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May 6, 2002

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 Prairie Island Nuclear Generating Plant Emergency Plan Implementing Procedures F3. This revision includes the following procedures:

INDEXES: Emergency Plan Implementing Procedures TOC

REVISIONS

F3-9	Emergency Evacuation	Rev 17
F3-10	Personnel Accountability	Rev 19
F3-11	Search & Rescue	Rev 8
F3-16	Responsibilities of the Radiation Survey Teams During a Radioactive Liquid Release	Rev 17
F3-13.4	Midas Meteorological Data Display	Rev 7
F3-13	Offsite Dose Calculations	Rev 15
F3-13.3	Manual Dose Calculations	Rev 11

DELETIONS

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 Procedures, which have been superseded or deleted, should be destroyed.

A045

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.



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- c: USNRC – Steve Orth, Region III (2 copies)
- NRC Resident Inspector (w/o attachment)
- M Agen (w/o attachment)
- Records Management (Doc Control Copy) (w/o attachment)
- NL File (w/o attachment)

PRAIRIE ISLAND NUCLEAR GENERATING PLANT	Title: Emergency Plan Implementing Procedures TOC Effective Date : 05/02/02
Approved By: <u>Joyce Chittly</u> BPS Supt	

Document #	Title	Rev
F3-1	ONSITE EMERGENCY ORGANIZATION	19
F3-2	CLASSIFICATIONS OF EMERGENCIES	29
F3-3	RESPONSIBILITIES DURING A NOTIFICATION OF UNUSUAL EVENT	18
F3-4	RESPONSIBILITIES DURING AN ALERT, SITE AREA, OR GENERAL EMERGENCY	28
F3-5	EMERGENCY NOTIFICATIONS	20
F3-5.1	SWITCHBOARD OPERATOR DUTIES	8
F3-5.2	RESPONSE TO FALSE SIREN ACTIVATION	9
F3-5.3	RESPONSE TO RAILROAD GRADE CROSSING BLOCKAGE	8
F3-6	ACTIVATION & OPERATION OF TECHNICAL SUPPORT CENTER	16
F3-7	ACTIVATION & OPERATION OF OPERATIONAL SUPPORT CENTER (OSC)	15
F3-8	RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS	19
F3-8.1	RECOMMENDATIONS FOR OFFSITE PROTECTIVE ACTIONS FOR THE ON SHIFT EMERGENCY DIRECTOR /SHIFT MANAGER	12
F3-9	EMERGENCY EVACUATION	17
F3-10	PERSONNEL ACCOUNTABILITY	19
F3-11	SEARCH & RESCUE	8
F3-12	EMERGENCY EXPOSURE CONTROL	14
F3-13	OFFSITE DOSE CALCULATION	15
F3-13.3	MANUAL DOSE CALCULATIONS	11
F3-13.4	MIDAS METEOROLOGICAL DATA DISPLAY	7
F3-13.5	ALTERNATE METEOROLOGICAL DATA	4

Document #	Title	Rev
F3-13.6	WEATHER FORECASTING INFORMATION	11
F3-14.1	ONSITE RADIOLOGICAL MONITORING	11
F3-14.2	OPERATIONS EMERGENCY SURVEYS	9
F3-15	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	22
F3-16	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	17
F3-17	CORE DAMAGE ASSESSMENT	9
F3-18	THYROID IODINE BLOCKING AGENT (POTASSIUM IODIDE)	9
F3-19	PERSONNEL & EQUIPMENT MONITORING & DECONTAMINATION	6
F3-20	DETERMINATION OF RADIOACTIVE RELEASE CONCENTRATIONS	17
F3-20.1	DETERMINATION OF STEAM LINE DOSE RATES	9
F3-20.2	DETERMINATION OF SHIELD BUILDING VENT STACK DOSE RATES	9
F3-21	ESTABLISHMENT OF A SECONDARY ACCESS CONTROL POINT	10
F3-22	PRAIRIE ISLAND RADIATION PROTECTION GROUP RESPONSE TO A MONTICELLO EMERGENCY	16
F3-23	EMERGENCY SAMPLING	18
F3-23.1	EMERGENCY HOTCELL PROCEDURE	11
F3-24	RECORD KEEPING DURING AN EMERGENCY	7
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	1
F3-29	EMERGENCY SECURITY PROCEDURES	18
F3-30	TRANSITION TO RECOVERY	6

PRAIRIE ISLAND NUCLEAR
GENERATING PLANT

Title : Emergency Plan Implementing
Effective Date : 05/02/02

Procedures TOC

Document #	Title	Rev
F3-31	RESPONSE TO SECURITY RELATED THREATS	5
F3-32	REVIEW OF EMERGENCY PREPAREDNESS DURING OR AFTER NATURAL DISASTER EVENTS	2

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

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>

O.C. REVIEW DATE: 4-23-02 sc.	OWNER: M. Werner	EFFECTIVE DATE 5-2-02
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F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

1.0 PURPOSE

This procedure provides instructions for implementing an emergency evacuation of affected areas within the plant buildings or areas within the site boundaries.

2.0 APPLICABILITY

This instruction **SHALL** apply to all plant personnel who are involved with evacuations caused by radiological hazards, fire, toxic gas, security threat, etc. This procedure does not apply to the evacuation of the general public located in affected areas beyond the site boundary.

3.0 PRECAUTIONS

- 3.1 The Emergency Director (ED) should consider radiation shine from the containments as well as other hazards when determining the habitability requirements of the assembly areas and evacuation routes.
- 3.2 When the evacuation alarm is heard, evacuate your work area while listening to specific evacuation instructions on the plant's Public Address (PA) system. If you cannot hear or understand the instructions, continue to leave the immediate area until you learn of the evacuation instructions.
- 3.3 When personnel are working inside Containment or the Shield Bldg, the Access Lead Radiation Protection Specialist (RPS) should establish communications with Containment Lead RPS and keep them informed of PA announcements (cannot understand PA due to echo).

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

4.0 RESPONSIBILITIES

- 4.1 The Emergency Director/Shift Manager (ED/SM) is responsible for ensuring that an appropriate evacuation (local, plant, or site) or an Early Dismissal is implemented when radiological or other conditions warrant such action.
- 4.2 The Radiological Emergency Coordinator (REC) is responsible to advise the ED/SM on choosing an appropriate Assembly Point and need for evacuation.
- 4.3 The Control Room is responsible to sound the evacuation alarm and make the appropriate announcement over the plant's public address system.
- 4.4 The Assembly Point Coordinator is responsible to coordinate the activities at the designated assembly area.
- 4.5 All plant personnel are responsible to follow the directions given over the plant's public address system and by the Assembly Point Coordinator.
- 4.6 The Security Team is responsible to assist in the personnel accountability process and plant access control.
- 4.7 The Technical Support Center (TSC) Coordinator is responsible for assisting work group leaders in determining nonessential personnel and reporting to ED when determination essential personnel is complete.
- 4.8 TSC work group leaders are responsible in determining essential and nonessential personnel.

5.0 DISCUSSION - See Attachment 1

6.0 PREREQUISITES

- 6.1 It has been determined that a personnel hazard exists or may exist; such as; radiological contamination, high radiological dose rates, fire, toxic gas, security threat, etc.,

OR

- 6.2 A Site Area or General Emergency has been declared.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

7.0 PROCEDURE

7.1 Early Dismissal

An Early Dismissal may be warranted during an Alert classification if it is determined that the emergency may escalate to a higher level or may involve a hazardous Dismissal.

An Early Dismissal of personnel should proceed as follows:

NOTE: No Early Dismissal of personnel is necessary if it is known that the Alert classification will be closed out in a short time.

- 7.1.1 The REC should recommend to the ED the need for Early Dismissal of nonessential personnel based on whether the event has or may involve a hazardous dismissal or escalate to a higher classification.
- 7.1.2 The ED should direct the TSC Coordinator to assist work group leaders in dismissing nonessential personnel.
- 7.1.3 The TSC group leaders are to determine which personnel are NOT needed for short term emergency support.
- 7.1.4 TSC Coordinator reports to ED with the TSC Group Leaders recommendation.

NOTE: Personnel accountability is NOT necessary for Early Dismissal of nonessential personnel.

- 7.1.5 Once the Early Dismissal personnel have been identified, the TSC Group Leaders should direct the selected work group supervisors to instruct their selected individuals to leave the plant site and go home.

F3	EMERGENCY EVACUATION	NUMBER: F3-9
		REV: 17

7.2 Local Evacuation

NOTE: A Plant Evacuation should be conducted if a large employee/worker population is affected.

7.2.1 IF during normal work hours OR an Outage AND the hazard is NOT in the RCA, THEN initiate plant evacuation (Step 7.3).

7.2.2 A Local Evacuation of a specific area of the plant may be necessary because of local hazards. A Local Evacuation may proceed as follows:

A. **DETERMINE** assembly points using the table below as general guidance.

LOCAL EVACUATION FROM THESE AREAS	NORMAL WORK HOURS AND OUTAGE ASSEMBLY AREA FOR ACCOUNTABILITY	OFF HOURS NON-OUTAGE ASSEMBLY AREA FOR ACCOUNTABILITY
Containment Spent Fuel Pool	735' Basketball Court	Operational Support Center (OSC) or Security Building (Guardhouse)
Aux Bldg	Access Control HP Office	
Old Admin Turb Bldg New Admin NPD SBO Office Trailers Contractor Fab Shop Warehouse #1 Contractor Trailers	Initiate Plant Evacuation	

B. **SOUND** the EVACUATION ALARM.

C. **ANNOUNCE** the following over the plant page.

“ATTENTION ALL PLANT PERSONNEL. THERE IS A _____ (hazard)

OCCURRING IN _____ (specify affected area). ALL PERSONNEL SHOULD EVACUATE

THE _____ (specify affected area) AND ASSEMBLE AT THE _____ (assembly area).”

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

- D. **REPEAT** the announcement.
 - E. **DIRECT** security (4318) to conduct Personnel Accountability using F3-10 as guidance.
- 7.2.3** Employees evacuating a particular area should exit via nearest "safe" exit and proceed to (designated area), as announced by PA, to aid in determining accountability.
- 7.2.4** The Radiation Protection Group (RPG) should:
- A. Assume control of entry into the area for exposure control purposes.
 - B. Complete surveys in the area and when conditions are returned to normal.
 - C. Recommend to the ED/SM that the area be returned to normal use or relax access control to that area.
- 7.2.5** Work Group Leaders or Supervisors should complete Accountability for their personnel.
- 7.2.6** Security or Senior Work Group Leader should contact CAS when Accountability has been completed.
- 7.2.7** When Accountability is satisfied, security should inform ED/SM.
- 7.2.8** When the affected area has been released for normal use, the ED/SM should announce over the P.A., that the affected area is now returned to normal use.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

7.3 Plant Evacuation

A Plant Evacuation may occur anytime and **SHALL** occur whenever a Site Area, or General Emergency is declared unless other constraints or circumstances make it impractical.

- IF the emergency is already being closed out AND there is no threat to personnel safety, THEN a Plant Evacuation is **NOT** necessary.
- IF both onsite Assembly Points are uninhabitable, THEN a Site Evacuation should be initiated.
- IF there are high winds OR tornado, THEN an evacuation may **NOT** be feasible or may need to be delayed until it is safe to be outside.

All nonessential plant personnel **SHALL evacuate** to a designated onsite assembly area for accountability and monitoring, while emergency response personnel **proceed** to their respective emergency operating centers.

