

POINT BEACH NUCLEAR PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURES

EPIP INDEX
Revision 101
November 26, 2003

INDEX

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(T - Temporary Change)

C = Continuous Use
R = Reference Use
I = Information Use

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C = Continuous Use
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EPIP 2.1

NOTIFICATIONS - ERO, STATE AND COUNTIES, AND NRC

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1.0 PURPOSE

This procedure is to provide guidance for making initial and subsequent notifications of a classified emergency to members of the Point Beach Nuclear Plant Emergency Response Organization (ERO), State of Wisconsin, Manitowoc County, Kewaunee County, KNPP and the Nuclear Regulatory Commission.

2.0 PREREQUISITES

2.1 Responsibilities

2.1.1 Shift Manager (SM) has the ultimate responsibility to complete notifications per this procedure until a formal turnover to the Emergency Director has been conducted.

2.1.2 IF available to assist with this procedure, THEN the SM may assign these tasks to:

- Security Shift Commander (SSC)
- Operating Supervisor(s) (OS)
- Shift Technical Advisor (STA)

2.1.3 State and County Communicator shall assume notifications to the State and Counties upon activation of the Emergency Operations Facility (EOF).

2.1.4 ENS Communicator shall assume notifications to the NRC upon activation of the Technical Support Center (TSC).

2.2 Equipment

2.2.1 Notification of the Emergency Response Organization

- Point Beach Automated Notification System (primary means)
- Alpha-numeric paging accessed via telephone (backup means)
- Alpha-numeric paging system accessed via TSO (backup means)
- Manual Call Tree (backup means)

2.2.2 Notification of the State and County Emergency Managements

- Two-Digit Dial Select Telephone
- Commercial Telephones (PBX, GTE, Microwave)

2.2.3 Notification of the NRC

- Federal Telecommunications System (FTS) Emergency Notification System (ENS)
- Commercial Telephones (PBX, GTE, Microwave)

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Completion of this procedure shall not prevent the operators from bringing the plant to a safe condition to protect the health and safety of the general public.
- 3.2 The State of Wisconsin Emergency Management, Manitowoc County Emergency Management, and Kewaunee County Emergency Government shall be notified **within 15-minutes of event classification.**
- 3.3 The NRC shall be notified **immediately following the state and county notifications, not to exceed one hour from declaration** of a classified emergency.
- 3.4 TSO knowledge is required for IBM mainframe access to the paging system.
- 3.5 Only approved personnel may activate the Point Beach Automated Notification System.

4.0 INITIAL CONDITIONS

- 4.1 An emergency has been declared or terminated.
- 4.2 A change from one emergency classification to another has occurred.
- 4.3 Further degradation of the level of safety of the plant, major changes in equipment or reactor status, or other major changes **NOT** involving a change in emergency classification have occurred.

5.0 PROCEDURE

NOTE: The notifications of the Emergency Response Organization, State and Counties, KNPP, and Nuclear Regulatory Commission should be completed simultaneously if possible.

5.1 Notification of Emergency Response Organization (ERO)

WARNING

The ERO activation can be delayed if a security threat is in progress that would jeopardize the ERO safety.

NOTE: **IF** ERO was already activated by an Alert or Site Emergency Classification, **DO NOT** repeat this section.

5.1.1 PBNP Automated Notification System (primary means)

NOTE 1: Listen carefully because the system will give you other options. To expedite the notification process, the following steps have been written to only list the specific voice prompt you need, at which time you can immediately respond without listening to the remaining prompt.

NOTE 2: If at any point you want to exit the system and start over, you should keep slowly pressing the "#" key until the system says "goodbye" and restart the entire process.

- a. Determine the information desired to be sent to the Emergency Response Organization using Attachment A. Record the information at the bottom of Attachment A.
- b. From any on-site telephone, dial ext. to access the PBNP Automated Notification System.
- c. When prompted "Please enter your scenario activation password," enter " " using the keypad on the telephone.
- d. When prompted "To start a scenario enter the scenario ID...," enter the 3-digit scenario number from Attachment A and press "#."
- e. Press " " to start the scenario.
- f. When prompted, "The scenario is building," press "#", listen to "good-bye" and hang up.
- g. **IF** the ERO pager(s) in the Control Room do not activate and display the message within 3-4 minutes, **THEN** go to Step 5.1.2 to send the page.
- h. Periodic fax printouts will automatically be sent to the Control Room, Technical Support Center, and Emergency Operations Facility, and JPIC listing the represented people that are responding, their ERO position, and their estimated time of arrival.

- i. If the pager activation was successful, skip Steps 5.1.2 through 5.1.4 and return this procedure section and completed Attachment A to Emergency Preparedness or include in the TSC Manager turnover package.

Performed By:	
_____	/
Performer (Print and Sign)	Date / Time

5.1.2 Alpha-Numeric Paging Accessed Via Telephone (backup means, not required if Step 5.1.1 was successful).

NOTE 1: Enter pager number _____ to do a PBNP All-Call page of the ERO.

NOTE 2: Enter the 4 digit pager number to page a specific individual.
(Ref. Emergency Telephone Directory)

NOTE 3: You must enter the asterisks and two digit code to have the message sent to the pagers (i.e., " * " would display "PBNP UE, Please Stand by" or " * " would display "Call Immediately ").

- a. Determine the pager message required:
 - Use the following preprogrammed codes to provide event declarations.

= PB UE, Please Stand by
= PB ALERT. Report to ERF at once.
= PB SE. Report to ERF at once.
= PB GE. Report to ERF at once.
= EOF/JPIC Report to Green Bay (High or Low Credible Security Threat)

- Use the following preprogrammed codes to provide other information, with a call back number, if appropriate:

- b. Access the paging system by dialing ext. (if dialing on outside line), or
- c. Listen to the prerecorded message and an audible tone. Enter the four-digit pager number of the person or group you want to page as determined in the above notes.
- d. Listen to the next prerecorded message that asks you to enter your callback number. Enter the "***" code determined in Step 5.1.2.a and a phone number the person should call (only if appropriate).
- e. Listen for an audible tone again. The recording should then state that your message has been dispatched via the Wisconsin Electric paging system. Your page has now been completed.
- f. **IF** the ERO pager(s) in the Control Room do not activate and display the message within 3-4 minutes, **THEN** go to Step 5.1.3 to send the page.
- g. If the pager activation was successful, skip Steps 5.1.3 and 5.1.4 and return this procedure section to Emergency Preparedness or include in the TSC Manager turnover package.

Performed By:

Performer (Print and Sign)

Date / Time

5.1.3 Alpha-Numeric Paging Accessed Via LAN Computer (backup means not required if Step 5.1.1 or 5.1.2 was successful).

NOTE: Do not use symbols in the pager message script.

a. LAN IBM Mainframe (TSO)

- **IF** you do not have TSO access for the IBM Mainframe System, **THEN** go to Step 5.1.3.b.
- Access the mainframe MULTSESS menu from a computer.
- After selecting the TSO application and receiving the READY text, type in "PAGE" and the enter key.
- A paging screen will appear asking you for an alpha-numeric message and the pager number you want to reach. Type the message per the event classification and any activation needs of the Emergency Response Facilities.
- Tab to the pager number blank and enter to do a PBNP All-Call page of the ERO.
- Press ENTER to have your message sent.
- After a slight delay, a message comes up showing that your message was sent and who was paged.
- This completes the page. You can continue with another page or press PF3 as needed to return to the READY prompt. Type CESF and the enter key to log off TSO at this point.
- **IF** the ERO pager(s) in the Control Room do not activate and display the message within 3-4 minutes, **THEN** go to Step 5.1.3.b to send the page.
- If the pager activation was successful, skip Step 5.1.4 and return this procedure section to Emergency Preparedness or include in the TSC Manager turnover package.

Performed By:

Performer (Print and Sign)

Date / Time

b. Windows Corporate Paging System

- Access the paging system screen by selecting "Start→Applications→Corporate Paging System" on a LAN computer.
- Enter " " in the pager number box to do a PBNP All-Call of the ERO.
- Type the message per the event classification and any activation needs of the Emergency Response Facilities in the message box.
- Ensure the box for "Message as Specified Above" is checked.
- Select the "Send Pager" icon to send your pager message.
- A message of "Sending Page" and "Ready for Next Page" is displayed in the lower left corner upon completion.
- Select "Exit" to leave the Corporate Paging System.
- **IF** the ERO pager(s) in the Control Room do not activate and display the message within 3-4 minutes, **THEN** go to Step 5.1.4 to activate the ERO by a manual call tree.
- If the pager activation was successful, skip Step 5.1.4 and return this procedure section to Emergency Preparedness or include in the TSC Manager turnover package.

Performed By:

_____ /
Performer (Print and Sign)

Date / Time

5.1.4 Manual Call Tree (reference Emergency Telephone Directory) (backup means, not required if Step 5.1.1 or 5.1.2 , or Step 5.1.3 was successful).

NOTE 1: Use this process if all automated methods of notifying the ERO fail.

NOTE 2: IF unable to contact any of the following personnel, THEN assign that section to onsite individual.

a. Contact two people from the Emergency Preparedness staff, an onshift STA, OS, or Security, and the On-Call Management for each discipline as indicated below, instructing them to:

- Notify qualified ERO personnel for each position listed (ref ETD 01), determine FFD, fill the "*" minimum positions first, and staff each position to the (#) level indicated.
 - (a) FFD #1 - "Are you able to respond?"
 - (b) FFD #2 - If yes, "Have you consumed alcohol in the last five hours?"
 - (c) FFD #3 - If no, instruct person to report immediately to emergency response facility and fill the position of _____.
- Contact you with periodic status updates.
- Report to their emergency response facility upon completion of the notifications.

(a) EP Staff #1 _____ (Name)

- (1) *TSC Manager (1)
- (2) ERF Communicator-CR (1)
- (3) *ERF Communicator-TSC (1)
- (4) *Engineering Coordinator (1)
- (5) *Operations Coordinator (1)
- (6) *OSC Coordinator (1)
- (7) *ENS Communicator (1)
- (8) *Rad/Chem Coordinator (1)
- (9) Security Coordinator (1)
- (10) Plant Status Monitor-TSC (1)
- (11) Administrative Support Leader-TSC (1)
- (12) Rad/Chem Monitor (1)
- (13) Reactor/Core Physics Engineer (1)
- (14) PRA Engineer (1)
- (15) Mechanical Systems Engineer (1)
- (16) Electrical/I&C Engineer (1)

(b) EP Staff #2 _____ (Name)

- (1) *Emergency Director (1)
- (2) *EOF Manager (1)
- (3) *ERF Communicator-EOF (1)
- (4) *Dose/PAR Coordinator (1)
- (5) *State/Counties Communicator (1)
- (6) *Resource Coordinator (1)
- (7) Plant Status Monitor-EOF (1)
- (8) Dose/PAR Monitor (1)
- (9) HPN/SRC Communicator (1)
- (10) State Liaison (1)
- (11) Offsite Assembly Area Coordinator (1)
- (12) Administrative Support Leader-EOF (1)
- (13) Kewaunee County Liaison (1)
- (14) Manitowoc County Liaison (1)
- (15) JPIC Manager

(c) Onshift STA, OS, or Security _____ (Name)

- (1) *SM (Reentry Team Coordinator) from "off" crews (1)
- (2) *Operating Supervisor (Operations Leader) from "off" crews (2)
- (3) CO Reentry from "off" crews (4)
- (4) AO Reentry from "off" crews (4)

(d) Radiation Protection _____ (Name)

- (1) *Offsite Radiation Protection Coordinator (1)
- (2) *Radiation Protection Leader (1)
- (3) *Field Team Leader (1)
- (4) *Offsite RP Reentry (2)
- (5) Onsite RP Reentry (4)
- (6) Offsite RP Reentry (4)

(e) Maintenance Supervisor _____ (Name)

- (1) *Mechanical Leader (1)
- (2) *Electrical Leader (1)
- (3) Mechanical Reentry (4)
- (4) Electrical Reentry (4)

(f) I&C Supervisor _____ (Name)

- (1) *I&C Leader (1)
- (2) I&C Reentry (4)

(g) Chemistry Supervisor _____ (Name)

- (1) *Chemistry Leader (1)
- (2) Chemistry Reentry (4)

b. Return this procedure section to Emergency Preparedness or include in the TSC Manager turnover package.

Performed By:	
_____	/
Performer (Print and Sign)	Date / Time

5.2 Notifications to State and Counties

NOTE 1: The notification of state and county emergency government agencies shall be notified within 15 minutes of event classification, event termination, or change in protective action recommendations.

NOTE 2: The State Radiological Coordinator may place a separate call to obtain additional information for purposes of determining State and County Emergency Operation Center(s) activations.

NOTE 3: Priority levels are assigned to Two-Digit Dial-Select communications as follows:

1	Siren Activation
2	Event Notification/PAR Upgrade
3	Status Update
4	General Information

5.2.1 The Emergency Director shall complete or delegate the completion of Attachment B, Nuclear Accident Reporting Form.

5.2.2 The Emergency Director shall approve the contents of Attachment B, Nuclear Accident Reporting System Form (NARS), prior to the release of the information.

5.2.3 Provide this procedure section and the completed form to the person designated to make the communications, conducting a verbal review of the information as required.

NOTE: **IF** the Two-Digit Dial-Select is out-of-service, **THEN** use commercial telephones (ref. Emergency Telephone Directory) to make the notification.

5.2.4 Record a callback number for the facility you are calling from on Attachment B, Nuclear Accident Reporting System Form (NARS).

5.2.5 Using the Two-Digit Dial-Select telephone:

- Pick up the handset and ask if the line is clear. (Similar to Gai-tronics)
- **IF** the line is busy, **THEN** inform them of your Priority 2 notification.
- They will clear the line, unless a Priority 1 discussion is in progress.
- When the line is clear, continue with the notification.

NOTE 1: **IF** unable to contact a specific agency after five (5) rings, **THEN** press the # key to stop the ringing and continue with the notification to the agencies online. Then use commercial telephone to contact those agencies which were not reached.

NOTE 2: Two locations will ring for the State: WEM in Madison and State Patrol (off-hours). Press the # key to stop the ringing if one location does not answer.

5.2.6 Dial to contact the following agencies simultaneously:

- Manitowoc County Sheriff Dispatcher
- Kewaunee County Sheriff Dispatcher
- State of Wisconsin Emergency Management (WEM)

5.2.7 Record the time and the name of the person who answers FOR EACH AGENCY on Attachment B, Nuclear Accident Reporting System Form (NARS), you are transmitting.

5.2.8 Request each agency to remain on the line while you communicate the event information.

5.2.9 Request each agency to remain on the line while you ask one agency (preferably the State) to repeat the information as a confirmation of accuracy.

5.2.10 Request each agency to transmit the event information to appropriate personnel within their agency, instructing those individuals to place a return call to you to verify the notification.

5.2.11 **IF** commercial telephone lines must be used to complete the notifications, **THEN** call each of the following agencies as appropriate, repeating Steps 5.2.7 through Step 5.2.10. (ref Emergency Telephone Directory).

- Manitowoc County Sheriff Dispatcher
- Kewaunee County Sheriff Dispatcher
- State of Wisconsin Emergency Management (WEM)

NOTE: **IF** unable to remain at the callback number, **THEN** ensure an alternate person has assumed your responsibilities at that location.

5.2.12 Fax Attachment B, Nuclear Accident Reporting System Form (NARS), to the following agencies using the pre-programmed keys or referencing the Emergency Telephone Directory.

- State of Wisconsin Emergency Management (WEM)
- Manitowoc County Emergency Management
- Kewaunee County Emergency Government
- Emergency Response Facilities (If Activating)

5.2.13 Remain at the callback number until the callback verifications have been received from the three agencies, recording the time and name of each caller on Attachment B, Nuclear Accident Reporting System Form (NARS).

5.2.14 Return Attachment B, Nuclear Accident Reporting System Form (NARS), to the Emergency Director.

5.3 Notification to KNPP Control Room

5.3.1 Obtain an approved copy of Attachment B, Nuclear Accident Reporting System Form (NARS).

5.3.2 Contact the Kewaunee Nuclear Power Plant Control Room at _____ ext. _____ and relay the event information on Attachment B, Nuclear Accident Reporting Form.

Contact Name: _____ Time: _____

Classification Transmitted: _____

- 5.3.3 Return this procedure section and all attachments used to the Emergency Director.

Performed By:

Performer (Print and Sign)

Date / Time

5.4 Notifications to the NRC

NOTE: The notification to the NRC shall be completed immediately following the notifications to the state and counties and not exceeding 60-minutes from event classification, event termination, or change in protective action recommendations.

- 5.4.1 Emergency Director shall provide this procedure and the completed Attachment B, Nuclear Accident Reporting System Form (NARS), (or a copy), from Step 5.2.1 to the person designated to make the notification. A verbal review of the information will be conducted, if necessary.

NOTE 1: If the FTS-ENS phone is out-of-service, use commercial telephones (ref. Emergency Telephone Directory) to make the notification.

NOTE 2: The NRC may request a continuous open line of communication be maintained without regard to event classification. This request shall be honored if at all possible.

- 5.4.2 Fax the Attachment B Nuclear Accident Reporting System Form (NARS) to the NRC using the pre-programmed fax key or referencing the Emergency Telephone Directory.
- 5.4.3 Contact the NRC Operations Center via the FTS-ENS phone by dialing the number exactly as listed on the phone. If number is busy, try the next number listed (ref. Emergency Telephone Directory).
- 5.4.4 Record the time and name of the NRC Duty Officer on Attachment B, Nuclear Accident Reporting System Form (NARS), you are transmitting.
- 5.4.5 Communicate the event information clearly and concisely.
- 5.4.6 Make an entry into the appropriate NRC log.
- Control Room NOMS Narrative Log
 - Technical Support Center ENS Log Book

- 5.4.7 **IF** not previously notified,
THEN contact the NRC resident inspector.

Contact Name: _____ Time: _____

Classification Transmitted: _____

- 5.4.8 Return or fax Attachment B, Nuclear Accident Reporting System Form (NARS), to the Emergency Director.

5.5 Status Updates to State and Counties

NOTE 1: Status updates should be made to State and County Emergency agencies approximately hourly, upon a major change in plant/radiological status, or at their request.

NOTE 2: Use status boards Attachment C, Plant Status Update, Attachment D, Radiological Status Update, and/or Attachment E, Status Reports on Plant Systems and Control for Affected Unit as a verbal guideline for communicating status updates.

NOTE 3: **IF** unable to contact a specific agency,
THEN continue with the notification to other agencies, attempt to contact those agencies which have not been contacted.

NOTE 4: **IF** the Two-Digit Dial-Select is out-of-service,
THEN use commercial telephones (preferably via conference call referring to the Emergency Telephone Directory) to make the status update.

5.5.1 Using the Two-Digit Dial-Select telephone:

- Pick up the handset and ask if the line is clear. (Similar to Gai-tronics)
- **IF** the line is busy,
THEN inform them of your Priority 3 notification.
- They will clear the line, unless a Priority 1 or 2 discussion is in progress.
- When the line is clear, continue with the notification.

- NOTE:** **IF unable to contact a specific agency after five (5) rings, THEN press the # key to stop the ringing. Contact those agencies by commercial telephone after completing the status update.**
- 5.5.2 Dial " , , and ' consecutively to contact the following agencies simultaneously:
- 53 - Manitowoc County EOC
 - 43 - Kewaunee County EOC
 - 83 - State of Wisconsin Emergency Management (WEM) EOC
- 5.5.3 Request each agency remain on the line while you:
- Ask the Emergency Director of each facility (first contact only) if they want subsequent EPIP 2.1, Attachment B (NARS), notifications made directly to the EOCs. At Step 5.2.6 replace with the appropriate two-digit dial-select numbers.
 - Communicate the status update event information and answer questions.
- 5.5.4 **IF commercial telephone lines must be used to complete the notifications, THEN call the following agencies (ref. Emergency Telephone Directory):**
- Manitowoc County EOC
 - Kewaunee County EOC
 - State of Wisconsin Emergency Management (WEM) EOC
- 5.5.5 **IF a request has been made by the State or County for a written update THEN complete the appropriate section(s) of Attachment C, D, or E, obtain the Emergency Director approval, and fax using the pre-programmed fax keys or referencing the Emergency Telephone Directory.**
- State of Wisconsin Emergency Management (WEM)
 - Manitowoc County Emergency Management
 - Kewaunee County Emergency Government
 - Emergency Response Facilities (If Activating)
- 5.5.6 Repeat Steps 5.5.1 through 5.5.5 each time a status update is required.
- 5.5.7 **IF a written update of Attachment C, D, or E was faxed to the State or County, THEN return the appropriate completed attachment(s) to the Emergency Director.**

5.6 Status Updates to the NRC

NOTE 1: The NRC should receive status updates approximately hourly, upon a major change in plant/radiological status, or at their request.

NOTE 2: IF the FTS-ENS phone is out-of-service, THEN use commercial telephones (ref. Emergency Telephone Directory) to make the notification.

NOTE 3: The NRC may request that a continuous open line of communication be maintained without regard to event classification.

5.6.1 Contact the NRC Operations Center via the FTS-ENS phone by dialing the number exactly as listed on the NRC phone. If number is busy, try the next number listed (ref. Emergency Telephone Directory).

5.6.2 Fax written status updates received from the EOF to the NRC, THEN send confirmatory fax to the Emergency Director.

5.6.3 Request TSC Manager approval to fax other information requested from the NRC.

NOTE: The NRC may request additional material including but is not limited to, procedure changes, completed procedures, PPCS printouts, equipment status information, non-emergency 50.72 notifications, logs regarding LCO entries/exits, safety evaluations, etc.

a. Any material faxed to the NRC must include the Communicators Name, Date and Time.

b. Fax the information subsequently to the Emergency Director.

