



Northern States Power Company

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May 15, 2000

US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
Docket Nos. 50-306 License Nos. DPR-60

Prairie Island Emergency Plan
Implementing Procedures - F3

Emergency Response Plan Implementing Procedures

Furnished with this letter are the NSP Prairie Island Nuclear Generating Plant Emergency Plan Implementing Procedures F3. This revision includes the following procedures:

INDEXES: Emergency Plan Implementing Procedures TOC

REVISIONS

F3-13.5 Alternate Meteorological Data
F3-8 Recommendations for Offsite Protective Actions

Rev 4
Rev 16

A045

INSTRUCTIONS:

Please post changes in your copy of the Prairie Island Nuclear Generating Plant Emergency Plan Implementing Procedures. Procedures which have been superseded or deleted should be destroyed. Please sign and return the acknowledgment of this update to Bruce Loesch, Prairie Island Nuclear Generating Plant, 1717 Wakonade Drive East, Welch, MN 55089.

If you have any questions, please contact Mel Agen at 651-388-1121 Extension 4240.



Joel P. Sorensen
Site General Manager
Prairie Island Nuclear Generating Plant

- c: USNRC - Doris Gonzalez, Region III (2 copies)
 NRC Resident Inspector (w/o attachment)
 J Silberg (w/o attachment)
 M Agen (w/o attachment)
 Records Management (Doc Control Copy) (w/o attachment)
 NL File (w/o attachment)

Mfst Num: 2000 - 0334 Date : 05/12/00
FROM : Bruce Loesch/Jane Rogers Loc : Prairie Island
TO : UNDERWOOD, BETTY J
Copy Num: 515 Holder : US NRC DOC CONTROL DESK
SUBJECT : Revisions to CONTROLLED DOCUMENTS

Procedure # Rev Title

Revisions:

=====
F3-13.5 4 ALTERNATE METEOROLOGICAL DATA
F3-8 16 RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACT

UPDATING INSTRUCTIONS

Place this material in your Prairie Island Controlled Manual or File. Remove revised or cancelled material and recycle it. Sign and date this letter in the space provided below within ten working days and return to Bruce Loesch or Jane Rogers, Prairie Island Nuclear Plant, 1717 Wakonade Drive E., Welch, MN 55089. Contact Bruce Loesch (ext 4664) or Jane Rogers (ext 4393) if you have any questions.

Received the material stated above and complied with the updating instructions

_____ Date _____

<p>PRAIRIE ISLAND NUCLEAR GENERATING PLANT NORTHERN STATES POWER COMPANY</p>	<p>Title: Emergency Plan Implementing Procedures TOC Effective Date : 05/12/00</p>
<p>Approved By: <u>Joye Chitty /BJ</u> BPS Supt</p>	

Document #	Title	Rev
F3-1	ONSITE EMERGENCY ORGANIZATION	16
F3-2	CLASSIFICATIONS OF EMERGENCIES	26
F3-3	RESPONSIBILITIES DURING A NOTIFICATION OF UNUSUAL EVENT	15
F3-4	RESPONSIBILITIES DURING AN ALERT, SITE AREA, OR GENERAL EMERGENCY	26
F3-5	EMERGENCY NOTIFICATIONS	19
F3-5.1	SWITCHBOARD OPERATOR DUTIES	7
F3-5.2	RESPONSE TO FALSE SIREN ACTIVATION	7
F3-5.3	RESPONSE TO RAILROAD GRADE CROSSING BLOCKAGE	6
F3-6	ACTIVATION & OPERATION OF TECHNICAL SUPPORT CENTER	14
F3-7	ACTIVATION & OPERATION OF OPERATIONAL SUPPORT CENTER (OSC)	14
F3-8	RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	16
F3-8.1	RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS FOR THE ON SHIFT EMERGENCY DIRECTOR /SHIFT MANAGER	10
F3-9	EMERGENCY EVACUATION	15
F3-10	PERSONNEL ACCOUNTABILITY	17
F3-11	SEARCH & RESCUE	6
F3-12	EMERGENCY EXPOSURE CONTROL	13
F3-13	OFFSITE DOSE CALCULATIONS	14
F3-13.3	MANUAL DOSE CALCULATIONS	10
F3-13.4	MIDAS METEOROLOGICAL DATA DISPLAY	6
F3-13.5	ALTERNATE METEOROLOGICAL DATA	4

Document #	Title	Rev
F3-13.6	WEATHER FORECASTING INFORMATION	10
F3-14.1	ONSITE RADIOLOGICAL MONITORING	10
F3-14.2	OPERATIONS EMERGENCY SURVEYS	9
F3-15	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	20
F3-16	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	15
F3-17	CORE DAMAGE ASSESSMENT	8
F3-18	THYROID IODINE BLOCKING AGENT (POTASSIUM IODINE)	7
F3-19	PERSONNEL & EQUIPMENT MONITORING & DECONTAMINATION	6
F3-20	DETERMINATION OF RADIOACTIVE RELEASE CONCENTRATIONS	16
F3-20.1	DETERMINATION OF STEAM LINE DOSE RATES	6
F3-20.2	DETERMINATION OF SHIELD BUILDING VENT STACK DOSE RATES	8
F3-21	ESTABLISHMENT OF A SECONDARY ACCESS CONTROL POINT	9
F3-22	PRAIRIE ISLAND RADIATION PROTECTION GROUP RESPONSE TO A MONTICELLO EMERGENCY	15
F3-23	EMERGENCY SAMPLING	17
F3-23.1	EMERGENCY HOTCELL PROCEDURE	9
F3-23.2	POST ACCIDENT CHLORIDE ANALYSIS BY ION EXCHANGE CHROMATOGRAPHY	5
F3-24	RECORD KEEPING DURING AN EMERGENCY	6
F3-25	REENTRY	8
F3-26.1	OPERATION OF THE ERCS DISPLAY	7
F3-26.2	RADIATION MONITOR DATA ON ERCS	6
F3-26.3	ERDS - NRC DATA LINK	0
F3-29	EMERGENCY SECURITY PROCEDURES	16

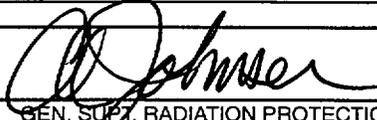
PRAIRIE ISLAND NUCLEAR
GENERATING PLANT
NORTHERN STATES POWER COMPANY

Title : Emergency Plan Implementing
Effective Date : 05/12/00

Procedures TOC

Document #	Title	Rev
F3-30	RECOVERY	4
F3-31	RESPONSE TO SECURITY RELATED THREATS	2
F3-32	REVIEW OF EMERGENCY PREPAREDNESS DURING OR AFTER NATURAL DISASTER EVENTS	0

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

Reviewed By: <u></u> GEN. SUPT. RADIATION PROTECTION	Effective Date: <u>5-12-00</u>
Approved By: <u></u> PLANT MANAGER	OC Review: <u>5-7-00 S.C.</u>

REFERENCE USE
<ul style="list-style-type: none">• Procedure segments may be performed from memory.• Use the procedure to verify segments are complete.• Mark off steps within segment before continuing.• Procedure should be available at the work location.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

TABLE OF CONTENTS

Section	Title	Page
1.0	PURPOSE	3
2.0	APPLICABILITY	3
3.0	PRECAUTIONS	3
4.0	RESPONSIBILITIES	4
5.0	DISCUSSION	4
6.0	PREREQUISITES	4
7.0	PROCEDURE	5
7.1	Protective Action Recommendations for Liquid Releases	5
7.2	Protective Action Recommendations During a Site Area Emergency	7
7.3	Protective Action Recommendation For A General Emergency	8
7.4	Protective Action Recommendations Based On Offsite Dose Projections	9

LIST OF FIGURES

FIGURE 1 - PROTECTIVE ACTION RECOMMENDATION CHECKLIST .	11
FIGURE 2 - CRITERIA FOR DETERMINING PROTECTIVE ACTIONS DURING A LIQUID RELEASE	14
FIGURE 3 - RECYCLE CANAL ACTIVITY	15
FIGURE 4 - GENERAL EMERGENCY PROTECTIVE ACTIONS RECOMMENDATIONS	16
FIGURE 5 - SUMMARY OF PROTECTIVE ACTION GUIDELINES (PAGS)	17
FIGURE 6 - CONTAINMENT DOSE RATE VERSUS TIME	18
FIGURE 7 - EVACUATION TIME ESTIMATE SUMMARY	19
FIGURE 8 - PERMANENT RESIDENT POPULATION ESTIMATES*	20

ATTACHMENTS

ATTACHMENT 1 - GENERAL DISCUSSION OF PARS	21
ATTACHMENT 2 - DEFINITIONS RELATED TO PARS	25

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

1.0 PURPOSE

The purpose of this procedure is to provide guidance for formulating offsite Protective Action Recommendations (PARs) for the general public during the early and intermediate phases of a radiological emergency.