7.3.1 The Emergency Director should **ensure** the following is performed during a Plant Evacuation:

NOTE:	During off-normal working hours when few non-shift personnel are present, the Shift Manager/Emergency Director may choose the Operations Lounge as an assembly area, if appropriate.
--------------	--

CAUTION:	CONSIDER RADIATION SHINE FROM THE CONTAINMENTS AS WELL AS NATURAL HAZARDS WHEN DETERMINING HABITABILITY REQUIREMENTS OF THE ASSEMBLY AREAS AND EVACUATION ROUTES.
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- A. **Determine** the wind direction and possible habitability problems at the onsite assembly areas. **Choose** either the **North Warehouse** or the **Receiving Warehouse**.
- May use North Warehouse if wind is from:
236° to 360° or
0° to 123°
 - May use Receiving Warehouse if wind is from:
123° to 360° or
0° to 34°

F3	EMERGENCY EVACUATION	NUMBER:
		F3-9
		REV: 17

- B. IF conditions are acceptable, THEN **inform** the Control Room Operator of the designated Assembly Point and **direct** the Operator to sound the plant evacuation alarm per Step 7.3.2.
- C. **Implement** F3-10, "Personnel Accountability." Personnel evacuation accountability **SHALL** be completed within 30 minutes after the evacuation alarm is sounded.
- D. **Evacuate** the Auxiliary Building Operators to the OSC if:
1. General area radiation levels exceed 100 mR/hr, OR
 2. Recommended by the Rad Protection Group or the REC.
- E. **Direct** security to verify personnel that normally work outside the plant's Protected Area evacuate to the designated assembly area.
- F. IF the completion of the accountability check results in missing persons, THEN **direct** a search of the plant buildings in accordance with F3-11, "Search and Rescue" and F3-12, "Emergency Exposure Control."
- G. WHEN plant conditions have stabilized, THEN **direct** reentry into selected areas of the plant in accordance with F3-25, "Reentry."
- H. **Consider** dismissing personnel from the assembly area when:
- Accountability has been completed.
 - It has been determined which work groups or individuals may be dismissed from the site.
 - 24 hour staffing plans have been determined.
 - Employee Hot Line has been established and the employee's have been notified of the phone number.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

7.3.2 The Control Room Operator should **perform** the following during a Plant Evacuation:

A. **Sound** the evacuation alarm.

NOTE:

During drills, the message should begin and end with "THIS IS A DRILL."

B. **Announce** the following over the plant page:

"ATTENTION ALL PLANT PERSONNEL. A PLANT EVACUATION HAS BEEN DECLARED. ALL EMERGENCY ORGANIZATION PERSONNEL REPORT TO AND REMAIN AT YOUR EMERGENCY DUTY STATIONS. ALL OTHER PERSONNEL SHALL EVACUATE TO THE (specify assembly point)."

C. **Repeat** announcement.

7.3.3 The REC should **perform** the following during a Plant Evacuation:

A. **Designate** an Assembly Point Coordinator to control operations at the designated assembly area.

B. **Assist** the ED/SM in selecting an Assembly Point.

- May use North Warehouse if wind is from:
236° to 360° or
0° to 123°
- May use Receiving Warehouse if wind is from:
123° to 360° or
0° to 34°

C. **Monitor** the habitability of the Auxiliary Building and **recommend** to the ED/SM an evacuation of the Auxiliary Building Operators to the OSC if the general area radiation levels exceed 100 mR/hr.

D. Periodically **update** Assembly Point Coordinator with status of emergency.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

- 7.3.4** The Assembly Point Coordinator should perform the following during a Plant Evacuation (may initiate at time of Emergency Center staffing):
- A. **Contact** the REC and **request** the location of the designated Assembly Point.
 - B. **WHEN** directed by the REC, **THEN proceed** to the designated onsite assembly area with the appropriate keys (keys are in Security Building) and **set up** the Assembly Point as shown in the Assembly Point floor plans, Figure 2 or Figure 3.
 - C. **Supervise** any required monitoring or decontamination at the Assembly Point in accordance with F3-14.1, "Onsite Radiological Monitoring," and F3-19, "Personnel and Equipment Monitoring and Decontamination." **Give** priority to personnel who evacuated directly out of the Radiological Controlled Area.
 - D. **IF** contamination is highly likely **AND** personnel have been dismissed from the Assembly Point, **THEN monitor** all vehicles departing the site in accordance with F3-19. Monitoring and/or decontamination should be performed onsite or at the Training Center, whichever is most practical.
 - E. **Assist** in identifying personnel missed during accountability.
 - F. **WHEN** directed by ED or REC to dismiss personnel, **THEN notify** personnel:
 - Who is to return to OSC or TSC.
 - What the Employee Hot Line number is.

7.3.5 OSC Coordinator should:

- A. **Direct** OSC supervisory staff to account for assigned essential personnel NOT evacuating.
- B. **Comply** with EPIP F3-10, Personnel Accountability when the accountability report is delivered by security.

F3	EMERGENCY EVACUATION	NUMBER:
		F3-9
		REV: 17

7.3.6 Emergency Organization Supervisors should:

- A. **Verify** the physical location and status of their essential personnel NOT evacuating plant.
- B. **Comply** with EPIP F3-10, Personnel Accountability when the OSC Coordinator commences the accountability process.

7.3.7 Emergency Organization Support Personnel should **contact** your emergency organization supervisor and **provide** your location and physical status.

7.3.8 Personnel evacuating the plant should **perform** the following during a Plant Evacuation.

- A. WHEN the evacuation alarm is heard, THEN **evacuate** your work area while listening to specific evacuation instructions on the plant's public address system.
- B. IF you cannot hear OR understand the instructions, THEN **continue** to leave the immediate area until you learn of the evacuation instructions.
- C. IF working in a contaminated area, THEN **remove** as much protective clothing as time permits, especially gloves, booties or rubbers.
- D. IF wearing a double suit, THEN **removal** of outside clothing would only be necessary.
- E. IF unable to remove all protective clothing, THEN **inform** personnel in charge at the assembly area of your condition.

NOTE:	During a DRILL, remove ALL protective clothing prior to evacuating.
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- F. **Evacuate** via Security Building or as designated by the Security Team.
- G. **Give** your badge to the Security Team member as you exit the Protected Area.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

- H. WHEN the North Warehouse is the designated assembly area, THEN all personnel **enter** the East Door or as directed by the Assembly Point Coordinator.
- I. WHEN the Receiving Warehouse is the designated assembly area, THEN all personnel **enter** the North Door or as directed by the Assembly Point Coordinator.

7.3.9 Security Officers should **perform** the following during a plant evacuation:

- A. **Assist** in personnel traffic control and perform accountability activities according to F3-10, "Personnel Accountability."
- B. **Verify** personnel have evacuated all of the buildings outside the plant's Protected Area.

7.3.10 The TSC Coordinator should perform the following:

- A. **Establish** the Employee Hot Line.
- B. **Coordinate** with Group Leaders in establishing 24 hour coverage.
- C. **Coordinate** when personnel should return to the relieve shift.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

7.4 Site Evacuation

A Site Evacuation of nonessential personnel should be required when a Plant Evacuation is justified, but the onsite assembly areas are NOT habitable. Personnel should be directed to evacuate to the parking lot and then using personal cars or plant vehicles, proceed to the offsite assembly area.

NOTE:	Monitoring of personnel and equipment prior to departure from plant site is NOT necessary because of possible offsite contamination.
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7.4.1 The Emergency Director should **perform** the following during a Site Evacuation:

A. **Designate** the **Prairie Island Training Center** as the offsite assembly area, if possible.

NOTE:	<ol style="list-style-type: none"> 1. In the extreme rare case that the Training Center is NOT usable as an offsite assembly area, reassess, with input from the Radiological Emergency Coordinator, and Site Evacuation plans. 2. A caravan could be led to the Red Wing Service Center or to either the Goodhue or Dakota County Emergency Worker Monitoring & Decon Centers for monitoring and decon. Appropriate notifications to the county sheriffs' departments should be made. 3. The evacuees could be sent directly to their homes without monitoring, if appropriate. 4. If the general public has been evacuated, evacuees may be sent directly to the state's public reception center for monitoring & decon.
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B. **Notify** the Emergency Manager (EM) of the Site Evacuation and **request** EOF support. The EOF will be responsible for assisting the Assembly Point Coordinator.

C. **Inform** the Control Room Operator of the offsite assembly point and **direct** the Operator to sound the evacuation alarm.

D. **Implement** F3-10, "Personnel Accountability." Personnel accountability should be completed within 30 minutes.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

- E. **Evacuate** the Auxiliary Building Operators to the OSC if:
1. General area radiation levels exceed 100 mR/hr, OR
 2. Recommended by the Rad Protection Group or the REC.
- F. **Ensure** that the Security Force has warned all personnel within the Owner Controlled Area, including all trailers, warehouse and construction sites.
- G. IF the completion of the accountability check results in missing persons, THEN direct a search of the plant buildings in accordance with F3-11, "Search and Rescue" and F3-12, "Emergency Exposure Control."
- H. WHEN plant conditions have stabilized, THEN direct a reentry into selected areas of the plant in accordance with F3-25, "Reentry."
- I. **Consider** dismissing personnel at the assembly area when accountability has been completed.
- Key personnel may be requested to return into the plant to augment the TSC or OSC staff.
 - Return of personnel to the plant will have to be coordinated with Security and Rad Protection Group.

7.4.2 The Control Room Operator should **perform** the following during a site evacuation:

- A. **Sound** the evacuation alarm.

NOTE:

During drills, the message should begin and end with "THIS IS A DRILL."

- B. **Announce** the following over the plant page.

"ATTENTION ALL PLANT PERSONNEL. PERSONNEL WITHOUT EMERGENCY ASSIGNMENTS SHALL EVACUATE THE PLANT SITE IMMEDIATELY. GET YOUR CAR KEYS AND EVACUATE TO THE PARKING LOT. USE YOUR CAR OR PLANT VEHICLE AND PROCEED TO THE (specify assembly point). ALL EMERGENCY PERSONNEL SHOULD REMAIN AT YOUR EMERGENCY OPERATING CENTERS"

- C. **Repeat** the announcement.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

- 7.4.3** The Radiological Emergency Coordinator should **perform** the following during a Site Evacuation:
- A. **Assist** the ED in selecting an offsite assembly area. In most cases the Prairie Island Training Center should be used. **See** the note after 7.4.1.A for possible alternatives.
 - B. **Direct** an Assembly Point Coordinator to report to the offsite assembly area.
 - C. **Monitor** the habitability of the Auxiliary Building.
 - D. IF Auxiliary Building general average dose rates exceed 100 mrem/hr, THEN **recommend** to ED and evacuation of the Auxiliary Building Operators to OSC.
 - E. **Consider** establishing a secondary access control point in accordance with F3-21, "Establishment of a Secondary Access Control Point."
- 7.4.4** The Assembly Point Coordinator should **perform** the following during a Site Evacuation:
- A. WHEN directed by the REC, THEN **proceed** to the offsite assembly point (Training Center) and **set up** the assembly area.
 - B. **Supervise** any required monitoring or decontamination at the Assembly Point in accordance with F3-14.1, "Onsite Radiological Monitoring," and F3-19, "Personnel and Equipment Monitoring and Decontamination." **Give** priority to personnel who evacuated directly out of the Radiological Controlled Area.
 - C. IF contamination is highly likely AND personnel have been released, THEN **monitor** all vehicles departing from the site in accordance with F3-19 or **perform** monitoring and decontamination at a location further from the Training Center.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

- 7.4.5 Personnel evacuating the plant site should **perform** the following during a Site Evacuation:
- A. WHEN the evacuation alarm is heard, THEN **evacuate** your work area while listening to specific evacuation instructions on the plant's public address system.
 - B. IF you cannot hear or understand the instructions, THEN **continue** to leave the immediate area until you learn of the evacuation instructions.
 - C. IF working in a contaminated area, THEN **remove** as much protective clothing as time permits, especially gloves, booties or rubbers.
 - D. IF wearing a double suit, THEN **removal** of outside clothing would only be necessary.
 - E. IF unable to remove all protective clothing, THEN **inform** personnel in charge at the assembly area of your condition.

NOTE:

When an evacuation alarm sounds during a DRILL, remove ALL protective clothing prior to evacuating.

- F. **Retrieve** your personal car keys, if appropriate.
- G. **Evacuate** via Security Building (Guardhouse) or as designated by the Security Force.
- H. **Give** your badge to the Security Force member as you exit the Protected Area.
- I. **Proceed** to your car or to the Assembly Point via other means.
- J. IF the Prairie Island Training Center is the offsite assembly area, THEN all personnel **proceed** to the Training Center's parking lot and **enter** the Southwest Door or as directed by the Assembly Point Coordinator.
- K. IF the Training Center cannot be used, THEN **assemble** in an evacuation caravan on the plant access road and follow the Assembly Point Coordinator to an offsite assembly area.

- 7.4.6 Security Officers should **perform** the following during a Site Evacuation:

- A. **Assist** in personnel traffic control and **perform** accountability activities according to F3-10, "Personnel Accountability."
- B. **Direct** all personnel within owner controlled area to proceed to offsite assembly area.