6.0 REFERENCES

- 6.1 WE to NRC letter May 19, 1983, Staffing Levels for Emergency Situations, Point Beach Nuclear Plant
- 6.2 NRC letter to WE, December 20, 1985, Inspection Report Nos. 50-266/83-01 and 50-301/83-01
- 6.3 Emergency Plan, EP 5.0, Organizational Control of Emergencies

7.0 BASES

- B-1 10 CFR 50.47(b), Emergency Plans
- B-2 10 CFR 50.72, Immediate Notification Requirements for Operating Nuclear Power Reactors
- B-3 NUREG-1022, Event Reporting Guidelines, 10 CFR 50.72 and 50.73, Rev 1, January 1998

ATTACHMENT A
ERO NOTIFICATION SYSTEM
SCENARIO SELECTION MATRIX

Scenario Number	Emergency Class
100	Unusual Event.
10	Alert
320	Site Emergency
400	General Emergency
	Disregard previous page.
200	Disregard previous page. Standby for corrected information. Do not call.
	High or Low Credible Security Threat

Determine the 3-digit scenario number by choosing the appropriate classification and approach message from the matrix above. Record here _____

POINT BEACH NUCLEAR PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURES

EPIP 2.1
NNSR
Revision 28
November 26, 2003

NOTIFICATIONS - ERO, STATE AND COUNTIES,
AND NRC

ATTACHMENT B
NUCLEAR ACCIDENT REPORTING SYSTEM FORM (NARS)

TIME ANSWERED

State Warning Center I or II _____ (Time) Kewaunee Co. _____ (Time) Manitowoc Co. _____ (Time)

"This is the Point Beach Nuclear Site calling from the (circle one) CRTSC/EOF/AEOF. An incident has occurred at our facility. Please record the following information on your Nuclear Accident Reporting System form." (Read below Box 1 through Box 12)

1. Reason For Call: <input type="checkbox"/> Initial Report <input type="checkbox"/> Emergency Classification Change <input type="checkbox"/> PAR Change	
2. STATUS <input type="checkbox"/> [A] Actual Event <input type="checkbox"/> [B] Drill	3. STATION/AFFECTED UNIT <input type="checkbox"/> [T] Point Beach <input type="checkbox"/> Unit 1 <input type="checkbox"/> Unit 2 <input type="checkbox"/> Both (Check unit)
4. ONSITE CLASSIFICATION <input type="checkbox"/> [A] Unusual Event <input type="checkbox"/> [B] Alert <input type="checkbox"/> [C] Site Area Emergency <input type="checkbox"/> [D] General Emergency <input type="checkbox"/> [E] Recovery <input type="checkbox"/> [F] Terminated	5. TIME & DATE OF CLASSIFICATION / PAR CHANGE / TERMINATION <input type="checkbox"/> [A] Classification Time _____ Date _____ EAL # _____ <hr style="border-top: 1px dashed black;"/> <input type="checkbox"/> [B] Par Change Time _____ Date _____ <input type="checkbox"/> [C] Recovery/Termination Time _____ Date _____
6. RELEASE STATUS <input type="checkbox"/> [A] Unusual Event or Alert: <input type="checkbox"/> [A1] NONE <input type="checkbox"/> [A2] OCCURRING <input type="checkbox"/> [A3] TERMINATED <input type="checkbox"/> [B] Site Area Emergency or General Emergency: <input type="checkbox"/> [B1] POTENTIAL <input type="checkbox"/> [B2] OCCURRING <input type="checkbox"/> [B3] TERMINATED	7. TYPE OF RELEASE <input type="checkbox"/> [A] NOT APPLICABLE <input type="checkbox"/> [B] AIRBORNE <input type="checkbox"/> [C] LIQUID
8. WIND DIRECTION FROM _____ DEGREES DOWNWIND SECTORS: A B C D E F G H J K L M N P Q R (Circle affected sectors.)	9. WIND SPEED & STABILITY CLASS MILES/HR.: _____ STABILITY CLASS: A B C D E F G (Circle applicable stability class)
10. PROTECTIVE ACTION RECOMMENDATIONS <input type="checkbox"/> [A] NONE <input type="checkbox"/> [B] EVACUATE ALL SECTORS OUT TO _____ MILES EVACUATE DOWNWIND SECTORS _____ OUT TO _____ MILES <input type="checkbox"/> [C] OTHER _____	
11. ADDITIONAL INFORMATION (EAL Description) _____ _____	

ED: APPROVAL SIGNATURE _____ DATE / TIME APPROVED _____ / _____

12. EMERGENCY COMMUNICATOR _____ / _____
(Print/sign)

1. "State Warning Center, please read back this message to verify accuracy." (Pause to allow message to be read back)
2. "Have all agencies received this message?" (Wait for reply)
3. "Relay this information to Emergency Management immediately. Have the appropriate personnel verify this message by placing a return phone call. The return phone number is _____."

State and County Callback Verification

	Time	Name	Contact Telephone Number
State of Wis. (Duty Officer)	_____	_____	_____
Manitowoc Cty. (Emerg. Mgr. Director)	_____	_____	_____
Kewaunee Cty. (Emerg. Mgr. Director)	_____	_____	_____

NRC NOTIFICATION - Callback Verification Not Required

Duty Officer Name _____ Time _____ Continuous phone link requested: _____ No _____ Yes _____
NRC message transmitted by _____ from the Point Beach Nuclear Site _____
(Name) (CRTSC)

ATTACHMENT B
NUCLEAR ACCIDENT REPORTING SYSTEM FORM (NARS)

Box #1	Reason For Call: Check appropriate.			
Box #2	Check "Actual Event" only if the event is real.			
Box #3	Check affected unit(s).			
Box #4	Classification being declared. <u>IF</u> this is a PAR Change notification, <u>THEN</u> check the current classification.			
Box #5	Check the applicable events(s) and fill in the time and date. If a classification, fill in EAL# not required or a PAR upgrade or recovery/termination.			
Box #6	Indicate whether a radioactive release is occurring. The definition of radioactive release is the release of radioactive material to the environment attributable to the emergency event. At a minimum, a potential radioactive release always exists at a SE and General Emergency because of the definition of SE and General Emergency.			
Box #7	Indicate whether there is an airborne or liquid radioactive release in progress. <u>IF</u> there is no release in progress, <u>THEN</u> Check Not Applicable.			
Box #8	<p>Use the "Rad/Met Status Board" screen on PPCS (U-1 2226, U-2 2726). Backups: *Tower 1 45 M, 15 Min Avg (U-1 2223, U-2 2723) *Tower 2 10 M, 15 Min Avg (U-1 2223, U-2 2723) *YR-5832, "Met/Forebay Lvl Recorder" (integrate trend)</p> <p>1. Fill the blank indicating the "From" wind direction. 2. Circle the appropriate downwind affected sectors using guidance of Table 1</p>			
Box #9	Use the "Rad/Met Status Board" screen on PPCS (U-1 2226, U-2 2726). Backup: YR-5832, "Met/Forebay Lvl Recorder" (integrate ΔT trend) 1. Fill the blank indicating the wind speed. 2. Circle the appropriate stability class.	Stability Class	Wind Direction Fluctuation (σ_θ , degrees)*	Temperature Lapse Rate ($\Delta T/\Delta H$, °F/35 m)
		A	$\sigma_\theta \geq 22.5^\circ$	$\Delta T/\Delta H \leq -1.2$
		B	$22.5^\circ > \sigma_\theta \geq 17.5^\circ$	$-1.2 < \Delta T/\Delta H \leq -1.1$
		C	$17.5^\circ > \sigma_\theta \geq 12.5^\circ$	$-1.1 < \Delta T/\Delta H \leq -0.9$
		D	$12.5^\circ > \sigma_\theta \geq 7.5^\circ$	$-0.9 < \Delta T/\Delta H \leq -0.3$
		E	$7.5^\circ > \sigma_\theta \geq 3.8^\circ$	$-0.3 < \Delta T/\Delta H \leq 0.9$
		F	$3.8^\circ > \sigma_\theta \geq 2.1^\circ$	$0.9 < \Delta T/\Delta H \leq 2.5$
G	$2.1^\circ > \sigma_\theta$	$2.5 < \Delta T/\Delta H$		
Box #10	Indicate protective action recommendations. 1. For a General Emergency, indicate a PAR as directed by procedure EPIP 1.1 and/or EPIP 1.3. 2. <u>IF</u> this a PAR change, <u>THEN</u> include any previously chosen affected sectors to indicate all affected sectors.			
Box #11	1. <u>IF</u> classifying an event, <u>THEN</u> at a minimum describe the EAL being implemented. 2. <u>IF</u> making a PAR change, <u>THEN</u> write "None", "PAR Change" or other applicable information related to the PAR.			

WIND DIRECTION (FROM)	AFFECTED DOWNWIND SECTORS
>351-9 (>351-369)	HJK
>9-13 (>369-373)	HJKL
>13-32 (>373-392)	JKL
>32-36 (>392-396)	JKLM
>36-54 (>396-414)	KLM
>54-58 (414-418)	KLMN
>58-77 (>418-437)	LMN
>77-81 (>437-441)	LMNP
>81-99 (>441-459)	MNP
>99-103 (>459-463)	MNPQ
>103-122 (463-482)	NPQ
>122-126 (>482-486)	NPQR
>126-144 (>486-504)	PQR
>144-148 (>504-508)	PQRA
>148-167 (>508-527)	QRA
>167-171 (>527-531)	QRAB
>171-189 (>531-549)	RAB
>189-193	RABC
>193-212	ABC
>212-216	ABCD
>216-234	BCD
>234-238	BCDE
>238-257	CDE
>257-261	CDEF
>261-279	DEF
>279-283	DEFG
>283-302	EFG
>302-306	EFGH
>306-324	FGH
>324-328	FGHJ
>328-347	GHJ
>347-351	GHJK

ATTACHMENT C
PLANT STATUS UPDATE

Check One: Actual Drill Exercise

NOTE: Cross-out section(s) not being communicated.

1. Point Beach Nuclear Plant

2. Date/Time: _____/_____/_____

3. Description of Event: _____

4. Emergency Action Level(s): _____

5 Major Equipment Affected: (LIST)

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____

6. Reactor Status: (Check one)

- a. _____ Critical
- b. _____ Shutdown

7. Radiological boundaries Lost(L) or Challenged (C):
(Indicate all that apply)

- a. _____ Fuel Cladding
- b. _____ Reactor Coolant System
- c. _____ Containment

8. Plant Personnel Status (Enter # or N/A for each type incident):

- a. # _____ Deaths
- b. # _____ Overexposure to Personnel
- c. # _____ Injured Personnel Treated On-Site
- d. # _____ Injured Personnel Treated Off-Site
- e. # _____ Contaminated Personnel On-Site
- f. # _____ Contaminated Personnel Off-Site
- g. Other (explain): _____

9. Areas Affected by A Radiological Release

- a. Plume Path (Downwind Sectors): _____: _____: _____: _____ Distance _____ (mi)
- b. Deposition (Describe Location): _____

10. News Statement from the JPIC or Established Media Center

- a. The Next News Statement is Scheduled for: Date: _____ Time: _____

11. State or Local Assistance Requested by the Plant

Emergency Director Approval: _____ Date / Time _____ / _____

Manitowoc Co. _____ (Time) Kewaunee Co. _____ (Time) Wisconsin WEM _____ (Time) NRC _____ (Time)

Communicated By: _____

ATTACHMENT D
RADIOLOGICAL STATUS UPDATE
Page 1 of 3

Check One: Actual Drill Exercise

NOTE 1: { } denotes PPCS screen or point identification for obtaining data.

NOTE 2: Cross-out section(s) not being communicated.

1. Point Beach Nuclear Plant

2. Date/Time: ____/____

3. Plant Status:

a. General: ____ Improving ____ Stable ____ Degrading
b. Electrical Power: ____ Satisfactory ____ Problems

If problems, describe: _____

4. Offsite Radiological Conditions:

a. Release Prognosis:

____ No Release is expected
____ Release is expected at the start time listed in 4b.
____ Release is in progress

b. Event Times (Complete all applicable times):

____ Reactor Trip
____ Start of release to containment
____ Start of release to environment
____ *Release Stop
 *(Actual / Estimated / Default) Line out inappropriate word(s)

c. Type of Release:

____ Liquid ____ Controlled ____ Monitored
____ Airborne ____ Uncontrolled ____ Unmonitored

Release Path: _____

d. Plume Path (Downwind Sectors): ____: ____: ____: ____ Distance ____ (mi)

e. Downwind Doses at the Plume Centerline:

Based on: __ Projections __ Field Measurement

1 Mi (SBCC)	____ rem TEDE	____ rem CDE Thyroid
2 Mi.	____ rem TEDE	____ rem CDE Thyroid
5 Mi.	____ rem TEDE	____ rem CDE Thyroid
10 Mi.	____ rem TEDE	____ rem CDE Thyroid

ATTACHMENT D
RADIOLOGICAL STATUS UPDATE

Page 2 of 3

- f. Surface Deposition: Based on: _____ Projection _____ Field Measurement
dpm/100 cm² - Ci/m² _____ Location: _____
dpm/100 cm² - Ci/m² _____ Location: _____
dpm/100 cm² - Ci/m² _____ Location: _____
(Line out inappropriate unit)
- g. Recommended protective actions were made at (Time: _____) on the Wisconsin Nuclear Accident Reporting System form.
5. Meteorological Conditions: {Releases/Met Summary}
- a. Wind Speed: {MT1WSLO} _____ MPH
- b. Wind Direction: {MTIWDLO} _____ Degrees
- c. Stability Class {METSTAB}(circle one): A B C D E F
G
- d. Mixing Layer Height: _____ Ft.
- e. Precipitation {MT2PREC}(check one):
_____ Light Rain _____ Moderate Rain _____ Heavy Rain _____ None
_____ Light Snow _____ Moderate Snow _____ Heavy Snow
6. Reactor Status: _____ At Power (_____ Megawatts Thermal) {RTO}
{Core} _____ Tripped (Power Level at trip _____ Megawatts Thermal) {RXTRIP}
_____ Hot Shutdown (Current RCS Temperature _____ deg. F.) {COLD}
_____ Cold Shutdown (RCS is less than 200°F.)
7. Core Status: _____ No Damage Expected
_____ Core Damage sequence in progress (Est. Time: _____)
_____ Gap Release (Est. Time: _____)
_____ In-Vessel Severe Core Damage (Est. Time: _____)
_____ Vessel Melt Through (Est. Time: _____)
- Core Exit _____ Increasing _____ Stable _____ Decreasing
Temperature: {TCAVG}
{SAS Trend-Core Cooling}
8. Containment Status:
- a. Containment Spray {F-962 & F-963}: _____ ON
_____ OFF
- b. Containment Leak Rate
_____ None
_____ Calculated (_____ cc/sec) {CONTLR}
_____ Design Rate (0.1% per day)
_____ 100% per Day
_____ 100% per Hour
- c. Pressure {SYSA140}
{SAS Trends-Cont PPR}
_____ Increasing
_____ Stable
_____ Decreasing
- d. Temperature {SSA139}
{SAS Trends-Cont HHT}
_____ Increasing
_____ Stable
_____ Decreasing

ATTACHMENT D
RADIOLOGICAL STATUS UPDATE
Page 3 of 3

9. **Steam Generator Status:**

a. Leak Rate (Check One):

- None
- Full Pressure (# of tubes _____)
- Low Pressure (# of charging pumps _____)
- Calculated {LR215}
(Gallons per minute _____)

c. Partitioning: {Steam Generator}

- N/A (No leak)
- Leak is above steam generator water level (default)
- Leak is below steam generator water level

b. Reactor Coolant Concentrations:

- N/A (No Leak)
- Normal
- 100x normal non-nobles
- Calculated Concentration
(Attached Analysis)

d. Release Path

- None
- Safety Valve (or PORV)
- Air Ejector

10. **Containment Bypass Status:**

a. Containment Bypass Leak Rate

- None
- Calculated (_____ cc/sec)
- 0.1% per Day
- 100% per Day
- 100% per Hour

b. Release Path:

- None
- Filtered
- Unfiltered

11. **Gross Release Rate Data:**

a. Not Applicable (No Leak)

b. Not Available

c. Total _____ Ci/sec Kr, Xe _____% Iodines _____% Cs _____% Te, Sb _____%
Ba, Sr _____% Ru, Mo _____% La, Y, Ce, Np _____%

12. **Specific Isotopic Release Data (Ci/sec):**

a. Not Applicable (No leak)

b. Not available

c. H-3 _____	Sr-91 _____	Te-131 _m _____	Xe-133 _m _____
Mn-54 _____	Y-91 _____	Te-132 _____	Xe-135 _____
Co-58 _____	Mo-99 _____	I-131 _____	Xe-138 _____
Kr-85 _____	Te-99 _m _____	I-132 _____	Cs-134 _____
Kr-85 _m _____	Ru-103 _____	I-133 _____	Cs-136 _____
Kr-87 _____	Ru-106 _____	I-134 _____	Cs-137 _____
Kr-88 _____	Sb-127 _____	I-135 _____	Ba-140 _____
Sr-89 _____	Sb-129 _____	Xe-131 _m _____	La-140 _____
Sr-90 _____	Te-129 _m _____	Xe-133 _____	Ce-144 _____

Emergency Director Approval: _____ Date / Time _____ / _____

Manitowoc Co. _____ Kewaunee Co. _____ Wisconsin WEM _____ NRC _____
(Time) (Time) (Time) (Time)

Communicated By: _____

ATTACHMENT E
STATUS REPORT ON PLANT SYSTEMS AND CONTROLS FOR AFFECTED UNIT
Page 1 of 2

Check One: Actual Drill Exercise

NOTE 1: { } denotes PPCS screen or point identification for obtaining data.

NOTE 2: Cross-out section(s) not being communicated.

1. Basic Accident Information (Unit _____)

- a. Status Report Date/Time: _____ / _____; Report # _____
(Date) (Time-24 Hours)
- b. Emergency Classification: _____
- c. (If applicable) Time of Reactor Shutdown: _____ hrs.
- d. (If applicable) Time of Radiological Release to Containment: _____ hrs.
- e. (If applicable) Time of Radiological Release from Plant: _____ hrs.

2. Status of Reactivity Control

Subcritical Yes _____ No _____

3. Status of Core Cooling {Core}

- a. Highest Th _____ °F {TCH11D} Coldest Tc _____ °F
- b. Incore Thermocouples: {TCAVG} Average Temperature _____ °F
- c. Pressurizer Heaters Available Yes _____ No _____
- d. Subcooling Margin: {SYSA138} _____ °F

4. Status of Reactor Coolant System Integrity {Core}

- a. Pressurizer or Reactor System Pressure {PZRPRESS} _____ psig
- b. Pressurizer Level {PZRLVL} _____ %
- c. Primary System Relief Valves Closed {PCV-435A&B} Yes _____ No _____
- d. Letdown Flow {F-134} _____ gpm
- e. Charging Pump Flow {F-128} _____ gpm

5. Status of Secondary Systems {Secondary}

- a. Steam Generator Pressure {SGAPRESS} "A" _____ psig {SGBPRESS} "B" _____ psig
- b. Steam Generator Level {SGAWRLVL} "A" _____ % {SGBWRLVL} "B" _____ %
- c. Feedwater Flow, Auxiliary {F-4036} "A" _____ gpm {F-4037} "B" _____ gpm
Main {F-466} "A" _____ klbm/h {F-476} "B" _____ klbm/h

6. Containment {Containment}

- a. Pressure {P-968} WR _____ psig {P-945} NR _____ psig
- b. Containment Spray Flow {F-962 & F-963} _____ gpm
- c. NaOH Addition Yes _____ No _____ Time _____ Level {L-931} _____ %
- d. Containment Recirculation Coolers Running (Circle) {W1A1-W1W1} 1 2 3 4
- e. Sump B Level {L-960} _____ inches
- f. H₂ Concentration {HA964} _____ %
- g. Containment Isolation Valves (Note any not closed) _____

ATTACHMENT E
STATUS REPORT ON PLANT SYSTEMS AND CONTROLS FOR AFFECTED UNIT
Page 2 of 2

7. Safeguards Systems {Core}

- | | | | |
|----|---|------------------------|-------------------------|
| a. | Safety Injection | <u>Train A</u> | <u>Train B</u> |
| | High Head | {F-924} _____ gpm | {F-925} _____ gpm |
| | Low Head | {F-626} _____ gpm | {F-928} _____ gpm |
| b. | Accumulators | | |
| | Level | _____ % | _____ % |
| | Pressure | _____ psig | _____ psig |
| | Isolation Valve Open | Yes/No | Yes/No |
| c. | Refueling Water Storage Tank Level | _____ % | {Core} {L-972} |
| d. | Component Cooling Water | | |
| | Temperature | {T-616} inlet _____ °F | {T-621} outlet _____ °F |
| | Flow | {F-619} _____ gpm | |
| e. | Service Water No. of pumps running | _____ | Temp {T-3510} _____ °F |
| f. | ESF pump (SI, RHR, AFW, CS) recirculation status, enter in remarks. | | |

8. State of Meteorology {Releases/Met Summary} Primary Tower Inland Tower

- | | | | | |
|----|--|---------------------|-------------------|---------|
| | | 10M | 45M | |
| a. | Wind Direction (avg.) | _____ ° | _____ ° | |
| | | {MT1WLDO} | {MT1WDHI} | |
| | {MT#WD} | | | |
| b. | Wind Speed | _____ mph | _____ mph | |
| | | {MTIWSLO} | {MTIWSH1} | {MT3WS} |
| c. | $\sigma\theta$ | {MT1WSDS} _____ ° | {MT3WSDS} _____ ° | |
| d. | $\Delta T/\Delta H$ | {MT1DT} _____ °F | | |
| e. | Atmospheric Stability Class | {METSTAB} _____ | | |
| f. | Lake Breeze Conditions Exist? (circle) | {METLBREZ} Yes / No | | |

9. Status of Power Supplies

- | | | | | | | | | | |
|----|----------------|--------|-------|--------|-------|-------------|-------|-----|-----|
| a. | Offsite Power | Unit 1 | Y / N | Unit 2 | Y / N | Gas Turbine | Y / N | | |
| b. | Diesel Running | G01 | Y / N | G02 | Y / N | G03 | Y/N | G04 | Y/N |
| | Diesel Loaded | G01 | Y / N | G02 | Y / N | G03 | Y/N | G04 | Y/N |

10. Other Equipment Remarks:

Emergency Director Approval: _____ Date / Time _____ / _____

Manitowoc Co. _____ Kewaunee Co. _____ Wisconsin WEM _____ NRC _____
(Time) (Time) (Time) (Time)

Communicated By: _____

EPIP 1.3

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

DOCUMENT TYPE: Technical

CLASSIFICATION: Safety Related

REVISION: 32

EFFECTIVE DATE: November 26, 2003

REVIEWER: Plant Operation's Review Committee

APPROVAL AUTHORITY: Department Manager

PROCEDURE OWNER (title): Group Owner

OWNER GROUP: Emergency Preparedness

Verified Current Copy: _____
Signature Date Time

List pages used for Partial Performance

Controlling Work Document Numbers

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DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

1.0 PURPOSE

This procedure provides several methods to project offsite dose due to a release of radioactive material. These projections will be used to provide Protective Action Recommendations (PARs) to the State and Counties.

