Omaha Public Power District
444 South 16th Street Mall
Omaha, Nebraska 68102-2247

November 10, 2000
LIC-00-0098

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Reference Docket No. 50-285

SUBJECT: Transmittal of changes to Emergency Plan Implementing Procedures (EPIP) manual.

In accordance with 10 CFR 50 Appendix A Part V and 10 CFR 50.4(b)(5)(iii), please find EPIP change packages enclosed for the Document Control Center (holder of Copy 165) and the NRC Emergency Response Coordinator (holder of Copies 154 and 155).

The document update instructions and summary of changes are included on the Confirmation of Transmittal (Form EP-1) forms attached to each controlled copy change package. Please return the Confirmation of Transmittal forms by December 30, 2000.

The revised documents included in the enclosed package are:

EPIP Index page 1 of 2 dated 10/31/00
EPIP-EOF-6 R29 issued 10/31/00
EPIP-EOF-7 R13 issued 10/31/00

If you have any questions regarding the enclosed changes, please contact me at (402) 533-6537.

Sincerely,

MT Frans

M. T. Frans
Manager – Nuclear Licensing

MTF/ash

Enclosures

c: T. H. Andrews, Emergency Response Coordinator (2 sets)
L. R. Wharton, NRC Project Manager (w/o enclosures)
W. C. Walker, NRC Senior Resident Inspector (w/o enclosures)
Winston & Strawn (w/o enclosures)

A045

FORM EP-1
Rev. 6 (04/29/99)

OMAHA PUBLIC POWER DISTRICT

Confirmation of Transmittal for Emergency Planning Documents/Information

☐ Radiological Emergency Response Plan (RERP) ■ Emergency Plan Implementing Procedures (EPIP) ☐ Emergency Planning Forms (EPF)

☐ Emergency Planning Department Manual (EPDM) ☐ Other Emergency Planning Document(s)/ Information

Transmitted to:

Name: Document Control Desk Copy No: 165
Tom Andrews Copy No: 154
Tom Andrews Copy No: 155

Date:_____

The following document(s) / information is forwarded for your manual:

REMOVE SECTION
EPIP Index page 1 of 2 dated 10/24/00
EPIP-EOF-6 R28a issued 02/29/00
EPIP-EOF-7 R12 issued 09/01/94

INSERT SECTION
EPIP Index page 1 of 2 dated 10/31/00
EPIP-EOF-6 R29 issued 10/31/00
EPIP-EOF-7 R13 issued 10/31/00

Summary of Changes:

EPIP-EOF-6 was revised to add a note to the condenser main steam release guidance and notes were added to ensure PARs are documented on the FC-1188 form. The instructions for operating the fax machine were deleted.

EPIP-EOF-7 was revised to update the procedure format and Attachment 6.2 was changed to agree with the Protective Measures Process Enhance Team (PMPET) basis document.

Supervisor - Emergency Planning

I hereby acknowledge receipt of the above documents/information and have included them in my assigned manuals.

Signature: _____ **Date:**_____

Please sign above and return by **12/30/00** to:

Karma Boone
Fort Calhoun Station, FC-2-1
Omaha Public Power District
444 South 16th Street Mall
Omaha, NE 68102-2247

NOTE: If the document(s)/information contained in this transmittal is no longer requested or needed by the recipient, or has been transferred to another individuals, please fill out the information below.

☐ Document(s)/Information No Longer Requested/Needed

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Name: _____ Mailing Address: _____

EMERGENCY PLAN IMPLEMENTING PROCEDURE INDEX

PROCEDURE NUMBER	TITLE	REVISION/DATE
EPIP-OSC-1	Emergency Classification	R34 09-14-00
EPIP-OSC-2	Command and Control Position Actions/Notifications	R36 08-24-00
EPIP-OSC-9	Emergency Team Briefings	R7 12-09-99
EPIP-OSC-15	Communicator Actions	R22 10-24-00
EPIP-OSC-20	Site Population Exposure Estimates	R6 11-10-95
EPIP-OSC-21	Activation of the Operations Support Center	R9 08-24-00
EPIP-TSC-1	Activation of the Technical Support Center	R21 08-24-00
EPIP-TSC-2	Catastrophic Flooding Preparations	(R0 03-22-95) DELETED 05-09-95
	REINSTATED	R2 02-06-96
EPIP-TSC-8	Core Damage Assessment	R13 01-19-00
EPIP-EOF-1	Activation of the Emergency Operations Facility	R12 08-24-00
EPIP-EOF-3	Offsite Monitoring	R16 10-26-99
EPIP-EOF-6	Dose Assessment	R29 10-31-00
EPIP-EOF-7	Protective Action Guidelines	R13 10-31-00
EPIP-EOF-10	Warehouse Personnel Decontamination Station Operation	R10 01-13-00
EPIP-EOF-11	Dosimetry Records, Exposure Extensions and Habitability	R18 09-18-97b
EPIP-EOF-19	Recovery Actions	R7 09-30-98
EPIP-EOF-21	Potassium Iodide Issuance	R3 09-18-97
EPIP-EOF-23	Emergency Response Message System	R5 10-12-99

WP8

Fort Calhoun Station
Unit No. 1

Distribution Authorized

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EPIP-EOF-6

EMERGENCY PLAN IMPLEMENTING PROCEDURE

Title: DOSE ASSESSMENT

FC-68 Number: EC 25403

Reason for Change: Add note for guidance for condenser main steam releases. Add notes to ensure PARs are documented on an FC-1188 form. Delete instructions for faxing as revised instructions are located on the fax machine.

Requestor: R. Hankins

Preparer: R. Hankins

ISSUED: 10-31-00 3:00 pm

R29

DOSE ASSESSMENT

NON-SAFETY RELATED

1. PURPOSE

1.1 This procedure provides instructions for performing dose assessment for Ventilation Stack releases, Main Steam Line/Condenser Off-Gas releases, Containment leakage and Radwaste Building releases. It also provides instruction for estimating unmonitored release rates, and performing liquid release assessment.

2. REFERENCES/COMMITMENT DOCUMENTS

2.1 EPIP-EOF-7, Protective Action Guidelines

2.2 OI-ERFCS-1, Operation of the Emergency Response Facilities Computer System

2.3 CH-SMP-PA-0005, Monitoring of Gaseous Effluent Releases Via the Auxiliary Building Ventilation Duct Pathway

2.4 Technical Data Book IV.8, Area Monitor Setpoints

2.5 User's Guide for EAGLE 4.0

2.6 Engineering Analysis EA-FC-90-038, Manual Dose Assessment

2.7 Engineering Analysis EA-FC-90-105, Ingestion Pathway

2.8 Engineering Analysis EA-FC-90-035, EAGLE Radiological Parameters

2.9 Engineering Analysis EA-FC-93-066, EAGLE 4.0 Dose Calculation Methodology

2.10 Calculation FC-06179, TEDE and CDE conversion factors for offsite dose calculation

2.11 Commitments (other than Ongoing)

- AR 10029, IER-89-24
- AR 13302, IER-92-20
- AR 17061, LIC-95-0049/LIC-95-0230

2.12 Protective Measure Basis Document, CHP-00-038, September 28, 2000 I

3. DEFINITIONS

3.1 DELTA T (ΔT) TEMPERATURE - the temperature difference between 10 and 60 meters, in units of centigrade. The value displayed on the ERFCS equates to a 100ΔT[(T @ 60m - T @ 10m) x 2].

