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Nuclear Management Company, LLC
Prairie Island Nuclear Generating Plant
1717 Wakonade Dr. East • Welch MN 55089

November 9, 2001

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:

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REVISIONS

F3-15	Responsibilities of the Radiation Survey Teams During a Radioactive Airborne Release	Rev 22
F3-20.1	Determination of Steam Line Dose Rates	Rev 9
F3-23.1	Emergency Hotcell Procedure	Rev 11
F3-31	Response to Security Related Threats	Rev 4

DELETIONS

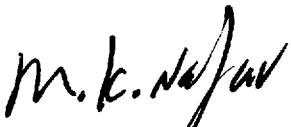
F3-23.2	Post Accident Chlorine Analysis by ION Exchange Chromatography	Rev 6

INSTRUCTIONS:

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 Procedures, which have been superseded or deleted, should be destroyed.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

A045

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



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Mfst Num: 2001 - 0763 Date : 11/08/01
FROM : Bruce Loesch/Mary Gadient Loc : Prairie Island
TO : UNDERWOOD, BETTY J
Copy Num: 515 Holder : US NRC DOC CONTROL DESK
SUBJECT : Revisions to CONTROLLED DOCUMENTS

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Procedure #	Rev	Title
Revisions:		
F3-15	22	RESPONSIBILITIES OF THE RADIATION SURVEY T DURING A RADIOACTIVE AIRBORNE RELEASE
F3-20.1	9	DETERMINATION OF STEAM LINE DOSE RATES
F3-23.1	11	EMERGENCY HOTCELL PROCEDURE
F3-31	4	RESPONSE TO SECURITY RELATED THREATS
Deletions:		
F3-23.2	6	POST ACCIDENT CHLORIDE ANALYSIS BY ION EXC CHROMATOGRAPHY

UPDATING INSTRUCTIONS

Place this material in your Prairie Island Controlled Manual or File. Remove revised or cancelled material and recycle it. Sign and date this letter in the space provided below within ten working days and return to Bruce Loesch or Mary Gadient, Prairie Island Nuclear Plant, 1717 Wakonade Drive E., Welch, MN 55089.
Contact Bruce Loesch (ext 4664) or Mary Gadient (ext 4478) if you have any questions.

Received the material stated above and complied with the updating instructions

_____ Date _____

PRAIRIE ISLAND NUCLEAR GENERATING PLANT	Title: Emergency Plan Implementing Procedures TOC Effective Date : 11/08/01
Approved By: Joyce Christy /BZ BPS Supt	

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F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15 REV: 22

REFERENCE USE
• *Procedure segments may be performed from memory.* • *Use the procedure to verify segments are complete.* • *Mark off steps within segment before continuing.* • *Procedure should be available at the work location.*

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
		REV: 22

1.0 PURPOSE

This procedure describes the responsibilities of the Radiation Survey Teams during an airborne radioactive release to the environment.

2.0 APPLICABILITY

This procedure applies to all members of the Prairie Island Radiation Protection Group.

3.0 PRECAUTIONS AND SPECIAL CONSIDERATIONS

3.1 Each team should obtain information pertaining to the magnitude and the direction of the release, either from the Control Room, the Radiological Emergency Coordinator (REC), or the Radiation Protection Support Supervisor (RPSS).

3.2 Radiation Survey Teams should observe the respiratory protection requirements and the field dose rate precautions as stated in Attachment B.

3.3 Report airborne activity sample results in whole numbers, (i.e., microcuries per cc with no decimal places).

3.4 Report all radiation levels in whole number mREM per hour, (i.e., three Rem per hour should be reported as three thousand mREM per hour).

3.5 Preface each communication with the title or name of the receiving party and your title or name. For example: "Prairie Island TSC; "Survey Team 1..."

After the communication is completed, 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 1, out". During drills always include the words, "THIS IS A DRILL," with each transmission.

3.6 When making field estimates of gross activity, if background exceeds 1000 cpm, notify the REC, or RPSS, and proceed to an area of lower background, <1000 cpm for counting, if so instructed by the REC, or RPSS.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15 REV: 22

3.7 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.**

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

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

3.7.3 **Helicopter** - available during suitable weather conditions from charter services in Minneapolis and St. Paul. Arrangements to be made via the site emergency organization at the EOF.

3.8 The normal means of communication for the survey teams is the portable radios. The normal telephone system will serve as a backup communication system. Telephone numbers in the TSC for the Radiological Emergency Coordinator 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**

3.9 Periodically check dosimeter readings and report results to the Radiological Emergency Coordinator (REC), or the Radiation Protection Support Supervisor (RPSS).

3.10 Check meter batteries by switching to BATTERY CHECK position. Replace if necessary.

3.11 Meters checks **SHALL** be completed prior to use.

3.12 Observe the cold weather operation restrictions (Attachment C).

3.13 All surveys should be taken at approximately one meter from ground unless specifically directed by the REC, or RPSS.

3.14 During inclement weather, the instrument may be placed against the inside vehicle window or on the dash.

3.15 IF connecting or disconnecting the air sampler to the vehicle battery, located in the engine compartment, THEN turn the vehicle **OFF.** (personnel safety)

3.16 Particulate filters and silver zeolite adsorbers must be installed and removed carefully to prevent cross-contamination from foreign objects.

3.17 The air sample should be a standard 25 cubic foot sample. Sample collection time may be affected if the activity is too high.

3.18 All samples **SHALL** be labeled properly with the required information and saved for further analysis.

3.19 If hands are contaminated, handle samples with surgeon gloves.

3.20 Don appropriate protective clothing for the situation to be expected.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15 REV: 22

4.0 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 Radiological Emergency Coordinator (REC) in the Operation Support Center, for assignments. 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 airborne release, the Radiological Emergency Coordinator (REC) may request support for offsite surveys from Monticello. When the Monticello Field Teams arrives 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 Radiation Survey Team. All offsite surveys will continue under the direction of the Emergency Manager at the Prairie Island Near-Site EOF, with the Offsite Survey Teams reporting their activities to the Radiation Protection Support Supervisor.

5.0 EQUIPMENT AND PERSONNEL REQUIRED

5.1 Team Members

Personnel trained in performing surveys.

5.2 Team Equipment Required

5.2.1 Field Teams 1 & 2 (Offsite Survey Teams)

A. Vehicle (plant or personal)

B. Offsite sample kit (Attachment A)

5.2.2 Onsite Radiation Monitoring Team

A. Normal counting room equipment, if available

B. E.O.F. counting room equipment

C. All available onsite radiation protection equipment

6.0 PREREQUISITES

An emergency of an Alert, Site Area, or General Emergency has been declared.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
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7.0 PROCEDURE

7.1 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):

7.2 **Field Teams 1 & 2 (Offsite Survey Teams)**

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

7.2.2 **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.**

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

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

7.2.5 **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.**

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

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

7.2.8 **Test** the operation of the radios (on channel 13, Rad Team 1) and meter check on all meters prior to departing.

7.2.9 **Perform** offsite surveys as directed by REC or RPSS.

7.2.10 **Conduct** a search for the plume, in accordance with Attachment D, when departing the plant site.

7.2.11 **Observe** the respiratory protection and the field dose rate precautions, as stated in Attachment B, at all times.

7.2.12 **Perform** beta and gamma surveys in accordance with the applicable procedure, Attachment E, as directed by the REC, or the RPSS at areas where the plume is encountered, or at each designated survey point.

7.2.13 **Identify** survey locations using either:

A. Predesignated survey location numbers, as shown on the applicable Radiological Sampling Points map;

OR

B. Known landmarks, road intersections, grid coordinates, etc. to identify locations the plume is encountered and/or sampling is done when NOT at a predesignated survey point.

7.2.14 **Report** results to the REC, or the RPSS, via the radio or telephone.

7.2.15 **Obtain** airborne samples (particulate, iodine and gas), or ground deposition samples, at locations requested by the REC, or RPSS, IAW Attachments F, G, and H.

7.2.16 **Document** all survey data on the PINGP 1226, Field Team Air Sample Results Log, PINGP 1227, Plume Search Log, or PINGP 956, Ground Deposition Sample Results Log.

7.2.17 WHEN directed by REC or RPSS, One (1) Team should **perform** offsite surveys depending on the wind direction and time of emergency per Attachment I.

7.2.18 **Check** personal dosimeters frequently. IF cumulative exposure approaches administrative limits, THEN **request** relief.

7.2.19 WHEN directed by the REC or RPSS, THEN **deliver** samples to the designated location for pickup by a Sample Courier.

