



Kewaunee Nuclear Power Plant
N490, State Highway 42
Kewaunee, WI 54216-9511
920-388-2560

Operated by
Nuclear Management Company, LLC



October 9, 2001

10 CFR 50, App. E

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Ladies/Gentlemen:

DOCKET 50-305
OPERATING LICENSE DPR-43
KEWAUNEE NUCLEAR POWER PLANT
RADIOLOGICAL EMERGENCY RESPONSE PLAN IMPLEMENTING PROCEDURES

Pursuant to 10 CFR 50 Appendix E, attached is the latest revisions to the Kewaunee Nuclear Power Plant Radiological Emergency Response Plan Implementing Procedures (EPIPs). These revised procedures supersede the previously submitted procedures.

Pursuant to 10 CFR 50.4, two additional copies of this letter and attachment are hereby submitted to the Regional Administrator, U. S. Nuclear Regulatory Commission, Region III, Lisle, Illinois. As required, one copy of this letter and attachment is also submitted to the Kewaunee Nuclear Power Plant NRC Senior Resident Inspector.

Sincerely,

Thomas J. Webb
Site Licensing Director

SLC

Attachment

cc - US NRC Senior Resident Inspector, w/attach.
US NRC, Region III (2 copies), w/attach.
Electric Division, PSCW, w/o attach.
QA Vault, w/attach.

AOKS

KEWAUNEE NUCLEAR POWER PLANT

October 9, 2001

EMERGENCY PLAN IMPLEMENTING PROCEDURES TRANSMITTAL FORM

RETURN TO DIANE FENCL - KNPP

OUTSIDE AGENCY COPIES (1-20)

T. Webb - NRC Document Control Desk (1)*
T. Webb - NRC Region III (2 & 3)*
T. Webb - NRC Resident Inspector (4) (receives Appx. A phone numbers)*
T. Webb - State of Wisconsin (5)*
T. Webb - KNPP QA Vault w/NRC Letter (15)*

Bill Yarosz - Wisconsin Electric Power Co. (10)*
Craig Weiss - Wisconsin Power & Light (11)*
Jim Holthaus - Nuclear Management Company (12)*

PERSONAL COPIES (21-40) These copies are for the personal use of the listed individuals for reference or emergency response.

J. Bennett (33)	D. Mielke (35)	H. Kocourek (13)	K. Hoops (28)
D. Masarik (32)	D. Seebart (24)	B. Bartelme (34)	

REFERENCE COPIES - CUSTODIAN (41-100) These copies are for general reference by anyone. They are distributed throughout the plant and corporate offices. The named individual is the responsible custodian for the procedures and shall insure they are properly maintained.

STF (86, 87, 88)	LOREB - STF (62, 66, 67, 68, 70, 72, 73, 74)
L. Welch - Fuel Services (65)	STF Library (43)
NO Library - KNPP (59)	Resource Center (82, 89, 94, 131)
C. Sternitzky - ATF-2 (44)	D. Schrank - Maintenance Off. (41)
D. Braun - ATF-3 (45)	D. Krall - CR/SS Office (51, 56)
P. Ehlen - I&C Office (42)	P&FS Adm - GB-D2 (Nuclear Library) (84)
M. Daron - Security Building (46)	H. Kocourek - TSC (50)
P&FS Adm - GB D2-3 (EOF) (81)	W. Galarneau - RAF (53)
H. Kocourek - OSF (52)	W. Galarneau - SBF/EMT (54)
C. Hutter - ATF-1 (64)	W. Galarneau - RPO (55)

WORKING COPIES (101-199) These copies of procedures are kept in the areas designated for use in response to an emergency. These are not complete sets, but contain only those procedures that are used to implement activities in the location where they are kept. Please dispose of any sections distributed that are not tabbed in the indicated copy.

W. Galarneau - RAF/RPO (106, 107)	D. Krall - CR/Communicator (116)(Partial Distribution)
W. Galarneau - SBF/ENV (108, 109)	Simulator/Communicator (117)
W. Galarneau - SBF/EM Team (110, 111, 111A)	J. Fletcher - Security (121)
W. Galarneau - Aurora Medical Center (118, 119)	N. Deda - Security Building (120)
W. Flint - Cold Chem/HR Sample Room (113)	S. VanderBloomen (125)
N. Deda - SBF/SEC (114)	J. Stoeger (126)

Originals to KNPP QA Vault

Please follow the directions when updating your EPIP Manual. **WATCH FOR DELETIONS!!!** These are controlled procedures and random checks may be made to ensure the manuals are kept up-to-date.

***THIS IS NOT A CONTROLLED COPY. IT IS A COPY FOR INFORMATION ONLY.**

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EPIP-AD-01	Personnel Response to the Plant Emergency Siren	H	09-10-2001
EPIP-AD-02	Emergency Class Determination	AB	09-18-2001
EPIP-AD-03	KNPP Response to an Unusual Event	AB	03-20-2001
EPIP-AD-04	KNPP Response to Alert or Higher	AD	10-09-2001
EP-AD-5	Site Emergency	Deleted	04-27-87
EPIP-AD-05	Emergency Response Organization Shift Relief Guideline	C	06-05-2001
EP-AD-6	General Emergency	Deleted	04-24-87
EPIP-AD-07	Initial Emergency Notifications	AM	01-30-2001
EP-AD-8	Notification of Alert or Higher	Deleted	02-26-96
EP-AD-9	Notification of Site Emergency	Deleted	04-27-87
EP-AD-10	Notification of General Emergency	Deleted	04-27-87
EPIP-AD-11	Emergency Radiation Controls	Q	09-27-2001
EP-AD-12	Personnel Assembly and Accountability	Deleted	03-26-94
EP-AD-13	Personnel Evacuation	Deleted	04-25-94
EP-AD-13A	Limited Area Evacuation	Deleted	03-01-83
EP-AD-13B	Emergency Assembly/Evacuation	Deleted	03-01-83
EP-AD-13C	Site Evacuation	Deleted	03-01-83
EP-AD-14	Search and Rescue	Deleted	05-25-94
EPIP-AD-15	Recovery Planning and Termination	N	08-29-2000
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EPIP-ENV-03C	Dose Projection Using RASCAL Version 2.2 Software	V	10-09-2001
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EP-ENV-3E	Manual Determination of X/Q	Deleted	04-24-87
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EP-ENV-3H	Protective Action Recommendations	Deleted	04-13-90
EPIP-ENV-04A	Portable Survey Instrument Use	S	06-15-2000
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EPIP-ENV-04C	Ground Deposition Sampling and Analysis	W	10-09-2001
EPIP-ENV-04D	Plume Tracking for Environmental Monitoring Teams	N	10-02-2001
EP-ENV-5A	LCS-1 Operation	Deleted	04-14-86
EP-ENV-5B	MS-3 Operation	Deleted	04-14-86
EP-ENV-5C	SAM II Operation	Deleted	04-14-86
EP-ENV-5D	PAC-4G (Alpha Counter) Operation	Deleted	04-14-86
EP-ENV-5E	Reuter-Stokes Operation	Deleted	08-27-85
EP-ENV-6	Data Analysis, Dose Projections and Protective Action Recommendations	Deleted	12-21-81

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EP-ENV-6	Alternate Sample Analysis and Relocation of EM Team	Deleted	04-14-86
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EP-ENV-6B	SAF Environmental Sample Analysis Relocation	Deleted	03-23-84
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EP-OSF-4	Operational Support Facility Communications	Deleted	04-24-87
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EP-TSC-6	Assessment of Reactor Core Damage	Deleted	09-30-86
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* EP-TSC-8B was totally deleted; therefore, EP-TSC-8C was changed to EP-TSC-8B			
EP-TSC-9	Core Damage Assessment Using Released Radionuclides	Deleted	09-30-86
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* EP-TSC-9A, Rev. D was totally deleted; therefore, EP-TSC-9B became EP-TSC-9A. EP-TSC-9B was previously EP-TSC-9C.			
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RET 2B.3	Auxiliary Building Stack (Sping Reading)	C	04-16-96
RET 2B.4	Containment Stack (Sping Reading)	B	04-16-96
RET 2B.5	Steam Release	C	04-16-96
RET 2B.6	Field Reading (Grab Sample)	A	04-16-96
RET-04-01	SAM-2 Counting Equipment Worksheet	E	06-12-2001
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TSC-03-02	Plant Equipment Status	L	06-12-2001
TSC-03-03	Environmental Status Board	J	06-12-2001
TSC-03-04	Radiation Monitors	H	06-12-2001
TSC-04-01	Emergency Physical Change Request	F	08-29-2000
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TSC-07-01	Head Venting Calculation	F	10-31-2000
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TSC 8A.2	Steam Release Calculation Sheet (Energy Balance)	F	02-14-95
TSC 8A.3	Steam Release Data/Calculation Sheet (Open Valve)	D	02-14-95
TSC 8A.4	Steam Release Data/Calculation Sheet (STMRLS Program)	C	04-16-96
TSC 9A.1	Core Damage Based on Reactor Vessel Level & Fuel Rod Temp.	C	02-14-95
TSC 9A.2	Core Damage Based on Radiation Monitors	C	02-14-95
TSC 9A.3	Cs-134 and Cs-137 PCF Determination	D	04-16-96
TSC 9A.4	Core Damage Based on Activity Ratios	C	02-14-95
TSC 9A.5	Core Damage Assessment (Monitoring Data)	D	04-16-96
TSC 9A.6	Core Damage Summary	C	02-14-95

WISCONSIN PUBLIC SERVICE CORP. Kewaunee Nuclear Power Plant <i>Emergency Plan Implementing Procedure</i>		No.	EPIP-AD-04	Rev.	AD
		Title	KNPP Response to Alert or Higher		
		Date	OCT 09 2001	Page 1 of 30	
Reviewed By <i>Walter M. Burt</i>		Approved By <i>Dave Seebart</i>			
Nuclear Safety Related	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PORC Review Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SRO Approval Of Temporary Changes Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

1.0 Purpose

- 1.1 This procedure provides instruction for the Shift Manager/Emergency Director and other initial response personnel for an appropriate response to an **Alert, Site Emergency, or General Emergency**.

2.0 General Notes

- 2.1 The Shift Manager (SM) is the initial Emergency Director (ED) in all situations. Any transfer of this responsibility shall be documented in the Shift Manager's log and communicated to all on-site directors.
- 2.2 As more information becomes available, initial protective action recommendations should be adjusted in accordance with plant conditions, dose projections, time available to evacuate, estimated evacuation times, and meteorological conditions (EPIP-AD-19, "Protective Action Guidelines").
- 2.3 IF notified by radio-pager and the message is not understood, THEN emergency response personnel should confirm contact by telephoning Meridian Mail at 1-800-236-1588. A Meridian Mail voice message will indicate that the radio-pager activation was for an actual declared emergency and NOT a drill or exercise.
- 2.4 IF approached by the media during a declared emergency, THEN refer them to the Telephone Response Center at (920) 433-1400 or 1-800-838-6192 and tell them that this is their most accurate source for information.

3.0 Precautions and Limitations

- 3.1 "Event Notice," Form EPIP-AD-07-01, should be initiated and in progress to state and local emergency governments within 15 minutes of the emergency level being declared, or as soon as possible without further compromise to plant or public safety.
- 3.2 The SM should remain in the Control Room during a declared emergency.

WISCONSIN PUBLIC SERVICE CORP. Kewaunee Nuclear Power Plant <i>Emergency Plan Implementing Procedure</i>	No.	EPIP-AD-04	Rev.	AD
	Title	KNPP Response to Alert or Higher		
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3.3 The following responsibilities of the ED shall NOT be delegated:

- 3.3.1 Determination of emergency classification (EPIP-AD-02, "Emergency Class Determination").
- 3.3.2 Authorization of emergency exposures in excess of 10CFR Part 20 limits (EPIP-AD-11, "Emergency Radiation Controls").
- 3.3.3 UNTIL the Emergency Response Manager assumes the responsibility following EOF activation, recommendations of protective actions to off-site authorities (EPIP-AD-19).

3.4 The ED should carefully consider the status of activities (especially those identified in Step 3.3 above) before relocating to the TSC. Relocation to the TSC prior to TSC activation is not recommended.

4.0 Initial Conditions

- 4.1 This procedure shall be implemented upon declaration of an **Alert, Site Emergency, General Emergency**, or when directed by the Shift Manager or Emergency Director.

5.0 Procedure

5.1 SM/ED shall take the following Initial Actions:

- 5.1.1 Contact the Shift Technical Advisor (STA) and direct them to report to the Control Room.
- 5.1.2 IF the event can be declared and terminated within one notification, THEN the SM/ED has the option to require assembly based on the nature of the event and their judgement of threat to plant staff safety. In case assembly is not warranted, go to Step 5.1.4.
- 5.1.3 IF assembly could present an unacceptable risk to plant employees as a result of a security event, THEN do NOT initiate assembly. Go to Step 5.1.5 (Ref: Operations Procedure E-0-08).

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5.1.4 Initiate personnel assembly.

- Prepare your Gai-tronics message by making the choices identified in the box below in Step 5.1.4.c.
- Sound the plant siren.
- Read aloud two times on the Gai-tronics the message below.

“Attention all personnel. We are experiencing an (Choose One) (Alert/Site Emergency/General Emergency). Emergency response organization personnel should report to their duty locations. All other personnel should report to the nearest assembly area.”

Choose (1) or (2)

- No additional personnel protective actions are required at this time.
- Personnel should avoid the following plant areas because of _____ (type hazard):

_____ (plant area)
_____ (plant area)
_____ (plant area)

5.1.5 Contact the Security Shift Captain/Site Protection Director.

- Verify “Security Force Response to Emergencies,” EPIP-SEC-02, actions are being implemented for an Alert or Higher.
 - Verify on-site members of the general public are directed to leave the site in accordance with EPIP-SEC-02.
 - Verify control measures for site access/egress are established in accordance with EPIP-SEC-02.
- IF personnel assembly has been initiated, THEN verify that “Personnel Assembly and Accountability,” EPIP-SEC-03, is initiated.
- Describe briefly the emergency event.

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Note

Protective actions for the public are required for a General Emergency only.

- 5.1.6 Complete the "Event Notice," Form EPIPF-AD-07-01.

Note

Adverse meteorology exists if:

1. The 10 AND 60 meter wind speed is less than 5 mph, AND
 2. Delta T is less than -1.53°F OR Sigma Theta is greater than 17.5 degrees. (Refer to Graphic Display #52 from the Honeywell terminal).
- a. WHEN completing Box #7, get the downwind sector by using the guide on the back of the form. IF adverse meteorology exists, THEN enter NA in Box #7 and explain in Box #10.
 - b. IF the event is a General Emergency and adverse meteorology exists, WHEN completing Part #9, THEN check the following item:
 - (C) 0 to 5 mile radius.
 - c. IF the event is a General Emergency and adverse meteorology does NOT exist, WHEN completing Part #9, THEN check the following items:
 - (B) 0 to 2 mile radius.

Note

The three sectors in (D), include the downwind sector from Part #7 and one sector either side.

- (D) 2 to 5 miles in sectors _____, _____, _____.
- d. IF the event is an Alert or Site Emergency, WHEN completing Part #9, THEN check the following item:
 - (A) None

Note

IF there is more than one Notifier and Control Room Communicator, THEN Steps 5.1.7 and 5.1.9 should be done in parallel.

- 5.1.7 Direct the Notifier/Communicator to initiate notifications per EPIP-AD-07, "Initial Emergency Notifications," using the "Event Notice," Form EPIPF-AD-07-01, completed in Step 5.1.6.
- 5.1.8 IF the event notification is a combination declaration and termination (quick in and out event), THEN determine the need to activate ERO radio pagers.