2.0 APPLICABILITY

This instruction **SHALL** apply to Radiological Emergency Coordinators, non-shift Emergency Directors, Radiation Protection Support Supervisors and Emergency Managers.

3.0 PRECAUTIONS

- 3.1** Declaration of a General Emergency requires immediate initial protective action recommendations (PARs) to offsite agencies. Under these circumstances, NO dose projections are required for formulating the initial offsite protective action recommendation.
- 3.2** Implementation of protective actions for offsite areas is the responsibility of the State of Minnesota and the State of Wisconsin. If it is determined, by the Emergency Director, that, immediate protective actions are required, and the State EOC's are not activated, the Emergency Director **SHALL** authorize such recommendations to be made directly to the offsite authorities. Once the State EOC's are activated, all protective action recommendations **SHALL** be made to the State EOC's.
- 3.3** It is the responsibility of the county and state agencies and the National Weather Service to notify members of the Prairie Island Indian Community of approved protective actions. Protective action notification is accomplished by the activation of the Public Alert and Notification System (PANS).
- 3.4** Offsite protective actions for the ingestion exposure pathway (ingestion of contaminated food and water) will be determined and implemented by the appropriate offsite authorities during the intermediate phase of an emergency.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

4.0 RESPONSIBILITIES

- 4.1 The Emergency Director is responsible to implement this procedure and has the non-delegatable authority to authorize offsite protective action recommendations until activation of the EOF.
- 4.2 Upon activation of the EOF, the Emergency Manager (EM) **SHALL** assume the non-delegatable authority and responsibility of offsite protective action recommendations.
- 4.3 The Radiological Emergency Coordinator (REC), once activated, **SHALL** be responsible to promulgate protective action recommendations and **SHALL** channel all such recommendations through the Emergency Director for approval. The Radiological Emergency Coordinator (REC) **SHALL** continue to formulate protective action recommendations until relieved of that responsibility by the Radiation Protection Support Supervisor (RPSS).

5.0 DISCUSSION

- 5.1 General Discussion of PARs - See Attachment 1.
- 5.2 Definitions Related to PARs - See Attachment 2.

6.0 PREREQUISITES

- 6.1 A General Emergency has been or will be declared.
- 6.2 A Site Area Emergency has been or will be declared and there is an actual or potential airborne radioactive release that meets or exceeds the PAGs.
- 6.3 An Alert or Site Area Emergency has been or will be declared and there is an actual or potential liquid radioactive release that meets or exceeds the PAGs.

<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

7.0 PROCEDURE

7.1 Protective Action Recommendations for Liquid Releases

7.1.1 The Radiological Emergency Coordinator **SHALL**:

- A. **Determine** the source of the liquid release.
- B. **Estimate** the activity released and expected duration of the release, if known.

<p>NOTES:</p>	<ol style="list-style-type: none"> 1. The probability of a radioactive liquid release to the river via the discharge canal that would meet the established preventative or protective action level is extremely small. Based on a maximum blowdown to the river of 1360 cfs, minimum river flow of 7000 cfs, the discharge canal activity concentration would have to exceed 0.01 $\mu\text{Ci/ml}$ (assuming all Na-24) to approach the preventative action level swimmer dose rate. 2. No withdrawal of river water for city water supply occurs for at least 300 miles downstream. 3. Minor withdrawals of river water for irrigation purposes does occur, the nearest being 53 miles downstream. 4. The estimated main channel average river velocity is 0.75 mph, therefore from sluice gates: <ol style="list-style-type: none"> a. Time to reach Lock & Dam #3 is about 80 minutes. b. Time to reach Eisenhower Bridge is 7 hours.
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- C. **Assess** the river's main channel activity by running a liquid dose projection program "LI" on MIDAS or performing a manual liquid dose calculation. **See** RPIP 6310, Liquid Dose Calculations, for liquid dose projection calculation directions.
- D. **IF** appropriate, **THEN initiate** the "Protective Action Recommendation Checklist", Figure 1, PINGP 585. **Refer** to Figure 2 for guidance.
- E. **Initiate** a 3-way conference call with the Minnesota Program & Assessment Center (PAC) Planning Leader and the Wisconsin State Radiological Coordinator to discuss possible Protective Action Recommendations.
- F. **Forward** the Protective Action Recommendation Checklist and **discuss** the Recommended Protective Actions with the Emergency Director.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

NOTE:	Prior to activation of the State EOC's, Protective Action Recommendations SHALL be issued to state and local authorities. Once the State EOC's are activated, Protective Action Recommendations should only be transmitted to state authorities.
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- 7.1.2 Prior to or simultaneously with the transmittal of Protective Action Recommendations, the Emergency Director should **ensure** that a 3-way conference call with the Minnesota PAC Planning Leader, the Wisconsin Radiological Coordinator, and the REC has occurred or is occurring reviewing the basis for the Protective Action Recommendations.
- 7.1.3 The Emergency Director **SHALL authorize** the Protective Action Checklist (PINGP 585), Figure 1 and **direct** the Shift Emergency Communicator to notify state and local authorities using PINGP 585.
- 7.1.4 **Consider** possible onsite measures to stop or minimize the liquid release, for example:
- A. IF activity/release is in the recirc canal, **THEN consider** terminating use of the cooling towers to prevent activity from becoming airborne. (**Refer** to Figure 3).
 - B. IF activity/release is in the discharge canal piping (15,000 gal capacity), **THEN stop** all pipe flushing or other releases through the discharge pipe. **Consider** capping the end of the discharge canal piping or pumping the contaminated liquid back into the plant for processing.
 - C. IF activity/release is in the discharge canal, **THEN consider** closing down on the sluice gates to attempt to contain the activity in the recirc canal and/or minimize the activity being released to the river.
- 7.1.5 **Continue** assessment and **update** the protective action recommendation, as appropriate.
- 7.1.6 Verification should be made with the state authorities, regarding actual Protective Actions being implemented and the affected populace.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

7.2 Protective Action Recommendations During a Site Area Emergency

- 7.2.1** **NO** offsite Protective Action Recommendations for the general public are warranted during a Site Area Emergency unless the offsite dose projections exceed the Protective Action Guides listed in Figure 5.
- 7.2.2** Precautionary recommendations may be warranted for the nearsite special population (Treasure Island Casino) under certain conditions.
- A. After the declaration of a Site Area Emergency, the RPSS (or REC if EOF is not activated) should **review** plant conditions listed on PINGP 585, Protective Action Recommendation Checklist.
 - B. IF the accident prognosis at the Site Area Emergency is degrading or unknown, **THEN consider** making a recommendation for shutting down the casino and dismissal of casino patrons to the Goodhue County EOC per PINGP 585.
 - C. IF the accident prognosis is known to be improving, **THEN consider** making a recommendation to the Goodhue County EOC that **NO** precautionary actions for casino operation are recommended at this time. **See** PINGP 585.