3.2 DURATION OF RELEASE - the time in hours the release is expected to continue.

3.3 DOSE - the amount of ionizing radiation that results from an amount of energy being absorbed in the human body, in units of Rem.

3.4 DOSE RATE - Dose per unit time, in units of Rem/hour.

3.5 ERFCS - Emergency Response Facility Computer System.

3.6 IMMINENT RELEASE - An impending release of the radioactive gas in Containment.

3.7 CDE - Committed Dose Equivalent.

3.8 TEDE - Total Effective Dose Equivalent.

3.9 COMMAND AND CONTROL POSITION: The position that is currently in charge of the emergency response, either the Shift Supervisor, Control Room Coordinator, Site Director or Emergency Director.

3.10 RELEASE RATE (Q) - the emission rate of the effluent in units of Curies per second from the release point.

4. PREREQUISITES

4.1 A radioactive release is suspected, imminent, or known to be in progress.

5. PROCEDURE

NOTE: If on-site meteorological data is not available, contact the National Weather Service (number in the Emergency Phone Book), and request wind speed and direction. For night time (sunset to sunrise) with no precipitation, use a ΔT of +2.0 and a stability class F. For all other conditions, use a ΔT of -1.0 and a stability class D.

5.1 To perform dose assessments in the Control Room, use Attachment 6.1.

5.2 To perform dose assessments in the TSC, use Attachment 6.2.

5.3 To perform dose assessments in the EOF, use Attachment 6.3.

5.4 When needed, perform dose assessments and updates to the states at least every 60 minutes. It is the goal of the Fort Calhoun Station to attempt to provide assessments and updates at 15 minute intervals. (AR 13302)

5.5 Retain all documentation (logs, assessments, etc.) generated or used during the emergency. At the termination, deliver all documentation to the TSC Administrative Logistics Coordinator in the TSC, or the EOF Administrative Logistics Manager in the EOF.

6. ATTACHMENTS

6.1 Dose Assessment in the Control Room

6.2 Dose Assessment in the TSC

6.3 Dose Assessment in the EOF

6.4 Computerized Dose Assessment

6.5 Unmonitored Release Assessments

Attachment 6.1 - Dose Assessment In The Control Room

1. Sign in on the Accountability Roster and put on the Personnel Identification Badge.

2. Monitor panels AI-33 A, B and C (or ERFCS, pages 197, 360 and 361) for indications of increasing activity on any of the process and/or area monitors. Form FC-197 or other records may be used to collect meteorological and radiological data for an assessment:

   NOTE: Read all of the following substeps to determine the correct attachment to use.

   2.1 **IF** RM-062 (or RM-052, in the stack position), RM-043, RM-070 through RM-075 and/or 091A/B reach an alarm setpoint, **THEN** perform an assessment per Attachment 6.4.

   2.2 **IF** RM-057 reaches an alarm setpoint, **THEN** request Operations place RM-064 on the affected steam generator, **THEN** perform an assessment per Attachment 6.4.

   2.3 **IF** RM-063 and/or RM-064 show an increase in activity, **THEN** refer the Command and Control position to EPIP-EOF-7, **THEN** perform an assessment per Attachment 6.4.

   2.4 **IF** any area monitors indicate >1000 times background (background listed in the Technical Data Book), **THEN** inform the Command and Control position for classification information.

   2.5 **IF** a suspected release pathway is unmonitored for any reason, **THEN** use Attachment 6.5 to perform the assessment.

3. Upon completion of an assessment:

   NOTE: The PAR information generated by EAGLE is for information only. Actual PARs are determined by the Command and Control position and sent to the states on the Emergency Notification Form (FC-1188).

   NOTE: Do not include PAR information on the dose assessments that are faxed to the states.

   3.1 If Command and Control is in the Control Room:

      3.1.1 Obtain a printout of the dose assessment.

      3.1.2 Have Command and Control review and approve the assessment.

NOTE: If dose assessment results in a change in classification or a PAR change, ensure that the states are officially notified by the CR Communicator using the approved Emergency Notification Form (FC-1188) prior to faxing the dose assessment.

3.1.3 Fax the approved dose assessment form to the states, TSC and EOF.

3.1.4 Record transmittal time.

3.2 If Command and Control is in the TSC:

3.2.1 Fax unsigned assessment results to the TSC.

3.2.2 Inform the TSC Protective Measures Coordinator of the transmittal.

3.2.3 Record transmittal time.

Attachment 6.2 - Dose Assessment In The Technical Support Center Page 1 of 2

NOTE: Dose assessment will only be performed in the TSC in the event that the EAGLE equipment in the Control Room is unavailable or inoperable. The TSC EAGLE equipment may also be used as a backup to the equipment located at the EOF.

1. Sign in on the Accountability Roster.

2. Inform the Protective Measures Coordinator that you will be performing dose assessment in the TSC.

3. Monitor ERFCS, Pages 197, 360 and 361 for indications of increasing activity on any of the process and/or area monitors. Form FC-197 or other record may be used to collect meteorological and radiological data for an assessment.

   3.1 **IF** RM-062 (or RM-052, in the stack position), RM-043, RM-070 through RM-075 and/or 091A/B reach an alarm setpoint, **THEN** perform an assessment per Attachment 6.4.

   3.2 **IF** RM-057 reaches an alarm setpoint, **THEN** request Operations place RM-064 on the affected steam generator, **THEN** perform an assessment per Attachment 6.4.

   3.3 **IF** RM-063 and/or RM-064 show an increase in activity, **THEN** refer the Command and Control position to EPIP-EOF-7, **THEN** perform an assessment per Attachment 6.4.

   3.4 **IF** any <u>area</u> monitors indicate >1000 times background (background listed in the Technical Data Book), **THEN** inform the Command and Control position for classification information.

   3.5 **IF** a suspected release pathway is unmonitored for any reason, **THEN** use Attachment 6.5 to perform the assessment.

4. Upon completion of an assessment:

   NOTE: The PAR information generated using EAGLE is for information only. Actual PARs are determined by the Command and Control position and sent to the states on the Emergency Notification Form (FC-1188).

   NOTE: Do not include PAR information on the dose assessments that are faxed to the states.

   4.1 Obtain a printout of the dose assessment.

   4.2 Forward the dose assessment to the Protective Measures Coordinator.

5. Provide detailed briefing to oncoming shift relief of emergency conditions and dose assessment status.

Attachment 6.3 - Dose Assessment in the Emergency Operation Facility

1. **IF** dose assessments are being performed in the Control Room, **THEN** contact the technician in the Control Room performing dose assessment and review all previous assessments using the fax copies.

2. **IF** dose assessments are being performed in the TSC, **THEN** contact the technician performing dose assessment in the TSC and review all previous assessments using the fax copies.

3. Standby to transfer dose assessment from the Control Room (or TSC) to the EOF, as directed by the Protective Measures Manager.

4. When directed to take over dose assessment, inform the technician in the Control Room (or TSC) of your actions.

5. Monitor ERFCS, pages 197, 360 and 361 for indications of increasing activity on any of the process and/or area monitors. Form FC-197 or other record may be used to collect meteorological and radiological data for an assessment.