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- 5.1.9 If appropriate, direct the Notifier/Communicator to activate pagers for all emergency response personnel (group code 9233) in accordance with EPIP-AD-07 Step 5.5. (See "Response Personnel Call List," EPIP-APPX-A-02, for individual pager codes.)
- 5.1.10 Direct the STA to notify the NRC in accordance with Step 5.6.3 of this procedure.
- 5.1.11 Review "State Call-Back - Question Guideline," Form EPIPF-AD-07-02, to prepare for questions which are most likely to be asked by State Duty Officer or State Radiological Coordinator.
- 5.1.12 Log all significant events and actions.
- 5.1.13 Verify Control Room Ventilation System operation.
- 5.1.14 Report any increase in Control Room radiation to the Radiological Protection Director (RPD) for habitability assessment.
- 5.1.15 Request support from Technical Support Center (TSC) or OSF staff as needed.
- 5.1.16 Update facility directors as needed.
- 5.1.17 Until relieved by a designated ED, continue to make assessments of plant conditions and perform the required actions of the ED (Section 5.2 of this procedure) go to Step 5.2.6.

5.2 Emergency Director (Designated) shall:

- 5.2.1 WHEN notified that an Emergency has been declared:
 - a. Report to the Control Room.
 - b. IF an Emergency Director has been designated, THEN until released,
 - If appropriate, plan a shift relief per EPIP-AD-05.
 - Assist the designated Emergency Director.
 - c. IF an Emergency Director has NOT been designated, THEN notify the Shift Manager of your intent to assume the responsibilities of the Emergency Director and continue implementation of this procedure.

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5.2.2 When appropriate, accept a briefing from the Shift Manager and STA. Key points listed below:

- a. _____ Classification chart used to determine emergency level.
- b. _____ Protective Action Recommendation in effect.
- c. _____ Status of off-site and KNPP notifications.
- d. _____ Status of plant accountability.
- e. _____ Status of plant operation.
- f. _____ Control Room support priorities.

5.2.3 Notify other directors and Control Room staff of the transfer of the ED responsibility to you and your location.

5.2.4 When appropriate, relocate to the Technical Support Center (TSC).

5.2.5 Brief the TSC staff on the plant conditions.

5.2.6 Ensure the overall emergency level is continually reviewed.

- a. _____ Event Classification (EPIP-AD-02)
- b. _____ PAR (EPIP-AD-19)
- c. _____ Emergency Radiological Exposures (EPIP-AD-11)

Warning

It is not required to de-escalate from an Emergency Action Level, termination or direct entry into recovery is preferable. However, there may be occasions when it is more appropriate to de-escalate.

EPIP-AD-02 and other EIPs are not written to facilitate de-escalation. Therefore, any decision to de-escalate instead of entering recovery must be based on a thorough review of EPIP-AD-02 and careful use of appropriate procedures.

5.2.7 IF plant conditions have met the conditions for escalating or de-escalating the emergency classification (EPIP-AD-02), set the time and emergency level being declared, THEN:

- a. IF assembly could present an unacceptable risk to plant employees as a result of a Security Event, THEN do NOT initiate assembly.
Go to Step 5.2.7(d).

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b. IF it has NOT already been completed, THEN:

1. Direct a Control Room staff member to sound the plant siren.
2. WHEN the plant siren has been sounded, read aloud two times on the Gai-tronics the message below:

“Attention all personnel. We have (Choose One) escalated/de-escalated from (Choose One) (Unusual Event/Alert/Site Emergency/General Emergency) to (Choose One) ((Unusual Event/Alert/Site Emergency/General Emergency). Designated emergency response directors should take appropriate action.

Emergency Personnel shall report to their emergency duty station. All other personnel should report to the nearest assembly area.”

Choose (1) or (2)

- (1) No additional personnel protective actions are required at this time.
- (2) Personnel should avoid the following plant areas because of _____ (type hazard):
_____ (plant area)
_____ (plant area)
_____ (plant area)

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c. IF personnel assembly has been completed, THEN:

1. Direct a Control Room staff member to sound the plant siren.
2. When the plant siren has been sounded, read aloud two (2) times on the Gai-tronics the message below:

"Attention all personnel. We have (Choose One) escalated/de-escalated from (Choose One) (Unusual Event/Alert/Site Emergency/General Emergency) to (Choose One) (Unusual Event/Alert/Site Emergency/General Emergency). Designated emergency response directors should take appropriate action."

Choose (1) or (2)

- (1) No additional personnel protective actions are required at this time.
- (2) Personnel should avoid the following plant areas because of _____ (type hazard):
_____ (plant area)
_____ (plant area)
_____ (plant area)

d. IF the EOF has NOT accepted responsibility for off-site notifications and PARs, THEN:

Note

Protective actions for the public are required for a General Emergency only.

1. Review current and potential protective action recommendations (EPIP-AD-19).
2. IF time permits, THEN contact off-site authorities via the Dial-Select to discuss pending changes in classification and/or appropriate PAR.
3. Initiate revised event classifications and/or PAR on "Event Notice," Form EPIPF-AD-07-01.
4. Review and sign all "Event Notice," Form EPIPF-AD-07-01, that are generated from the CR/TSC.
5. Forward approved "Event Notice," Form EPIPF-AD-07-01, to the EOF Communicator for transmission to off-site agencies.
6. Verify that required notifications are made (EPIP-AD-07 or EPIP-EOF-08, "Continuing Emergency Notifications").

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- e. IF the EOF has taken responsibility for off-site notifications and PARs, THEN ensure the ERM is notified of the emergency level escalation and the time it was declared.
- f. Direct the Shift Technical Advisor to notify the NRC in accordance with Step 5.6.3 of this procedure.

5.2.8 Determine the response status with an information collection brief. Include the following emergency response organization Directors:

- a. _____ Event Operations Director (EOD):
 - Off-site Notifications (EPIP-AD-07)
 - Plant Operations Status
 - Control Room support priorities
- b. _____ Radiological Protection Director (RPD):
 - Status of Radiological Effluent Releases (potential off-site dose consequences)
 - Off-site Dose Assessment Evaluation
 - Emergency Radiation Controls (EPIP-AD-11) (actions taken in response to this procedure)
 - Status of Personal Injuries or Vehicle Accidents
 - Availability of Potassium Iodide (EPIP-AD-18, "Potassium Iodide Distribution")
- c. _____ Technical Support Center Director (TSCD):
 - TSC Activation and Operational Status (EPIP-TSC-02, Technical Support Center Activation")
 - Significant Plant Trends
 - "Core Damage Assessment" (EPIP-TSC-09A, "Core Damage Assessment")
- d. _____ Support Activities Director (SAD):
 - OSF Activation and operational status
 - OSF Facility Operations (EPIP-OSF-02, "Operational Support Facility Operations")
 - Maintenance Activities
 - "Search and Rescue" (EPIP-OSF-04, "Search and Rescue")

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e. _____ Site Protection Director (SPD):

- Removal of Visitors from site (i.e., fishermen) (EPIP-SEC-02)
- Personnel Accountability (EPIP-SEC-03)
- Access Control
- Significant Security Activities

f. _____ Severe Accident Management Team Leader (SAMTL):

- SAM Team Status
- Severe Challenge Status
- Strategies Implemented
- Strategies being Evaluated
- New Strategy Recommendations

5.2.9 Determine priorities of major tasks required to minimize the impact on the public and mitigate the incident. Weigh activities in the following areas:

- Operations
- Radiological
- Technical Support
- Maintenance
- Security

5.2.10 Inform Emergency Response Manager (ERM) of:

- Status of the plant.
- On-site or off-site radiological releases or potential releases.
- Priorities of tasks to minimize the impact to the public.
- Incidents of public interest (i.e., fires, spills, personnel contaminations, and personnel injuries).

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5.2.11 When appropriate, brief the Plant Emergency Response Organization on plant conditions and priorities. Give specific guidance and assignments considering the following:

- a. If required, direct evacuation of non-essential personnel from the plant.
 - Direct the SPD to initiate a plant evacuation.
 - Direct the RPD to assist the SPD in the plant evacuation.
 - Contact the Manitowoc and Kewaunee County Emergency Directors and the ERM to coordinate the evacuation (may use Dial Select).
 - The SPD implements and coordinates instructions.
 - Update the Manitowoc and Kewaunee County Emergency Directors and the ERM on the status of the evacuation (may use Dial Select).
- b. If appropriate, instruct the data coordinator to initiate plant parameter trends on the following:
 - Safety Assessment System
 - Digital Display (#3)
 - Honeywell Trend Recorders

5.2.12 IF the ERM has NOT assumed the responsibility, THEN provide Plant Emergency status updates to off-site authorities.

- a. IF off-site EOCs are activated, THEN use the Dial Select to contact off-site organizations.
- b. IF off-site organization EOCs are NOT activated, WHEN those organizations initiate a request, THEN provide status updates.
- c. Use the "State Call-Back - Question Guideline," Form EPIPF-AD-07-02, or "Plant Emergency Status Report," Form EPIPF-EOF-08-05, and/or "Radiological Status Report," Form EPIPF-EOF-08-06, as information guides.

5.2.13 Review the plant Emergency Response Staffing requirements and need for any Emergency Director Assistants.

5.2.14 If appropriate, plan for a shift relief per EPIP-AD-05.

5.2.15 Review the requirements of Section 5.1 of EPIP-AD-15, "Recovery Planning and Termination," and determine if recovery or termination activities can be implemented.

5.2.16 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.2.6.

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5.2.17 WHEN Final Conditions (Section 6.0) are met:

- a. Notify the Emergency Response Manager of the event termination or entry into recovery and the suspension of the use of the use of EIPs.
- b. IF the event is an ENTRY INTO RECOVERY, THEN read aloud two times on the Gai-tronics the message below:

“Attention all personnel. We have entered plant recovery operations. Review final conditions of all procedures and restore all emergency response materials and equipment to their proper location. Appropriate inventories should be performed and supplies replenished as appropriate. Use of EIPs is suspended when all final actions have been completed to the satisfaction of the facility Director. The Recovery Manager is _____ and the Environmental Liaison is _____.”

- c. IF the event is an emergency class TERMINATION, THEN read aloud two times on the Gai-tronics the message below:

“Attention all personnel. We have terminated the Emergency response. Review final conditions of all procedures and restore all emergency response materials and equipment to their proper location. Appropriate inventories should be performed and supplies replenished as appropriate.”

- d. Ensure that termination or recovery notifications have been initiated by the NRC communicator.
- e. Verify that “Event Notice,” Form EPIPF-AD-07-01, is being transmitted accordance with EPIP-AD-07 or EPIP-EOF-08.
- f. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to there proper place.
- g. Collect all completed records, logs, forms, notes, and other documentation and give them to the TSCD.
- h. Implement EPMP-02.01, “Declared Emergency Evaluation and Documentation.”

5.3 The Notifier shall:

- 5.3.1 WHEN notified or upon hearing the Event announcement (except when a Security Event is in progress), report immediately to the SM in the Control Room.

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5.3.2 WHEN directed by the Emergency Director/Shift Manager, perform event notifications, go to EPIP-AD-07.

5.3.3 IF a Control Room Communicator is NOT available, THEN assume the role of the Control Room Communicator and go to Step 5.4.4.

5.3.4 Until released, remain in the Control Room and help the designated Control Room Communicator.

5.3.5 WHEN released, report back to the Shift Captain.

5.4 Control Room Communicator shall:

5.4.1 WHEN directly notified, paged by radio-pager, or hearing the event announcement:

- a. Report to the Control Room immediately.
- b. IF the Control Room Communicator has been designated, THEN until released, assist the designated Control Room Communicator.
- c. IF a Control Room Communicator has NOT been designated, THEN assume the responsibilities of the Control Room Communicator and continue to implement this procedure.

5.4.2 Notify the SM/ED of your arrival and assumption of the Control Room Communicator duties.

5.4.3 If applicable, obtain the status of notifications and verification call backs from the Notifier.

5.4.4 IF there is an event: DECLARATION, ESCALATION, DE-ESCALATION, CHANGE IN PAR, TERMINATION, OR ENTRY INTO RECOVERY, AND directed by the SM/ED, go to EPIP-AD-07 OR EPIP-EOF-08 AND make the appropriate event notifications.

5.4.5 Review the need for the Notifier and assistant communicators support.

5.4.6 IF additional Communicator support is needed, THEN contact the Technical Support Center Director

5.4.7 If appropriate, plan for a shift relief per EPIP-AD-05.

5.4.8 Notify the EOD of any significant events.

5.4.9 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.4.4.

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5.4.10 WHEN Final Conditions (Section 6.0) are met:

- a. Verify that the bell switch on the emergency government verification line is in the ON position.
- b. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to their proper place.
- c. Collect all completed records, logs, forms, notes, and other documentation and give them to the EOD.

5.5 The Control Room Support Person (SP-C) shall:

5.5.1 WHEN directly notified, paged by radio-pager, or hearing the event announcement:

- a. Report to the Control Room immediately.
- b. IF a Control Room Support Person has been designated, THEN until released, assist the Control Room Support Person, as instructed.
- c. IF a Control Room Support Person has NOT been designated, THEN assume the responsibilities of the Control Room Support Person and continue to implement this procedure.

5.5.2 Initiate or maintain accountability in the Control Room (EPIP-SEC-03).

5.5.3 Support the control room staff with:

- a. Chronological log of events
- b. Copying
- c. Answering telephones

5.5.4 Review the need for additional Control Room Support Personnel.

5.5.5 IF additional Support Personnel are needed, THEN notify the EOD.

5.5.6 If appropriate, plan for a shift relief per EPIP-AD-05, "Emergency Response Organization Shift Relief Guideline."

5.5.7 Notify the EOD of any significant issues.

5.5.8 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.5.2.

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5.5.9 WHEN Final Conditions (Section 6.0) are met:

- a. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to their proper place.
- b. Collect all completed records, logs, forms, notes, and other documentation and give them to the EOD.

5.6 **Shift Technical Advisor** shall:

Note

The Shift Technical Advisor shall be capable of responding to the Control Room within 10 minutes.

5.6.1 Report to the Control Room to be briefed on plant conditions.

5.6.2 Assist the Shift Manager in assessing plant conditions and determining emergency classification as defined in EPIP-AD-02, "Emergency Class Determination."

Note

IF all off-site and ERO notifications are complete, THEN NRC notifications may be delegated to the Control Room Communicator (CRCm) and should be turned over to the NRC Communicator (NRCCm) as soon as practical.

5.6.3 Perform NRC Notification:

- a. Gather information needed to prepare the NRC "Event Notification Worksheet," Form GNP-11.04.04-1.

Note

If needed, the commercial telephone number is (301) 951-0550.

- b. Notify the NRC (Headquarters, Bethesda) as soon as possible, but not more than one hour after declaration of the Event, using the Emergency Notification System (ENS) phone with the red sticker.

Note

The NRC may request continuous communications per 10CFR50.72(c)(3). The STA must coordinate this activity with accident assessment until arrival of a Control Room Communicator, NRC Communicator, OR activation of the TSC allows them to assume this activity.

- c. Provide the NRC with the necessary information from a completed Event Notification Worksheet.

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5.6.4 WHEN the Control Room Communicator (CRCm), OR NRC Communicator arrives, OR the TSC accepts responsibility for NRC communications and plant status and other activities are at a point that it is appropriate, turn NRC communications over by taking the following actions:

- a. Brief on plant conditions, the status of NRC notification and updates.
- b. Inform them that you are turning over responsibility for NRC communications to them.

5.6.5 Support the Control Room staff with technical and analytical assistance in diagnosing abnormal events and to ensure adequate core cooling.

5.6.6 Monitor plant conditions and provide assistance as needed to the Shift Manager.

5.6.7 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.6.5.

5.6.8 WHEN Final Conditions (Section 6.0) are met:

- a. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to their proper place.
- b. Collect all completed records, logs, forms, notes, and other documentation and give them to the EOD.

5.7 Event Operations Director (EOD) shall:

5.7.1 WHEN notified that an Emergency has been declared:

- a. Report to the Control Room.
- b. IF an Event Operations Director has been designated, THEN until released,
 - If appropriate, plan a shift relief per EPIP-AD-05, AND
 - Assist the designated Event Operations Director.
- c. IF an Event Operations Director has NOT been designated, THEN assume the responsibilities of the Event Operations Director and continue implementation of this procedure.

