



**Fort Calhoun Station**  
**P.O. Box 550, Highway 75**  
**Fort Calhoun, NE 68023-0550**

June 13, 2003  
LIC-03-0087

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Reference: Docket No. 50-285

**SUBJECT: Transmittal of Changes to Emergency Plan Implementing Procedures (EPIP)**

In accordance with 10 CFR 50.54(q), 10 CFR 50, Appendix E, Section V, and 10 CFR 50.4(b)(5), please find EPF change packages enclosed for the Document Control Desk (holder of Copy 165) and the NRC Region IV Plant Support Branch Secretary (holder of Copies 154 and 155).

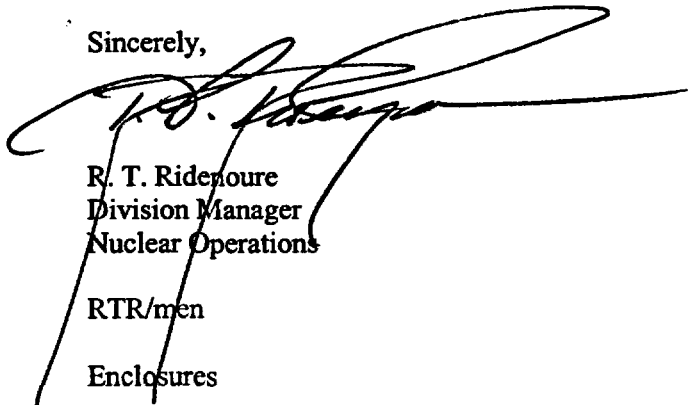
The document update instructions and summary of changes are included on the Confirmation of Transmittal form (Form EP-1) attached to each controlled copy change package. Please return the Confirmation of Transmittal forms by July 25, 2003.

The revised documents included in the enclosed package are:

EPIP Index 3 pages issued 05/28/03	EPIP-EOF-6 R32a issued 01/23/02
EPIP-OSC-2 R42 issued 05/28/03	EPIP-OSC-15 R22 issued 10/24/00
EPIP-OSC-21 R12 issued 10/29/02	EPIP-RR-11 R14 issued 02/29/00
EPIP-RR-17 R15 issued 12/10/02	EPIP-RR-17A R20 issued 11/07/02
EPIP-RR-19A R6 issued 04/15/03	EPIP-RR-21 R12 issued 09/23/99
EPIP-RR-21A R4 issued 11/30/99	EPIP-RR-28 R8 issued 09/25/01
EPIP-RR-39 R0 issued 03/27/01	EPIP-TSC-1 R23 issued 10/29/02
RERP Index page 1 of 2 issued 05/28/03	RERP Section J R18 issued 05/28/03
FC-EPF Index page 2 of 3 issued 06/03/03	FC-EPF-20 R2 issued 06/03/03

If you have any questions regarding the enclosed changes, please contact Mr. Carl Simmons at (402) 533-6430.

Sincerely,



R. T. Ridenoure  
Division Manager  
Nuclear Operations

RTR/men

Enclosures

c: NRC Region IV Plant Support Branch Secretary (2 sets)  
Alan Wang, NRC Project Manager (w/o enclosures)  
J. G. Kramer, NRC Senior Resident Inspector (w/o enclosures)  
Emergency Planning Department (w/o enclosures)

Employment with Equal Opportunity

A045

OMAHA PUBLIC POWER DISTRICT

Confirmation of Transmittal for  
Emergency Planning Documents/Information

<input checked="" type="checkbox"/> Radiological Emergency Response Plan (RERP)	<input checked="" type="checkbox"/> Emergency Plan Implementing Procedures (EPIP)	<input checked="" type="checkbox"/> Emergency Planning Forms (EPF)
<input type="checkbox"/> Emergency Planning Department Manual (EPDM)	<input type="checkbox"/> Other Emergency Planning Document(s)/ Information	

Transmitted to:

Name: Document Control Desk Copy No: 165  
Division of Reactor Safety Copy No: 154  
Attn: Senior Emergency Preparedness Inspector  
Division of Reactor Safety Copy No: 155  
Attn: Senior Emergency Preparedness Inspector

Date: \_\_\_\_\_

The following document(s) / Information are forwarded for your manual:

**REMOVE SECTION**

EPIP Index 3 pages Issued 05/15/03  
EPIP-EOF-6 R32 issued 01/23/02  
EPIP-OSC-2 R41 issued 01/27/03  
EPIP-OSC-15 R22 issued 10/24/00  
EPIP-OSC-21 R12 issued 10/29/02  
EPIP-RR-11 R14 issued 02/29/00  
EPIP-RR-17 R15 issued 12/10/02  
EPIP-RR-17A R20 issued 11/07/02  
EPIP-RR-19A R6 issued 04/15/03  
EPIP-RR-21 R12 issued 09/23/99  
EPIP-RR-21A R4 issued 11/30/99  
EPIP-RR-28 R8 issued 09/25/01  
EPIP-RR-39 R0 issued 03/27/01  
EPIP-TSC-1 R23 issued 10/29/02  
RERP Index page 1 of 2 issued 04/03/03  
RERP Section J R17 issued 03/25/03  
FC-EPF Index page 2 of 3 issued 10/08/02  
FC-EPF 20 R1 issued 07/29/97

**INSERT SECTION**

EPIP Index 3 pages Issued 05/28/03  
EPIP-EOF-6 R32a issued 01/23/02  
EPIP-OSC-2 R42 issued 05/28/03  
EPIP-OSC-15 R22 issued 10/24/00  
EPIP-OSC-21 R12 issued 10/29/02  
EPIP-RR-11 R14 issued 02/29/00  
EPIP-RR-17 R15 issued 12/10/02  
EPIP-RR-17A R20 issued 11/07/02  
EPIP-RR-19A R6 issued 04/15/03  
EPIP-RR-21 R12 issued 09/23/99  
EPIP-RR-21A R4 issued 11/30/99  
EPIP-RR-28 R8 issued 09/25/01  
EPIP-RR-39 R0 issued 03/27/01  
EPIP-TSC-1 R23 issued 10/29/02  
RERP Index page 1 of 2 issued 05/28/03  
RERP Section J R18 issued 05/28/03  
FC-EPF Index page 2 of 3 issued 06/03/03  
FC-EPF 20 R2 issued 06/03/03

**Summary of Changes:**

EPIP-EOF-6 was revised adding note telling when to use fax, also to clarify instructions on how to use imminent release. EPIP-OSC-2 was revised to make changes to comply with new security card readers. EPIP-OSC-15 was revised to change action steps about obtaining keys to a note, also to edit step(s) about EP Activation Booklet to clarify intent. EPIP-OSC-21 was revised to delete step requiring synchronizing clocks to the ERF since we now use atomic clocks. EPIP-RR-11 was revised to update format, delete note, delete reference to Chemistry Liaison, and change ERMS operator to Site Directors Secretary and to change CID to ARs'. EPIP-RR-17 was revised to update format, to add instructions as required by users and to add instructions for actions to be taken upon event termination. EPIP-RR-17A was revised to add instructions for TSC Admin Logistics Coordinator to interface with the EOF Admin Logistics Manager to determine what special needs may be needed and to ensure that it is understood who performs these tasks. EPIP-RR-19A was revised to insert step in Attachment 6.2 to include tracking of EOP's and AOP's by TSC Ops Liaison. EPIP-RR-21 was revised to add ERMS operator to list of people needed for 24-hour staffing schedule and to remove step 5 of Att. 6.1 as this is redundant to EPIP-OSC-21 Att. 6.2 step 4.b. EPIP-RR-21A was reformatted per Writers Guide. EPIP-RR-28 was revised per Writer's Guide and to delete reference to RP-604 and HIS-20 since they do not address emergency exposure. EPIP-RR-39 is a new procedure to provide guidance for Control Room Medical Responder. EPIP-TSC-1 was revised to delete step requiring synchronizing clocks to the ERF since we now use atomic clocks. RERP Section J was revised to make changes to comply with new security card readers.