   5.1 **IF** RM-062 (or RM-052, in the stack position), RM-043, RM-070 through RM-075 and/or 091A/B reach an alarm setpoint, **THEN** perform an assessment per Attachment 6.4.

   5.2 **IF** RM-057 reaches an alarm setpoint, **THEN** request Operations place RM-064 on the affected steam generator, **THEN** perform an assessment per Attachment 6.4.

   5.3 **IF** RM-063 and/or RM-064 show an increase in activity, **THEN** refer the Command and Control position to EPIP-EOF-7, **THEN** perform an assessment per Attachment 6.4.

   5.4 **IF** any <u>area</u> monitors indicate >1000 times background (background listed in the Technical Data Book), **THEN** inform the Command and Control position for classification information.

   5.5 **IF** a suspected release pathway is unmonitored for any reason, **THEN** use Attachment 6.5 to perform the assessment.

6. Upon completion of an assessment:

   NOTE: The PAR information generated using EAGLE is for information only. Actual PARs are determined by the Command and Control position and sent to the states on the Emergency Notification Form (FC-1188).

   NOTE: Do not include PAR information on the dose assessments that are faxed to the states.

   6.1 Obtain a printout of the dose assessment.

   6.2 Forward the dose assessment to the Dose Assessment Coordinator.

7. Provide detailed briefing to oncoming shift relief of emergency conditions and dose assessment status.

CAUTION

IF process monitor readings increase by 50% while performing an assessment, or the command and control position requests an immediate assessment, **THEN** complete the current assessment and immediately start another. (AR 10029)

1. To Logon to the computer, perform the following:

   1.1 Is terminal on, with EAGLE Logo screen showing?

      1.1.1 If yes, proceed to Step 1.2.

      1.1.2 If no, proceed to Step 1.8.

   1.2 Press <ENTER> to start EAGLE.

   1.3 At EAGLE Mode screen, during an actual emergency, select "THIS IS AN EMERGENCY", press <ENTER>.

   1.4 At next screen, select "NETWORK" mode of operation. "PC Stand-Alone" may be used if the network is not available.

   1.5 After EAGLE Network status check function, is "EAGLE Data Base Status" screen showing?

      1.5.1 If no, proceed to Step 1.6.

      1.5.2 If yes, updating is necessary. Select one of the following:

      - "D" to transfer files from the system to the PC in use. This will take user to the EAGLE Main Menu. Proceed to Step 1.6.
      - "U" to transfer files from the PC in use to the system. This will take user to EAGLE Main Menu. Proceed to Step 1.6.
      - "1" to start with plume segment 1 on the system. This will take user directly to the EAGLE Main Menu. Proceed to Step 1.6.

   1.6 At EAGLE Main Menu screen, is the message "Network Mode" flashing on the screen?

      1.6.1 If no, proceed to Step 1.7.

      1.6.2 If yes, proceed to Section 2, "Performing Dose Assessment".

1.7 To return to Network Version:

1.7.1 Press <5>, then <ENTER> to return to Network Version.

1.7.2 Proceed to Section 2, "Performing Dose Assessment".

1.8 To Re-boot the system to Network Version:

1.8.1 Turn off the main power switch for the computer.

1.8.2 After 5 seconds, turn on the main power switch for the computer.

1.8.3 After 1-2 minutes, when computer prompts. Press <Ctrl/Alt/Delete> buttons simultaneously.

1.8.4 When the computer prompts you for a user name enter "EAGLE".

1.8.5 The default password is also "EAGLE"

1.8.6 Proceed back to Step 1.1.

1.9 Forcing EAGLE Terminals Off Network:

1.9.1 After noting which unit is logged on, determine if you wish to log the terminal off. If so, continue. Otherwise, stop.

1.9.2 Press <Ctrl/ESC> buttons simultaneously.

1.9.3 Using the mouse, double-click on the "Force EAGLE Terminals Off Network" Icon.

1.9.4 At window labeled "Specify Parameters", type in terminal name from Step 1.9.1, and select "Start" button.

1.9.5 Using mouse, double-click on the "EAGLE" icon at bottom of screen to return to the program.

2. Performing Dose Assessment:

NOTE: Graphics capabilities exist in the TSC and EOF, using either of the computer units and printers. This procedure addresses performing graphics only at the EOF, since graphics operations are time consuming.

NOTE: For PCs with the laser printers, screen prints can be made by pressing the PRINT SCREEN key.

2.1 Entering Radiological Data

2.1.1 At EAGLE Main Menu screen, enter "1" to perform Atmospheric Diffusion and Dose Calculations.

2.1.2 If the system indicates another terminal is logged on, note the terminal name (i.e., "CR", "SIM", "TSC", "TSCR", "EOF" and "EOFR"), and proceed back to Step 1.9., "Forcing EAGLE Terminals Off Network". Otherwise, continue.

2.1.3 At Model Control Options Menu, enter "y" to perform normal dose assessment.

2.1.4 At plume segment count screen, enter "1" to start a new plume run, or enter a specific plume segment number if needed.

2.1.5 At release duration screen, enter the projected release duration as determined by the Command and Control position and press "y" to accept.

2.1.6 At Summary of Source Release Rates screen, select the affected release pathway.

NOTE: For Condenser Off-gas releases, use a condenser ejector flow rate of 340 cfm. For all Condenser/Main Steam releases use an Iodine/Noble Gas Ratio of 0.003.

2.1.7 At selected Source Release Rates screen, select one of the available options to change release rates. The method described here uses radiation monitor data.

2.1.8 At Radiation Monitor data screen, select affected monitor, then enter the monitor reading and flow information if applicable, then press "y" to accept.

2.1.9 At selected Source Release Rates screen, review the resultant release rates for accuracy and press "y" to accept.

2.1.10 At Summary of Source Release Rates screen, another release path may be selected (which will sum release rates from all release paths), or, if there are no other release paths, press "y" to accept.

2.2 Entering Meteorological Data

NOTE: When performing assessments, use the most positive ΔT and the slowest wind speed.

2.2.1 At Summary of Meteorological Parameters, all new meteorological data may be entered, or selected parameters may be entered.

2.2.2 When all meteorological data is entered, press "y" to accept.

2.3 Release/Dose Information Preparation

2.3.1 At EAGLE Output menu, select "1" for Release/Dose Assessment Information.

2.3.2 At Update Report to Offsite Authorities screen, press <ENTER>.

2.3.3 At Release Information Menu, select "1", Distribute Release Information.

2.3.4 At Model Output Control Menu, change distribution to distribute ONLY to your printer.

2.3.5 When distribution is set, press "y" to accept.

2.3.6 At EAGLE Dose Assessment Information screen, press <ENTER>.

2.3.7 At Computer Generated Protective Action Recommendations screen, press <ENTER>.

2.3.8 At Authorization Page/Par Menu, select "2", Do NOT Distribute Authorization Page and Computer Generated PARs.

2.3.9 At Emergency Classification screen, select desired emergency classification as determined by the Command and Control position and press "y" to accept.

2.3.10 At Prognosis of Emergency screen, select desired emergency prognosis as determined by the Command and Control position and press "y" to accept.