5.7.2 Notify the SM/ED of your arrival and assumption of Event Operations Director responsibilities.

5.7.3 WHEN they are activating, verify DAROME communication links with TSC and EOF.

5.7.4 When appropriate, accept a briefing from the Shift Manager and STA.

5.7.5 Verify Control Room personnel accountability is being maintained.

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- 5.7.6 Review Control Room staffing requirements, AND
- Direct the Notifier/Communicator to contact additional operations personnel as needed and request that they report to the site (See "Response Personnel Call List," EPIP-APPX-A-02 for names and numbers).
 - Release any personnel NOT required.
- 5.7.7 Assess overall plant status.
- Verify equipment status and instrument indications.
 - Verify Radiation monitors for abnormal indications.
 - Review corrective actions that have been taken.
- 5.7.8 As necessary, make any recommendations to the Shift Manager.
- 5.7.9 Brief the Emergency Director of any changes on:
- Off-site Notifications (EPIP-AD-07 or EPIP-EOF-08)
 - Plant Operations Status
 - Control Room support priorities
- 5.7.10 Inform the RPD of any changes in radiological indications.
- 5.7.11 If required, request technical or maintenance support from the ED.
- 5.7.12 Prepare all work requests (WR) for approval.
- Review WR and designate retest requirements.
 - If required to do the job, determine and initiate system lineups and tagouts.
- 5.7.13 Brief the Control Room staff periodically on:
- Emergency response status
 - Priorities
 - Specific guidance and assignments
- 5.7.14 If appropriate, plan for shift relief per EPIP-AD-05.
- 5.7.15 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.7.5.

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5.7.16 WHEN Final Conditions (Section 6.0) are met:

- a. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to their proper place.
- b. Collect all completed records and logs, as described in procedure "Declared Emergency Evaluation and Documentation," EPMP-02.01.
- c. Schedule a self critique with all event participants in the CR (all shifts) as soon as practical. The procedure "Drill and Exercise Critiques," EPMP-02.04, should be used as a guide.

5.8 **Radiological Protection Director (RPD) shall:**

5.8.1 WHEN notified that an Emergency has been declared:

- a. Report to the Technical Support Center (TSC).
- b. IF a Radiation Protection Director has been designated, THEN until released,
 - If appropriate, plan a shift relief per EP-AD-05.
 - Assist the designated RPD.
- c. IF a Radiation Protection Director has NOT been designated, THEN assume the responsibilities of the RPD and continue implementing this procedure.

5.8.2 Notify the ED/TSCD of your arrival in the TSC and assumption of RPD responsibilities.

5.8.3 Direct the staff to activate the RPO/RAF (EP-RET-02A, "RPO - RAF Activation").

5.8.4 Direct staff to establish Radiation Emergency Team organization (EP-RET-02, "In-Plant Radiation Emergency Team").

5.8.5 If required, verify personnel accountability in RPO is being maintained.

5.8.6 If required, assist the SAD in search and rescue operations (EP-OSF-04).

5.8.7 Check radiological and meteorological information available in the TSC.

5.8.8 If needed, contact the Data Coordinator or Operations Communicator for additional Area and Process radiation monitor information.

5.8.9 Verify that emergency radiation controls are being implemented (EP-AD-11).

5.8.10 Verify controlled area access is being maintained (EP-RET-02D, "Emergency Radiation Entry Controls and Implementation").

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5.8.11 As dictated by the emergency event, direct the staff to implement additional In-Plant Radiation Emergency Team (IRET), Chemistry Emergency Team (CET), and Site Radiation Emergency Team (SRET) procedures.

- "Gaseous Effluent Sample and Analysis," EPIP-RET-02B
- "Liquid Effluent Release Paths," EPIP-RET-03A
- "Post Accident Operation of the High Radiation Sample Room," EPIP-RET-03C
- "Containment Air Sampling Analysis Using CASP," EPIP-RET-03D
- "SBF Operation/Relocation," EPIP-RET-04A
- "Site Boundary Dose Rates During Controlled Plant Cooldown," EPIP-RET-05
- "Contamination Control of the Aurora Medical Center," EPIP-RET-08
- "Post Accident Population Dose," EPIP-RET-09

5.8.12 IF dose calculation capability is NOT available in the EOF AND a radioactive release has occurred or there is the potential for a release, THEN direct the staff to perform dose projections (EPIP-ENV-03C, "Dose Projection Using RASCAL Version 2.2 Software").

5.8.13 Monitor plant conditions for indications of radioactive iodine and with concurrence of the ED make KI available, if appropriate (EPIP-AD-18).

5.8.14 If required, assist the SPD with Personnel Evacuation (EPIP-SEC-05).

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Note

Transportation of a contaminated injured person shall be to the Aurora Medical Center and an IRET should be dispatched to the hospital.

Note

IF there is a question as to the extent of injuries, THEN it should be treated as a critical injury.

Note

Off-Site Support Agencies and their phone numbers are listed in "Off-Site Telephone Numbers," EPIP-APPX-A-03.

5.8.15 IF there are injuries or vehicle accidents associated with plant personnel or contractors, THEN contact the appropriate support agencies.

a. IF the injury is a "Medical Attention (Critical) Injury" or a vehicle accident with injuries (see NAD-02.09 for definition of critical injuries), THEN:

1. Contact the County Sheriff's office with jurisdiction at the location of the injury(s). (Kewaunee County has jurisdiction on the KNPP site.)
 - Kewaunee County Dispatch - 911
 - Manitowoc County Dispatch - (920) 683-4200
2. Notify the dispatcher of the accident and/or injury and request a rescue squad (all critically injured personnel shall be transported by rescue squad).
3. Provide the dispatcher with the following information:
 - Your name, position, and return telephone number.
 - The location of the accident and when it occurred.
 - How many and how the injury(s) occurred.
 - Nature and extent of injuries and condition of the patient(s).
 - If any, extent of radioactive contamination and instructions that transportation of a potentially contaminated injured person shall be to the Aurora Medical Center.
 - Plant name, location.
 - If required, plant access instructions.

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4. IF the injury is on-site, THEN:
 - Inform the SPD of your request for a rescue squad and its estimated time of arrival.
 - Direct the SPD to have the vehicle driven to the proper plant entrance.
5. IF the accident potentially involves radioactive contamination, THEN:
 - Dispatch an IRET member or SRET to the accident site for contamination control.
 - Dispatch an IRET member to the Aurora Medical Center to assist the hospital staff.
6. Insure that the requirements for "Occupational Injuries or Vehicle Accidents During Operations," NAD-02.09, are implemented.
7. Inform the Emergency Director, Emergency Response Manager, and the Spokesperson of the accident and details of the injuries.
- b. IF the Injury is a "Medical Attention (Non-critical) Injury," THEN:

Note

Any KNPP or contractor vehicle may be used for transport of (non-critical) injured personnel.

1. Arrange for transportation of the injured person.
2. Direct the SPD to have the vehicle driven to the proper plant entrance.
3. Contact the hospital or clinic and provide the following information:
 - Your name, position, and return telephone number.
 - When, how many, and how the injury(s) occurred.
 - Nature of injuries and condition of the patient.
 - If any, extent of radioactive contamination.
 - Plant name, location, and access instructions.
 - Estimated time of arrival for the patient(s) at the hospital or clinic.
4. IF there are contaminated injuries, THEN send an IRET member to the Aurora Medical Center to assist the hospital staff.
5. Insure that the requirements "Occupational Injuries or Vehicle Accidents During Operations," NAD-02.09, are implemented.
6. Inform the Emergency Director, Emergency Response Manager, and the Spokesperson of the accident and details of the injuries.

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5.8.16 Brief the Emergency Director of plant radiological conditions:

- Status of Radiological Effluent Releases (potential off-site dose consequences).
- Emergency Radiation Controls (EPIP-AD-11) (actions taken in response to this procedure).
- Status of Personal Injuries or Vehicle Accidents.
- Availability of Potassium Iodide (EPIP-AD-18).

5.8.17 Review the personnel requirements in the RPO/RAF and:

- a. As needed, direct the staff to contact additional Radiation Emergency Team (RET) members.
- b. Release any RPO/RAF staff not required.

5.8.18 If appropriate for long term accident support, then coordinate with the ALD to establish contract support.

5.8.19 If appropriate, plan for a shift relief per EPIP-AD-05.

5.8.20 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.8.5.

5.8.21 WHEN Final Conditions (Section 6.0) are met:

- a. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to their proper place.
- b. Collect all completed records, logs, forms, notes, and other documentation and give them to the TSCD.
- c. Verify all samples collected have been cataloged and appropriately stored.
- d. Schedule a self critique with all event participants in the RPO/RAF (all shifts) as soon as practical. The procedure "Drill and Exercise Critiques," EPMP-02.04, should be used as a guide.

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5.9 Technical Support Center Director (TSCD) shall:

5.9.1 WHEN notified that an Emergency has been declared:

- a. Report to the Technical Support Center (TSC).
- b. If a Technical Support Center Director has been designated, UNTIL released:
 - Assist in the activation of the TSC per EPIP-TSC-02.
 - If appropriate, plan a shift relief per EPIP-AD-05.
 - Assist the designated TSCD.
- c. IF a Technical Support Center Director has NOT been designated, THEN assume the responsibilities of the TSCD and continue implementing this procedure.

5.9.2 Notify the Emergency Director of your assumption of TSCD responsibilities.

5.9.3 Notify TSC staff of your assumption of TSCD responsibilities.

5.9.4 Verify that the TSC is being activated (EPIP-TSC-02).

5.9.5 Verify accountability is being maintained in the TSC (EPIP-SEC-03).

5.9.6 Determine the TSC activity status by obtaining the following information from TSC staff.

- a. _____ Operations Coordinator:
 - TSC support of control room activities
 - Technical support of IPEOPs (EPIP-TSC-10, "Technical Support for IPEOPs")
- b. _____ Engineering Coordinator:
 - Design change activities (EPIP-TSC-04, "Emergency Physical Changes, Major Equipment Repair")
 - Work requests (EPIP-OSF-03, "Work Requests During an Emergency")
 - Support Activities

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- c. _____ Core Hydraulics Coordinator:
 - Core Damage Assessment (EPIP-TSC-09A)
 - If appropriate, Steam Release Calculations (EPIP-TSC-08A, "Calculations for Steam Release from Steam Generators")
 - If appropriate, Head Venting Calculations (EPIP-TSC-07, "RV Head Venting Time Calculation")
 - d. _____ Quality Control Coordinator:
 - QC concerns
 - Warehouse activities
 - e. _____ Data Coordinator:
 - Status of data collection and posting (EPIP-TSC-03)
 - Significant changes in plant parameters
 - f. _____ Communicators
 - EOF, CR, JPIC Communication (3-Way Conference)
 - NRC communications
 - Emergency Response Data System
- 5.9.7 Contact the Emergency Director (ED) and obtain information on plant status.
- 5.9.8 Brief the Emergency Director on TSC activities.
- TSC Activation and Operational Status (EPIP-TSC-02)
 - Significant Plant Trends
 - Core Damage Assessment (EPIP-TSC-09A)
- 5.9.9 Ensure the TSC staff is informed of plant status and ED priorities.
- 5.9.10 Review TSC staffing requirements.
- 5.9.11 If appropriate, plan for a shift relief per EPIP-AD-05.
- 5.9.12 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.9.5.
- 5.9.13 WHEN Final Conditions (Section 6.0) are met:
- a. Ensure the TSC and OSF are de-activated per "Technical Support Center Activation," EPIP-TSC-02.
 - b. Collect all records and logs as described in procedure "Declared Emergency Evaluation and Documentation," EPMP-02.01.

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- c. Schedule a self critique with all event participants in the TSC (all shifts) as soon as practical. The procedure "Drill and Exercise Critiques," EPMP-02.04, should be used as a guide.

5.10 Support Activities Director (SAD) shall:

5.10.1 WHEN notified that an Emergency has been declared:

- a. Report to the Technical Support Center (TSC).
- b. IF a Support Activities Director has been designated, THEN until released,
 - If appropriate, plan a shift relief per EPIP-AD-05.
 - Assist the designated SAD.
- c. IF a Support Activities Director has NOT been designated, THEN assume the responsibilities of the SAD and continue implementing this procedure.

5.10.2 Notify the Emergency Director of your assumption of SAD responsibilities.

5.10.3 Notify the OSF staff that you have assumed the responsibilities of Support Activities Director.

5.10.4 Direct the OSF coordinator to implement EPIP-OSF-02.

5.10.5 Designate an OSF assembly area giving consideration to manpower pool size and environmental conditions.

5.10.6 If needed, direct the OSF coordinator to initiate search and rescue operations (EPIP-OSF-04).

5.10.7 Contact the Emergency Director for information on plant status and immediate actions.

5.10.8 Direct emergency maintenance activities in accordance with the priorities established by the Emergency Director.

5.10.9 If required, request engineering support from the Engineering Coordinator.

5.10.10 Review the maintenance staffing requirements to mitigate the incident.

5.10.11 Brief the Emergency Director on OSF activities.

- OSF Activation and operational status
- OSF Facility Operations (EPIP-OSF-02)
- Maintenance Activities
- Search and Rescue (EPIP-OSF-04)

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5.10.12 Ensure the OSF staff is informed of plant status and ED priorities.

5.10.13 If appropriate, plan for a shift relief per EPIP-AD-05.

5.10.14 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.10.6.

5.10.15 WHEN Final Conditions (Section 6.0) are met:

- a. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to their proper place.
- b. Collect all completed records, logs, forms, notes, and other documentation and give them to the TSCD.
- c. Schedule a self critique with all event participants in the OSF (all shifts) as soon as practical. The procedure "Drill and Exercise Critiques," EPMP-02.04, should be used as a guide.

5.11 **Site Protection Director (SPD)** shall:

5.11.1 WHEN notified that an Emergency has been declared:

- a. Report to the Security Building.
- b. If a Site Protection Director has been designated, UNTIL released:
 - If appropriate, plan a shift relief per EPIP-AD-05.
 - Assist the designated SPD.
- c. IF a Site Protection Director has NOT been designated, THEN assume the responsibilities of the SPD and continue implementing this procedure.

5.11.2 Notify the ED/TSCD of your arrival in the Security Building and assumption of the SPD responsibility.

5.11.3 Direct the implementation of "Security Force Response to Emergencies," EPIP-SEC-02.

5.11.4 Establish "Personnel Assembly and Accountability," EPIP-SEC-03.

5.11.5 IF Search and Rescue is required due to accountability results, THEN notify the Support Activities Director.

5.11.6 Direct the security staff to issue dosimetry to personnel responding from off-site (EPIP-SEC-04).

5.11.7 When appropriate, relocate to the TSC.

5.11.8 Obtain information from the RPD or the Control Room concerning fire, chemical, or radiological hazards present within the protected area.

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5.11.9 IF hazards identified by the RPD or the Control Room warrant it, THEN restrict ERO personnel movement.

5.11.10 IF directed by the ED, THEN initiate a plant evacuation (EPIP-SEC-05).

5.11.11 Brief the Emergency Director on security activities:

- Removal of Visitors from site (i.e., fishermen) (EPIP-SEC-02)
- Personnel Accountability (EPIP-SEC-03)
- Plant Evacuations (EPIP-SEC-05)
- Access Control
- Dosimetry Issue (EPIP-SEC-04)
- Significant Security Activities

5.11.12 Ensure that the Security Force and staff are informed of any significant issues relative to their activities.

5.11.13 Ensure accountability is maintained (EPIP-SEC-03).

5.11.14 Review security staffing requirements and make appropriate adjustments.

5.11.15 If appropriate, plan for a shift relief per EPIP-AD-05.

5.11.16 IF Final Conditions (Section 6.0) have NOT been met, THEN go to Step 5.10.8.

5.11.17 WHEN Final Conditions (Section 6.0) are met:

- a. Verify all work areas are returned to normal status and emergency procedures, forms, etc. are returned to their proper place.
- b. Collect all completed records, logs, forms, notes, and other documentation and give them to the TSCD.
- c. Schedule a self critique with all event participants in Security (all shifts) as soon as practical. The procedure "Drill and Exercise Critiques," EPMP-02.04, should be used as a guide.

6.0 Final Conditions

6.1 Plant Emergency has been Terminated or Recovery actions have begun and the responsible Director has suspended the use of EPIPs.