*For* Donald E. Meyer  
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 07/25/03 to:

Beth Nagel  
Fort Calhoun Station, FC-2-1  
Omaha Public Power District  
444 South 16<sup>th</sup> 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: \_\_\_\_\_

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Document	Document Title	Revision/Date
EPIP-OSC-1	Emergency Classification	R35 05-02-02
EPIP-OSC-2	Command and Control Position Actions/Notifications	R42 05-28-03
EPIP-OSC-9	Emergency Team Briefings	R7 12-09-99
EPIP-OSC-15	Communicator Actions	R22 10-24-00a
EPIP-OSC-21	Activation of the Operations Support Center	R12 10-29-02a
EPIP-TSC-1	Activation of the Technical Support Center	R23 10-29-02a
EPIP-TSC-2	Catastrophic Flooding Preparations (R0 03-22-95) DELETED (05-09-95) REINSTATED	R3 01-23-03
EPIP-TSC-8	Core Damage Assessment	R14 01-19-01
EPIP-EOF-1	Activation of the Emergency Operations Facility	R13 10-29-02
EPIP-EOF-3	Offsite Monitoring	R18 11-12-02
EPIP-EOF-6	Dose Assessment	R32 01-23-02a
EPIP-EOF-7	Protective Action Guidelines	R14 04-15-03
EPIP-EOF-10	Warehouse Personnel Decontamination Station Operation	R10 01-13-00a
EPIP-EOF-11	Dosimetry Records, Exposure Extensions and Habitability	R19 04-03-03

Document	Document Title	Revision/Date
EPIP-EOF-19	Recovery Actions	R7 09-30-98
EPIP-EOF-21	Potassium Iodide Issuance	R4 11-07-00
EPIP-EOF-23	Emergency Response Message System	R5 10-12-99
EPIP-EOF-24	EOF Backup Alert Notification System Activation	R3 09-09-99
EPIP-RR-11	Technical Support Center Director Actions	R14 02-29-00a
EPIP-RR-13	Reactor Safety Coordinator Actions	R14 12-09-99a
EPIP-RR-17	TSC Security Coordinator Actions	R15 12-10-02a
EPIP-RR-17A	TSC Administrative Logistics Coordinator Actions	R20 11-07-02a
EPIP-RR-19A	Operations Liaison Actions	R6 04-15-03a
EPIP-RR-21	Operations Support Center Director Actions	R12 09-23-99a
EPIP-RR-21A	Maintenance Coordinator Actions	R4 11-30-99a
EPIP-RR-22	Protective Measures Coordinator/Manager Actions	R22 05-15-03
EPIP-RR-22A	Chemistry Coordinator Actions	R6 12-07-01
EPIP-RR-25	EOF Dose Assessment Coordinator Actions	R21 05-15-03
EPIP-RR-28	OSC Accountability and Dosimetry Technician Actions	R8 09-25-01a

Document	Document Title	Revision/Date
EPIP-RR-29	EOF Administrative Logistics Manager Actions	R20 11-07-02
EPIP-RR-39	Control Room Medical Responder Actions	R0 03-27-01a
EPIP-RR-63	EOF Dose Assessment Assistant Actions	R10 11-19-01
EPIP-RR-66	Communication Specialist Actions	R8 08-31-99
EPIP-RR-72	Field Team Specialist Actions	R13 07-09-02
EPIP-RR-87	Radiation Protection Coordinator Actions	R7 08-24-00
EPIP-RR-90	EOF/TSC CHP Communication Actions	R0 10-24-00

Fort Calhoun Station  
Unit No. 1

**Distribution Authorized**

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**EPIP-EOF-6**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: DOSE ASSESSMENT**

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**FC-68 Number: EC 28905**

**Reason for Change: Add note telling when to use fax. Clarify instructions on how to use imminent release. (CR 200103341)**

**Requestor: M. Reller**

**Preparer: M. Reller**

**Correction (a): Pages 4 and 8 (05-28-03) (Issue all pages)**

**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 TDB-IV.8, Area Monitor Setpoints
- 2.5** User's Guide for EAGLE 5.00
- 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



### 3. DEFINITIONS

- 3.1 DELTA T ( $\Delta T$ ) TEMPERATURE - the temperature difference between 10 and 60 meters, in units of centigrade. The value displayed on the ERFCS equates to a  $100\Delta T[(T @ 60m - T @ 10m) \times 2]$ .
- 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  $\Delta T$  of +2.0 and a stability class F. For all other conditions, use a  $\Delta T$  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

Page 1 of 4

1. Using information from the Control Room as needed and AI-33A, B and C or ERFCS pages 197, 360 and 361 evaluate and determine the release pathways for dose assessment as follows:

**NOTE:** The sample Control Module for RM-052 must be in the VENT position (monitoring the Auxiliary Building Vent Stack) in order to be used for dose assessment.

**NOTE:** RM-062/063 are the preferred process monitors to be used for dose assessment on the Auxiliary Building Vent Stack. RM-062 is normally in-service and RM-063 is normally in Standby. When RM-062 count rate exceeds  $5.0 \text{ E}+06 \text{ cpm}$  or if RM-063 exceeds  $5.0 \text{ E}-3 \text{ } \mu\text{C/cc}$ ; sample flow will automatically shift from RM-062 to RM-063 and the alarm "RM-063 AUX BLDG VENT STACK IN SERVICE" will annunciate on AI-33C. When RM-063 radiation level drops below  $5.0 \text{ E}-3 \text{ } \mu\text{C/cc}$ , sample flow will shift to RM-062 and RM-063 will shift to Standby.

- 1.1 Evaluate the Auxiliary Building Vent Stack release pathway using RM-052, RM-062 and RM-063.
  - 1.1.1 If RM-052 or RM-062 is in High Alarm, determine the source of the release to the Auxiliary Building Vent Stack.
    - If the source of the release can be determined to be only from Condenser Off-gas (i.e. Off-gas is aligned to Auxiliary Building Vent Stack and there are no other release sources to the Auxiliary Building Vent Stack), then use an Iodine/Noble Gas Ratio of 0.003 for the Auxiliary Building Vent Stack release.
    - Otherwise, use the default Iodine/Noble Gas Ratio of 0.02.
- 1.2 Evaluate the Condenser/Main Steam release pathway using RM-057, RM-064 and whether or not a primary to secondary leak has been confirmed.
  - 1.2.1 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed, request that RM-064 be placed in service on the affected Main Steam Line.
  - 1.2.2 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed and if Condenser Off-gas is being vented directly to the atmosphere via the Turbine Building Roof, request that Condenser Off-gas be aligned to the Auxiliary Building Vent Stack.

Attachment 6.1 (continued)

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- 1.2.3 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed and Condenser Off-gas is being vented directly to the atmosphere via the Turbine Building Roof, perform dose assessment using Condenser Off-gas a release pathway, a flow rate of 340 scfm, and use an Iodine/Noble Gas Ratio of 0.003.
  - 1.2.4 If a primary to secondary leak is confirmed and RM-057 is not operable or is over ranged, and Condenser Off-gas is not aligned to the Auxiliary Building Vent Stack, this is an unmonitored release.
  - 1.2.5 If there is a confirmed primary to secondary leak, and FW-10 is receiving steam from the affected Steam Generator, or the atmospheric Steam Dump Valve HCV-1040 is OPEN or a Steam Safety is lifting on the affected side, and RM-064 count rate is above the back ground count rate as listed in TDB-IV.7, use an Iodine/Noble Gas Ratio of 0.003.
  - 1.2.6 If there is a confirmed primary to secondary leak, and FW-10 is receiving steam from the affected Steam Generator, or the atmospheric Steam Dump Valve HCV-1040 is OPEN or a Steam Safety is lifting on the affected side, and RM-064 count rate is less than or equal to the background count rate as listed in TDB-IV.7, this is unmonitored release.
- 1.3 Evaluate the Containment Leakage release pathway using Containment Area Monitors.
- NOTE:** If containment leakage is suspected to be greater than designed Containment leakage of 1.5 scfm, and the leakage is from the Containment to the stack or from the Containment to Controlled Areas of the Auxiliary Building to the Auxiliary Building Vent Stack, consideration may be given not to count the release twice if dose assessment will be performed from the Auxiliary Building Vent Stack.
- 1.3.1 If Containment Area Monitors RM-070 through RM-075 are in High Alarm or RM-091A and B read 1.0 R/hr or higher, perform dose assessment using Containment leakage as a release pathway.
  - 1.3.2 IF any area monitors indicate > 1000 times the background listed in TDB-IV.8, THEN inform the Command and Control position for classification information.
- 1.4 Evaluate the Radwaste Building Stack as a release pathway using RM-043
- 1.4.1 If RM-043 is in High Alarm, perform dose assessment using the Radiological Waste Building Vent Stack as a release pathway.

Attachment 6.1 (continued)

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1.5 Evaluate the liquid release pathways as follows:

- 1.5.1 If RM-055, Overboard Discharge Monitor is reading greater than the High Alarm Setpoint as listed in TDB-IV.7 and the overboard discharge flow is not isolated, then a liquid release assessment must be performed.
- 1.5.2 If either RM-054A or RM-054B Steam Generator Blowdown Monitors are reading greater than the High Alarm Setpoint as listed in TDB-IV.7 and blowdown flow is not isolated from the Steam Generator(s) with a primary to secondary leak, then a liquid release assessment must be performed.

1.6 Determine if there are any potentially unmonitored releases.

- 2. Perform dose assessment for monitored release pathways using Attachment 6.4 and for unmonitored release pathways per Attachment 6.5.
- 3. Review/Distribution

**NOTE:** The PAR information generated by EAGLE is for OPPD decision maker's information only. Actual PARs are determined by the Command and Control position. The PAR Information Worksheet should be one of the tools used for guidance in determining PARs.

3.1 If Command and Control is in the Control Room

- 3.1.1 Have the Command and Control position review the PAR Information Worksheet and the Update Report to Offsite Authorities.

**NOTE:** If a dose assessment results in a change in classification or a PAR change, ensure that the states are notified by the CR Communicator using an approved Emergency Notification form (FC-1188) prior to faxing the Update Report to Offsite Authorities.