2.3.11 At Protective Action Recommendations screen, do not enter any PARs, but press "y" to accept.

2.3.12 At Comment screen, enter any necessary comments and press "y" to accept.

2.3.13 At Review/Approval screen, do not enter any names, but press "y" to accept.

2.3.14 At Dose Assessment/PAR Summary screen, press <ENTER>.

2.3.15 At Dose Assessment/PAR Menu, select "1", Distribute Dose Assessment/PARs.

2.3.16 At Model Output Control Menu, change distribution to distribute ONLY to your printer.

2.3.17 When distribution is set, press "y" to accept.

2.4 Final Review, Approval and Distribution

2.4.1 Perform this function as described in the Attachment specific to your facility.

2.5 Follow-up Actions

2.5.1 At the EAGLE Output Menu, you may reenter data for the current plume segment if necessary, proceed to the next plume segment, or exit the program.

2.5.2 When transferring assessment to another facility, exit the program as directed so that the other facility may assume dose assessment functions.

3. Imminent Release Assessment

3.1 Entering Radiological Data

3.1.1 At EAGLE Main Menu screen, enter "1" to perform Atmospheric Diffusion and Dose Calculations.

3.1.2 At Model Control Options Menu, enter "I" to change status to "Execute Imminent Release Option" and press "y" to accept.

3.1.3 At Containment Imminent Release screen, change time to release, flow and radiological parameters as necessary, and press "y" to accept.

3.1.4 At Containment Imminent Release Summary screen, enter "s" to Perform Straight-Line Dose Projections.

3.1.5 At release duration screen, enter the projected release duration as determined by the Command and Control position and press "y" to accept.

3.2 Entering Meteorological Data

3.2.1 At Summary of Meteorological Parameters, all new meteorological data may be entered, or selected parameters may be entered.

3.2.2 When all meteorological data is entered, press "y" to accept.

3.3 Results

3.3.1 At Plume Centerline Values Based on Straight line Gaussian Diffusion Model screen, make a screen print of the results by pressing the "Print Screen" button. Press <ENTER>.

3.3.2 Provide results to the Command and Control position.

3.4 Follow-up Actions

3.4.1 At the Containment Imminent Release screen, you again may reenter release, flow and radiological data, or you may quit this portion of the program.

3.4.2 If you quit the Imminent Release Option, at Model Control Options Menu, enter "y" to perform normal dose assessment.

3.4.3 At plume segment count, enter "1" to start a new plume run, or enter a specific plume segment number if needed.

3.4.4 At release duration screen, enter the projected release duration used in the Imminent Release Option and press "y" to accept.

4. Liquid Release Assessment

4.1 Entering Radiological Data

4.1.1 At EAGLE Main Menu screen, enter "2" to perform Tabular Displays of MODEL Results.

4.1.2 At Table Main Menu, enter "3" to perform Liquid Effluent Isotopic Activity Display.

a) Obtain isotopic analysis of Monitor Tank activity from Chemistry.

b) Obtain Monitor Tank flowrate from the Control Room.

4.1.3 At the Projected Isotopic Activity at M.U.D. Intake Structure, change Monitor Tank Flowrate, River Flowrate, and Monitor Tank Activity values as necessary.

4.2 Results

4.2.1 If results exceed the listed EPA Limits, report results to the Command and Control position so that actions may be reported to M.U.D. dispatcher and the Nebraska Emergency Management Agency.

5. Error Correction

5.1 If an error message should appear on the PC screen, follow the instructions given (i.e., press <ENTER>.

5.2 If the errors cannot be corrected or other problems arise, reboot the system as described in Attachment 6.4, Section 1, Step 1.8.

5.3 If this does not correct the problem, perform dose assessment at another terminal.

5.4 If the printer fails, manually record dose assessment results using a FC-1188 form, and fax this form using the group EAGLE FAX code.

6. Graphics/Tabular Displays

6.1 Graphics and Tabular displays are explained in the EAGLE User's Guide.

Attachment 6.5 - Determining Unmonitored Release Rates Page 1 of 8

NOTE: For determining projected release rates from the Ventilation Stack when RM-062/52 and 63 are off-scale/not available, refer to CH-SMP-PA-0005.

NOTE: For determining projected release rates from the Main Steam/Condenser Off-gas system when RM-057/64 are off-scale/not available, use Section 1

NOTE: For determining projected release rates from Containment when RM-091A/B and RM-070 through RM-075 are off-scale/not available, use Section 2.

NOTE: For determining actual release rates using Field Team data, use Section 3.

1. Main Steam/Condenser Off-gas System

   1.1 If RM-057 goes off-scale or becomes inoperable during an off-gas release, use RM-064 and a main steam flow value (in lbm/hr) from ERFCS (i.e., page 353) per the following criteria. (AR 17061)

      1.1.1 **IF** the off-gas line is directed to the Ventilation Stack, **THEN** use Attachment 6.4 for the assessment.

      1.1.2 **IF** RM-064 is reading at or below background, and the off-gas line is not directed to the Ventilation Stack, **THEN** use one (1) net count per minute (NCPM) for the RM-064 reading, go to Attachment 6.4.

      1.1.3 **IF** RM-064 is reading above background, and the off-gas line is not directed to the Ventilation Stack, **THEN** use the indicated reading, and proceed to Attachment 6.4.

      1.1.4 IF RM-064 is off-scale high or is otherwise known to be inoperable, go to Step 1.2 below.

   1.2 If RM-064 goes off-scale high or is otherwise known to be inoperable, perform the following:

      1.2.1 Obtain direct radiation readings on the main steam lines in Room 81. Refer to Figure 6.5.1 for reading locations.

      1.2.2 If the dose rate is between 0 and 100 mRem/hr, use the following equation to calculate the TEDE release rate:

$$Q_{TEDE} = (17.5)\ (\text{Contact Dose Rate in mRem/hr})$$

1.2.3 If the dose rate is >100 mRem/hr, use the following equation to calculate the TEDE release rate:

$$Q_{TEDE} = (5)\ (\text{Contact Dose Rate in mRem/hr})$$

1.2.4 Input the release rate data into the EAGLE dose assessment procedure to obtain the dose and dose rate results. (AR 17061)

2. Containment Leakage

2.1 If all Containment Area Radiation Monitors are off-scale or inoperable, perform the following:

2.1.1 Obtain direct radiation readings on containment penetrations C-2 or H-4. Refer to Figures 6.5.2 and 6.5.3 for reading locations.

2.1.2 Multiply this penetration reading by the Containment Multiplication Factor (CMF) using Figure 6.5.4, to determine an equivalent area monitor reading.

2.1.3 Insert the area monitor reading into the EAGLE dose assessment procedure to obtain the dose and dose rate results.

3. Determining Actual Release Rates from Field Team Data

NOTE: Field Teams must be dispatched, and data from the approximate plume centerline must be available in order to complete this procedure. The Field Team Specialist should be consulted for Field Team data.

3.1 Obtain FC-EPF-29 and collect the following data:

3.1.1 Date and time.

3.1.2 Downwind distance (in miles) to the sampling location.

3.1.3 Wind direction

3.1.4 Delta temperature (ΔT)

3.1.5 Wind speed

3.1.6 Diffusion factor ($\chi\mu/Q$) - Using Figure 6.5.5, determine the projected diffusion factor, based on time of day and downwind distance. During transitional periods, use the more conservative, or smaller, value.