<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: <h2 style="margin: 0;">RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS</h2>	NUMBER: <h2 style="margin: 0;">F3-8</h2>
		REV: 16

7.3 Protective Action Recommendation For A General Emergency

<p>NOTES:</p>	<ol style="list-style-type: none"> 1. DO NOT DELAY Protective Action Recommendations during GENERAL EMERGENCY conditions. No dose projections are required. 2. If the 10 meter wind speed <5mph, all sectors should be designated. 3. If the 10 meter wind speed \geq5mph, the 10 meter and 60 meter sensors should be used to best describe wind direction and speed for the river valley and bluffs, respectively. 4. If the 22 meter met tower is used for wind direction, all sectors should be designated.
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7.3.1 Refer to Figure 4 “GENERAL EMERGENCY PROTECTIVE ACTION GUIDELINES” for immediate Protective Action Recommendations.

7.3.2 The Radiological Emergency Coordinator **SHALL document** the Protective Action Recommendations and reclassification to a General Emergency on the “Emergency Notification Report Form”, PINGP 577.

7.3.3 The REC **SHALL forward** the “Emergency Notification Report Form”, PINGP 577 and **discuss** the Protective Action Recommendations with the Emergency Director.

<p>NOTE:</p>	<p>Prior to activation of the State EOC’s, Protective Action Recommendations SHALL be issued to state, tribal, and local authorities.</p>
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7.3.4 Prior to or simultaneously with the transmittal of Protective Action Recommendations, the Emergency Director should **ensure** that a 3-way conference call with the Minnesota PAC Planning Leader, the Wisconsin Radiological Coordinator, and the REC has occurred or is occurring reviewing the basis for the Protective Action Recommendations.

7.3.5 The Emergency Director **SHALL authorize** the “Emergency Notification Report Form”, PINGP 577, and **direct** the Shift Emergency Communicator to notify state and local authorities using PINGP 577.

7.3.6 Continue with assessment of dose projection results and meteorological conditions. **Update** the Protective Action Recommendations, as necessary.

7.3.7 Verification should be made with state authorities, regarding actual Protective Actions being implemented and the affected populace.

<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: <h2 style="margin: 0;">RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS</h2>	NUMBER: <h2 style="margin: 0;">F3-8</h2>
		REV: 16

7.4 Protective Action Recommendations Based On Offsite Dose Projections

7.4.1 IF there is an actual release or potential for release, THEN obtain the offsite dose projection data utilizing F3-13, "Offsite Dose Calculations."

<h3 style="margin: 0;">NOTES:</h3>	<ol style="list-style-type: none"> 1. If the 10 meter wind speed <5mph, all sectors should be designated. 2. If the 10 meter wind speed ≥5mph, the 10 meter and 60 meter sensors should be used to best describe wind direction and speed for the river valley and bluffs, respectively. 3. If the 22 meter met tower is used for wind direction, all sectors should be designated. 4. Weather forecast information may be obtained by calling the National Weather Service by telephone. (See F3-13.6, "Weather Forecasting Information", for instructions).
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7.4.2 Using current meteorological data, **determine** the plume direction and wind speed.

<h3 style="margin: 0;">NOTE:</h3>	<p>A potential release of the airborne activity in containment (for LOCA type accidents) may be estimated by converting the R48/R49 Containment Radiation Monitor readings (R/Hr) to containment activity concentrations (μCi/cc Xe133 Equivalent) by using Figure 6, "Containment Dose Rate Versus Time."</p>
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7.4.3 Based on plant conditions, **estimate** the duration of the release (applies to releases in progress or potential releases).

7.4.4 Using the data obtained above, **estimate** the projected doses to the offsite population.

7.4.5 **Determine** the appropriate Protective Action Recommendation by comparing the projected offsite doses with the Protective Action Guides listed in Figure 5.

7.4.6 The Radiological Emergency Coordinator **SHALL document** all Protective Action Recommendations on the "Protective Action Recommendation Checklist", Figure 1, PINGP 585 or "Emergency Notification Report Form", PINGP 577.

F3 Section	TITLE:	NUMBER:
	RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	F3-8 REV: 16

7.4.7 The REC **SHALL forward** and **discuss** the Recommended Protective Actions with the Emergency Director.

NOTE:	Prior to activation of the State EOC's, Protective Action Recommendations SHALL be issued to state and local authorities.
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- 7.4.8 Prior to or simultaneously with the transmittal of Protective Action Recommendations, the Emergency Director should **ensure** that a 3-way conference call with the Minnesota PAC Planning Leader, the Wisconsin Radiological Coordinator, and the REC has occurred or is occurring reviewing the basis for the Protective Action Recommendations.
- 7.4.9 The Emergency Director **SHALL authorize** the Protective Action Recommendation and **direct** the Shift Emergency Communicator to fax PINGP 585 (or PINGP 577) to state and local authorities, as appropriate.
- 7.4.10 IF dose projection results or meteorological conditions change significantly, THEN **re-evaluate** the recommended protective action and, if necessary, **update** the recommendation. This may include PAR beyond 10 miles if dose projection results warrant.
- 7.4.11 Verification should be made with state authorities, regarding actual Protective Actions being implemented and the affected populace.
- 7.4.12 For more information, **consider** reviewing:
- A. Figure 7, Evacuation Time Estimate Summary
 - B. Figure 8, Permanent Resident Population Estimates
 - C. Attachment 1 - General Discussion of PARs

<h1 style="font-size: 2em; margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: <h2 style="margin: 0;">RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS</h2>	NUMBER: <h2 style="margin: 0;">F3-8</h2>
		REV: 16

FIGURE 1 - PROTECTIVE ACTION RECOMMENDATION CHECKLIST

**EXAMPLE ONLY
 USE CURRENT REVISION**

PINGP 585, Rev. 15
 Page 1 of 2 (Front)
 Document Type: 7.36D
 Retention: Life of Plant

PROTECTIVE ACTION RECOMMENDATION CHECKLIST

NEARSITE SPECIAL POPULATION PRECAUTIONARY RECOMMENDATIONS

1. Review current plant conditions:
 - a. Reactor core cooling is: _____
 adequate/degrading/inadequate/unknown
 - b. Containment of radioactivity is: _____
 adequate/degrading/inadequate/unknown
 - c. A radioactive release is: _____
 not occurring/occurring
2. If accident prognosis at the Site Area Emergency is degrading or unknown, recommend SHUT DOWN OF CASINO AND DISMISSAL OF CASINO PATRONS, otherwise check NO PRECAUTIONARY ACTIONS ARE RECOMMENDED on PINGP 585 Attachment.
3. Indicate the appropriate precautionary action on the PINGP 585 Attachment and immediately telephone the information to the NSP Liaison in the Goodhue County EOC. (651 267-2870, ask for NSP Liaison).
4. Facsimile PINGP 585 Attachment to Goodhue Co. EOC and MN & WI EOCs, HQEC, TSC & EOF.

LIQUID RELEASE RECOMMENDATIONS

1. Blowdown Flow _____ cfs. Discharge Canal _____ $\mu\text{Ci/cc}$.
2. River Flow _____ cfs. Estimated River Velocity is 0.75 mph.
3. Determine the projected liquid dose rates according to RPIP 6310 Liquid Dose Calculations.
4. Indicate the appropriate Protective Action Recommendations on the PINGP 585 Attachment of this form, as necessary.
5. Review the Protective Action Recommendation with WI & MN Health Depts.
6. Ensure faxing of PINGP 585 Attachment to MN & WI EOCs, HQEC, TSC, & EOF by Communicators.