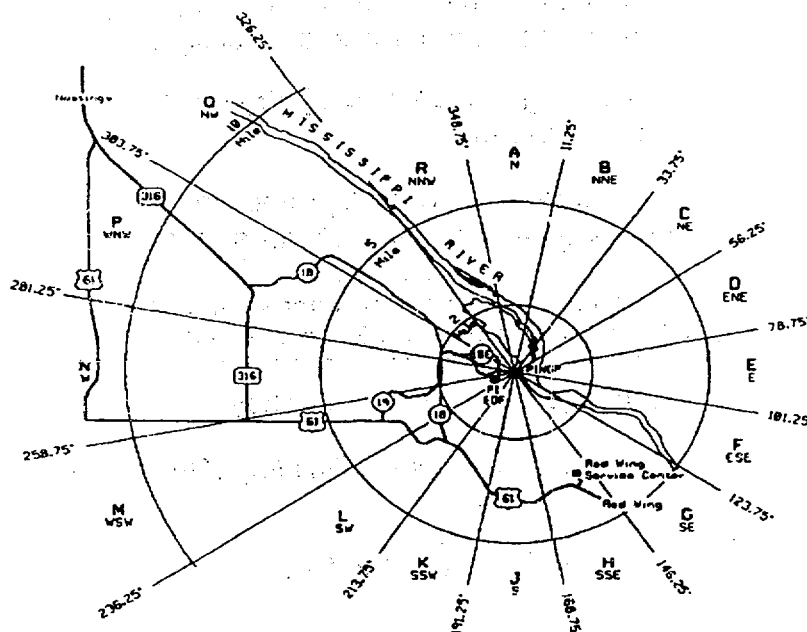
F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

Figure 1 Site Evacuation Instructions

**EXAMPLE ONLY
USE CURRENT REVISION**

PINGP 602, Rev. 4
Page 1 of 1

SITE EVACUATION INSTRUCTIONS



EVACUATION ROUTES

To Near-site EOF

1. Exit Plant Parking Lot
2. Turn left on County 18
3. Proceed to PI Training Center
4. Use West Entrance

To Red Wing Service Center

1. Exit Plant via County 18 to Hwy. 61
2. Turn Left on Hwy. 61
3. Proceed to Red Wing
4. Turn left on Cannon River Road
5. Turn left on Pepin Street to Red Wing Service Center

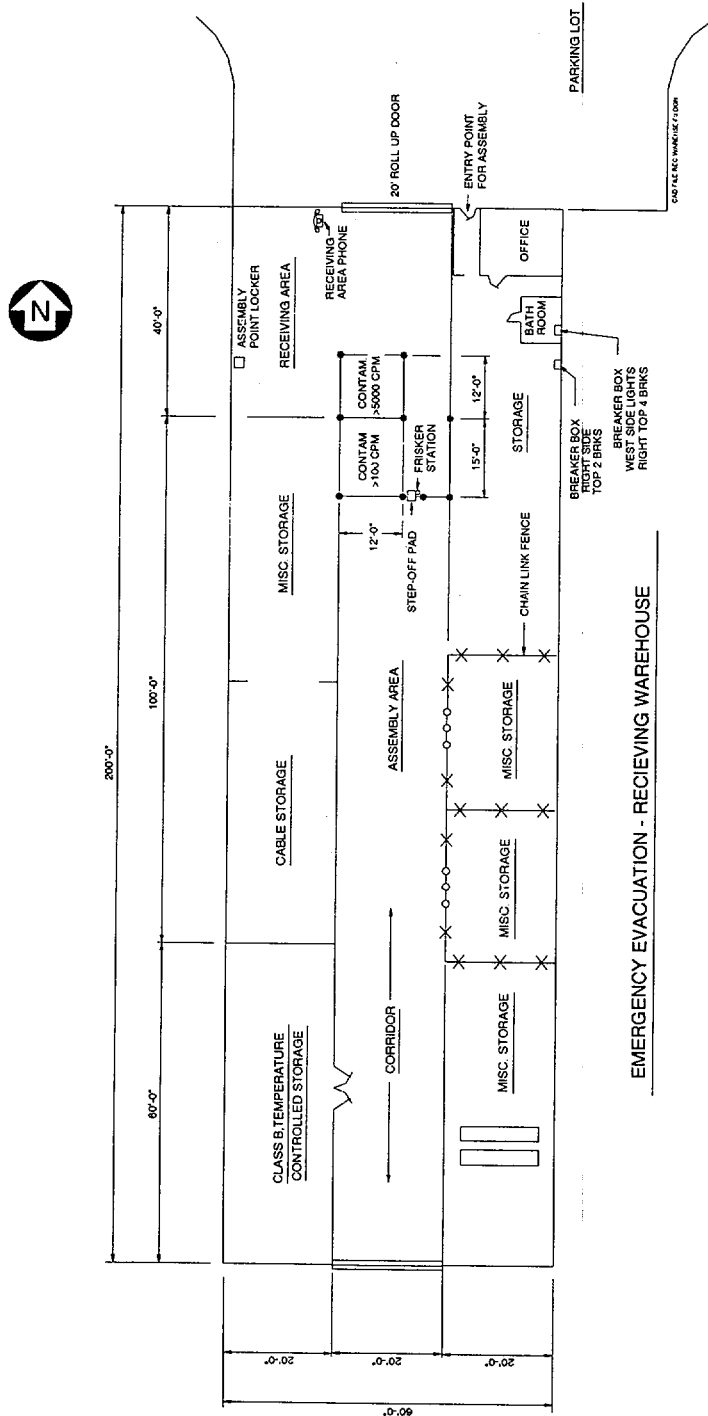
INSTRUCTIONS

1. Proceed to offsite Assembly Point along designated route.
2. Keep windows rolled up; turn heaters and air conditioners off.
3. Do not smoke, eat or drink.
4. Do not leave Assembly Point until released.

J:\TEMPLATE\0602 Site Evacuation Instructions.dot

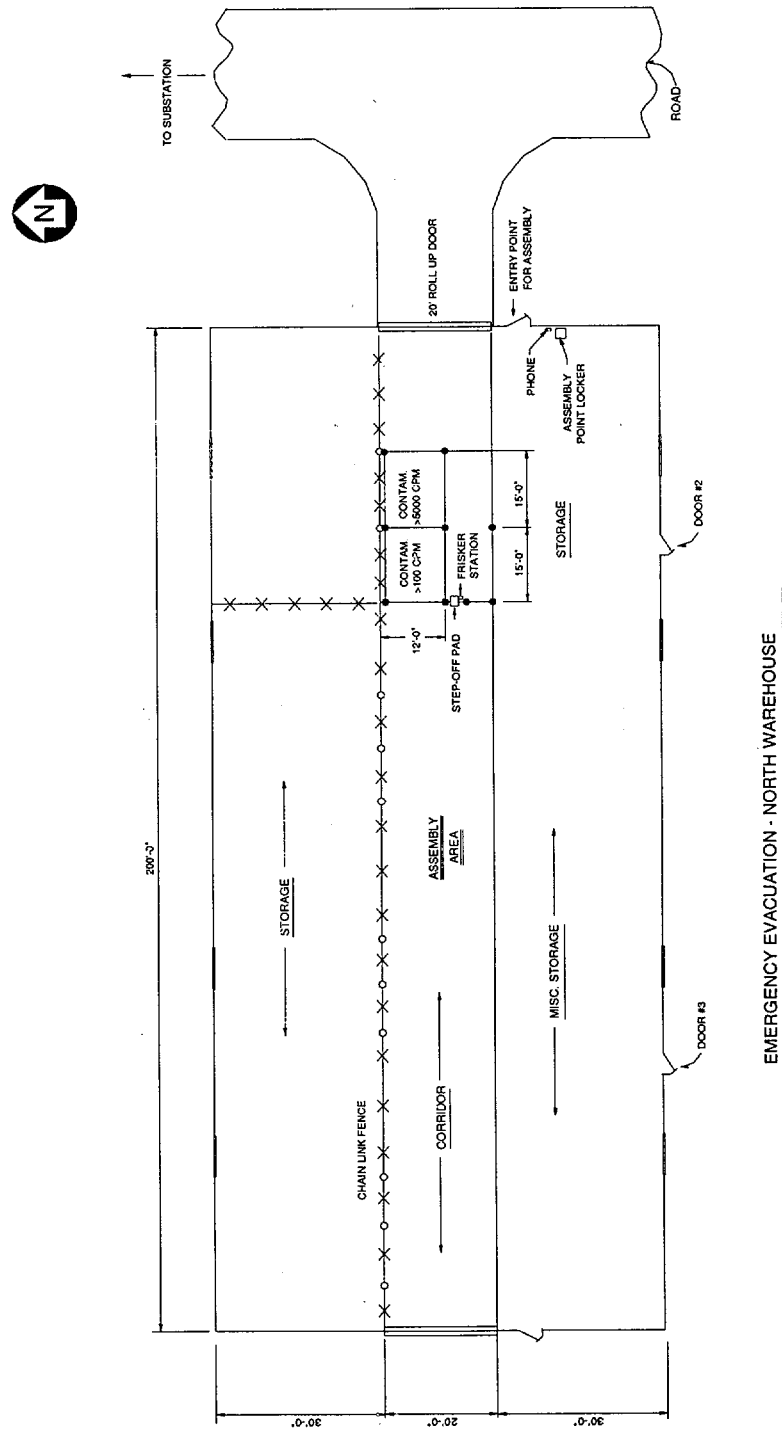
F3	EMERGENCY EVACUATION	NUMBER: F3-9
		REV: 17

Figure 2 Receiving Warehouse



F3	EMERGENCY EVACUATION	NUMBER: F3-9
		REV: 17

Figure 3 North Warehouse



EMERGENCY EVACUATION - NORTH WAREHOUSE

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

Attachment 1 Discussion

The Emergency Director has four (4) options in removing personnel from an area or the plant determined by the type of emergency condition and/or magnitude of a release. The options are Early Dismissal, Local Evacuation, Plant Evacuation, or Site Evacuation.

1. Early Dismissal

This is directing designated groups of nonessential personnel to leave the plant site and return to their homes. This may be initiated during an Alert classification when it is determined that conditions may escalate such that a Plant Evacuation may occur.

When an Alert is declared, the REC should initiate early dismissal assessment and advise the Emergency Director. No Early Dismissal is necessary if it is known that the Alert will be closed out in a short time. If the Alert termination time is unknown or the plant may escalate to a higher classification, then an Early Dismissal should be considered.

Examples of Early Dismissal personnel are:

- Visitors
- Vendors & Consultants
- Student Interns
- Selected Admin Staff, Document Control, Information Systems personnel
- Selected QC Specialists
- Selected personnel not necessary for immediate emergency support

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

Attachment 1 Discussion

2. Local Evacuation

This is an evacuation of a specific area of a plant building to a safe area within the plant. This may be done at any emergency level to protect plant personnel from a localized hazard.

If a large employee/worker population is affected (i.e., Turbine Bldg or New Admin Bldg), a Plant Evacuation should be considered, to facilitate accountability in a timely manner.

During OFF HOURS with the fewer personnel on site it is better to get everyone in one location that would make accountability easier.

- The OSC is probably the best location. Personnel will show up on the list as being there and they are available to assist.
- The Security Building (Guardhouse) should be the next choice. Personnel will be log off site and will NOT show up on the list. The drawback is they need to get back on site to assist.

F3	EMERGENCY EVACUATION	NUMBER:	F3-9
		REV:	17

Attachment 1 Discussion

3. Plant Evacuation

This is an evacuation of plant buildings inside the Protected Area to a designated Assembly Point outside the Protected Area (**North Warehouse or Receiving Warehouse**). Personnel already outside the Protected Area should be asked to evacuate to the designated Assembly Point.

A Plant Evacuation **MAY** be initiated at an Alert classification and **SHALL** be initiated at the Site Area or General Emergency classification unless there are other constraints or circumstances that make a Plant Evacuation impractical, such as:

- C. If the Site Area or General Emergency is already being closed out, then no Plant Evacuation is necessary.
- D. If both onsite assembly points are uninhabitable, then a Site Evacuation should be warranted.
- E. If there are high winds or tornado, then an evacuation may not be feasible.

Once plant accountability is completed, personnel at the assembly point should be sorted out according to those who go home, go to the OSC, or go to the TSC.

If the event was a contaminating event, personnel and cars should be monitored and decontaminated onsite or at the Training Center, whichever is most practical. If contamination exists beyond the site boundary or at the Training Center, personnel may use the Xcel Red Wing Service Center or the county's Emergency Worker Monitoring and Decon Centers.

4. Site Evacuation

This is an evacuation of all plant buildings onsite (inside & outside the Protected Area) to the Training Center. This should be initiated when a Plant Evacuation is justified, but the onsite assembly areas are not habitable.

Once plant accountability is completed, personnel at the Assembly Point should be sorted out according to those who go home, go to the OSC, or go to the TSC.