3.1.7 Dose rate reported from the field team in Rem/hr.

3.1.8 Iodine air concentration reported from the field team in µCi/cc.

3.1.9 Particulate air concentration reported from the field team in µCi/cc.

3.1.10 Noble gas release rate from dose rate (Q_{NG} in Ci/sec) - Multiply the wind speed (Step 3.1.5) by the dose rate (Step 3.1.7) and by the factor provided, then divide the result by $\chi\mu/Q$ (Step 3.1.6).

3.1.11 Iodine release rate from Q_{NG} (in Ci/sec) - Multiply the noble gas release rate (Step 3.1.10) by the factor provided.

3.1.12 Iodine release rate from air sample data (in Ci/sec) -If desired, this method may be used if iodine air sample date is available from the Field Teams. Multiply the wind speed (Step 3.1.5) by the iodine concentration (Step 3.1.8), then divide the result by the $\chi\mu/Q$ (Step 3.1.6).

3.1.13 Particulate release rate from air sample data (in Ci/sec) - Multiply the wind speed (Step 3.1.5) by the particulate concentration (Step 3.1.9), then divide the result by the $\chi\mu/Q$ (Step 3.1.6).

3.2 Input Of Results

3.2.1 Upon completion of the calculations, input the release rate data into the EAGLE dose assessment procedure to obtain any dose and dose rate data as needed.

3.3 Follow-up Actions

3.3.1 Sign the assessment form and indicate the time completed.

Figure 6.5.1 - Main Steam Headers Radiation Dose Measurement Point Locations

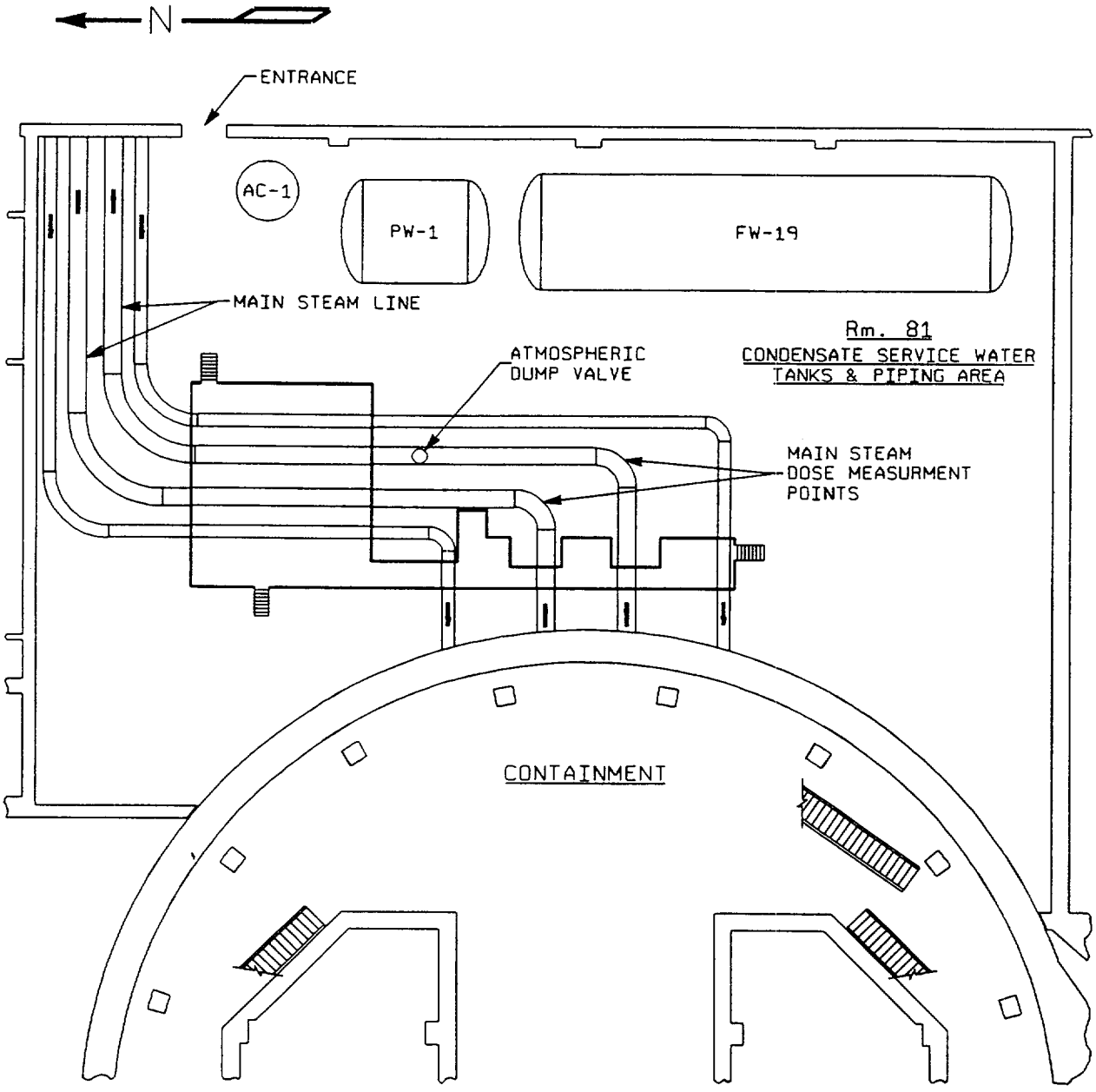
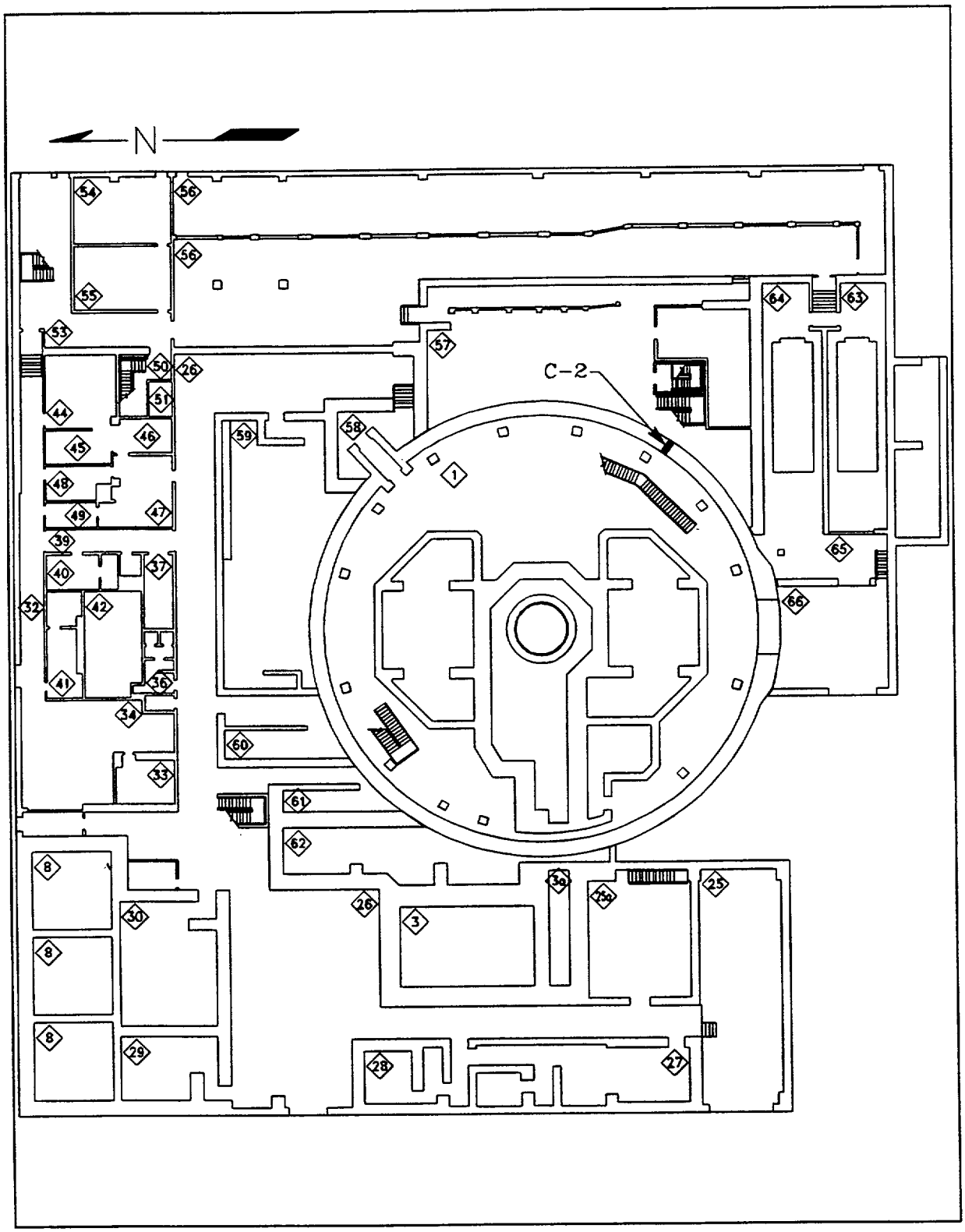