2.0 PREREQUISITES

2.1 Responsibilities

- 2.1.1 The Shift Manager (SM) is responsible for the radiological dose assessment and protective action recommendations using WEDAP, prior to TSC/EOF activation and formal transfer of responsibilities to the Emergency Director. If available, the SM may assign this task to the Operating Supervisor(s) (from unaffected unit) or the Shift Technical Advisor (STA). RMS-SS is used in the absence of WEDAP and Field Monitoring Team data is used in the absence of RMS-SS.
- 2.1.2 The Emergency Director may delegate the performance of radiological release evaluation portion of this procedure to the Dose/PAR Coordinator. The Dose/PAR Coordinator will advise the Emergency Director of the need to escalate the emergency classification or change protective action recommendations based upon radiological conditions.
- 2.1.3 The Dose/PAR Coordinator is responsible for the continuing dose assessment and Protective Action Recommendations to the Emergency Director using WEDAP, Field Monitoring Team data, RMS-SS, and/or manual calculations.
- 2.1.4 **IF** the Dose/PAR Coordinator is unable to perform radiological release evaluations,
THEN the Rad/Chem Coordinator in the TSC will assume this responsibility.

2.2 Equipment

- 2.2.1 Wisconsin Electric Dose Assessment Program (WEDAP)
- 2.2.2 Radiation Monitoring System-System Server (RMS-SS)
- 2.2.3 Plant Process Computer System (PPCS)

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Complete this procedure regardless of changing plant conditions.
- 3.2 PARs are made to the State and Counties by the Shift Manager or the Emergency Director, depending on the status of emergency facility activation. The Dose/PAR Coordinator (or the Rad Chem Coordinator if the EOF is not activated), performs dose projections and monitors offsite radiological conditions, develops the associated PAR and provides the PAR and basis to the Emergency Director.
- 3.3 PARs are developed from current rather than forecasted weather conditions. PARs are revised due to actual weather condition changes (e.g. wind shift occurs or atmospheric stability class changes) only when a revised dose projection or offsite radiological condition results in a change in PAR.
- 3.4 Use a realistic estimate of release duration in these calculations whenever possible. **IF** the duration of the radiological release can **NOT** be determined from the current plant conditions, **THEN**, assume a duration of four hours.
- 3.5 **IF** the meteorological data can **NOT** be obtained from the PPCS or the control room instruments, **THEN** obtain the data from any of the following SOURCES: (Reference ETD 02, Offsite Agency Call List):
- 3.5.1 National Weather Service in Green Bay
 - 3.5.2 Kewaunee Nuclear Power Plant
 - 3.5.3 Two Rivers Coast Guard Station

4.0 INITIAL CONDITIONS

- 4.1 EPIP 1.1, Course of Actions, in progress.
- 4.2 RMS or plant conditions suggest that a release is in progress or anticipated.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

5.0 PROCEDURE

5.1 Protective Action Recommendations (PARs)

NOTE 1: PARs are made to the State and Counties by the Shift Manager or the Emergency Director, depending on the status of emergency facility activation. The Dose/PAR Coordinator (or the Rad Chem Coordinator if the EOF is not activated), performs dose projections and monitors offsite radiological conditions, develops the associated PAR and provides the PAR and basis to the Emergency Director.

NOTE 2: PARs are developed from current rather than forecasted weather conditions. PARs are revised due to actual weather condition changes (e.g. wind shift occurs or atmospheric stability class changes) only when a revised dose projection or offsite radiological condition results in a change in PAR.

NOTE 3: In some cases (e.g., short-duration puff release, inclement weather), sheltering may be an appropriate recommendation. This should be discussed with the state and/or counties, if appropriate.

5.1.1 **IF** the event is a General Emergency **AND ALL** the following criteria are met, **THEN** implement expanded PARS of evacuation for 0-5 miles all sectors and 5-10 miles downwind sectors. [EOF] (Ref Step 6.15)

- a. Substantial core damage in progress or projected (>20%) (> 30,000 R/hr in containment high radiation monitors)
- b. Large fission product in inventory in containment (more than GAP) (LOSS criteria for RCS barrier in EPIP 1.2, Attachment C, exceeded)
- c. Imminent projected containment failure or release underway (LOSS criteria for containment barrier in EPIP 1.2, Attachment C, exceeded)

5.1.2 **IF** a General Emergency is declared **AND** there is indication of a lake breeze or low wind speed (<3mph), **THEN** the PAR for the condition is evacuation 0-5 miles (all sectors).

5.1.3 **IF** a General Emergency is declared **AND** the conditions stated in step 5.1.1 and 5.1.2 DO NOT exist, **THEN** the default PAR is evacuation 0-2 miles (all sectors) and 2-5 miles (3 or 4 downwind sectors centered on the average wind direction).

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

NOTE: Emergency Classifications and PARs shall be made to the State and Counties within 15 minutes of the emergency classification being declared or identification of a change in the required PAR.

5.1.4 PARs shall be documented on EPIP Form 2.1 and sent to the State and Counties.

5.1.5 There are no PARs required for Site Emergency, Alert, or Unusual Event emergency classifications.

5.1.6 **IF** a release is occurring or is imminent, **THEN** radiological release evaluation and dose projection shall be completed using steps 5.2-5.5 as applicable to determine or revise the emergency classification and/or PAR.

- a. WEDAP (section 5.2)
- b. RMS-SS (section 5.3)
- c. Offsite Field Measurements (section 5.4)
- d. Manual Calculations (section 5.5)

NOTE: Review section 3.0 prior to revising the PAR.

5.2 Wisconsin Electric Dose Assessment Program (WEDAP)

NOTE: The "Source Term" and "Release Path" categories will have drop-down menus to determine the severity of the event and **should** be opened to select the appropriate category for the event. When opened, each drop-down menu has been organized to list the options from the **least** severe to the **most** severe.

NOTE: **IF** WEDAP is **NOT** available in the Control Room, **THEN** go to Step 5.2 for assessment by using RMS-SS, **OR, IF** WEDAP is **NOT** available in the EOF (TSC if backup), **THEN** go to Attachment C, "Reinstallation of WEDAP Software".

5.2.1 Power up the designated personal computer (PC) using the master power switch to "boot up" into Windows NT, selecting "stand-alone" if presented with a selection of configurations during bootup.

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- 5.2.2 Log on to the PC using the PC number (label affixed to PC) as both the identification number and password, entering it in lower case.
- 5.2.3 Launch WEDAP by selecting "Business Applications – WEDAP" or the "WEDAP icon".
- 5.2.4 Select "Start" when prompted at WEDAP introduction screen.
- 5.2.5 Enter a "Title" for this dose assessment case to provide retrievability if the case is saved.
- 5.2.6 Click on "Data" on the toolbar and select the option "Case Basis".
- 5.2.7 Click on the appropriate "Accident Type" for the event.
- 5.2.8 Update all the data fields in the "Source Term" section.
- 5.2.9 Update all the data fields in the "Release Path" section.
- 5.2.10 Click "OK" to return to the summary page.
- 5.2.11 Verify details in the "Accident Data" section are based upon the data selected in Steps 5.2.5 - 5.2.9, returning to "Data" and "Case Basis" to make corrections if necessary.
- 5.2.12 Update "Reactor Shutdown Time" data field with the correct data if applicable.
- 5.2.13 Update "Release Start" by entering the time the release to environment began.
- 5.2.14 Update "Release End" by entering the correct data for an estimated time the release to environment will terminate.
IF release duration is unknown,
THEN use four hours as a default value.
- 5.2.15 Update the "Meteorological Data" section categories by clicking on each data field and selecting the correct data:
 - a. Met Date
 - b. Stability Class (automatically updates "Building Wake" check box)
 - c. Sigma Theta (Only key-in value from PPCS if stability class unavailable and >3 mph wind speeds)

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- d. Lapse Rate (Only key-in value from PPCS if stability class is unavailable and <3 mph wind speeds)
 - e. Precipitation
 - f. Lake Breeze
 - g. Wind Speed
 - h. Wind Direction
- 5.2.16 Verify the data on the WEDAP main screen and make corrections if appropriate.
- 5.2.17 Click on the "Calculate" icon to perform the final dose assessment calculations, which automatically updates the dose assessment data fields.
- 5.2.18 Review the dose assessment result tabs (a single click for simple data OR double-click for expanded data).
- a. Dose
 - b. Dose Rate
 - c. Event Class
 - d. PAR's
- 5.2.19 Compare the results of 5.2.18 against the current classification and PARs.
- a. **IF** in the Control Room **AND** the result of this assessment is an escalation of classification and/or PARs, **THEN** go to EPIP 1.1, Step 5.6, **OR** exit this procedure if **NOT** an escalation.
 - b. **IF** in the EOF (TSC if backup) **AND** the result of this assessment is an escalation of classification and/or PARs, **THEN** immediately inform the Emergency Director and assist with EPIP 2.1 for initiating notifications, **OR** proceed to the next step for a continuous dose assessment if **NOT** an escalation:

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- NOTE:** The "View" icon on the toolbar is to access additional tables and maps available for reference use.
- NOTE:** To save the data from a series of case assessments, click on "File," "Save Scenario File," and then relick on "File" and "Restart WEDAP" to start a new scenario with new cases.
- 5.2.20 Click on the "Print Case" icon to create a hard copy of the current case. **IF** the printer connection is not established, **THEN** go to EPIP 1.3, Attachment C, Step 2.0.
- 5.2.21 Click on the "Add Case" or "Insert Case" icon as appropriate to run the next dose assessment.
- a. Determine if this case is to be based upon a cumulative dose and change the field as appropriate.
 - b. Repeat Steps 5.2.5 - 5.2.19
 - c. **IF** time permits to run a more detailed dose assessment case, **THEN** implement the following steps:
 - Click on "Data," select the option "Equipment Status," enter the Unit affected, and update all the data fields in the "Equipment Status" section.
 - Click on "Data," select the option "Measured Data," and select one of the following options for entering values from **actual** data sources:
 - (a) "RMS Data - Manual Input" and update the field with the RMS monitors and readings in high alarm status.
 - (b) "Offsite Measurements - Isotopic Data" and update the fields with the correct data, including selecting the nuclides involved.
 - (c) "Offsite Measurements - Survey Reading" and update the fields with the correct data.
 - (d) "Isotopic Release Rate" and select the nuclides involved, updating with the correct data.

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NOTE: Cases can be generated on actual event data or "what-if" scenarios.

- d. **IF** the case was built on a "what-if" scenario,
THEN repeat Step 5.2.17, Step 5.2.18, and Step 5.2.20,
THEN click on the "Delete Case" icon, **AND** repeat Step 5.2.21.
- e. **IF** the case was built on the actual events in progress,
THEN repeat Steps 5.2.17 - 5.2.19

Performed By:	
_____	_____/____/____
Performer (Print and Sign)	Date / Time

DOSE ASSESSMENT AND PROTECTIVE ACTION
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5.3 Radiation Monitoring System-System Server (RMS-SS)

5.3.1 IF WEDAP
AND RMS-SS are unavailable,
THEN declare an ALERT to activate the Emergency Response
Facilities (ERFs) so dose assessment can be performed using field data,
AND go to EPIP 1.1, Step 5.5,
AND Step 5.3 of this procedure, performing both simultaneously.

5.3.2 Verify RMS-SS is available:

- a. The letters "M" (master) and "S" (slave) are intermittently displayed in the upper right hand corner of the SS monitor. The time is also correct and moving forward. This indicates BOTH SSs are operating.

OR

- b. An "X" appears in the upper right hand corner of the SS monitor and the time is correct and moving forward. This indicates that a single SS is operating.

5.3.3 Estimate Release Rate Using Data From RMS-SS

NOTE: Using the "ESC" key returns the SS to the main menu screen

- a. Obtain a list of monitors in high alarm by performing the following:
- From the Main Menu Screen (MMS), highlight (using arrow keys) "Display Status", press "Enter"
 - Highlight "Status", press "Enter"
 - Highlight item "20" (high alarm), press "enter" and all channels in high alarm will be listed
- b. Call up data (microcuries/cc) on the RMS-SS for each monitor in high alarm by performing the following and log on Table 1:
- From the MMS, highlight "Data", press "Enter".
 - Highlight "Ten Minute History" (or other interval as needed), press "Enter".
 - Enter the DAM or SPING address (DAM1 to DAM8, SPING21 to SPING24), press "Enter".

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- Enter channel number , press "Enter".
 - Press "Enter" to toggle between available screens
- c. Data may be printed by highlighting "Print" on the relevant screen and pressing "Enter".

TABLE 1
RELEASE MONITORS ALARMING

DAM	CHANNEL	RMS #	MONITOR	READING ($\mu\text{Ci/cc}$)
		1RE-212	U1 Cont. Purge	_____
		2RE-212	U2 Cont. Purge	_____
		1RE-231	SG 1A	_____
		2RE-231	SG 2A	_____
		1RE-232	SG 1B	_____
		RE-221	Drum Area Vent	_____
		RE-226	Comb A. E. High Range Steam Line	_____
		RE-224	Gas Stripper Building	_____
		2RE-232	SG2B	_____
		RE-225	Comb A. E. Low Range	_____
		RE-214	Aux Building Vent	_____
		1RE-305	Low Range Gas, U1 Purge	_____
		1RE-307	Medium Range Gas, U1 Purge	_____
		1RE-309	High Range Gas, U1 Purge	_____
		2RE-305	Low Range Gas, U2 Purge	_____
		2RE-307	Medium Range Gas, U2 Purge	_____
		2RE-309	High Range Gas, U2 Purge	_____
		RE-315	Low Range Gas, Aux Bldg Vent	_____
		RE-317	Medium Range Gas, Aux Bldg Vent	_____
		RE-319	High Range Gas, Aux Bldg Vent	_____
		RE-325	Low Range Gas, Drumming Area Vent	_____
		RE-327	Medium Range Gas, Drumming Area Vent	_____

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- 5.3.4 **IF** the release path monitor(s) is/(are) failed high and the associated SPING(s) is/(are) out of service,
THEN declare an ALERT to activate the Emergency Response Facilities (ERFs) so dose assessment can be performed using field data and/or WEDAP,
AND go to EPIP 1.1, Step 5.5, to end,
AND Step 5.3 of this procedure, performing both simultaneously.
- 5.3.5 Record the highest in-range (**NOT** failed) alarming RMS channel readings ($\mu\text{Ci/cc}$) for each release path on Table 2 and calculate the release rate.

TABLE 2
RELEASE RATE CALCULATIONS

NOTE: Conversion factors assume nominal flow rates.

RMS #	LOCATION	READING ($\mu\text{Ci/cc}$)	CONVERSION (cc-Ci/sec- μCi)	RELEASE RATE (Ci/sec)
RE-214 RE-315 RE-317 RE-319	Auxiliary Building Vent ↓	_____	x 33	= _____
RE-221 RE-325 RE-327	Drumming Area Vent ↓	_____	x 20	= _____
1RE-212 1RE-305 1RE-307 1RE-309	U1 Containment Purge (0 or 1 fan) ↓ (2 fans)	_____ _____	x 6 x 12	= _____ = _____
2RE-212 2RE-305 2RE-307 2RE-309	U2 Containment Purge (0 or 1 fans) ↓ (2 fans)	_____ _____	x 6 x 12	= _____ = _____
RE-224	Gas Stripper Bldg	_____	x 6	= _____
RE-225 RE-226	Combined Air Ejectors ↓	_____	x 0.012	= _____
RE-231 RE-232	A Steam Line Header B Steam Line Header ↓ Atmospheric 1 Safety 2 Safeties 3 Safeties 4 Safeties	_____ _____ _____ _____ _____	x 1.5 x 4.0 x 8.0 x 12.0 x 16.0	= _____ = _____ = _____ = _____ = _____
Release Rate Total (Ci/sec)				= _____

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NOTE: IF desired PPCS points have poor or bad quality, THEN obtain $\sigma\theta$ and lapse rate readings from the Control Room indications, AND THEN reference Table 4 to determine stability class.

5.3.6 Calculate the Dispersion Factor (X/Q) at the Site.

- a. Obtain the wind speed and stability class from the PPCS "Release/MET Summary" screen. Record wind speed in Step 5.3.6.c equation.
- b. Select the appropriate Xu/Q factor value from the table below based upon the stability class. Record the X/Q factor value in Step 5.3.6.c equation.

Stability Class	Xu/Q
A	9.92E-07
B	1.18E-05
C	4.28E-05
D	1.34E-04
E	2.55E-04
F	5.38E-04
G	1.04E-03

c. Calculate the dispersion factor:

$$\frac{\text{(step b above)}}{\text{(step b above)}} \times Xu/Q (\text{mph} / \text{m}^3 / \text{s}) \div \frac{\text{wind speed (mph)}}{\text{wind speed (mph)}} = \text{X/Q (s} / \text{m}^3)$$

5.3.7 Determine the Estimated Duration (ERD) of release. Use four hours as a default if the ERD is unknown.

5.3.8 Estimate the Projected Whole Body Dose (TEDE) at the Site Boundary.

$$3280 \frac{\text{rem} \cdot \text{m}^3}{\text{Ci} \cdot \text{hr}} \times \frac{\text{(Table 2 Total)}}{\text{(Table 2 Total)}} \times \frac{\text{(Step 5.3.6.c)}}{\text{(Step 5.3.6.c)}} \times \frac{\text{(ERD)}}{\text{(ERD)}} = \frac{\text{[PROJ. W. B. DOSE (TEDE)]}}{\text{[PROJ. W. B. DOSE (TEDE)]}} \text{Rem}$$

5.3.9 Calculate Projected Thyroid Dose (CDE) at the Site Boundary.

NOTE: Choose LOCA accident type unknown			
ACCIDENT TYPE	PROJECTED WHOLE BODY DOSE (TEDE) (Rem) (From Step 5.3.8)	CONVERSION FACTOR	PROJECTED THYROID DOSE (CDE) (Rem)
LOCA	_____	x 15 =	_____
Gap Activity	_____	x 3 =	_____
Fuel Handling	_____	x 20 =	_____
SG Tube Rupture	_____	x 12 =	_____

5.3.10 **IF** the event meets the following criteria for a GENERAL EMERGENCY, **THEN** go to Step 5.3.14 and determine PARS.

a. Projected Whole Body Dose (TEDE) at Site Boundary is ≥ 1 Rem.

OR

b. Projected Thyroid Dose (CDE) at Site Boundary is ≥ 5 Rem.

5.3.11 **IF** the event meets the following criteria for a SITE EMERGENCY, **THEN** go to Step 5.3.15.

a. Projected Whole Body Dose (TEDE) at Site is ≥ 0.1 Rem.

OR

b. Projected Thyroid Dose (CDE) at Site Boundary is ≥ 0.5 Rem.

5.3.12 **IF** the event meets the following criteria for an ALERT, **THEN** go to Step 5.3.15.

One of more effluent radiation alarming monitor readings is >10 times high alarm setpoint for >15 minutes [Radiation Monitoring System Alarm Setpoint & Response Book (RMSASRB)].

5.3.13 **IF** the event meets the following criteria for an UNUSUAL EVENT, **THEN** go to Step 5.3.15.

One or more effluent radiation alarming monitor readings is $>$ high alarm setpoint for >60 minutes [(Radiation Monitoring System Alarm Setpoint & Response Book (RMSASRB))].

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5.3.14 Determine Protective Action Recommendations

NOTE: Lake breeze conditions exist if the difference between actual wind direction values for inland and near shore meteorological towers is greater than 90°.

- a. To determine protective action recommendations compare values from Step 5.3.9 and the values in the "Integrated Projected Dose" column below.

NOTE: In some cases (e.g., short-duration puff release, inclement weather) sheltering may be an appropriate recommendation. This should be discussed with the state and/or counties, if appropriate.

INTEGRATED PROJECTED DOSE	PROTECTIVE ACTION	MILES	SECTORS
<1 rem TEDE <u>AND</u> <5 rem CDE	None Required	N/A	N/A
≥1 rem TEDE <u>OR</u> ≥5 rem CDE	Evacuate Evacuate	0-2 miles 2-5 miles	All (360°) Downwind Sectors
<3 mph Wind Speed <u>OR</u> Lake Breeze <u>AND</u> ≥1 rem TEDE <u>OR</u> ≥5 rem CDE	Evacuate	0-5 Miles	All (360°)

- b. Select downwind sectors using Attachment A.