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7.0 References

- 7.1 Kewaunee Nuclear Power Plant Emergency Plan
- 7.2 COMTRAK 87-152, Downgrading of EALs
- 7.3 COMTRAK 88-068, Calling in additional communicators as required
- 7.4 NRC Inspection Report K-87-195, same as Reference 7.2
- 7.5 10CFR50.72(c)(3), Maintaining open communications with the NRC
- 7.6 NAD-02.09, Occupational Injuries or Vehicle Accidents During Operations
- 7.7 EPIP-AD-02, Emergency Class Determination
- 7.8 EPIP-AD-05, Emergency Response Organization Shift Relief Guideline
- 7.9 EPIP-AD-07, Initial Emergency Notifications
- 7.10 EPIP-AD-11, Emergency Radiation Controls
- 7.11 EPIP-AD-15, Recovery Planning and Termination
- 7.12 EPIP-AD-18, Potassium Iodide Distribution
- 7.13 EPIP-AD-19, Protective Action Guidelines
- 7.14 EPIP-ENV-03C, Dose Projection Using RASCAL Version 2.2 Software
- 7.15 EPIP-EOF-08, Continuing Emergency Notifications
- 7.16 EPIP-OSF-02, Operational Support Facility Operations
- 7.17 EPIP-OSF-03, Work Requests During an Emergency
- 7.18 EPIP-OSF-04, Search and Rescue
- 7.19 EPIP-RET-02, In-Plant Radiation Emergency Team
- 7.20 EPIP-RET-02A, RPO - RAF Activation
- 7.21 EPIP-RET-02B, Gaseous Effluent Sample and Analysis
- 7.22 EPIP-RET-02D, Emergency Radiation Entry Controls and Implementation
- 7.23 EPIP-RET-03A, Liquid Effluent Release Paths

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- 7.24 EPIP-RET-03C, Post Accident Operation of the High Radiation Sample Room
- 7.25 EPIP-RET-03D, Containment Air Sampling Analysis Using CASP
- 7.26 EPIP-RET-04A, SBF Operation/Relocation
- 7.27 EPIP-RET-05, Site Boundary Dose Rates During Controlled Plant Cooldown
- 7.28 EPIP-RET-08, Contamination Control of the Aurora Medical Center
- 7.29 EPIP-RET-09, Post-Accident Population Dose
- 7.30 EPIP-SEC-02, Security Force Response to Emergencies
- 7.31 EPIP-SEC-03, Personnel Assembly and Accountability
- 7.32 EPIP-SEC-05, Personnel Evacuation
- 7.33 EPIP-TSC-02, Technical Support Center Activation
- 7.34 EPIP-TSC-04, Emergency Physical Changes, Major Equipment Repair
- 7.35 EPIP-TSC-07, RV Head Venting Time Calculation
- 7.36 EPIP-TSC-10, Technical Support for IPEOPs
- 7.37 EPIP-TSC-09A, Core Damage Assessment
- 7.38 EPIP-APPX-A-02, Response Personnel Call List
- 7.39 EPIP-APPX-A-03, Off-Site Telephone Numbers
- 7.40 EPMP-02.01, Declared Emergency Evaluation and Documentation
- 7.41 EPMP-02.04, Drill/Exercise Critique and Assessment

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8.0 Records

- 8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

- Event Notice, Form EPIPF-AD-07-01
- Event Notification Worksheet, Form GNP-11.04.04-1

8.1.2 Non-QA Records

None

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Reviewed By <i>Jeanne M. Ferris</i>		Approved By <i>David R. Seibert</i>			
Nuclear Safety Related	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PORC Review Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SRO Approval Of Temporary Changes Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

1.0 Purpose

- 1.1 This procedure provides instruction for assessing radiological dose due to radiological emergencies using Radiological Assessment System for Consequence Analysis (RASCAL) Version 2.2 Software.
- 1.2 RASCAL is a set of computer based tools to estimate the following: source term, atmospheric transport, dose from a radiological accident, dose from field measurements of radiological concentrations, and compute decay of radionuclides.

2.0 General Notes

- 2.1 For releases of radionuclides too small to be adequately evaluated using RASCAL, refer to SP-32B-268, "Site Boundary Doses from Gaseous Effluents."
- 2.2 After activation of the EOF and the RAF, each dose projection printout should be reviewed and approved by both the Radiation Protection Director (RPD) and the Environmental Protection Director (EPD) prior to distribution to the Emergency Director (ED) or Emergency Response Manager (ERM).
- 2.3 Kewaunee Nuclear Power Plant (KNPP) Meteorological Data is available from the Plant Process Computer - Group Output Block #9, Graphics Display #54 or #111, Point Summary #M@@@@@, or the Technical Support Center.
- 2.4 Point Beach Meteorological Data is available through the Point Beach Nuclear Power Plant Control Room (See EPIP Appendix APPX-A-3 for the telephone number).
- 2.5 RASCAL may be run from any computer connected to the two primary network servers used by the Nuclear Department (GBNUC1 and KNPP1).
- 2.6 Two computers, connected to reliable power sources and provided with hard disk drives and necessary software, are provided as stand alone dose calculating stations to be used to run RASCAL Version 2.2. They are in:
 - EOF Dispatch Area (GB D2-6)
 - RAF Calibration Room

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3.0 Precautions and Limitations

3.1 Lake Breeze is NOT calculated by RASCAL.

3.1.1 To determine if Lake Breeze is present, see Table 1.

3.1.2 IF Lake Breeze is present, THEN RASCAL projections may NOT be correct.

3.2 Due to the uncertainties of initial conditions and the unfolding accident sequence, RASCAL should be used to bound the possible range of dose projections. Set up several sets of inputs to cover the possible range of plant conditions (source terms), event data, and meteorological conditions.

3.3 Dose projections produced by RASCAL are rough estimates and should serve only as a guide during a declared emergency. Protective Action Recommendations should be based as a minimum on the level of declared emergency as stated in EPIP-AD-19, "Protective Action Guidelines," and when available actual conditions as measured in the field.

3.4 Ensure the requirements of NAD-05.23, "Software Development, Procurement, Modification, and Control," are met for the RASCAL Computer Program.

4.0 Initial Conditions

4.1 This procedure is to be used in conjunction with RASCAL software whenever conditions at the Kewaunee Nuclear Power Plant involve a release, or potential release of radioactive materials to the atmosphere.

5.0 Procedure

5.1 Starting RASCAL without Network Support.

Note

The computer in the EOF dispatch area is "Stand Alone" and does NOT have a network connection. It is equipped with a hard drive which is setup to boot and run RASCAL automatically. IF RASCAL doesn't start, THEN perform Step 5.1.1 using a designated back-up Lap Top computer.

5.1.1 In the EOF Dispatch Area, perform the following steps:

5.1.1.1 Ensure a laser printer is connected to the computer

5.1.1.2 Restart (reboot) the computer

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Note

In the RAF, RASCAL may be run from the network using Step 5.2. When it is run stand alone, using Step 5.1.2, it is NOT set up for printing.

5.1.2 In the RAF or RAF Calibration Room, perform the following steps:

- 5.1.2.1 Remove the network cable from the wall
- 5.1.2.2 Restart (reboot) the computer
- 5.1.2.3 Select Start, then Run
- 5.1.2.4 Type C:\RASCAL22\RASCAL22.BAT
- 5.1.2.5 Enter

Note

Contact the Help Desk at extension 8100 if problems are encountered.

5.2 Starting RASCAL from a Network computer.

- 5.2.1 Log onto the network using your normal Login ID.
- 5.2.2 Select the desired printer.
 - 5.2.2.1 Click on the START button
 - 5.2.2.2 Click on the SETTINGS icon
 - 5.2.2.3 Click on the PRINTERS icon
 - 5.2.2.4 Select the desired printer and right click on the icon
 - 5.2.2.5 Left click on the SET AS DEFAULT
 - 5.2.2.6 Close printers folder
- 5.2.3 Run the RASCAL Program
 - 5.2.3.1 Select Start, then Run
 - 5.2.3.2 Type N:\APPS\RASCAL22\RASCAL22.BAT

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!! Caution !!

RASCAL will NOT accept the date 2/29/2000 (this is known Y2K problem). If a dose projection or other calculation is required with any dates of 2/29/2000, all dates should substitute the year "2000" with the year "1944."

5.3 WHEN the RASCAL Version 2.2 Program starts and displays text showing the version, THEN press any key or any mouse button to continue.

5.3.1 Select one of the following menu choices:

- Source Term to Dose (ST-DOSE) should be used to assess the consequences of potential or ongoing releases. ST-DOSE estimates the integrated doses and consequences resulting from the accidental release of radionuclides to the atmosphere.
- Close-In Source Term to Dose is designed for a materials accident. In a materials accident the effects are usually close to the source. A "close-in" straight-line Gaussian plume model estimates doses within 25 to 800 meters from the accident site.
- Field Measurement to Dose (FM-DOSE) computes doses from measured environmental radionuclides in the air or on the ground.
- Decay Calculator computes the activities of radionuclides present after decay and ingrowth for a period specified by the user.
- Exit/Return to System.

5.4 IF ST-DOSE or Close-In source is chosen, THEN select "Create New Case."

Note

The case name will appear as a title on the printouts and, therefore, should be both descriptive and unique. For example: Tube rupture - Initial Run, No fuel damage.

5.4.1 Enter a CASE TITLE on the main data entry form in the first field (i.e., Kewaunee Plant Emergency Drill).

5.4.1.1 Pressing F6 will clear the field and allow quick entry.

5.4.1.2 Add your initials to the title to help identification of your printout.

5.4.2 Site Name, enter "K" for Kewaunee.

5.4.3 Effective Release Height, enter OM.

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5.4.4 Default Units: Select (Ci)

5.4.5 Data Source: IF the data entered are not measured data, THEN select projected. IF the data entered are real data for an actual incident, THEN select actual.

5.4.6 Select one of the following source term calculation methods:

- Isotopic Release Rate
- Isotopic Concentrations
- Mix specified by Analyst
- Plant Conditions
- Containment Monitor Reading
- Spent Fuel/Spent Fuel Pool

Note

Contact the RPD for isotopic release rate information (Form EPIPF-RET-02B-01 or Form EPIPF-RET-02B-02).

5.4.6.1 IF the source term release rates for each radionuclide has been estimated independently, THEN select isotopic release rate.

5.4.6.1.1 Release Units: Select units of the release, first select metric prefix, then select sec., min., or hr.

5.4.6.1.2 Release Rates: Enter release rate for each radionuclide to a maximum of three significant figures.

5.4.6.1.3 Zero - resets all release rates to zero.

5.4.6.1.4 Select MAIN MENU or press F10 Key to exit form.

5.4.6.2 IF the source term release concentration for each radionuclide has been estimated independently, THEN select isotopic concentrations.

5.4.6.2.1 Release Rate: Enter release rate for the accident then select cc, ft³, liter, or g., then select sec., min., or hr.

5.4.6.2.2 Concentration Units: Select the units of concentration, first select metric prefix, then select cc, ft³, liter, or g.

5.4.6.2.2 Concentration: Enter concentration of each radionuclide to a maximum of three significant figures.

5.4.6.2.3 Zero - resets all concentrations to zero.

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Note

This pushbutton imports data from the decay calculator. The data imported is added to the concentrations already present on the form.

5.4.6.2.4 Import: (Option) Allows the decay of several isotopic concentrations over different time periods and then adding them together.

5.4.6.2.5 Select MAIN MENU. Press F10 key to exit form.

Note

Contact the RPD for SPING data or steam release information (Forms EPIPF-RET-02B-03, EPIPF-RET-02B-04, or EPIPF-RET-02B-05).

5.4.6.3 IF gross release rate information is available on Form EPIPF-RET-02B-03 (Auxiliary Building Stack Release), Form EPIPF-RET-02B-04 (Containment Stack Release), or Form EPIPF-RET-02B-05 (Steam Release), THEN select Mix Specified by Analyst.

5.4.6.3.1 Enter the gross release rate in Ci/sec.

Note

Sum of percentage of release may not be greater than 100%.

Note

Default values for percentage of release are 98% noble gases, 2% iodines.

5.4.6.3.2 Percentage of Release: Enter the estimated percentages of the release that is in each of the listed categories.

5.4.6.3.3 Select MAIN MENU or press F10 Key to exit form.

5.4.6.4 IF the release pathway is known, THEN select Plant Conditions.

5.4.6.4.1 Select one of the following release pathways:

- Large dry or sub atmospheric containment (leakage/failure)
- Steam generator tube rupture
- Bypass of containment

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5.4.6.4.2 IF the release pathway is large dry or subatmospheric containment leakage/failure, THEN select:

Note

Core Conditions can be obtained from the Control Room or the TSC if it is activated.

- a. Core conditions:
 - Gap release (15-30 min)
 - In-vessel severe core damage (>30 min.)
 - Vessel melt through
- b. Enter reactor power for the last few months or a default of 1,650 Mw(T)
- c. Select sprays (ON or OFF)
- d. Select release path (Filtered or Unfiltered)
- e. Select leak Rate (percent per hr)
- f. Select MAIN MENU or press F10 Key to exit form

5.4.6.4.3 IF release pathway is Steam Generator Tube Rupture, THEN:

Note

Core Conditions can be obtained from the Control Room or the TSC if it is activated.

- a. Select the coolant concentrations using the description that is closest to probable core condition:
 - Gap release (uncovered 15-30 min.)
 - In-vessel severe core damage (>30 min.)
 - Typical coolant
 - Coolant with 100x normal non-nobles
- b. Select Steam Generator Conditions (Partitioned or Not Partitioned)

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Note

Default is one tube.

- c. Select Release Rate using one of five leak rate categories, based on number of tubes or pumps active.
- d. Select release is from (steam jet air ejector or safety valves).
- e. Select MAIN MENU or press F10 Key to exit form.

5.4.6.4.4 IF the release pathway is Bypass of containment, THEN:

Note

Core conditions can be obtained form the Control Room or TSC if it is activated.

- a. Select one of the following core conditions:
 - Gap release (15-30 min.)
 - In-vessel severe core damage (>30 min.)
 - In-vessel melt through
- b. Enter Reactor Power level last few months or a default of 1,650 Mw_(T)
- c. Select release path (filtered or unfiltered)
- d. Select leak rate (percentage per hour)
- e. Select MAIN MENU or press F10 Key to exit form.

5.4.6.5 IF the containment area radiation levels are known, THEN select Containment Monitor Reading.

- 5.4.6.5.1 Select Location of Monitor (PWR)
- 5.4.6.5.2 Enter Reactor Power for the last few months or allow default of 1,650 Mw(t)
- 5.4.6.5.3 Enter Monitor Reading in R/hr
- 5.4.6.5.4 Select containment sprays (ON or OFF)
- 5.4.6.5.5 Select Release Path (filtered or unfiltered)
- 5.4.6.5.6 Select Leak Rate from one of the eight leak rate categories in percent per hour
- 5.4.6.5.7 Select MAIN MENU or press F10 Key to exit form

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5.4.6.6 IF the accident is based on the spent fuel, THEN select Spent Fuel/Spent Fuel Pool

5.4.6.6.1 Select Fuel Condition (Zircalloy Fire-New Batch Only or Fuel Cladding Failure-Gap Release)

5.4.6.6.2 Enter Reactor Power for the last few months or allow default of 1,650 Mw(t)

5.4.6.6.3 Enter Last Batch put in Pool (date and time)

5.4.6.6.4 Enter number of batches

5.4.6.6.5 Select sprays (ON or OFF)

5.4.6.6.6 Select Release Path (filter or unfiltered)

5.4.6.6.7 Select Leak Rate (one of the seven leak rates in percent per hour)

5.4.6.6.8 Select MAIN MENU or press F10 Key to exit form

5.4.7 Select EVENTS from the main menu.

Note

Radionuclides are decayed from shutdown time except when the isotopic release rates containment monitor or spent fuel option are used.

5.4.7.1 If required, enter the day and time the Reactor Shutdown, or IF the analysis does not model a reactor trip, THEN enter the time the release started in the SHUTDOWN field.

Note

The release start to containment time may be the same as shutdown or up to one year later. It may not be before shutdown.