If the event was a contaminating event, personnel and cars should be monitored and decontaminated, as necessary and practical. If contamination exists beyond the site boundary and at the Training Center, personnel may use the Red Wing Service Center or the county's Emergency Worker Monitoring and Decon Centers.

If the emergency resulted in evacuation of the general public, plant evacuees may be directed to the public reception center for monitoring and decontamination, as appropriate.

F3	PERSONNEL ACCOUNTABILITY	NUMBER:
		F3-10
		REV: 19

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>

O.C. REVIEW DATE: <i>4-24-02 SC</i>	OWNER: M. Werner	EFFECTIVE DATE <i>5-2-02</i>
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F3	PERSONNEL ACCOUNTABILITY	NUMBER:	F3-10
		REV:	19

1.0 PURPOSE

This procedure provides instructions for performing personnel accountability during plant evacuations.

2.0 APPLICABILITY

This Instruction **SHALL** apply to all plant personnel.

3.0 PRECAUTIONS

If the Security Computer fails and an accountability list cannot be generated, individuals remaining in the protected area should be verified by a direct contact (either in person or verbally) and their location, name and badge # recorded on the personnel accountability check sheet, Figure 1 (PINGP 601).

4.0 RESPONSIBILITIES

- 4.1 The Emergency Director/Shift Manager (ED/SM) is responsible for the completion of personnel accountability and may delegate this authority to the Security Team and emergency center coordinators.
- 4.2 All emergency center response personnel are responsible to follow the accountability process as directed by their respective emergency center coordinator.
- 4.3 The Technical Support Center (TSC) Coordinator is responsible to ensure all persons in the TSC have been accounted for.
- 4.4 All nonessential personnel are responsible to evacuate according to the directions given over the plant's Public Address (PA) system.
- 4.5 The Security Group is responsible for performing the accountability reports and maintaining access control to the plant.

F3	PERSONNEL ACCOUNTABILITY	NUMBER:	F3-10
		REV:	19

5.0 DISCUSSION

- 5.1 In the event of a plant evacuation, the personnel accountability check within the Protected Area **SHALL** be completed within thirty (30) minutes, following the Page Announcement ordering a plant evacuation. Accountability is accomplished with the use of the Security Computer and accountability card readers in the TSC and other sector card readers. All personnel accountability results are forwarded to the ED/SM.
- 5.2 Accountability is complete when a list is generated showing the location of plant personnel in the protected area.
- 5.3 When the initial accountability is completed, access to the Protected Area requires coordination between the Emergency Director, Radiation Protection Group, and the Security Manager, or designee, to ensure an ongoing personnel accountability exists throughout the duration of the emergency situation.
- 5.4 To ensure a continuous personnel accountability, an accountability check should be completed once per shift (every 8 hours) or when requested by the Emergency Director.

6.0 PREREQUISITES

A Local, Plant, or Site Evacuation has been initiated or a request for personnel accountability within the protected area has been made.

F3	PERSONNEL ACCOUNTABILITY	NUMBER:	F3-10
		REV:	19

7.0 PROCEDURE

7.1 Local Evacuation

- 7.1.1 Security Supervision sends a Security Officer to the Assembly Point to **assist** in Accountability.
- 7.1.2 AFTER the Security Officer gets to the Assembly Point, THEN CAS Operator runs report-listing personnel in the affected area. Accountability is complete when the Fast Accountability Report is generated.
- 7.1.3 **Inform** the ED/SM that accountability is complete and the results of those names that need verification of location.
- 7.1.4 Security Officer at the Assembly Point should **assist** in verifying personnel on the list.
- A. **Coordinate** with CAS and **mark** the names or badge numbers of security personnel on the list.

NOTE:

During drills and exercises, accountability of personnel listed in "Listing of on-site DRILL-EXEMPT users" at the end of the Fast Accountability Report is not required. If a real event should occur during a drill or exercise, accountability of personnel in "Listing of on-site DRILL-EXEMPT users" at the end of the Fast Accountability Report **SHALL** be conducted.

- B. **Inform** the ED/SM when the verification process is complete and **provide** a list of names of those personnel who are still not accounted for.
- 7.1.5 IF there are any personnel that cannot be located, THEN **advise** the ED/SM to initiate a search for missing personnel, in accordance with F3-11, "Search and Rescue".
- 7.1.6 WHEN verification of the accountability list is complete, THEN the Security Supervision should **direct** the CAS Operator to terminate the emergency evacuation computer program.

F3	PERSONNEL ACCOUNTABILITY	NUMBER:	F3-10
		REV:	19

7.2 Plant or Site Evacuation

- 7.2.1 Personnel accountability **SHALL** be initiated immediately after a plant or site evacuation.
- 7.2.2 During an evacuation, all nonessential personnel should **give** their badge to the Security Team as they exit the protected area and **proceed** to the designated assembly area.
- 7.2.3 As soon as the evacuation alarm sounds OR at the direction of the Security Manager or designee, the Central Alarm Station (CAS) operator should **activate** the TSC accountability card readers.
- 7.2.4 As soon as the evacuation alarm sounds, all personnel in the TSC should **insert** that their badges into one of the two TSC card readers (first or second floor TSC).
- 7.2.5 IF the Security Computer fails, THEN the ED/SM should **direct** the affected emergency centers to manually complete the personnel accountability check sheet, Figure 1 (PINGP 601).
- 7.2.6 WHEN it has been verified that all badges in the TSC have been inserted into the card readers, AND badges of personnel evacuating out of the protected area have been inserted into Security Building exit readers, THEN the Security Manager, or designee, should **cause** the Fast Accountability Report to be run.
- 7.2.7 The Security Team action should be as follows:
- A. The Security Team should **collect** all badges from personnel as they leave the protected area via Security Building.

NOTE:

Evacuating personnel need not stop at the Portal Monitor in the Security Building or at Access Control.

- B. The Security Team should **insert** all badges into the two (2) Security Building exit card readers as soon as possible.
- C. As soon as all badges (evacuated personnel and TSC personnel) have been inserted into the card readers, Security Shift Supervision should **obtain** a list of unaccounted personnel from the security computer.

F3	PERSONNEL ACCOUNTABILITY	NUMBER:	F3-10
		REV:	19

NOTE:

The Fast Accountability Report includes a list of personnel who have not inserted their badges into the accountability card readers and their sector location.

- D. **Take** one (1) Accountability Report to Operational Support Center (OSC) Coordinator or designee in OSC.
- E. **Take** the other copy of the Accountability Report to the Technical Support Center (TSC) Security Manager.
- F. As soon as the Fast Accountability Report is reviewed by the OSC Coordinator or designee, the Security Team should **take** this list to the Security Manager, or designee, in the TSC.

7.2.8 Upon receipt of the Fast Accountability Report, the OSC Coordinator or designee should **verify** the safety status of personnel listed on the Fast Accountability Report as follows:

- A. **Request** OSC supervisory personnel, OSC Emergency Work Status Board Keeper and a representative from the Control Room to assist in the accountability of personnel as names are called.
- B. Using the Fast Accountability Report, **call** or **speak** the names of personnel listed only in the in-plant areas and out-plant areas. **DO NOT** call on names in "sector 10" (Control Room Complex) since these personnel are considered safe.
- C. WHEN a person has been verified, THEN mark his/her name or badge number on the Fast Accountability Report.
- D. WHEN verification of a person cannot be obtained, THEN go to the next name.
- E. WHEN this process is complete, THEN return the Fast Accountability Report to the Security Officer for delivery to the TSC.
- F. **Instruct** supervisors to attempt to contact personnel they are responsible for and could NOT verify.
- G. **Prepare** to implement the provision of F3-11, "Search & Rescue" upon direction of the ED/SM.

F3	PERSONNEL ACCOUNTABILITY	NUMBER:
		F3-10
		REV: 19

- 7.3 Upon receipt of the Fast Accountability Report, Security Manager or designee should:
- 7.3.1 **Inform** the Emergency Director that Accountability is complete and the results of those names that need verification of location.
- 7.3.2 **Coordinate** with CAS and **mark** the names or badge numbers of security personnel accounted for.

NOTE:	During drills and exercises, accountability of personnel listed in "Listing of on-site DRILL-EXEMPT users" at the end of the Fast Accountability Report is not required. If a real event should occur during a drill or exercise, accountability of personnel in "Listing of on-site DRILL-EXEMPT users" at the end of the Fast Accountability Report SHALL be conducted.
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- 7.4 IF there are any personnel that cannot be located, THEN **advise** the ED/SM to **initiate** a search and rescue for missing personnel, in accordance with F3-11, "Search and Rescue".
- 7.5 WHEN verification of the accountability list is complete, THEN the Security Manager should **direct** the CAS Operator to terminate the emergency evacuation computer program.
- 7.6 Once each shift, during an emergency (every 8 hours) OR when requested by the ED/SM, a personnel accountability check onsite should be conducted as follows:
- 7.6.1 The Security Manager or designee should **request** the CAS Operator to activate the TSC card readers.
- 7.6.2 All personnel in the TSC should **insert** their badges into the TSC readers.
- 7.6.3 WHEN it has been verified that all badges in the TSC have been inserted into the card readers, the Security Manager, or designee, should THEN **cause** the Fast Accountability Report to be run.
- 7.6.4 One (1) copy of the Fast Accountability Report should be taken to OSC and the other copy to the TSC for review.
- 7.6.5 As soon as the Fast Accountability Report is reviewed by the OSC, the Security Team should **take** this list to the Security Manager, or designee, in the TSC.

F3	PERSONNEL ACCOUNTABILITY	NUMBER:	F3-10
		REV:	19

- 7.6.6 The Security Manager or designee, should then **determine** from the Fast Accountability Report if the location of any personnel needs to be verified.
- 7.6.7 IF there are any personnel that cannot be verified, THEN **advise** the ED/SM to **initiate** a search for missing personnel, in accordance with F3-11, "Search and Rescue".
- 7.6.8 WHEN verification of accountability list is complete, THEN the Security Manager or designee should **direct** the CAS Operator to terminate the emergency evacuation computer program.

F	SEARCH AND RESCUE	NUMBER:	F3-11
		REV:	8

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>

O.C. REVIEW DATE: <i>042102 SC</i>	OWNER: M. Werner	EFFECTIVE DATE <i>5-2-02</i>
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F	SEARCH AND RESCUE	NUMBER:	F3-11
		REV:	8

1.0 PURPOSE

This procedure provides instructions for search and rescue operations in areas of the plant where radiological conditions are known or unknown.

2.0 APPLICABILITY

This instruction **SHALL** apply to all personnel involved in the activation and termination of search and rescue teams.

3.0 PRECAUTIONS

- 3.1 If there is a reason to believe that the air within the area is toxic or oxygen deficient, the team members **SHALL** use self-contained breathing apparatus which then limits the time available to the team. In this case, in addition to the original team, two or more individuals should be assigned outside of the affected area in standby (fully clothed and wearing SCBA) ready to enter the area if necessary.
- 3.2 Lifelines should be used in areas containing heavy smoke or in areas where visual contact between team members is impossible or hampered.
- 3.3 The Search and Rescue Team **SHALL** have radiation dose rate indicating equipment when radiological conditions are unknown.
- 3.4 The Radiological Emergency Coordinator (REC) **SHALL** control all radiation exposure within the guidelines of F3-12, Emergency Exposure Control.
- 3.5 The Emergency Director **SHALL** authorize all exposure in excess of 10CFR20 limits per F3-12. If necessary, the Emergency Director may verbally authorize increased exposure when time is a limiting factor and documentation **SHALL** be completed as a follow-up.

F	SEARCH AND RESCUE	NUMBER:
		F3-11
		REV: 8

3.6 Dose Control

- 3.6.1 Personnel monitoring devices and portable survey equipment will be used to provide information for limiting working times.
- 3.6.2 For activities NOT involving lifesaving measures, personnel **SHALL** be limited to no more than 5 REM TEDE.
- 3.6.3 Where a life is at stake (i.e., removing a casualty from a high level radiation field or treating a highly contaminated casualty), dose should be limited to 25 REM TEDE, 75 REM LDE or 250 REM for organ or extremity. (F3-12)
- 3.6.4 Dose limits for lifesaving measures may be exceeded on a volunteer basis. (F3-12).
- 3.6.5 In each instance, the risks and benefits derived from a life saving action or protection of large populations **SHALL** be evaluated for each individual performing the lifesaving action for doses exceeding 25 REM TEDE.
- 3.6.6 It has been determined that the probability of radiation sickness increases rapidly at doses above 125 REM and that death may occur at dose levels above 200 REM without medical treatment.
- 3.7 All entries into areas of high radiation (>10R/hr general area) should be made with two dose rate indicating meters.