AIRBORNE RELEASE RECOMMENDATIONS

1. Review latest offsite dose projections.
2. Indicate the appropriate Protective Action Recommendations on the PINGP 585 Attachment of this form. Use Table 1 on page 2 to determine geopolitical subareas.
3. Review the Protective Action Recommendation with WI & MN Health Depts.
4. Ensure faxing of PINGP 585 Attachment to MN & WI EOCs, HQEC, TSC, & EOF by Communicators.

<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: <h2 style="margin: 0;">RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS</h2>	NUMBER: <h2 style="margin: 0;">F3-8</h2>
		REV: 16

FIGURE 1 - PROTECTIVE ACTION RECOMMENDATION CHECKLIST (Cont'd)

**EXAMPLE ONLY
 USE CURRENT REVISION**

PINGP 585, Rev. 15
 Page 2 of 2 (Back)

PROTECTIVE ACTION RECOMMENDATION CHECKLIST

**TABLE 1
 SELECTING GEOPOLITICAL SUBAREAS**

Use the geopolitical subareas corresponding to the current wind direction (or affected downwind sectors) and the desired downwind distance one needs to apply the PAR.

	AFFECTED DOWNWIND SECTORS	AFFECTED GEOPOLITICAL SUBAREAS		
		2 MILES	5 MILES	10 MILES
IF WIND < 5 MPH OR FROM 22 M MET TOWER	ALL	2	5N, 5E, 5S, 5W	10NW, 10N, 10NE, 10E, 10SE, 10SW, 10W
FOR WIND ≥ 5 MPH, WIND FROM (DEGREES):	AFFECTED DOWNWIND SECTORS	AFFECTED GEOPOLITICAL SUBAREAS		
		2 MILES	5 MILES	10 MILES
348.75 - 11.25	GHJKL	2	5S, 5W	10SE, 10SW
11.25 - 33.75	HJKLM	2	5S, 5W	10SE, 10SW, 10W
33.75 - 56.25	JKLMN	2	5S, 5W	10SE, 10SW, 10W
56.25 - 78.75	KLMNP	2	5S, 5W	10SW, 10W
78.75 - 101.25	LMNPQ	2	5W	10SW, 10W
101.25 - 123.75	MNPQR	2	5W, 5N	10W, 10NW
123.75 - 146.25	NPQRA	2	5W, 5N	10W, 10NW, 10N
146.25 - 168.75	PQRAB	2	5W, 5N	10W, 10NW, 10N, 10NE
168.75 - 191.25	QRABC	2	5W, 5N, 5E	10W, 10NW, 10N, 10NE
191.25 - 213.75	RABCD	2	5N, 5E	10NW, 10N, 10NE, 10E
213.75 - 236.25	ABCDE	2	5N, 5E	10NW, 10N, 10NE, 10E
236.25 - 258.75	BCDEF	2	5N, 5E	10N, 10NE, 10E
258.75 - 281.25	CDEFG	2	5N, 5E, 5S	10NE, 10E, 10SE
281.25 - 303.75	DEFGH	2	5N, 5E, 5S	10E, 10SE
303.75 - 326.25	EFGHJ	2	5E, 5S	10E, 10SE
326.25 - 348.75	FGHJK	2	5E, 5S	10E, 10SE, 10SW

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		REV: 16

FIGURE 1 - PROTECTIVE ACTION RECOMMENDATION CHECKLIST (Cont'd)

**EXAMPLE ONLY
 USE CURRENT REVISION**

PINGP 585A, Rev. 15
 Page 1 of 1

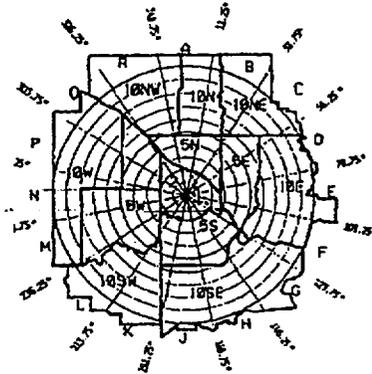
**ATTACHMENT
 PROTECTIVE ACTION RECOMMENDATION CHECKLIST
 PRAIRIE ISLAND NUCLEAR GENERATING PLANT**

DATE: _____ TIME: _____
 WIND DIRECTION: _____
 (from)

WIND SPEED: _____ mph

**PRECAUTIONARY RECOMMENDED ACTIONS
 FOR NEARSITE SPECIAL POPULATIONS**

- _____ NO PRECAUTIONARY ACTIONS ARE RECOMMENDED AT THIS TIME.
- _____ SHUTDOWN THE TREASURE ISLAND CASINO AND DISMISS ITS PATRONS.
- _____ OTHER _____



RECOMMENDED PROTECTIVE ACTION FOR GENERAL PUBLIC

_____ EVACUATE ALL SECTORS OUT TO _____ MILES
 _____ SECTORS OUT TO _____ MILES

(circle) SUBAREAS ② 5N 5E 5S 5W 10NW 10N 10NE 10E 10SE 10SW 10W

ADVISE REMAINDER OF PLUME EPZ TO MONITOR RADIO/TV BROADCASTS FOR FURTHER EMERGENCY INFORMATION.

- _____ TERMINATE RIVER WATER USAGE (INTAKE, IRRIGATION, RECREATION)
- _____ OTHER _____

JUSTIFICATION FOR RECOMMENDATION

- _____ DECLARATION OF GENERAL EMERGENCY (PLANT CONDITIONS)
- _____ PROJECTED OFFSITE DOSES (EXCEED NSP/EPA PAG'S)
- _____ PRECAUTIONARY ACTION (IMMINENT OR PROJECTED CONDITIONS)
- _____ OTHER _____

NOTE: When this form is telecopied to the state(s), the ED/EM should ensure a call is initiated to the State Health Departments to explain the basis for these recommendations.

Prepared By: _____ Approved By: _____ Time: _____
 ED/EM

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

**FIGURE 2 - CRITERIA FOR DETERMINING PROTECTIVE ACTIONS DURING A LIQUID
 RELEASE**

PROJECTED DOSE RATE (mrem/hour)	PROJECTED DOSE (mrem)	ACTION LEVEL
< 30	< 250	No action necessary
> 30	> 250	Implement preventative protective actions
> 125	> 1000	Implement emergency protective actions

NOTES:	<ol style="list-style-type: none"> 1. All projected dose rate action levels are based on an 8-hour release duration. 2. Swimmers receive the highest projected dose rate and total dose. 3. Use of the projected swimmers dose rate during the winter months leads to conservative PARs. Use discretion in this situation.
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RECOMMENDED PREVENTIVE PROTECTIVE ACTIONS

1. Restrict Intake of Drinking Water, and Foodstuffs Obtained from River
2. Restrict Swimming and Boating on River
3. Restrict Access to River
4. Restrict Use of River for Irrigation and Industry