7.3 Radiological Monitoring Team

7.3.1 **Perform** all operations requested by the Emergency Director or REC.

7.3.2 **Control** radiation exposure onsite (internal and external).

7.3.3 **Analyze** air samples, ground deposition samples, food stuffs, etc., obtained by the onsite and offsite survey teams, using the Count Room facilities and/or the E.O.F. count room facilities. **Store** all samples for future analysis.

7.3.4 **Perform** onsite surveys as requested by the Emergency Director and/or REC per F3-14.1, Onsite Radiological Monitoring.

7.3.5 **Perform** required personnel monitoring at the emergency operating centers and **supervise** any necessary personnel decontamination per F3-19, Personnel and Equipment Monitoring and Decontamination.

7.3.6 **Obtain** and **process** samples from the reactor coolant system, containment air, stack release, etc., as requested by the REC per F3-23, Emergency Sampling and F3-20, Determination of Radioactive Release Concentrations.

7.3.7 **Report** all results to the REC via the available communication system.

7.4 Radiation Field Team Communicator

7.4.1 **Report** to the Technical Support Center when the emergency is declared, and utilize PINGP 1156, TSC Field Team Communicator Checklist.

7.4.2 **Obtain** current plant status, release information and meteorological data.

7.4.3 **Establish** communications with the Field Teams, using the TSC Console in the REC area.

A. **Identify** teams as PI Team 1, etc.

B. **Obtain** team member names.

C. IF radio communication is NOT possible, THEN Survey Teams will **utilize** telephone system.

D. **Update** Teams with present plant status, release information, met data, etc.

7.4.4 **Dispatch** Survey Teams in the downwind direction, to conduct a search where the plume is expected. The search area should be wide enough to ensure plume is encountered. **DO NOT** let Survey Teams sit idle. Crossing of the plume by field teams should be limited in order to minimize personnel dose.

7.4.5 IF and WHEN directed by the REC, THEN direct one field team to perform surveys IAW Attachment I.

7.4.6 Plume search should be conducted to identify the edges of the plume, confirm the projected dose rates associated with the plume, and verify the expected isotopic mixture.

NOTE:	**Consider that plume diversion is likely to occur if the wind is from the East or West such that the plume is traveling towards the Minnesota or Wisconsin bluffs. Deploy the survey teams to conduct a plume search both beyond the bluffs and up and down the valley, where plume diversion is likely to occur.** **a. A tall object (bluff or mountain) will normally prevent dispersion and will almost always change the plume direction.** **b. The bluffs and hills around the plant can change the plume direction by more than 90° depending on the time of day. During morning hours it is possible for the plume to double back on itself due to heating of the air in the valley.** **c. Most of the bluffs are within about 1.5 miles of the plant and therefore plume diversion is going to occur within about the first 20 minutes of the release in low wind situations.** **d. A wind direction from about 345° to about 35° can result in severe diversion as the plume goes over Mt. Carmel and into the Cannon Valley.**

7.4.7 **Log** pertinent information and Survey Team results on the REC Log, PINGP 598, Emergency Center Narrative Log, or PINGP 647, Field Team Communicator Emergency Sample Results Log, Figure 2.

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NOTE:	Repeat results for verification from survey teams if numerical results are communicated.

7.4.8 **Instruct** the Survey Teams to obtain particulate, iodine and gas samples, as directed by the REC when the plume has been encountered. Air samples taken within the plume (beta activity detected) should be taken in areas of low dose rates, if possible.

Obtaining a sample for iodine and radioactive gas and determining the ratio of gas to iodine is crucial for verifying the offsite doses and can affect protective action recommendations. This is especially critical during steam releases as there are limited sampling methods in the plant. Therefore, these samples should be taken as soon as possible when the plume is encountered. These samples must be taken in the plume (area where beta is detectable).

NOTE:	These samples take approximately 20-30 minutes to accomplish. Communicator should minimize radio contacts with sampling team until the team reports sampling results.

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

7.4.10 **Develop** a plume map as follows:

A. **Obtain** dose projection data, if available, and **plot** on survey map (use red marker). Also plot the time on the mile markers when the plume is expected to arrive.

B. **Plot** Survey Team results on map (use blue marker). **Log** gamma and beta survey results in mREM/hr followed by air sample results in μCi/cc.

C. **Determine** the plume edges and **plot** on the map.

D. **Plot** or **outline** areas (using green marker) indicating where protective actions have been implemented or recommended.

E. Occasionally **direct** survey team to check location of plume front edge and **note** on map with time circled.

7.4.11 **Perform** a comparison of radiological data as follows:

A. **Compare** offsite monitoring results for consistency. **Re-monitor** areas of concern.

B. **Compare** offsite monitoring results with dose calculation projections. **Re-monitor** areas of concern.

C. **Compare** plume dose rates close to plant with projected dose rates. This will allow dose projection adjustments and may affect offsite protective action recommendations.

D. **Inform** REC, or RPSS, of results.

7.4.12 **Update** the Field Teams periodically with:

A. Emergency Classification

B. Plant Status

C. Release Information

D. Meteorological Data

7.4.13 **Direct** the Field Teams periodically to read their dosimeters and log results.

7.4.14 **Instruct** the Prairie Island Field Teams to report to the OSC for onsite assignments when the Monticello Field Teams assume responsibility for offsite surveys.

Attachment A Offsite Survey Team Equipment Package

1. Each offsite survey team should be equipped with a kit containing 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
- Survey sample labels
- For Monticello response: IF NOT using vehicles with a radio installed pick up spare radio in EOF or get radio from Monti.
- Flashlight
- D-Cell batteries
- Potassium Iodide Tablets (Thyroid Blocking Agent)
- Orange safety vests
- Tweezers
- Anti-C clothing
- Life Jackets
- PI Field Team vehicles have PI radios installed

Attachment A - Offsite Survey Team Equipment Package

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

2. 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. Prairie Island and Monticello Emergency Plan Map Sets
4. Aluminum Forms Clipboard/holder:
   - Field Team Air Sample Results Forms

Attachment B Survey Team Radiation Protection Guidelines

1.0 Respiratory Protection

1.1 Radiation Survey Team members should **don** respirators with GMR-I canisters IF the following conditions occur:

1.1.1 A General Emergency is declared AND the affected sectors have been evacuated;

AND

1.1.2 Measured dose rates are more than 100 mREM/hr β, [(w/o - w/c)5] OR IF directed otherwise by the REC or RPSS.

1.2 Respiratory equipment may be **removed** IF the following is indicated:

1.2.1 Field measurement of gross iodine activity indicates less than 1E-7 μCi/cc;

OR

1.2.2 The REC, or RPSS, indicates that no significant iodine is OR has been released from the plant.

OR

1.2.3 Measured dose rates are less than 100 mREM/hr β, [(w/o - w/c)5] OR as directed by the REC or RPSS.

2.0 Plume Dose Rates

2.1 Survey Teams should periodically **read** their personal dosimeters as determined by observed dose rates.

2.2 Survey Teams should NOT **linger** in areas greater than 100 mREM/hr gamma.

2.3 Survey Teams should NOT **proceed** to areas greater than 1000 mREM/hr gamma unless directed by the REC, or the RPSS.

2.4 Survey Teams **SHALL NOT proceed** to areas exceeding 10,000 mREM/hr gamma.

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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 the 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 AIRBORNE RELEASE	NUMBER: F3-15
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Attachment D Plume Search Technique

1. **Purpose**

   Plume search should be conducted to identify the edges of the plume, confirm the projected dose rates associated with the plume, and verify the expected isotopic mixture.

NOTE:	**All surveys should be taken at approximately one meter from ground unless specifically directed by the REC, or RPSS.**

2. WHEN departing the plant site:

   2.1 **Energize** the instrument observing proper precautions for cold weather (Attachment C).

   2.2 **Allow** meter to stabilize and **zero** meter.

   2.3 **Record** the sample results on PINGP 1227, Plume Search Survey Log (see Figure 6 for example).

3. Hold the instrument out the vehicle window, while in transit, and watch the instrument for a meter deflection.

NOTE:	**During inclement weather, the instrument may be placed against the inside vehicle window or on the dash.**

4. **Stop** the vehicle and **perform** a beta and gamma survey of the area when a meter deflection is observed as follows:

   4.1 **Scan** the area for maximum meter deflection.

   4.2 **Open** the probe window for beta gamma reading.

   4.3 **Record** the "window open" reading.

   4.4 **Close** the probe window.

   4.5 **Record** the "window closed" reading.