**NOTE:** If the Network is down or faxing is slow consider using the stand-alone fax machine.

3.1.2 If the Command and Control position approves the assessment:

- Click the "Fax/Distribute" button at the bottom of the Release Information Screen
- Select the proper distribution list(s)
- Click "OK"

**Attachment 6.1 (continued)**

**Page 4 of 4**

**3.2 If Command and Control is in the TSC:**

- 3.2.1 Fax unsigned PAR Information Worksheet and Update Report to State and County Authorities 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 3

**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. Inform the Protective Measures Coordinator that you will be performing dose assessment in the TSC.
2. Using information from the Control Room as needed and AI-33A, B and C or ERFCS pages 197, 360 and 361 evaluate and determine the release pathways for dose assessment as follows:

**NOTE:** The sample Control Module for RM-052 must be in the VENT position (monitoring the Auxiliary Building Vent Stack) in order to be used for dose assessment.

**NOTE:** RM-062/063 are the preferred process monitors to be used for dose assessment on the Auxiliary Building Vent Stack. RM-062 is normally in-service and RM-063 is normally in Standby. When RM-062 count rate exceeds  $5.0 \text{ E}+06 \text{ cpm}$  or if RM-063 exceeds  $5.0 \text{ E}-3 \text{ } \mu\text{C/cc}$ ; sample flow will automatically shift from RM-062 to RM-063 and the alarm "RM-063 AUX BLDG VENT STACK IN SERVICE" will annunciate on AI-33C. When RM-063 radiation level drops below  $5.0 \text{ E}-3 \text{ } \mu\text{C/cc}$ , sample flow will shift to RM-062 and RM-063 will shift to Standby.

- 2.1 Evaluate the Auxiliary Building Vent Stack release pathway using RM-052, RM-062 and RM-063.
  - 2.1.1 If RM-052 or RM-062 is in High Alarm, determine the source of the release to the Auxiliary Building Vent Stack.
    - IF the source of the release can be determined to be only from Condenser Off-gas (i.e. Off-gas is aligned to Auxiliary Building Vent Stack and there are no other release sources to the Auxiliary Building Vent Stack), THEN use an Iodine/Noble Gas Ratio of 0.003 for the Auxiliary Building Vent Stack release.
    - Otherwise, use the default Iodine/Noble Gas Ratio of 0.02.
- 2.2 Evaluate the Condenser/Main Steam release pathway using RM-057, RM-064 and whether or not a primary to secondary leak has been confirmed.
  - 2.2.1 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed, request that RM-064 be placed in service on the affected Main Steam Line.

Attachment 6.2 (continued)

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- 2.2.2 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed and if Condenser Off-gas is being vented directly to the atmosphere via the Turbine Building Roof, request that Condenser Off-gas be aligned to the Auxiliary Building Vent Stack.
  - 2.2.3 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed and Condenser Off-gas is being vented directly to the atmosphere via the Turbine Building Roof, perform dose assessment using Condenser Off-gas a release pathway, a flow rate of 340 scfm, and use an Iodine/Noble Gas Ratio of 0.003.
  - 2.2.4 If a primary to secondary leak is confirmed and RM-057 is not operable or is over ranged, and Condenser Off-gas is not aligned to the Auxiliary Building Vent Stack, this is an unmonitored release.
  - 2.2.5 If there is a confirmed primary to secondary leak, and FW-10 is receiving steam from the affected Steam Generator, or the atmospheric Steam Dump Valve HCV-1040 is OPEN or a Steam Safety is lifting on the affected side, and RM-064 count rate is above the back ground count rate as listed in TDB-IV.7, use an Iodine/Noble Gas Ratio of 0.003.
  - 2.2.6 If there is a confirmed primary to secondary leak, and FW-10 is receiving steam from the affected Steam Generator, or the atmospheric Steam Dump Valve HCV-1040 is OPEN or a Steam Safety is lifting on the affected side, and RM-064 count rate is less than or equal to the background count rate as listed in TDB-IV.7, this is unmonitored release.
- 2.3 Evaluate the Containment Leakage release pathway using Containment Area Monitors
- NOTE:** If containment leakage is suspected to be greater than designed Containment leakage of 1.5 scfm, and the leakage is from the Containment to the stack or from the Containment to Controlled Areas of the Auxiliary Building to the Auxiliary Building Vent Stack, consideration may be given not to count the release twice if dose assessment will be performed from the Auxiliary Building Vent Stack.
- 2.3.1 If Containment Area Monitors RM-070 through RM-075 are in High Alarm or RM-091A and B read 1.0 R/hr or higher, perform dose assessment using Containment leakage as a release pathway.
  - 2.3.2 IF any area monitors indicate > 1000 times the background listed in TDB-IV.8, THEN inform the Command and Control position for classification information.



Attachment 6.2 (continued)

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2.4 Evaluate the Radwaste Building Stack as a release pathway using RM-043

2.4.1 If RM-043 is in High Alarm, perform dose assessment using the Radiological Waste Building Vent Stack as a release pathway.

2.5 Evaluate the liquid release pathways as follows:

2.5.1 IF RM-055, Overboard Discharge Monitor is reading greater than the High Alarm Setpoint as listed in TDB-IV.7 and the overboard discharge flow is not isolated, then a liquid release assessment must be performed.

2.5.2 If either RM-054A or RM-054B Steam Generator Blowdown Monitors are reading greater than the High Alarm Setpoint as listed in TDB-IV.7 and blowdown flow is not isolated from the Steam Generator(s) with a primary to secondary leak, then a liquid release assessment must be performed.

2.6 Determine if there are any potentially unmonitored releases.

3. Perform dose assessment for monitored release pathways using Attachment 6.4 and for unmonitored release pathways per Attachment 6.5.

4. Review

**NOTE:** The PAR information generated by EAGLE is for OPPD decision maker's information only. Actual PARs are determined by the Command and Control position. The PAR Information Worksheet should be one of the tools used for guidance in determining PARs.

4.1 Obtain a printout of the PAR Information Worksheet and the Update Report to Offsite Authorities.

4.2 Forward printouts 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

Page 1 of 4

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. Using information from the Control Room as needed and AI-33A, B and C or ERFCS pages 197, 360 and 361 evaluate and determine the release pathways for dose assessment as follows:

**NOTE:** The sample Control Module for RM-052 must be in the VENT position (monitoring the Auxiliary Building Vent Stack) in order to be used for dose assessment.

**NOTE:** RM-062/063 are the preferred process monitors to be used for dose assessment on the Auxiliary Building Vent Stack. RM-062 is normally in-service and RM-063 is normally in Standby. When RM-062 count rate exceeds  $5.0 \text{ E}+06 \text{ cpm}$  or if RM-063 exceeds  $5.0 \text{ E}-3 \text{ } \mu\text{C/cc}$ ; sample flow will automatically shift from RM-062 to RM-063 and the alarm "RM-063 AUX BLDG VENT STACK IN SERVICE" will annunciate on AI-33C. When RM-063 radiation level drops below  $5.0 \text{ E}-3 \text{ } \mu\text{C/cc}$ , sample flow will shift to RM-062 and RM-063 will shift to Standby.

- 5.1 Evaluate the Auxiliary Building Vent Stack release pathway using RM-052, RM-062 and RM-063.
  - 5.1.1 If RM-052 or RM-062 is in High Alarm, determine the source of the release to the Auxiliary Building Vent Stack.
    - IF the source of the release can be determined to be only from Condenser Off-gas (i.e. Off-gas is aligned to Auxiliary Building Vent Stack and there are no other release sources to the Auxiliary Building Vent Stack), THEN use an Iodine/Noble Gas Ratio of 0.003 for the Auxiliary Building Vent Stack release.
    - Otherwise, use the default Iodine/Noble Gas Ratio of 0.02.

**Attachment 6.3 (continued)**

**Page 2 of 4**

- 5.2 Evaluate the Condenser/Main Steam release pathway using RM-057, RM-064 and whether or not a primary to secondary leak has been confirmed.**
- 5.2.1 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed, request that RM-064 be placed in service on the affected Main Steam Line.**
- 5.2.2 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed and if Condenser Off-gas is being vented directly to the atmosphere via the Turbine Building Roof, request that Condenser Off-gas be aligned to the Auxiliary Building Vent Stack.**
- 5.2.3 If RM-057 is in High Alarm or if a primary to secondary leak is confirmed and Condenser Off-gas is being vented directly to the atmosphere via the Turbine Building Roof, perform dose assessment using Condenser Off-gas a release pathway, a flow rate of 340 scfm, and use an Iodine/Noble Gas Ratio of 0.003.**
- 5.2.4 If a primary to secondary leak is confirmed and RM-057 is not operable or is over ranged, and Condenser Off-gas is not aligned to the Auxiliary Building Vent Stack, this is an unmonitored release.**
- 5.2.5 If there is a confirmed primary to secondary leak, and FW-10 is receiving steam from the affected Steam Generator, or the atmospheric Steam Dump Valve HCV-1040 is OPEN or a Steam Safety is lifting on the affected side, and RM-064 count rate is above the back ground count rate as listed in TDB-IV.7, use an Iodine/Noble Gas Ratio of 0.003.**
- 5.2.6 If there is a confirmed primary to secondary leak, and FW-10 is receiving steam from the affected Steam Generator, or the atmospheric Steam Dump Valve HCV-1040 is OPEN or a Steam Safety is lifting on the affected side, and RM-064 count rate is less than or equal to the background count rate as listed in TDB-IV.7, this is unmonitored release.**

Attachment 6.3 (continued)

Page 3 of 4

5.3 Evaluate the Containment Leakage release pathway using Containment Area Monitors

**NOTE:** If containment leakage is suspected to be greater than designed Containment leakage of 1.5 scfm, and the leakage is from the Containment to the stack or from the Containment to Controlled Areas of the Auxiliary Building to the Auxiliary Building Vent Stack, consideration may be given not to count the release twice if dose assessment will be performed from the Auxiliary Building Vent Stack.