F	SEARCH AND RESCUE	NUMBER:	F3-11
		REV:	8

4.0 PREREQUISITES

- 4.1 One or more individuals are missing following an evacuation and subsequent accountability check.

OR

- 4.2 A report has been received indicating that personnel are trapped and/or disabled in a potentially hazardous area of the plant.

5.0 PROCEDURE

NOTE:	The primary function of the Search and Rescue Teams SHALL be to locate the individual(s), administer First Aid, and transport the victim to a safe area for further medical treatment
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- 5.1 The Emergency Director should direct security to attempt to determine the location of the missing individual(s) by:
- 5.1.1 Checking the personnel accountability at the assembly area,
 - 5.1.2 Paging the individual,
 - 5.1.3 Conferring with the individual's supervisor and co-workers,
 - 5.1.4 Conducting brief searches (if possible), or
 - 5.1.5 Calling individual's home.
- 5.2 The Emergency Director should review:
- 5.2.1 Name(s) of individual(s), missing,
 - 5.2.2 Summary of subsequent efforts taken to locate the individual(s),
 - 5.2.3 Last known or most probable location,
 - 5.2.4 Extent of injuries, if any,
 - 5.2.5 Assistance required (onsite or offsite),
 - 5.2.6 Conditions which complicate the search and rescue attempt (e.g., high radiation levels).

F	SEARCH AND RESCUE	NUMBER:	F3-11
		REV:	8

NOTE:	Dose rates for areas of the plant projected from the worst case accident assuming major safety system failure and significant core damage are shown in F3-25 "Re-entry."
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5.3 The Emergency Director should utilize all pertinent data available including area and process radiation monitoring channels, survey data, visual observations, observations made by previous teams and any other source of information applicable to determine:

5.3.1 Affected plant areas,

5.3.2 Conditions in affected area (e.g., hazards, radiological, temperature, etc.)

5.3.3 Actions which can be taken to reduce the potential hazards to the Search and Rescue Team prior to or during the entry.

NOTES:	<ol style="list-style-type: none"> 1. In the case where radiation exposures may exceed EPA limits, the teams SHALL be composed of volunteers. (F3-12) 2. It is highly recommended that one team member be a Radiation Protection Group member or an individual with extensive training in radiation protection practices. 3. The following criteria should be considered when selecting team members: <ul style="list-style-type: none"> -Knowledge of first aid -Knowledge of radiological control practices -Knowledge of plant construction
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5.4 The Emergency Director **SHALL** order the formation of a Search and Rescue Team composed of a minimum of two individuals. Maximum number will be determined by the volume of work assigned to the Search and Rescue Team.

F	SEARCH AND RESCUE	NUMBER:	F3-11
		REV:	8

- 5.5 The Radiological Emergency Coordinator should ensure that the Search and Rescue Team is:
- 5.5.1 Briefed on the estimated or expected radiological conditions in the plant,
 - 5.5.2 Equipped with the required protective clothing, respiratory equipment, dosimetry and communications equipment,
 - 5.5.3 Briefed on exposure control in accordance with the guidelines of F3-12, Emergency Exposure Control.
 - 5.5.4 Aware of actions to be taken if unexpected radiological conditions are encountered.
- 5.6 The team members should remain in visual or voice contact with each other at all times when in the affected areas of the plant.
- 5.7 The Search and Rescue Team should carry portable communication equipment allowing contact with the Emergency Director, Radiological Emergency Coordinator or designee.
- 5.8 One member of the Search and Rescue Team should be designated as the Team Leader.
- 5.9 The Team Leader should ensure that the search and subsequent rescue is completed in the most expeditious manner possible using all available ALARA concepts.
- 5.10 IF at any time, the survey instrument(s) appear to malfunction, THEN immediately retreat to a safe area and contact the REC.
- 5.11 The Search and Rescue Team should continuously observe the portable dose rate meter(s) while approaching the area.
- 5.12 The Search and Rescue Team should maintain dialogue with REC concerning observed dose rates and conditions observed.
- 5.13 IF requested, THEN the Search and Rescue Team should read and report dosimeter readings.

F	SEARCH AND RESCUE	NUMBER:	F3-11
		REV:	8

- 5.14 IF at any time during the Search and Rescue mission, observed dose rates exceed a predetermined level, OR IF the exposure of team members approaches a pre-determined amount, THEN the Team Leader **SHALL** direct the team to a safe area.
- 5.15 Upon arriving at the area, the Search and Rescue Team Leader should enter the area and assess the situation as conditions permit.
- 5.16 On the basis of this assessment, the Search and Rescue Team Leader should contact the Emergency Director, determine a course of action, and direct members of the Search and Rescue Team in the completion of the search and/or rescue attempt.
- 5.17 The Team Leader should request additional support from the Emergency Director when needed.

NOTE:	In the case where the individual(s) cannot be moved immediately, First Aid should be applied as necessary, conditions permitting.
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- 5.18 IF the individual(s) are located, THEN they should be moved to the closest safe area and emergency First Aid applied.
- 5.19 IF the missing or disabled individual is located in a Very High Radiation area, THEN the Team Leader, Radiological Emergency Coordinator, and the Emergency Director **SHALL** assess the situation pertaining to the following:
- 5.19.1 Dose Rates in Area
 - 5.19.2 Type of injuries
 - 5.19.3 Estimated Time to Rescue
 - 5.19.4 Projected Exposure to Victim
 - 5.19.5 Projected Exposure to team if rescue is continued
- 5.20 The Emergency Director **SHALL** direct the completion or termination of the Search and Rescue mission.

F	SEARCH AND RESCUE	NUMBER:	F3-11
		REV:	8

- 5.21** IF the individual(s) are in a safe area, THEN the Search and Rescue Team or other qualified EMTs **SHALL** evaluate the condition of individual(s):
- 5.21.1** IF the individual is injured and requires further medical treatment, THEN refer to the operations Manual, Section F4, Medical and Casualty Care.
- 5.21.2** IF the individual has or may have received an overexposure, THEN refer to F3-12.
- 5.22** The members of the Search and Rescue Team **SHALL** report to the Radiation Protection Group for determination of exposure they may have received, per F3-12.

F3	OFFSITE DOSE CALCULATION	NUMBER: F3-13
		REV: 15

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>

O.C. REVIEW DATE: <i>4-24-02 SC</i>	OWNER: M. Werner	EFFECTIVE DATE <i>5-2-02</i>
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F3	OFFSITE DOSE CALCULATION	NUMBER:
		F3-13
		REV: 15

1.0 PURPOSE

The F3-13 series of procedures and MIDAS User's Manual (RPIPs) satisfy the dose projection commitments made in the Prairie Island NGP Emergency Plan.

2.0 APPLICABILITY

This Instruction **SHALL** apply to Radiological Emergency Coordinators, Radiological Protection Support Supervisor, MIDAS Operators, and Shift Chemist.

3.0 REQUIRED EQUIPMENT

- 3.1 Radiation Monitoring System
- 3.2 Meteorological Equipment
- 3.3 Radiation Dose Assessment Computer System (RDACS)

4.0 PRECAUTIONS

Use care when reading log scales on the radiation monitors and their calibration curves.

5.0 PREREQUISITES

An Alert, Site Area Emergency or General Emergency has been declared and there is actual or potential for a radioactive airborne release.

6.0 PROCEDURE

- 6.1 IF the Emergency Director has directed offsite dose calculations OR a release to the atmosphere has occurred OR there is an immediate potential for a release to the atmosphere, THEN perform offsite dose calculations in accordance with the MIDAS User's Manual (RPIPs).

F3	OFFSITE DOSE CALCULATION	NUMBER:	F3-13
		REV:	15

6.2 The conduct of Manual Dose Calculations, F3-13.3, may be performed by the MIDAS Operator in the rare case that neither Radiation Dose Assessment Computer is operating.

6.3 Potential Airborne Release From Containment

The REC/RPSS/MIDAS Operator may conduct offsite dose calculations for those cases of a potential release of airborne activity in containment from a LOCA type accident. The MIDAS isotopic release rate run should be used based on the following:

6.3.1 Convert the R48/R49 Containment Radiation Monitor reading (R/Hr) to Containment Activity Concentration ($\mu\text{Ci/cc}$ Xe133 Equivalent) using the Containment Dose Rate Versus Time Figure in F3-8.

6.3.2 The estimated release rate may be based on releasing 100% of the containment activity in one hour. Estimate the Release Rate ($\mu\text{ Ci/sec}$ Xe133 Equivalent) by:

$$\begin{array}{rclclcl} \text{Release} & & \text{Containment} & & & & \\ \text{Rate} & = & \text{Activity} & \times & 3.7\text{E}10 \text{ (cc)} & \times & \frac{1}{3600 \text{ (sec)}} \\ (\mu\text{Ci/sec}) & & (\mu\text{Ci/cc}) & & & & \end{array}$$

6.3.3 Release duration is assumed to be one hour.

6.4 Estimating An Unmonitored Release Rate Based On Field Data

The REC/RPSS/MIDAS Operator may perform offsite dose projections based on an unmonitored release by comparing actual measured field survey data with a MIDAS isotopic release rate run as follows:

6.4.1 Perform a MIDAS isotopic release rate run based on actual meteorological data and fictitious release rates of

1E6 $\mu\text{Ci/sec}$ Xe133 Equivalent and,

1E2 $\mu\text{Ci/sec}$ I131 Equivalent

6.4.2 Compare the actual measured field survey data with the MIDAS dose projection data to establish an estimated actual release rate.

6.4.3 Subsequent offsite dose projections may be performed using MIDAS isotopic release rate run and the estimated actual release rate based on field measurements.

F3	OFFSITE DOSE CALCULATION	NUMBER:
		F3-13
		REV: 15

- 6.5 Report results to the Emergency Director or Emergency Manager on a periodic basis. Inform the Emergency Director or Emergency Manager immediately of any significant projected offsite dose calculations.
- 6.6 Continue to calculate the projected offsite dose rates at approximately 15 to 30 minute intervals, until the emergency situation is terminated or until such time as determined by the REC/RPSS.
- 6.7 Ensure that the offsite officials are notified of relevant projected offsite dose calculations on a periodic basis or when requested via the transmittal of PINGP 582, "Emergency Notification Followup Message."

F3	MANUAL DOSE CALCULATIONS	NUMBER:
		F3-13.3
		REV: 11

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>

O.C. REVIEW DATE: <i>042402 SC</i>	OWNER: M. Werner	EFFECTIVE DATE <i>5-2-02</i>
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F3	MANUAL DOSE CALCULATIONS	NUMBER: F3-13.3
		REV: 11

1.0 PURPOSE

This procedure provides instructions to perform manual dose calculations.

2.0 APPLICABILITY

This procedure **SHALL** apply to the Radiological Emergency Coordinators (REC), Radiation Protection Support Supervisor (RPSS), and MIDAS Operators.

3.0 PRECAUTIONS

NONE

4.0 PROCEDURE

NOTE:	Manual dose calculations may be done using the "Windose" program or using PINGP 946 and a calculator.
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4.1 Proceed to Section 4.2 to use the PC program "Windose" or Section 4.3 to use worksheets and a calculator.

4.2 PC Computer Method for Manual Dose Calculations

NOTE:	"Windose" is installed on the TSC and EOF MIDAS dose projection PCs. There should be a "Windose" icon. A PC diskette should also exist in a 3 ring binder label "Windose".
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4.2.1 IF the "Windose" icon is to be used, THEN:

- A. Run "Windose" by using the "Windose" icon.
- B. Continue with Step 4.2.3.

F3	MANUAL DOSE CALCULATIONS	NUMBER:
		F3-13.3
		REV: 11

4.2.2 IF the "Windose" diskettes are to be used, THEN:

- A. Insert the first diskette into the appropriate disk drive.
- B. Choose "RUN" on "START" menu for applicable disk drive.
- C. Run the setup program.
- D. After "Windose" is installed, execute the program.
- E. Continue with Step 4.2.3.

4.2.3 Complete the program's data inputs as necessary.

- A. Obtain or determine meteorological information using F3-13.5.
- B. Determine the radioactive release path, flows, concentrations or release rates using F3-20, PINGP 783 or PINGP 784.