5.4.7.2 If required, enter date and time for Release to Containment or Other Structure when the release from the Reactor Coolant System occurred.

Note

The release start to environment shall not be before the release to containment but may be up to 24 hours after it.

5.4.7.3 If required, enter the day and time for Release to Environment (Start of Exposure) when the release to the atmosphere occurred.

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Note

The release end time can be from 1 minute to 24 hours after the start of the release.

Note

IF a leak rate of 100% per hour is to be selected in the source-term section, THEN the release end time cannot be more than 1 hour later than the release start time.

- 5.4.7.4 If required, enter the End of Release to Environment day and time.

Note

Exposure end time shall be the same as or later than the release to environment end. However, it cannot be more than 48 hours after the release to environment end.

- 5.4.7.5 If required, enter the End of Exposure day and time, time when dose calculations will end.

- 5.4.7.6 WHEN all the Event Times are entered correctly, THEN select MAIN MENU or press F10.

- 5.4.8 Select METEOROLOGICAL DATA from the Main Menu.

Note

The time entered for the first set of met data should correspond to the start of release.

- 5.4.8.1 Enter date and time meteorological data was obtained.

- 5.4.8.2 Enter the 10 meter wind speed.

- 5.4.8.3 Enter the 10 meter wind direction.

Note

RASCAL does NOT calculate the meteorological stability classification. Table 3 can be used to determine Pasquill categories.

- 5.4.8.4 Select the stability class of the mixing layer. A choice list of stability classes is displayed when the stability field is highlighted.

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5.4.8.5 Enter Mixing Layer Height (Default 500m)

Note

Precipitation affects the wet deposition rate. The precipitation type and intensity can be found in National Weather Service hourly weather reports. Table 2 provides the conversion of weather report precipitation symbols to the appropriate precipitation class and intensity.

Note

IF a weather report shows more than one precipitation type, THEN choose the type giving the most intense model precipitation

Note

IF rain and snow precipitation are reported with equal intensity, THEN enter the corresponding rain intensity.

5.4.8.6 Select Precipitation Type

- None
- Light Rain
- Moderate Rain
- Heavy Rain
- Light Snow
- Moderate Snow
- Heavy Snow

5.4.8.7 WHEN all of the data is entered correctly, THEN select MAIN MENU or press F10 key to exit this form.

5.4.9 IF additional meteorological data for other times is to be entered, THEN repeat Step 5.4.8.

Note

There are two dispersion models: Plume or Puff. Use plume when projecting dose based on a single met data set. Use puff when projecting dose based on several different met data sets, for extremely low wind speed conditions, or when more data points on the plots are desired.

Select the PLUME option to calculate doses using a straight-line Gaussian plume model.

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Note

All of the meteorology data that have been entered and that are effective during the interval from release to the environment through the end of exposure are used in calculating doses with a Puff model.

Select the PUFF model to calculates doses for 0-2 miles using straight-line Gaussian plume model and for greater distances using a Lagrangian puff model.

- 5.4.10 Select CALCULATION OPTIONS from the Main Data Entry Form (Plume or Puff).

Note

This option is NOT included for CLOSE-IN ST DOSE calculations (0-2 MI).

- 5.4.11 Select BUILDING WAKE (ON or OFF)

Select on to include building wake into calculation.

Note

The release will be assumed to be at ground level if the wind speed is 1 mph or more and the rate of diffusion will be increased to account for the effects of the building wake. If wind speed is less than 1 mph, the release will be assumed to be at the specific release height and the diffusion rate will not be adjusted.

Select OFF to exclude building wake effects.

Note

RASCAL defaults to a 10 mile radius from the plant with a spatial resolution of 0.67 mile.

- 5.4.12 Select CALCULATION RADIUS (10 miles (16KM) or 25 miles (40 KM)).

Note

The calculate pushbutton is not available if you have not defined a title and a source term or if you have selected a new plant site and previously selected source term option is invalid for the new plant site.

The form that appears summarizes the input and reports calculation progress.

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5.4.13 Select CALCULATE to begin calculations.

Note

Three summary reports and ten graphic reports are generated. Only significant results are displayed. Values $< 10^{-3}$ rem are converted to zeros.

5.4.13.1 Select the desired report for the list below:

- MAXIMUM VALUES to display a table of the Maximum Doses at selected distances from the release point.
- COMPUTED SOURCE TERM REPORT for a summary of the radionuclides making up the release will be displayed and radionuclide and the fraction of the core inventory released.

Note

Not available for CLOSE-IN ST DOSE calculations (0-2 MI).

The remaining options are:

- TOTAL ACUTE BONE DOSE to plot the Total Acute Bone Dose on the map and give insight into early health effects for reactor accidents.
- ACUTE LUNG DOSE to plot the Acute Lung Dose on the map and provide insight into early health effects for accidents where lung dose dominates such as Pu releases.
- TEDE to plot the Total Effective Dose Equivalent on the map for comparison with EPA guidance.
- THYROID DOSE to plot the Thyroid Dose on the map for comparison with EPA thyroid PAGs.
- CLOUD SHINE DOSE to plot the Cloud Shine Dose on the map for calculating the DDE from the plume.

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Note

The total Deep Dose Equivalent (DDE) equals cloud shine + initial ground shine.

- INITIAL GROUND SHINE DOSE to plot Ground Shine Dose on the map for calculating DDE from deposition.
- 4-DAY GROUND SHINE DOSE to plot the deposition component of the Total Effective Dose Equivalent on the map (not normally viewed).
- ACUTE BONE INHALATION DOSE to plot the Inhalation Component of the Total Acute Bone Dose on the map (not normally viewed).
- DEPOSITION to plot the Ground Deposition levels in $\mu\text{Ci}/\text{cm}^2$ and on the map (not normally viewed).

5.4.13.2 Select (VIEW/PRINT) to see projected data. If a printout is required, select (Print (ALT-P) or Enter (ALT-P))

5.4.13.3 Select (Save File) to save your calculations for later review.

5.4.13.4 Select MAIN FORM or press (F10) to exit this form.

5.4.14 Select (Mainform (F-10)) or the F-10 key to return to the main menu.

5.5 Comparison of RASCAL Dose Projection Results with Environmental Monitoring Team (EMT) and/or Site Radiation Emergency Team (SRET) Survey Results.

5.5.1 IF available, THEN obtain plume centerline field radiation survey results (mR/hr) at 0.5, 1.0, 2.0, 5.0, and/or 10 miles from the plant.

5.5.2 Using the maximum values results (screen and printout) for the completed dose projection, add the doses (rem) from the Cloud Shine line and the Initial Ground Shine line together (for the appropriate distance from the plant).

5.5.3 Convert the sum of Cloud Shine and Ground Shine Dose from rem to mrem (multiply by 1,000).

5.5.4 Convert the sum of Cloud Shine and Initial Ground Shine Dose to a dose rate (mrem/hr) by dividing the sum by the total exposure time (hours) entered in the event times menu.

5.5.5 Compare the dose rate (mrem/hr) from the dose projection determined in Step 5.6.4 to the dose rate (mrem/hr) measured by the field team at the corresponding centerline distance from the plant.

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5.6 IF Field Measurements to Dose (FM-Dose) is chosen, THEN select CREATE NEW CASE.

Note

A title shall be entered to calculate results.

5.6.1 Enter a title.

5.6.2 If known, enter the date and time the sample was collected.

5.6.3 Ground Concentration Units: Select units, first select metric unit and (Ci or Ba). Then select (M^2 , CM^2 or ft^2).

5.6.4 Air Concentration Units: Select units, first select metric units and (Ci or Ba) then select (M^2 , CM^2 or ft^2).

5.6.5 Enter ground concentrations.

Note

Surface Correction Factor, Resuspension Factor, and Reentry Delay are set at default values and should only be changed if specific instructions to do so are given.

5.6.5.1 Enter exposure time.

5.6.5.2 Enter concentration for each nuclide deposited.

5.6.5.3 Use "scroll up" or "scroll down" for additional nuclides.

5.6.5.4 Select MAIN MENU or press F10 to exit form.

5.6.6 Enter air concentration.

5.6.6.1 Enter exposure time.

5.6.6.2 Enter concentration for each nuclide.

5.6.6.3 Use "scroll up" or "scroll down" for additional nuclides.

5.6.6.4 Select MAIN MENU or press F10 to exit form.

5.6.7 Select the concentrations to be used in the calculations (air, ground, or both).

5.6.8 Select the dose units, metric unit and (REM or Su).

5.6.9 Select calculate.

5.6.10 Select the view desired.

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6.0 Final Conditions

- 6.1 Plant Emergency has been Terminated or Recovery actions have begun and the Emergency Response Manager has suspended the use of EIPs.

7.0 References

- 7.1 NAD-05.23, Software Development, Procurement, Modification, and Control
- 7.2 EPIP-AD-19, Protective Action Guidelines
- 7.3 SP-32B-268, Site Boundary Doses from Gaseous Effluents
- 7.4 NUREG/CR-5247/PNL-8454, Vol. 1, Rev. 1, RASCAL Version 2.2 User's Guide
- 7.5 Workbook of Atmospheric Dispersion Estimates, D. Bruce Turner, 1970
- 7.6 NUREG/BR0150, Vol. 1, Rev. 2, RTM-92 Response Technical Manual
- 7.7 EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions For Nuclear Incidents
- 7.8 NUREG/CR-5247, Vol. 2, Rev. 2, RASCAL Version 2.2 Workbook
- 7.9 EPIP Forms
 - 7.9.1 Form EIPF-RET-02B-01, Containment Stack Release (Grab Sample)
 - 7.9.2 Form EIPF-RET-02B-02, Auxiliary Building Stack (Grab Sample)
 - 7.9.3 Form EIPF-RET-02B-03, Auxiliary Building Stack (Sping Reading)
 - 7.9.4 Form EIPF-RET-02B-04, Containment Stack (Sping Reading)
 - 7.9.5 Form EIPF-RET-02B-05, Steam Release

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8.0 Records

- 8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

- RASCAL Projection Printouts

8.1.2 Non-QA Records

None

LAKE BREEZE

Determine Lake Breeze Effect

The following conditions must be met for a possible Lake Breeze Effect:

KNPP or PBNP wind direction is between 20° and 170°,
<u>AND</u>
PBNP Inland Tower or Green Bay NWS wind direction is between 210° and 330°,
<u>AND</u>
Meteorological Data Record time is between 0700 and 2,000 hours,
<u>AND</u>
Meteorological Data Record date and date of Lake Breeze onset time are the same.

WEATHER REPORT SYMBOL, MODEL CLASS, AND INTENSITY

WEATHER REPORT SYMBOL	MODEL CLASS	INTENSITY
None	NONE	---
A	SNOW	Moderate
IC-, IP-	SNOW	Light
IC, IP	SNOW	Moderate
IC+, IP+	SNOW	Heavy
L-, L, L+	RAIN	Light
R-, RW-	RAIN	Light
R, RW	RAIN	Moderate
R+, RW+	RAIN	Heavy
S-, SG-, SP-, SW-	SNOW	Light
S, SG, SP, SW	SNOW	Moderate
S+, SG+, SP+, SW+	SNOW	Heavy
ZL-, ZL, ZL+, ZR-	RAIN	Light
ZR	RAIN	Moderate
ZR+	RAIN	Heavy

STABILITY CLASSIFICATION

To specify a stability classification without using RASCAL, first obtain **Delta T** or **Sigma Theta** from the Meteorological data. Values of **Delta T** or **Sigma Theta** will correspond to the various stability classifications as shown below

STABILITY CLASSIFICATION	PASQUILL CATEGORIES	SIGMA THETA ($\sigma\theta$) (DEGREES)	60M – 10M DELTA T ($^{\circ}\text{F}/50\text{M}$)
Extremely Unstable	A	$\sigma\theta \geq 22.5$	DELTA T ≤ -1.71
Moderately Unstable	B	$22.5 > \sigma\theta \geq 17.5$	$-1.71 < \text{DELTA T} \leq -1.53$
Slightly Unstable	C	$17.5 > \sigma\theta \geq 12.5$	$-1.53 < \text{DELTA T} \leq -1.35$
Neutral	D	$12.5 > \sigma\theta \geq 7.5$	$-1.35 < \text{DELTA T} \leq -0.45$
Slightly Stable	E	$7.5 > \sigma\theta \geq 3.8$	$-0.45 < \text{DELTA T} \leq 1.35$
Moderately Stable	F	$3.8 > \sigma\theta \geq 2.1$	$1.35 < \text{DELTA T} \leq 3.60$
Extremely Stable	G	$2.1 > \sigma\theta$	$3.60 < \text{DELTA T}$

Reference: ANSI/ANS-2.5-1984

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Reviewed By <i>Jeanne M. Ferris</i>		Approved By <i>David R. Seelbirt</i>			
Nuclear Safety Related	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PORC Review Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SRO Approval Of Temporary Changes Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

1.0 Purpose

- 1.1 This procedure provides instruction for the Environmental Monitoring Teams (EMTs) for collecting and analyzing air samples during a declared plant emergency.

2.0 General Notes

- 2.1 The EMTs shall collect and analyze air samples in accordance with this procedure when directed.

3.0 Precautions and Limitations

- 3.1 Care shall be taken during sample acquisition to prevent sample cross contamination.
- 3.2 To keep personnel exposure ALARA, the air sampler may be left at the sample location to collect the air sample while the EMT waits in a low-dose area.
- 3.3 EMTs should not enter areas where projected or measured external radiation dose rates exceed 1 R/hr without specific direction from the Environmental Protection Director (EPD) or Radiological Protection Director (RPD).

4.0 Initial Conditions

- 4.1 This procedure is used during a declared plant emergency by the EMTs when the teams are directed to collect and/or analyze environmental air samples.

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5.0 Procedure

5.1 Prepare for Air Sample Collection

Note

Whenever practical, perform Steps 5.1.1 and 5.1.2 prior to going to the sample location.

5.1.1 Obtain a 2-inch (Gelman) filter paper for particulates, a silver zeolite cartridge for iodine, and a Marinelli beaker for noble gas samples.

5.1.2 Prepare the air sampler for sample collection.

Note

The air samplers are stored in a "ready configuration," meaning Steps "a" through e are complete. Begin with Step "f." Steps "a" through "f" are included in case complete disassembly and re-assembly are necessary.

- a. Attach the blue cartridge housing (large diameter threaded end) to the air sampler inlet.
- b. Attach one of the gold filter housings to the blue cartridge housing.
- c. Attach the gold coupler to the gold filter housing.
- d. Attach one end of a tygon tube to the gold coupler and the other end to the outlet port of the Marinelli beaker.
- e. Attach one end of a second tygon tube to the inlet port of the Marinelli beaker and the other end to the blue cartridge housing (small gold diameter threaded end).
- f. Verify that the inlet and outlet stop-cocks on the Marinelli beaker are fully open (parallel to flow).
- g. Insert a silver zeolite cartridge into the blue cartridge housing with the arrow on the cartridge pointing in the direction of air flow.
 1. IF an air gap exists between the silver zeolite cartridge and the blue cartridge housing, THEN place a cartridge seal ring around the silver zeolite cartridge.
- h. Attach the second gold filter housing to the blue cartridge housing.
- i. With a pen, gently mark an "X" on one side of a particulate filter.
- j. Insert the particulate filter into the second gold filter housing over the vents with the marked "X" side facing out, ensuring that the filter is placed into the filter housing side recessed to accept it.

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- k. Attach the gold filter retaining ring to the gold filter housing.
- l. Verify that the cartridge and filter housings are sealed tightly so that no air will bypass it during sampling.

5.2 Collect an Air Sample

Note

Air samples are normally collected at locations on the plume centerline. Plume centerline is located at the point where the highest Gamma radiation levels are observed while traversing the plume.

- 5.2.1 Drive to the air sample location.
- 5.2.2 Measure the Gamma radiation levels (dose rates) using the ERM-2 (detector extended outside of vehicle) while en route to the sample location.

Note

Do not collect an air sample at a location where submersion in the plume is not verified unless specifically instructed to take such action by the Environmental Monitoring Team Coordinator (EMTCd).