5.3.1 If Containment Area Monitors RM-070 through RM-075 are in High Alarm or RM-091A and B read 1.0 R/hr or higher, perform dose assessment using Containment leakage as a release pathway.

5.3.2 IF any area monitors indicate > 1000 times the background listed in TDB-IV.8, THEN inform the Command and Control position for classification information.

5.4 Evaluate the Radwaste Building Stack as a release pathway using RM-043

5.4.1 If RM-043 is in High Alarm, perform dose assessment using the Radiological Waste Building Vent Stack as a release pathway.

5.5 Evaluate the liquid release pathways as follows:

5.5.1 If RM-055, Overboard Discharge Monitor is reading greater than the High Alarm Setpoint as listed in TDB-IV.7 and the overboard discharge flow is not isolated, then a liquid release assessment must be performed.

5.5.2 If either RM-054A or RM-054B Steam Generator Blowdown Monitors are reading greater than the High Alarm Setpoint as listed in TDB-IV.7 and blowdown flow is not isolated from the Steam Generator(s) with a primary to secondary leak, then a liquid release assessment must be performed.

5.6 Determine if there are any potentially unmonitored releases.

6. Perform dose assessment for monitored release pathways using Attachment 6.4 and for unmonitored release pathways per Attachment 6.5.

7. Review

**NOTE:** The PAR information generated by EAGLE is for OPPD decision maker's information only. Actual PARs are determined by the Command and Control position. The PAR Information Worksheet should be one of the tools used for guidance in determining PARs.

7.1 Obtain a printout of the PAR Information Worksheet and the Update report to Offsite Authorities.

7.2 Forward printouts to the Dose Assessment Coordinator.

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

Attachment 6.4 - Computerized Dose Assessment

Page 1 of 8

1. Logging on to EAGLE

1.1 Is terminal on, with EAGLE Main Menu page showing?

1.1.1 YES Select operational mode (emergency, drill or test), proceed to Step 1.2.

NO Re-boot the system, user name for each terminal is on the monitor, password for all machines is "eagle".

**NOTE:** If another terminal has network "Control" and is performing dose assessment, Coordinate the network synchronization accordingly. At the EOF work with the EOF Dose Assessment Coordinator to insure a smooth transfer of dose assessment responsibilities.

1.2 Verifying network status and control.

1.2.1 Click "View Network Status" a window will open showing the status of each EAGLE network terminal.

1.2.2 To take control of the network (with someone at other PC, preferred method):

- Have person in control click the "Release Control" button
- Click the "Take Control"
- Click "Exit"

1.2.3 To take control when no one is at the other PC:

- Click "Override Control"
- Click "Refresh"
- Click "Exit"

1.2.4 The blue lettering at the top of the EAGLE Main Menu screen should say "Network Mode/Control".

**CAUTION**

**IF** process monitor reading increases 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]

**2. Performing Dose Assessment**

**NOTE:** While EAGLE does have graphic capabilities, typically this function will only be performed at the EOF.

**2.1** Click "Atmospheric Diffusion and Dose Calculations" button.

**2.2** From the Change Plume Segment Number screen:

**NOTE:** It is possible to redo a plume by selecting that number at this point. All data for that plume and other sequential plumes will be lost.

**2.2.1** Enter "1" to start new plume series or the next sequential number to continue the current series.

**2.2.2** Click "OK".

**2.3** From the EAGLE Screen select:

**2.3.1** Click "Control Options" to select:

- Run Mode (Normal Dose Projection, is the default)
- Release Duration (4 hours is the default)

**2.3.2** Click "OK".

**2.3.3** If desired, click "Current Segment Time and Date" to gain another opportunity to change the plume number.

Attachment 6.4 (continued)

Page 3 of 8

**NOTE:** There are four release points listed at this point. To simplify this procedure, guidance will only be given for the Auxiliary Building Stack. The method for doing other release paths is similar. Reference the EAGLE Help menu or the EAGLE 5.0 User Manual if you need assistance with these pathways.

**NOTE:** For Condenser Off-gas releases, use a condenser ejector flow-rate of 340 cfm.

**NOTE:** For Condenser Main Steam releases, use an Iodine/Noble Gas Ratio of 0.003.

2.3.4 Click "Aux Bldg Stk" or appropriate button to enter release data:

- Select the appropriate option (the method described here will use radiation monitor data)
- Select the appropriate Rad Monitor
- Enter the current rad monitor value, click accept
- Enter the current Auxiliary Building Vent Stack flow (default is 72500), click "OK"
- Click "Change Iodine/Noble Gas Ratio", if needed, enter desired value (default is  $2 \times 10^{-2}$ ), click "Accept";
- If properly entered click "OK"
- Click "Return To Dose Calcs"

2.3.5 Repeat Step 2.3.4 for each release path.

2.3.6 Click "Change Met Parameters"



Attachment 6.4 (continued)

Page 4 of 8

**NOTE:** For early dose assessments use the defaults for Atmospheric Mixing Conditions and Atmospheric Stability Class Method. The Protective Measures Group in the EOF should review weather conditions and adjust assessments accordingly once the EOF has assumed command and control and dose assessment.

- Select the appropriate Atmospheric Mixing Condition (Unlimited Mixing Conditions is Default), enter the Mixing Height in meters.
- Select the appropriate Atmospheric Stability Class (Delta T Method is default). If you chose other than the default enter Sigma Theta in degrees Celsius.

**NOTE:** Use the most positive Delta-T and the slowest wind speed.

- Enter wind speed and direction, the ambient temperature and the appropriate Delta-T in the spaces provided.
- Once data is properly entered, click "OK"

## 2.4 Calculation

- 2.4.1 From the EAGLE screen click "Calculate". A red box will appear confirming the plume number which is being calculated.

**NOTE:** When EAGLE is done calculating the "Output Menu" box will be operational.

## 2.5 Viewing Calculated Results

- 2.5.1 Click "Output Menu"

Attachment 6.4 (continued)

Page 5 of 8

2.5.2 From the "EAGLE Output Menu" screen click on "Release/Dose Assessment Information"

- The "Data Input" sub-page will appear allowing you to verify that the correct data was used for calculations (Click on the "Recommendations" sub-page to verify rad monitor inputs and flows)
- Click on the "Projections" sub-page to get EAGLE Calculated results in TEDE and CDE at the Site Boundary, 2 miles, 5 miles and 10 miles. (any "Projected Integrated Dose (REM)) that require protective actions per EPIP-EOF-7 will be highlighted in red)
- Click on the "Recommendation" sub-page to view EAGLE recommended Protective Action Recommendations (PARs)

2.6 Printing

2.6.1 Click "Distribute"

2.6.2 Click "Print" after it is highlighted

**NOTE:** A window will open and ask a "Dose Assessment Report", a PARs Worksheet" or "Both".

2.6.3 Click the option you prefer (normally both).

2.6.4 Go to the proper attachment in this procedure for your facility for distribution and approval guidance.

2.7 Follow-up Actions

2.7.1 To go to the next plume segment

- Click "Return to Output Menu"
- From the "EAGLE Output Menu" screen click "Go To Next Plume Segment"
- Click "Run Next Segment"
- Go to Step 2.3 and follow guidance as needed to change inputs, as conditions require

**3. Imminent Release Assessment**

**3.1 Entering data**

- 3.1.1 From the main menu click "Atmospheric Diffusion Assessment and Dose Calculations".**
- 3.1.2 At the Plume Segment Number screen:**
- Enter the appropriate plume number
  - Click "OK"
- 3.1.3 At the EAGLE Screen select Control Options:**
- Select "Imminent Release Option"
  - Click "OK"
- 3.1.4 At the Containment Imminent Release Screen, select:**
- Change Release Time; to change the time until release
  - Change Containment Flow; to change Containment Pressure
  - Change Radiological Data; to enter data from rad monitors or isotopes
  - Hours after accident
  - Click "OK"
- 3.1.5 Click "Calculate Initial Release Rates", to get "Projected Release Rates" in Ci/sec.**

Attachment 6.4 (continued)

Page 7 of 8

3.1.6 Click Perform Straight-line Gaussian Projection:

- At the prompt select the release duration, click "OK"
- Enter the meteorological information, click "OK"
- The Plume Centerline Values Based on Straight-line Gaussian Diffusion Model will be displayed. Click "ok"
- At the Imminent Release screen, click "Exit"
- At the Dose Calculation screen the Straight Line Gaussian numbers calculated for the Imminent Release with a decayed source term will be displayed for Containment Leakage.
- Click the "Change Met Parameters" button
  - The "Change Met Parameters" screen will appear with the values used for the Imminent Release Calculation
  - Click "ok" to accept or change as desired.
- You may now calculate plumes based on the Imminent Release parameters

3.1.7 To return EAGLE to the default spectrum after doing an Imminent Release Calculation

- Click "Contamn Leak"
- From the Change Release Rate Screen
  - Click "No Release"
  - Click "Change Isotopic Spectrum"
    - Click "Reset All To Default Spectrum"
    - Click "OK"
- You may now enter data based on the Default Spectrum.