4.3 Manual Calculator Method for Dose Calculations:

NOTE:	Use PINGP 946 (Figure 1) to log data and perform calculations.
--------------	--

4.3.1 Obtain/determine the following meteorological parameters, as per F3-13.5:

- A. Wind Speed (ground elevation, mph)
- B. Wind Direction (ground elevation, degrees from)
- C. Affected Sectors (letter designation)
- D. Stability Class (letter designation)

4.3.2 Determine the radioactive effluent release path.

F3	MANUAL DOSE CALCULATIONS	NUMBER: F3-13.3
		REV: 11

NOTE:	<p>If radioactive effluents are being released from more than one release point, then a total release flow rate, F, and an average XE133 eq. concentration will have to be calculated:</p> <p>(1) The total release flow rate, F, (cfm).</p> $F = F1 + F2 + \dots$ <p>and</p> <p>(2) The AVERAGE CONCENTRATION XE133 ($\mu\text{Ci/cc}$)</p> $\text{AVE. CONC. XE133} = \frac{F1 \times \text{XE133}(1)}{F} + \frac{F2 \times \text{XE133}(2)}{F} + \dots$ <p>where: F1 = release point 1 flow rate (cfm)</p> <p style="padding-left: 40px;">F2 = release point 2 flow rate (cfm)</p> <p>XE133(1) = release path 1 concentration ($\mu\text{Ci/cc}$)</p> <p>XE133(2) = release path 2 concentration ($\mu\text{Ci/cc}$)</p>
--------------	--

4.3.3 Estimate the release flow rate of the radioactive effluent release path, F, in cfm.

Aux Building Special	8,000 cfm per stack
Containment Purge	32,250 cfm
Containment In-Service Purge	4,000 cfm
SFP Special	5,000 cfm per train
Shield Building Vent	200 cfm per train (400 cfm/stack)
Steam Dump	6,400 cfm per valve
PORV's	3,500 cfm per valve
SG Safeties	6,000 cfm per valve
SDAFW Pump Turbine Exhaust	150 cfm

4.3.4 Estimate the expected duration of the release, T, in hours (use 4 hours if release duration is not known).

4.3.5 Determine the release concentration of XE133 Equivalent being released from the plant, by either of the following methods:

F3	MANUAL DOSE CALCULATIONS	NUMBER:
		F3-13.3
		REV: 11

- A. Obtain the count rate or dose rate from the applicable radiation monitor. Refer to the calibration curves in F3-20 for the applicable radiation monitor to obtain the release concentration in $\mu\text{Ci/cc}$. Utilize PINGP 783 for Steam Release or PINGP 784 for Shield Building Stack Release.
- B. If the applicable radiation monitor is out of service, determine the release concentration in accordance with F3-20, "Manual Determination of Radioactive Release Concentrations." Utilize PINGP 783 for Steam Release or PINGP 784 for Shield Building Stack Release.

4.3.6 Determine the release concentration of I131 equivalent being released from the plant.

- A. Use the I131 equivalent activity, $\mu\text{Ci/cc}$, from the sample analysis, if known.

NOTE: If more than 1 release point is involved, then calculate an AVG. CONC. I131 as was done for XE133.

- B. If the I131 equivalent activity is not known, use the iodine/noble gas ratio of $1\text{E-}04$ to determine the I131 equivalent activity being released, as follows:

$$(\text{XE133}) \times (1\text{E-}04) = (\text{I131}) \mu\text{Ci/cc}$$

NOTE: If more than 1 release point is involved, then use the AVG. CONC. XE133 to determine an AVG. CONC. I131.

4.3.7 Using the stability class and the downwind distance, determine the value for XU/Q (PINGP 946) for that stability class and downwind distance.

4.3.8 Calculate the TEDE rate as follows:

$$\text{TEDE Rate (mRem/hr)} = \frac{(43) (XU/Q) (F) (XE133)}{(U)}$$

F3	MANUAL DOSE CALCULATIONS	NUMBER:	F3-13.3
		REV:	11

4.3.9 Calculate the Thyroid CDE rate as follows:

$$\text{Thyroid CDE Rate (mRem/hr)} = \frac{(2.0E6) (XU/Q) (F) (1131)}{(U)}$$

4.3.10 Calculate the TEDE and Thyroid CDE by multiplying the applicable dose rates by the expected release duration, T, in hours:

$$\text{TEDE (mRem)} = \text{TEDE rate (mRem/hr)} \times T \text{ (hrs)}$$

$$\text{Thyroid CDE (mRem)} = \text{Thyroid CDE rate (mRem/hr)} \times T \text{ (hrs)}$$

5.0 ATTACHMENTS

Figure 1 - Dose Calculation Worksheet

F3	MANUAL DOSE CALCULATIONS	NUMBER: F3-13.3
		REV: 11

Figure 1 Dose Calculation Worksheet

**EXAMPLE ONLY
USE CURRENT REVISION**

PINGP 946, Rev. 4
(Front)
Retention: Life
Document Type: 7.371

DOSE CALCULATION WORKSHEET

DATE _____ TIME _____

WIND SPEED = **U** = _____ MPH

WIND DIRECTION = _____ DEG SECTORS _____

STABILITY CLASS = _____

RELEASE PATH = _____ FLOW RATE = **F** = _____ CFM

EXPECTED RELEASE DURATION = **T** = _____ Hrs.

Xe-133 EQ. CONCENTRATION = **XE133** = _____ $\mu\text{Ci/cc}$

I-131 EQ. CONCENTRATION = **I131** = _____ $\mu\text{Ci/cc}$

DOWNWIND DISTANCE (mi)	XU/Q (m ⁻²) As per Stability Class					
	A	B	C	D	E	F
0.5	3.1E-6	1.8E-5	4.7E-5	1.2E-4	2.0E-4	3.3E-4
2.0	5.2E-7	8.3E-7	5.0E-6	1.8E-5	3.6E-5	8.7E-5
5.0	2.4E-7	3.2E-7	1.2E-6	5.0E-6	1.1E-5	3.0E-5
10.0	1.4E-7	1.8E-7	4.0E-7	2.0E-6	5.2E-6	1.4E-5

$$\text{TEDE RATE (mRem/hr)} = \frac{(43) (XU/Q) (F) (XE133)}{(U)}$$

$$\text{THYROID CDE RATE(mRem/hr)} = \frac{(2.0E6) (XU/Q) (F) (I131)}{(U)}$$

Distance (mi)	TEDE Rate (mRem/hr)	TEDE (mRem) (Dose Rate X T)	Thyroid CDE (mRem/hr)	Thyroid CDE (mRem) (Dose Rate X T)
0.5				
2.0				
5.0				
10.0				

CALCULATED BY: _____

F3	MANUAL DOSE CALCULATIONS	NUMBER:
		F3-13.3
		REV: 11

Figure 1 Dose Calculation Worksheet

**EXAMPLE ONLY
USE CURRENT REVISION**

PINGP 946, Rev. 4
(Back)

STABILITY CLASS DETERMINATION

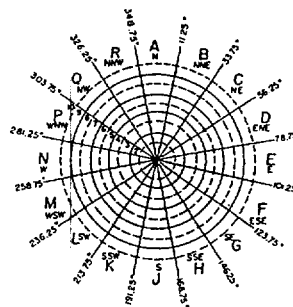
DELTA T (°F)/50M	STABILITY CLASS	WDS1 SIGMA THETA
< -1.71	A	> 23
-1.71 to -1.53	B	18 - 23
-1.52 to -1.35	C	13 - 18
-1.34 to -0.45	D	8 - 13
-0.44 to +1.35	E	4 - 8
+1.36 to +3.60	F	< 4
> 3.60	G	

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

WIND DIRECTION

- If the 10 meter wind speed < 5 mph designates all sectors.
- If the 10 meter wind speed \geq 5 mph, use the 10 meter and 60 meter sensors to best describe wind direction and speed for the river valley and bluffs, respectively.
- If the 22 meter met tower is used for wind direction, designate all sectors.



F3	MIDAS METEOROLOGICAL DATA DISPLAY	NUMBER: F3-13.4
		REV: 7

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>

O.C. REVIEW DATE: 4-18-02 SC	OWNER: M. Werner	EFFECTIVE DATE 5-2-02
--	----------------------------	---------------------------------

F3	MIDAS METEOROLOGICAL DATA DISPLAY	NUMBER:
		F3-13.4
		REV: 7

1.0 PURPOSE

This procedure provides instructions for the display of meteorological data from MIDAS or enable the user to turn selected MIDAS DEVICES to the ON status.

2.0 APPLICABILITY

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

3.0 PRECAUTIONS

Prior to turning any MIDAS DEVICE to the ON status, ensure the problem that turned it OFF has been corrected. If not, MIDAS will turn that data collection device to the OFF status and possibly lose additional data. Data Collection Devices can ONLY be turned to the ON status, by the procedure, and never OFF.

4.0 INITIAL CONDITIONS

NONE

F3	MIDAS METEOROLOGICAL DATA DISPLAY	NUMBER:
		F3-13.4
		REV: 7

5.0 PROCEDURE

5.1 Log onto the MIDAS Meteorological Data display by performing the following:

5.1.1 Access a LAN terminal.

5.1.2 Activate the "Midas Meteorological Data F3-13.4" icon found on the

- "Start" menu
- "APPS"
- "Kea 5.0" menu.

5.2 Once the log-on messages are complete, a standard prompt should appear:

MIDAS-MET - M I D A S T E X T M E N U

DS = DEVSUM (Device Summary of Met & Rad Data Collection)
MS = METSUM (Summary of Latest 15 minute Met Average)
DM = METDIS (Display of 5 second Met Data - MET EALs)
EX = EXIT

Option:

5.2.1 To change the DEVSUM (Device Summary), go to Step 5.5.

5.2.2 To display METSUM (15 minute Met Average), go to Step 5.3.

5.2.3 To display METDIS (5 second Met Data), go to Step 5.4.

5.2.4 To log out, enter "EX."

F3	MIDAS METEOROLOGICAL DATA DISPLAY	NUMBER:
		F3-13.4
		REV: 7

5.3 To display the Meteorological 15 Minute Summary Table, enter "MS."

5.3.1 A display of the meteorological information should now appear.

NOTE:	<p>(1) The 10 meter wind direction and speed is most representative of the meteorological data in the river valley, whereas, the 60 meter wind direction and speed is slightly more representative of the meteorological data above the river bluffs. For initial dose projection the 10 meter wind speed and direction should be used, if available.</p> <p>(2) Further analysis of the 10 meter and 60 meter wind direction differences should be done by the REC to determine if any changes in designating downwind sectors is warranted.</p> <p>(3) The 22 meter met tower does not always characterize the actual wind direction. If the 22 meter met tower must be used, the REC should consult alternate met data to assess wind direction differences.</p> <p>(4) Wind direction (degrees) is the direction the wind is coming FROM.</p>
--------------	---

5.3.2 Press <ENTER> when completed viewing to return to the selection menu.

5.4 To display the 5 Second Met Data - MET EALs, enter "DM."

5.4.1 A display of the current meteorological information should appear.

5.4.2 The met information will be updated on the screen at five (5) second intervals.

5.4.3 The "EAL Exceeded?" section will indicate if sustained wind speeds (minimum wind speed sustained for at least two (2) minutes) exceed an F3-2 wind speed emergency action level (EAL) of 90 mph or 100 mph.

5.4.4 Enter <CONTROL> "Y" to exit program.

F3	MIDAS METEOROLOGICAL DATA DISPLAY	NUMBER: F3-13.4
		REV: 7

5.5 To turn a DEVICE to the ON status:

5.5.1 Enter "DS" for display of Device Status.

5.5.2 Press <ENTER>.

NOTE:	Prior to turning any device to the ON status, ensure the problem that caused data collection to stop has been resolved. If not, MIDAS will return the device status to OFF and possibly lose additional data.
--------------	---

5.5.3 The following Device Status display should now appear:

```

*****
                DEVICE STATUS
                -----
                ON - PRIMARY METEOROLOGICAL TOWER
                ON - BACKUP METEOROLOGICAL TOWER
                ON - VENT AND FLOW MONITORS
                *****
    
```

What would you like to turn on?

```

ENTER:   [PR]   PRIMARY MET TOWER
          [BA]   BACKUP MET TOWER
          [VE]   VENT and FLOW MONITORS
          [EX]   EXIT
    
```

5.5.4 If the status of all devices is shown as ON, go to Step 5.5.7 to exit. If one or more devices are shown as OFF, continue with 5.5.5.

5.5.5 To turn a device ON, enter the two letter code for that device, either "PR", "BA", or "VE".

5.5.6 Repeat Step 5.5.5 for each device that is to be turned to the ON status.

5.5.7 When all devices have been turned to the ON status, and/or if it is desired to exit the device status program, enter "EX."