Figure 6.5.2 - Auxiliary Building - Plant Elevation 1007'-0" & 1013'-0



Attachment 6.5 (continued)

Figure 6.5.3 - Auxiliary Building - Plant Elevation 1036'-0

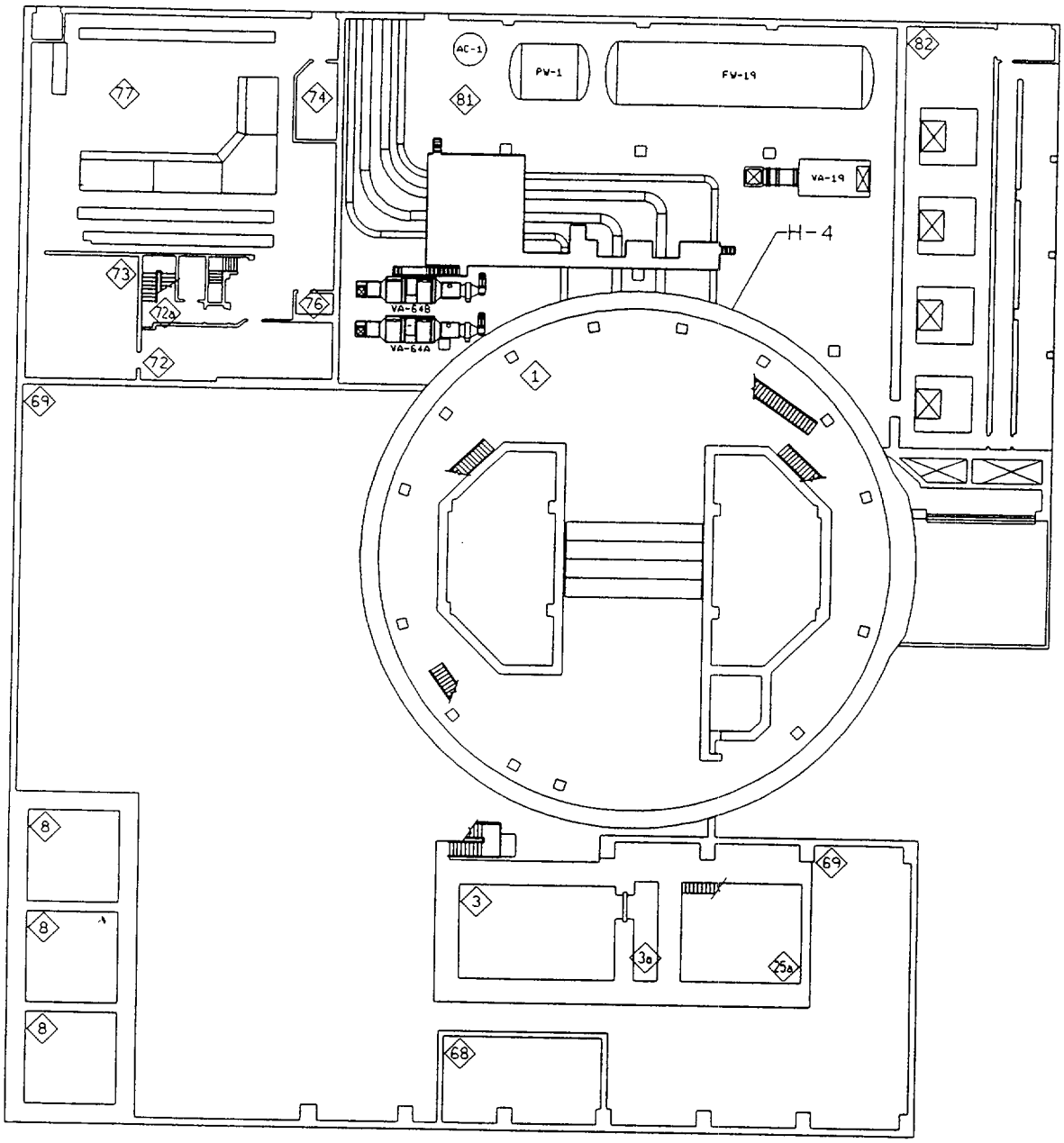


Figure 6.5.4 - Containment Multiplication Factor (CMF)