   4.6 **Determine** the corrected beta reading.

Attachment D Plume Search Technique

5. **Calculate** the beta and gamma dose utilizing PINGP 1227, Plume Search Survey Log 7, Figure 6.

NOTE:	**1. A gamma reading with zero beta reading indicates the plume is elevated or displaced.** **2. A gamma reading and a beta reading indicates that the plume is at ground elevation.** **3. Crossing of the plume by field teams should be limited in order to minimize personnel dose.**

6. **Report** the results to the REC, or the RPSS via the Field Team Communicator, as follows:

   6.1 Location: _____

   6.2 _____ milliRem/hr Gamma

   6.3 _____ milliRem/hr Beta, [(w/o - w/c)5]

Attachment E Beta and Gamma Survey

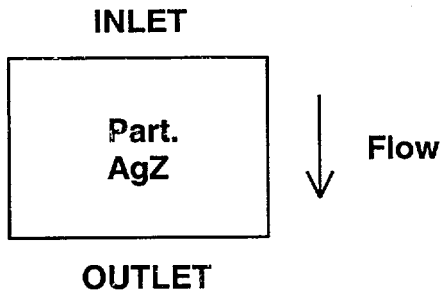
1. **Record** results on PINGP 1227, Plume Search Survey Log, Figure 6.
2. **Energize** the instrument.
3. **Allow** the meter to stabilize and **zero** rneter.
4. **Switch** to the highest scale and **scale down** until an onscale reading is obtained.
5. **Scan** area at approximately one meter from ground for maximum reading.
   - 5.1 **OPEN** the probe window to obtain the beta-gamma reading.
   - 5.2 **CLOSE** the probe window to obtain the gamma reading.
6. Determine the beta and gamma dose rates as follows:
   - 6.1 **GAMMA (mRem/hr)** = "Window CLOSED" reading
   - 6.2 **BETA (mRem/hr)** = "Window OPEN" reading minus "Window CLOSED" reading times CF or (w/o - w/c) CF

     Where: CF = beta correction factor for meter or assume 5.

     Beta dose rate reported in mRem/hr "Beta" assuming a quality factor of 1.
7. **Report** results to REC, or RPSS via the field team communicator.

Attachment F Particulate and Iodine Sampling

1. **Record** results on PINGP 1226, Field Team Air Sample Results, Figure 7.



2. **Install** a new particulate filter and silver zeolite adsorber into the cartridge/filter paper holder as follows:

3. The air sampler **SHALL** be placed in an area that will ensure a representative sample. **DO NOT** place the sampler on the ground or on contaminated surfaces.

4. IF connecting OR disconnecting to the battery in the Engine compartment, THEN **turn** OFF the engine.

5. IF using terminals located in rear of vehicle, THEN connect the negative (yellow) terminal and then the positive (red) terminal

6. **Connect** the air sampler (CF-18V) to the vehicle 12 Volt battery terminals.

   6.1 IF the vehicle engine is NOT running, THEN **start** the engine to maintain a steady battery voltage.

   6.2 **Set** the TIMER toggle switch to either the TIME or the MANUAL POSITION.

   6.3 IF the TIMER switch is in the TIME position, THEN WHEN the TIMER times out, the sample pump will stop.

   6.4 IF TIMER switch is in the MANUAL position, THEN the sampler needs to stop manually at the designated time.

Attachment F Particulate and Iodine Sampling

CAUTION:	(1) DO NOT USE HIGH SWITCH POSITION (CAUSES HIGH FLOW AND MOTOR DAMAGE). (2) STOP THE AIR SAMPLER TO PREVENT DAMAGE TO THE UNIT IF THE SAMPLER BEGINS TO RUN HOT, (FLOW DECREASING CONTINUOUSLY).

6.5 Set the FLOW TOGGLE switch to the VARIABLE position. The air sampler will now start.

6.6 Adjust the flow, using the flow adjustment knob, to 2.5 CFM and collect sample for 10 minutes to obtain a 25 cubic foot sample.

6.7 Record the flow rate, sample start and stop time on PINGP 1226, Field Team Air Sample Results, Figure 7.

6.8 Disconnect the positive (red) terminal and then the negative (yellow) terminal.

7. **Place** the particulate filter and silver zeolite adsorber in separate plastic sample bags.

8. **Utilize** PINGP 1226, Field Team Air Sample Results, Figure 7, to calculate field sample activities.

9. **Estimate** gross activity in the field by the following methods:

9.1 Particulate Activity –

9.1.1 **Count** the particulate filter outside plastic bag using an RM-14 (or equivalent) with a 2" GM pancake probe.

9.1.2 **Estimate** the gross particulate activity using Figure 8 or the following formula:

Attachment F Particulate and Iodine Sampling

Sample Vol cc's = (CFM)(Sample Flow CF)(Sample Time in Min.)(2.83E4cc/ft^3)

$$\text{Activity } (\mu Ci/cc) = \frac{\text{(Background Corrected Count Rate) } (4.5 \times 10^{-7} \mu Ci/dpm)}{\text{(Probe Efficiency) (Sample Volume, cc's) (CF)}}$$

NOTES:	
	1. Probe efficiency = 0.1 for RM-14, or E120, with a 2" GM pancake probe.
	2. Place the 2" GM pancake probe about 1/8" from the filter, with filter outside poly bag.
	3. CF = Correction factor for sample. CF is .3 for 4 inch paper counted with a 2 inch probe.
	4. Sample Volume (cc's) = (Cubic feet/min.) (Sample time in min.) (2.83 x 10^4 cc/ft^3) (sampler flow correction factor).

9.1.3 Log **μCi/cc** on PINGP 1226.

9.2 Iodine Activity –

9.2.1 **Count** the silver zeolite adsorber using an RM-14 or equivalent, with probe contacting the bag.

9.2.2 **Calculate** sample activity using Figure 4 or the following formula:

$$\text{Iodine Activity } (\mu Ci/cc) = \frac{\text{(}\mu\text{Ci's on adsorber)}}{\text{(Sample Volume in cc's)}}$$

NOTES:			
	1.	μCi's on adsorber =	activity on adsorber determined from Figure 4 using the corrected count rate.
	2.	Place 2" GM pancake probe directly on adsorber, with adsorber inside poly bag.	

9.2.3 Log **μCi/cc** on PINGP 1226.

10. IF requested, THEN **conduct** Gaseous Activity Sampling per Attachment G.

Attachment F Particulate and Iodine Sampling

11. Report the results to the REC, or the RPSS.

12. Separate colored NCR copies of Field Team Air Sample Results (PINGP 1226), Figure 7, and attach to the respective samples:

Golden Rod copy	Gas Sample
Pink copy	AgZ Adsorber
Yellow copy	Particulate Filter
White copy	Field Team copy

13 **Save** all samples for future analysis.

Attachment G Gaseous Activity Sampling

1. **Assemble** gas sample apparatus so air passes through filter, gas chamber, then suction bulb.

2. **Install** new filter in filter assembly.

3. **Open** the stop cocks on the gas chamber.

4. **Squeeze** suction bulb minimum of 10 times to obtain representative sample.

5. **Shut** the stop cocks on the gas chamber.

6. **Obtain** a count rate of the chamber volume using an RM-14 or equivalent and a 2 inch GM pancake probe by placing the probe over the mylar window.

7. **Log** the result as "gross CPM", on PINGP 1226, Field Team Air Sample Results, Figure 7.

8. **Obtain** a second chamber labeled "Background". **DO NOT OPEN** the stop cocks of the background chamber.

9. **Obtain** a background count rate by placing a 2 inch GM pancake probe over the mylar window.

10. **Log** the results as "Background CPM", on PINGP 1226, Figure 7.

11. **Obtain** the "Net CPM" by subtracting the "Background CPM" from the "Gross CPM".

12. **Apply** the "Net CPM", obtained by using Figure 5, to determine the gross gas activity in μCi/cc Xe-133 equivalent.

13. **Record** the air sample results PINGP 1226, Figure 7 and **report** the results to the Radiological Emergency Coordinator, or the Radiation Protection Support Supervisor.

14. **Attach** the Golden Rod copy of PINGP 1226 to the Gas Sample and **save** the sample for future analysis.

15. **Estimating** the Gross Gaseous Activity in the plume can be done by:

    A (w/o - w/c) reading of about 30 mRem/hr indicates a gas concentration (Xe-133 Dose Equivalent) of about 1×10^{-3} μCi/cc. Therefore (w/o - w/c) (3×10^{-5}) = μCi/cc Xe-133 DE.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
		REV: 22

Attachment H Ground Deposition Sampling

1. Procedure for Direct Frisk Survey to Determine Ground Deposition Activity

   1.1 **Energize** an RM-14 or an E-120 survey meter with a 2" pancake probe, and **allow** the meter to stabilize.

