF Coordinator, establish a 24 hour shift schedule for the EOF Rad Prot Support Group by completing Form 5790-802-03 (ERO SHIFT SCHEDULE - EOF RADIATION PROTECTION SUPPORT GROUP) IAW section 6.4.
- 6.6.7 Throughout the event, maintain a communication link (via hotline or commercial telephone) with the State Planning Chief at the State EOC.
- 6.6.8 Coordinate the manning of the Health Physics Network (HPN) link with the TSC. Ensure the FTS-HPN is continuously manned (as requested by the NRC) IAW the applicable section of A.2-803 (EMERGENCY COMMUNICATIONS AT THE EOF).
- 6.6.9 Through contact with the State Planning Chief, evaluate the need for additional Prairie Island Radiation Protection personnel assistance at the Public Reception Center (Osseo Jr. High School).
- 6.6.10 If the plant is conducting a Plant (or Site) evacuation, coordinate the removal of non-essential personnel from the site and provide Rad Prot assistance (for off-site personnel and vehicle monitoring and decon) as requested by the REC IAW section 6.9
- 6.6.11 Serve as the "point-of-contact" with off-site Health Physics vendor and contract technical services requested by the EOF or TSC. Request off-site vendor/technical services IAW the instructions in A.2-804 (EOF SUPPORT AND LOGISTICS).
- 6.6.12 Interface with NRC technical analysts (e.g., Protective Measures Coordinator, Environmental Dose Assessment Coordinator, etc.) present in the EOF (or by telephone if the NRC site incident response team is not present).
- 6.6.13 Continuously re-evaluate priorities for the Radiation Protection Support group and redirect the group's efforts as necessary.
- 6.6.14 When the immediate emergency has been mitigated and the Emergency Manager is considering termination or making the transition to Recovery, initiate section 6.11.

6.7 Radiological Assessment

NOTE: This section provides instructions for the conduct of radiological assessment activities for which the Rad Prot Sup Supv (EOF Rad Prot Group) is responsible. These assessment activities should be conducted by the Rad Prot Sup Supv throughout the event as necessary.

- 6.7.1 If radiological conditions in the EOF are a concern continuously assess EOF habitability through the conduct of periodic habitability surveys and operation of the EOF CAM and DARM IAW A.2-808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF).

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- 6.7.2 Ensure proper dosimetry is issued, collected and recorded for all EOF ERO personnel IAW A.2-808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF) and A.2-809 (EOF SECURITY).
- 6.7.3 Throughout the event, evaluate the need to activate (or continue operation) of the EOF ventilation system in the emergency mode (i.e., release rates above the Alert EAL level). The EOF Coordinator is responsible for operation of the EOF Ventilation System IAW A.2-802 (ACTIVATION AND OPERATION OF THE EOF).
- 6.7.4 Evaluate the need to relocate the EOF access point to the Receiving Area entrance (i.e., if releases have or are occurring or if contaminated samples/personnel will be received). The EOF Coordinator, EOF Security, and EOF Countroom Rad Prot Spec are responsible for relocating the access point and setup of the Receiving Area.
- 6.7.5 If radiological conditions in the EOF warrant, make protective action recommendations (for EOF personnel) to the Emergency Manager IAW the criteria in A.2-808 (RADIOLOGICAL MONITORING AND CONTROL AT THE EOF).
- 6.7.6 If necessary, consider emergency exposure authorizations for EOF personnel (if expected to exceed MNGP Administrative or Federal exposure limits). If emergency exposures are required, implement A.2-401 (EMERGENCY EXPOSURE CONTROL).
- 6.7.7 If contaminated personnel are received in the EOF (Receiving Area), implement personnel monitoring and decontamination IAW A.2-407 (PERSONNEL AND VEHICLE MONITORING).
- 6.7.8 If off-site releases are occurring, project off-site doses using MIDAS (or backup method) throughout the event IAW A.2-406 (DOSE PROJECTIONS).
- 6.7.9 Coordinate off-site monitoring activities (Field Teams) via radio and ensure Field Team survey/sample results are posted on the Survey Results and Rad Prot Status Boards in the EOF IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).
- 6.7.10 Ensure off-site survey results are compared to MIDAS dose projections (for the same period) and that MIDAS and survey results are shared with the State Planning Chief in the State EOC IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).
- 6.7.11 As necessary, review off-site sample analysis results from the EOF Countroom.
- 6.7.12 Periodically (about every 30 minutes) update the State Planning Chief by transmitting Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOWUP MESSAGE) and reviewing the message contents with the State Health Department IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).

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- 6.7.13 Based on dose projections, off-site surveys, or the emergency classification (General Emergency) recommend off-site protective actions to the State (or counties if the State EOC is not activated) IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).
- 6.7.14 If off-site protective actions are recommended, monitor the progress of implementation (by the State and counties) through discussions with the State Planning Chief in the State EOC. Ensure the recommended and implemented PARs are posted on the Rad Prot Status Board in the EOF.
- 6.7.15 If off-site protective actions are recommended (or are imminent), evaluate the need to recommend protective actions for the Sherco Plant to the HQEC Manager at the HQEC IAW A.2-807 (OFF-SITE DOSE ASSESSMENT AND PARS).
- 6.7.16 If the event involves a radiological release to the environment, notify the Site Radiological Services Group. Contract REMP Labs will provide resources for environmental sampling and analysis.

6.8 Emergency Classification Changes

- 6.8.1 When informed of a potential change in emergency classification, obtain a blank Form 5790-102-02 (EMERGENCY NOTIFICATION REPORT FORM).

NOTE: Complete as much of the form as possible with current information prior to the actual declaration of the new emergency classification.

- 6.8.2 When the Emergency Manager declares the new emergency classification, complete the form as follows:
 - A. Check the applicable blanks indicating the new emergency classification.
 - B. Record the time and date the Emergency Manager declared the new emergency classification.
 - C. Indicate whether the event involves a radioactive release.
 - D. Identify the appropriate Off-Site Protection Action Recommendation. If the new emergency classification is a GENERAL EMERGENCY:
 - 1. Recommend evacuate all sectors out to 2 miles.
 - 2. Fill in the applicable Sectors (A-R) and downwind distances to which the PAR applies.

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3. Using the wind direction (from in degrees) and the SECTOR/SUBAREA CONVERSION CHART (on page 2 of the form), determine the geopolitical subarea(s) to which the PAR applies. Circle the affected subareas.
- E. Identify the appropriate Emergency Action Level Guideline number and provide a brief description of why the emergency classification is changing. The labels provided in the following forms should be used to provide the description:
1. 5790-102-08 (NUE GUIDELINE LABELS)
 2. 5790-103-05 (ALERT GUIDELINE LABELS)
 3. 5790-104-04 (SITE AREA EMERGENCY GUIDELINE LABELS)
 4. 5790-105-05 (GENERAL EMERGENCY GUIDELINE LABELS)
- F. Complete the meteorological section using current information (from MIDAS or most recent Emergency Notification Follow-up Message) including:
1. Wind direction (from)
 2. Wind speed (mph)
 3. Temperature
 4. Precipitation
 5. Stability class (A-G)
 6. Affected Sectors (A-R)
- 6.8.3 Submit the completed form to the Emergency Manager for review and approval signature. If Off-Site Protective Actions are being recommended, review the basis for the recommendations with the Emergency Manager.
- 6.8.4 Ensure the completed approved form is delivered immediately to the Off-Site Communicator(s) for transmittal to off-site authorities (within 15 minutes of the emergency classification change) IAW Form 5790-803-01 (EOF RECLASSIFICATION IN CALL-LIST).
- 6.8.5 If Off-Site Protective Action recommendations are included on the form, initiate a call to the State Planning Chief (or State Duty Officer prior to EOC activation) at the State EOC to explain the basis for the recommendations.