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

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>

O.C. REVIEW DATE: 4-24-02 se	OWNER: M. Werner	EFFECTIVE DATE 5-2-02
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F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16 REV: 17

1.0 PURPOSE

This procedure describes the responsibilities of the Radiation Survey Teams during a liquid radioactive release to the environment.

2.0 APPLICABILITY

This Instruction **SHALL** apply to all members of the Prairie Island Radiation Protection Group.

3.0 PRECAUTIONS AND SPECIAL CONSIDERATIONS

- 3.1** Each team **SHALL** obtain information pertaining to the magnitude of the liquid release, either from the Control Room Operator, the Radiological Emergency Coordinator (REC), or the Radiation Protection Support Supervisor (RPSS).
- 3.2** Depending on magnitude of the Radioactive Liquid Release, the spray/mist from the cooling towers could be radioactively contaminated. Radiation Survey team members should take appropriate precautions and monitor themselves for possible contamination.
- 3.3** Report all liquid sample results to the REC or RPSS, in whole numbers, (i.e., with no decimal places) microcuries per milliliter.
- 3.4** Preface each communication with the title or name of the receiving party and then your title or name. For example: "Prairie Island TSC; Survey Team No. 1"

After the communication is complete, request the receiving party to repeat the message, if numerical data was relayed.

End message transmission with an appropriate termination phrase. For example: "Survey Team No. 1, out."

During drills, always include the words, "THIS IS A DRILL," with each transmission.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16 REV: 17

3.5 The normal means of transportation for survey teams during any emergency is plant vehicles. Extreme environmental conditions (blocked roads, snow, bridges out, etc.) may preclude the use of these vehicles. The following alternate transportation is available.

NOTE:	This does not prohibit the use of personal vehicles in cases where plant vehicles are not available in sufficient numbers.
--------------	--

3.5.1 **Power Boats** - Sheriff's Department, plant environmental monitoring team, Red Wing Police.

3.5.2 **Four Wheel Drive Vehicle** - at Prairie Island

3.5.3 **Helicopter** - Available during suitable weather conditions from charter services in Minneapolis and St. Paul. Arrangements to be made via the Emergency organization at the EOF.

3.6 The normal means of communication for survey teams is the portable radios. The normal telephone system serves as a backup communication system. Telephone numbers in the TSC for the Radiological Emergency Coordinator (REC) are:

(651) 388-1121	Local Plant
(800) 216-1986	Long Distance Plant
x4350	REC
x4334	F.T. Com.
(715) 839-0382	REC (Wisconsin)
(612) 330-7690	REC (Twin Cities)

Telephone numbers at the EOF are:

Prairie Island EOF	Contact	Monticello EOF
(651) 388-1121, Ext. 4502	Field Team Comm	(763) 295-1504
(651) 388-1165, Ext. 5244	RPSS	(763) 295-1503
(651) 388-1121, Ext. 4500	EOF Coordinator	(763) 295-1502
(651) 388-1121, Ext. 4505	EOF Count Room	(763) 295-1435
(651) 388-1165, Ext. 5236	EOF Count Room	(763) 295-1583

3.7 The REC, or RPSS, may determine that samples should be obtained at the Eisenhower Bridge and the Wisconsin channel. The REC, or RPSS, **SHALL** assign available individuals to obtain these samples.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:	F3- 16
		REV:	17

NOTE:	<ol style="list-style-type: none"> 1. If river sampling is hindered due to ice, contact the REC, or RPSS, for further instructions. 2. Traffic control assistance on the Eisenhower Bridge should be obtained from the Red Wing Police.
--------------	---

- 3.8 The estimated main channel average river velocity is 0.75 mph, therefore:
 - A. time to reach Lock & Dam No. 3 is 2 hours.
 - B. time to reach Eisenhower Bridge is 9 hours.
- 3.9 Check meter batteries by switching to BATTERY CHECK position. Replace if necessary.
- 3.10 Meters checks **SHALL** be completed prior to use.
- 3.11 Observe the cold weather operation restrictions (Attachment C).
- 3.12 All samples **SHALL** be labeled properly with the required information and saved for further analysis.

4.0 RESPONSIBILITIES

- 4.1 The REC and the RPSS have the responsibility to determine sample priorities and to direct the Radiation Survey teams sampling.
- 4.2 The Radiation Survey teams have the responsibility to conduct sampling during a radioactive liquid release in accordance with this procedure.
- 4.3 The Radiation Team communicator has the responsibility to maintain communications between the Radiation Survey Teams and the REC in the TSC or the RPSS in the EOF.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

5.0 DISCUSSION

There are three radiation survey teams. Two (2) teams perform offsite surveys and another team provides onsite coverage. Each offsite Survey Team as a minimum requires one (1) Survey Team Member. A second Survey Team Member is desirable. Another person maybe assigned as a driver. All team members report to the Operation Support Center (OSC) for assignment by the Radiological Emergency Coordinator (REC). Other personnel can be used to assist Survey Team Members. The Survey Team Member has the responsibility to ensure proper survey and sampling technique and to perform field calculations.

In the event of an offsite liquid release, the Radiological Emergency Coordinator (REC) may request support for offsite surveys from Monticello. When the Monticello Field Teams arrive at the Prairie Island Near-Site EOF, they will be provided Prairie Island radios if necessary and they will accept the responsibility for offsite surveys and sampling. This allows the Prairie Island personnel to augment the Onsite Radiological Survey Team. All offsite surveys will continue under the direction of the EM at the Prairie Island Near-Site EOF, with the Offsite Survey Teams reporting their activities to the RPSS.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16 REV: 17

6.0 EQUIPMENT AND PERSONNEL REQUIRED

NOTE:	<ol style="list-style-type: none"> 1. Personnel listed as Team I or Team II may respond as either team to ensure staffing of the Field Survey Teams is satisfied expeditiously. 2. Rad Protection Supervisors SHALL report to the OSC and assume on-site responsibilities as directed by the Radiological Emergency Coordinator (REC).
--------------	--

6.1 Team Members

Personnel trained in performing surveys.

6.2 Team Equipment Required

6.2.1 Field Teams 1 & 2 (Offsite Survey Teams)

- A. Vehicle (plant or personal)
- B. Offsite sample kit (Attachment A)

6.2.2 Onsite Radiological Monitoring Team

- A. Normal counting room equipment, if available
- B. E.O.F. counting room equipment
- C. All available onsite radiation protection equipment

7.0 PREREQUISITES

An NUE, Alert, Site Area, or General Emergency has been declared for Prairie Island Nuclear Plant, or anytime Radiation Protection Group deems necessary.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

8.0 PROCEDURE

8.1 All members of Radiation Survey Teams should assemble in the Operational Support Center, unless directed by the Emergency Director or the Radiological Emergency Coordinator (REC):

8.2 Field Teams 1 & 2 (Offsite Survey Teams)

8.2.1 **Obtain** the necessary information from the the Control Room Operator or TSC personnel regarding the type and amount of release, etc.

8.2.2 **Designate** two (2) members for Team 1 and two (2) members for Team 2 (if available) to perform offsite surveys.

NOTE:	Any available plant personnel may be designated as the driver for a single team member.
--------------	---

8.2.3 **Obtain** a plant vehicle or personal vehicle.

8.2.4 **Obtain** the necessary equipment (Attachment A), from the NPD Office Building equipment locker or EOF.

8.2.5 **Obtain** TLD's and dosimeters for each Team member.

NOTE:	Survey Team Members should keep their personal TLD's if departing from the plant site.
--------------	--

8.2.6 **Ensure** dosimeter is < 25% of scale and **record** readings on the dosimeter signout sheet.

8.2.7 **IF** vehicle with installed radio is NOT available, **THEN obtain** a portable radio, and magnetic antenna from EOF Receiving Area.

8.2.8 **Test** the operation of the radios (on channel 13, Rad Team 1) and meter check all meters prior to departing. **Refer** to Attachment C, if cold weather is a consideration.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:	F3- 16
		REV:	17

8.2.9 Perform offsite surveys as directed by REC or RPSS.

- A. Team 1 will **proceed** to the Lock & Dam No. 3 and **obtain** a one liter sample every 15 minutes from the downstream side of roller gate area or as directed by the REC or RPSS. **Refer** to Attachment B for sampling instructions.
- B. Team 2 will **proceed** to the Discharge Canal, at the Cooling Tower Discharge gates and Recycle gates, and **obtain** one liter samples from the Discharge Canal and Recycle Canal every 15 minutes or as directed by the REC, or RPSS. Liquid samples may be requested near the Discharge Canal outlet to the river at the Cooling Tower Sluice gates. **Refer** to Attachment B for sampling instructions.

NOTE:	If river sampling is hindered due to ice, contact the Radiological Emergency Coordinator, or RPSS, for further instructions.
--------------	--

NOTE:	On PINGP 647 (Figure 4) columns that do NOT apply may be N/A, a down arrow (↓) may be used to repeat data.
--------------	--

- 8.2.10 Document** all survey data on PINGP 1225, Emergency Sample Label, (Figure 1), and on PINGP 647, Field Team Communicator Emergency Sample Results Log, (Figure 4) or PINGP 598, Emergency Center Narrative Log, (Figure 5).
- 8.2.11 Report** results to the REC or the RPSS, via the portable radio or telephone.
- 8.2.12 Label** bottles correctly for further analysis and storage at the plant site.
- 8.2.13 One** team member **SHALL** continue the sampling schedule while the other member transports the samples to the location designated by REC or RPSS for pickup by Sample Courier. Additional bottles may also be obtained at this location.
- 8.2.14 Continue** sampling as directed by the REC or RPSS.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER: F3- 16
		REV: 17

NOTE:

Any available plant personnel may be designated as the driver for a single team member.

8.3 Onsite Radiological Monitoring Team

- 8.3.1 Perform** all operations requested by the Emergency Director (ED) or REC.
- 8.3.2 Control** radiation exposure onsite (internal and external).
- 8.3.3 Analyze** samples obtained by the onsite and offsite survey teams, using the Count Room facilities and/or the E.O.F. count room facilities.
- 8.3.4 Store** all samples for future analysis.
- 8.3.5 Perform** onsite surveys as requested by the Emergency Director and/or REC per F3-14.1, Onsite Radiological Monitoring.
- 8.3.6 Perform** required personnel monitoring at the emergency operating centers and **supervise** any necessary personnel decontamination per F3-19, Personnel and Equipment Monitoring and Decontamination.
- 8.3.7** One member may be designated as a runner to pickup all samples at the designated locations from Team No. 1 and Team No. 2. Nuclear Plant Service Attendants may be used as sample couriers.
- 8.3.8 Assist** plant operations in minimizing and controlling the release.
- 8.3.9** All results **SHALL** be reported to the REC or ED via the available communication system.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

8.4 Radiation Field Team Communicator

- 8.4.1 **Report** to the Technical Support Center when the emergency is declared, and **utilize** PINGP 1156, TSC Field Team Communicator Checklist.
- 8.4.2 **Obtain** current plant status, release information and meteorological data.
- 8.4.3 **Establish** communications with the Survey Teams, using the TSC Console in the REC area.
 - A. **Identify** team as PI Team No. 1, etc.
 - B. **Obtain** team member names.
 - C. IF radio communication NOT possible, THEN survey teams will utilize telephone system.
 - D. **Update** teams with present plant status, release information, met data, etc.

NOTE:	<ol style="list-style-type: none"> 1. When communicating with the survey teams, preface each communication with the title or name of the receiving party. 2. During drills, always include the words, "THIS IS A DRILL", with each transmission.
--------------	--

- 8.4.4 **Dispatch** Survey Team No. 1 to Lock and Dam No. 3 and Survey Team No. 2 to the Discharge Canal or as directed by the REC or ED. (See Step 8.2.9.A and Step 8.2.9.B). **Refer** to PI Survey Team Liquid Sample map for assistance.
- 8.4.5 **Log** pertinent information and Survey Team Results on the REC Log, PINGP 598 (Figure 5) or PINGP 647 (Figure 4).