- 5.2.3 Verify submersion in the plume by determining the corrected Beta radiation level at the sample location.
 - a. Determine the Gamma level.
 1. Hold the detector, with the Beta window closed, approximately 1 meter above the ground.
 - b. Determine the corrected Beta radiation level.
 1. Open the Beta window by sliding the rubber sleeve toward the cable end of the detector.
 2. With the Beta window open, hold the survey detector approximately 1 meter above ground to determine the Beta/Gamma reading.
 3. Subtract the reading taken in Step 5.2.3.a from the reading taken in Step 5.2.3.b.2 to obtain the uncorrected Beta reading.
(Uncorrected Beta reading = Beta/Gamma reading - Gamma reading)
 4. Multiply the uncorrected Beta reading obtained in Step 5.2.3.b.3 by the Beta correction factor (BCF) listed on the instrument calibration sticker to obtain the correct Beta radiation level.
(Corrected Beta radiation level = uncorrected Beta reading x BCF)
 - c. IF Step 5.2.3.b.4 above results in a positive (greater than zero) corrected Beta radiation level, THEN submersion in the plume is verified.

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5.2.4 Record date and time, sample location (grid coordinates), sample type and Gamma radiation level (dose rate) on Form EPIPF-ENV-01-04, EMT Orders/Field Data or on Attachment A of EPIP-ENV-04D, EMT Standing Order SO-1.

5.2.5 Operate the air sampler to collect an air sample.

- a. Verify the number listed on the instrument calibration sticker for particulate, iodine, and noble gas samples is dialed in on the air sampler thumbwheel switches.
- b. Place the **ON/OFF** power switch in the **ON** position (toggle switch).
- c. Start the air sampler by pressing the **START** button (black).
- d. Record the sample collection start time on a radioactive sample tag.

Note

The air sampler will automatically shut off when 300 liters of air sample is collected.

- e. WHEN the air sampler shuts off, then fully close both the inlet and outlet stop-cocks to the Marinelli beaker (perpendicular to flow).
- f. Record the sample collection end time on the radioactive sample tag.
- g. Record the number from the air sampler LED readout on the radioactive sample tag.
- h. Place the air sampling equipment in a poly bag and place in the EMT vehicle.

5.2.6 Go to a location with background Gamma radiation levels (outside the plume) prior to performing sample analysis or labeling and bagging samples (Steps 5.3 and 5.4).

5.2.7 IF directed by the EMTCd, THEN collect an alternate gross-air grab sample.

- a. Don a clean pair of rubber gloves.
- b. Obtain a water-filled, one liter bottle from the EMT kit.
- c. Remove the cap and invert the bottle.

Note

Maintain the bottle inverted until the cap is replaced.

- d. Allow the water to empty onto the ground.
- e. Recap the bottle tightly.
- f. Place the bottle in clean poly bag.
- g. Proceed to a location with background Gamma radiation levels.

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- h. Complete the radioactive sample tag with the following information:
 - Sample location (to the nearest one-half of a grid coordinate)
 - General area dose rate (mR/hr) at sample location
 - Type of sample (noble gas)
 - Date of sample
 - Time of sample
 - Initials of individual completing the sample tag
- i. Place the radioactive sample tag into the poly bag with the one liter bottle.
- j. Seal the bag.
- k. Using the ERM-2, perform an on-contact Gamma radiation dose rate survey of the bag.
- l. Label the bag with the on-contact Gamma radiation dose rate.
- m. Deliver the air sample to the location specified by the EMTCD.

5.3 Analyze an Air Sample

Note

Analyze the sample only when located in an area with background Gamma radiation levels (outside the plume). Don a clean pair of rubber gloves prior to handling samples.

5.3.1 Count a silver zeolite cartridge (I-131 sample).

- a. Using EPIP-ENV-04A, prepare the ESP-2 with the SPA-9 "I-131" detector for a silver zeolite cartridge sample count.
- b. Place the SPA-9 detector into the portable shield.
- c. Press the RESET button to perform a one minute background count.

Note

Upon completion of the count, the ESP-2 will beep and display the results in units of $\mu\text{Ci/cc}$.

- d. Record the results of Step 5.3.1.c above as background (BKGD) I-131 $\mu\text{Ci/cc}$.
- e. Loosen the thumb screw to remove the SPA-9 detector from the portable shield.
- f. Place the silver zeolite cartridge sample (with the arrow pointing downward) into the portable shield.

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- g. Place the SPA-9 detector into the shield on top of the silver zeolite cartridge sample.
- h. Press the **RESET** button to perform a one minute sample count.

Note

Upon completion of the count, the ESP-2 will beep and display the results in units of $\mu\text{Ci/cc}$.

- i. Record the results of Step 5.3.1.h above as gross I-131 $\mu\text{Ci/cc}$.
- j. Press the **ON/OFF** button to turn off the instrument.
- k. Disconnect the SPA-9 detector from the instrument.
- l. Determine the net I-131 $\mu\text{Ci/cc}$:

$$(\text{Net I-131 } \mu\text{Ci/cc} = \text{gross I-131 } \mu\text{Ci/cc} - \text{BKGD I-131 } \mu\text{Ci/cc})$$
- m. Record the Net I-131 $\mu\text{Ci/cc}$ on Form EPIPF-ENV-01-04, "EMT Orders/Field Data."
- n. Label and bag the silver zeolite cartridge sample according to Step 5.4 of this procedure.

5.3.2 Count a particulate filter (particulate sample).

- a. Using EPIP-ENV-04A, prepare the ESP-2 with the HP-260 "PART" detector for counting particulate filters.
- b. Hold the HP-260 detector in the air.
- c. Press **RESET** button to perform a one minute background count.

Note

Upon completion of the count, the ESP-2 will beep and display the results in units of $\mu\text{Ci/cc}$.

- d. Record the results from Step 5.3.2.c above as background (BKGD) particulate $\mu\text{Ci/cc}$.
- e. Place the particulate filter sample on a clean, flat surface with the "X" marked side up.

Note

Small raised bumps on the HP-260 detector face should prevent contamination of the detector by the sample.

- f. Place the HP-260 detector directly on contact with the particulate filter sample.

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- g. Press the **RESET** button to perform a one minute sample count.

Note

Upon completion of the count, the ESP-2 will beep and display the results in units of $\mu\text{Ci/cc}$.

- h. Record the results of Step 5.3.2.g above as gross particulate $\mu\text{Ci/cc}$.
- i. Press the **ON/OFF** button to turn off the instrument.
- j. Disconnect the HP-260 detector from the instrument.
- k. Determine the Net particulate $\mu\text{Ci/cc}$:
 (Net particulate $\mu\text{Ci/cc}$ = gross particulate $\mu\text{Ci/cc}$ - BKGD particulate $\mu\text{Ci/cc}$)
- l. Record the Net particulate $\mu\text{Ci/cc}$ on Form EPIPF-ENV-01-04, "EMT Orders/Field Data."
- m. Label and bag the particulate filter sample according to Step 5.4 of this procedure.

5.3.3 Analyze a Marinelli beaker noble gas sample.

- a. Using EPIP-ENV-04A, prepare the ESP-2 with the HP-260 "GAS" detector for counting Marinelli beaker gas samples.
- b. Hold the HP-260 detector in the air.
- c. Press **RESET** to perform a one minute background count.

Note

Upon completion of the count, the ESP-2 will beep and display the results in units of $\mu\text{Ci/cc}$.

- d. Record the results as background (BKGD) noble gas $\mu\text{Ci/cc}$.
- e. Place the HP-260 detector inside the deep well portion of the inverted Marinelli beaker gas sample with the detector window facing into the large volume of the beaker.
- f. Press **RESET** to perform a one minute sample count.

Note

Upon completion of the count, the ESP-2 will beep and display the results in units of $\mu\text{Ci/cc}$.

- g. Record the results of Step 5.3.3.f above as gross noble gas $\mu\text{Ci/cc}$.
- h. Press the **ON/OFF** button to turn off the instrument.
- i. Disconnect the HP-260 detector from the instrument.

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- j. Determine the Net noble gas $\mu\text{Ci/cc}$:
(Net noble gas $\mu\text{Ci/cc}$ = gross noble gas $\mu\text{Ci/cc}$ - BKGD noble gas $\mu\text{Ci/cc}$)
- k. Record the Net noble gas $\mu\text{Ci/cc}$ on Form EPIPF-ENV-01-04, "EMT Orders/Field Data."
- l. Label and bag the Marinelli beaker gas sample according to Step 5.4 of this procedure.

5.4 Label and Bag Air Samples

Note

Label and bag the air samples when at a location with background Gamma radiation levels (outside the plume) and use a clean pair of gloves.

- 5.4.1 Place the particulate filter sample in a small poly bag.
- 5.4.2 Place the silver zeolite cartridge sample in the same poly bag with the particulate filter.
- 5.4.3 Complete a radioactive sample tag with the following information:
 - Sample location (to the nearest one-half of a grid coordinate)
 - General area dose rate (mR/hr) at sample location
 - Type of sample(s) (iodine, particulate, and noble gas)
 - Date
 - Time sample started
 - Time sample ended
 - Flow rate of air sampler (from air sampler calibration sticker)
 - Initials of individual completing the sample tag
- 5.4.4 Place the radioactive sample tag in the poly bag with the particulate filter sample and silver zeolite cartridge sample.
- 5.4.5 Seal the poly bag.
- 5.4.6 Place the bag in the deep well of the Marinelli beaker noble gas sample.
- 5.4.7 Place the bagged particulate filter sample, silver zeolite cartridge sample, and the Marinelli beaker noble gas sample into a larger clean poly bag.
- 5.4.8 Seal the outermost poly bag.
- 5.4.9 Using the ERM-2, perform an on-contact Gamma radiation dose rate survey of the outermost bag.

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5.4.10 Label the outermost bag with the on-contact Gamma radiation dose rate.

5.5 Verify that the following information is recorded for all air sample analysis results on Form EPIPF-ENV-01-04, "EMT Orders/Field Data:"

- Sample date and time
- Sample location (to the nearest one-half of a grid coordinate)
- Sample type (iodine, particulate, noble gas, or dose rate)
- Readings (general area dose rate in mR/hr or net sample analysis results in $\mu\text{Ci/cc}$)

5.6 Report all air-sample analysis results to the EMTCd via fax, telephone, or radio using Form EPIPF-ENV-01-04, "EMT Orders/Field Data."

5.7 Unless otherwise directed, deliver the air samples to the KNPP Security Building.

5.8 While you are en route, notify the RPO/RAF via radio or cellular telephone that air samples will be delivered and estimated time of air sample delivery.

6.0 Final Conditions

6.1 This procedure is complete when all orders (EMT Standing Order SO-1, Attachment A of EPIP-ENV-04D, or "EMT Orders/Field Data," Form EPIPF-ENV-01-04) requiring air sampling have been completed, suspended, or terminated, the results have been reported to the EMTCd, and all air samples have been delivered.

7.0 References

- 7.1 EPIP-ENV-04A, Portable Survey Instrument Use
- 7.2 EPIP-ENV-04D, Plume Tracking for Environmental Monitoring Teams
- 7.3 HP-06.043, Battery Powered Air Sampler, Model H-810-B2

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8.0 Records

8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

- EMT Orders/Field Data, Form EPIPF-ENV-01-04
- EMT Standing Order SO-1, Attachment A of EPIP-ENV-04D

8.1.2 Non-QA Records

- Radioactive Sample Tags

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		Reviewed By	<i>Jeanne M. Ferris</i>		
Nuclear Safety Related		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PORC Review Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SRO Approval Of Temporary Changes Required
				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

1.0 Purpose

- 1.1 This procedure provides instruction for performing ground deposition sampling and analysis during a declared plant emergency.

2.0 General Notes

- 2.1 The Environmental Monitoring Teams (EMTs) shall collect and analyze ground deposition samples in accordance with this procedure when directed.
- 2.2 Environmental Inc. (Midwest Lab.) (Previously Teledyne) (847-564-0700) shall be contacted for more detailed soil/vegetation/water/snow samples.

3.0 Precautions and Limitations

- 3.1 Wear rubber gloves while collecting all samples listed below and change gloves frequently to prevent sample cross contamination.
- 3.2 Do NOT use plastic to wrap the detector of any instrument used to measure Beta radiation (i.e., ERM-2, ESP-2, and ASP-1). Wrapping the detector in plastic during operation may shield Beta radiation. Instruments and their detectors may be placed in a plastic bag to prevent contamination while being transported.
- 3.3 EMTs should not enter areas where projected or measured external radiation dose rates exceed 1 R/hr without specific direction from the Environmental Protection Director (EPD) or Radiological Protection Director (RPD).
- 3.4 Each instrument and its attached probe have been calibrated as a set. Do NOT interchange instruments and probes unless authorized by the Radiation Protection Group. Interchanging instruments and probes invalidates the instrument/probe calibration.

4.0 Initial Conditions

- 4.1 This procedure is to be used during a declared plant emergency by the EMTs when the teams are directed to collect and/or analyze ground deposition samples.

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5.0 Procedure

5.1 Ground Deposition Screening Techniques

Note

Background readings on roads and most fields will range from 10 to 150 CPM. Therefore, 300 CPM was selected as a reasonable action level.

- 5.1.1 IF directed to a specific sample location, THEN travel to that sample location.
- 5.1.2 IF directed to determine the presence of ground deposition, THEN reference EPIP-ENV-04A, Step 5.6.7.
- 5.1.3 Measure the Gamma radiation level (dose rate) using the ERM-2 (probe extended outside of vehicle) while en route to the sample location.
- 5.1.4 Record the dose rate, time, and sample location on Form EPIPF-ENV-01-04, "EMT Orders/Field Data."
- 5.1.5 Select a representative surface from which a smear sample could be obtained (i.e., road pavement or other horizontal surface).
- 5.1.6 Perform a survey of the surface using an ASP-1 with the HP-260 probe.
 - a. Place the **FAST/SLOW** instrument response switch to the **FAST** position.
 - b. Hold the detector within ½-inch from the surface to be surveyed.
 - c. Move the detector over the surface to be surveyed at a rate of approximately 2 inches per second.
 - d. Continuously monitor the meter reading and adjust the selector switch multiplication factor so that the meter reads approximately 50% of full scale.
 - e. Multiply the meter reading by the selected multiplication factor to determine the contamination level in counts per minute (CPM).
 - f. IF the reading obtained in Step 5.1.6.e above is 300 CPM or greater, THEN perform Step 5.2 of this procedure.
 - g. IF the meter reading obtained in above Step 5.1.6.e is less than 300 CPM, THEN go to next sample location (if any) and repeat Step 5.1 above.

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5.2 Collect Ground Deposition Samples

- 5.2.1 Collect a smear sample from the same surface measured in Step 5.1.6.f, Ground Deposition Screening.

Note

Put on a clean pair of rubber gloves prior to handling samples.

- a. Obtain cloth smear disc (NU-CON).
- b. Record the following information on the NU-CON cloth smear.
 1. Date of sample
 2. Time of sample
 3. Location of sample
 4. Technician (name of individual taking sample)
- c. Wipe a 4-inch square or 18-inch "S" shaped area with the cloth smear disc.
- d. Fold the smear holding paper in half so that the cloth smear disc is folded onto itself.
- e. IF directed, THEN analyze smear per Step 5.3 below.
- f. Label and bag smear per Step 5.4 below.

5.3 Analyze Ground Deposition Samples

- 5.3.1 IF directed, THEN determine the activity (in disintegrations per minute (DPM)) of the ground deposition cloth smear disc sample using an ASP-1 with the HP-260 probe.

Note

Count the sample only when located in an area with background Gamma radiation levels (outside the plume). Don a clean pair of rubber gloves prior to handling samples.

- a. Determine the background CPM.
 1. Hold the HP-260 probe in the air.
 2. Record the results of Step 5.3.1.a.1 above as background (BKGD) CPM.
- b. Determine the gross sample CPM.
 1. Place the HP-260 probe directly on contact with the cloth smear disc sample (small raised bumps on the detector will prevent contamination of the detector).
 2. Record the results of Step 5.3.1.b.1 above as gross sample CPM.

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c. Determine the net sample CPM.