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6.9 Plant/Site Evacuation Instructions

- 6.9.1 If an evacuation of the EOF is required, refer to A.2-810 (TRANSFER TO THE BACKUP EOF).
- 6.9.2 If a Plant (or Site) evacuation is conducted, assist the REC with coordinating the following aspects of the evacuation:
 - A. Selection of the evacuation route from the site upwind of any releases (if possible).
 - B. Notification of the counties (Sheriff's Dispatchers or EOCs) to assist with the evacuation (e.g., traffic control, road block passage, etc.).
 - C. Selection of the Off-site Assembly Point (if used).
 - D. Providing resources (Field Teams) for evacuee and vehicle monitoring and decontamination IAW A.2-407 (PERSONNEL AND VEHICLE MONITORING).
- 6.9.3 Coordinate the conduct of personnel monitoring and decontamination if evacuees are sent to the EOF (as an Off-site Assembly Point).
- 6.9.4 Provide periodic updates to the Emergency Manager on the progress of the evacuation and personnel monitoring results (i.e., number of contaminated evacuees, etc.).
- 6.9.5 Provide periodic updates to the counties on the status of the evacuation.

6.10 Rad Prot Sup Supv Shift Turnover

- 6.10.1 Upon arrival at the EOF, the on-coming Radiation Protection Support Supervisor should review the:
 - A. Chronological Events Flipchart to become familiar with key events that have occurred.
 - B. The Rad Prot Sup Supv Log book entries (for the previous 12 hours if applicable).
- § 6.10.2 Review the following information with the existing Rad Prot Sup Supv. If the NRC is present, include the Rad Prot Sup Supv counterpart (Protective Measures Coordinator) in the turnover review if possible:
 - A. Review the status of current Rad Prot Support Group staffing and future staffing needs.
 - B. Review the current plant status including the extent of radioactive releases, reactor status and other radiological issues related to the event (e.g., core damage estimates, etc.).

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- C. The status of EOP implementation (if applicable) and other operational information related to the event (i.e., releases, containment venting, etc.).
- D. The status of any off-site dose projections in progress (or completed).
- E. Off-site PARs recommended and/or implemented.
- F. The status of any Health Physics vendor/contractor support requested.
- \$ G. The status of Rad Prot communications links (HPN, Field Teams, etc.) and off-site agency interface (e.g., State Planning and Assessment Center, NRC incident response, etc.).

6.10.3 If the Emergency Manager is conducting a turnover briefing, attend the EM briefing as requested.

6.10.4 The on-coming Rad Prot Sup Supv should contact the Radiological Emergency Coordinator (in the TSC) to review the current status and determine any assistance the EOF Rad Prot Support Group can provide.

6.10.5 Upon completion of the turnover discussions, the on-coming Rad Prot Sup Supv should formally assume the duty and note the turnover in the Rad Prot Sup Supv Log Book.

6.10.6 Inform the Emergency Manager the Rad Prot Sup Supv turnover is complete.

6.10.7 Make an announcement in the EOF Command Center regarding the turnover of Rad Prot Sup Supv responsibilities.

6.11 Event Termination or Recovery

6.11.1 Evaluate radiological releases and plant conditions throughout the event. When the conditions listed in A.2-811 (EVENT TERMINATION OR RECOVERY IN THE EOF) are met, advise the Emergency Manager that the event may be terminated or the transition to Recovery made (based on off-site releases and/or other radiological conditions).

6.11.2 When the conditions for event termination or Recovery are met, consult (or participate in consultation) with the State Planning Chief to determine if event termination (or Recovery) are feasible based on off-site conditions and/or protective actions still in place.

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- \$ 6.11.3 When the EM, ED, NRC and State concur on event termination (or Recovery), initiate Form 5790-102-02 (EMERGENCY NOTIFICATION REPORT FORM) for the emergency classification change IAW section 6.8 and:
- A. Submit the completed form for Emergency Manager review and approval.
 - B. Ensure the form is transmitted to the off-site authorities (by Off-site Communicators) IAW Form 5790-803-01 (EOF RECLASSIFICATION CALL-LIST).
- 6.11.4 When directed by the Emergency Manager, compile a list of radiation protection issues which require action or evaluation to return the site and environs to their pre-accident condition as follows:
- A. Use Form 5790-602-01 (RECOVERY ACTION ITEMS) to compile the list of radiation protection related items (e.g., facility decontamination, contract HP support for outages, etc.).
 - B. Refer to A.2-811 (EVENT TERMINATION OR RECOVERY IN THE EOF), section 6.2, to identify items to consider when compiling the Rad Prot Recovery Action Item list.
 - C. Coordinate the development of the Recovery Action Item list with the Radiological Emergency Coordinator (in the TSC).
 - D. On the Recovery Action Item list include a description of the action required (for each item).
- 6.11.5 Submit the completed Recovery Action Item list to the Technical Support Supervisor for inclusion in the master Recovery Action List(s) and the Emergency Manager turnover to the Recovery Manager.
- 6.11.6 Participate in the transition to recovery and turnover discussions as requested by the Emergency Manager.

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7.0 FIGURES

FIGURE

7.1 Forms Utilized in Procedure

<u>Procedure Number</u>	<u>Title</u>
1. 5790-001-01	Emergency Response Organization
2. 5790-806-01	Rad Prot Sup Supv Activation Checklist
3. 5790-802-03	ERO Shift Schedule - EOF RP Support Group
4. 5790-806-02	Rad Prot Sup Supv Status Update Checklist
5. 5790-102-02	Emergency Notification Report Form

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1.0 PURPOSE

This procedure provides instructions and guidance for the conduct of off-site dose assessment and formulation of off-site Protective Action Recommendations at the Monticello EOF.

Steps in this procedure satisfy commitment M90125A.

2.0 APPLICABILITY

2.1 An Alert has been declared at the Monticello plant and,

2.2 The EOF has been activated, staffed and has assumed the responsibility for off-site communication, dose assessment and Field Team coordination.

3.0 ORGANIZATION AND RESPONSIBILITIES

3.1 The Emergency Manager is responsible for:

3.1.1 The approval of off-site Protection Action Recommendations prior to their transmittal to the State (or local) authorities.

3.2 The Radiological Protection Support Supervisor is responsible for:

3.2.1 Implementation of this procedure.

3.2.2 Overall direction and coordination of EOF Rad Prot Support group activities including off-site dose projections, dose assessment, and the formulation of off-site protective action recommendations.

§ 3.2.3 Making recommendations regarding off-site Protective Actions to the Emergency Manager and discussing the basis for off-site Protective Action Recommendations with the State Planning Chief and NRC.

3.3 The Assistant RPSS is responsible for:

3.3.1 Assisting the RPSS with the coordination of EOF Radiation Protection Support Group activities including dose projections, assessment and Field Team direction.

3.4 The MIDAS Operator is responsible for:

3.4.1 The conduct of off-site dose projections using the MIDAS (or backup) methods including the generation of periodic Emergency Notification Follow-up Messages for transmittal to the State.

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3.5 The Field Team Coordinator is responsible for:

3.5.1 Direction and coordination of Monticello and Prairie Island Field Teams under the supervision of the RPSS (or Assistant RPSS).

3.6 The Field Team Communicator is responsible for:

3.6.1 The coordination of Monticello and Prairie Island Field Teams via radio under the direction of the Field Team Coordinator.

4.0 DISCUSSION

4.1 Summary

Dose assessment refers to the integrated process of dose projection, collection of field measurements and meteorological data, comparison of projected data to field data, and consideration of plant status to develop a working knowledge of the current and near-term radiological environment resulting from a radioactive release.

The radiological forecast developed in the dose assessment process provides the input for making appropriate recommendations to protect the health and safety of the public.

The responsibility for dose assessment is initially assigned to the TSC. The Radiological Emergency Coordinator (REC) formulates protective action recommendations which are forwarded to State or County officials through the Emergency Director. After the EOF is activated, the Emergency Manager is responsible for dose assessment. At the decision of the Emergency Manager, the dose assessment function transfers from the TSC to the EOF.

The decision to transfer dose assessment responsibilities from the TSC to the EOF will be based on the emergency situation, the EOF equipment status and staffing of the Radiation Protection Support Group. The transfer is implemented by informing the TSC, directing the RPSS to assume the responsibility and closely coordinating the transfer with the REC.