#### 4. Liquid Release Assessment

##### 4.1 Entering Data

4.1.1 From the Main EAGLE Menu Select "Tabular Displays of Dose Calculations".

4.1.2 From that menu select the "Liquid Effluent Isotopic Activity Display".

4.1.3 At the "Projected Isotopic Activity at MUD Intake Structure Screen" enter:

- Liquid flow rate (available from the Control Room)
- River flow rate
- The isotopic activity (obtain from Chemistry)
- Click "Calculate Projected Activity" button

4.1.4 Hard copies of all EAGLE screens may be made by

- With Microsoft Word open and minimized and the EAGLE window active
- Simultaneously hit the "Alt" and "Print Screen" buttons
- Maximize Microsoft Word
- Click "Edit"
- Click "Paste"

4.1.5 If the results exceed the EPA limits ensure that Command and Control position reports results to:

- MUD dispatcher
- Nebraska Emergency Management Agency

#### 5. Errors

5.1 If an error message should appear:

5.1.1 Follow the on screen instructions.

5.1.2 If errors cannot be corrected, or other problems arise, reboot the system.

5.1.3 If the problem is still not corrected, perform dose assessment on another EAGLE terminal.

5.1.4 If printer fails, manually record dose assessment results on a FC-1188 form.

6. Graphic and Tabular displays and further guidance on dose assessment are explained in the EAGLE 5.0 User's Guide and the EAGLE help menu.

Attachment 6.5 - Determining Unmonitored Release Rates

Page 1 of 9

**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. For unmonitored releases via Condenser Off-gas/Main Steam System:

- 1.1 If RM-057 is off-scale or is not operable, and Condenser Off-gas is vented to the atmosphere via the Turbine Building Roof, perform dose assessment using RM-064 and a main steam flow in lbm/hr from the affected Steam Generator (ERFCS page 353) per the following criteria:
  - 1.1.1 If RM-064 is reading at or below background, use one (1) net count per minute (NCPM) for the RM-064 reading, an Iodine/Noble Gas Ratio of 0.003 and Attachment 6.4 to perform dose assessment.
  - 1.1.2 If RM-064 is reading above background, use the indicated reading on RM-064, and Iodine/Noble Gas Ratio of 0.003 and Attachment 6.4 to perform dose assessment.
  - 1.1.3 If RM-064 is off-scale high or is not operable, go to Section 1.3 below.
- 1.2 For unmonitored releases via FW-10, the Atmospheric Dump Valve (HCV-1040) or a Main Steam Safety Valve, perform dose assessment per the following criteria:
  - 1.2.1 If RM-064 is reading at or below background use one (1) net count per minute (NCPM) for the RM-064 reading, a flow rate as determined from EAGLE, an Iodine/Noble Gas Ratio of 0.003, and Attachment 6.4 to perform dose assessment.
  - 1.2.2 If RM-064 is reading above background, use the indicated reading on RM-064, a flow rate as determined from EAGLE, an Iodine/Noble Gas Ratio of 0.003 and Attachment 6.4 to perform dose assessment.
  - 1.2.3 If RM-064 is off-scale high or is not operable, go to Section 1.3 below.

Attachment 6.5 (continued)

Page 2 of 9

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

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

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

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

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

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

- 1.3.4 Multiply the  $Q_{TEDE}$  from Step 1.3.2 or 1.3.3 by the following to obtain the Noble Gas, Iodine and Particulate release rate in Ci/sec:

$$(Q_{TEDE}) (0.981) = \text{Noble Gas Release Rate in Ci/sec}$$

$$(Q_{TEDE}) (0.003) = \text{Iodine Release Rate in Ci/sec}$$

$$(Q_{TEDE}) (0.009) = \text{Particulate Release Rate in Ci/sec}$$

- 1.3.5 Input the Noble Gas, Iodine and Particulate Release Rate into EAGLE dose assessment program 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.

Attachment 6.5 (continued)

Page 3 of 9

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 ( $\Delta T$ )
- 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  $\mu\text{Ci/cc}$ .
- 3.1.9 Particulate air concentration reported from the field team in  $\mu\text{Ci/cc}$ .
- 3.1.10 Noble gas release rate from dose rate ( $Q_{\text{NG}}$  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  $Q_{\text{NG}}$  (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 data 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).



**Attachment 6.5 (continued)**

**Page 4 of 9**

**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.

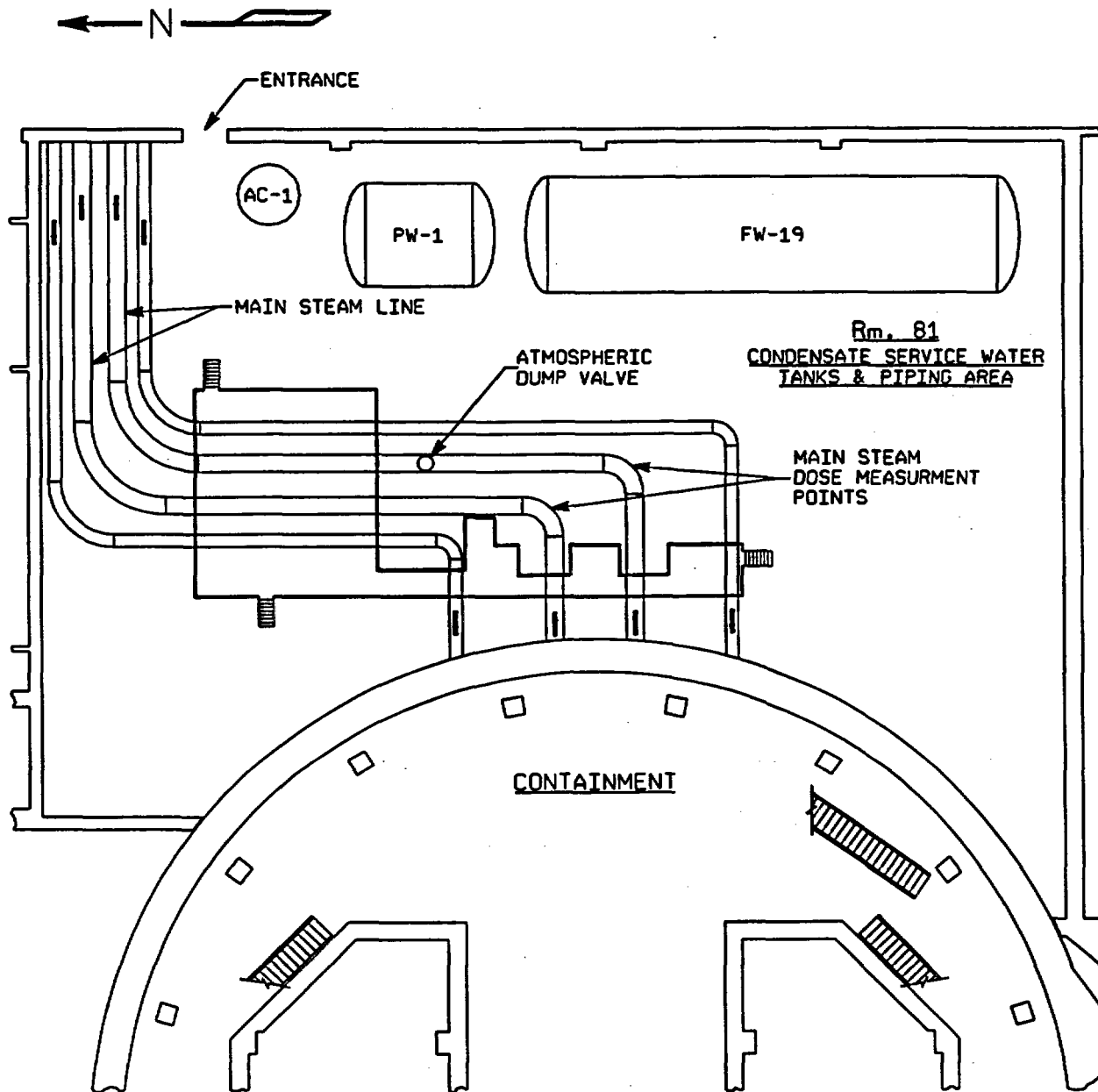
**3.3 Follow-up Actions**

- 3.3.1** Sign the assessment form and indicate the time completed.