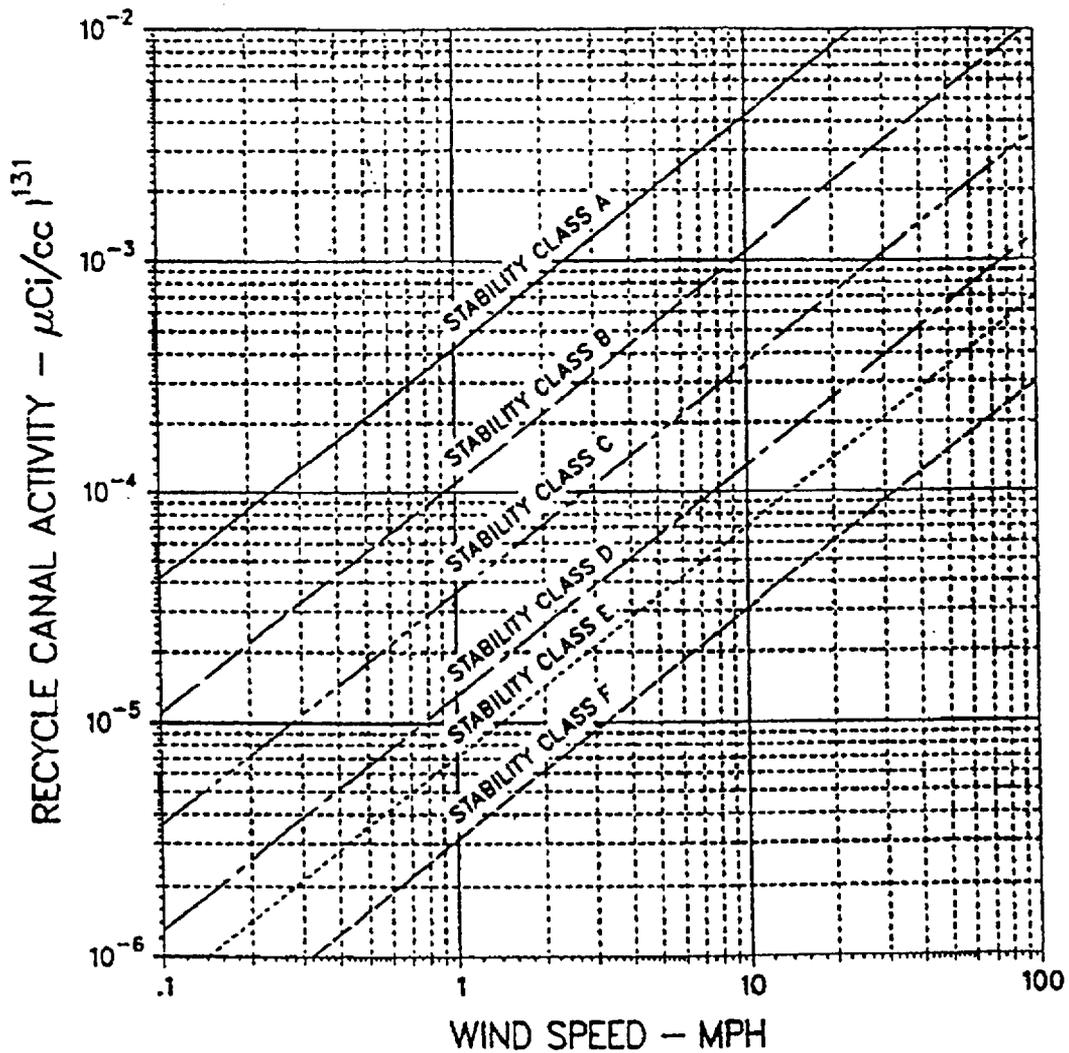
RECOMMENDED EMERGENCY PROTECTIVE ACTIONS

1. Condemn Affected Foodstuffs (milk or meat from animals consuming contaminated water or foodstuffs)
2. Prevent Access to River
3. Condemn Use of River for Irrigation and Industry
4. Substitute Uncontaminated Water and Foodstuffs for Contaminated Water and Foodstuffs
5. Condemn Water Usage from River

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

FIGURE 3 - RECYCLE CANAL ACTIVITY

RECYCLE CANAL ACTIVITY - I^{131}
YIELDING 10 MR/HR AT SITE BOUNDARY
DUE TO ENTRAINMENT IN
COOLING TOWER PLUME



F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

FIGURE 4 - GENERAL EMERGENCY PROTECTIVE ACTIONS RECOMMENDATIONS

The following situations require urgent actions by offsite officials. Conditions are based on Control Room indications with no dose projections required. The following protective action recommendations in this table should be conducted at the same time the General Emergency notifications are conducted.

Prerequisite: Plant Staff Detects **GENERAL EMERGENCY**

1. If wind is ≥ 5 mph:
 - (1) RECOMMEND EVACUATE A 2 MILE RADIUS AND 5 MILES DOWNWIND AND ADVISE REMAINDER OF PLUME EPZ TO GO INDOORS TO MONITOR EAS BROADCASTS.
 - (2) Continue with Step 2.
- If wind is < 5 mph:
 - (1) RECOMMEND EVACUATE A 5 MILE RADIUS AND ADVISE REMAINDER OF PLUME EPZ TO GO INDOORS TO MONITOR EAS BROADCASTS.
 - (2) Continue with Step 2.
2. Continue with dose assessment throughout the emergency and revise initial Protective Action Recommendations in accordance with the protective action guidelines, Figure 5.

NOTE:	Based on NRC Response Technical Manual, RTM-93, Vol. 1, Rev. 3.
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F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

FIGURE 5 - SUMMARY OF PROTECTIVE ACTION GUIDELINES (PAGs)

PAGs for Early Phase Projected Doses

Offsite Projected Doses (mrem)	NSP Recommended Protective Actions	Comments
TEDE < 1000 Thyroid CDE < 5000	No recommended protective actions	The states of MN and WI may choose to implement sheltering or precautionary evacuation for the general public at their discretion.
TEDE ≥ 1000 Thyroid CDE ≥ 5000	Evacuation of general public	Evacuation should be recommended in absence of local constraints. MN and WI may choose to shelter if evacuation were not immediately possible due to offsite constraints (severe weather, competing disasters or local traffic constraints).

- Notes: 1. TEDE = Total Effective Dose Equivalent, Thyroid CDE = Thyroid Committed Dose Equivalent
 2. Based on EPA 400-R-92-001, May 1992
 3. The Skin CDE PAG for evacuation of the general public is 50,000 mrem
 4. Offsite projected doses include exposure from radioactive plume (external & internal) and 4 day exposure to ground contamination.