4.2 For definitions related to PARs, see Figure 7.1

4.3 For general discussion of PARs, see Figure 7.2

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5.0 PRECAUTIONS

- 5.1 Declaration of a General Emergency requires immediate initial protective action recommendations (PARs) to off-site agencies. Under these circumstances, NO dose projections are required for formulating the initial off-site protection action recommendation.
- 5.2 Implementation of protective actions for off-site areas is the responsibility of the State of Minnesota. If it is determined by the Emergency Manager that immediate protective actions are required, and the State EOC is not activated, the recommendation **SHALL** be made directly to the local authorities (i.e., Wright and Sherburne Counties). Upon activation of the State EOC all off-site protective action recommendations **SHALL** be made to the State.
- 5.3 The protective actions outlined in this procedure are limited to actions for minimizing the exposure of the public to external and internal radiation exposure from plume passage, inhalation of the radioactive plume and from internal exposure from drinking water during the early phase of an emergency. Other protective actions for minimizing public exposure via the ingestion pathway will be determined and implemented by the State.
- 5.4 Exposures of Field Team personnel should be in accordance with administrative control levels. They should have proper dosimetry, which is frequently checked, remain alert to their own exposure and request relief if cumulative exposure approaches administrative control levels. The Emergency Director may authorize exposure limit extensions if necessary (refer to EPIP A.2-401). All exposures should be maintained ALARA.
- 5.5 Monticello Field Teams should not be recalled from field monitoring until Prairie Island teams have relieved them in the field.
- 5.6 The transmission of Off-site Protective Action Recommendations to the State EOC (State Duty Officer and Counties if the State EOC is not activated) **SHALL** be completed within 15 minutes of the PAR authorization.

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6.0 INSTRUCTIONS

CAUTION

No dose projections are required when making initial PAR during GENERAL EMERGENCY CONDITIONS.

6.1 Initial PARs for General Emergency Classification

- 6.1.1 Initiate Form 5790-102-02 (MONTICELLO EMERGENCY NOTIFICATION REPORT FORM).
- A. Complete Section 1.4 recommending an evacuation of a 2 mile radius and 5 miles downwind and advise the remainder of the plume EPZ to go indoors to monitor EAS broadcasts.
 - B. Determine which geopolitical subareas are affected by referring to the Sector-Subarea Conversion Table on page 2 of Form 5790-102-02.
 - C. Ensure completion of Parts 1.0 and 2.0 of Form 5790-102-02 and submit the completed form to the EM for approval.
- 6.1.2 Ensure transmission of the recommendations, via telephone and telecopy, to the State EOC (State Duty Officer, Wright and Sherburne Counties if the State EOC is not activated) IAW EPIP A.2-803 (EMERGENCY COMMUNICATIONS AT THE EOF).
- 6.1.3 Approximately 30 minutes after making the recommendation, contact the State Planning Chief or State Duty Officer if State EOC is not activated to determine what protective actions are actually being implemented. Continue to track the status of the protective action until completely implemented and indicate the completion status on the Radiation Protection Status Board.
- 6.1.4 Update the Emergency Manager and EOF personnel (if activated and staffed) on the status of off-site Protective Action implementation.
- 6.1.5 After making initial Protective Action Recommendations (at the General Emergency Class) continually assess plant conditions and off-site dose projection results. Make subsequent off-site protective action recommendations based on projected off-site doses using the Protective Action Guidelines (PAGs) listed in FIGURE 7.3.

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6.2 PARS for Sherco Plant

NOTE: To safely shutdown the Sherco Plant requires 8 hours after the unit(s) are tripped.

- 6.2.1 Throughout the event the RPSS (or Assistant RPSS) should review off-site projected doses and affected Sectors (Subareas) to determine if the Sherco Plant is or will be in the affected area.

NOTE: The Sherco Plant is located in the 5N subarea.

- 6.2.2 Formulate protective action recommendations for the Sherco Plant as follows:
- A. Recommendations based on Projected Dose (whole body):
 1. > 500 mrem (TEDE) - recommend evacuation of non-essential personnel from the Sherco site and shelter essential plant personnel during plant operation.
 2. > 1 Rem (TEDE) - recommend shutdown of the Sherco Plant(s). Immediate evacuation of non-essential personnel and sheltering of essential personnel during normal plant shutdown.
 3. > 5 Rem (TEDE) - recommend immediate evacuation of non-essential personnel and sheltering of essential personnel during emergency plant shutdown. Evacuate all personnel immediately after plant shutdown.
 - B. Recommendations based on General Emergency:
 1. If evacuation is implemented (in 5N) recommend evacuation of all non-essential personnel and sheltering of essential Sherco personnel. Recommend immediate initiation of plant shutdown.
- 6.2.3 If protective actions are required for the Sherco Plant, discuss the recommendations with the Emergency Manager (and HQEC Manager (HM) at the HQEC if activated).

NOTE: Generation management will implement the required protective actions for Sherco personnel through established management channels.

- 6.2.4 Monitor the progress of protective action implementation (at Sherco) to determine when they are completed.
- 6.2.5 Indicate any PARs recommended (and implemented) for the Sherco Plant on the RP Status Board in the TSC.

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- 6.2.6 Advise the Emergency Manager if conditions change (e.g., significant increase in release rate) which could change the protective action recommendations for the Sherco Plant.

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6.3 Off-site PARs Based on Projected Doses

CAUTION

Do not delay recommending off-site protective actions while waiting for off-site monitoring results to verify the accuracy of the dose projection model. Do not delay recommending off-site protective actions while trying to resolve questionable data (MIDAS Data or Field Team Data).

- 6.3.1 Continuously review dose projection data (4 day integrated maximum TEDE and Thyroid CDE) on Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) and compare with the Protective Action Guidelines in Figure 7.3. If an updated PAR, based on dose projections is required, proceed to Step 6.3.2. Continuously review meteorological data (wind direction and wind speed) on Form 5790-102-03 (EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE) and determine the affected sectors. If an updated PAR, based on meteorological data is required, proceed to Step 6.3.2.
- 6.3.2 Initiate Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) and complete the airborne release section.
- 6.3.3 Using current meteorological data (i.e., wind direction and wind speed), determine the affected Sectors, Geopolitical Subareas (using page 2 of Form 5790-204-01), population centers within the affected area and estimated plume arrival time in those areas.
- 6.3.4 Based on plant conditions, estimate the duration of the existing release or potential release.
- 6.3.5 Using available weather forecast data, evaluate the potential for wind direction and wind speed changes during the estimated duration of the release (and after). Determine what effect potential wind direction and wind speed changes would have on the affected areas identified in 6.3.3.

NOTE: Weather forecast information may be obtained from the National Weather Service. Refer to the Monticello and Prairie Island Nuclear Emergency Preparedness Telephone Directory for telephone numbers.

NOTE: If data used in the determination of the PAR is/or was questionable, attempt to verify the data. DO NOT delay the issuance of the PAR. If after verification of questionable data a PAR revision is necessary, complete section 6.3 of this procedure.

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- 6.3.6 If based on dose projections or field team data a PAR beyond the 10 mile EPZ is necessary, immediately contact the State Planning Chief to inform them of this condition and document in comments section of Form 5790-204-01. Attach a copy of the supporting Follow-up Message to Form 5790-204-01.
- 6.3.7 Indicate the recommendations on page 3 of Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST). Indicate the recommendation in terms of Sectors and Subareas by completing and circling the applicable information as follows:
- A. Identify the affected keyhole by selecting a 360° out to 2 or 5 miles. Determine the affected Sectors by including both Sectors on either side of the downwind Sector (two Sectors on either side should be included if the downwind direction is on a Sector line). Record the 3 (or 4) affected Sectors on page 3 of the Monticello PAR Checklist.
 - B. Identify the affected geopolitical subareas using the Sector-Subarea Conversion Chart (page 2 of Form 5790-204-01) and circle the affected subareas on the PAR Checklist.
- 6.3.8 Submit the completed page 3 of Form 5790--204-01 (MONTICELLO PROTECTIVE ACTION RECOMMENDATION CHECKLIST) to the Emergency Manager for approval. Review and discuss the recommendations with the Emergency Manager as necessary.

NOTE: Prior to activation of the State EOC, protective action recommendations should be made directly to the State Duty Officer and Wright and Sherburne Counties (EOCs if activated). The State Duty Officer will coordinate the EAS message and PANs activation with counties. Once the State EOC is activated, all protective action recommendations **SHALL** be made directly to the State authorities.