   1.2 **Switch** to highest scale and **scale down** until an onscale reading is obtained.

   1.3 **Scan** flat surfaces in the designated area (e.g., roads, lawns, mailboxes, vehicle, fields, etc.), holding the pancake probe about 1" from the surface.

   1.4 **Record** survey results on a Ground Deposition Sample Results Log (PINGP 956), Figure 3 and **calculate** ground deposition activity as follows:

$$\mu Ci/m^2 = \frac{\text{Net CPM}}{400}$$

NOTE:	Net CPM is frisker count rate about 1" from surface.

   1.5 **Notify** the REC, or RPSS, of the survey results

2. Procedure for Smear Samples to Determine Ground Deposition Activity

   2.1 **Utilize** numbered cloth smears and plastic bags.

   2.2 **Proceed** to designated area for survey and using moderate pressure, **swipe** an area, along a line or shape 15 - 18 inches in length (100 cm^2).

NOTE:	Surfaces to be smeared should be smooth (e.g., cars, mail boxes, machinery, rain gutters, etc.).

   2.3 **Fold** the smear folder in half and **place** in a plastic bag.

2.4 **Count** the smears in a low background area, using an RM-14 or E-120 with a 2" pancake probe. **Cover** work area with poly or absorbent paper to minimize contamination spread. **Hold** the probe about 1/8" above the smear while counting.

2.5 **Record** results on a Ground Deposition Sample Results Log (PINGP 956) and **calculate** ground deposition activity as follows:

$$\mu Ci/m^2 = \frac{\text{Smear CPM - BKGD CPM}}{200}$$

2.6 **Notify** the REC, or RPSS, of the survey results.

3. Procedure for Gamma Exposure Rate Survey to Determine Ground Deposition Activity

3.1 **Proceed** to designated survey area, as requested by the REC, or RPSS.

3.2 **Conduct** a survey with an RO2/RO2A or equivalent.

3.3 **Energize** the instrument and **allow** meter to stabilize.

3.4 **Scan** area while observing meter for maximum meter deflection, with Beta Window CLOSED, one meter from the ground.

3.5 **Record** results on a Ground Deposition Sample Results Log (PINGP 956) and **calculate** ground deposition activity as follows:

$$\mu Ci/m^2 = (mR/hr) \times 100$$

3.6 **Notify** the REC, RPSS, of the survey results.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
		REV: 22

Attachment H Ground Deposition Sampling

4. Procedure for Snow/Dirt Sampling to Determine Ground Deposition Activity

4.1 **Proceed** to designated survey area, as requested by the REC, or RPSS, and **select** an area where the sample will be taken.

NOTE:	**The area selected should be based on an evaluation of current weather and ground cover conditions (high winds, rain, snow, dirt, etc.) such that the sampled area is representative of the ground cover surface. Sample the area where the deposition of contamination is most likely to occur.**

4.2 **Remove** Snow/Dirt from area surface to a depth of about 1 centimeter (about 0.4 inches) utilizing the scoop from Field Survey Kit.

NOTE:	**The area of the snow scoop is approximately 1,000 square centimeters. By removing surface snow, to a depth of 1 centimeter, the volume of the melted snow sample will be approximately 100 cubic centimeters of liquid, assuming 10:1 snow/water ratio.**

4.3 **Place** the sample material in a poly bag, **seal**, **label** and **save** the sample or future analysis.

4.4 **Document** sample collection on a Ground Deposition Sample Results Log (PINGP 956).

4.5 Activity will be determined by the Count Room.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
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Attachment I Radiation Survey Team Survey Route Description

1. IF the wind is from the north or west, THEN **proceed** on the Emergency Route from the plant, through Red Wing, to Diamond Bluff, to Prescott, to Hastings, and back to the plant as shown on Figure 1.

2. IF the wind is from the south or east, THEN **proceed** on the Emergency Route from the plant, to Hastings, to Prescott, to Diamond Bluff, to Red Wing, and back to the plant, as shown on Figure 1.

3. AFTER completing the emergency route (Figure 1), THEN report to the REC, or RPSS, for further survey instructions.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
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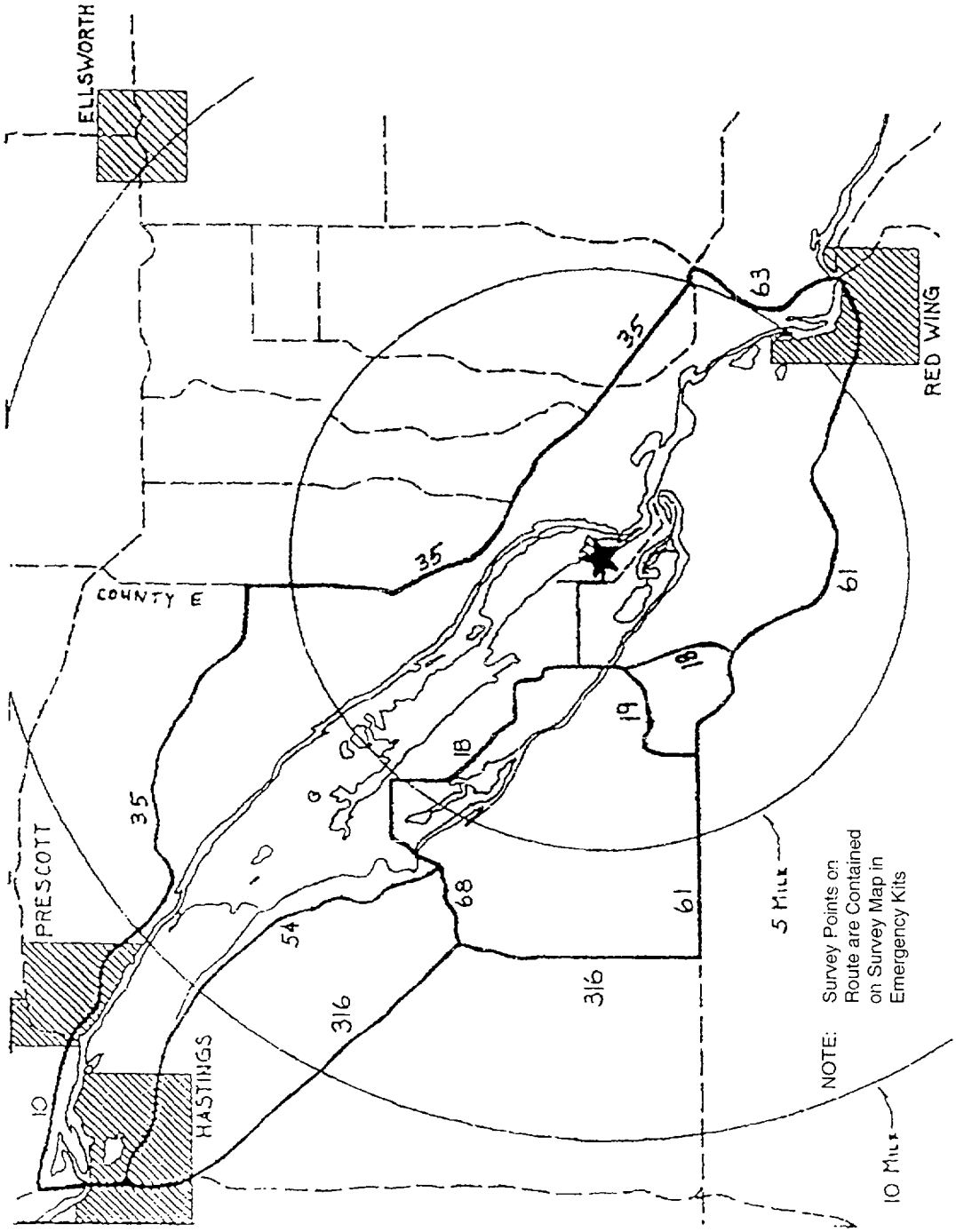
Figure 1 Radiation Survey Team Survey Route



F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15 REV: 22

Figure 2 Field Team Communicator Emergency Sample Results Log

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Page 1 of 1
Document Type: 7.37D
Retention: Life of Plant

FIELD TEAM COMMUNICATOR
EMERGENCY SAMPLE RESULTS LOG

DATE: _____

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

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

COMMUNICATOR SIGNATURE _____ Authenticated & Accepted _____ Date _____

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F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15 REV: 22