5.3.15 Compare the results against the current classification and PARS. **IF** the results of this assessment is an escalation of classification and/or PARS, **THEN** go to EPIP 1.1, Step 5.5, **OR** exit this procedure if **NOT** an escalation.

Performed By:	
_____	____/____/____
Performer (Print and Sign)	Date / Time

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5.4 Offsite Field Measurements

5.4.1 Check if Plume Impacts Terrestrial Areas

- a. Wind Direction $> 305^\circ$

OR

- b. Wind Direction $< 210^\circ$

5.4.2 Use Field Monitoring Team(s) to measure gamma dose rate at 1-mile from the site and log.

Maximum measured gamma dose rate: _____ R/hr

5.4.3 **IF** measurement from Step 5.4.2 is ≥ 1 R/hr,
THEN event is a GENERAL EMERGENCY.

NOTE: In some cases (e.g., short-duration puff release, inclement weather), sheltering may be an appropriate recommendation. This should be discussed with the state and/or counties, if appropriate.

5.4.4 **IF** a General Emergency,
THEN determine minimum Protective Action Recommendations,
AND go to Step 5.4.6.

- a. Evacuation of 0-2 miles for all sectors, and 2-5 miles in the downwind sectors.

OR

- b. Evacuation of all sectors (360°) to 5 miles, **IF** wind speed less than three (3) mph or lake breeze conditions exist.

5.4.5 **IF** measurements from Step 5.4.2 is ≥ 0.1 R/hr,
THEN event is a SITE EMERGENCY,
AND go to Step 5.4.6.

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- 5.4.6 Compare the results of your assessment against the current classification and PARS.
IF the results of this assessment is an escalation of classification and/or PARS,
THEN go to EPIP 1.1, Step 5.5,
OR exit this procedure if **NOT** an escalation.

Performed By:	
_____	_____/_____/_____
Performer (Print and Sign)	Date / Time

5.5 Manual Calculations

5.5.1 Manual Calculation of Release Rates (Source Terms)

- a. Airborne effluents may be discharged from PBNP through the following vent stacks and their associated monitors:

- Auxiliary building vent (ABVNT)
RE-214, RE-315, RE-317, and RE-319
- Drumming area vent (DAVNT)
RE-221, RE-325, and RE-327
- Unit 1 containment purge vent (Cont. 1)
1RE-212, 1RE-305, 1RE-307, and 1RE-309
- Unit 2 containment purge vent (Cont. 2)
2RE-212, 2RE-305, 2RE-307, and 2RE-309
- Gas stripper building vent (GSBVNT)
RE-224

NOTE: This CAE pathway vents to the Auxiliary Building Vent Stack.

- Combined air ejector decay duct (CAE)
1(2)RE-215, RE-225, RE-226

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- Main steam safety valves and atmospheric dump valves
 - 1(2)RE-231 "A" Steam Generator
 - 1(2)RE-232 "B" Steam Generator
- b. The release rates may be estimated using any of the following monitoring systems:
 - PPCS
 - Radiation monitoring system (which is designed to monitor low and high level releases)

NOTE: The contact reading method is used when the other monitoring systems are inoperable.

- Contact readings using a hand-held survey meter. It is assumed that the direct contact readings are determined using an RO-2A, Teletector, or equivalent survey meter.

NOTE: The actual number of main steam safety valves and atmospheric dump valves open should be obtained from the Shift Manager to estimate the release rate.

- c. Record above normal monitor reading(s) in the "Reading" column in Section A of Worksheet 1. Enter a comment for any monitor reading that is off-scale or inoperable.
- d. Multiply the reading by the conversion factor and entering the result in the "Release Rate" column on Section A of Worksheet 1.
- e. **IF** monitor readings are available for all release paths, **THEN** go to Step 5.5.1.j.

NOTE: The direct contact survey is accomplished under the direction of the Rad/Chem Coordinator. It must be approved by the TSC Manager and the Shift Manager.

- f. Do **NOT** perform direct contact readings using a hand-held survey meter until the following actions have been done:
 - Evaluate the radiological conditions prior to entering the Auxiliary Building or the Containment Building facade.
 - Choose the proper survey meter and the most direct and desirable route to the stack, pipe, or vent.

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- g. Perform direct contact readings using a hand-held survey meter when RMS readings are **NOT** available. Enter direct contact readings in the "Meter Reading" column of Section B of Worksheet 1.

To take the survey of the main steam safety valves and the atmospheric dump valves place the meter probe in contact with the centerline of the main steam header, three feet from the main steam line.

- Shield the survey probe with a minimum of ¼ inch of lead on the main steam line/containment building side of the probe.
 - Obtain the probe shield from the Radiation Protection supply locker in the Operations Support Center (OSC).
- h. For each direct contact reading in any area, enter the conversion factor from Table 3 in the "Conversion Factor" column on Worksheet 1. Conversion factors are accident type dependent.
- i. Multiply the direct contact reading by the conversion factor to calculate the release rate. Enter the release rate in the "Release Rate" column of Section B of Worksheet 1.
- j. **IF** actual flow rates vary significantly from the assumed flow rates listed on Worksheet 1, **THEN** adjust the flow rates using Section C of Worksheet 1.
- k. Enter all calculated release rates in the appropriate spaces in Section D of Worksheet 1. Total all release rates to calculate the gross release rate.
- l. Sign and date Worksheet 1 and fax upon completion to the Dose/PAR Coordinator.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 3
RELEASE RATE CONVERSION FACTORS - SURVEY METER METHOD

Units of expression are Ci-h/s-rem.

Vent Pathway	LOCA ⁽¹⁾	ACCIDENT TYPE		FHA ⁽¹⁾	Steam Generator Tube Rupture ⁽²⁾	
		Gap Accident ⁽⁴⁾			No condenser	Condenser
		0-12 hours	> 12 hours			
Aux. Building	9.40	12.6	79.0	373	-	-
Drumming Area	6.00	8.00	41.1	104	-	-
Cont. Purge	2.60	3.50	20.0	74.0	-	-
Gas Stripper	2.48	3.31	20.0	83.0	-	-
Air Ejector	-	-	-	-	1.40	1.40E+04
Steam Line						
Atmospheric	-	-	-	-	164	-
Safety, 1	-	-	-	-	410	-
Steam Driven AFWP	-	-	-	-	0.235	-

- Note: (1) The accident type acronyms are: LOCA - Loss of Coolant Accident and FHA - Fuel Handling Accident
 (2) No condenser means that the vent pathway is **NOT** through the condenser. Condenser means the vent pathway is through the condenser.
 (3) The release rate conversion factors were calculated using the following flow rates:

Vent Pathway	Flow Rate (ft ³ /min)
Auxiliary Building	70000
Drumming Area	43100
Containment Purge	12500
Gas Stripper	13000
Air Ejector	25
Atmospheric Vent	3200
Safety, 1	8000
Steam Driven AFWP	4.2

- (4) The time intervals referred to in the Gap Accident are for the time periods 0 to 12 hours and greater than 12 hours after reactor shutdown

WORKSHEET 1
RELEASE RATE CALCULATIONS
Page 1 of 3

A. OPERATIONAL LOW-RANGE RELEASE MONITOR READOUTS
(Assumed flow rates are in parentheses)

<u>Monitor</u>	<u>Reading</u> <u>($\mu\text{Ci}/\text{cc}$)</u>	<u>Conversion</u> <u>Factor</u> <u>($\text{cc-Ci/s}-\mu\text{Ci}$)</u>	<u>Release Rate</u> <u>(Ci/s)</u>
Auxiliary Building Vent (70,000 cfm) (RE-214, RE-315, RE-317, or RE-319)	_____	33	_____
Drumming Area Vent (43,100 cfm) (RE-221, RE-325, or RE-327)	_____	20	_____
Unit 1 Containment Purge (RE-212, RE-305, RE-307, or RE-309)			
(0 or 1 fan - 12,500 cfm)	_____	6	_____
(2 fans - 25,000 cfm)	_____	12	_____
Unit 2 Containment Purge (RE-212, RE-305, RE-307, or RE-309)			
(0 or 1 fan - 12,500 cfm)	_____	6	_____
(2 fans - 25,000 cfm)	_____	12	_____
Gas Stripper Building Vent (13,000 cfm) (RE-224)	_____	6	_____
Combined Air Ejector (25 cfm) (RE-215, RE-225, and RE-226)	_____	0.01	_____
Steam Driven Aux FW Pump [1(2)P-29] (4.2 cfm ea) (RE-219, RE-231, RE-232, or measured conc.)			
1 pump	_____	0.002	_____
2 pumps	_____	0.004	_____
Steam Line Vent (RE-231 and RE-232)			
Atmospheric (3200 cfm)	_____	1.5	_____
1 Safety (8000 cfm)	_____	4	_____
2 Safeties (16000 cfm)	_____	8	_____
3 Safeties (24000 cfm)	_____	12	_____
4 Safeties (32000 cfm)	_____	16	_____

WORKSHEET 1
 RELEASE RATE CALCULATIONS
 Page 2 of 3

B. PLANT EFFLUENT VENT STACK CONTACT READINGS
 (Assumed flow rates are in parentheses)

Accident type : LOCA Gap Activity Fuel Handling S/G Tube Rupture Other

<u>Monitor</u>	<u>Meter Reading (R/hr)</u>	<u>Conversion Factor (Ci-h/s-rem) (Table 3)</u>	<u>Release Rate (Ci/s)</u>
Auxiliary Building Vent (70,000 cfm)	_____	_____	_____
Drumming Area Vent (43,100 cfm)	_____	_____	_____
Unit 1 Containment Purge			
(0 or 1 fan - 12,500 cfm)	_____	_____	_____
(2 fans - 25,000 cfm)	_____	_____	_____
Unit 2 Containment Purge			
(0 or 1 fan - 12,500 cfm)	_____	_____	_____
(2 fans - 25,000 cfm)	_____	_____	_____
Gas Stripper Building Vent (13,000 cfm)	_____	_____	_____
Combined Air Ejector (25 cfm)	_____	_____	_____
Steam Driven AFWP	_____	_____	_____
Steam Line Vent			
Atmospheric (3200 cfm)	_____	_____	_____
1 Safety (8000 cfm)	_____	_____	_____
2 Safeties (16000 cfm)	_____	_____	_____
3 Safeties (24000 cfm)	_____	_____	_____
4 Safeties (32000 cfm)	_____	_____	_____

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

WORKSHEET 1
RELEASE RATE CALCULATIONS
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C. ACTUAL VERSUS CONVERSION CURVE FLOW RATE RATIO

$$\frac{\text{Actual Flow Rate, cfm}}{\text{Assumed Flow Rate, cfm}} \times \text{Release Rate} = \text{Corrected Release Rate}$$

$$\left(\frac{\text{cfm}}{\text{cfm}} \right) \times \frac{\text{Ci}}{\text{s}} = \frac{\text{Ci}}{\text{s}}$$

D. ESTIMATE OF GROSS RELEASE RATE

NOTE: The combined air ejector decay duct exhausts through the auxiliary building vent. Should a release occur through the combined air ejector duct, do **NOT** include its monitor reading in the gross release rate calculations because it will be reflected in the auxiliary building vent monitor reading.

<u>Vent</u>	<u>Release Rate</u> <u>(curies/s)</u>
1. Auxiliary Building	_____
2. Drumming Area	_____
3. Gas Stripper Building	_____
4. Combined Air Ejector Duct	_____
5. Main Steam Line Vent	_____
6. Unit 1 Containment Purge	_____
7. Unit 2 Containment Purge	_____
8. Steam Driven AFW Pump	_____
9. Total	_____

Completed By: _____ Date/Time _____ / _____

Route to Dose/PAR Coordinator upon completion.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

5.5.2 Determination of χ/Q , Atmospheric Dispersion Factor (Worksheet 2)

- a. Obtain the following information from the indicated source and enter this in the appropriate space on Worksheet 2.

<u>Data</u>	<u>Source</u>
• Wind speed (mph, 15-minute average)	PPCS or Control Room Instrumentation
• Wind direction (degrees, 15-minute average)	PPCS or Control Room Instrumentation
• Wind direction fluctuation (σ_θ , degrees)	PPCS or Control Room Instrumentation
• Temperature lapse rate ($\Delta T/\Delta H$, °F/35 m)	PPCS or Control Room Instrumentation
• Time of reactor shutdown	Operations Coordinator
• Time of RCS breach	Operations Coordinator
• Time of release from the plant	Operations Coordinator

NOTE: Realistic estimates of the duration of the release should be made whenever possible, with input from the Reactor/Core Physics Engineer. If the duration of the release is unknown, assume four hours.

• Estimated or actual duration of the release (hours)	Operations Coordinator or projected estimate
• Gross release rate (curies/second)	Worksheet 1

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

WORKSHEET 2
X/Q DETERMINATION

Complete this form every two hours during a release or whenever changing radiological or meteorological conditions.

1. Wind speed, 15 minute average, mph _____
2. Wind direction, 15 minute average, degrees _____
3. Wind direction fluctuation, σ_θ , degrees _____
4. Temperature lapse rate, $\Delta T/\Delta H$, °F/35 m _____
5. Time of reactor shutdown _____
6. Time of RCS breach _____
7. Time of release from plant _____

NOTE: Realistic estimates should be used whenever possible. If the duration release is unknown, assume four hours.

8. Estimated or actual duration of release, hours _____
9. Gross release rate, curies per second _____
10. Pasquill category _____
11. Centerline Xu/Q from Table 6:

Site Boundary	Two Miles	Five Miles	Ten Miles	Other

$$\frac{\chi}{Q} \left(\frac{\text{sec}}{\text{m}^3} \right) = 2.24 \left(\frac{\text{sec} \cdot \text{mi}}{\text{hr} \cdot \text{m}} \right) \times \frac{\chi u}{Q} \left(\frac{1}{\text{m}^2} \right) \times \frac{1}{\text{wind speed}} \left(\frac{\text{hr}}{\text{mi}} \right)$$

12. Centerline X/Q:

Site Boundary	Two Miles	Five Miles	Ten Miles	Other

Completed By: _____ Date/Time _____ / _____

Route to Dose/PAR Coordinator upon completion.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

NOTE: Do NOT use σ_θ to determine the stability class when the wind speed is less than three miles per hour.

- b. Determine the stability class (Pasquill category) using the σ_θ or $\Delta T/\Delta H$ chart recorder values in the Control Room and Table 4. Enter the stability class on Worksheet 2.

TABLE 4
CLASSIFICATION OF ATMOSPHERIC STABILITY BY SIGMA THETA AND $\Delta T/\Delta H$

NOTE: When wind speed is less than three miles per hour, do NOT use σ_θ to determine the stability class.

Stability Classification	Pasquill Class	Wind Direction Fluctuation (σ_θ , degrees)*	Temperature Lapse Rate ($\Delta T/\Delta H$, °F/35 m)
Extremely unstable	A	$\sigma_\theta \geq 22.5^\circ$	$\Delta T/\Delta H \leq -1.2$
Moderately unstable	B	$22.5^\circ > \sigma_\theta \geq 17.5^\circ$	$-1.2 < \Delta T/\Delta H \leq -1.1$
Slightly unstable	C	$17.5^\circ > \sigma_\theta \geq 12.5^\circ$	$-1.1 < \Delta T/\Delta H \leq -0.9$
Neutral	D	$12.5^\circ > \sigma_\theta \geq 7.5^\circ$	$-0.9 < \Delta T/\Delta H \leq -0.3$
Slightly stable	E	$7.5^\circ > \sigma_\theta \geq 3.8^\circ$	$-0.3 < \Delta T/\Delta H \leq 0.9$
Moderately stable	F	$3.8^\circ > \sigma_\theta \geq 2.1^\circ$	$0.9 < \Delta T/\Delta H \leq 2.5$
Extremely stable	G	$2.1^\circ > \sigma_\theta$	$2.5 < \Delta T/\Delta H$

* Determined for a 15-minute to one-hour period for horizontal diffusion.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

- c. **IF** necessary to determine the backup stability class determination, **THEN** visually check the cloud cover and the incoming solar radiation. Using this visual information and Table 5, enter the stability class on Worksheet 2.

TABLE 5
BACKUP DETERMINATION OF ATMOSPHERIC STABILITY CLASS

Surface Wind Speed (U mph @ 50 meter height)	DAY			NIGHT	
	Incoming Solar Radiation			Thinly Overcast	
	Strong	Moderate	Slight	> ½ low	< ½ cloud
U < 4	A	A-B	B	F	G
4 ≤ U < 7	A-B	B	C	E	F
7 ≤ U < 11	B	B-C	C	D	E
11 ≤ U < 13	C	C-D	D	D	D
13 ≤ U	C	D	D	D	D

The neutral class D should be assumed for overcast conditions, day or night.

"Strong" incoming solar radiation corresponds to a solar altitude greater than 60° with clear skies. "Slight" incoming solar radiation corresponds to a solar altitude of 15° to 35° with clear skies. Cloudiness will decrease incoming solar radiation and should be considered along with the solar altitude when determining the incoming solar radiation status. Incoming solar radiation that would be strong with clear skies can be expected to reduce to moderate with broken middle clouds (cloud cover of 5/8 to 7/8) and to slight with broken low clouds. Night refers to the period one hour before sunset to one hour after sunrise.

For "thinly overcast" conditions, the "> ½ low and < ½ cloud" refers to the percentage of cloud or sky overcast.

NOTE: To determine if there is lake effect wind, compare the wind direction at the inland tower to the wind direction at the main or backup tower. If the wind direction at the main or backup tower is easterly and the wind direction at the inland tower is westerly, the wind at the plant may be a lake effect breeze. If a lake breeze is suspected, the field monitoring teams must be advised to pay close attention to the wind direction.

- d. Enter the Xu/Q values for the site boundary, two miles, five miles, and ten miles from the site on Worksheet 2. The Xu/Q values can be taken from Table 6.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 6
TABLE OF CENTERLINE Xu/Q VALUES VERSUS DISTANCE FROM THE SITE

(Units are m⁻²)

NOTE: To calculate the atmospheric dispersion factor, the centerline Xu/Q value is divided by the wind speed (in meters per second).

Stability Class	Site Boundary	Distance From the Site (miles)								
		2	3	4	5	6	7	8	9	10
A	4.43E-07	5.53E-08	3.93E-08	3.07E-08	2.54E-08	2.17E-08	1.90E-08	1.69E-08	1.53E-08	1.40E-08
B	4.99E-06	7.83E-07	1.92E-07	6.93E-08	3.21E-08	2.76E-08	2.42E-08	2.17E-08	1.96E-08	1.80E-08
C	1.91E-05	5.81E-06	2.94E-06	1.77E-06	1.21E-06	8.82E-07	6.90E-07	5.66E-07	4.72E-07	3.95E-07
D	5.99E-05	2.14E-05	1.17E-05	7.61E-06	5.48E-06	4.22E-06	3.39E-06	2.80E-06	2.37E-06	2.05E-06
E	1.14E-04	4.32E-05	2.47E-05	1.67E-05	1.24E-05	9.64E-06	7.79E-06	6.54E-06	5.70E-06	5.06E-06
F	2.40E-04	9.86E-05	5.91E-05	4.12E-05	3.12E-05	2.49E-05	2.08E-05	1.78E-05	1.55E-05	1.37E-05
G	4.65E-04	2.21E-04	1.36E-04	9.56E-05	7.30E-05	5.89E-05	4.94E-05	4.24E-05	3.72E-05	3.31E-05
Lake Breeze	4.54E-05	2.35E-05	1.31E-05	1.02E-05	8.37E-06	7.07E-06	6.33E-06	5.74E-06	5.11E-06	4.75E-06

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

- e. **IF** a possible location other than the standard specified location is wanted, **THEN** enter the Xu/Q value for that distance from Table 6 on Worksheet 2.

Example:

The Xu/Q value for Class C stability @ 5 miles is 1.21E-06 m⁻². Calculate the X/Q values by dividing the Xu/Q value by the wind speed (in meters per second). This can be represented by the equation:

$$\frac{X}{Q} \left(\frac{\text{sec}}{\text{m}^3} \right) = 2.24 \left(\frac{\text{sec-mile}}{\text{hr-m}} \right) \times \frac{Xu/Q \text{ (m}^{-2}\text{)}}{\text{Wind Speed (miles/hr)}}$$

Enter the X/Q values on Worksheet 2.

- f. Sign and date Worksheet 2 and fax upon completion to the Dose/PAR Coordinator.

5.5.3 Whole Body Estimate (Worksheet 3)

- a. Enter the accident type on Worksheet 3. If the accident type is unknown, assume the accident type is a LOCA.
- b. Enter the gross release rate from Worksheet 2, Item 9, on Worksheet 3.

NOTE: The activity fractions are dependent on the accident type, the time from shutdown, whether containment spray was used, and, for steam generator tube rupture accidents, whether the release was through the condenser. Select only those activity fractions that are **bolded**.

- c. Enter the activity fractions on Worksheet 3 for the selected accident type. Activity fractions are listed in Table 7.
- d. Enter the X/Q value for the desired distance from Worksheet 2, Item 12, on Worksheet 3.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

WORKSHEET 3
ESTIMATED WHOLE BODY DOSE

Complete this form every two hours during a release or whenever changing radiological or meteorological conditions.