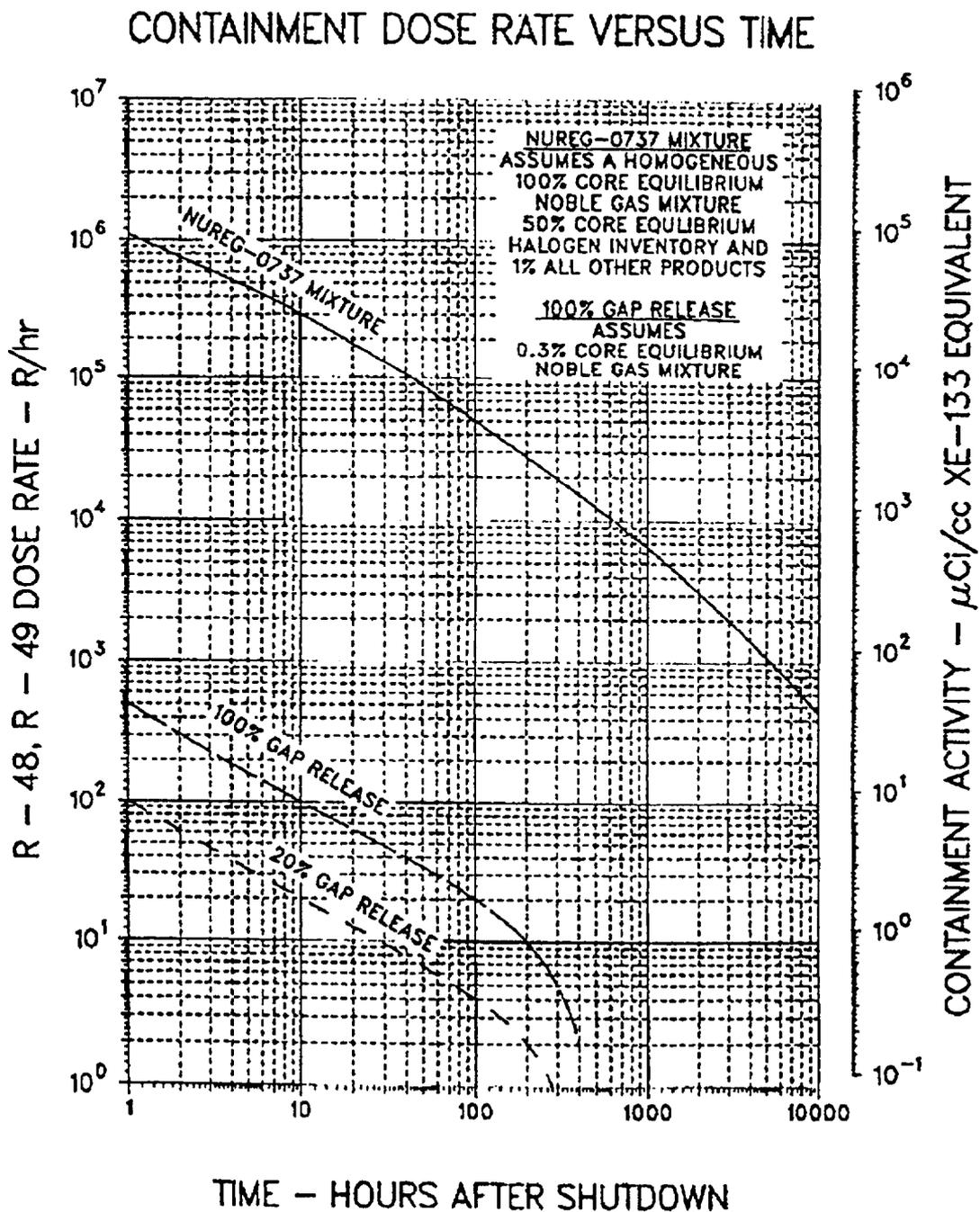
PAGs for Emergency Workers

TEDE Dose Limit (mrem)	Activity	Condition
5,000	All	Lower dose not practicable
10,000	Protecting valuable property	Lower dose not practicable
25,000	Life saving or protection of large populations	Lower dose not practicable
>25,000	Life saving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved.

- Notes: 1. Based on EPA 400-R-92-001, May 1992
 2. These are doses to nonpregnant adults from external exposure and intake during an emergency.
 3. Workers should limit dose to the lens of the eye to 3 times the listed values and doses to extremities and any other organ to 10 times the doses listed above.

<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: <h2 style="margin: 0;">RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS</h2>	NUMBER: <h2 style="margin: 0;">F3-8</h2>
		REV: 16

FIGURE 6 - CONTAINMENT DOSE RATE VERSUS TIME



<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	<p>TITLE:</p> <h2 style="margin: 0;">RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS</h2>	<p>NUMBER:</p> <h2 style="margin: 0;">F3-8</h2>
		<p>REV: 16</p>

FIGURE 7 - EVACUATION TIME ESTIMATE SUMMARY

Case	Wind Direction (degrees from)	Evacuation Area Ring Downwind	Subareas	Evacuation Time (hours:minutes)*					
				Winter Day		Winter Night		Summer Weekend	
				Fair	** Adverse	Fair	** Adverse	Fair	*** Adverse
1		2-mile	2	2:20	2:25	2:20	2:25	3:00	3:30
2	348.75-11.25	2-mile & 5 mile	2, 5S, 5W	3:10	4:00	2:45	2:55	3:10	3:50
3		2-mile & 10-mile	2, 5S, 5W, 10SE, 10SW	4:35	5:40	3:30	4:30	3:30	4:05
4	11.25-33.75	2-mile & 5 mile	2, 5S, 5W	3:10	4:00	2:45	2:55	3:10	3:50
5		2-mile & 10-mile	2, 5S, 5W, 10SE, 10SW, 10W	4:35	5:40	3:30	4:30	3:30	4:05
6	33.75-56.25	2-mile & 5 mile	2, 5S, 5W	3:10	4:00	2:45	2:55	3:10	3:50
7		2-mile & 10-mile	2, 5S, 5W, 10SE, 10SW, 10W	4:35	5:40	3:30	4:30	3:30	4:05
8	56.25-78.75	2-mile & 5 mile	2, 5S, 5W	3:10	4:00	2:45	2:55	3:10	3:50
9		2-mile & 10-mile	2, 5S, 5W, 10SW, 10W	3:10	4:00	3:00	3:10	3:20	4:00
10	78.75-101.25	2-mile & 5 mile	2, 5W	2:45	2:50	2:45	2:55	3:10	3:50
11		2-mile & 10-mile	2, 5W, 10SW, 10W	3:00	3:05	3:00	3:10	3:20	4:00
12	101.25-123.75	2-mile & 5 mile	2, 5W, 5N	2:45	2:50	2:45	2:55	3:10	3:50
13		2-mile & 10-mile	2, 5W, 5N, 10W, 10NW	2:50	3:00	2:50	3:00	3:15	3:50
14	123.75-146.25	2-mile & 5 mile	2, 5W, 5N	2:45	2:50	2:45	2:55	3:10	3:50
15		2-mile & 10-mile	2, 5W, 5N, 10W, 10NW, 10N	2:50	3:00	2:50	3:00	3:15	3:50
16	146.25-168.75	2-mile & 5 mile	2, 5W, 5N	2:45	2:50	2:45	2:55	3:10	3:50
17		2-mile & 10-mile	2, 5W, 5N, 10W, 10NW, 10N, 10NE	2:50	3:00	2:50	3:00	3:15	3:50
18	168.75-191.25	2-mile & 5 mile	2, 5W, 5N, 5E	2:45	2:50	2:45	2:55	3:10	3:50
19		2-mile & 10-mile	2, 5W, 5N, 5E, 10W, 10NW, 10N, 10NE	2:50	3:00	2:50	3:00	3:15	3:50
20	191.25-213.75	2-mile & 5 mile	2, 5N, 5E	2:40	2:40	2:40	2:40	3:00	3:35
21		2-mile & 10-mile	2, 5N, 5E, 10NW, 10N, 10NE, 10E	2:50	3:00	2:50	3:00	3:00	3:35
22	213.75-236.25	2-mile & 5 mile	2, 5N, 5E	2:40	2:40	2:40	2:40	3:00	3:35
23		2-mile & 10-mile	2, 5N, 5E, 10NW, 10N, 10NE, 10E	2:50	3:00	2:50	3:00	3:00	3:35
24	236.25-258.75	2-mile & 5 mile	2, 5N, 5E	2:40	2:40	2:40	2:40	3:00	3:35
25		2-mile & 10-mile	2, 5N, 5E, 10N, 10NE, 10E	2:50	3:00	2:50	3:00	3:00	3:35
26	258.75-281.25	2-mile & 5 mile	2, 5N, 5E, 5S	3:10	4:00	2:45	2:50	3:10	3:45
27		2-mile & 10-mile	2, 5N, 5E, 5S, 10NE, 10E, 10SE	4:35	5:40	3:30	4:30	3:30	4:05
28	281.25-303.75	2-mile & 5 mile	2, 5N, 5E, 5S	3:10	4:00	2:45	2:50	3:10	3:45
29		2-mile & 10-mile	2, 5N, 5E, 5S, 10E, 10SE	4:35	5:40	3:30	4:30	3:30	4:05
30	303.75-326.25	2-mile & 5 mile	2, 5E, 5S	3:10	4:00	2:45	2:50	3:10	3:45
31		2-mile & 10-mile	2, 5E, 5S, 10E, 10SE	4:35	5:40	3:30	4:30	3:30	4:05
32	326.25-348.75	2-mile & 5 mile	2, 5E, 5S	3:10	4:00	2:45	2:50	3:10	3:45
33		2-mile & 10-mile	2, 5E, 5S, 10E, 10SE, 10SW	4:35	5:40	3:30	4:30	3:30	4:05
34		5-mile	5N, 5E, 5S, 5W	3:10	4:00	2:45	2:55	3:10	3:50
35		10-mile	Full EPZ	4:35	5:40	3:30	4:30	3:30	4:05

NOTE: In order to estimate the evacuation time for partial EPZ cases not included above, determine the combination of cases which cover but do not extend beyond the area in question (they may overlap). The longest time for any of the individual evacuation areas is the evacuation time.