Attachment 6.5 (continued)

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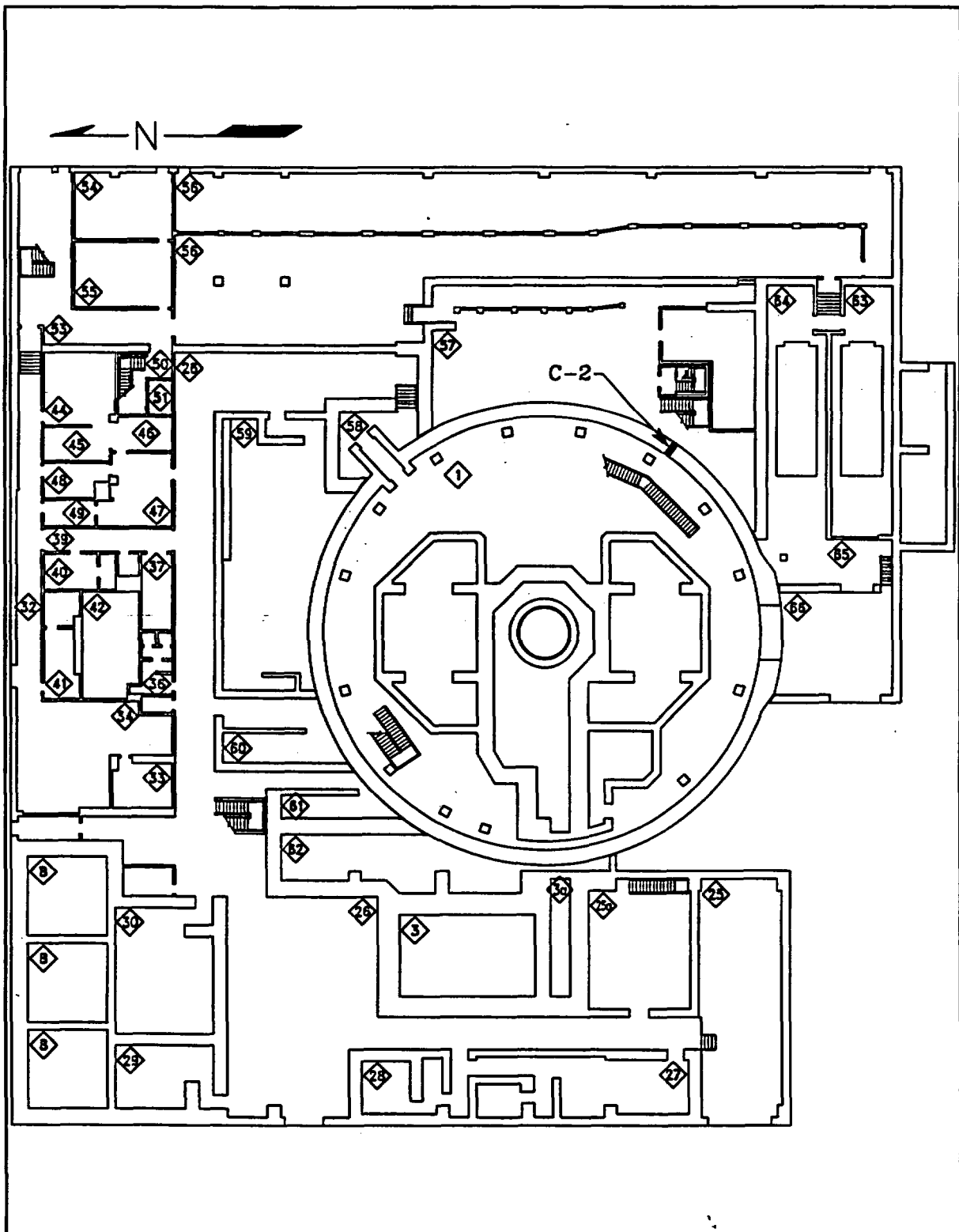
Figure 6.5.1 - Main Steam Headers Radiation Dose Measurement Point Locations



Attachment 6.5 (continued)

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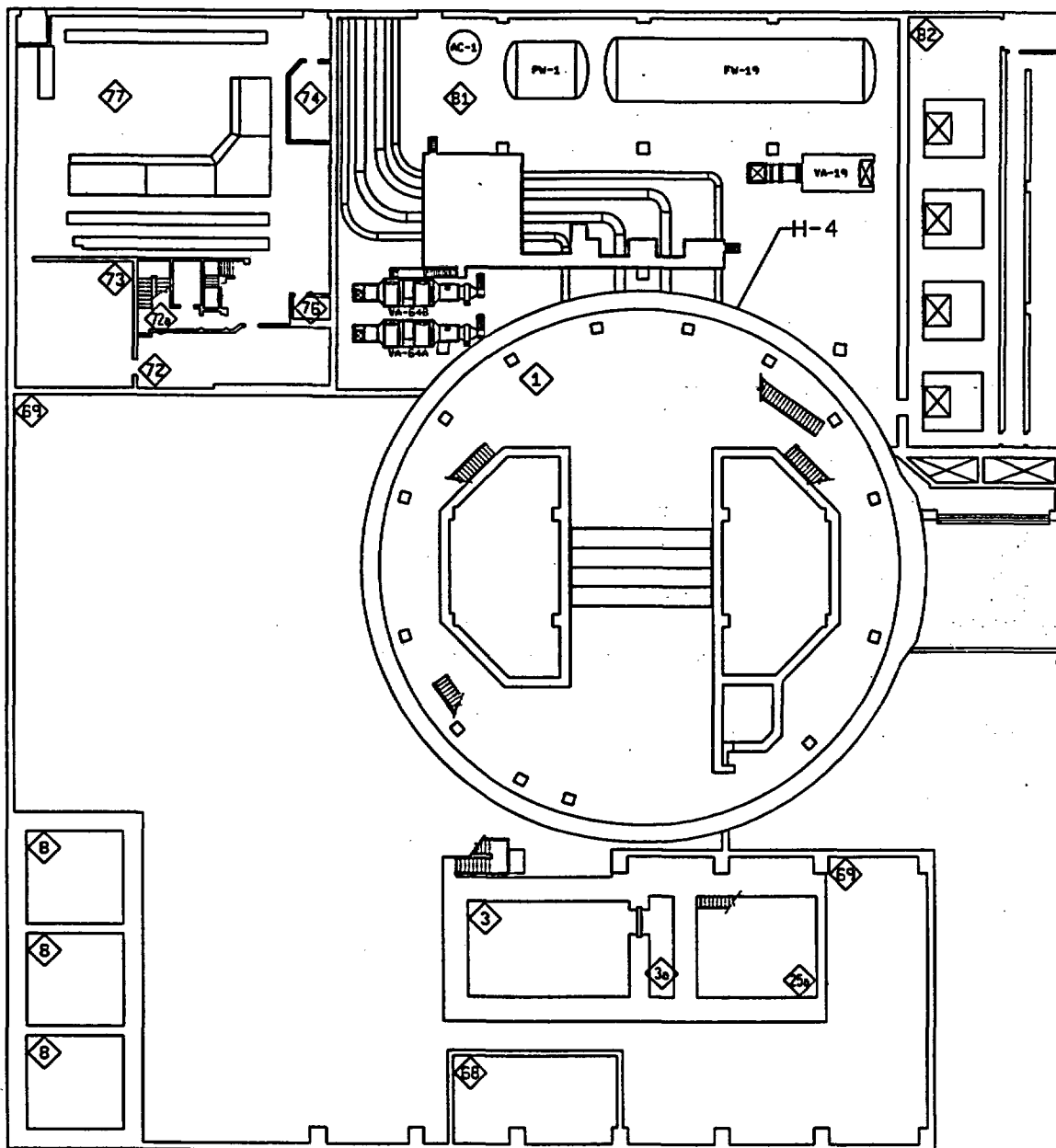
Figure 6.5.2 - Auxiliary Building - Plant Elevation 1007'-0" & 1013'-0"



Attachment 6.5 (continued)

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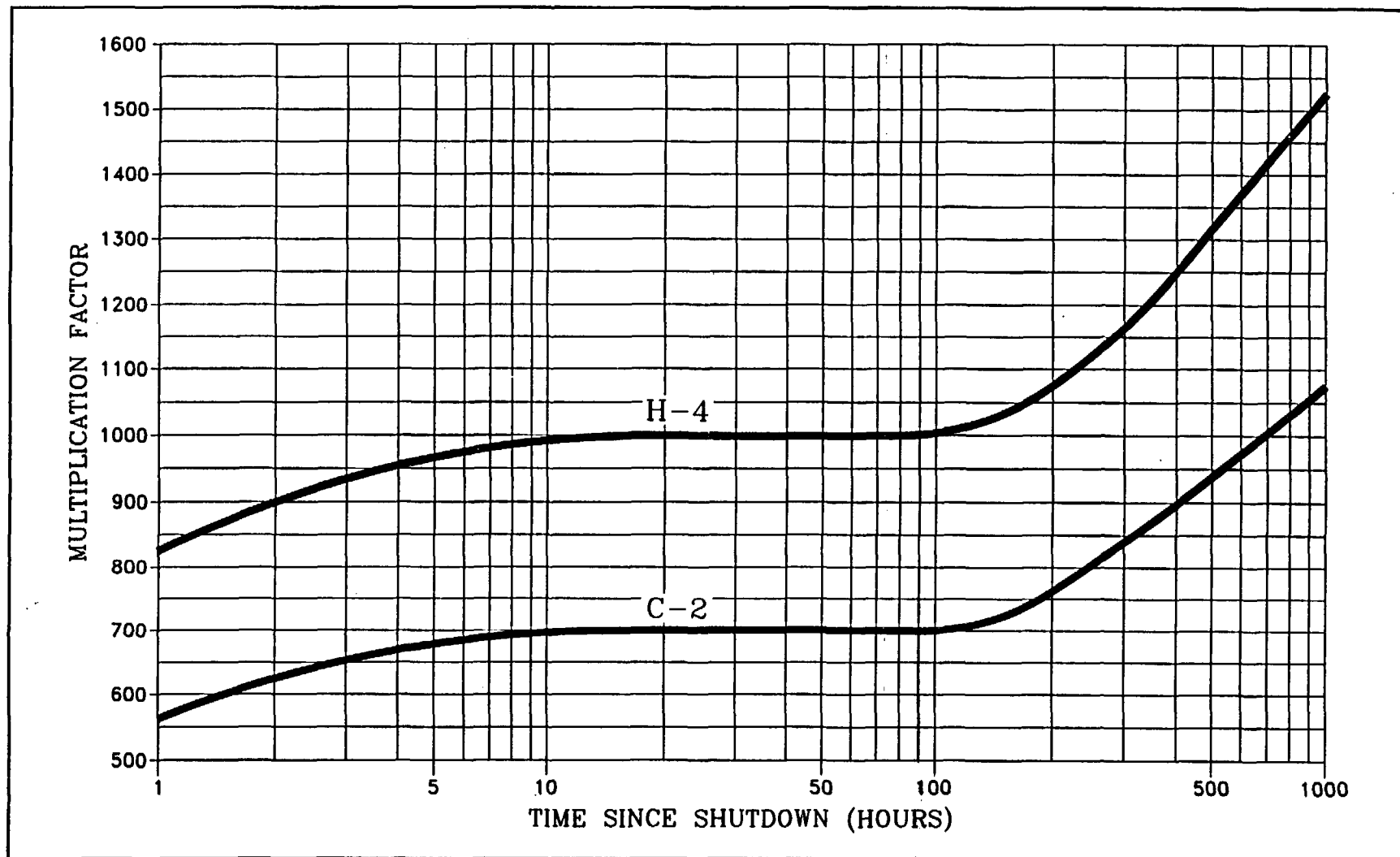
Figure 6.5.3 - Auxiliary Building - Plant Elevation 1036'-0