- 6.3.9 The Emergency Manager (or RPSS) should direct an Emergency Communicator to transmit the approved Off-Site Protective Action Recommendation Checklist, to the State EOC (Wright and Sherburne County EOCs only if the State EOC is not yet activated) IAW EPIP A.2-803 (EMERGENCY COMMUNICATIONS AT THE EOF).
- 6.3.10 When notified by the Emergency Communicator that the transmittal of the protective action recommendation has been made to the State Planning Chief (if State EOC is activated) or the State Duty Officer, Wright County and Sherburne County (if State EOC is not activated) contact either the State Planning Chief or the State Duty Officer, Wright County and Sherburne County. Discuss the recommendations and explain the basis of the recommendations.

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- 6.3.11 Approximately 30 minutes after making the recommendation, contact the State Planning Chief or State Duty Officer prior to State EOC activation, to determine what protective actions are actually being implemented. Continue to track the status of the protective action until completely implemented and indicate the completion status on the Radiation Protection Status Board.
- 6.3.12 If, as a result of continuing assessment, dose projection results or meteorological conditions change significantly, re-evaluate the previously implemented protective actions and, if necessary, update the protective actions by issuing another recommendation.

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6.4 Protective Action Recommendation for Liquid Releases

- 6.4.1 Initiate Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) and complete the Liquid Release Section.
- 6.4.2 Obtain the isotopic analyses of liquid samples taken at the Discharge Canal or release point.

NOTE: During a liquid release, samples may be taken at the discharge structure, mid-canal sample station, canal out-fall to the river, or as near the source of the release as possible. To ensure samples are representative of the material being released to the river, the Canal Sample Station is the preferred sampling location.

- 6.4.3 Determine the present Discharge Canal flow rate and river flow rate at the plant (refer to the applicable plant computer point for flow rates).
- 6.4.4 Determine the river flow rate at either the Coon Rapids Dam or the Minneapolis-St. Paul water intakes by contacting the Minneapolis Water Department (refer to the Monticello and Prairie Island Nuclear Emergency Preparedness Telephone Directory for telephone numbers).
- 6.4.5 Using the curve RIVER FLOW vs TIME curve (FIGURE 7.5) estimate the time of release arrival at the Minneapolis-St. Paul water intakes based on current, actual river flow (if actual river flow is not available, use the monthly average river flow in FIGURE 7.5).
- 6.4.6 Using the MIDAS User Manual Procedures access the MIDAS liquid release model. Enter the isotopic and other applicable release data.
- 6.4.7 Using the MIDAS Liquid Release Dose Assessment printout, formulate off-site protective action recommendations IAW the guidelines in FIGURE 7.6.
- 6.4.8 Indicate the recommendations on page 3 of Form 5790-204-01 (MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST) and submit the completed form for Emergency Manager approval.
- 6.4.9 Transmit the recommendations to the State Planning Chief (State EOC if activated) IAW EPIP A.2-803 (EMERGENCY COMMUNICATION AT THE EOF)
- 6.4.10 Contact the State Planning Chief (in the State EOC if activated) to explain the basis for the recommendations.

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- 6.4.11 Approximately 30 minutes after making the recommendation, contact the State Planning Chief to determine what protective actions are actually being implemented. Continue to track the status of the protective action until completely implemented.

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6.5 Ground Deposition Assessment

6.5.1 Perform ground deposition projections as follows:

NOTE: The purpose of this step is to obtain a rough estimate of ground deposition. If estimates of curies released are not available, proceed with Field Team deployment.

- A. Determine the number of microcuries of iodine and particulate material (i.e., not noble gases) that were released.
- B. Refer to FIGURE 7.7 to calculate the projected ground deposition. Using the guidance in FIGURE 7.7 develop a footprint, or map of the area, that could have ground contamination levels above 1 uCi/m².
- C. Record Field Team ground deposition survey results on Form 5790-410-03 (GROUND DEPOSITION SAMPLE RESULTS LOG).

6.5.2 As exposure rate data is obtained, calculate relocation projected doses using the conversion factor of 5000 mrem per mR/hr (i.e., 5000 mrem relocation projected dose per 1 mR/hr initial gamma exposure rate 1 meter above the ground).

NOTE: This conversion factor may be conservative. The factor depends on the isotopic distribution and decay time of the ground deposition. With actual isotopic data, a better conversion factor can be calculated using the data in FIGURE 7.8.

6.5.3 As smear samples are analyzed and isotopic data is obtained use FIGURE 7.8 to refine the relocation projected doses.

6.5.4 Plot the relocation projected doses on a map. (Consider using a dedicated map to avoid confusion).

6.5.5 Determine the appropriate protective action recommendations IAW FIGURE 7.9.

6.6 Return Dose Assessment

6.6.1 As soon as resources allow, obtain dose rate surveys and smear samples (per EPIP A.2-410) in evacuated areas that are believed to be outside the footprint.

6.6.2 As the priority for return to evacuated areas within the known footprint increases (per the States recommendation), obtain dose rate surveys and smear samples within the affected (evacuated) areas IAW A.2-410.

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- 6.6.3 Use FIGURE 7.8 and calculate relocation projected doses based on known (measured) ground deposition.
- 6.6.4 Plot the relocation projected doses on a map.
- 6.6.5 Refer to FIGURE 7.9 and develop Protective Action Recommendations regarding return to evacuated areas as appropriate.
- 6.6.6 Indicate the recommendation on Form 5790-204-01 (OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST).
 - A. Submit the completed form to the Emergency/Recovery Manager for approval and processing.

6.7 General Instructions for Field Team Deployment

- 6.7.1 Identify the team(s) as Monticello Field Team 1 and 2 and direct the team(s) to establish and maintain radio communication with the Field Team Communicator in the EOF.
- 6.7.2 When the Prairie Island Field Teams arrive identify the PI teams as Field Team 3 and 4.
- 6.7.3 Determine the starting point of the survey based on the release point, source term, magnitude of the release, wind direction, and dose projection data (if available).
- 6.7.4 Dispatch the team(s) to the selected survey/sample points to conduct surveys/sampling IAW EPIP A.2-410.
- 6.7.5 Direct the team(s) to transmit survey/sample results (by radio) to the Field Team Communicator in the EOF.
- 6.7.6 Direct the Field Team Communicator to record survey results on Form 5790-202-01 (OFF-SITE SURVEY RESULTS DATA LOG) or Form 5790-410-03 (GROUND DEPOSITION SAMPLE RESULTS LOG).
- 6.7.7 Direct the Field Team Communicator to periodically update the team(s) on plant conditions, emergency classification changes, protective actions and meteorological information as it becomes available.
- 6.7.8 Direct the team to check personal dosimetry and request relief if their exposure approaches administrative limits.
- 6.7.9 Direct the team(s) in the use of protective measures (including Anti-C clothing, respiratory protection and exposure control) IAW the following guidelines:

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- A. Direct protective clothing and respirator (with GMR-I canisters) use if:
 - 1. Substantial airborne activity and ground contamination is suspected or observed and the affected sectors have been evacuated; or
 - 2. A General Emergency has been declared and measured dose rates are more than 100 mrem/hr True Beta.
- B. Direct the implementation of ALARA exposure control measures as follows:
 - 1. Field Teams should not linger in areas greater than 100 mrem/hr;
 - 2. Field Teams should not proceed into areas projected to be greater than 1000 mrem/hr unless directed by the REC;
 - 3. Field Teams should not proceed into areas projected to be greater than 10,000 mrem/hr.

- 6.7.10 Based on initial survey results request backup surveys or confirmatory sampling as necessary.
- 6.7.11 Upon completion of Field Team survey operations, direct the team(s) to report to the Emergency Operations Facility for exposure processing, de-briefing and re-assignment.

6.8 Field Team Deployment During Airborne Releases

NOTE: For events that do not involve a radioactive release off-site monitoring is required to confirm that a release (above normal limits) is not occurring.

- 6.8.1 Dispatch the Field Teams in the downwind direction to conduct a search for the plume IAW EPIP A.2-410.