Figure 3 Ground Deposition Sample Results Log

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Document Type: 7.37N
Retention: Life of Corporation

GROUND DEPOSITION SAMPLE RESULTS LOG

DATE:____________

TEAM NUMBER	SURVEY POINT	TIME	DIRECT FRISK		SMEAR SAMPLES				GAMMA SURVEY		FOOD SAMPLE		SNOW/DIRT SAMPLES		INSTRUMENT #
			CPM	μCi/m²	Gross CPM	BKGD CPM	Net CPM	μCi/m²	mR/hr	μCi/m²	Food Type	μCi/kg	Type	μCi/m²	

1. Formulas listed on back.

2. Remarks: ____________

3. INSTRUMENTS

#	Model	Serial #
1		
2		
3		

____
RPS or Communicator Signature

____________ ________
Authenticated & Accepted Date

J:\TEMPLATE\0956 Ground Deposition Sample Results Log.dot

FIGURE 3 Ground Deposition Sample Results Log

EXAMPLE ONLY
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PINGP 956, Rev. 7
Page 2 of 2 (Back)

GROUND DEPOSITION FORMULAS

1. Direct frisk $\mu Ci/m^2$ is calculated as:

$$\mu Ci/m^2 = \frac{cpm}{400}$$

Where cpm is frisker count rate about 1" from surface in question.

2. Smear $\mu Ci/m^2$ is calculated as:

$$\mu Ci/m^2 = \frac{\text{smear net cpm}}{200}$$

Where smear net cpm is frisker count rate of 100 cm^2 smear from a surface.

3. Gamma survey $\mu Ci/m^2$ is calculated as:

$$\mu Ci/m^2 = mR/hr \times 100$$

Where mR/hr is closed window reading 3' from the ground.

4. Snow/dirt $\mu Ci/m^2$ is calculated as follows:

$$\mu Ci/m^2 = \frac{\text{(total } \mu Ci \text{ in sample)}}{(cm^2 \text{ area of sample}) \times (.0001\ m^2/\ cm^2)}$$

Where the area of scoop is approx. 1000 square centimeters. By removing surface snow, to a depth of 1 centimeter, the volume of the melted snow sample will be approx. 100 cubic centimeters of liquid, assuming 10:1 snow/water ratio.

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
		REV: 22

Figure 4 Gross Iodine Table Using RM-14 or Equivalent With 2 Inch Pancake Probe With Silver Zeolite Absorber

Run Time	10	Minutes	Volume	707500	cc
Flow rate	2.5	CFM			
Cor. Fact	1				

NOTE:	**The uCi/cc activity assumes the above conditions.**

CCPM	uCi Iodine	uCi/ cc
100	4.30E-02	6.E-08
120	5.30E-02	7.E-08
140	6.00E-02	8.E-08
160	7.00E-02	1.E-07
180	9.00E-02	1.E-07
200	1.00E-01	1.E-07
220	1.20E-01	2.E-07
240	1.40E-01	2.E-07
260	1.50E-01	2.E-07
280	1.60E-01	2.E-07
300	1.70E-01	2.E-07
350	1.80E-01	3.E-07
400	2.00E-01	3.E-07
450	2.30E-01	3.E-07
500	2.60E-01	4.E-07
600	3.00E-01	4.E-07
700	3.60E-01	5.E-07
800	4.00E-01	6.E-07
900	4.60E-01	7.E-07

CCPM	uCi Iodine	uCi/ cc
1000	5.00E-01	7.E-07
1200	6.00E-01	8.E-07
1400	7.00E-01	1.E-06
1600	8.00E-01	1.E-06
1800	9.00E-01	1.E-06
2000	1.00E-00	1.E-06
2200	1.10E-00	2.E-06
2400	1.20E-00	2.E-06
2600	1.40E-00	2.E-06
2800	1.50E-00	2.E-06
3000	1.60E-00	2.E-06
3500	1.80E-00	3.E-06
4000	2.10E-00	3.E-06
4500	2.50E-00	4.E-06
5000	2.80E-00	4.E-06
6000	3.20E-00	5.E-06
7000	3.80E-00	5.E-06
8000	4.50E-00	6.E-06
9000	5.00E-00	7.E-06

CCPM	uCi Iodine	uCi/ cc
10000	5.60E+00	8.E-06
12000	6.00E+00	8.E-06
14000	7.50E+00	1.E-05
16000	1.00E+01	1.E-05
18000	1.30E+01	2.E-05
20000	1.50E+01	2.E-05
25000	2.50E+01	4.E-05
30000	3.30E+01	5.E-05
35000	5.00E+01	7.E-05
40000	6.00E+01	8.E-05
45000	1.00E+02	1.E-04

Figure 5 Gas Chamber Table Using RM-14 or equivalent with 2 Inch GM Pancake Probe with 100 CC S.S. Gas Chamber

CCPM	uCi/cc (Xe-133 equiv.)
100	1.E-05
150	2.E-05
200	2.E-05
250	3.E-05
300	4.E-05
350	5.E-05
400	5.E-05
450	6.E-05
500	7.E-05
600	9.E-05
800	1.E-04
1000	2.E-04
1200	2.E-04
1400	2.E-04
1600	3.E-04
1800	3.E-04
2000	4.E-04

CCPM	uCi/cc (Xe-133 equiv.)
2500	4.E-04
3000	6.E-04
3500	8.E-04
4000	9.E-04
4500	1.E-03
5000	1.E-03
5500	1.E-03
6000	1.E-03
8000	2.E-03
10000	3.E-03
12000	3.E-03
14000	4.E-03
16000	5.E-03
18000	5.E-03
20000	6.E-03
25000	8.E-03
30000	1.E-02

F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
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Figure 6 Plume Search Survey Log

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PINGP 1227, Rev. 0
Page 1 of 1
Document Type: 7.37T
Retention: Life of Plant

PLUME SEARCH SURVEY LOG

TEAM NUMBER: _____ DATE: _____

SURVEY POINT	TIME	GROSS CPM	AREA DOSE RATE RESULTS mRem/hr			INSTR. #	COMMENTS
			Beta Gamma Window Open	Gamma Window Closed	BETA (W/O-W/C)5		

INSTRUMENTS		
#	MODEL	SERIAL #
1		
2		
3		

_____
RPS SIGNATURE

_____ _____
Authenticated & Accepted Date

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F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15 REV: 22

Figure 7 Field Team Air Sample Results

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PINGP 1226, Rev. 0
Document Type: 7.37S
Retention: Life of Plant

FIELD TEAM AIR SAMPLE RESULTS

TEAM #: _____ **SAMPLE LOCATION:** _____ DATE: _____

1. Collect Sample per F3-15, Attachment F, Particulate and Iodine Sampling.
2. Log Time ON: _____ and Flow Rate: _____CFM
3. Log **Time OFF:** _____ and Total Run Time: _____ Minutes
4. Calculate Sample Volume: _____ cc's equals
   (_____CFM) x (_____) x (_____Min) x (2.83E4 cc/ft^3)
   Flow Rate Flow CF Run Time
5. Countrate meter model: _____ Serial #: _____

---

6. **Calculate Particulate Activity:** NOTE: Count particulate filter outside bag with probe 1/8" away.

   Gross CPM Bkgd CPM
   (_____ – _____) x (4.51E-7 uCi/dpm)
   (.10) x (_____ cc) x (.3) = _____ uCi/cc
   Probe Eff. Sample Volume CF for 4" filter **Particulate Activity**

---

7. **Calculate Iodine Activity:** NOTE: Count AgZ adsorber with probe contacting the bag.

   Gross CPM Bkgd CPM
   (_____ – _____) = Net Countrate _____CPM
   (_____ uCi/s on adsorber from Figure 4)
   (_____ cc Sample Volume = _____ uCi/cc
   Iodine Activity

---

8. Collect Gas Sample per F3-15, Attachment G, Gaseous Activity Sampling.
9. **Calculate Gaseous Activity:**
   (_____CPM) – (_____ CPM) = Net Countrate _____CPM
   Gross counts Bkgd counts
   Compare Net Countrate to F3-15, Figure 5: _____ uCi/cc
   Gaseous Activity

---

10. Report Sample results to REC, or RPSS. (shaded sections)
11. Separate colored NCR copies of this form and attach to Samples:
    Golden rod copy – Gas Sample; Pink Copy – AgZ Adsorber
    Yellow copy – Particulate Filter; White copy – Field Team Copy

RPS Signature _____ Authenticated/Accepted: _____

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F3	RESPONSIBILITIES OF THE RADIATION SURVEY TEAMS DURING A RADIOACTIVE AIRBORNE RELEASE	NUMBER: F3-15
		REV: 22

Figure 8 –Gross Particulate Table Using RM-14 Or Equivalent With 2 Inch Pancake Probe

Run Time	10	Minutes	volume	707500	cc	4" filer CF	0.3
Flow rate	2.5	CFM	Probe eff.	0.10			
Flow CF	1		Conversion	4.51E-07	uCi/dpm		

NOTE:	The uCi/cc activity assumes the above conditions.