Accident type : LOCA Gap Activity Fuel Handling SG Tube Rupture Other

Calculate the projected whole body dose using the equation: SECTOR _____

DISTANCE _____ miles

$$\text{Dose}_i = Q \times F_i \times \frac{X}{Q} \times \text{DCF}_i \times \text{ERD}$$

TIME _____

where: Dose_i is the whole body dose due to radionuclide i , rem;
 Q is the gross release rate, curies/s.
 F_i is the activity fraction for radionuclide i , dimensionless. Activity fractions for radionuclides released in the LOCA, Gap Activity, Fuel Handling, and Steam Generator Tube Rupture accident types are listed in Table 7. The activity fractions for those radionuclides that contribute more than 90 percent of the total dose are printed in bold type. Those radionuclides that are **NOT** printed in bold type need **NOT** be included in the dose calculations.
 X/Q is the atmospheric dispersion factor, s/m^3 ;
 DCF_i is the whole body dose conversion factor for the radionuclide i , $\text{rem}\cdot\text{m}^3/\text{Ci}\cdot\text{hr}$;
 ERD is the estimated duration of the release, hours. (If unknown, assume 4 hours.)

Nuclide	Q	F_i	X/Q	DCF_i	ERD	Dose_i
I-131	_____	_____	_____	5.3E+04	_____	_____
I-132	_____	_____	_____	4.9E+04	_____	_____
I-133	_____	_____	_____	1.5E+04	_____	_____
I-134	_____	_____	_____	3.1E+04	_____	_____
I-135	_____	_____	_____	8.1E+03	_____	_____
Kr-85	_____	_____	_____	1.3E+00	_____	_____
Kr-85m	_____	_____	_____	9.3E+01	_____	_____
Kr-87	_____	_____	_____	5.1E+02	_____	_____
Kr-88	_____	_____	_____	1.3E+03	_____	_____
Rb-88	_____	_____	_____	5.2E+02	_____	_____
Cs-138	_____	_____	_____	1.6E+03	_____	_____
Xe-131m	_____	_____	_____	4.9E+00	_____	_____
Xe-133	_____	_____	_____	2.0E+01	_____	_____
Xe-133m	_____	_____	_____	1.7E+01	_____	_____
Xe-135	_____	_____	_____	1.4E+02	_____	_____
Xe-135m	_____	_____	_____	2.5E+02	_____	_____
Xe-138	_____	_____	_____	7.2E+02	_____	_____

Total Dose _____

NOTE: Dose at other distances can be calculated by ratioing the X/Q values and multiplying by the dose calculated above.

Completed By: _____ Date/Time _____ / _____

Route to Dose/PAR Coordinator upon completion.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

- e. Enter the estimated release duration (ERD), in hours, from Worksheet 2, Item 8, on Worksheet 3.
- f. Calculate the projected whole body (WB) dose on Worksheet 3 using the equation:

$$Dose_{i, \text{ whole body}} = Q \times F_i \times \frac{X}{Q} \times DCF_i \times ERD$$

where:

$Dose_{i, \text{ whole body}}$ = whole body dose, rem;

F_i = activity fraction for radionuclide i , dimensionless. Activity fractions for radionuclides released in the LOCA, Gap Activity, Fuel Handling, and Steam Generator Tube Rupture accident types for various time periods post accident are listed in Table 7. The activity fractions for those radionuclides that contribute more than 90 percent of the total dose are bolded. Those radionuclides that are **NOT** bolded need **NOT** be included in the dose calculations.

Q = gross release rate, curies per second;

X/Q = atmospheric dispersion factor, seconds per m^3 ;

DCF_i = whole body dose conversion factor for nuclide i , $rem \cdot m^3 / Ci \cdot hr$;

ERD = estimated duration of the release, hours.

- g. Sum the calculated doses and enter it on Worksheet 3.
- h. Sign and date Worksheet 3 and fax to the Dose/PAR Coordinator.

5.5.4 Thyroid Dose Estimate (Worksheet 4)

NOTE: If the type of accident is unknown, then assume the accident type is a LOCA.

- a. Enter the accident type on Worksheet 4.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

WORKSHEET 4
ESTIMATED THYROID DOSE

Complete this form every two hours during a release or whenever changing radiological or meteorological conditions.

Accident type : LOCA Gap Activity Fuel Handling SG Tube Rupture Other

Calculate the projected whole body dose using the equation: SECTOR _____

DISTANCE _____ miles

$$\text{Dose}_i = Q \times F_i \times \frac{X}{Q} \times \text{DCF}_i \times \text{ERD}$$

TIME _____

- where: Dose_i is the thyroid dose due to radionuclide i, rem;
 Q is the gross release rate, curies/s.
 F_i is the activity fraction for radionuclide i, dimensionless. Activity fractions for radionuclides released in the LOCA, Gap Activity, Fuel Handling, and Steam Generator Tube Rupture accident types are listed in Table 7. The activity fractions for those radionuclides that contribute more than 90 percent of the total dose are underlined. Those radionuclides that are NOT underlined need NOT be included in the dose calculations.
 X/Q is the atmospheric dispersion factor, s/m³;
 DCF_i is the whole body dose conversion factor for the radionuclide i, rem-m³/Ci-hr;
 ERD is the estimated duration of the release, hours. (If unknown, assume 4 hours.)

Nuclide	Q	F _i	X/Q	DCF _i	ERD	Dose _i
I-131	_____	_____	_____	1.3E+06	_____	_____
I-132	_____	_____	_____	7.7E+03	_____	_____
I-133	_____	_____	_____	2.2E+05	_____	_____
I-134	_____	_____	_____	1.3E+03	_____	_____
I-135	_____	_____	_____	3.8E+04	_____	_____

Total Dose _____

NOTE: Dose at other distances can be calculated by ratioing the X/Q values and multiplying by the dose calculated above.

Completed By: _____ Date/Time _____ / _____

Route to Dose/PAR Coordinator upon completion.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

b. Enter the gross release rate from Worksheet 2, Item 9, on Worksheet 4.

NOTE: The activity fractions are dependent on the accident type, the time from shutdown, whether containment spray was used, and, for steam generator tube rupture accidents, whether the release was through the condenser. Select only those activity fractions that are underlined.

c. Enter the activity fractions on Worksheet 4 for the selected accident type. Activity fractions are listed in Table 7.

d. Enter the X/Q value for the desired distance from Worksheet 2, Item 12, on Worksheet 4.

e. Enter the estimated duration of the release (ERD), in hours, from Worksheet 2, Item 8, on Worksheet 4.

f. Calculate the projected thyroid dose on Worksheet 4 using the equation:

$$\text{Dose}_{i, \text{thyroid}} = Q \times F_i \times \frac{X}{Q} \times \text{DCF}_i \times \text{ERD}$$

where:

$\text{Dose}_{i, \text{thyroid}}$ = thyroid dose, rem;

Q = release rate for nuclide i , curies per second;

F_i = activity fraction for radionuclide i , dimensionless. Activity fractions for radionuclides released in the LOCA, Gap Activity, Fuel Handling, and Steam Generator Tube Rupture accident types for various time periods post accident are listed in Table 7. The activity fractions for those radionuclides that contribute more than 90 percent of the total dose are underlined. Those radionuclides that are NOT underlined need NOT be included in the dose calculations.

X/Q = atmospheric dispersion factor, seconds per m^3 ;

DCF_i = thyroid dose conversion factor for nuclide i , $\text{rem}\cdot\text{m}^3/\text{Ci}\cdot\text{hr}$;

ERD = estimated duration of the release, hours.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

- g. Sum the calculated doses and enter it on Worksheet 4.
- h. Sign and date Worksheet 4 and fax to Dose/PAR Coordinator.

5.5.5 Radionuclide Ground Deposition Estimation (Worksheet 5)

NOTE: If the type of accident is unknown, then assume the accident type is a LOCA.

- a. Enter the accident type on Worksheet 5.
- b. Enter the gross release rate from Worksheet 2, Item 9, on Worksheet 5.

NOTE: The activity fractions are dependent on the accident type, the time from shutdown, whether containment spray was used, and, for steam generator tube rupture accidents, whether the release was through the condenser. Select only those activity fractions that are bolded.

- c. Enter the activity fractions on Worksheet 5 for the selected accident type. Activity fractions are listed in Table 7.
- d. Enter the X/Q value from Worksheet 2, Item 12, for the desired distance on Worksheet 5.
- e. Enter the estimated release duration (ERD), in hours, from Worksheet 2, Item 8, on Worksheet 5.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

WORKSHEET 5
ESTIMATED GROUND DEPOSITION

Complete this form every six hours during a release or whenever changing radiological or meteorological conditions.

Accident type : LOCA Gap Activity Fuel Handling SG Tube Rupture Other

Calculate the projected ground deposition using the equation: SECTOR _____

DISTANCE _____ miles

$$Dep_i = Q \times F_i \times \frac{X}{Q} \times Vel_i \times ERD \times 3600$$

TIME _____

- where: Dep_i is the deposition of radionuclide i, curies/m²;
 Q is the gross release rate, curies/s.
 F_i is the activity fraction for radionuclide i, dimensionless. Activity fractions for radionuclides released in the LOCA, Gap Activity, Fuel Handling, and Steam Generator Tube Rupture accident types are listed in Table 7.
 X/Q is the atmospheric dispersion factor, s/m³;
 Vel_i is the deposition velocity for radionuclide i, m/s;
 ERD is the estimated duration of the release, hours. (If unknown, assume 4 hours.)
 3600 is the factor to convert hours to seconds.

Nuclide	Q	F _i	X/Q	Vel _i	ERD	Dep _i
I-131	_____	_____	_____	0.01	_____	_____
I-132	_____	_____	_____	0.01	_____	_____
I-133	_____	_____	_____	0.01	_____	_____
I-134	_____	_____	_____	0.01	_____	_____
I-135	_____	_____	_____	0.01	_____	_____
Rb-88	_____	_____	_____	0.001	_____	_____
Cs-138	_____	_____	_____	0.001	_____	_____

Total Dose _____

NOTE: Deposition at other distances can be calculated by ratioing the X/Q values and multiplying by the deposition calculated above.

Completed By: _____ Date/Time _____ / _____

Route to Dose/PAR Coordinator upon completion.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

- f. Calculate the ground deposition values using the equation:

$$\text{Dep}_i = Q \times F_i \times \frac{X}{Q} \times \text{Vel}_i \times \text{ERD} \times 3600$$

where:

Dep_i	=	deposition of radionuclide i, curies per meter ² ;
Q	=	gross release rate, curies per second;
F_i	=	activity fraction for radionuclide i, dimensionless. Activity fractions for radionuclides released in the LOCA, Gap Activity, Fuel Handling, and Steam Generator Tube Rupture accident types for various time periods post accident are listed in Table 7.
X/Q	=	atmospheric dispersion factor, seconds per m ³ ;
Vel_i	=	deposition velocity of radionuclide i, 0.01 m/s for radioiodines and 0.001 m/s for all other radionuclides;
ERD	=	estimated duration of the release, hours;
3600	=	factor to convert hours to seconds.

- g. Sum the calculated depositions and enter it on Worksheet 5.
h. Sign and date Worksheet 5 and fax to the Dose/PAR Coordinator.

5.5.6 Population Exposure (Worksheet 6)

- a. Calculate the projected population dose by using Worksheet 6.
b. Enter the centerline whole body dose from Worksheet 3, on Worksheet 6.
c. Enter the population figures. Use the population numbers for the sector and distance categories used in the dose calculations.

**WORKSHEET 6
 ESTIMATED POPULATION DOSE**

Complete this form using the calculation from Worksheet 3.

Complete this form every six hours during a release or whenever changing radiological or meteorological conditions.

Calculated Population Dose

Population dose (in person-rem) = Dose (in rem) X Population

<u>Sector</u>	<u>Distance (miles)</u>	<u>Population</u>	<u>Dose (rem)</u>	<u>Population Dose (person-rem)</u>
_____	2	_____	_____	_____
_____	5	_____	_____	_____
_____	10	_____	_____	_____
Total Dose				_____

**Population Figures
 (By Sector and Distance)**

<u>Sector</u>	<u>0 to 2 miles</u>	<u>Distance 2 to 5 miles</u>	<u>5 to 10 miles</u>
A	0	20	231
H	33	45	0
J	19	231	6036
K	22	131	4866
L	15	606	879
M	32	980	632
N	39	403	695
P	29	345	450
Q	41	286	416
R	22	87	435

NOTE: All other sectors have zero population.

Completed By: _____ Date/Time _____ / _____

Route to Dose/PAR Coordinator upon completion.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

- d. Sum the population doses calculated for each radius to calculate the total population dose.
- e. Sign and date Worksheet 6 and fax to the Dose/PAR Coordinator.

5.5.7 Determine Protective Action Recommendations

NOTE: Lake breeze conditions exist if the difference between actual wind direction values for inland and near shore meteorological towers is greater than 90°.

- a. To determine protective action recommendations, evaluate the calculation results with the values in the "Integrated Projected Dose" column below.

NOTE: In some cases (e.g., short-duration puff release, inclement weather), sheltering may be an appropriate recommendation. This should be discussed with the state and/or counties, if appropriate.

INTEGRATED PROJECTED DOSE	PROTECTIVE ACTION	MILES	SECTORS
<1 rem TEDE <u>AND</u> <5 rem CDE at 1 mile	None Required	N/A	N/A
≥1 rem TEDE at 1 mile <u>OR</u> ≥5 rem CDE at 1 mile	Evacuate Evacuate	0-2 Miles 2-5 Miles	All (360°) Downwind Sectors
<3 mph Wind Speed <u>OR</u> Lake Breeze <u>AND</u> ≥1 rem TEDE at 1 mile <u>OR</u> ≥5 rem CDE at 1 mile	Evacuate	0-5 Miles	All (360°)
≥1 rem TEDE at 5 miles <u>OR</u> ≥5 rem CDE at 5 miles	Evacuate Evacuate	0-5 Miles 5-10 Miles	All (360°) Downwind Sectors
<3 mph Wind Speed <u>OR</u> Lake Breeze <u>AND</u> ≥1 rem TEDE at 5 miles <u>OR</u> ≥5 rem CDE at 5 miles	Evacuate	0-10 Miles	All (360°)

- b. Select downwind sectors using Attachment A.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

- 5.5.8 **IF** a General Emergency,
THEN evaluate Attachment B for the potential need to issue expanded PARs.
- 5.5.9 Compare the results against the current classification and PARS.
IF the results of this assessment is an escalation of classification and/or PARS,
THEN immediately inform the Emergency Director and assist with EPIP 2.1 for initiating notifications.

Performed By:	
_____	_____ / _____
Performer (Print and Sign)	Date / Time

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
LOCA SOURCE TERM ACTIVITY FRACTIONS - CONTAINMENT SPRAY NOT USED

Page 1 of 8

Time	I-131	I-132	I-133	I-134	I-135	Kr-85	Kr-85m	Kr-87	Kr-88	Rb-88	Cs-138
0.0	<u>2.46E-02</u>	3.52E-02	<u>5.51E-02</u>	6.42E-02	5.10E-02	0.001	0.043	0.083	0.117	0.000	0.000
0.5	<u>2.75E-02</u>	3.40E-02	<u>6.07E-02</u>	4.82E-02	5.43E-02	0.001	0.044	0.071	0.116	0.084	0.057
1.0	<u>3.08E-02</u>	3.25E-02	<u>6.70E-02</u>	3.61E-02	5.79E-02	0.001	0.046	0.061	0.115	0.113	0.053
1.5	<u>3.40E-02</u>	3.09E-02	<u>7.27E-02</u>	2.69E-02	6.08E-02	0.001	0.047	0.051	0.112	0.120	0.037
2.0	<u>3.69E-02</u>	2.88E-02	<u>7.80E-02</u>	1.96E-02	6.27E-02	0.001	0.047	0.042	0.108	0.119	0.024
2.5	<u>3.96E-02</u>	2.66E-02	<u>8.24E-02</u>	1.41E-02	6.39E-02	0.001	0.047	0.035	0.103	0.114	0.014
3.0	<u>4.20E-02</u>	2.42E-02	<u>8.58E-02</u>	1.01E-02	6.43E-02	0.001	0.046	0.028	0.097	0.108	0.008
4.0	<u>4.63E-02</u>	1.97E-02	<u>9.19E-02</u>	4.99E-03	6.42E-02	0.001	0.043	0.018	0.083	0.093	0.003
5.0	<u>5.00E-02</u>	1.57E-02	<u>9.64E-02</u>	2.44E-03	6.27E-02	0.002	0.040	0.011	0.070	0.079	0.001
6.0	<u>5.33E-02</u>	1.24E-02	<u>9.97E-02</u>	1.17E-03	6.07E-02	0.002	0.037	0.007	0.059	0.066	0.000
7.0	<u>5.62E-02</u>	9.65E-03	<u>1.02E-01</u>	5.58E-04	5.79E-02	0.002	0.033	0.004	0.049	0.054	0.000
8.0	<u>5.90E-02</u>	7.47E-03	<u>1.03E-01</u>	2.64E-04	5.49E-02	0.002	0.030	0.003	0.040	0.045	0.000
9.0	<u>6.13E-02</u>	5.73E-03	<u>1.05E-01</u>	1.24E-04	5.16E-02	0.002	0.027	0.002	0.033	0.036	0.000
10.0	<u>6.35E-02</u>	4.39E-03	<u>1.05E-01</u>	5.80E-05	4.84E-02	0.002	0.024	0.001	0.026	0.030	0.000
12.0	<u>6.74E-02</u>	2.54E-03	<u>1.04E-01</u>	1.25E-05	4.20E-02	0.002	0.018	0.000	0.017	0.019	0.000
18.0	<u>7.60E-02</u>	4.64E-04	<u>9.81E-02</u>	1.19E-07	2.59E-02	0.003	0.008	0.000	0.004	0.005	0.000
24.0	<u>8.19E-02</u>	8.11E-05	<u>8.82E-02</u>	1.08E-09	1.53E-02	0.003	0.004	0.000	0.001	0.001	0.000
30.0	<u>8.65E-02</u>	1.39E-05	<u>7.76E-02</u>	0.000	8.88E-03	0.003	0.001	0.000	0.000	0.000	0.000
36.0	<u>9.02E-02</u>	2.36E-06	<u>6.73E-02</u>	0.000	5.08E-03	0.003	0.001	0.000	0.000	0.000	0.000
42.0	<u>9.34E-02</u>	3.96E-07	<u>5.81E-02</u>	0.000	2.88E-03	0.003	0.000	0.000	0.000	0.000	0.000
48.0	<u>9.60E-02</u>	6.60E-08	<u>4.97E-02</u>	0.000	1.62E-03	0.004	0.000	0.000	0.000	0.000	0.000
72.0	<u>1.04E-01</u>	0.000	<u>2.58E-02</u>	0.000	1.59E-04	0.004	0.000	0.000	0.000	0.000	0.000
96.0	<u>1.10E-01</u>	0.000	<u>1.31E-02</u>	0.000	1.51E-05	0.005	0.000	0.000	0.000	0.000	0.000
120.0	<u>1.15E-01</u>	0.000	<u>6.58E-03</u>	0.000	1.43E-06	0.005	0.000	0.000	0.000	0.000	0.000
144.0	<u>1.20E-01</u>	0.000	<u>3.30E-03</u>	0.000	1.35E-07	0.006	0.000	0.000	0.000	0.000	0.000
168.0	<u>1.25E-01</u>	0.000	<u>1.65E-03</u>	0.000	1.27E-08	0.007	0.000	0.000	0.000	0.000	0.000
336.0	<u>1.63E-01</u>	0.000	<u>1.28E-05</u>	0.000	0.000	0.017	0.000	0.000	0.000	0.000	0.000
504.0	<u>2.06E-01</u>	0.000	<u>9.49E-08</u>	0.000	0.000	0.039	0.000	0.000	0.000	0.000	0.000
672.0	<u>2.49E-01</u>	0.000	<u>0.000</u>	0.000	0.000	0.086	0.000	0.000	0.000	0.000	0.000
720.0	<u>2.60E-01</u>	0.000	<u>0.000</u>	0.000	0.000	0.106	0.000	0.000	0.000	0.000	0.000

- Notes:
1. The activity fractions that are NOT highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are NOT underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do NOT appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
LOCA SOURCE TERM ACTIVITY FRACTIONS - CONTAINMENT SPRAY USED
Page 2 of 8