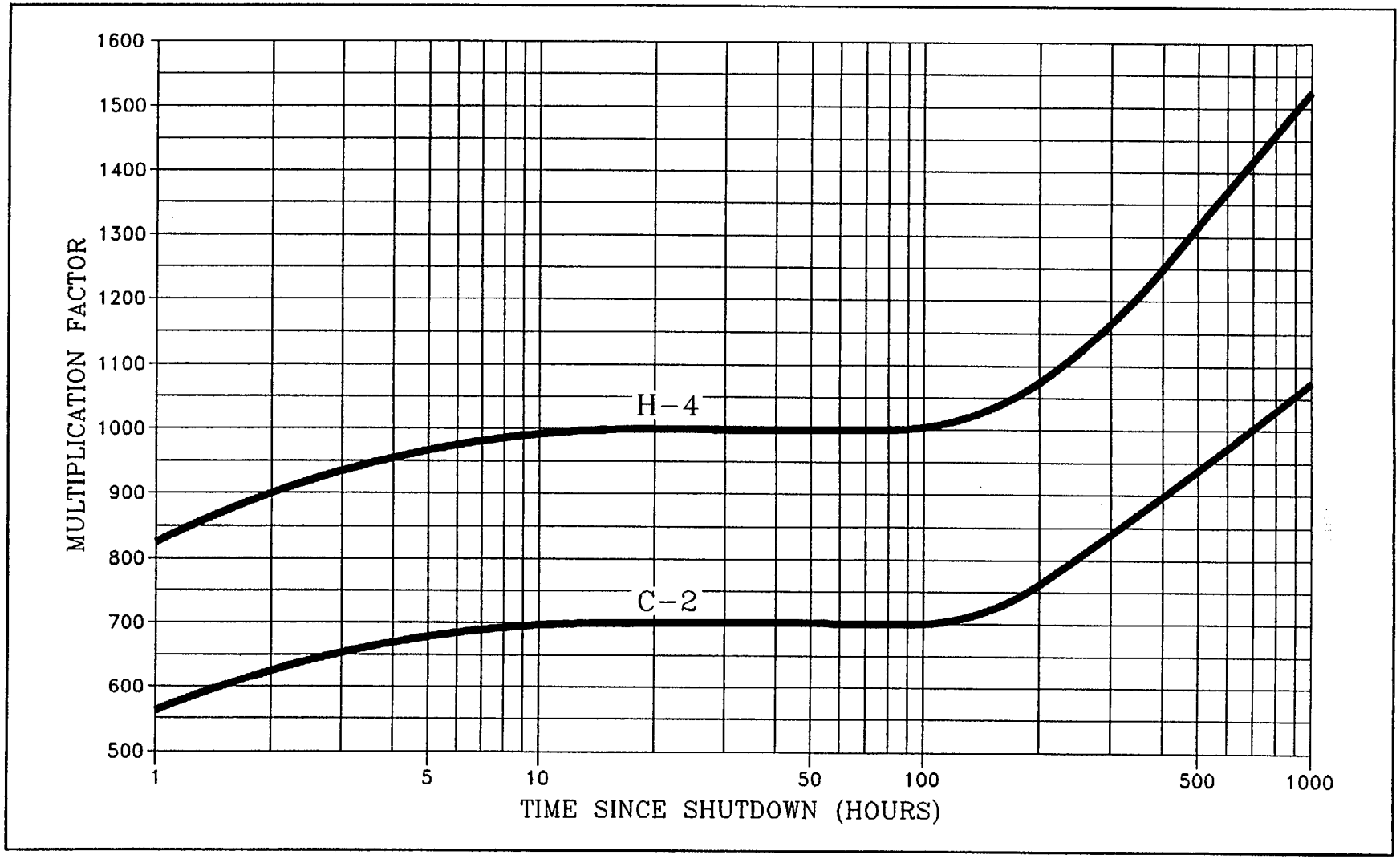
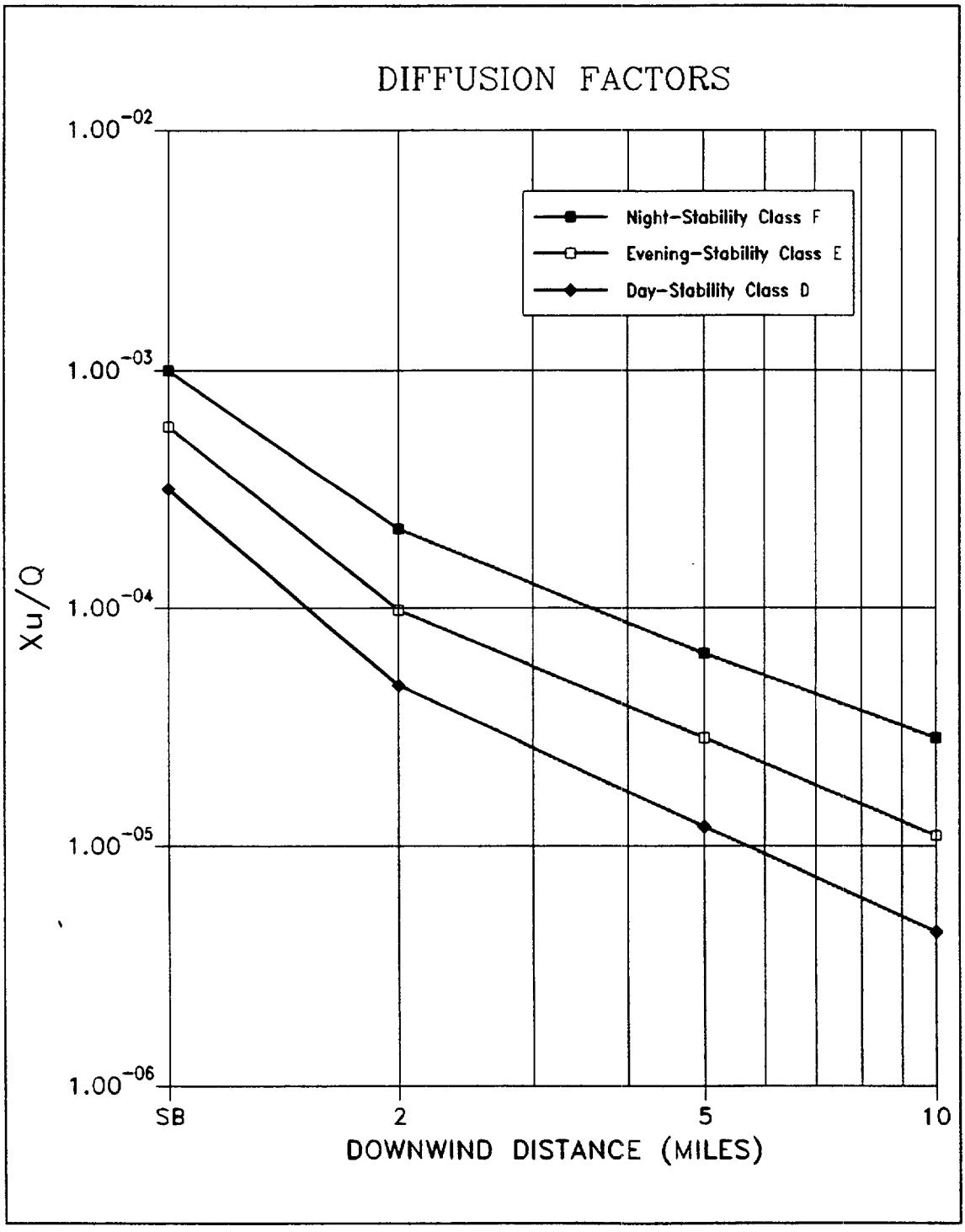


Figure 6.5.5 - Diffusion Factors



WP8

Fort Calhoun Station
Unit No. 1

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EPIP-EOF-7

EMERGENCY PLAN IMPLEMENTING PROCEDURE

Title: PROTECTIVE ACTION GUIDELINES

FC-68 Number: EC 25249

Reason for Change: Revise format per Writer's Guide. Change Attachment 6.2 to agree with P.M. PET Basis Document.