CAUTION

Do not allow the Field Team(s) to sit idle. Teams should traverse the projected path of the plume in downwind affected sectors rather than remain in one location awaiting plume arrival.

- 6.8.2 When the plume is located (positive meter deflection) instruct the team(s) to perform dose rate surveys IAW EPIP A.2-410.
- 6.8.3 Based on the results of the dose rate survey(s) determine if the team is in the plume (positive beta reading) or if the plume is elevated (gamma only).

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- 6.8.4 When the plume is encountered (i.e., positive beta reading) direct the team(s) to obtain airborne particulate, gaseous and Iodine airborne, and ground deposition samples. Instruct the team to analyze the samples (in low background area) and transmit the field analysis results to the EOF.
- 6.8.5 Upon completion of the field analysis direct the team to retain the samples or deliver them to the EOF Count Room for further analysis.

NOTE: A sample courier may be used to transport samples from the team(s) to the applicable Count Room.

- 6.8.6 Direct the Field Team Communicator to record all survey results on Form 5790-202-01 (OFF-SITE SURVEY RESULTS DATA SHEET) or Form 5790-410-03 (GROUND DEPOSITION SAMPLE RESULTS LOG).
- 6.8.7 Track and plot the movement of the plume on the Radiological Survey Point map as follows:
- A. Using current meteorological conditions (wind speed, direction, etc.) project the path of the plume;
 - B. Using available MIDAS data (GAMMA & THYROID PROJECTED DOSE REPORT and PROJECTED DOSE SUMMARY REPORT) project the location of the leading edge and trailing edge (if "puff" release) of the plume;
 - C. Using the team(s), locate the leading edge of the plume;
 - D. Using the field team(s), locate the lateral boundaries (sides) of the plume;
 - E. Using the team(s), verify that upwind ("backdoor") areas near the site are not affected by the release;
 - F. For "puff" releases, direct the team(s) to locate the trailing edge of the plume;
- 6.8.8 Compare off-site monitoring results for consistency with State survey results as applicable. Reconcile inconsistencies in data and/or re-survey areas of concern as necessary.
- 6.8.9 Determine the centerline dose rate by directing a team to traverse through the plume, while monitoring enroute.

NOTE: This survey should be coordinated with the MIDAS dose projection run in an attempt to verify the projection by comparing survey results to the projection data.

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6.8.10 Compare off-site survey results with dose projections for consistency. Reconcile major inconsistencies in data and/or re-survey areas of concern as necessary.

NOTE: A factor of < 100 is appropriate to use as the reasonable deviation when comparing model vs. actual field data.

6.8.11 Direct the Field Team Communicator to periodically update the team(s) on plant conditions, emergency classification changes, protective actions and meteorological information as it becomes available.

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6.9 Field Team Deployment for Ground Deposition Assessment

- 6.9.1 Deploy Field Teams to obtain ambient dose rates and collect samples (IAW A.2-410) in areas that are not evacuated, but within the footprint.
- 6.9.2 Concentrate first on areas suspected of having the highest deposition.
- 6.9.3 Priority should be given to initially performing dose rate surveys, with more detailed smear surveys to follow. Target areas with dose rates above 0.2 mrem/hr or direct frisker readings above 20,000 CPM for collection of smear samples.
- 6.9.4 Enough dose rate surveys/smear samples should be obtained to have confidence that "hot spots" have not been overlooked. Ten survey points per square mile is suggested as a minimum in areas where roads will allow this to be practical.
- 6.9.5 Ensure that areas not within the projected footprint are surveyed sufficiently to verify that the affected area has been identified completely.
- 6.9.6 Plot the Field Team results on a map. Compare them to the ground deposition projections, and direct follow-up surveys as appropriate to ensure the affected area is identified.

6.10 Dose Assessment and Field Team Deployment for Ingestion Pathway

- 6.10.1 Contact the EOC of each affected State and see if they have sample collection needs of particular priority that MNGP could satisfy.

NOTE: MNGP survey teams have the capability of performing dose rate, smear, liquid, soil/snow and air sampling and analysis. If there is a need for more sophisticated environmental samples, contact Teledyne and implement the letter of agreement. Once notified, Teledyne will dispatch a team to the affected site. They will also make their laboratories available for use should we need to send samples for analysis.

- 6.10.2 Direct the Field Teams to obtain samples according to the State(s) needs or to collect samples to confirm the results of the State(s) survey team.
- 6.10.3 Ingestion pathway dose projections should not be performed. Instead concentrate available resources on the collection, analysis, and transmittal of results to the States of smear, liquid, soil and/or snow samples.
- 6.10.4 Ingestion pathway protective actions will be determined by the State of Minnesota.

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7.0 FIGURES

FIGURE

7.1 Definitions Related to Protective Actions Recommendations

1. Affected Area is any area where radiation emanating from a plume, or from material deposited from the plume, can be detected using field instruments (also known as the footprint).
2. Cloudshine is radiation from radioactive materials in an airborne plume.
3. Committed Dose Equivalent (CDE) refers to the dose received over the 50 year period following an intake of radioactive materials.
4. Committed Effective Dose Equivalent (CEDE) is the sum of the products of the weighted factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissue.
5. Dose equivalent means the product of the absorbed dose in tissue, quality factors, and all other necessary modifying factors at the location of interest.
6. Effective dose equivalent (EDE) is the sum of the product of the absorbed dose in tissue, quality factors, and all other necessary modifying factors at the location of interest.

NOTE: Deep Dose Equivalent (DDE) is considered equivalent to EDE if the exposure is uniform.

7. Emergency Planning Zone (EPZ) is a defined area which facilitates emergency planning by State and local authorities to ensure that prompt and effective actions are taken to protect the public in the event of a radioactive release from the plant. The EPZ is defined for two areas:
 - A. Plume Exposure Pathway (10 Mile EPZ) is the 10 mile, 360° radius around the plant in which the primary concern is short-term exposure from the plume. The principal sources of exposure in this area are 1) whole body external exposure to gamma radiation from the plume and deposited material from the plume, and 2) internal exposure from inhaled material from the plume.
 - B. Ingestion Exposure Pathway (50 Mile EPZ) is a 50 mile, 360° radius around the plant in which the principal exposure would be from ingestion of contaminated water or foodstuffs (such as milk or fresh vegetables).
8. Evacuation is the removal of people from an area to avoid or reduce high-level, short term exposure, from a plume or from deposited activity.

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9. Geopolitical Subareas are subarea within the 10 Mile EPZ that are defined by predetermined geographic and/or political boundaries.
10. Groundshine is radiation exposure caused by radioactive materials deposited on the ground.
11. Ingestion Pathway Projected Dose is the projected CEDE (ICRP-30) from consuming contaminated foodstuffs.
12. Keyhole Area an area within the 10 Mile EPZ defined by a 360° radius out to a specified distance of 2 or 5 miles and continuing in the downwind direction in 3 or 4 Sectors.
13. Plume Projected Dose refers to future calculated doses from plume submersion, plume shine, plume inhalation and 4 days of ground deposition exposure.
14. Protective Action is an action taken to avoid or reduce a projected dose.
15. Protective Action Guide (PAG) refers to a dose (or commensurate dose rate) which warrants protective actions.
16. Public Alert and Notification System (PANS) is the system used to alert the public within the 10 Mile EPZ of an emergency condition at the plant. Once alerted, the public would turn to local commercial media broadcast messages for specific protective action instructions. The PANS consists of the following systems:
 - A. Fixed sirens for 100% coverage throughout the 5 mile EPZ and in population centers between 5 and 10 miles.
 - B. Local law enforcement emergency vehicles with sirens and public address capability driving route alerting in the 5 to 10 mile areas not covered by fixed sirens.
 - C. National Oceanic and Atmospheric Administration (NOAA) alert radios in institutional, educational, and commercial facilities.
 - D. The Emergency Alert System (EAS) which accesses local television and radio stations.
17. Recovery is the process of reducing radiation exposure rates and concentration of radioactive material in the environment to levels acceptable for unconditional occupancy.