Time	I-131	I-133	Kr-87	Kr-88	Xe-133	Xe-135	Xe-135m	Xe-138	Rb-88	Cs-138
0.0	<u>3.19E-06</u>	<u>7.16E-06</u>	1.08E-01	1.52E-01	2.85E-01	6.08E-02	7.73E-02	2.52E-01	0.00	0.00
0.5	<u>3.55E-06</u>	<u>7.82E-06</u>	9.17E-02	1.50E-01	3.17E-01	6.92E-02	3.86E-02	8.57E-02	1.09E-01	7.34E-02
1.0	<u>3.97E-06</u>	<u>8.64E-06</u>	7.84E-02	1.48E-01	3.55E-01	7.80E-02	2.81E-02	2.93E-02	1.46E-01	6.84E-02
1.5	<u>4.39E-06</u>	<u>9.38E-06</u>	6.60E-02	1.45E-01	3.92E-01	8.64E-02	2.59E-02	9.90E-03	1.55E-01	4.83E-02
2.0	<u>4.77E-06</u>	<u>1.01E-05</u>	5.47E-02	1.40E-01	4.26E-01	9.36E-02	2.57E-02	3.30E-03	1.54E-01	3.04E-02
2.5	<u>5.12E-06</u>	<u>1.07E-05</u>	4.48E-02	1.33E-01	4.57E-01	1.00E-01	2.59E-02	1.08E-03	1.47E-01	1.80E-02
3.0	<u>5.43E-06</u>	<u>1.11E-05</u>	3.62E-02	1.25E-01	4.85E-01	1.06E-01	2.60E-02	3.51E-04	1.39E-01	1.03E-02
4.0	<u>5.99E-06</u>	<u>1.19E-05</u>	2.32E-02	1.07E-01	5.34E-01	1.15E-01	2.60E-02	3.61E-05	1.20E-01	3.24E-03
5.0	<u>6.47E-06</u>	<u>1.25E-05</u>	1.46E-02	9.08E-02	5.77E-01	1.22E-01	2.54E-02	3.65E-06	1.02E-01	9.70E-04
6.0	<u>6.89E-06</u>	<u>1.29E-05</u>	9.04E-03	7.63E-02	6.14E-01	1.27E-01	2.45E-02	3.63E-07	8.52E-02	2.87E-04
7.0	<u>7.26E-06</u>	<u>1.32E-05</u>	5.54E-03	6.26E-02	6.47E-01	1.30E-01	2.33E-02	0.00	7.03E-02	8.39E-05
8.0	<u>7.61E-06</u>	<u>1.34E-05</u>	3.37E-03	5.15E-02	6.77E-01	1.32E-01	2.21E-02	0.00	5.76E-02	2.41E-05
9.0	<u>7.90E-06</u>	<u>1.35E-05</u>	2.03E-03	4.19E-02	7.02E-01	1.33E-01	2.08E-02	0.00	4.69E-02	6.93E-06
10.0	<u>8.16E-06</u>	<u>1.34E-05</u>	1.22E-03	3.39E-02	7.25E-01	1.33E-01	1.94E-02	0.00	3.79E-02	1.98E-06
12.0	<u>8.60E-06</u>	<u>1.33E-05</u>	4.36E-04	2.19E-02	7.63E-01	1.30E-01	1.67E-02	0.00	2.46E-02	1.59E-07
18.0	<u>9.50E-06</u>	<u>1.23E-05</u>	1.86E-05	5.61E-03	8.37E-01	1.09E-01	1.01E-02	0.00	6.27E-03	0.00
24.0	<u>1.01E-05</u>	<u>1.08E-05</u>	7.60E-07	1.37E-03	8.81E-01	8.41E-02	5.88E-03	0.00	1.53E-03	0.00
30.0	<u>1.05E-05</u>	<u>9.38E-06</u>	3.05E-08	3.31E-04	9.10E-01	6.22E-02	3.35E-03	0.00	3.70E-04	0.00
36.0	<u>1.08E-05</u>	<u>8.04E-06</u>	0.00	7.89E-05	9.30E-01	4.45E-02	1.90E-03	0.00	8.81E-05	0.00
42.0	<u>1.10E-05</u>	6.87E-06	0.00	1.87E-05	9.45E-01	3.14E-02	1.06E-03	0.00	2.10E-05	0.00
48.0	<u>1.13E-05</u>	5.83E-06	0.00	4.41E-06	9.56E-01	2.17E-02	5.94E-04	0.00	4.93E-06	0.00
72.0	<u>1.20E-05</u>	2.96E-06	0.00	1.34E-06	9.75E-01	4.53E-03	5.70E-05	0.00	0.00	0.00
96.0	<u>1.25E-05</u>	1.49E-06	0.00	0.00	9.80E-01	8.84E-04	5.38E-06	0.00	0.00	0.00
120.0	<u>1.31E-05</u>	7.49E-07	0.00	0.00	9.82E-01	1.67E-04	5.08E-07	0.00	0.00	0.00
144.0	<u>1.37E-05</u>	3.77E-07	0.00	0.00	9.83E-01	3.14E-05	0.00	0.00	0.00	0.00
168.0	<u>1.43E-05</u>	0.00	0.00	0.00	9.83E-01	5.84E-06	0.00	0.00	0.00	0.00
336.0	<u>1.95E-05</u>	0.00	0.00	0.00	9.75E-01	0.00	0.00	0.00	0.00	0.00
504.0	<u>2.59E-05</u>	0.00	0.00	0.00	9.46E-01	0.00	0.00	0.00	0.00	0.00
672.0	<u>3.32E-05</u>	0.00	0.00	0.00	8.78E-01	0.00	0.00	0.00	0.00	0.00
720.0	<u>3.51E-05</u>	0.00	0.00	0.00	8.48E-01	0.00	0.00	0.00	0.00	0.00

- Notes:
1. The activity fractions that are NOT highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are NOT underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do NOT appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
GAP ACTIVITY RELEASE SOURCE TERM ACTIVITY FRACTIONS - CONTAINMENT SPRAY NOT USED
Page 3 of 8

Time	I-131	I-133	I-135	Kr-85m	Kr-87	Kr-88	Xe-133	Xe-135	Xe-138	Rb-88	Cs-138
0.0	<u>6.34E-04</u>	<u>1.42E-03</u>	1.31E-03	0.055	0.108	0.151	0.284	0.060	0.250	0.000	0.000
0.5	<u>7.18E-04</u>	<u>1.58E-03</u>	1.41E-03	0.057	0.093	0.151	0.322	0.067	0.086	0.110	0.074
1.0	<u>8.11E-04</u>	<u>1.76E-03</u>	1.51E-03	0.060	0.080	0.151	0.361	0.074	0.030	0.148	0.069
1.5	<u>9.01E-04</u>	<u>1.92E-03</u>	1.60E-03	0.062	0.068	0.149	0.402	0.080	0.010	0.159	0.049
2.0	<u>9.82E-04</u>	<u>2.07E-03</u>	1.66E-03	0.062	0.056	0.144	0.439	0.084	3.38E-03	0.158	0.031
2.5	<u>1.06E-03</u>	<u>2.20E-03</u>	1.71E-03	0.062	0.046	0.137	0.471	0.088	1.12E-03	0.153	0.019
3.0	<u>1.13E-03</u>	<u>2.31E-03</u>	1.73E-03	0.062	0.038	0.129	0.502	0.090	3.63E-04	0.144	0.011
4.0	<u>1.25E-03</u>	<u>2.48E-03</u>	1.73E-03	0.058	0.024	0.112	0.558	0.093	3.75E-05	0.125	0.003
5.0	<u>1.36E-03</u>	<u>2.62E-03</u>	1.70E-03	0.055	0.015	0.096	0.605	0.094	3.82E-06	0.107	0.001
6.0	<u>1.46E-03</u>	<u>2.73E-03</u>	1.66E-03	0.050	0.010	0.081	0.646	0.094	3.84E-07	0.090	0.000
7.0	<u>1.55E-03</u>	<u>2.79E-03</u>	1.58E-03	0.045	0.006	0.067	0.685	0.093	0.000	0.075	0.000
8.0	<u>1.63E-03</u>	<u>2.85E-03</u>	1.50E-03	0.041	0.004	0.055	0.717	0.091	0.000	0.062	0.000
9.0	<u>1.69E-03</u>	<u>2.87E-03</u>	1.41E-03	0.037	0.002	0.045	0.747	0.088	0.000	0.050	0.000
10.0	<u>1.75E-03</u>	<u>2.89E-03</u>	1.33E-03	0.033	0.001	0.036	0.772	0.085	0.000	0.041	0.000
12.0	<u>1.85E-03</u>	<u>2.87E-03</u>	1.15E-03	0.025	0.000	0.024	0.813	0.078	0.000	0.026	0.000
18.0	<u>2.05E-03</u>	<u>2.65E-03</u>	6.96E-04	0.011	0.000	0.006	0.885	0.056	0.000	0.007	0.000
24.0	<u>2.15E-03</u>	<u>2.31E-03</u>	3.99E-04	0.005	0.000	0.001	0.919	0.038	0.000	0.002	0.000
30.0	<u>2.21E-03</u>	<u>1.97E-03</u>	2.26E-04	0.002	0.000	0.000	0.937	0.026	0.000	0.000	0.000
36.0	<u>2.26E-03</u>	<u>1.69E-03</u>	1.27E-04	0.001	0.000	0.000	0.948	0.017	0.000	0.000	0.000
42.0	<u>2.30E-03</u>	<u>1.42E-03</u>	7.06E-05	0.000	0.000	0.000	0.955	0.011	0.000	0.000	0.000
48.0	<u>2.33E-03</u>	<u>1.21E-03</u>	3.94E-05	0.000	0.000	0.000	0.959	7.47E-03	0.000	0.000	0.000
72.0	<u>2.46E-03</u>	6.09E-04	3.75E-06	0.000	0.000	0.000	0.967	1.40E-03	0.000	0.000	0.000
96.0	<u>2.56E-03</u>	3.07E-04	3.53E-07	0.000	0.000	0.000	0.968	2.59E-04	0.000	0.000	0.000
120.0	<u>2.68E-03</u>	1.54E-04	3.34E-08	0.000	0.000	0.000	0.968	4.81E-05	0.000	0.000	0.000
144.0	<u>2.80E-03</u>	7.72E-05	3.14E-09	0.000	0.000	0.000	0.967	8.85E-06	0.000	0.000	0.000
168.0	<u>2.93E-03</u>	3.86E-05	0.000	0.000	0.000	0.000	0.965	1.63E-06	0.000	0.000	0.000
336.0	<u>3.89E-03</u>	3.03E-07	0.000	0.000	0.000	0.000	0.933	1.16E-11	0.000	0.000	0.000
504.0	<u>4.91E-03</u>	2.26E-09	0.000	0.000	0.000	0.000	0.854	0.000	0.000	0.000	0.000
672.0	<u>5.57E-03</u>	0.000	0.000	0.000	0.000	0.000	0.704	0.000	0.000	0.000	0.000
720.0	<u>5.62E-03</u>	0.000	0.000	0.000	0.000	0.000	0.649	0.000	0.000	0.000	0.000

- Notes:
1. The activity fractions that are NOT highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are NOT underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do NOT appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
GAP ACTIVITY RELEASE SOURCE TERM ACTIVITY FRACTIONS - CONTAINMENT SPRAY USED
Page 4 of 8

Time	I-131	I-133	Kr-87	Kr-88	Xe-133	Xe-135	Xe-138	Rb-88	Cs-138
0.0	<u>6.38E-08</u>	<u>1.43E-07</u>	1.08E-01	1.52E-01	2.86E-01	6.06E-02	2.51E-01	0.00	0.00
0.5	<u>7.22E-08</u>	<u>1.59E-07</u>	9.31E-02	1.52E-01	3.24E-01	6.78E-02	8.67E-02	1.10E-01	7.45E-02
1.0	<u>8.15E-08</u>	<u>1.77E-07</u>	8.03E-02	1.52E-01	3.63E-01	7.46E-02	3.00E-02	1.49E-01	6.98E-02
1.5	<u>9.06E-08</u>	<u>1.94E-07</u>	6.81E-02	1.50E-01	4.04E-01	8.01E-02	1.02E-02	1.60E-01	4.95E-02
2.0	<u>9.87E-08</u>	<u>2.08E-07</u>	5.65E-02	1.44E-01	4.42E-04	8.45E-02	3.40E-03	1.59E-01	3.13E-02
2.5	<u>1.07E-07</u>	<u>2.22E-07</u>	4.66E-02	1.38E-01	4.74E-01	8.81E-02	1.12E-03	1.54E-01	1.87E-02
3.0	<u>1.13E-07</u>	<u>2.32E-07</u>	3.78E-02	1.30E-01	5.05E-01	9.04E-02	3.65E-04	1.45E-01	1.08E-02
4.0	<u>1.26E-07</u>	<u>2.49E-07</u>	2.44E-02	1.13E-01	5.61E-01	9.36E-02	3.78E-05	1.26E-01	3.38E-03
5.0	<u>1.37E-07</u>	<u>2.63E-07</u>	1.55E-02	9.64E-02	6.08E-01	9.48E-02	3.84E-06	1.08E-01	1.03E-03
6.0	<u>1.47E-07</u>	<u>2.75E-07</u>	9.64E-03	8.13E-02	6.50E-01	9.46E-02	0.00	9.06E-02	3.05E-04
7.0	<u>1.56E-07</u>	<u>2.81E-07</u>	5.92E-03	6.70E-02	6.89E-01	9.35E-02	0.00	7.50E-02	8.92E-05
8.0	<u>1.64E-07</u>	<u>2.87E-07</u>	3.62E-03	5.54E-02	7.21E-01	9.16E-02	0.00	6.19E-02	2.59E-05
9.0	<u>1.70E-07</u>	<u>2.89E-07</u>	2.19E-03	4.50E-02	7.51E-01	8.87E-02	0.00	5.04E-02	7.45E-06
10.0	<u>1.76E-07</u>	<u>2.91E-07</u>	1.32E-03	3.66E-02	7.76E-01	8.54E-02	0.00	4.10E-02	2.12E-06
12.0	<u>1.86E-07</u>	<u>2.89E-07</u>	4.71E-04	2.37E-02	8.18E-01	7.81E-02	0.00	2.66E-02	0.00
18.0	<u>2.06E-07</u>	<u>2.66E-07</u>	2.02E-05	6.07E-03	8.90E-01	5.65E-02	0.00	6.79E-03	0.00
24.0	<u>2.16E-07</u>	<u>2.32E-07</u>	0.00	1.47E-03	9.24E-01	3.85E-02	0.00	1.64E-03	0.00
30.0	<u>2.22E-07</u>	<u>1.98E-07</u>	0.00	3.50E-04	9.42E-01	2.58E-02	0.00	3.92E-04	0.00
36.0	<u>2.27E-07</u>	<u>1.69E-07</u>	0.00	8.29E-05	9.52E-01	1.71E-02	0.00	9.26E-05	0.00
42.0	<u>2.31E-07</u>	<u>1.43E-07</u>	0.00	1.95E-05	9.59E-01	1.14E-02	0.00	2.18E-05	0.00
48.0	<u>2.34E-07</u>	1.21E-07	0.00	4.58E-06	9.63E-01	7.50E-03	0.00	5.13E-06	0.00
72.0	<u>2.46E-07</u>	6.11E-08	0.00	0.00	9.70E-01	1.40E-03	0.00	0.00	0.00
96.0	<u>2.57E-07</u>	3.08E-08	0.00	0.00	9.71E-01	2.60E-04	0.00	0.00	0.00
120.0	<u>2.69E-07</u>	1.54E-08	0.00	0.00	9.71E-01	4.82E-05	0.00	0.00	0.00
144.0	<u>2.81E-07</u>	0.00	0.00	0.00	9.70E-01	8.88E-06	0.00	0.00	0.00
168.0	<u>2.94E-07</u>	0.00	0.00	0.00	9.68E-01	1.64E-06	0.00	0.00	0.00
336.0	<u>3.90E-07</u>	0.00	0.00	0.00	9.37E-01	0.00	0.00	0.00	0.00
504.0	<u>4.93E-07</u>	0.00	0.00	0.00	8.58E-01	0.00	0.00	0.00	0.00
672.0	<u>5.60E-07</u>	0.00	0.00	0.00	7.08E-01	0.00	0.00	0.00	0.00
720.0	<u>5.65E-07</u>	0.00	0.00	0.00	6.52E-01	0.00	0.00	0.00	0.00

- Notes:
1. The activity fractions that are NOT highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are NOT underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do NOT appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
FUEL HANDLING ACCIDENT SOURCE TERM ACTIVITY FRACTIONS - CONTAINMENT SPRAY NOT USED
Page 5 of 8

Time	I-131	I-132	I-133	I-134	I-135	Kr-85	Kr-85m	Kr-87	Xe-133	Rb-88	Cs-138
0.0	<u>2.17E-03</u>	0.000	2.59E-04	0.000	3.03E-07	0.014	0.000	0.000	0.963	0.000	0.000
0.5	<u>2.17E-03</u>	0.000	2.55E-04	0.000	2.88E-07	0.014	0.000	0.000	0.964	0.000	0.000
1.0	<u>2.17E-03</u>	0.000	2.52E-04	0.000	2.75E-07	0.014	0.000	0.000	0.964	0.000	0.000
1.5	<u>2.17E-03</u>	0.000	2.48E-04	0.000	2.62E-07	0.014	0.000	0.000	0.964	0.000	0.000
2.0	<u>2.18E-03</u>	0.000	2.45E-04	0.000	2.50E-07	0.014	0.000	0.000	0.964	0.000	0.000
2.5	<u>2.18E-03</u>	0.000	2.41E-04	0.000	2.37E-07	0.014	0.000	0.000	0.964	0.000	0.000
3.0	<u>2.18E-03</u>	0.000	2.38E-04	0.000	2.25E-07	0.015	0.000	0.000	0.964	0.000	0.000
4.0	<u>2.18E-03</u>	0.000	2.30E-04	0.000	2.05E-07	0.015	0.000	0.000	0.964	0.000	0.000
5.0	<u>2.19E-03</u>	0.000	2.24E-04	0.000	1.86E-07	0.015	0.000	0.000	0.964	0.000	0.000
6.0	<u>2.19E-03</u>	0.000	2.18E-04	0.000	1.69E-07	0.015	0.000	0.000	0.964	0.000	0.000
7.0	<u>2.21E-03</u>	0.000	2.12E-04	0.000	1.52E-07	0.015	0.000	0.000	0.964	0.000	0.000
8.0	<u>2.21E-03</u>	0.000	2.05E-04	0.000	1.38E-07	0.015	0.000	0.000	0.965	0.000	0.000
9.0	<u>2.20E-03</u>	0.000	2.00E-04	0.000	1.25E-07	0.015	0.000	0.000	0.965	0.000	0.000
10.0	<u>2.22E-03</u>	0.000	1.95E-04	0.000	1.13E-07	0.015	0.000	0.000	0.965	0.000	0.000
12.0	<u>2.22E-03</u>	0.000	1.83E-04	0.000	9.33E-08	0.015	0.000	0.000	0.965	0.000	0.000
18.0	<u>2.25E-03</u>	0.000	1.55E-04	0.000	5.18E-08	0.016	0.000	0.000	0.966	0.000	0.000
24.0	<u>2.27E-03</u>	0.000	1.30E-04	0.000	2.87E-08	0.016	0.000	0.000	0.966	0.000	0.000
30.0	<u>2.31E-03</u>	0.000	1.10E-04	0.000	1.60E-08	0.017	0.000	0.000	0.966	0.000	0.000
36.0	<u>2.32E-03</u>	0.000	9.24E-05	0.000	8.83E-09	0.017	0.000	0.000	0.966	0.000	0.000
42.0	<u>2.35E-03</u>	0.000	7.77E-05	0.000	4.89E-09	0.018	0.000	0.000	0.966	0.000	0.000
48.0	<u>2.37E-03</u>	0.000	6.53E-05	0.000	2.71E-09	0.019	0.000	0.000	0.966	0.000	0.000
72.0	<u>2.48E-03</u>	0.000	3.28E-05	0.000	0.000	0.021	0.000	0.000	0.965	0.000	0.000
96.0	<u>2.59E-03</u>	0.000	1.64E-05	0.000	0.000	0.024	0.000	0.000	0.963	0.000	0.000
120.0	<u>2.71E-03</u>	0.000	8.24E-06	0.000	0.000	0.027	0.000	0.000	0.961	0.000	0.000
144.0	<u>2.82E-03</u>	0.000	4.13E-06	0.000	0.000	0.031	0.000	0.000	0.958	0.000	0.000
168.0	<u>2.94E-03</u>	0.000	2.07E-06	0.000	0.000	0.035	0.000	0.000	0.955	0.000	0.000
336.0	<u>3.84E-03</u>	0.000	1.59E-08	0.000	0.000	0.084	0.000	0.000	0.907	0.000	0.000
504.0	<u>4.66E-03</u>	0.000	0.000	0.000	0.000	0.187	0.000	0.000	0.802	0.000	0.000
672.0	<u>5.00E-03</u>	0.000	0.000	0.000	0.000	0.364	0.000	0.000	0.623	0.000	0.000
720.0	<u>4.92E-03</u>	0.000	0.000	0.000	0.000	0.427	0.000	0.000	0.560	0.000	0.000

- Notes:
1. The activity fractions that are NOT highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are NOT underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do NOT appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
FUEL HANDLING ACCIDENT SOURCE TERM ACTIVITY FRACTIONS - CONTAINMENT SPRAY USED

Page 6 of 8

Time	<u>I-131</u>	<u>Xe-133</u>
0.0	<u>2.17E-07</u>	9.66E-01
0.5	<u>2.18E-07</u>	9.66E-01
1.0	<u>2.17E-07</u>	9.66E-01
1.5	<u>2.18E-07</u>	9.66E-01
2.0	<u>2.19E-07</u>	9.66E-01
2.5	<u>2.18E-07</u>	9.66E-01
3.0	<u>2.19E-07</u>	9.66E-01
4.0	<u>2.20E-07</u>	9.67E-01
5.0	<u>2.20E-07</u>	9.67E-01
6.0	<u>2.20E-07</u>	9.67E-01
7.0	<u>2.21E-07</u>	9.67E-01
8.0	<u>2.21E-07</u>	9.67E-01
9.0	<u>2.21E-07</u>	9.67E-01
10.0	<u>2.22E-07</u>	9.67E-01
12.0	<u>2.22E-07</u>	9.67E-01
18.0	<u>2.26E-07</u>	9.68E-01
24.0	<u>2.28E-07</u>	9.68E-01
30.0	<u>2.31E-07</u>	9.68E-01
36.0	<u>2.33E-07</u>	9.68E-01
42.0	<u>2.36E-07</u>	9.68E-01
48.0	<u>2.37E-07</u>	9.68E-01
72.0	<u>2.49E-07</u>	9.68E-01
96.0	<u>2.59E-07</u>	9.66E-01
120.0	<u>2.71E-07</u>	9.64E-01
144.0	<u>2.83E-07</u>	9.61E-01
168.0	<u>2.94E-07</u>	9.58E-01
336.0	<u>3.85E-07</u>	9.10E-01
504.0	<u>4.68E-07</u>	8.06E-01
672.0	<u>5.02E-07</u>	6.26E-01
720.0	<u>4.94E-07</u>	5.63E-01

- Notes:
1. The activity fractions that are NOT highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are NOT underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do NOT appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
STEAM GENERATOR TUBE RUPTURE SOURCE TERM - - RELEASE MODE - THROUGH THE CONDENSER - ACTIVITY FRACTIONS