Attachment 6.5 (continued)

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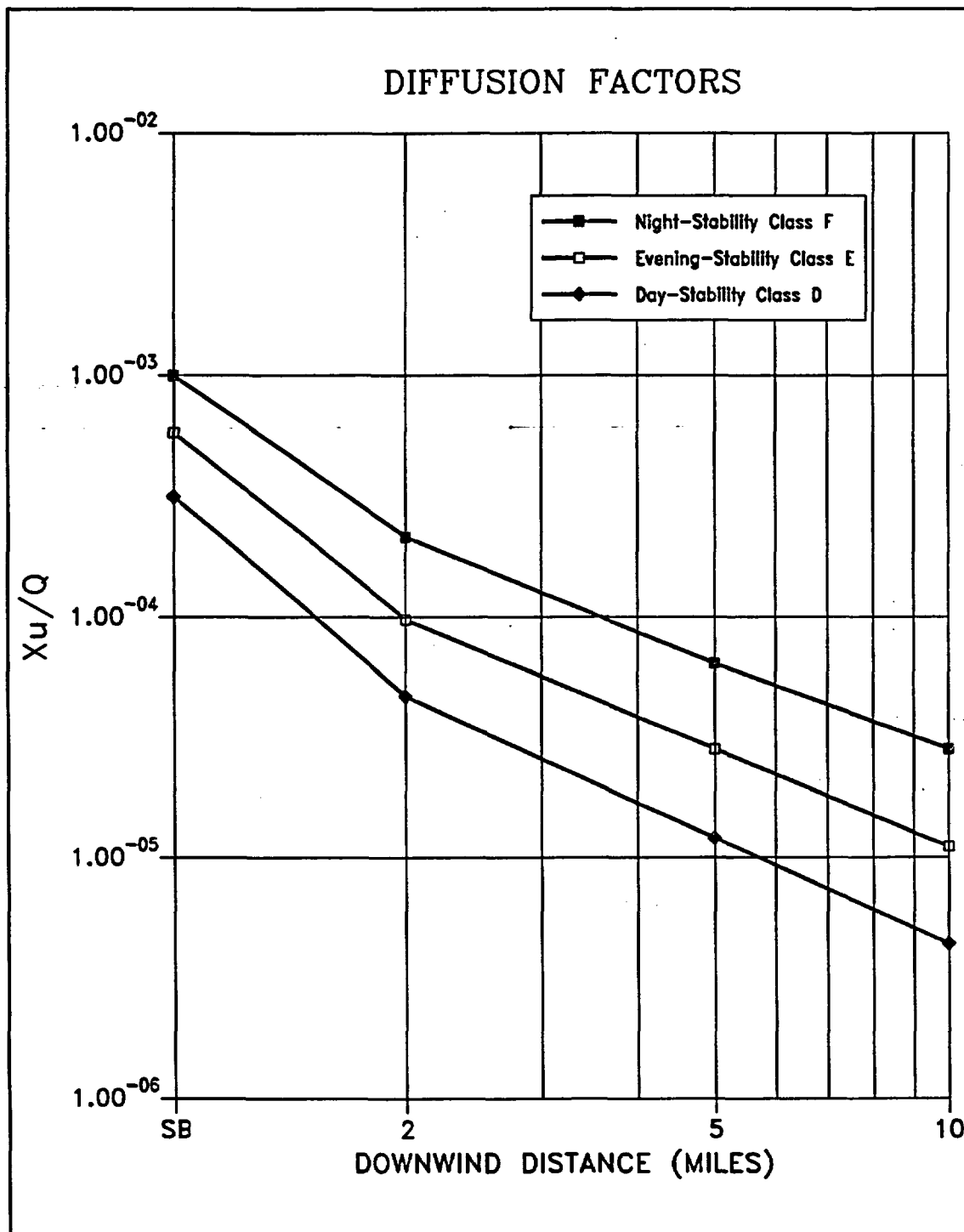
Figure 6.5.4 - Containment Multiplication Factor (CMF)



Attachment 6.5 (continued).

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Figure 6.5.5 - Diffusion Factors



Fort Calhoun Station  
Unit No. 1

**EP-IP-OSC-2.**

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**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title:   COMMAND AND CONTROL POSITION ACTIONS/NOTIFICATIONS**

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**FC-68 Number:       EC 32041**

**Reason for Change:   Make changes to comply with new security card readers.**

**Requestor:           M. Reller**

**Preparer:            M. Reller**

COMMAND AND CONTROL POSITION ACTIONS/NOTIFICATIONS

NON-SAFETY RELATED

1. PURPOSE

- 1.1 This procedure provides guidance to the Command and Control position for implementing the Emergency Plan, making required notifications, transferring Command and Control, performing classification upgrades/downgrades and event terminations.

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 SO-R-1, Reportability Determination
- 2.2 10 CFR 50.72, Immediate Notification Requirements for Operating Nuclear Power Reactors
- 2.3 EPIP-OSC-1, Emergency Classification
- 2.4 EPIP-OSC-15, Communicator Actions
- 2.5 EPIP-EOF-6, Dose Assessment
- 2.6 EPIP-EOF-7, Protective Action Guidelines
- 2.7 EPIP-EOF-11, Dosimetry Records, Exposure Extensions, and Habitability
- 2.8 EPIP-EOF-21, Potassium Iodide Issuance
- 2.9 EPIP-EOF-19, Recovery Actions
- 2.10 EPIP-TSC-1, Activation of the Technical Support Center
- 2.11 EPIP-EOF-1, Activation of the Emergency Operations Facility
- 2.12 OI-ERFCS-1, Emergency Response Facility Computer System
- 2.13 FC-1188, Emergency Notification Form
- 2.14 FC-EPF-38, Blair Industrial Park Co-Op, Event Notification Form
- 2.15 Emergency Telephone Book



**2.16 Commitments (other than Ongoing)**

- AR 10026, NRC-89-0232
- AR 07071, LIC-88-0726

**2.17 Ongoing Commitments**

- AR 30816, LIC-01-0189

**3. DEFINITIONS**

**3.1 ANS - "Alert Notification System"** The system of sirens maintained in OPPD's designated EPZ (Emergency Planning Zone).

**3.2 BLAIR INDUSTRIAL PARK CO-OP: NOTIFICATION SYSTEM** - An organization of industries including Fort Calhoun Station that have banded together to form a warning system to notify member industries and the Washington County Dispatch Center of a potential or actual release of toxic chemicals and/or hazardous material from its facility.

**3.3 CODE SYSTEM - A system devised by members of the Blair Industrial Park Co-Op to classify events that have occurred at the initiating facilities site. These codes are:**

- **CODE BLUE:** A minor emergency or problem such as a fire, explosion, gas or liquid release, unusual noise or odor, abnormal or extended flaring activity or other internal event has occurred which may be visible or detectable by off-site people, but which presents **NO OFFSITE THREAT** and requires no protective actions. The situation is under control.
- **CODE GREEN:** An emergency such as a fire, explosion, gas or liquid release or other event has occurred which affects plant operations and/or has the potential to escalate to a more serious emergency. **THE SITUATION IS NOT UNDER CONTROL BUT POSES NO IMMEDIATE OFFSITE THREAT.** The Washington County EOC may activate.
- **CODE YELLOW:** A serious accident such as a fire, explosion, gas or liquid or other event has occurred or is imminent which seriously affects plant operations and/or poses a threat to residents or industries in the immediate vicinity of the affected industry. **THE SITUATION IS NOT UNDER CONTROL AND ONSITE PROTECTIVE ACTIONS WILL BE NECESSARY.** The Washington County EOC would activate.
- **CODE RED:** A severe emergency such as fire, explosion, gas or liquid release or other event has occurred or is imminent which seriously affects plant operations and/or offsite areas well beyond site boundaries. **THE SITUATION IS NOT UNDER CONTROL AND PROTECTIVE ACTIONS FOR NEIGHBORING INDUSTRIES AND RESIDENTS ARE NECESSARY.** The Washington County EOC would fully activate at a safe location.