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18. Relocation Projected Dose is the projected effective committed dose from 1 year of exposure to radioactive material deposited as fallout from a plume, including whole body exposure to gamma radiation (groundshine), and internal dose from inhalation of resuspended material, but excluding internal dose from consuming contaminated foodstuffs.
19. Return refers to people permanently reoccupying their normal residence within an area that was evacuated during the emergency condition.
20. Re-entry refers to temporary entry into a restricted (evacuated) area under controlled conditions.
21. Secondary Evacuation refers to relocating people from areas to avoid or reduce relocation projected dose.
22. Sector is one of 16, 22.5° sectors around the plant which compose the 10 Mile EPZ.
23. Sheltering provides radiation protection from an airborne plume and/or deposited radioactive materials. Sheltering also ensures effective public notification, via media, should the need for evacuation occur.
24. Total Effective Dose Equivalent (TEDE) is the sum of external EDE and CEDE.

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FIGURE

7.2 Discussion of Protective Action Recommendations

The following is a discussion of the various Protective Action Recommendations (PARs) that could be made to off-site authorities. The Protective Action Guidelines (PAGs) listed are derived from EPA guidelines (EPA 400).

1. NO PROTECTIVE ACTIONS

The recommendation for no protective actions is self-explanatory and is appropriate when projected plume doses do not exceed 1000 mrem (TEDE) or 5000 mrem (CDE) thyroid dose. For liquid releases, no protective actions are warranted if the concentration in raw river water at outflow of discharge canal is less than the concentration listed in 10CFR20 Appendix B, Table 2, Column 2.

2. EVACUATION

Evacuation is the movement of a population out of an area in order to reduce or eliminate direct or indirect radiation exposure. Timely evacuation of the population is the most effective protective action.

Initial PARs for a General Emergency involving loss of physical control or core damage are based on NRC Response Technical Manual RTM-93, Vol 1, Rev. 3, Section I. Immediate evacuation of the general public is justified without dose projection.

EPA 400 indicates that evacuation of the general public will usually be justified when the projected dose to an individual is greater or equal to 1000 mrem TEDE (or 5000 Thyroid CDE). At these dose levels, the risk avoided due to the radiation exposure is usually much greater than the risk from evacuation itself.

Using the projected dose criteria stated above, MNGP should recommend evacuation to the State. In turn, they will independently assess and implement protective actions based on our recommendation, their independent assessment, and current off-site evacuation constraints.

3. CLOSURE OF WATER INTAKES

Water Intakes PAG: Concentration in raw river water exceeds the value listed in 10CFR20 Appendix B, Table 2, Column 2.

Closure of the water intakes is an appropriate recommendation in the case of a liquid release to the river which is expected to result in river water concentrations exceeding the MPC for unrestricted areas.

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FIGURE

Discussion of Protective Action Recommendations (Cont'd)

4. SECONDARY EVACUATION

Relocation PAG (in mrem): 2000 (TEDE)

To avoid social and family disruption and the complexity of implementing separate PAGs for individual members of the population, the relocation PAG may be applied for all members of the population. While the relocation PAG is based on projected doses to adults, infant relocation projected doses are not more than two times higher than the adult projected dose.

Based on EPA 400 PAGs, MNGP should recommend relocation of general public from affected areas not previously evacuated when the projected dose is greater or equal to 2000 mrem TEDE from exposure or intake during the first year.

This projected dose includes doses from external radiation, and inhalation of resuspended materials.

5. RETURN

Return is allowed at levels below the secondary evacuation PAG (2000 mrem TEDE).

The decision to return segments of the public from previously evacuated areas will be determined by appropriate off-site agencies. Various cautions and dose reduction techniques will be assessed and, if necessary, communicated to the people upon their return.

6. DESIGNATION OF THE AFFECTED PROTECTIVE ACTION AREA

The designation of the affected protective action area depends on the nature and extent of the incident and existing meteorological conditions. The area will be described by designating an affected keyhole shaped area and the affected geopolitical subareas within the EPZ.

a Affected Keyhole Area

The affected keyhole area should resemble a keyhole consisting of a 360° area surrounding the plant out to a distance of 2 or 5 miles and continuing in the downwind direction out to a distance determined by the PAGs. The affected downwind portion of the keyhole should include 1 sector on either side of the affected sector (i.e., total of 3 sectors). If the downwind direction is on a sector line then 2 sectors on each side of the affected sector should be included (i.e., total of 4 sectors).

b Affected Geopolitical Subareas

Geopolitical subareas are subareas of the 10 mile EPZ defined by predetermined geographic and/or political boundaries. The affected geopolitical subareas are defined by any and all subareas that intersect the affected keyhole area.

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FIGURE

Discussion of Protective Action Recommendations (Cont'd)

8. (EXPOSURE PATHWAYS, Incident Phases, and Protective Actions

POTENTIAL EXPOSURE PATHWAYS AND INCIDENT PHASES		PROTECTIVE ACTIONS	
1. External radiation from facility			Sheltering Evacuation Control of access
2. External radiation from plume	EARLY		Sheltering Evacuation Control of access
3. Inhalation of activity in plume			Sheltering Administration of stable iodine Evacuation Control of access
4. Contamination of skin and clothes		INTERMEDIATE	
5. External radiation from ground deposition of activity		LATE	Evacuation Relocation Decontamination of land and property
6. Ingestion of contaminated food and water			Food and water controls
7. Inhalation of resuspended activity			Relocation Decontamination of land and property

- NOTE:**
1. Based on EPA 400-R-92-001, May 1992
 2. The use of stored animal feed and uncontaminated water to limit the uptake of radionuclides by domestic animals in food chain can be applicable to any of the phases.

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FIGURE

7.3 Protective Action Guidelines (PAGs)

	PAG VALUES ¹	RECOMMENDED PROTECTIVE ACTIONS	COMMENTS
WHOLE BODY ² (TEDE) PROJECTED DOSE	Less than <1 REM (TEDE)	None required	The State may choose to implement sheltering at their discretion. No recommendations are required from MNGP.
	Greater than ≥1 REM (TEDE)	Recommend evacuation of the general public.	The State may choose to implement sheltering of the general public up to 5 REM (TEDE) or special population groups up to 10 REM (TEDE) if immediate evacuation is not practicable due to off-site constraints. No sheltering recommendations are required from MNGP.
THYROID ³ (CDE) PROJECTED DOSE	Less than <5 REM (CDE)	None required	The State may choose to implement sheltering at their discretion. No recommendations are required from MNGP.
	Greater than ≥5 REM (CDE)	Recommend evacuation of the general public.	The State may choose to implement sheltering of the general public if immediate evacuation is not practicable due to off-site constraints. No sheltering recommendations are required from MNGP.

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FIGURE

Protective Action Guidelines (PAGs) (Cont'd)

	PAG VALUES ¹	RECOMMENDED PROTECTIVE ACTIONS	COMMENTS
SKIN ⁴ (CDE) PROJECTED DOSE	Less than <50 REM (CDE)	None required	The State may choose to implement simple personal protective actions (washing). No recommendations are required from MNGP.
	Greater than ≥50 REM (CDE)	Recommend evacuation of the general public.	The State may choose to implement sheltering of the general public or simple personal protective actions if immediate evacuation is not practicable.
NOTE 1:	Protective Action Guides are based on EPA 400-R-92-001, May 1992.		
NOTE 2:	TEDE = Total Effective Dose Equivalent; is the sum of the Effective Dose Equivalent from exposure to external source and the Committed Effective Dose Equivalent incurred from all significant inhalation pathways during the Early Phase.		
NOTE 3:	CDE = Committed Dose Equivalent to the Thyroid from radioiodine.		
NOTE 4:	Committed Dose Equivalent to the skin from exposure to beta radiation from radioiodines and particulates.		