Page 7 of 8

Time	I-131	I-133	I-135	Kr-85	Kr-85m	Kr-88	Xe-133	Xe-135	Xe-138	Rb-88	Cs-138
0.0	<u>3.92E-08</u>	<u>3.05E-08</u>	3.16E-08	0.933	0.030	0.008	0.011	4.03E-03	0.013	0.000	0.000
0.5	<u>3.93E-08</u>	<u>3.00E-08</u>	3.02E-08	0.937	0.028	0.007	0.011	3.90E-03	0.004	4.90E-03	3.43E-03
1.0	<u>3.94E-08</u>	<u>2.98E-08</u>	2.88E-08	0.943	0.026	0.006	0.011	3.77E-03	1.24E-03	5.89E-03	2.87E-03
1.5	<u>3.95E-08</u>	<u>2.94E-08</u>	2.75E-08	0.947	0.024	0.005	0.011	3.65E-03	3.78E-04	5.71E-03	1.84E-03
2.0	<u>3.96E-08</u>	<u>2.90E-08</u>	2.61E-08	0.952	0.023	0.005	0.011	3.53E-03	1.16E-04	5.22E-03	1.06E-03
2.5	<u>3.98E-08</u>	<u>2.86E-08</u>	2.50E-08	0.955	0.021	0.004	0.011	3.41E-03	3.55E-05	4.67E-03	5.92E-04
3.0	<u>3.97E-08</u>	<u>2.81E-08</u>	2.37E-08	0.955	0.019	0.004	0.011	3.28E-03	1.08E-05	4.14E-03	3.20E-04
4.0	<u>3.99E-08</u>	<u>2.74E-08</u>	2.15E-08	0.963	0.017	0.003	0.011	3.08E-03	1.02E-06	3.27E-03	9.06E-05
5.0	<u>3.99E-08</u>	<u>2.66E-08</u>	1.95E-08	0.967	0.014	0.002	0.011	2.86E-03	9.51E-08	2.56E-03	2.54E-05
6.0	<u>3.98E-08</u>	<u>2.58E-08</u>	1.76E-08	0.970	0.012	0.002	0.011	2.66E-03	8.89E-09	2.01E-03	7.02E-06
7.0	<u>3.99E-08</u>	<u>2.50E-08</u>	1.59E-08	0.973	0.011	0.001	0.011	2.47E-03	0.00	1.57E-03	1.94E-06
8.0	<u>3.98E-08</u>	<u>2.42E-08</u>	1.44E-08	0.976	0.009	0.001	0.011	2.30E-03	0.00	1.23E-03	0.00
9.0	<u>3.97E-08</u>	<u>2.35E-08</u>	1.30E-08	0.978	0.008	0.001	0.010	2.14E-03	0.00	9.61E-04	0.00
10.0	<u>3.96E-08</u>	<u>2.27E-08</u>	1.18E-08	0.979	0.007	0.001	0.010	1.98E-03	0.00	7.53E-04	0.00
12.0	<u>3.95E-08</u>	<u>2.13E-08</u>	9.57E-09	0.982	0.005	0.00	0.010	1.71E-03	0.00	4.60E-04	0.00
18.0	<u>3.89E-08</u>	1.74E-08	5.17E-09	0.987	0.002	0.00	0.010	1.09E-03	0.00	1.04E-04	0.00
24.0	<u>3.81E-08</u>	1.42E-08	2.78E-09	0.989	0.001	0.00	9.80E-03	6.92E-04	0.00	2.38E-05	0.00
30.0	<u>3.73E-08</u>	1.16E-08	1.49E-09	0.990	0.00	0.00	9.48E-03	4.39E-04	0.00	5.38E-06	0.00
36.0	<u>3.65E-08</u>	9.48E-09	8.01E-10	0.990	0.00	0.00	9.24E-03	2.79E-04	0.00	1.22E-06	0.00
42.0	<u>3.58E-08</u>	7.72E-09	4.30E-10	0.991	0.00	0.00	8.91E-03	1.77E-04	0.00	0.00	0.00
48.0	<u>3.51E-08</u>	6.29E-09	0.00	0.991	0.00	0.00	8.66E-03	1.12E-04	0.00	0.00	0.00
72.0	<u>3.22E-08</u>	2.78E-09	0.00	0.992	0.00	0.00	7.57E-03	1.83E-05	0.00	0.00	0.00
96.0	<u>2.95E-08</u>	1.23E-09	0.00	0.993	0.00	0.00	6.64E-03	2.96E-06	0.00	0.00	0.00
120.0	<u>2.71E-08</u>	5.40E-10	0.00	0.994	0.00	0.00	5.83E-03	0.00	0.00	0.00	0.00
144.0	<u>2.49E-08</u>	2.38E-10	0.00	0.995	0.00	0.00	5.11E-03	0.00	0.00	0.00	0.00
168.0	<u>2.28E-08</u>	1.05E-10	0.00	0.996	0.00	0.00	4.48E-03	0.00	0.00	0.00	0.00
336.0	<u>1.26E-08</u>	3.40E-13	0.00	0.998	0.00	0.00	1.79E-03	0.00	0.00	0.00	0.00
504.0	<u>6.87E-09</u>	0.00	0.00	0.999	0.00	0.00	7.09E-04	0.00	0.00	0.00	0.00
672.0	<u>3.80E-09</u>	0.00	0.00	1.000	0.00	0.00	2.84E-04	0.00	0.00	0.00	0.00
720.0	<u>3.19E-09</u>	0.00	0.00	1.000	0.00	0.00	2.18E-04	0.00	0.00	0.00	0.00

- Notes:
1. The activity fractions that are NOT highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are NOT underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do NOT appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION RECOMMENDATIONS

TABLE 7
STEAM GENERATOR TUBE RUPTURE SOURCE TERM - - RELEASE MODE - NOT THROUGH THE CONDENSER - ACTIVITY FRACTIONS

Page 8 of 8

Time	I-131	I-133	I-135	Kr-85	Kr-85m	Kr-88	Xe-133	Xe-135	Xe-138	Rb-88	Cs-138
0.0	<u>3.92E-04</u>	<u>3.05E-04</u>	3.16E-04	0.933	0.030	0.008	0.011	4.03E-03	0.013	0.00	0.00
0.5	<u>3.93E-04</u>	<u>3.00E-04</u>	3.01E-04	0.937	0.028	0.007	0.011	3.90E-03	0.004	4.89E-03	3.43E-03
1.0	<u>3.94E-04</u>	<u>2.98E-04</u>	2.87E-04	0.943	0.026	0.006	0.011	3.77E-03	1.24E-03	5.89E-03	2.86E-03
1.5	<u>3.95E-04</u>	<u>2.94E-04</u>	2.74E-04	0.947	0.024	0.005	0.011	3.65E-03	3.78E-04	5.70E-03	1.84E-03
2.0	<u>3.96E-04</u>	<u>2.90E-04</u>	2.61E-04	0.952	0.023	0.005	0.011	3.53E-03	1.16E-04	5.22E-03	1.06E-03
2.5	<u>3.98E-04</u>	<u>2.86E-04</u>	2.49E-04	0.955	0.021	0.004	0.011	3.41E-03	3.55E-05	4.67E-03	5.91E-04
3.0	<u>3.97E-04</u>	<u>2.81E-04</u>	2.37E-04	0.955	0.019	0.004	0.011	3.28E-03	1.08E-05	4.14E-03	3.19E-03
4.0	<u>3.99E-04</u>	<u>2.74E-04</u>	2.15E-04	0.963	0.017	0.003	0.011	3.08E-03	1.02E-06	3.27E-03	9.05E-05
5.0	<u>3.99E-04</u>	<u>2.66E-04</u>	1.95E-04	0.967	0.014	0.002	0.011	2.86E-03	9.51E-08	2.56E-03	2.53E-05
6.0	<u>3.98E-04</u>	<u>2.58E-04</u>	1.76E-04	0.970	0.012	0.002	0.011	2.66E-03	8.89E-09	2.00E-03	7.01E-06
7.0	<u>3.99E-04</u>	<u>2.50E-04</u>	1.59E-04	0.973	0.011	0.001	0.011	2.47E-03	0.00	1.57E-03	1.94E-06
8.0	<u>3.98E-04</u>	<u>2.42E-04</u>	1.44E-04	0.976	0.009	0.001	0.011	2.30E-03	0.00	1.23E-03	0.00
9.0	<u>3.97E-04</u>	<u>2.35E-04</u>	1.30E-04	0.978	0.008	0.001	0.010	2.14E-03	0.00	9.60E-04	0.00
10.0	<u>3.96E-04</u>	<u>2.27E-04</u>	1.18E-04	0.979	0.007	0.001	0.010	1.98E-03	0.00	7.52E-04	0.00
12.0	<u>3.95E-04</u>	2.13E-04	9.57E-05	0.982	0.005	0.00	0.010	1.71E-03	0.00	4.59E-04	0.00
18.0	<u>3.89E-04</u>	1.74E-04	5.16E-05	0.987	0.002	0.00	0.010	1.09E-03	0.00	1.04E-04	0.00
24.0	<u>3.81E-04</u>	1.42E-04	2.77E-05	0.989	0.001	0.00	9.80E-03	6.92E-04	0.00	2.37E-05	0.00
30.0	<u>3.73E-04</u>	1.16E-04	1.49E-05	0.990	0.00	0.00	9.48E-03	4.39E-04	0.00	5.38E-06	0.00
36.0	<u>3.65E-04</u>	9.48E-05	8.00E-06	0.990	0.00	0.00	9.24E-03	2.79E-04	0.00	1.22E-06	0.00
42.0	<u>3.58E-04</u>	7.72E-05	4.29E-06	0.991	0.00	0.00	8.91E-03	1.77E-04	0.00	0.00	0.00
48.0	<u>3.51E-04</u>	6.29E-05	2.31E-06	0.991	0.00	0.00	8.66E-03	1.12E-04	0.00	0.00	0.00
72.0	<u>3.22E-04</u>	2.78E-05	0.00	0.992	0.00	0.00	7.57E-03	1.83E-05	0.00	0.00	0.00
96.0	<u>2.95E-04</u>	1.23E-05	0.00	0.993	0.00	0.00	6.64E-03	2.96E-06	0.00	0.00	0.00
120.0	<u>2.71E-04</u>	5.40E-06	0.00	0.994	0.00	0.00	5.83E-03	0.00	0.00	0.00	0.00
144.0	<u>2.49E-04</u>	2.38E-06	0.00	0.995	0.00	0.00	5.11E-03	0.00	0.00	0.00	0.00
168.0	<u>2.28E-04</u>	1.05E-06	0.00	0.996	0.00	0.00	4.48E-03	0.00	0.00	0.00	0.00
336.0	<u>1.26E-04</u>	3.40E-09	0.00	0.998	0.00	0.00	1.79E-03	0.00	0.00	0.00	0.00
504.0	<u>6.87E-05</u>	0.00	0.00	0.999	0.00	0.00	7.09E-04	0.00	0.00	0.00	0.00
672.0	<u>3.80E-05</u>	0.00	0.00	1.000	0.00	0.00	2.84E-04	0.00	0.00	0.00	0.00
720.0	<u>3.19E-05</u>	0.00	0.00	1.000	0.00	0.00	2.18E-04	0.00	0.00	0.00	0.00

- Notes:
1. The activity fractions that are **NOT** highlighted contribute less than ten percent of the whole body dose.
 2. The activity fractions that are **NOT** underlined contribute less than ten percent of the thyroid dose.
 3. Radionuclides that do **NOT** appear in the table contribute less than ten percent of the whole body and thyroid dose totals.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

6.0 REFERENCES

- 6.1 EDS Report to Wisconsin Electric Power Company concerning NUREG-0578, March 7, 1980.
- 6.2 EPIP 1.1, Course of Actions
- 6.3 EPIP 2.1, Notifications - ERO, State & Counties, and NRC
- 6.4 ETD 02, Offsite Agency Call List.
- 6.5 NUREG/BR-0150, Volume 1, Revision 4, RTM-96, Response Technical Manual, Figures A-5 and A-6, March 1996.
- 6.6 Radiation Monitoring System Alarm Setpoint & Response Book
- 6.7 Radiological Engineer to Plant Manager/EP Coordinator memo dated June 13, 1988.
- 6.8 Reactor Engineer to Plant Manager memo dated April 6, 1984.
- 6.9 TID 14844, Calculation of Distance Factors for Power and Test Reactor Sites, March 23, 1962.
- 6.10 U. S. NRC Regulatory Guide 1.109, Calculation of Annual Doses to Man from Routine Release of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I, Revision 1, October 1977.
- 6.11 U. S. NRC Regulatory Guide 1.4, Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss-of Coolant Accident for Pressurized Water Reactors, Revision 2, June 1976.

7.0 BASES

- B-1 NUREG-0654, Revision 1, Supp. 3, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, July, 1996.
- B-2 Point Beach Nuclear Plant, Emergency Plan, Appendix J, Evacuation Time Estimates for the Area Surrounding the Point Beach Nuclear Plant.
- B-3 IE Information Notice No. 83-28, Criteria for Protective Action Recommendations for General Emergencies.
- B-4 EPA 400-R-92-001, Manual of Protective Action Guidelines for Nuclear Incidents, May, 1992.

ATTACHMENT A
AFFECTED SECTORS BASED ON WIND DIRECTION

NOTE: If wind speed is less than three (3) mph or lake breeze conditions exist, then recommend protective actions for all sectors (360°) 0-5 miles. Lake breeze conditions exist if the difference between actual wind direction values for inland and near shore meteorological towers is greater than 90°.

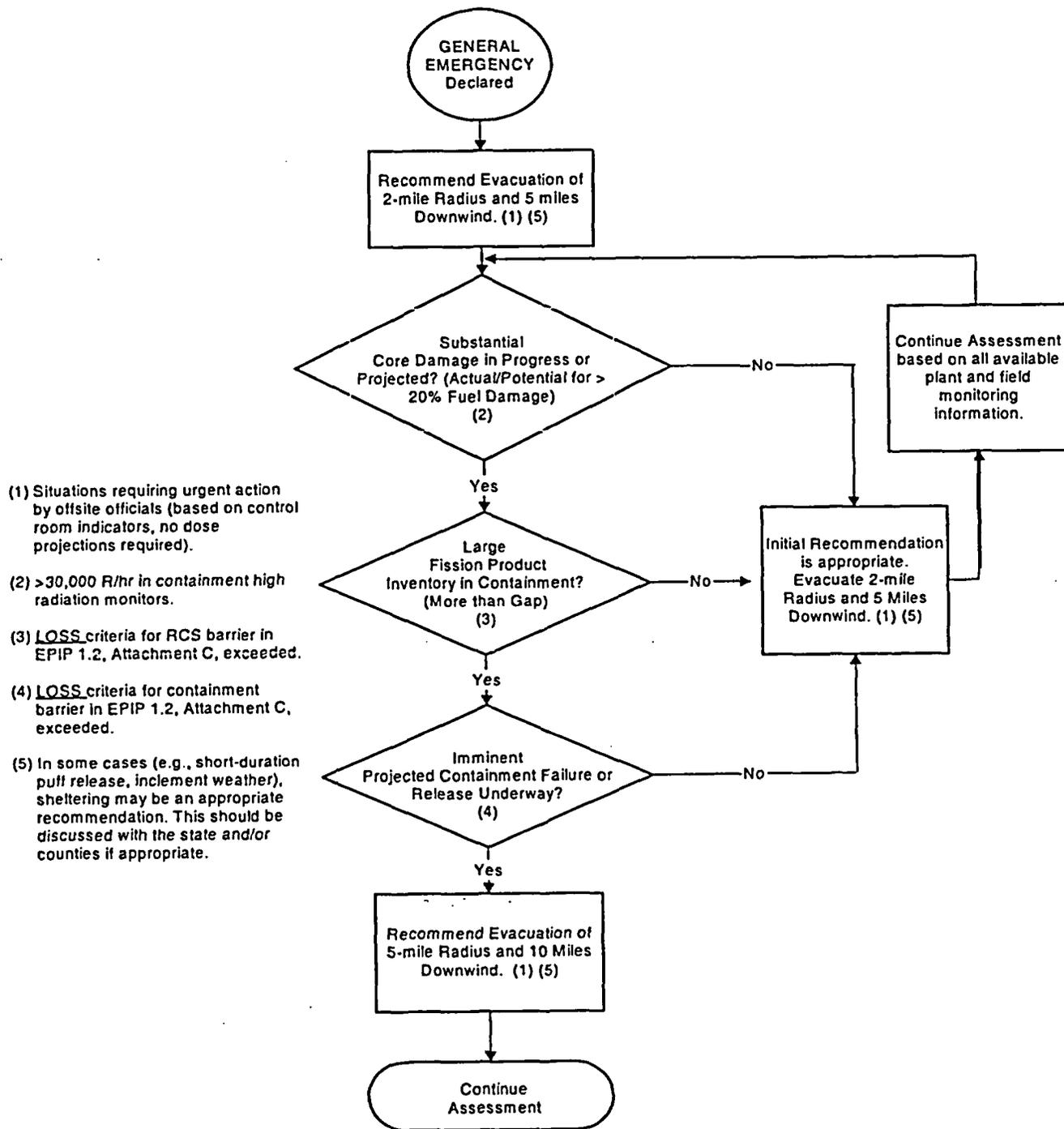
<u>Wind Direction* (Degrees From)</u>	<u>Affected Downwind Sectors</u>
>351 - 9 (>351 - 369**)	H, J, K
>9 - 13 (>369 - 373**)	H, J, K, L
>13 - 32 (>373 - 396**)	J, K, L
>32 - 36 (>392 - 396**)	J, K, L, M
>36 - 54 (>396 - 414**)	K, L, M
>54 - 58 (>414 - 418**)	K, L, M, N
>58 - 77 (>418 - 437**)	L, M, N
>77 - 81 (>437 - 441**)	L, M, N, P
>81 - 99 (>441 - 459**)	M, N, P
>99 - 103 (>459 - 463**)	M, N, P, Q
>103 - 122 (>463 - 482**)	N, P, Q
>122 - 126 (>482 - 486**)	N, P, Q, R
>126 - 144 (>486 - 504**)	P, Q, R
>144 - 148 (>504 - 508**)	P, Q, R, A
>148 - 167 (>508 - 527**)	Q, R, A
>167 - 171 (>527 - 531**)	Q, R, A, B
>171 - 189 (>531 - 549**)	R, A, B
>189 - 193	R, A, B, C
>193 - 212	A, B, C
>212 - 216	A, B, C, D
>216 - 234	B, C, D
>234 - 238	B, C, D, E
>238 - 257	C, D, E
>257 - 261	C, D, E, F
>261 - 279	D, E, F
>279 - 283	D, E, F, G
>283 - 302	E, F, G
>302 - 306	E, F, G, H
>306 - 324	F, G, H
>324 - 328	F, G, H, J
>328 - 347	G, H, J
>347 - 351	G, H, J, K

* As read on PPCS or Control Room instruments.

** > 360 as read on chart recorder.

DOSE ASSESSMENT AND PROTECTIVE ACTION
RECOMMENDATIONS

ATTACHMENT B
GENERAL EMERGENCY OFFSITE PROTECTIVE ACTIONS



ATTACHMENT C
REINSTALLATION OF WEDAP SOFTWARE

1.0 NOTEBOOK PERSONAL COMPUTER (PC) ACCESS

The Wisconsin Electric Dose Assessment Program (WEDAP) is a resident of the hard drive of the Level A notebook personal computers (PC) in the Control Room and EOF (TSC as a backup) dose assessment areas. The directory location is "J:\Apps\NP\WEDAP".

- 1.1 **IF** the WEDAP directory and files are **NOT** found on the hard drive of the notebook PC in the EOF (TSC),
THEN the notebook PC must be recloned and WEDAP reinstalled using the CD-Roms located in the EOF (TSC) inventory cabinet.

1.1.1 Recloning the notebook PC

- a. Insert the cloning "Install" CD-Rom.
- b. Reboot the notebook PC.
- c. Wait for the prompt, following any instruction prompts given.

1.1.2 Installing WEDAP from the cloning CD.

- a. Insert the "WEDAP" application CD-Rom.
- b. Select the "Start Bar - Enterprise Applications - Application Install - Install/Update Application" (top choice).
- c. Click on "Install" to run the auto-install.

- 1.2 Return to EPIP 1.3, Step 5.2.1
OR IF WEDAP is still unavailable,
THEN perform manual calculations per EPIP 1.3, Step 5.4.

2.0 PRINTING DATA TO LOCAL PRINTER IN THE EOF (TSC)

- 2.1 Ensure the laserjet printer in the EOF (TSC) is connected to the notebook PC via the printer cable and the printer is in the "ON" position.
- 2.2 From WEDAP, select "File - Print" **OR** the "Printer Icon" to print a case.