Requestor: Mark Reller

Preparer: Mark Reller

ISSUED: 10-31-00 3:00 pm

R13

PROTECTIVE ACTION GUIDELINES

1. PURPOSE

1.1 This procedure outlines the guidelines for determining Protective Action Recommendations (PARs).

2. REFERENCES/COMMITMENT DOCUMENTS

2.1 "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", EPA 400-R-92-001, May 1992

2.2 "Response Technical Manual" NUREG/BR-0150, USNRC, Volume 1, Rev. 4, March 1996

2.3 "Protective Measures Basis Document", CHP-00-038, September 28, 2000

3. DEFINITIONS

None

4. PREREQUISITES

4.1 An emergency has been declared per EPIP-OSC-1.

5. PROCEDURE

NOTE: When an Emergency Notification Form (FC-1188) is issued a Protective Action Recommendation (PAR) must be made. A PAR is considered developed when the FC-1188 is signed.

NOTE: For a Notification of Unusual Event (NOUE) or Alert the PAR is typically "None".

NOTE: At a General Emergency the minimum PAR is the evacuation of a 2 mile radius (all sectors) around the plant (Sub Areas 1 and 10).

NOTE: Do not delay required notifications while awaiting dose assessment projections or field team results.

5.1 Using Attachments 6.1 and 6.2, determine the appropriate PAR.

5.2 Record PAR(s) on Emergency Notification Form (FC-1188).

5.3 PAR Preparation and Review

5.3.1 In the Control Room

A. Operations personnel normally prepare PAR(s) based on plant conditions.

B. The dose assessment position normally prepares PAR(s) based on radiological conditions.

5.3.2 In the Technical Support Center (TSC)

A. The Operations Liaison Group or the Site Director normally prepares PAR(s) based on plant conditions.

B. The TSC Protective Measures Coordinator normally prepares PAR(s) based on radiological conditions.

5.3.3 In the Emergency Operation Facility (EOF)

A. The Protective Measures Manager's Group normally prepares PAR(s), with assistance from the Operations Liaison Group.

B. The Protective Measures Manager normally reviews PAR(s).

5.4 The Command and Control Position must approve all PAR(s).

NOTE: State and county officials are responsible for the final decision on what PAR(s) are issued to the public.

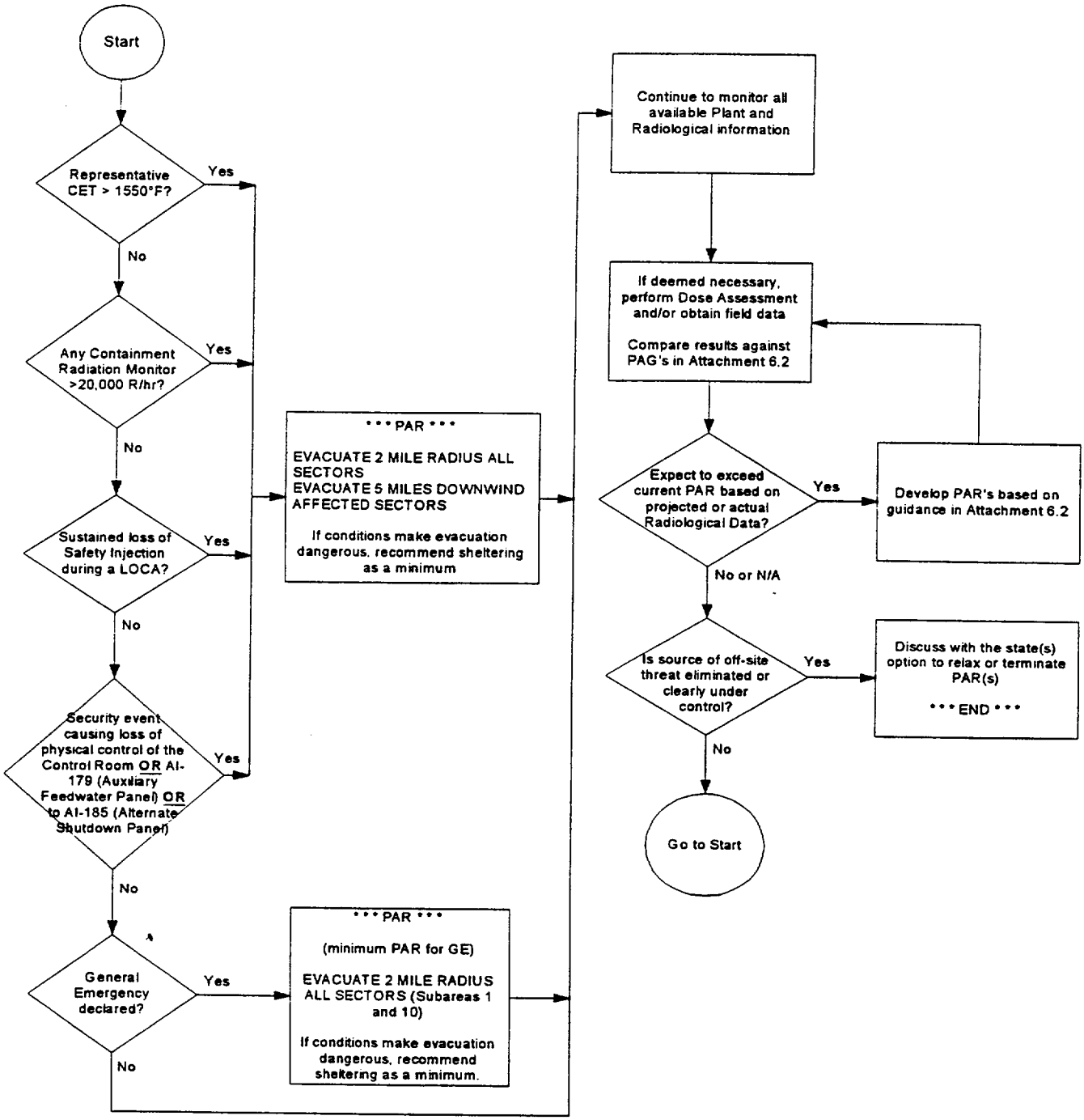
5.5 Transmit the PARs to the state and counties per EPIP-OSC-2 and EPIP-OSC-15.

6. ATTACHMENTS

6.1 Protective Action Recommendations Flowchart Based on Plant Conditions and Radiological Data

6.2 Protective Action Recommendations Based on Dose Assessment/Field Team Radiological Data

Attachment 6.1 - Protective Action Recommendations Flowchart Based on Plant Conditions and Radiological Data



Attachment 6.2 - Protective Action Recommendations Based on Dose Assessment/Field Team Radiological Data

Early Phase (Plume Phase):

Projected Dose	Protective Action Recommendation (PAR)
<1 rem TEDE <5 rem CDE (thyroid)	**None (NO PAR REQUIRED)** and continue to monitor radiological conditions
≥1 rem TEDE ≥5 rem CDE (thyroid)	**Evacuate** Shelter, if it will provide protection equal to or greater than evacuation up to 10 rem (**NOTE**)
≥50 rem SDE (skin)	**Evacuate**

NOTE: Sheltering may be preferable to evacuation as a protective action in some situations. Because of the higher risk associated with evacuation of some special groups in the population (e.g. those who are not readily mobile), sheltering may be the preferred alternative for such groups as a protective action at projected doses up to 5 rem TEDE. In addition, under unusually hazardous environmental conditions, use of sheltering up to 5 rem TEDE to the general population (and up to 10 rem to special groups) may be justified.

For example, situations when evacuation may not be appropriate at 1 rem TEDE include: (1) the presence of severe weather; (2) competing disasters; (3) institutionalized people who are not readily mobile; and (4) local physical factors which impede evacuation.