* All residents, transients and special facilities within the Analysis Area would be evacuated. Evacuation time estimates include times associated with notification, preparation and mobilization events, as well as travel time out of the EPZ.
 ** Snowstorms adverse weather, represented by a reduction in roadway capacities and travel speeds of 30%.
 *** Rainstorm adverse weather, represented by a reduction in roadway capacities and travel speeds of 20%.

Taken from "Evacuation Time Estimates for the Plume Exposure Pathway Emergency Planning Zone, Prairie Island Nuclear Power Plant, dated December 1997, and prepared by: Earth Tech.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

FIGURE 8 - PERMANENT RESIDENT POPULATION ESTIMATES*

SUBAREA	MINNESOTA	WISCONSIN
2	310	110
5E	--	850
5N	--	480
5W	720	--
5S	3160	--
10E	--	1880
10NE	--	1380
10N	--	450
10NW	--	1200
10W	2900	--
10SW	780	--
10SE	13,550	--
TOTALS	21,420	6,350

NOTE:	The Treasure Island Casino business can add 2,000 to 10,000 additional people depending on time of year and day to subarea 2.
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* Based on "Evaluation Time Estimates for the Plume Exposure Pathway Emergency Planning Zone, Prairie Island Nuclear Power Plant, dated December 1997, and prepared by Earth Tech.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

ATTACHMENT 1 - GENERAL DISCUSSION OF PARS

A. No Protective Actions

1. The recommendation for no protective actions is appropriate when the event is NOT a General Emergency and projected doses are less than 1000 mrem TEDE or 5000 mrem Thyroid CDE.
2. It should be noted that Wisconsin, Minnesota or Tribal officials may decide to initiate protective actions for the general public at lower offsite projected doses than stated above. In these cases, the RPSS and/or REC should ensure that the offsite officials have all the pertinent information such as actual release information, dose projection comparisons with offsite radiation field measurements and prognosis of future plant conditions.

B. Activating PANS

Activation of the PANS (Public Alert & Notification System) is automatically done when offsite agencies issue a protective action which requires action on the part of the general public within the 10 mile EPZ.

C. Sheltering

1. Sheltering is a protective action which involves members of the general public taking cover in a building that can be made relatively air tight. Generally, any building suitable for winter habitation, with windows and doors closed and ventilation turned off, would provide reasonably good protection for about two hours; but would be ineffective after that period due to natural ventilation of the structure.
2. Sheltering may be an appropriate protective action when an evacuation is indicated, but local constraints, such as severe weather, poor road conditions, competing disasters, etc., dictate that directing the public to seek shelter is a more feasible and effective protective measure than evacuation. These factors can best be determined by the offsite agencies.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

Page 2 of 4

ATTACHMENT 1 - GENERAL DISCUSSION OF PARS (Continued)

3. In general, sheltering is preferred to evacuation only if it provides equal or greater protection when considering exposure during and after plume passage.
4. The states or tribe may choose to implement sheltering at their discretion.

D. Evacuation

1. Evacuation is the movement of the public out of an area in order to reduce or eliminate radiation exposure. Timely evacuation of the public is the most effective protective action.
2. NRC indicates that immediate evacuation of the general public is justified based on Control Room indications resulting in a declared General Emergency.
3. 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 mrem Adult Thyroid CDE). At these dose levels, the risk avoided due to the radiation exposure is usually much greater than the risk from evacuation itself.
4. Using the initial General Emergency criteria or projected dose criteria stated above, NSP should recommend evacuation to the states of WI and MN. In turn, they will independently assess and implement protection actions based on our recommendation, their independent assessment, and current offsite evacuation constraints.
5. The states or tribe may choose to implement sheltering or precautionary evacuation for the general public at their discretion.

E. Secondary Evacuation or Relocation

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

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

ATTACHMENT 1 - GENERAL DISCUSSION OF PARS (Continued)

F. Return

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

G. Designation of the Protective Action Area

The designation of the protective action area will depend on the nature and extent of the incident and existing meteorological conditions. The area will be described by designating a keyhole area and geopolitical subareas.

1. Keyhole Area

The keyhole area should resemble a keyhole consisting of a 360° area surrounding the plant out to a distance of two (2) or five (5) miles and continuing in the downwind direction which should include two (2) sectors on either side of the downwind sector, out to a distance determined by the PAGs.

2. Geopolitical Subareas

Geopolitical subareas are subareas of the 10 mile EPZ defined by predetermined and/or political boundaries. A map of the geopolitical subareas and a table for determining the affected geopolitical subareas are shown in Figure 1, "Protective Action Recommendation Checklist", PINGP 585.

<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: <h2 style="margin: 0;">RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS</h2>	NUMBER: <h2 style="margin: 0;">F3-8</h2>
		REV: 16

ATTACHMENT 1 - GENERAL DISCUSSION OF PARS (Continued)

H. Exposure Pathways, Incident Phases, and Protective Actions

	POTENTIAL EXPOSURE PATHWAYS AND INCIDENT PHASES		PROTECTIVE ACTIONS
1.	External radiation from facility	EARLY	Sheltering Evacuation Control of access
2.	External radiation from plume		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 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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<h1 style="margin: 0;">F3</h1> <p style="margin: 0;">Section</p>	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

ATTACHMENT 2 - DEFINITIONS RELATED TO PARS

- 1.0 **Affected Area** is any area where radiation emanating from a plume or deposited material from the plume can be detected using field instruments. (Also known as the footprint.)

- 2.0 **Affected Sectors** refer to those sectors that are in a downwind direction from the plant. If the wind speed ≥ 5 mph, the affected sectors are the 2 sectors on either side of the downwind sector and the downwind sector. If the wind speed < 5 mph, all sectors are affected sectors (because of meandering).

- 3.0 **Dose Terms**
 - 3.1 **Dose Equivalent (REM)** refers to the product of absorbed dose (rad) and the quality factor (i.e., rads X QF = rem).

 - 3.2 **Effective Dose Equivalent (REM)** is the sum of the products of the dose equivalent (rem) to each organ and a weighting factor, where the weighting factor is the ratio of the stochastic risk arising from an organ or tissue to the total risk when the whole body is irradiated uniformly.

 - 3.3 **Committed Dose Equivalent (REM)** refers to the dose equivalent to organs or tissues that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

 - 3.4 **Committed Effective Dose Equivalent (REM) (CEDE)** refers to the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to those organs or tissues.

 - 3.5 **Deep Dose Equivalent (REM)** refers to the external whole body exposure due to external radiation from the radioactive plume or deposited radioactive material.

 - 3.6 **Total Effective Dose Equivalent (REM) (TEDE)** refers to the sum of the deep dose equivalent and the committed effective dose equivalent (TEDE = Deep Dose Equivalent + CEDE).

 - 3.7 **Thyroid Committed Dose Equivalent (REM) (Thyroid CDE)** refers to the committed dose equivalent to the thyroid due to internally deposited radionuclides from inhalation.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

ATTACHMENT 2 - DEFINITIONS RELATED TO PARS (Continued)

4.0 Emergency Planning Zone (EPZ) is a defined area around the Prairie Island plant to facilitate emergency planning by state and local authorities, to assure that prompt and effective actions are taken to protect the public in the event of a release of radioactive material. It is defined for:

4.1 Plume Exposure Pathway (10 mile EPZ)

The 10 mile radius around the Prairie Island plant defined for the early phase plume exposure. The principal exposure sources from this pathway are:

- 4.1.1 External exposure from the radioactive plume (either overhead or submergence);
- 4.1.2 External exposure from the radionuclides deposited on the ground by the plume; and
- 4.1.3 Internal exposure from the inhaled radionuclides deposited in the body.