ATTACHMENT C
REINSTALLATION OF WEDAP SOFTWARE

- 2.3 Return to EPIP 1.3, Step 5.2.20 IF able to print.
- 2.4 IF still unable to print,
THEN reset the printer connection.
- 2.4.1 Select "Start - Settings - Printers - HP LaserJet 4000" and verify the printer properties have LPT1 selected for the port connection.
- 2.4.2 From WEDAP, select "File - Print" OR the "Printer Icon" to print a case.
- 2.4.3 Return to EPIP 1.3, Step 5.2.20 IF able to print.
- 2.5 IF still unable to print,
THEN reinstall the printer drivers.
- 2.5.1 Obtain the cloning "Install" CD-Rom from the EOF (TSC) inventory cabinet and place in the notebook PC while still logged on.
- 2.5.2 Select Start - Settings - Printers
- 2.5.3 Execute "Add Local Printer"
- 2.5.4 Select "My Computer" and "Next" arrow
- 2.5.5 Select "LPT1" local port and "Next" arrow
- 2.5.6 At "Add Print Wizard" select "Have Disk...."
- 2.5.7 At "Install From Disk" select "Browse..."
- 2.5.8 When message of "A:\ Isn't Accessible" select "Cancel"
- 2.5.9 At "Local File Window" Select "My Computer"
- 2.5.10 Select "D:\Prntdrvs\1386\HP4000~1\PC16\Oemnt40.inf OR other appropriate printer.
- 2.5.11 Select "OK" at "Install from Disk"
- 2.5.12 Select "HP LaserJet 4000 Series PCL 6" OR other appropriate printer and "Next" arrow.
- 2.5.13 Name the printer HPLJ4000 OR other appropriate name and "Next" arrow

ATTACHMENT C
REINSTALLATION OF WEDAP SOFTWARE

- 2.5.14 Select "Not Shared" and "Next" arrow
 - 2.5.15 Select "Yes" to print a test page and "Finish" when completed
 - 2.5.16 Select the newly installed printer as the "Default"
 - 2.5.17 IF printer prints test page,
THEN retry printing per Attachment C, Step 2.2
 - 2.5.18 IF printer still does not print,
THEN initiate a call for computer support.
- 2.6 Return to EPIP 1.3, Step 5.2.20.

EPIP 1.1

COURSE OF ACTIONS

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CLASSIFICATION: NNSR

REVISION: 44

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1.0 PURPOSE

This procedure provides instructions for Control Room personnel responding to an off-normal event at the Point Beach Nuclear Plant (PBNP).

2.0 PREREQUISITES

2.1 Responsibilities

2.1.1 The Shift Manager (SM) is responsible for this procedure.

2.1.2 The SM is responsible for taking immediate actions to mitigate the consequences of the emergency.

2.1.3 The SM is responsible for implementing Emergency Plan Implementing Procedures (EPIPs) as referenced by this procedure until formally relieved by key personnel in emergency response facilities.

2.1.4 The SM may delegate assignments to qualified personnel as necessary.

2.2 Equipment

None

3.0 PRECAUTIONS AND LIMITATIONS

None

4.0 INITIAL CONDITIONS

An off-normal occurrence with the potential for an emergency classification exists (or has existed) at PBNP.

COURSE OF ACTIONS

Initials Time

5.0 PROCEDURE

Date/Time entered	_____ / _____
Reason entered	_____

- NOTE 1:** Steps may be completed out of sequence, as appropriate.
- NOTE 2:** Steps that do not apply, may be marked "not applicable."
- NOTE 3:** Steps already formally turned over to Emergency Response Facilities (per Step 5.17) may be marked "not applicable."
- NOTE 4:** Control Room is responsible for all steps prior to transfer of responsibility. Text in []'s denotes the Emergency Response Facility responsible for implementation of that step AFTER the formal transfer of responsibilities from the Control Room.
- NOTE 5:** Classifications are to be made consistent with in 15 minutes once plant parameters reach an Emergency Action Level (EAL) indication in the Control Room. (Ref NEI 99-02)

- | | | | |
|-----|--|-------|-------|
| 5.1 | <u>IF</u> a credible HIGH or LOW security threat, <u>THEN</u> go to EPIP 1.4. N/A if attack in progress
[CR primary, EOF support] | _____ | _____ |
| 5.2 | Direct the Security Shift Commander to report to the Control Room. [CR] | _____ | _____ |
| 5.3 | Go to EPIP 1.2 (Step 5.1), Emergency Classifications, to determine if an emergency classification is required. [EOF primary, TSC/CR support] | _____ | _____ |

WARNING

If event is security related, then discuss the consequences of conducting an assembly and accountability with Security prior to implementation.

- | | | | |
|-----|---|-------|-------|
| 5.4 | Complete Attachment A, Announcement of Classified Event and Protective Actions, and make the plant Gai-Tronics announcement. [CR] | _____ | _____ |
|-----|---|-------|-------|

COURSE OF ACTIONS

		Initials	Time
5.5	<u>IF</u> normal working hours, <u>THEN</u> implement EPIP 1.1, Attachment B, to notify personnel outside the protected area of the event, <u>ELSE</u> implement EPIP 1.1, Attachment B, after notifications in Step 5.6 to notify personnel outside the protected area. [TSC]	_____	_____
	NOTE 1: In some cases (e.g., short-duration puff release, inclement weather), sheltering may be an appropriate recommendation. This should be discussed with the state and/or counties, if appropriate.		
	NOTE 2: <u>IF</u> the event is classified as a GENERAL EMERGENCY , <u>THEN</u> minimum protective action recommendations are required.		
	<ul style="list-style-type: none"> • Evacuate 0-2 miles, all sectors • Evacuate 2-5 miles, 3 or 4 downwind sectors 		
	NOTE 3: <u>IF</u> wind speed is less than three (3) mph or lake breeze conditions exist, <u>THEN</u> recommend protective actions for all sectors (360°) 0-5 miles. Lake breeze conditions exist if the difference between actual wind direction values for inland and near shore meteorological towers is greater than 90°.		
5.6	Go to EPIP 2.1, "Notifications - ERO, State & Counties, and NRC." [EOF]		
	NOTE: Assign personnel to make each notification.		
5.6.1	Emergency Response Organization (pager activation) Use EPIP 2.1, Section 5.1. [CR]	_____	_____
5.6.2	State & Counties (initiate within 15 minutes of declaration) Use EPIP 2.1, Section 5.2 and EPIP 2.1 Attachment B, Nuclear Accident Reporting System Form. [EOF] (NARS)	_____	_____
5.6.3	KNPP Control Room. Use EPIP 2.1, Section 5.3. [EOF]	_____	_____
5.6.4	Nuclear Regulatory Commission (NRC) (immediately after State & County notifications, <u>NOT</u> to exceed 60 minutes from declaration). Use EPIP 2.1, Section 5.4. [TSC]	_____	_____

COURSE OF ACTIONS

		Initials	Time
5.7	IF emergency involves plant conditions which suggest a radioactive release is in progress or anticipated, THEN go to EPIP 1.3 (Step 5.1), Dose Assessment and Protective Action Recommendations. [EOF]	_____	_____
5.8	IF a backshift or weekend, THEN contact the onshift Radiation Protection Technologist and Radiochemical Technician to report to the Control Room for further instructions in support of the event. [CR]	_____	_____
NOTE: SM. to ensure the teams are aware of plant and Radiological Conditions.			
5.9	Dispatch and track teams until this responsibility is assumed by the OSC. [OSC]	_____	_____
5.10	IF the event is an Unusual Event and additional staff is desired, THEN call in personnel using the Emergency Response Organization (ERO) Call List, ETD 01. [CR]	_____	_____
5.11	Implement the remaining sections per EPIP 6.1, Assembly and Accountability, Release and Evacuation of Personnel, for the following:		
5.11.1	Accountability (ref EPIP 6.1, Step 5.2.2). [TSC]	_____	_____
5.11.2	Release of personnel (no radiological impediments) (ref EPIP 6.1, Step 5.3). [TSC]	_____	_____
5.11.3	Evacuation of site to offsite assembly areas (includes radiological monitoring prior to leaving the plant site) (ref EPIP 6.1, Step 5.4). [TSC]	_____	_____
5.12	IF Alert or higher, THEN:		
5.12.1	Activate Emergency Response Data System (ERDS) per EPIP 1.1, Attachment C, Activation of Emergency Response Data System (ERDS) (Within 60 minutes of declaration). [CR]	_____	_____
5.12.2	Issue high range dosimetry to Control Room personnel. [CR]	_____	_____
5.12.3	Ensure backshift RPTs and Chem Techs have high range dosimetry. [CR]	_____	_____

COURSE OF ACTIONS

		<u>Initials</u>	<u>Time</u>
5.13	<u>IF</u> the event is a General Emergency <u>AND ALL</u> the following criteria are met, <u>THEN</u> implement expanded PARS of evacuation for 0-5 miles all sectors and 5-10 miles downwind sectors. [EOF] (Ref 6.15)		
5.13.1	Substantial core damage in progress or projected (>20%) (> 30,000 R/hr in containment high radiation monitors)		
5.13.2	Large fission product inventory in containment (more than GAP) (LOSS criteria for RCS barrier in EPIP 1.2, Attachment C, exceeded)		
5.13.3	Imminent projected containment failure or release underway (LOSS criteria for containment barrier in EPIP 1.2, Attachment C, exceeded)	_____	_____
5.14	<u>IF</u> event involves a liquid release to the lake, <u>THEN</u> notify local water utilities per Offsite Agency Call List, ETD 02. [EOF]	_____	_____
5.15	<u>IF</u> TSC and/or EOF are <u>NOT</u> activated, <u>THEN</u> ensure periodic status updates are provided to the State, Counties, and NRC per EPIP 2.1. (Hourly) [CR]	_____	_____
5.16	<u>IF</u> activating the Emergency Response Facilities, <u>THEN</u> provide a turnover briefing to TSC Manager upon arrival in the Control Room. [CR]		
5.16.1	Plant status		
5.16.2	Notifications status and current EPIP 2.1, Attachment B form (NARS).		
5.16.3	Status of Personnel on Protected Worker Log		
5.16.4	Assembly and accountability status	_____	_____
5.17	Conduct a formal turnover of responsibilities to Emergency Response Facilities as they are activated. [CR]		
5.17.1	Technical Support Center (TSC)		
	a. Plant assessment on classification recommendations per EPIP 1.2	_____	_____
	b. Onsite protective actions	_____	_____

COURSE OF ACTIONS

		Initials	Time
	c. Onsite radiological assessment	_____	_____
	d. NRC Notifications per EPIP 2.1	_____	_____
	e. Assembly and Accountability, Release and Evacuation of Personnel per EPIP 6.1	_____	_____
5.17.2	Operations Support Center (OSC)		
	Add Statement Assume all reentry dispatch and tracking for:		
	Area of Responsibility		
	a. Emergency reentry team.	_____	_____
	b. Search and Rescue team.	_____	_____
	c. Fire fighting team.	_____	_____
	d. Medical emergencies (EPIP 11.2)	_____	_____
	e. Non-PBNP or Contractor team, NMC Fleet personnel or Contractor team (outside protected area).	_____	_____
5.17.3	Emergency Operations Facility (EOF)		
	a. Classification of emergencies per EPIP 1.2	_____	_____
	b. Offsite protective action recommendations per EPIP 1.3	_____	_____
	c. State and County notifications per EPIP 2.1	_____	_____
	d. Overall management of ERO activities	_____	_____
	e. Request for Federal Assistance, if needed	_____	_____
	f. Authorize the use of potassium iodide per EPIP 5.2	_____	_____
	g. Authorize emergency radiation exposures in excess of 10 CFR 20 requirements per EPIP 5.1	_____	_____
	h. Review and approval of news releases.	_____	_____
5.18	Initiate an action request associated with the event and insert a copy in the Operations Notebook (reference 6.14) and exit this procedure, returning it to Emergency Preparedness. [CR]	_____	_____

COURSE OF ACTIONS

6.0 REFERENCES

- 6.1 EPIP 1.2, Emergency Classifications
- 6.2 EPIP 1.3, Dose Assessment and Protective Action Recommendations
- 6.3 EPIP 1.4, Credible High or Low Security Threat
- 6.4 EPIP 2.1, Notifications - ERO, State & Counties, and NRC
- 6.5 EPIP 4.1, Attachment E, Activation of Emergency Response Data System (ERDS)
- 6.6 EPIP 5.1, Personnel Emergency Dose Authorization
- 6.7 EPIP 5.2, Radioiodine Blocking and Thyroid Dose Accounting
- 6.8 EPIP 6.1, Assembly and Accountability, Release and Evacuation of Personnel
- 6.9 EPIP 10.1, Emergency Reentry
- 6.10 EPIP 11.2, Medical Emergency
- 6.11 ETD 01, Point Beach Emergency Response Organization (ERO) Call List
- 6.12 ETD 02, Offsite Agency Call List
- 6.13 NEI 99-02, Regulatory Assessment Performance Indicator Guideline
- 6.14 IR 94-013, NPNPD-94-014, Response to Notice of Violation, October 5, 1994
- 6.15 NUREG-0150, Volume 1, Revision 4, RTM-96, Response Technical Manual, Figures A-5 and A-6, March 1996

7.0 BASES

- B-1 10 CFR 50.47(b), Emergency Plans
- B-2 10 CFR 50.47, Appendix E.IV, Content of Emergency Plans
- B-3 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, November 1980

COURSE OF ACTIONS

ATTACHMENT A
ANNOUNCEMENT OF CLASSIFIED EVENT AND PROTECTIVE ACTION
Page 1 of 2

NOTE: Ensure each section that should be included in the announcement has a check in that check box. The individual making the announcement should read each of those sections when making the actual announcement.

1.0 CLASSIFICATION

- 1.1 Check the appropriate event classification level box.
- 1.2 Log the EAL chart classification number and condition of the event.
- 1.3 Emergency Response Facilities must be activated at an Alert or higher classification.

NOTE: Select Step 2.0, Step 3.0, or Step 4.0 based on the event in progress and the appropriate personnel protective actions required.

2.0 LIMITED PLANT EVACUATION

- 2.1 Log the areas where a limited plant evacuation is required.
- 2.2 Check the appropriate location box(s) where the evacuated personnel should report. Use "other" if a different assembly area is needed due to the unavailability of the ones listed.

NOTE: An evacuation of non-essential personnel to offsite assembly areas (Step 4.0) shall be conducted in lieu of Step 3.0 under emergency conditions that may endanger human life and health (i.e., fire, flooding, toxic gases, etc.) and the SM or TSC Manager has determined that non-essential personnel shall be evacuated to offsite assembly areas.

3.0 FULL-SITE ASSEMBLY AND ACCOUNTABILITY (Required at Site Emergency, Optional Earlier - Ref EPIP 6.1, Step 4.2)

- 3.1 Check "Your Assigned Assembly Area" if all locations are available.
- 3.2 Check the appropriate location box(s) where the personnel should assemble if any normal assembly areas are unavailable. Use "other" if a different assembly area is needed due to the unavailability of the ones listed.

4.0 OFFSITE ASSEMBLY AND ACCOUNTABILITY (In lieu of Step 3.0 – Ref EPIP 6.1, Step 4.3)

Check the appropriate offsite location box where personnel should assemble.

5.0 GATEHOUSE

Check the appropriate gatehouse that personnel should exit through.

6.0 AVOID AREAS

Log the hazardous area(s) that should be avoided by personnel assembling.

COURSE OF ACTIONS

ATTACHMENT A
ANNOUNCEMENT OF CLASSIFIED EVENT AND PROTECTIVE ACTION
Page 2 of 2

SOUND THE FISHERMAN'S ALARM.
SOUND THE EVACUATION ALARM.
MAKE THE FOLLOWING ANNOUNCEMENT.

"ATTENTION ALL PERSONNEL. ATTENTION ALL PERSONNEL.

- 1.0 THERE ARE CONDITIONS AT THE PLANT THAT WARRANT A (AN)
- UNUSUAL EVENT
 - ALERT
 - SITE EMERGENCY
 - GENERAL EMERGENCY
 - TERMINATION OF CLASSIFIED EVENT

THESE CONDITIONS ARE (EAL chart classification/condition):

- ALL ERO PERSONNEL REPORT TO YOUR ASSIGNED EMERGENCY RESPONSE FACILITY.
(required at an ALERT or Higher, Optional Earlier)

- THESE CONDITIONS ALSO WARRANT A:

- 2.0 LIMITED PLANT EVACUATION OF THE FOLLOWING AREAS:
-

ALL REMAINING PERSONNEL IN THESE AREA(S) REPORT TO THE:

- (In RCA) RP STATION
- (Outside RCA) NORTH SERVICE BUILDING CAFETERIA
- (Other) _____

AND AWAIT FURTHER INSTRUCTIONS."

- 3.0 FULL SITE ASSEMBLY AND ACCOUNTABILITY (Required at SITE EMERGENCY, Optional Earlier):

ALL REMAINING PERSONNEL REPORT TO:

- YOUR ASSIGNED ASSEMBLY AREA
 - NORTH SERVICE BUILDING CAFETERIA
 - ADMIN BUILDING EL 26' OFFICE AREA
 - ENGINEERING BUILDING CAFETERIA
 - TRAINING BUILDING NORTH FOYER
 - WAREHOUSE #4
 - (OTHER) _____

- 4.0 OFFSITE ASSEMBLY AND ACCOUNTABILITY (In lieu of Step 3.0):

ALL REMAINING PERSONNEL REPORT TO:

- TWO CREEKS TOWN HALL
- TWO RIVERS NATIONAL GUARD ARMORY

- 5.0 EXIT THROUGH

- THE SOUTH GATEHOUSE
- THE NORTH VEHICLE GATE (Only if the South Gatehouse Unavailable)

- 6.0 (IF filled in, THEN announce:) AVOID THE FOLLOWING AREA(S):
-

REPEAT ALARMS AND ANNOUNCEMENT

Return the completed form to Emergency Preparedness or TSC Manager.

ATTACHMENT B
NOTIFICATION OF PERSONNEL OUTSIDE THE PROTECTED AREA
Page 1 of 3

1.0 PBNP AUTOMATED NOTIFICATION SYSTEM

NOTE 1: Listen carefully because the system will give you other options. To expedite the notification process, the following steps have been written to only list the specific voice prompt you need, at which time you can immediately respond without listening to the remaining prompt.

NOTE 2: If at any point you want to exit the system and start over, you should keep slowly pressing the "#" key until the system says "goodbye" and restart the entire process.

- 1.1 PBNP Automated Notification System is unavailable, THEN go to Step 2.0 of this attachment.
- 1.2 From any on-site telephone, dial ext. _____ to access the PBNP Automated Notification System.
- 1.3 When prompted "Please enter your scenario activation password," enter "_____" using the keypad on the telephone.
- 1.4 When prompted "To start a scenario enter the scenario ID....," enter "_____".
- 1.5 Press "_____" to select recording a new message. Other voice prompts will be given but you do not have to listen to the options.
- 1.6 When prompted "After the tone, speak the new message....," read Attachment A, Announcement of Classified Event, and Protective Actions, and press "#." (Your message will automatically play back).
- 1.7 Press "_____" to start the scenario. Other voice prompts will be given if you want to replay your message or rerecord it.
- 1.8 When prompted, "The scenario is building," press "#", listen to "good-bye" and hang up.
- 1.9 IF normal working hours and Step 1.0 was successful, THEN return to procedure Step 5.6.
- 1.10 IF outside normal working hours and Step 1.0 was successful, THEN return to procedure Step 5.7.
- 1.11 IF Step 1.0 was NOT successful, THEN go to next Step 2.0 of this attachment.

Completed By _____ Date/Time _____

ATTACHMENT B
NOTIFICATION OF PERSONNEL OUTSIDE THE PROTECTED AREA
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2.0 PBX Broadcast System

2.1 Notification of Personnel Outside Protected Area on South Side of Plant

From a touch-tone phone, dial

2.1.1 to access voice system

2.1.2 when prompted for mailbox

2.1.3 when prompted for password

2.1.4 to compose message

2.1.5 and when prompted

2.1.6 when prompted

2.1.7 Read Attachment A, Announcement of Classified Event and Protective Actions, and press # when done recording.

2.1.8 to send message

2.1.9 to exit PBX Broadcast System.

2.2 Notification of Personnel Outside Protected Area on North Side of Plant

From a touch-tone phone, dial

2.2.1 access voice system

2.2.2 when prompted for mailbox

2.2.3 when prompted for password

2.2.4 to compose message

2.2.5 when prompted

2.2.6 when prompted

ATTACHMENT B
NOTIFICATION OF PERSONNEL OUTSIDE THE PROTECTED AREA

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- 2.2.7 Read Attachment A, Announcement of Classified Event and Protective Actions, and press # when done recording.
- 2.2.8 to send message
- 2.2.9 to exit PBX Broadcast System.
- 2.3 IF normal working hours,
THEN return to procedure Step 5.6
- 2.4 IF outside normal working hours,
THEN return to procedure Step 5.7.

Completed By _____ Date/Time _____

Return the completed form to Emergency Preparedness or TSC Manager

COURSE OF ACTIONS

ATTACHMENT C
ACTIVATION OF EMERGENCY RESPONSE DATA SYSTEM (ERDS)

NOTE 1: ERDS shall be activated within one hour of declaration of an Alert or higher emergency.

NOTE 2: ERDS must be activated and deactivated from the Control Room due to being a controlled environment and the TSC PPCS configuration.

NOTE 3: ERDS can be activated from terminals PPCS or . Only one Unit can transmit data at a time through a connection. If one Unit is 'connected' through ' ' then the other Unit to be 'connected' must be activated through ' '. When both Units are inadvertently activated through a single line ' ' then only one unit displays 'connected'. The other unit displays 'on line' with an 'error' message. The NRC receives alarms indicating validity of the data being transmitted should be checked. Both Units can transmit simultaneously by activating one Unit on each connection. The status displayed would be 'connected' in this case.

1.0 TO INITIATE THE ERDS

- 1.1 From Control Room drop PPCS or click on the MENU icon.
- 1.2 Click on Operator Station Programs.
- 1.3 Click on ERDS for the appropriate Unit.
- 1.4 Click on the Startup button.

NOTE: When ERDS is activated due to an Emergency the NRC must provide verbal concurrence before ERDS can be deactivated from PBNP.

2.0 TO DEACTIVATE THE ERDS

- 2.1 From Control Room drop PPCS click on the MENU icon.
- 2.2 Click on Operator Station Programs.
- 2.3 Click on ERDS for the appropriate Unit.
- 2.4 Click on the Shutdown button.