CCPM		uCi/ cc
100		2.E-09
120		3.E-09
140		3.E-09
160		3.E-09
180		4.E-09
200		4.E-09
220		5.E-09
240		5.E-09
260		6.E-09
280		6.E-09
300		6.E-09
350		7.E-09
400		8.E-09
500		1.E-08
600		1.E-08
700		1.E-08
800		2.E-08
900		2.E-08

CCPM		uCi/ cc
1000		2.E-08
1200		3.E-08
1400		3.E-08
1600		3.E-08
1800		4.E-08
2000		4.E-08
2200		5.E-08
2400		5.E-08
2600		6.E-08
2800		6.E-08
3000		6.E-08
3500		7.E-08
4000		8.E-08
4500		1.E-07
5000		1.E-07
5500		1.E-07
6500		1.E-07
7000		1.E-07

CCPM		uCi/ cc
7000		1.E-07
8000		2.E-07
9000		2.E-07
10000		2.E-07
12000		3.E-07
14000		3.E-07
16000		3.E-07
18000		4.E-07
20000		4.E-07
25000		5.E-07
30000		6.E-07
35000		7.E-07
40000		8.E-07
45000		1.E-06

F3	DETERMINATION OF STEAM LINE DOSE RATES	NUMBER: F3-20.1
		REV: 9

REFERENCE USE

- ***Procedure segments may be performed from memory.***
- ***Use the procedure to verify segments are complete.***
- ***Mark off steps within segment before continuing.***
- ***Procedure should be available at the work location.***

O.C. REVIEW DATE:	OWNER:	EFFECTIVE DATE
10-3-01 SC	M. Werner	11-8-01

F3	DETERMINATION OF STEAM LINE DOSE RATES	NUMBER: F3-20.1
		REV: 9

1.0 PURPOSE

This procedure provides instructions to enable the Radiation Protection Specialist to locally determine the dose rates on the steam lines whenever the steam line monitors are out of service.

NOTE:	**The radiological controls specified in this procedure are applicable only when there are indications of fuel damage.**

2.0 APPLICABILITY

This procedure applies to the Radiation Protection Specialists and to the Radiological Emergency Coordinator.

3.0 PRECAUTIONS

3.1 Minimize personnel exposure by waiting in lower dose rate areas.

3.2 If survey equipment should fail, all personnel **SHALL** return to a safe area.

3.3 Periodically check dosimeters. If above your allowable limit or off scale, return to a safe area, and notify the Radiological Emergency Coordinator.

3.4 Consider using two survey meters if radiation levels are expected to exceed 10R/hr.

4.0 RESPONSIBILITIES

4.1 The Radiological Emergency Coordinator has the responsibility to assess the need for steam line dose rate readings from AM-2 remote monitor, and to request the RPS Group to obtain readings in accordance with this procedure.

4.2 The Radiation Protection Specialists have the responsibility to obtain the AM-2 remote monitor readings, in accordance with this procedure, when requested by the REC.

5.0 PREREQUISITES

NONE

F3	DETERMINATION OF STEAM LINE DOSE RATES	NUMBER: F3-20.1
		REV: 9

6.0 PROCEDURE

6.1 **Determine** allowable exposure IAW F3-12.

Name	TLD No.	Current Exposure	Administrative Dose Guide (ADG)	Allowable Exposure

6.2 **Verify** that each team member has necessary dosimetry. _____

6.3 IF OSC Rad. Prot. Coordinator has deemed protective clothing and/or respiratory protection necessary, THEN **don** necessary equipment. _____

6.4 **Obtain** a dose rate meter and **perform** meter check. _____

6.5 **Obtain** a portable radio for communication with the OSC. _____

NOTE:	**If a Unit 1 accident and/or high radiation levels exist, enter via D-3 Diesel Room (door #92). If a Unit 2 accident, enter via normal Access Control.**

6.6 IF a Unit 1 accident, THEN **request** security to open D-3 Diesel Rm (Door #92) OR **obtain** "Six" series key from SS office, key tags 173, 174, 175. _____

6.7 **Proceed** to the Turbine/Aux Bldg interface. _____

F3	DETERMINATION OF STEAM LINE DOSE RATES	NUMBER: F3-20.1
		REV: 9

6.8 **Notify** OSC prior to entering Aux Bldg and **verify** any changes in plant status. _____

6.9 IF SCBA's are worn, THEN **activate** SCBA's. _____

6.10 **Record** dose rates in route and **report** results to the OSC as time permits. (**N/A** location NOT entered)

LOCATION	
Access Control	_____ mRem/hr
715' Unit 1	_____ mRem/hr
695' Unit 2	_____ mRem/hr
715' Unit 2	_____ mRem/hr
Hot Chem Lab	_____ mRem/hr
Hot Sample Room	_____ mRem/hr

6.11 **Proceed** to the steam line AM-2 remote monitor located by the BCMS panels, outside the Hot Lab. _____

F3	DETERMINATION OF STEAM LINE DOSE RATES	NUMBER: F3-20.1
		REV: 9

6.12 **Turn** the AM-2 selector switch to the appropriate steam line and **record** the dose rates.

CHANNEL	MONITORED POINT	
1	(51) UNIT 1 LOOP A STM LINE	_____ mRem/hr
2	(52) UNIT 1 LOOP B STM LINE	_____ mRem/hr
3	(51) UNIT 2 LOOP A STM LINE	_____ mRem/hr
4	(52) UNIT 2 LOOP B STM LINE	_____ mRem/hr

_____

6.13 **Proceed** back to known lower dose rate area and **report** results to the OSC. _____

6.14 **Determine** from the OSC, if additional readings are required. _____

6.15 **Request** the OSC to convey the steam line dose rate information to the REC in the TSC. _____

6.16 **Exit** the Aux Bldg and **remove** any protective clothing worn. _____

6.17 **Return** this procedure to the OSC Rad. Prot. Coordinator. _____

F3	EMERGENCY HOTCELL PROCEDURE	NUMBER: F3-23.1 REV: 11

REFERENCE USE
• *Procedure segments may be performed from memory.*
• *Use the procedure to verify segments are complete.*
• *Mark off steps within segment before continuing.*
• *Procedure should be available at the work location.*

O.C. REVIEW DATE:	OWNER:	EFFECTIVE DATE
11-4-01 SC	M. Werner	11-8-01

F3	EMERGENCY HOTCELL PROCEDURE	NUMBER: F3-23.1
		REV: 11

1.0 PURPOSE

The purpose of this procedure is to provide instructions to the Radiation Protection Group on the use of the Hotcell, to include Hotcell setup, various chemical analysis evolutions and radioactive sample disposal techniques.

2.0 APPLICABILITY

This Instruction is applicable to Chemistry Radiation Protection Specialists.

3.0 PRECAUTIONS

3.1 Monitor the general area of the Hotcell for direct radiation to ensure the habitability of the Hotcell.

3.2 The reactor coolant samples taken in an accident condition have the potential to be highly radioactive. This may give rise to dose rates far in excess of what would normally be encountered. All work involving these samples is to be performed in the Hotcell with the fume hood in operation and with remote handling tools, to minimize radiation exposure, until one of the following is determined:

3.2.1 The sample is determined not to have dose rates in excess of normal values.

3.2.2 The sample has been diluted to the point where the diluted portion does not have dose rates in excess of normal values.

3.3 If a sample is determined to be of normal dose rate values, or is diluted to the point NOT to exceed normal dose rate values, the following should apply:

3.3.1 The instructions specified in this procedure may be completed in an area other than the Hotcell Hood.

3.3.2 Monitor the alternate area for direct radiation to ensure habitability.

3.3.3 Analyze the sample in accordance with the appropriate RPIP, as a normal chemistry sample for the analyte of interest.

3.3.4 The instructions for **Post Accident Sample Waste Storage and Disposal** apply.

4.0 RESPONSIBILITIES

The Chemistry Radiation Protection Specialists are responsible to implement this procedure.