1. Subtract the background CPM from Step 5.3.1.a.2 above from the cloth smear disc gross sample CPM from Step 5.3.1.b.2.

(Net sample CPM = smear sample CPM - background CPM)

d. Determine the net sample DPM.

1. Multiply the net CPM obtained in Step 5.3.1.c.1 above by the efficiency factor (EF) listed on the ASP-1 instrument calibration sticker.

(Net sample DPM = net sample CPM x EF)

e. Record results from Step 5.3.1.d above, as DPM/100 cm² or DPM/smear if < 100 cm² area was surveyed on Form EPIPF-ENV-01-04, "EMT Orders/Field Data."

5.3.2 Verify that the following information is recorded for all ground deposition samples on Form EPIPF-ENV-01-04, "EMT Orders/Field Data:"

- Sample date and time
- Sample location (to the nearest one-half of a grid coordinate)
- Sample type (ground deposition or dose rate)
- Readings (sample results in DPM/100 cm², DPM/smear, or mR/hr)

5.3.3 Report all ground deposition sample analysis results to the Environmental Monitoring Team Coordinator (EMTCd) via fax, telephone, or radio using Form EPIPF-ENV-01-04, "EMT Orders/Field Data."

5.4 Label and Bag Ground Deposition Samples

5.4.1 Place each smear sample in a clean poly bag.

5.4.2 Complete the radioactive sample tag.

Note

All labels or tags shall contain the following information:

- Sample location (to the nearest one-half of a grid coordinate)
- General area dose rate (mR/hr) at the sample location
- Type of sample (ground deposition)
- Date
- Time sample taken
- Initials of individual completing the sample tag

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5.4.3 Place the radioactive sample tag in the bag along with the smear disc.

5.4.4 Seal the bag.

5.4.5 Using the ERM-2, perform an on-contact Gamma radiation dose rate survey of the bag.

5.4.6 Label the bag with the on-contact Gamma radiation dose rate.

5.4.7 Unless otherwise directed, deliver the ground deposition samples to the KNPP Security Building.

5.4.8 While en route, notify the RPO/RAF via radio or cellular telephone that ground deposition samples will be delivered and estimated time of ground deposition sample delivery.

5.5 IF final conditions as stated in Step 6.1 have not been met, THEN return to Step 5.1 of this procedure.

6.0 Final Conditions

6.1 This procedure is complete when all orders ("EMT Orders/Field Data," Form EPIPF-ENV-01-04) requiring ground deposition sampling have been completed, suspended, or terminated, the results have been reported to the EMTCD, and all samples have been delivered.

7.0 References

7.1 EPIP-ENV-04A, Portable Survey Instrument Use

7.2 EPIP-ENV-04D, Plume Tracking for Environmental Monitoring Teams

7.3 Teledyne Isotopes Letter of Agreement

8.0 Records

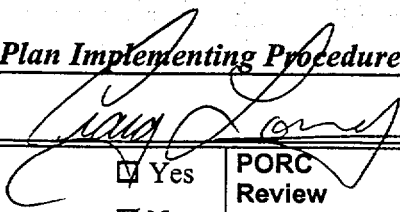
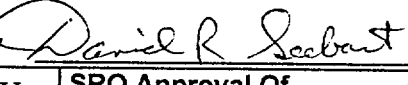
8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

- EMT Orders/Field Data, Form EPIPF-ENV-01-04

8.1.2 Non-QA Records

- Radioactive Sample Tags

WISCONSIN PUBLIC SERVICE CORP. Kewaunee Nuclear Power Plant <i>Emergency Plan Implementing Procedure</i>		No. EPIP-RET-05		Rev. H
		Title Site Boundary Dose Rates During Controlled Plant Cutdown		
		Date OCT 09 2001		Page 1 of 4
Reviewed By 		Approved By 		
Nuclear Safety Related	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PORC Review Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SRO Approval Of Temporary Changes Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

1.0 Purpose

- 1.1 This procedure provides instruction for determining the activity release rate from the steam reliefs and the resultant instantaneous dose rates at the site boundary during controlled cooldown of the plant assuming primary-to-secondary leakage in the steam generators and steam release to the environment.

2.0 General Notes

- 2.1 This procedure is to be used in conjunction with Integrated Plant Emergency Operating Procedure ECA-3.1 and E-1.

3.0 Precautions and Limitations

- 3.1 Uncontrolled steam releases from the steam generators and applicable plume projection procedures can be found in EPIP-RET-02B, "Gaseous Effluent Sample and Analysis" and EPIP-ENV-03C, "Dose Projection Using Rascal Version 2.2 Software."
- 3.2 Westinghouse guidance specifies that since the steam releases are controlled, the site boundary dose rate limits of the Offsite Dose Calculation Manual (ODCM) are to be followed rather than the emergency limits of Federal Regulation 10CFR100.
- 3.3 The instantaneous dose rate equations in Section 5.0 of this procedure relate to Equations 2.4 and 2.5 of the ODCM, where:
- 3.3.1 The default X/Q dispersion factor equals 3.6E-6.
- 3.3.2 Summation factors are the summation of the Total Body Dose Factors (Ki) and Skin Dose Factors (Li, Mi), listed in Table 2.1 of the ODCM, times the default X/Q. Isotopes Ar-41, Kr-90, and Xe-137 are not included since they do NOT appear in EPIP-RET-02B, Table 2B.1, "Isotope Normalization Factor."
- 3.4 The steam line monitor calibration factors are taken from EPIP-RET-02B which is based on Fluor's evaluation performed under DCR 844, Task #965 (KPS-6266) of 3/16/81.

4.0 Initial Conditions

- 4.1 This procedure shall be implemented upon declaration of an **Alert, Site Emergency, General Emergency**, or when directed by the Shift Manager or Emergency Director.

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5.0 Procedure

5.1 Obtain the following information from the TSC or Control Room:

5.1.1 Reactor Trip time.

5.1.2 Steam release flow rate (cc/sec) from EPIP-TSC-08A, "Calculations for Steam Release from Steam Generators."

5.1.3 Steam line monitor readings from:

- R-31 1A Steam Line - LO (mR/hr)
- R-32 1A Steam Line - HI (R/hr)
- R-33 1B Steam Line - LO (mR/hr)
- R-34 1B Steam Line - HI (R/hr)

5.2 Using the following table, determine the correct steam line monitor calibration factor based on time since Reactor Trip:

TIME SINCE REACTOR TRIP	STEAM LINE MONITOR CALIBRATION FACTOR
	$\mu\text{Ci/cc}$ R/hr
0 hours	14.5
1 hour	16.7
2 hours	20.3
4 hours	30.4
8 hours	67.9
1 day	887.0
1 week	3.08E + 4
1 month	1.93E + 4

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5.3 Calculate the activity release rate as follows:

HIGHEST MONITOR READING	STEAM LINE MONITOR CAL. FACTOR	STEAM RELEASE FLOW RATE	1.06E-6	=	Ci/sec
R/hr	$\frac{\mu\text{Ci/cc}}{\text{R/hr}}$	cc/sec	Ci/ μCi		
_____	x	_____	x	1.0E-6	= _____

5.4 Insert the activity release rate (Ci/sec) into the following equation to calculate the instantaneous total body dose rate at the site boundary:

ACTIVITY RELEASE RATE	x	SUMMATION FACTOR	=	INSTANTANEOUS DOSE RATE TO THE TOTAL BODY IN MREM/YEAR
(Ci/sec)				
_____	x	0.190	=	_____ mRem/yr (TB)

5.5 The ODCM 3.4.1.a limit is 500 mRem/yr for the total body instantaneous dose rate.

5.6 Determine the dose rate to the skin as follows:

ACTIVITY RELEASE RATE	x	SUMMATION FACTOR	=	INSTANTANEOUS DOSE RATE TO SKIN IN MREM/YEAR
(Ci/sec)				
_____	x	0.339	=	_____ mRem/yr (SKIN)

5.7 The ODCM 3.4.1.a limit is 3,000 mRem/yr for the instantaneous dose rate to the skin.

6.0 Final Conditions

6.1 Plant Emergency has been Terminated or Recovery actions have begun and the Emergency Response Manager has suspended the use of EIPs.

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	Title	Site Boundary Dose Rates During Controlled Plant Cooldown		
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7.0 References

- 7.1 KNPP Offsite Dose Calculation Manual
- 7.2 EPIP-RET-02B, Gaseous Effluent Sample and Analysis
- 7.3 IPEOP ECA-3.1, SGTR With Loss of Reactor Coolant - Subcooled Recovery Desired
- 7.4 EPIP-TSC-08A, Calculations for Steam Release from Steam Generators
- 7.5 EPIP-ENV-03C, Dose Projection Using Rascal Version 2.2 Software

8.0 Records

- 8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

- EPIP-RET-05 Procedures, Completed

8.1.2 Non-QA Records

None

WISCONSIN PUBLIC SERVICE CORP. Kewaunee Nuclear Power Plant Emergency Plan Implementing Procedure		No. EPIP-SEC-03		Rev. AA
		Title Personnel Assembly and Accountability		
		Date OCT 09 2001		Page 1 of 11
Reviewed By <i>Jeanne M. Ferris</i>		Approved By <i>David R. Seibert</i>		
Nuclear Safety Related	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PORC Review Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SRO Approval Of Temporary Changes Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

1.0 Purpose

- 1.1 This procedure provides instruction for establishing and maintaining personnel accountability within the Protected Area (PA) of the plant.

2.0 General Notes

- 2.1 When initial assembly and accountability are in progress, certain individuals (as designated in EPIP-AD-01, "Personnel Response to the Plant Emergency Siren") will be allowed to move in, out, and about the PA before initial accountability is complete.
- 2.2 Emergency Response Organization (ERO) staff shall report to their duty locations.
- 2.3 Visitors, Contractors, and non-ERO personnel on-site should assemble in the nearest designated Assembly Area.
- 2.4 Severe Weather

- 2.4.1 Several of the Assembly Areas are NOT appropriate for severe weather safety.

- Warehouse Annex Lunchroom - relocate to the locker room.
- Administrative Training Facility (ATF) Lunchroom - relocate to the ATF Basement.
- Simulator Training Facility (STF) Lobby - relocate to the Simulator Control Room away from the glass partition along the west wall close to the floor.
- Classroom C Security Building - relocate to the Security Building locker room.

Note

IF unable to relocate as stated above, personnel should relocate on lower levels of buildings in interior rooms away from all windows.

- 2.4.2 The following locations are adequate during severe weather:

- Control Room (CR)
- Radiation Protection Office (RPO)
- Technical Support Center (TSC)

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3.0 Precautions and Limitations

- 3.1 Initial **accountability starts** from the site announcement (siren sounding/public address message) and needs to be **completed within 30 minutes**.
 - a. The SMS Emergency Accountability **Program will begin 2 minutes** after site announcement. This allows for personnel to exit areas that are not their normal emergency work area (i.e., Control Room).
 - b. The first report should be **generated after 5 minutes**.
 - c. **After 10 minutes**, print a report or review the computer screen every minute until the number of unaccounted for personnel plateaus.
 - d. When the number of unaccounted for personnel plateaus, **accountability is complete**.
- 3.2 Allow prompt movement of ERO personnel into and out of the Protected Area when the Site Protection Director has determined there is no personnel hazard restricting such movement.
- 3.3 Adhere to the radiation control policies and requirements outlined in EPIP-AD-11, "Emergency Radiation Controls" and EPIP-RET-02D, "Emergency Radiation Entry Controls and Implementation."
- 3.4 Personnel who are in the Control Room when the Emergency Accountability Program is started are accounted for by the SMS.
- 3.5 Security Force Members, Fire Brigade Members, NAOs, and dispatched Emergency Teams are exempt from the SMS Emergency Accountability Program. They will be accounted for as defined in EPIP-AD-01, Step 5.1.1.c.

4.0 Initial Conditions

- 4.1 Personnel **assembly** is required whenever the plant emergency siren is sounded. **Accountability** will be required upon assembly unless otherwise directed by the Shift Manager/Emergency Director.

5.0 Procedure

- 5.1 **Site Protection Director (SPD) or Designee shall:**
 - 5.1.1 IF a designated Master Accountability Coordinator (MAC) is not available, THEN direct the Security Shift Captain to perform accountability functions.
 - 5.1.2 Contact the Emergency Director (ED) or Radiological Protection Director (RPD) to determine the location of any personnel hazards on-site or off-site and continue to monitor conditions.

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- 5.1.3 IF conditions warrant, THEN direct the Security Force to hold exiting personnel in the Security Building until the RPD determines a safe evacuation route.
- 5.1.4 Advise the MAC of all hazardous areas and/or severe weather.
- 5.1.5 Advise on-site directors of hazardous areas or severe weather conditions.
- 5.1.6 Direct Security Force personnel to make a tour through the Owner Controlled Area (OCA), sewage plant, exterior warehouses, exterior substation, and Met Tower to inform personnel to assemble in the STF or Security Building, or to leave the site, as appropriate.
- 5.1.7 Ensure attempts are made by any available means to contact all personnel who are unaccounted for.
- 5.1.8 IF attempts fail to locate personnel who are unaccounted for, THEN direct the Central Alarm Station (CAS) or Secondary Alarm Station (SAS) operator to run a computer report for that person(s).
- 5.1.9 Provide the Support Activities Director (SAD) and the RPD with information regarding all personnel who are unaccounted for based upon last known locations obtained from the computer report.
- 5.1.10 Keep the ED informed of the status of personnel accountability.
- 5.1.11 When initial accountability is complete, ensure the following message is announced over the Gai-tronics:
- “Attention all personnel. Initial accountability is complete. Personnel may relocate to other areas but shall maintain accountability.”**
- 5.1.12 Maintain cognizance of all personnel outside the PA who remain on-site.
- 5.1.13 Continue to provide the MAC with updates on any location determined to be a personnel hazard including areas outside the PA.

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5.2 Master Accountability Coordinator (MAC) shall:

5.2.1 WHEN accountability is required:

- a. Report to the Security Building.
- b. IF a MAC has been designated and UNTIL they are released,
 1. If appropriate, plan a shift relief per EPIP-AD-05, "Emergency Response Organization Shift Relief Guideline."
 2. Help the designated MAC.
- c. IF a MAC has NOT been designated, notify the SPD of your intent to assume the responsibilities of the MAC and continue implementation of this procedure.

5.2.2 Two minutes after the sound of the plant emergency siren, ensure that the SAS/CAS has started the "Emergency Accountability Program" on the SMS.

5.2.3 Contact Security to verify there is NOT a hard copy visitor list. If this list is available, pick up the KNPP Protected Area Visitor and Non-Designated Vehicle log (SIP 20.02-1) at the Registration Desk.

5.2.4 Contact each Visitor's Escort via Gai-tronics to ensure accountability of their Visitor, place a check mark next to the Visitor's name as reported by the Escort.

5.2.5 Five minutes after the SMS Emergency Program has been started, obtain an Emergency Report from CAS/SAS.

5.2.6 Should attempts fail to locate personnel who are unaccounted for, direct the SAS/CAS to run a computer report on that person.

5.2.7 Review the Emergency Report

- a. Contact the Control Room and strike any names from the list that have been positively accounted for (individual is in the Control Room or is accounted for on their "Emergency Accountability Log").
- b. Contact the Technical Support Center (TSC) and strike any names from the list that have been positively accounted for (individual is in the TSC or is accounted for on their "Emergency Accountability Log").
- c. Contact all names remaining on the list by any possible means.

5.2.8 WHEN all personnel have been contacted or reasonable attempts to contact have failed, record the names of individuals not accounted for and their last known location and provide this information to the SPD.

5.2.9 Contact the Accountability Areas outside the PA (per Table 1) to determine the number and location of personnel on-site but not within the Protected Area.