4.2 Ingestion Exposure Pathway (50 mile EPZ)

A 50 mile radius around the Prairie Island plant where the principal exposure would be from the ingestion of contaminated water or foods such as, milk or fresh vegetables.

5.0 Evacuation is the urgent removal of people from an area to avoid or reduce high-level, short-term exposure, usually from the plume or from deposited activity.

6.0 Geopolitical Subareas are subareas of the 10 mile EPZ defined by predetermined geographic and/or political boundaries. A map of the geopolitical subareas and a table for selecting the affected geopolitical subareas are shown in Figure 1, "Protective Action Recommendation Checklist", PINGP 585.

7.0 Keyhole Area is a subarea of the 10 mile EPZ defined by a 360 degree area surrounding the plant out to a distance of 2 or 5 miles and continuing in a downwind direction which should include 2 sectors on either side of the affected sector, out to a distance determined by the Protective Action Guides.

F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

ATTACHMENT 2 - DEFINITIONS RELATED TO PARS (Continued)

- 8.0 Nuclear Incident Phases** relate to three time periods following the beginning of a nuclear incident.
- 8.1 Early Phase** or emergency phase is the period immediately following the beginning of the incident. There may be a threat of a radiological release or an actual ongoing radiological release to the environment. Immediate decisions concerning protective actions are required and usually based on plant conditions or offsite dose projections. This phase may last from hours to days.
- 8.2 Intermediate Phase** is the period beginning after the source and releases have been brought under control. Based on environmental measurements, additional protective actions may be made. This phase may overlap the early and late phase and may last from weeks to many months.
- 8.3 Late Phase** is the period beginning when offsite recovery action designed to reduce radiation levels in the environment to acceptable levels for unrestricted use are commenced. This period may extend from months to years.
- 9.0 Projected Dose** refers to the future dose calculated for a specified time period on the basis of estimated or measured initial concentration of radionuclides or exposure rates and in the absence or protective actions.
- 9.1 Plume Projected Dose** refers to future calculated doses from plume submersion, plume shine, plume inhalation and 4 days of ground deposition exposure.
- 9.2 Relocation Projected Dose** refers to future calculated doses from one year of exposure to ground deposition groundshine and inhalation of resuspended material, but excluding internal dose from consuming contaminated foodstuffs.
- 9.3 Ingestion Pathway Projected Dose** is the projected CEDE (ICRP-30) from consuming contaminated foodstuffs.
- 10.0 Protective Actions** refers to an action taken to avoid or reduce radiation dose to members of the public.
- 11.0 Protective Action Guide (PAG)** refers to a projected dose level that warrants protective actions.

<b style="font-size: 2em;">F3 Section	TITLE: RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	NUMBER: F3-8
		REV: 16

ATTACHMENT 2 - DEFINITIONS RELATED TO PARS (Continued)

- 12.0 Public Alert and Notification System (PANS)** is used to alert the public within the 10 mile Emergency Planning Zone of an emergency Condition at Prairie Island. Once alerted, the public should then turn to local commercial broadcast messages for specific protective action instructions. The PANS consists of the following:
- 12.1** Fixed Sirens for 100% coverage throughout the 5 mile zone and in population centers in the 5-10 mile zone.
 - 12.2** Emergency vehicles with sirens and public address in the 5-10 mile areas not covered by fixed sirens.
 - 12.3** National Oceanic and Atmospheric Administration (NOAA) activated tone alert radios in institutional, educational, and commercial facilities.
 - 12.4** The Emergency Alert System (EAS) which has access to television and radio stations within the area.
- 13.0 Return** refers to people permanently reoccupying their normal residence within a previously evacuated area.
- 14.0 Reentry** refers to temporary entry into an evacuated area under controlled conditions.
- 15.0 Relocation** refers to removal or continued exclusion of people from contaminated areas to avoid chronic radiation exposure.
- 16.0 Sheltering** refers to the use of a structure for radiation protection from an airborne plume and/or deposited radioactive material.

F3 Section	TITLE: ALTERNATE METEOROLOGICAL DATA	NUMBER: F3-13.5
		REV: 4

Reviewed By: <u><i>[Signature]</i></u> GEN. SUPT. RADIATION PROTECTION	Effective Date: <u>5-12-00</u>
Approved By: <u><i>[Signature]</i></u> PLANT MANAGER	OC Review: <u>5-6-00</u>

1.0 PURPOSE

REFERENCE USE
<ul style="list-style-type: none">• <i>Procedure segments may be performed from memory.</i>• <i>Use the procedure to verify segments are complete.</i>• <i>Mark off steps within segment before continuing.</i>• <i>Procedure should be available at the work location.</i>

This procedure provides instructions to obtain meteorological data from alternate sources.

2.0 APPLICABILITY

This procedure **SHALL** apply to the Radiation Protection Group, Shift Emergency Communicators, Shift Supervisors and Shift Managers.

3.0 PRECAUTIONS

- 3.1** When using alternate meteorological data, **attempt** to obtain meteorological data that would be indicative of local meteorology first.
- 3.2** **Ensure** meteorological data is in the correct units prior to using data in performing dose calculations or transmitting to offsite authorities.

F3 Section	TITLE: ALTERNATE METEOROLOGICAL DATA	NUMBER: F3-13.5
		REV: 4

4.0 PROCEDURE

4.1 ERCS Metdata Group Display

The primary meteorological tower supplies meteorological data to the Emergency Response Computer System (ERCS).

4.1.1 To gain access to the meteorological data on ERCS:

A. **Type** "GRPDIS" then **press** <ENTER>

B. After prompt, **type** "METDATA" then **press** <ENTER>

4.1.2 The display will respond with a list of meteorological data points along with the prompt: ENTER UPDATE RATE IN SEC (5-1800). **Enter** the desired update interval.

NOTE:	(1) Use 10 meter speed and direction. (2) These values are not 15 minute averages.
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4.1.3 **Obtain** the wind speed and direction.

4.1.4 **Obtain** DELTA TEMP A or DELTA TEMP B and **determine** the alphanumeric stability class using Table 1.

4.2 Lock and Dam #3

Ground level wind speed and wind direction are available from Lock & Dam #3 on a 24 hour/day, 365 day/year basis.

4.2.1 **Contact** the Lockmaster at Lock & Dam #3 by telephone at 388-5794.

NOTE:	Only wind speed and wind direction are available at Lock & Dam #3.
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4.2.2 **Obtain** the wind speed and wind direction from the Lockmaster.

4.2.3 **Obtain** the stability class from the Minneapolis National Weather Service in accordance with Step 4.3.

F3 Section	TITLE: ALTERNATE METEOROLOGICAL DATA	NUMBER: F3-13.5
		REV: 4

4.3 National Weather Service

Wind speed, wind direction and Pasquill Stability Class are available from the Minneapolis National Weather Service.

4.3.1 Contact the Minneapolis National Weather Service using either the telephone or the NAWAS, as per F3-13.6, Weather Forecasting Information.

4.3.2 Obtain the wind speed, wind direction and the Pasquill stability class for the local area.

F3 Section	TITLE: ALTERNATE METEOROLOGICAL DATA	NUMBER: F3-13.5
		REV: 4

TABLE 1 - STABILITY CLASS DETERMINATION

DELTA T (°F)/50m	STABILITY CLASS	WDS1 SIGMA THETA
<-1.71	A	> 23
-1.71 to -1.53	B	18 - 23
-1.52 to -1.35	C	13 - 18
-1.34 to -0.45	D	8 - 13
-0.44 to +1.35	E	4 - 8
+1.36 to +3.60	F	< 4
> 3.60	G	

A: Extremely unstable conditions

D: Neutral conditions

B: Moderately unstable conditions

E: Slightly stable conditions

C: Slightly unstable conditions

F: Moderately stable conditions

G: Extremely stable conditions

NOTE: $\Delta T(^{\circ}F) = (1.8) \Delta T(^{\circ}C)$