5.0 DISCUSSION

The Hot Chem Lab in the Auxiliary Building may not be available due to abnormal radiological conditions. Use of the Hotcell or Alternate Area would be necessary.

6.0 PREREQUISITES

6.1 Hotcell Set-up Procedure or Alternate Area

NOTE:	**The following procedure should be completed prior to introducing a hot sample into the Hotcell Area.**

6.1.1 **Ensure** that all instrumentation is turned on, warmed up and calibrated.

6.1.2 **Fill** a 1 L volumetric to the mark with demineralized water.

6.1.3 **Fill** a 100 ml volumetric to the mark with demineralized water.

6.1.4 **Remove** 1 ml of demineralized water from each volumetric using a 1 ml pipet.

6.1.5 **Add** a stir bar to each volumetric.

6.1.6 **Turn ON** the two stir plates in the fume hood

NOTE:	**IF containment spray has been activated, consider buffering pH meter with 7 and 10 buffer.**

6.1.7 **Buffer** the pH electrode.

6.1.8 **Place** a 250 ml beaker of water near the pH probe.

F3	EMERGENCY HOTCELL PROCEDURE	NUMBER: F3-23.1
		REV: 11

7.0 Procedure

7.1 Sample Preparation

NOTE:	**The RPS Sample Team members SHOULD ensure all samples are properly labeled with sample identification, sample size/volume, flowrates, pressures, and sample times, as appropriate to facilitate accurate analysis. As samples are diluted, split, or reduced; the appropriate information needs to be included on new labels attached to the newly created samples. Sample dose rate information should be included on all sample labels, to help ensure personnel awareness of radiological consideration. For ALARA reasons, the sample containers should be prelabeled whenever possible.**

7.1.1 **Label** all samples.

7.1.2 **Don** a finger ring on each hand.

7.1.3 **Ensure** TLD and dosimeters are worn.

7.1.4 **Place** the 60 ml bottle shielded carrier in the fume hood near the pH probe.

CAUTION:	**AVOID PLACING HANDS OVER TOP OF OPEN SHIELDED CARRIER.**

7.1.5 IF radiation levels require, THEN **use** the remote handling tool.

7.1.6 **Remove** the lid from the 60 ml bottle shielded carrier.

7.1.7 **Remove** the stopper from the bottle.

7.1.8 **Pipet** 1 ml of coolant from the 60 ml bottle to the 1L volumetric.

7.1.9 **Cap** the volumetric and **agitate** to mix.

7.1.10 **Pipet** 1 ml of coolant from the 60 ml bottle to the 100 ml volumetric.

NOTE:	The 100 ml volumetric is to be saved for the Chloride Analysis, which is to be completed within four days. The undiluted sample must also be saved for 30 days.

7.1.11 **Cap** the volumetric and **agitate** to mix.

7.1.12 **Label** the volumetric with sample, date, time, and the number of mls of sample in the volumetric.

7.1.13 **Mark** sample **"TO BE SAVED".**

7.1.14 **Store** the 100 ml volumetric in the Hotcell Shielded Area.

7.1.15 IF a pH Analysis is to be determined on the sample, THEN **proceed** to Step 7.2. IF NOT, THEN **replace** the stopper on the 60 ml bottle.

7.1.16 **Replace** the lead cover on the shielded carrier, **place** the shielded carrier in the Hotcell Shielded Area and **proceed** to Step 7.3, Gamma Analysis Preparation.

7.2 pH Analysis - Using the Combination Methods

NOTE:	The pH meter gives a digital readout of sample temperature and will auto-compensate for temperature.

7.2.1 **Insert** the combination pH probe and temp probe into the 60 ml bottle and **read** pH and temperature of coolant.

7.2.2 **Remove** both probes and **place** in a beaker of demin water.

7.2.3 **Log** sample results on PINGP 655, Post Accident Chemical Analysis Report.

NOTE:	IF radiation levels require, THEN use remote handling tools for handling the 60 ml bottle stopper and shielded carrier Lid.

7.2.4 **Replace** the stopper on the 60 ml bottle and the lid on the 60 ml bottle shielded carrier.

7.2.5 **Remove** the shielded carrier and the beaker of rinse water from the fume hood and **store** according to Step 7.6, Post Accident Sample Waste Storage and Disposal.

7.3 Gamma Analysis Preparation

7.3.1 **Pipet** 10 ml of diluted coolant sample from the 1 L volumetric to a 10 ml vial.

7.3.2 **Verify** that the indicated dose rate on the 10 ml vial is capable of being counted on extended geometry in EOF Countroom.

NOTE:	**Sample should be diluted to give a contact reading of under 1 millirem/hr contact. The diluted sample should NOT exceed 25 millirem/hr contact.**

7.3.3 **Label** the vial with the sample point, date, time, and dilution factor to the sample prior to sending to EOF Countroom.

7.3.4 **Place** the 10 ml vial in the shielded carrier for transport to the EOF Countroom.

7.3.5 WHEN radioactive gas, charcoal, or particulate samples are received, THEN **ensure** all samples are labeled with date and time of sample, sample point, sample volume and/or correction factor, and flow rate.

7.3.6 **Store** all samples in the Hotcell Shielded Area until transported to the EOF Countroom.

7.4 Boron Analysis

7.4.1 **Using** the 1 L sample prepared in Step 7.1, Sample Preparation, **analyze** in accordance with RPIP 3314, Boron by Ion Exclusion Chromatography.

7.4.2 **Log** the results on PINGP 655, Post Accident Chemical Analysis Report.

7.4.3 **Dispose** of all radioactive waste according to Step 7.6, Post Accident Sample Waste Storage and Disposal.

7.5 Chloride Analysis

NOTE:	**Chloride analysis SHALL be completed within 4 days of accident.**

CAUTION:	**THE REACTOR COOLANT SMAPLES TAKEN IN AN ACCIDENT CONDITION HAVE THE POTENTIAL TO BE HIGHLY RADIOACTIVE. THIS MAY GIVE RISE TO DOSE RATES FAR IN EXCESS OF WHAT WOULD NORMALLY BE ENCOUNTERED. THE ION EXCHANGE COLUMNS ON THE ION CHROMATOGRAPH COULD HAVE CONTACT READINGS OF UP TO 10 R/HR.**

7.5.1 Using the 100 ml sample prepared in Step 7.1, Sample Preparation analyze in accordance with RPIP 3301, Anions by Ion Exchange.

7.5.2 Log the results on PINGP 655, Post Accident Chemical Analysis Report.

7.5.3 Dispose of all radioactive waste according to Step 7.6, Post Accident Sample Waste Storage and Disposal.

7.6 Post Accident Sample Waste Storage and Disposal

NOTE:	**Ensure samples are labeled. "TO BE SAVED" or "TO BE DUMPED" before storage in shielded area.**

7.6.1 **Place** all capped or covered radioactive sample waste in the Hotcell Shielded Area.

7.6.2 **IF** additional waste samples are added to the Hotcell Shielded Area, THEN **survey** the Hotcell general area radiation levels. **Add** additional shielding, as necessary.

7.6.3 **IF** making subsequent entries into Auxiliary Building, THEN **return** the sample waste to the Sample Room for disposal down the affected unit's Sample Hood Drain.

F3	RESPONSE TO SECURITY RELATED THREATS	NUMBER: F3-31 REV: 4

REFERENCE USE
• *Procedure segments may be performed from memory.*
• *Use the procedure to verify segments are complete.*
• *Mark off steps within segment before continuing.*
• *Procedure should be available at the work location.*

O.C. REVIEW DATE:	OWNER:	EFFECTIVE DATE
11-7-01 S.C.	M. Werner	11-8-01

F3	RESPONSE TO SECURITY RELATED THREATS	NUMBER: F3-31
		REV: 4

1.0 PURPOSE

This procedure provides guidance for responding to a credible security threat by the plant staff resulting in a declared emergency.

2.0 APPLICABILITY

This procedure **SHALL** apply to the duty Shift Manager, Shift Supervisor, Plant Manager, Emergency Director and plant personnel during a credible security threat. Specific Security Force actions and responses are described in the Safeguards Contingency Plan and procedures.

3.0 PRECAUTIONS

If a bomb or sabotage device is found,

3.1 Personnel should remain at a distance of 300 to 500 feet, if possible, from the device.

3.2 The person discovering the device **SHALL NOT** touch or disturb it.

3.3 Hand-held radios should not be operated within a distance of 50 feet from the explosive device.

4.0 RESPONSIBILITIES

4.1 The Plant Manager or designee has responsibility to assist the Shift Manager during a plant security event.

4.2 The Operations Shift Manager has responsibility for safe operation of the plant and initiation of the Emergency Plan during a plant security event.