NOTE:	If numerical results are communicated, repeat results for verification from survey teams.
--------------	---

- 8.4.6 **Instruct** the Survey Teams to return samples to the Plant or EOF Count Room for analysis, or dispatch a sample courier.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

- 8.4.7 **Compare** offsite monitoring results for consistency. **Re-monitor** areas of concern, as required.
- 8.4.8 **Update** the Field Survey Teams periodically with:
- A. Emergency Classification
 - B. Plant status
 - C. Release information
 - D. Meteorological data
- 8.4.9 IF radiation exposure to personnel exists, THEN **direct** the Survey Teams periodically to read their dosimeters, and log results.
- 8.4.10 **Instruct** the Prairie Island Survey Teams to report to the OSC for onsite assignments, when the RPSS and the Monticello Survey Teams assume responsibility for offsite surveys.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

Attachment A Offsite Survey Team Equipment Package

- 1.0 Each offsite survey team should be equipped with a kit of the following:
- Dose rate instrument RO-2 or equivalent
 - Count rate instrument RM-14 or equivalent
 - 2" GM pancake probe
 - Battery powered air sampler
 - Personnel self-reading dosimeters (Low Range)
 - Personnel self-reading dosimeters (High Range)
 - TLD's (if individuals have a normally assigned TLD, they should wear those assigned)
 - Plastic Sample Bags
 - Garbage bags
 - Paper towels
 - Masking tape
 - Silver zeolite adsorbers
 - GMR-I canisters
 - Full Face respirators
 - Gas Sample Chambers
 - Filter assembly (gas sampler)
 - Suction bulb (gas sampler)
 - Filter paper (gas sampler)
 - One liter poly bottles
 - Four inch air sampler filter papers

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

Attachment A Offsite Survey Team Equipment Package

- Survey sample labels
- IF NOT using vehicles with a radio installed, THEN pick up spare radio in EOF or get radio from Monti.
- Portable Radio Antenna Adapter (Connects antenna directly to hand held portable radio in event of radio booster unit failure)
- Flashlight
- D-Cell batteries
- Potassium Iodine tablets (Thyroid Blocking Agent)
- Orange Safety Vests
- Tweezers
- Anti-C Clothing
- Life Jackets
- Compass
- Clipboard
- Pens
- Pad of paper (8-1/2" X 11" minimum size)
- Road map of State of Minnesota
- Road map of State of Wisconsin
- Umbrella
- Watch or clock
- Calculator
- Foul weather (rain) gear

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:	F3- 16
		REV:	17

Attachment A Offsite Survey Team Equipment Package

- Line (100 feet)
- Weighted poly bottle holder
- Snow Scoop
- Surgeon gloves

2.0 The Procedures Binder contains:

- Ground Deposition Sample Results Log Forms
- Plume Search Survey Log Forms
- Copy of F3-15, "Responsibilities of the Radiation Survey Teams During a Radioactive Airborne Release"
- Copy of F3-16, "Responsibilities of the Radiation Survey Teams During a Radioactive Liquid Release"
- Copy of F3-22, "Prairie Island Radiation Protection Group Response to a Monticello Emergency"
- Narrative Log

3.0 Prairie Island and Monticello Emergency Plan Map Sets

4.0 Aluminum Form clipboard/holder:

- Field Team Air Sample Results Forms

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

Attachment B Liquid Sampling

1.0 Precautions

- 1.1. Always collect full one liter bottles.
- 1.2. For samples at the outfall or point of discharge, assume that the bottle, weighted sampler and rope could possibly be slightly contaminated. Surgeons gloves should be worn at this sample point and bottles be placed in a plastic bag.
- 1.3. Observe cold weather operation instructions (Attachment C).
- 1.4. Estimation of gross liquid activity **SHALL** be made with probe in position shown on applicable activity curve table.
- 1.5. All meter readings **SHALL** be corrected count rates (subtract background).

2.0 Procedure

- 2.1. **Obtain** a one liter poly sample bottle of liquid from the desired sample location.

NOTE:	Place poly bottle in sample rig in such a position that it will not float out.
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- 2.2. **Throw** the weighted sampler into an area of water which will supply a representative sample.
- 2.3. **Collect** a FULL one liter sample of liquid.
- 2.4. **Withdraw** the weighted sampler and cap the sample bottle.

NOTE:	Observe precautions as sampler may be contaminated.
--------------	---

- 2.5. **Label** bottle properly.
- 2.6. **Place** labeled bottle in plastic bag.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

Attachment B Liquid Sampling

- 2.7. **Estimate** the gross liquid activity by the following methods:
- 2.7.1 Using RM-14 or equivalent with 2" GM Pancake Probe - **position** the probe at midpoint on the one liter sample bottle as shown on Figure 2 or Figure 3.
 - 2.7.2 Using the corrected count rate obtained on the instrument, estimate gross activity in $\mu\text{Ci/ml}$ Figure 2 or Figure 3.
- 2.8. **Record** results on PINGP 1225, (Figure 1), and on PINGP 647, (Figure 4) or PINGP 598, (Figure 5).
- 2.9. **Report** the results to the REC or the RPSS.
- 2.10. **Save** all samples for further analysis.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER:
		F3- 16
		REV: 17

Attachment C Cold Weather Operation

1. IF outside temperature is greater than 32°F (0°C), THEN instrument use is unlimited.
2. IF outside temperature is between 32°F (0°C) AND 0°F (-18°C), THEN no instrument should be used for more than 5 minutes.
3. IF outside temperature is between 0°F (-18°C) AND -20°F (-28°C), THEN no instrument should be used for more than 2 minutes.
4. IF the outside temperature is below -20°F (-28°C), THEN no instrument should be used unless special batteries (alkaline or Ni-CD) are in instrument and this would increase the temperature range to -40°F(-40°C). The instrument should only be used for very short times (less than 30 seconds).
5. The instrument should completely warm up between periods of cold weather use. Instrument warm-up may be indoors or in a heated vehicle and should take 2 - 5 minutes.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER: F3- 16
		REV: 17

Figure 1 PINGP 1225 Emergency Sample Label

**EXAMPLE ONLY
USE CURRENT REVISION**

PINGP 1225, Rev. 0
Page 1 of 1
Retention: N/A

EMERGENCY SAMPLE LABEL

NOTE: Consider all samples as possibly contaminated.

SAMPLE LOCATION: _____ SAMPLE ID #: _____
 SAMPLE DATE: _____ SAMPLE TIME: _____
 SAMPLE CONTACT READING: _____
(CPM or mRem/hr)

LIQUID SAMPLE: (_____) - (_____) = (_____) CPM
GROSS CPM BKGD CPM CORRECTED COUNTRATE

LIQUID SAMPLE ACTIVITY (Figure 2 or 3, F3-16) = _____ uCi/ml

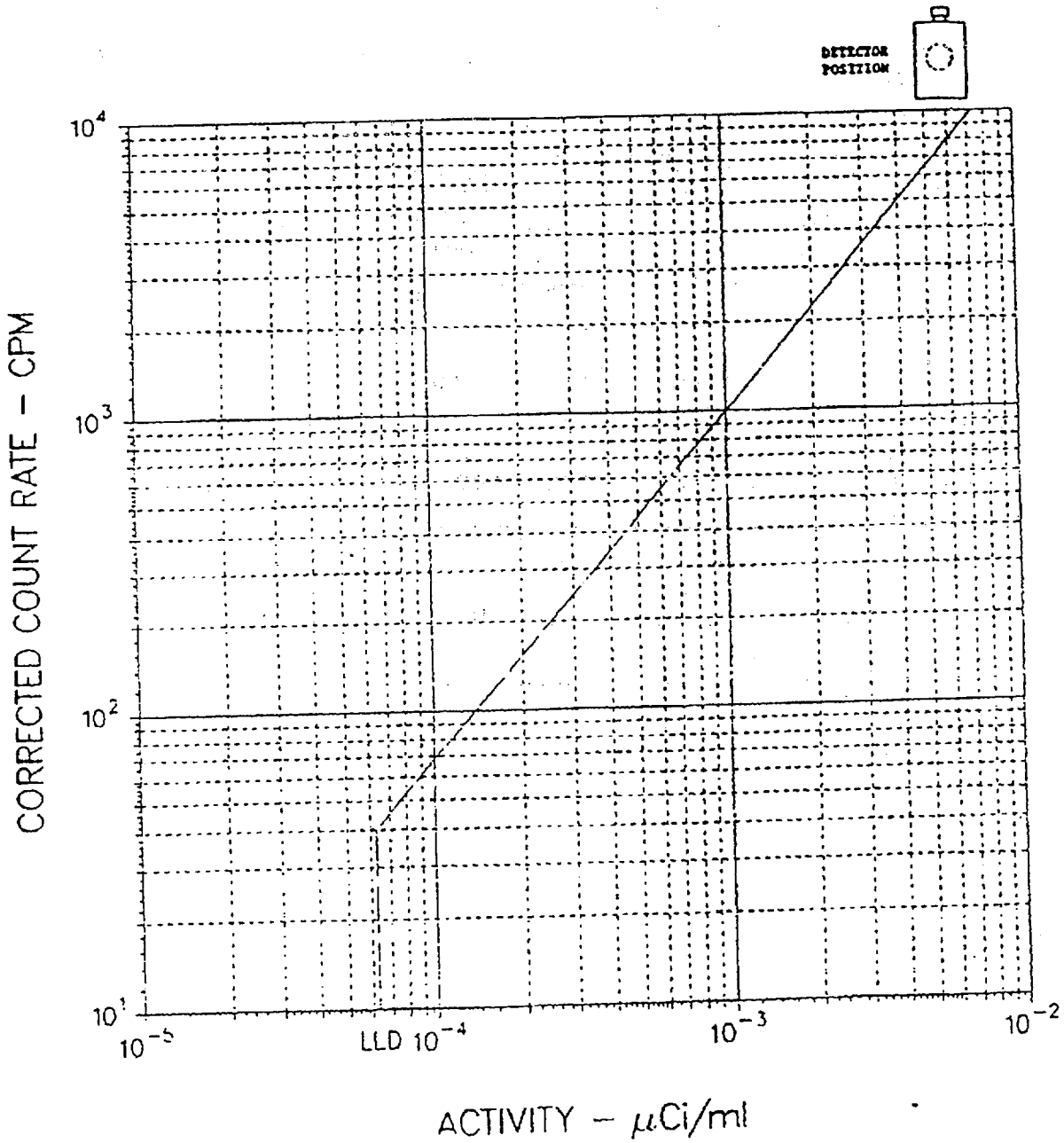
MISC. SAMPLE TYPES: SNOW DIRT FOOD OTHER: _____

COMMENTS: _____

FIELD TEAM RPS: _____ COUNTROOM: (circle) PLANT EOF

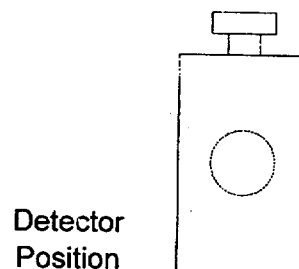
F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER: F3- 16
		REV: 17

Figure 2 Gross Liquid Activity Curve Using Rm-14 Or Equivalent With HP-210 Probe



F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER: F3- 16
		REV: 17

Figure 3 Gross Liquid Activity Table Using RM-14 or Equivalent With HP-210 Probe



CCPM	uCi/ml
100	1.E-04
120	2.E-04
140	2.E-04
160	2.E-04
180	2.E-04
200	3.E-04
220	3.E-04
240	3.E-04
260	3.E-04
280	3.E-04
300	4.E-04
350	4.E-04
400	5.E-04
450	5.E-04
500	6.E-04

CCPM	uCi/ml
600	7.E-04
700	8.E-04
800	8.E-04
900	9.E-04
1000	1.E-03
1200	1.E-03
1400	1.E-03
1600	2.E-03
1800	2.E-03
2000	2.E-03
2200	2.E-03
2400	2.E-03
2600	2.E-03
2800	3.E-03

CCPM	uCi/ml
3000	3.E-03
3500	3.E-03
4000	3.E-03
4500	4.E-03
5000	4.E-03
6000	5.E-03
7000	5.E-03
8000	6.E-03
9000	7.E-03
10000	7.E-03

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE LIQUID RELEASE	NUMBER: F3- 16
		REV: 17

Figure 4 PINGP 647, Field Team Communicator Emergency Sample Results Log

PINGP 647, Rev. 12
 Page 1 of 1
 Document Type: 7.37D
 Retention: Life of Plant

**EXAMPLE ONLY
USE CURRENT REVISION**

**FIELD TEAM COMMUNICATOR
EMERGENCY SAMPLE RESULTS LOG**

DATE: _____

TEAM NUMBER	SURVEY POINT	SAMPLE TIME	SAMPLE RESULTS		DOSE RATE RESULTS		
					SAMPLE TYPE*	μCi/cc	mREM/hr
			GROSS CPM	GAMMA			BETA

*Sample type includes: Particulate, Gaseous, Iodine, Liquid, Area Dose Rate

COMMUNICATOR SIGNATURE

Authenticated & Accepted

Date