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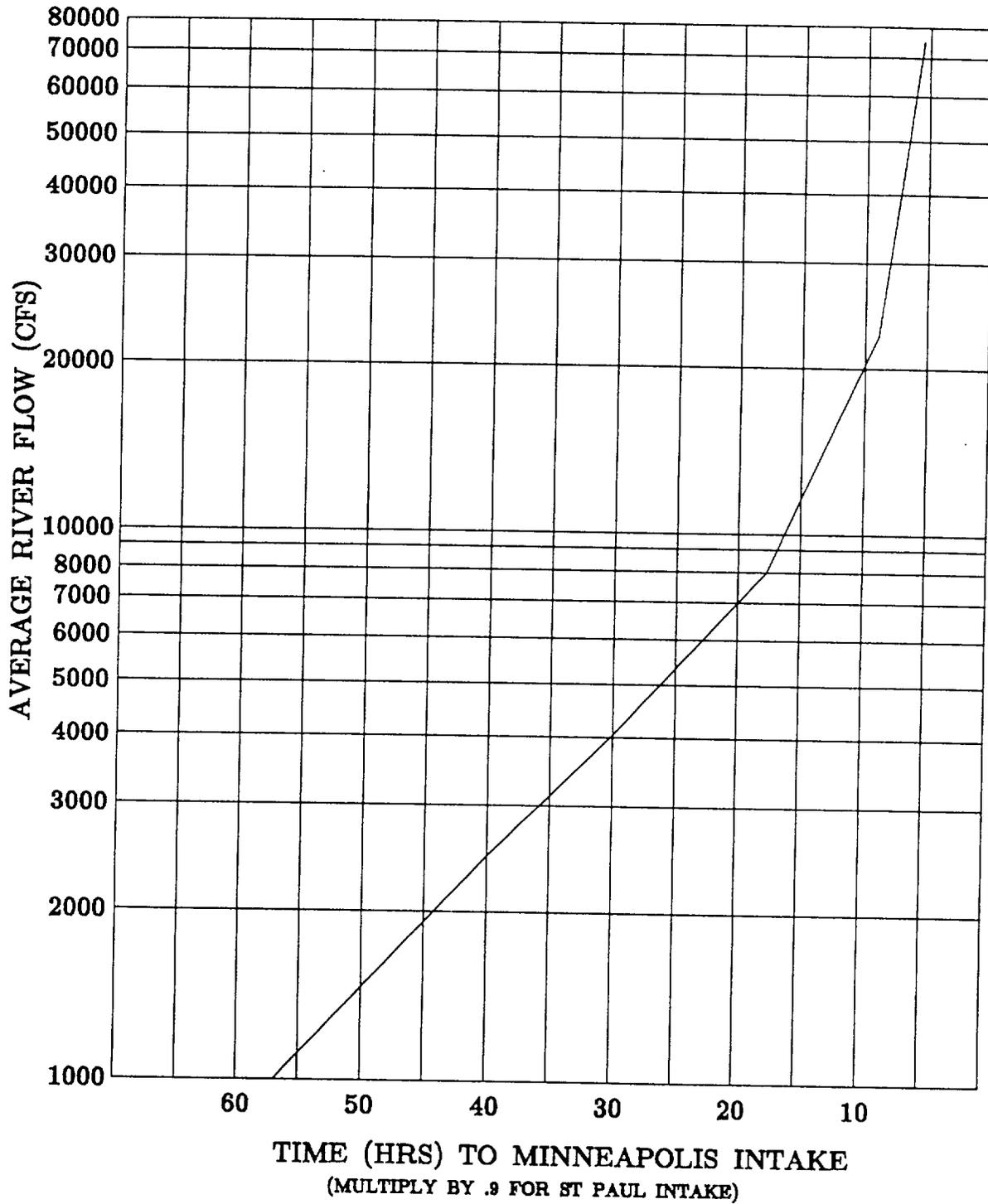
FIGURE

7.4 Emergency Worker Exposure Limits

EXPOSURE LIMIT ¹	EMERGENCY ACTIVITY ¹	COMMENTS
5 REM (TEDE) ⁽²⁾⁽³⁾	All emergency activities	This dose limit applies when a lower dose is not practicable through application of ALARA practices.
10 REM (TEDE) ⁽²⁾⁽³⁾	Protection of valuable property	This dose limit applies when a lower dose is not practicable through application of ALARA practices.
≥ 25 REM (TEDE) ⁽²⁾⁽³⁾	Life saving or protection of large populations	Doses in excess of 25 REM should be on a voluntary basis to persons fully aware of the risks involved.
NOTE 1:	Dose limits for emergency workers and activities are based on EPA 400-92-001, May 1992.	
NOTE 2:	Sum of external effective dose equivalent and committed effective dose equivalent to non-pregnant adults from external exposure and intake during the duration of an emergency.	
NOTE 3:	Exposure to the lens of the eye should be limited to <u>3</u> times the value listed and doses to the skin and/or extremities should be limited to <u>10</u> times the value listed.	

FIGURE

7.5 Transport Time and Monthly Average Flowrates



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FIGURE

Transport Time and Monthly Average Flowrates (Cont'd)

<u>MONTH</u>	<u>AVG. RIVER FLOWRATE (CFS)</u>
JANUARY	4663
FEBRUARY	4579
MARCH	6336
APRIL	10890
MAY	10157
JUNE	7369
JULY	5352
AUGUST	3506
SEPTEMBER	3334
OCTOBER	5690
NOVEMBER	5438
DECEMBER	4555

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FIGURE

7.6 Liquid Release Protective Action Criteria

1. PROTECTIVE ACTION BASED ON PROJECTED INTERNAL DOSE
 - a MPC Ratio in Raw River: < 1 MPC - No protective action required.
 - b MPC Ratio in Raw River: > 1 MPC - Recommend closure of water intakes.
 - c Projected Internal (Drinking) Dose:
 - < 250 mrem - No protective action required.
 - > 250 mrem - Implement preventive protective actions.
 - > 1000 mrem - Implement emergency protective actions.
2. PROTECTIVE ACTION BASED ON PROJECTED EXTERNAL DOSE
 - a Projected Total External Dose
 - < 250 mrem - No protective action required.
 - > 250 mrem - Preventive protection actions are necessary.
 - > 1000 mrem - Emergency protective actions are necessary.

NOTE: Obtain total external projected dose by calculating the swimming, boating and standing projected doses using the following time assumptions for shoreline activities.

**Swimming - 3 hrs/day
Boating - 1 hrs/day
Standing - 6 hrs/day**

RECOMMENDED PREVENTIVE PROTECTIVE ACTIONS

1. Close Raw Water Intakes
2. Restrict Intake of Drinking Water, and Foodstuffs obtained from river.
3. Restrict swimming and boating on river.
4. Restrict access to river.
5. Restrict use of river for irrigation and industry.

RECOMMENDED EMERGENCY PROTECTIVE ACTIONS

1. Close raw water intakes.
2. Condemn drinking water obtained from river.
3. Condemn affected foodstuffs (milk or meat from animals consuming contaminated water or foodstuffs)
4. Prevent access to river.
5. Condemn use of river for irrigation and industry.
6. Substitute uncontaminated water and foodstuffs for contaminated water and foodstuffs.
7. Condemn water usage from river.

TITLE:

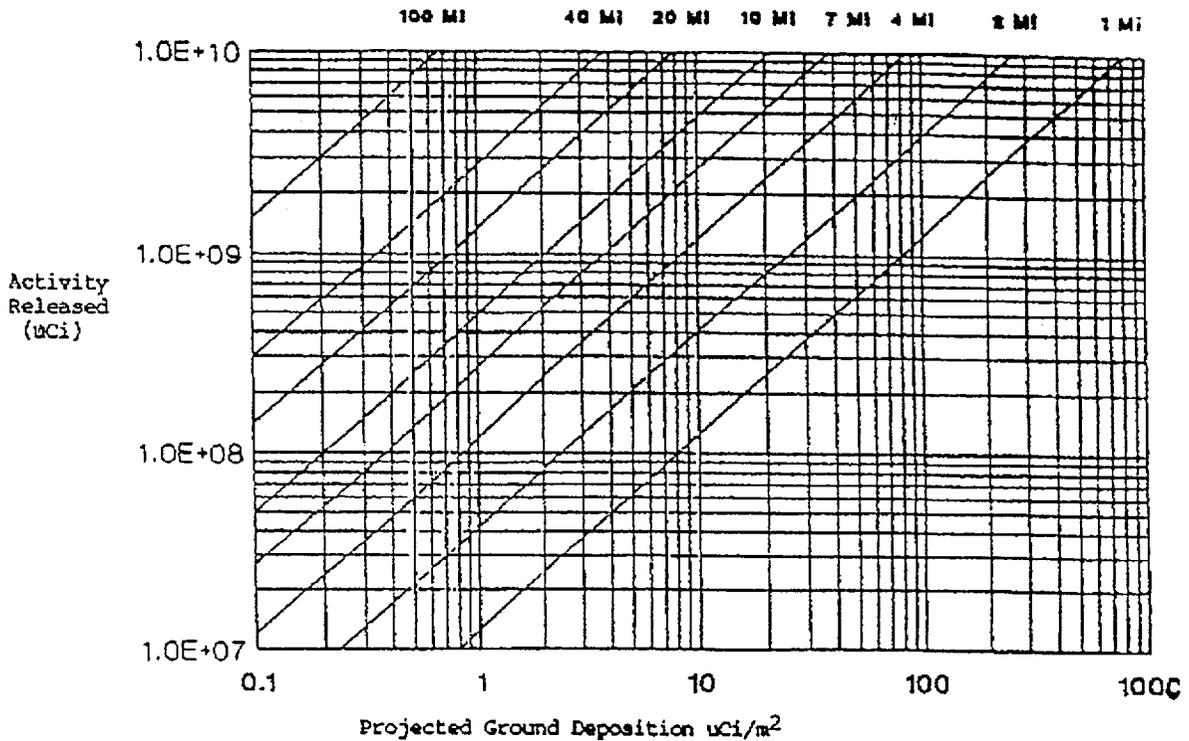
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FIGURE

7.7 Ground Deposition Modeling



The ground deposition graph was calculated using relations in R.G. 1.109 & R.G. 1.111. The following assumptions pertain to the graph:

1. Unstable (A,B,C) Pasquill stability class. This results in the highest depositions for elevated releases. For ground level releases, the stability class has little effect on calculated deposition rates. For a stable stability class, actual ground deposition could be zero out of many miles from the plant.
2. Elevated (100 meter) release height. For ground level releases, deposition rates will be slightly higher out to 20 miles, and somewhat less beyond 20 miles.

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FIGURE

Ground Deposition Modeling (Cont'd)

3. The plume is deposited uniformly within half-width of a sector arc (about 11 degrees), for constant wind directions. Actual plume widths for unstable stability classes are significantly wider than this. This assumption causes the projected area ground contamination to be at least as high as the highest (centerline) actual deposition that would occur under stable conditions for deposition IAW a normal distribution with distance from the centerline.

NOTE: If several wind shifts occurred during the release, determine the approximate number of sectors into which the plume deposited material for each release period of interest. Divide this value by 0.5 and divide the result into the ground depositions predicted by the graph, to obtain an estimate of the degree the deposition was "diluted". For example, if the plume was spread out over 2 sectors, the ground deposition values obtained from the graph should be divided by 4. Once ground contamination as a function of distance has been estimated, use MIDAS (plume model) to help predict footprint actual width.

4. Wind speeds and stability classes vary often. The Van der Hoven study concludes there is a 50/50 chance of a significant wind shift within 2-4 hours at any given location. Therefore, the plume could be spread out more than the graph assumes and alter the resulting deposition. Rain showers could increase deposition greatly.

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FIGURE

7.8 Secondary Evacuation Dose Projection

Isotope	Ground shine Dose (mrem per uCi/m ²)	Inhalation Dose (mrem per uCi/ m ²)	Relocation Proj- ected Dose (mrem per uCi/ m ²)	Initial Exp. Rate (mr/hr per uCi/ m ²)	Relocation Proj- ected Dose per Initial Exp. Rate (mrem per mr/hr)
Sr-90	-----	11	11	-----	-----
Zr-95	34	-----	34	0.0162	2100
Ru-103	7.4	-----	7.4	0.0055	1300
Ru-106	14	1.4	15	0.0023	6700
I-131	1.3	-----	1.3	0.0047	280
Cs-134	118	-----	118	0.0183	6400
Cs-137	52	-----	52	0.0072	7200
Ba-140	11	-----	11	0.0279	390
Ce-144	3.3	1.4	4.7	0.0023	2000

NOTES:

1. Ground shine is the whole body dose (1 meter above the ground) received after a 1-year exposure to unit ground contamination (uCi/m²) as measured at the beginning of the exposure period.
2. Inhalation is the committed effective dose (i.e., corresponding whole body dose) received from the inhalation for 1 year of resuspended unit ground contamination (uCi/m²) as measured at the beginning of the exposure period. A re-suspension rate of 1E-6/meter is assumed.
3. The Relocation Projected Dose per Initial Exposure Rate column is the total committed effective dose that would be received after a 1-year exposure to contamination that caused an initial unit exposure rate (mr/hr, i.e., gamma only) at 1 meter above the ground. (The effective mrem per mr/hr for a mixture would be equal to a weighted average of the values in this column, which is computed by multiplying the value in this column times the ratio of the individual isotope to the total.)
4. The projected doses pertain to adults. Infant projected doses are not more than two times higher than the adult doses (other than for iodine which does not contribute greatly to overall dose for infants or adults).
5. Doses could be significantly lowered due to shielding from homes, decontamination, etc.

FIGURE

Secondary Evacuation Dose Projection (Cont'd)

6. Elimination of the source term due to weathering as well as radioactive decay is assumed.
7. The doses listed include the dose from radioactive daughters.

SECONDARY EVACUATION DOSE ASSESSMENT

Isotope	Smear (DPM)	Direct Frisk (CPM)	Ground Contam ($\mu\text{Ci}/\text{m}^2$)	Reloc Dose (mrem)	Initial Doses Rate (mrem/hr)
Ru-106	130,000	29,000	67	1000	0.15
Cs-134	17,000	3,700	8.5	1000	0.16
I-131	1,500,000	330,000	770	1000	3.6

Rules of Thumb

1. The most restrictive nuclide in terms of projected relocation dose per measured initial dose rate is Cs-137 (about 7000 mrem per mrem/hr). Cesium-134 is the most restrictive nuclide in terms of projected relocation dose per unit contamination (about 120 mrem per $\mu\text{Ci}/\text{m}^2$).
2. Assuming a 10% smear collection efficiency, 10% counter efficiency, and 20 cm^2 area "seen" by the probe for a direct risk, the following relationships were developed:
 - a $\text{Direct frisk } \mu\text{Ci}/\text{m}^2 = \frac{\text{net CPM}}{400}$
Where net CPM is frisker count rate about 1" from surface in question.
 - b $\text{Smear } \mu\text{Ci}/\text{m}^2 = \frac{\text{smear net CPM}}{200}$
Where smear net CPM is frisker count rate of 100 cm^2 smear from a smooth surface.
3. Based on assumed radiological characteristics of releases from fuel melt accidents, gamma exposure rates in areas where the projected relocation dose is in the range of 1-5 Rems would be between about 2 and 10 mrem/hr during the first few days after shutdown following an SST-2 accident severity type. Ground deposition values in the range of 200-800 $\mu\text{Ci}/\text{m}^2$ could also be expected.

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FIGURE

7.9 Relocation Protective Action Guidelines

Relocation Projected Dose (TEDE)	Recommended Actions
2000 mrem	Relocate General Public

COMMENTS:

1. To avoid social and family disruption and the complexity of implementing separate PAGs for individual members of the population, the relocation PAG may be applied for all members of the population. While the relocation PAG is based on projected doses to adults, infant relocation projected doses are not more than two times higher than adult projected doses.
2. Return is allowed at levels below the PAG.

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FIGURE

7.10 Forms Utilized in Procedure

<u>NUMBER</u>	<u>TITLE</u>
1. 5790-102-2	MONTICELLO EMERGENCY NOTIFICATION REPORT FORM
2. 5790-102-3	EMERGENCY NOTIFICATION FOLLOW-UP MESSAGE
3. 5790-204-1	MONTICELLO OFF-SITE PROTECTIVE ACTION RECOMMENDATION CHECKLIST
4. 5790-202-1	OFF-SITE SURVEY RESULTS DATA LOG
5. 5790-410-3	GROUND DEPOSITION SAMPLE RESULTS LOG