4.3 Operations Shift Supervisor has responsibility for plant operations and assessment of operational aspects of the emergency.

4.4 Superintendent Security/designee has responsibility to implement the Safeguards Contingency Plan during a security event and support the Operations Shift Manager as necessary.

5.0 GENERAL INFORMATION

5.1 Definitions

5.1.1 HIGH Credible Threat - Information assessed as constituting a believable threat against safe or secure operation of the plant expected to become a security event within 24 hours and to cause loss of Engineered Safety Function (ESF) and there is a low probability of interdiction prior to threat impacting the plant.

5.1.2 LOW Credible Threat - Information assessed as constituting a believable threat against safe or secure operation of the plant.

5.1.3 Non-Credible Threat - Information assessed as offering no reasonable basis to quality as credible.

5.1.4 Security Threat - Any notification from any source which is received at the site or the corporate office which could be considered as a threat to the safety of the site whether considered credible or not.

5.2 Discussion

Once a security threat (i.e., bomb threat, adversary threat, etc.) is determined to be a HIGH credible security threat, the definition of an ALERT is met and an ALERT should be declared per F3-2.

Once a security threat (i.e., bomb threat, adversary threat, etc.) is determined to be a LOW credible security threat, the definition of a NUE is met and a NUE should be declared per F3-2.

The duty operations Shift Manager remains in charge of the overall plant response to the security threat with assistance from Plant Security, Operations, Local Law Enforcement Agencies (LLEA) and Nuclear Management Company (NMC) staff.

If changing security or plant conditions warrant escalation to a higher emergency classification, the Shift Manager is responsible to authorize the escalation.

Implementation of Emergency Plan procedures during a security event may need to be modified, depending on the event, in order to protect the safety of plant personnel, vital equipment, or protect the health and safety of the public.

6.0 PREREQUISITES

6.1 A credible security threat exists and;

6.2 A **Notification of Unusual Event (NUE)** or **Alert** has been declared.

7.0 PROCEDURE

7.1 The Plant Manager or designee should go to the Control Room to **assist** with communications.

7.2 The Duty Shift Manager/Shift Supervisor should **ensure** the following activities are performed or considered:

7.2.1 IF a bomb device exists, THEN **ensure** the following message is broadcasted over the plant P/A system:

NOTE:	**During drills, the announcement should begin and end with "THIS IS A DRILL".**

"ATTENTION ALL PLANT PERSONNEL. ATTENTION ALL PLANT PERSONNEL.

"A BOMB MAY EXIST IN THE _____ AREA."
(specify area)

"STAY CLEAR OF _____."
(specify area)

Repeat message after about ten (10) second interval.

7.2.2 IF an **Alert** has been declared, THEN:

The **Alert** classification was declared based on a HIGH credible security threat. Site personnel are to be placed out of harms way as soon as possible. The Backup Emergency Operating Facility (EOF) and Joint Public Information Center (JPC) are to be staffed and activated to support offsite communications.

A. **Assume** the position of Emergency Director in absence of Plant Manager or other Emergency Director designee.

B. **Ensure** the following PA announcement is completed:

"ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL. A SECURITY THREAT EXISTS.

PLACE ALL ESSENTIAL ACTIVITIES IN A SAFE CONDITION.

ALL EOF PERSONNEL ASSEMBLE AT THE BACKUP EOF.

OPERATIONS PERSONNEL, FIRE BRIGADE PERSONNEL, AND DUTY CHEMIST ASSEMBLE IN THE CONTROL ROOM.

ALL OTHER PERSONNEL LEAVE THE SITE AND GO HOME."

Repeat announcement after about ten (10) second interval.

C. **Direct** the Shift Emergency Coordinator (SEC) to:

1. **Perform** offsite government notifications per checklist PINGP 580.

2. **Activate** EOF personnel to staff Backup EOF and JPIC personnel to staff JPIC per checklist PINGP 580.

D. **Ensure** NRC is notified of **Alert** (PINGP 666).

E. Follow-up Threat actions:

1. **Coordinate** with Emergency Manager, to **designate** appropriate plant representation at the LLEA command center to provide site facility and plant operations advice to the LLEA.

NOTE:	**Ongoing management communication will take place from the Backup EOF.** **The hub for security communication will be the NMC Hudson Security Command Post at (715) 377-3353.**

2. **Determine** and **execute** appropriate procedures to place the plant in a condition that will minimize the potential consequences of execution of the anticipated or occurring security threat.

3. **Consider** terminating high-risk or special operations that may be in progress (e.g., refueling, resin sluicing, etc.).

4. In the case of a credible bomb threat, **consider** shutting down the plant with due consideration for out-plant operator safety.

5. **Coordinate** with Security and LLEA to determine an appropriate response to the security event.

6. **Keep** plant personnel clear (if possible, 300 to 500 feet) of the affected areas if their personal safety is at risk.

7. After security "all clear" is given, **ensure** all appropriate emergency plan actions in PINGP 1125 (SM/SS ED Checklist) are being completed with due consideration for personal safety and security considerations as appropriate.

8. IF threat results in plant damage and security threat still exists, THEN **continue** to assess conditions.

9. IF threat results in plant damage and security risk to personnel no longer exists, THEN **activate** remaining ERO per PINGP 1384 and **evaluate** EALs per F3-2.

10. IF threat is resolved, THEN **terminate** event per F3-2.

7.2.3 IF a **NUE** has been declared, THEN:

The **NUE** classification was declared based on a LOW credible security threat. Site personnel are to be placed out of harms way as soon as possible. The Backup EOF and JPIC are to be staffed and activated to support offsite communications.

A. **Assume** the position of Emergency Director in absence of Plant Manager or another Emergency Director designee.

B. **Ensure** the following PA announcement is completed:

"ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL. A SECURITY THREAT EXISTS.

PLACE ALL ESSENTIAL ACTIVITIES IN A SAFE CONDITION.

ALL EOF PERSONNEL ASSEMBLE AT THE BACKUP EOF.

OPERATIONS PERSONNEL, FIRE BRIGADE PERSONNEL, AND DUTY CHEMIST ASSEMBLE IN THE CONTROL ROOM.

ALL OTHER PERSONNEL LEAVE THE SITE AND GO HOME."

Repeat announcement after about ten (10) second interval.

C. **Direct** the SEC to:

1. **Perform** offsite government notifications per checklist PINGP 579.

2. **Activate** EOF personnel to staff Backup EOF and JPIC personnel to staff JPIC per checklist PINGP 579.

D. **Ensure** NRC is notified of **Alert** (PINGP 666).

E. Follow-up Threat actions:

1. **Coordinate** with Emergency Manager, to **designate** appropriate plant representation at the LLEA command center to provide site facility and plant operations advice to the LLEA.

NOTE:	**Ongoing management communication will take place from the Backup EOF.** **The hub for security communication will be the NMC Hudson Security Command Post at (715) 337-3353.**

2. **Determine** and **execute** appropriate procedures to place the plant in a condition that will minimize the potential consequences of execution of the anticipated or occurring security threat.

3. **Consider** terminating high-risk or special operations that may be in progress (e.g., refueling, resin sluicing, etc.).

4. In the case of a credible bomb threat, **consider** shutting down the plant with due consideration for out-plant operator safety.

5. **Coordinate** with Security and Local Law Enforcement Agencies to determine an appropriate response to the security event.

6. **Keep** plant personnel clear (if possible, 300 to 500 feet) of the affected areas if their personal safety is at risk.

7. **Ensure** all appropriate emergency plan actions in PINGP 1125 (SM/SS ED Checklist) are being completed with due consideration for personal safety and security considerations as appropriate.

8. IF event results in plant damage, THEN **reclassify** per F3-2 and **go to Alert** section of this procedure.

9. IF threat becomes a HIGH credible threat, THEN **reclassify** and **go to Alert** section of this procedure.

10. **Coordinate** with EOF Manager to assess personnel needed in the EOF and **release** unnecessary EOF and JPIC personnel.

11. **Coordinate** with NMC headquarters management personnel and **determine** what essential activities should proceed.

NOTE:	**Personnel needed to support these activities should remain at work or called back in. All other personnel should go home. Inform such personnel of the determination through management channels.**

12. IF threat is resolved, THEN **terminate** event per F3-2.