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- 5.2.10 Report to the SPD the number and location of personnel on-site but outside the PA and obtain an update regarding personnel hazards and/or severe weather.
- 5.2.11 IF the plant emergency siren sounds after initial accountability, THEN return to Step 5.2.2.
- 5.2.12 Provide Accountability Coordinators (AC) with information regarding personnel hazards and/or severe weather provided by the SPD and continue to do so on a periodic basis.
- 5.2.13 Brief the SPD on any change in accountability status or new problems (i.e., groups or individuals overdue in assembly areas).
- 5.2.14 If appropriate, plan a shift relief for the MAC per EPIP-AD-05.
- 5.2.15 IF Final Conditions (Section 6.0) have NOT been met, THEN return to Step 5.2.11.
- 5.2.16 WHEN Final Conditions (Section 6.0) are met,
 - a. Return your work area to normal status and return emergency procedures, forms, etc. to their proper place.
 - b. Record any discrepancies to emergency supplies that need correction and report them to the SPD.
 - c. Collect all completed forms, notes, and other documentation and give them to the SPD.

5.3 Accountability Coordinator (AC) shall:

- 5.3.1 WHEN accountability is required:
 - a. Report to your assigned assembly area.
 - b. IF an AC has been designated and UNTIL they are released,
 - 1. Help in facility activation.
 - 2. If appropriate, plan a shift relief per EPIP-AD-05.
 - 3. Help the designated AC.
 - c. IF an AC has NOT been designated, notify the Facility Director or MAC of your intent to assume the responsibilities of the AC in the assembly area and continue implementation of this procedure.

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5.3.2 Obtain Accountability packet located in the assembly areas in the following locations:

- a. Control Room (CR) - on the wall behind the Control Room Supervisor's desk.

Note

Make a list for the MAC of Fire Brigade Members, NAOs, and dispatched Emergency Teams that are accountability exempt.

- b. Technical Support Center (TSC) - On the desk near the entrance door (No. 410).
- c. Radiation Protection Office (RPO) - Next to the entrance door (No. 55).
- d. Administrative Training Facility (ATF) - Lunchroom southwest corner, above the phone and Gai-tronics.
- e. Warehouse Annex - Lunchroom west wall, above the phone and Gai-tronics.
- f. Security Building - Room "C" on the wall by the phone and Gai-tronics.
- g. Site Training Facility (STF) - Lobby on the wall by the Gai-tronics.
- h. Containment Access Facility Break Room - On the south wall, next to accountability card reader in Craft Break Area.
- i. SGR Fab Shop - On the north wall of the south room in the SGR Fab Shop.
- j. South Security Building at Visitor's Desk.

5.3.3 Locate yourself near the SMS accountability card reader.

Note

Visitors with magnetic badges must swipe their key card in an accountability card reader. Visitors with non-magnetic badges should not swipe their key card in an accountability card reader.

5.3.4 WHEN the Gai-tronics announcement is made that emergency accountability has been initiated, ensure that all badged personnel located in the area swipe their Security key card in the accountability reader and receive a green light.

5.3.5 IF a Director or Supervisor notifies you of individuals who will NOT assemble, THEN record them as if they were leaving the facility per Step 5.3.9.

5.3.6 Five minutes after the Gai-tronics announcement initiating accountability, make an announcement requesting any badged personnel who have not swiped their key card to do so immediately.

5.3.7 During accountability, demand quiet and cooperation. Maintain accountability of personnel assembled there.

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5.3.8 WHEN provided by the MAC, inform personnel in your assembly area of information on hazardous areas.

5.3.9 WHEN an individual elects to move to another area, log their departure on "Emergency Accountability Log," Form EPIPF-SEC-03-01, as follows:

Note

This includes visitors also.

- In the "Name" column: Enter the name of the individual leaving the area.
- In the "Card" column: Enter the individual's security card number.
- In the "Destination" column: Enter the location to which the individual is heading.

Acronym	Area
<i>For Another Accountability Area</i>	
CR	Control Room
RPO	Radiation Protection Office
TSC	Technical Support Center
WA	Warehouse Annex Lunchroom
ATF	Administrative Training Facility Lunchroom
CAF	Containment Access Facility Break Room
<i>For Repair Team Activity</i>	
LPA	Leaving the Protected Area
PA	Outside the Buildings but inside the Protected Area
ADMN	Administrative Buildings
TURB	Turbine Building
AUX	Auxiliary Building
CNTM	Containment Building
WRHS	Warehouse or Shop Area

- In the "Departure Time" column: Enter the time the individual departed the area.
- In the "Return/Arrive Time" column: Enter the time the individual returns to the area or the time you are informed they arrive at another Assembly Area by the Accountability Coordinator in that area.

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- 5.3.10 IF an individual arrives in your area who did not log out of your area and is not immediately returning to the area he checked out of, THEN contact the area he departed and notify them of the individual's arrival time and intent to stay.
- 5.3.11 IF moving the entire group of assembled personnel to another area, THEN:
- Contact the MAC to inform them of the intended move.
 - Record badge numbers of people moving.
 - Instruct personnel in your area to proceed directly to the new destination, staying in a group until head count can be verified.
 - Verify the badge numbers upon arrival at the new location.
 - Contact the MAC to verify arrival and to provide a phone number at the new location.
- 5.3.12 IF the plant siren is sounded following the initial accountability, THEN initiate contacts to all individuals listed as NOT "Returned or Arrived" on your Form EPIPF-SEC-03-01:
- WHEN contacted, give them any information you know about the siren sounding.
 - IF instructed by a Facility Director, instruct the individual to come back to an assembly area.
 - Note the individuals that were contacted and notify the MAC of individuals logged out of your area and whether you were able to contact them.
 - Return to Step 5.3.4.
- 5.3.13 If appropriate, plan a shift relief for the area AC per EPIP-AD-05.
- 5.3.14 IF Final Conditions (Section 6.0) have not been met, THEN return to Step 5.3.8.
- 5.3.15 IF Final Conditions (Section 6.0) are met, THEN

Note

Flag any discrepancies to emergency supplies that need correction.

- Return your work area to normal status and return emergency procedures, forms, etc. to there proper place.
- Collect all completed forms, notes, and other documentation and give them to the SPD.

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5.4 Security Force shall:

- 5.4.1 WHEN accountability is required and the SMS system is offline, manually maintain a log of personnel entering/exiting the PA to enable the MAC to update the accountability roster as necessary.
- 5.4.2 Guide PA ingress/exit in accordance with EPIP-SEC-02, "Security Force Response to Emergencies."
- 5.4.3 **Patrolling Security Officers** shall:
 - a. Verify their locations by portable radio to the Shift Captain for accountability.
 - b. Obtain personal dosimetry to take with them on patrol in accordance with EPIP-SEC-04, "Security Force Actions for Dosimetry Issue."

6.0 Final Conditions

- 6.1 Plant Emergency has been Terminated or Recovery actions have begun and the Emergency Director has suspended the use of EIPs or it has been determined emergency accountability is no longer required.

7.0 References

- 7.1 Kewaunee Nuclear Power Plant Emergency Plan
- 7.2 EPIP-AD-01, Personnel Response to the Plant Emergency Siren
- 7.3 EPIP-AD-05, Emergency Response Organization Shift Relief Guideline
- 7.4 EPIP-AD-11, Emergency Radiation Controls
- 7.5 EPIP-RET-02D, Emergency Radiation Entry Controls and Implementation
- 7.6 EPIP-SEC-02, Security Force Response to Emergencies
- 7.7 EPIP-SEC-04, Security Force Actions for Dosimetry Issue

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8.0 Records

- 8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

None

8.1.2 Non-QA Records

- Emergency Accountability Log, Form EPIPF-SEC-03-01

**ACCOUNTABILITY AREAS
(Inside the Protected Area)**

LOCATION	PHONE NUMBER
Control Room	8207
Radiation Protection Office	8451
Technical Support Center (Included OSF and RAF)	8353
Administrative Training Facility (Lunchroom)	6480
Warehouse Annex (Lunchroom)	6452
Containment Access Facility Break Room	6500

ALTERNATE LOCATION	PHONE NUMBER
Administrative Training Facility (Basement)	6548
Warehouse Annex (Locker Room)	8427



**ACCOUNTABILITY AREAS
(Outside the Protected Area)**

LOCATION	PHONE NUMBER
Security Building Classroom C	6548
Simulator Training Facility (Lobby)	8427
SGR - Fab Shop	6501

ALTERNATE LOCATION	PHONE NUMBER
Security Locker Room (Security Building)	8292
Simulator Training Facility (Simulator Control Room)	8427

ACCOUNTABILITY LEADERS

LEADER	PHONE NUMBER
Master Accountability Coordinator (Security Building)	8509
Site Protection Director (Sec. Bldg.)	8418
(TSC)	PBX 8591 Kew. Ex. 388-0459

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		Reviewed By			
Approved By					
Nuclear Safety Related	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PORC Review Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SRO Approval Of Temporary Changes Required	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

1.0 Purpose

- 1.1 This procedure provides instruction for the Data Coordinator or other Technical Support Center (TSC) staff members to maintain checklists for awareness of plant parameters, equipment availability, and radiological conditions.

2.0 General Notes

- 2.1 None

3.0 Precautions and Limitations

- 3.1 None

4.0 Initial Conditions

- 4.1 This procedure shall be implemented upon declaration of an **Alert, Site Emergency, General Emergency**, or when directed by the Shift Manager or Emergency Director.

5.0 Procedure

- 5.1 Start the trend recorders in the TSC (Safety Parameter Display System (SPDS) and meteorological) using instructions on Form EPIPF-TSC-02-04.
- 5.2 Ensure Technical Support Center (TSC) instrumentation and parameter displays are activated and functional.
- 5.2.1 IF a display is not functional, THEN contact the KNPP Computer Group.
- 5.3 Contact the Technical Support Center Director (TSCD) to determine if trends of critical parameters are needed.
- 5.4 If directed, initiate the following trends for the event in progress (i.e., LOCA: RWST Level versus Containment Sump Level):
- 5.4.1 Safety Assessment System
- 5.4.2 Digital Display (#3)
- 5.4.3 Honeywell Trend Recorders

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5.5 Obtain Data from the Plant Process Computer.

5.5.1 Call up *Graphic Display #51*, Plant System Status (Form EPIPF-TSC-03-01) on the system.

5.5.2 Obtain a hard copy by pressing the *Print TSC Screen* function key.

5.5.3 Call up *Graphic Display #52*, Environmental Status Board (Form EPIPF-TSC-03-03) on the Honeywell system.

5.5.4 Obtain a hard copy by pressing the *Print TSC Screen* function key.

5.5.5 Call up *Group Outputs #45* and *#46*, Radiation Monitors on the System, and copy data onto Form EPIPF-TSC-03-04.

5.6 Direct the Operations Communicator to obtain the following information from the Control Room to complete Forms EPIPF-TSC-03-01 and EPIPF-TSC-03-02:

5.6.1 S/G PORV/STM Dump, A/B, Cond/ATM

5.6.2 SI Acc Level 1A/B

5.6.3 Containment Humidity

5.6.4 RXCP Status A/B

5.7 Coordinate with the Operations Communicator to determine plant equipment status and record on Form EPIPF-TSC-03-02.

5.8 Data not available on the SPDS for Environmental Status Board (Form EPIPF-TSC-03-03) should be obtained and filled in by hand using the following guidelines:

a. Meteorological

1. Meteorological strip chart printers in the TSC
2. Point Beach Control Room
3. National Weather Service

b. Radiological Release

1. Radiological Protection Director (RPD)
2. Environmental Protection Director (EPD)

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c. Protective Action Recommendation

1. Emergency Director (ED)
2. Technical Support Center Director (TSCD)

5.9 Periodically update the status boards from the completed forms based upon:

- 5.9.1 The magnitude and pace of event.
- 5.9.2 When a significant change in parameters or equipment status occurs.
- 5.9.3 As a mean guide, update approximately every 15 minutes.

5.10 Review data for trends or significant changes.

5.11 Notify the ED or TSCD of any critical items.

5.12 Return to Step 5.4.

6.0 Final Conditions

- 6.1 Plant Emergency has been Terminated or Recovery actions have begun and the Emergency Response Manager has suspended the use of EPIPs.

7.0 References

- 7.1 COMTRAK 84-177
- 7.2 COMTRAK 87-156
- 7.3 EPIP Appendix B, Forms

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8.0 Records

- 8.1 The following QA records and non-QA records are identified in this directive/procedure and are listed on the KNPP Records Retention Schedule. These records shall be maintained according to the KNPP Records Management Program.

8.1.1 QA Records

- TSC Chart Recorder Operation Checklist, Form EPIPF-TSC-02-04
- Plant System Status, Form EPIPF-TSC-03-01
- Plant Equipment Status, Form EPIPF-TSC-03-02
- Environmental Status Board, Form EPIPF-TSC-03-03
- Radiation Monitors, Form EPIPF-TSC-03-04

8.1.2 Non-QA Records

None

TSC AND OSF DE-ACTIVATION CHECKLIST

- 1.0 _____ Collect all unused office supplies and place them in one location in the TSC.
- 2.0 _____ Collect all forms, records, and logs generated during the event and give them to the Technical Support Director.
- 3.0 _____ Return the radiation survey instrument to the RAF.
- 4.0 _____ Place the DAROME system on-off switch to the "OFF" position.
- 5.0 _____ Place the TSC fax machine on-off switch to the "OFF" position.
- 6.0 _____ Place the TSC Reader/Printer on-off switch to the "OFF" position.
- 7.0 _____ Shut down all programs and turn off all computers and monitors in the:
 - 7.1 OSF
 - 7.2 SAM Team Room
- 8.0 _____ Contact the Control Room and request that the TSC Ventilation System be secured.
- 9.0 _____ Secure the ERDS as follows:
 - 9.1 AT THE ERDS COMPUTER
 - a. Position the arrow, using the mouse, on "STOP TRANSMISSION."
 - b. Depress the left mouse button.
 - c. Verify the ERDS Status number has returned to "ERDS LINK NOT CONNECTED."
 - 9.2 AT THE PPCS HONEYWELL TERMINAL (KBN02)
 - a. Use the tab key to tab to "STOP THE DATA FLOW TO THE EMERGENCY SEND SYSTEM."
 - b. Depress the execute button.

TSC AND OSF DE-ACTIVATION CHECKLIST

10.0 _____

Secure the three Honeywell trend recorders (85020, 85021, and 85022) as follows:

- a. Open the front cover to access key pad.
- b. Press the greater than (>) button. (Display = Pri Chart Spd 20 MM/HR).
- c. Press the advance button twice. (Display = Chart Hold Off).
- d. Press the up arrow once. (Display = Chart Hold Off).
- e. Press the enter key. (Display = Chart Hold On).
- f. Press the "C" key (Display = 1PCT X.XX, 2PCT X.XX Off).
- g. Close the front cover.

11.0 _____

Secure the two meteorological recorders (58012-backup and 58010-primary) as follows:

- a. Open the recorder cover (latch located bottom left side of cover).
- b. Press the chart "ON-OFF" button (right side) to place the switch in the "off" (button out) position.
- c. Open the chart door (latch located middle right).
- d. Place the power switch (lower right) in the "OFF" position.
- e. Close the chart door.
- f. Close the recorder cover.

12.0 _____

Secure the three wind recorders (58008-60m, 58009-10, and 58011-backup) as follows:

- a. Open the recorder cover (latch located middle right).
- b. Place the main power switch (lower left) to the "OFF" position.
- c. Place the chart drive switch (right side) in the "OFF" position.
- d. Close recorder cover (avoid pinching wires lower left corner).

TSC AND OSF DE-ACTIVATION CHECKLIST

- 13.0 _____ Secure the TSC Public Address system as follows:
- a. Place the amplifier power switch in the "OFF" position.
 - b. Place the microphone mixer power switch in the "OFF" position.
 - c. Place all director table microphone power switches in the "OFF" position.
- 14.0 _____ Secure the Emergency Notification System (ENS) cordless phone as follows:
- a. Replace the handset battery with the battery from the charging unit (See EPIP Appendix A-1).
 - b. Place the handset on the base unit (charging light may or may not come on).
 - c. Place the battery from the handset on the charging unit (charging light should come on).
- 15.0 _____ IF the PC Printer 70 in the OSF was turned on, secure it by placing the on-off switch to the "OFF" position.
- 16.0 _____ Write your name in the "Completed By" space and add the "Date" and "Time" this checklist was completed.
- 17.0 _____ Report the completion of this checklist to the Technical Support Center Director.

COMPLETED BY: _____ DATE: _____ TIME: _____