**3.4 COMMAND AND CONTROL POSITION - The Shift Manager, Control Room Coordinator, Site Director or Emergency Director currently charged with the authorities and responsibilities for directing the emergency response.**

**3.5 EALs - "Emergency Action Levels"**

**3.6 EAS - "Emergency Alert System". A mass-media system providing information and instructions to the general public in the event of a nuclear or other public emergency.**

**3.7 EOF - "Emergency Operations Facility".**

**3.8 ERDS - "Emergency Response Data System". The system that transmits selected plant parameter data to the NRC Operations Center.**

**3.9 ERF - "Emergency Response Facility". The Control Room, TSC, OSC and EOF maintained for emergency response.**

- 3.10 ERO - "Emergency Response Organization".
- 3.11 FTS-ENS phones - NRC notification system phones, , FTS- "Federal Telecommunications System", ENS- "Emergency Notification System".
- 3.12 GE - "General Emergency".
- 3.13 KFAB - Designated Local Primary One (LP1) Emergency Alert Station located in Omaha, NE.
- 3.14 NOUE - "Notification of Unusual Event".
- 3.15 NRC - "Nuclear Regulatory Commission".
- 3.16 OSC - "Operations Support Center".
- 3.17 PARs - "Protective Action Recommendations".
- 3.18 RELEASE OF RADIOACTIVE MATERIAL - Any discharge of radioactive effluent to the environment that is a result of, or associated with, the emergency event.
- 3.19 SAE - "Site Area Emergency".
- 3.20 TSC - "Technical Support Center".

#### 4. PREREQUISITES

- 4.1 An emergency has been declared or is to be reported per EPIP-OSC-1, Emergency Classification.

#### 5. PROCEDURE

**NOTE:** Once an event has been declared, notifications must be made within the time requirements of the applicable attachment.

- 5.1 IF no Emergency has been declared and conditions for a classification level occurred but no longer exist (per EPIP-OSC-1), THEN the event must be **reported** as follows:
  - 5.1.1 Notify both states using the commercial line. Call Iowa at 1-515-281-3231 (24 hour #) and Nebraska at 1-402-471-7430 (normal hours) or 1-402-471-4545 (after hours).
  - 5.1.2 Request that each state have the appropriate duty officer contact the Control Room at 1-402-533-6623 for a report on the event.

- 5.1.3 Notify the NRC using the FTS-ENS phone (commercial line is a backup) per SO-R-1.
- 5.1.4 **DO NOT** complete an Attachment 6.1, but log information in the Control Room Log as necessary.
- 5.2 IF while in a declared emergency, conditions for a higher emergency classification were exceeded but have since been abated or otherwise been resolved prior to declaration, THEN the event must be reported as follows:
  - 5.2.1 Perform the notifications described in Attachments 6.1, 6.2 or 6.3 for the states, counties and the NRC for the current classification.
  - 5.2.2 Inform the states, counties and the NRC that a higher classification existed, but was not declared, what conditions existed that caused the emergency classification, and inform them of the time that the higher classification existed.
- 5.3 Record any additional documentation in FC-EPF-13, Emergency Response Organization Log Sheet, or the Control Room Log.
- 5.4 **IN THE CONTROL ROOM:** Perform notifications using Attachment 6.1.
- 5.5 **IN THE TSC OR EOF:** Perform notifications using Attachment 6.2 (TSC) or 6.3 (EOF).
- 5.6 IF an upgrade or downgrade of the emergency classification occurs prior to completion of the checklist, THEN perform the following:
  - 5.6.1 Complete state/county notifications for the former classification.
  - 5.6.2 Begin another Notification Attachment for the new classification.
- 5.7 Complete Attachment 6.7 when performing reliefs.
- 5.8 Retain all documentation (logs, calculation sheets, notes, etc.) generated or used during the emergency.
- 5.9 At the termination, deliver all documentation to the CR Communicator, or Admin Logistics position for your facility.

## 6. ATTACHMENTS

- 6.1 Notification Checklist for the Control Room

**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-OSC-2  
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- 6.2 Notification Checklist for the TSC**
- 6.3 Notification Checklist for the EOF**
- 6.4 ERO Activation Announcement**
- 6.5 Classification Announcement**
- 6.6 Emergency Termination Guidelines**
- 6.7 Relief Checklist**
- 6.8 Command and Control Position Responsibilities**
- 6.9 Classifying and Reporting events to the Blair Industrial Park Co-Op**

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## Page 1 of 5

Declared at \_\_\_\_\_ / \_\_\_\_\_  
Date Time  
EAL # \_\_\_\_\_

Relief: (complete Attachment 6.7) \_\_\_\_\_ Time \_\_\_\_\_

**NOTE: Fort Calhoun station made a commitment to place the TSC HVAC System in the FILTERED MODE with 30 minutes of a LOCA. Both the Shift Radiation Protection Technician and the Shift Chemistry Technician have been trained to place the TSC HVAC System in the FILTERED MODE.**

✓ TIME

- Shift Communicator to report to the Control Room and perform Notifications
- Shift Chemistry Technician to report to Control Room for dose assessment, chemical and hazmat analysis and support.
- Shift RP Technician for habitability, radiological support and backup dose assessment.

**1.1 Ensure the TSC HVAC System was placed in FILTERED MODE by the Shift RP or Chemistry Technician enroute to the Control Room [AR 30816].**

**Yes 2.1 Instruct Communicator to activate the ERO.**

**2.2 Perform plant announcement per Attachment 6.4.**

### 2.3 Go to Step 4.

**No**      **Go to Step 3.**

Attachment 6.1

Page 2 of 5

✓ TIME

3. Is a Management Notification (NOUE only) desired?

**Yes** 3.1 Direct Communicator to do a Management notification. \_\_\_\_\_

3.2 Perform a plant announcement, using information from the Management Notification tab in the Emergency Planning Activation Instruction Booklet. \_\_\_\_\_

3.3 Have Communicator make the above announcement to Training Center and Administration Building. \_\_\_\_\_

**No** Go to Step 4.

**NOTE:** If the emergency classification changes prior to completion of this checklist, ensure the state and county notifications are initiated as a minimum before beginning another checklist.

4. Within 15 minutes of the emergency declaration you must:

4.1 Complete required sections of the Emergency Notification Form (FC-1188) \_\_\_\_\_

4.2 Ensure the Communicator notifies the states and counties using the completed Emergency Notification Form. \_\_\_\_\_

5. Has the ERO been activated? [AR 10026]

**Yes** 5.1 Make a plant announcement for the current classification (if not done in Step 2) using Attachment 6.5. \_\_\_\_\_

5.2 Have Communicator make an announcement to Training Center and Administration Building (if not done in Step 2). \_\_\_\_\_

**No** Go to Step 6.

Attachment 6.1

Page 3 of 5

✓ TIME

6. Is a Site Evacuation to North Omaha necessary (required at General Emergency)? [AR 10026]

Yes 6.1 Perform a plant announcement per Attachment 6.5. \_\_\_\_\_

6.2 Have Communicator make an announcement to Training Center and Administration Building, using Evacuation Route checked. \_\_\_\_\_

No Go to Step 7.

7. Was a plant/site evacuation directed (plant evacuation at a minimum required at Alert or higher)? [AR 10026]

Yes 7.1 Assign a person to log personnel in/out of the Control Room until relieved by the Accountability Clerk. \_\_\_\_\_

No Go to Step 8.

**NOTE:** NRC contact should be maintained from at least one facility. The FTS-ENS at the EOF can be patched in with the Control Room/TSC line if a request is made to the NRC.

8. Immediately (not later than one hour from declaration) after notification of the states and counties contact the NRC using the FTS-ENS phone (commercial phone is the backup)

8.1 Has NRC previously been notified?

Yes Then as a minimum report the classification, time and reason. \_\_\_\_\_

No First report to the NRC, use NRC Form 361 (SO-R-1).

8.2 Is classification an Alert or higher?

Yes Direct the STA to activate the ERDS system using OI-ERFCS-1A. \_\_\_\_\_

No Go to Step 9.



Attachment 6.1

Page 4 of 5

✓ TIME

9. Use Attachment 6.9 to prepare the notification for the Blair Industrial Park Co-op.

\_\_\_\_\_

10. Ensure the communicator updates the states and counties using an approved Emergency Notification Form (FC-1188)

- At least hourly (from the time of the last notification) and on an hourly basis until event termination
- Within 15 minutes of a PAR change

\_\_\_\_\_  
\_\_\_\_\_

11. Have the states requested that we activate the ANS (sirens)?

**Yes** 11.1 Contact the Emergency Director and request activation.

\_\_\_\_\_

**No** Go to Step 12.

12. Has the state or county requested that Fort Calhoun Station activate the Emergency Alert System (EAS)?

**Yes** 12.1 Get the applicable EAS Message number from the state and county.

\_\_\_\_\_

12.2 For the Primary message direct the Communicator to contact the National Weather Service using the Emergency Activations Booklet.

\_\_\_\_\_

12.3 For all follow-up messages have the Communicator contact KFAB and give them the selected EAS message number for the requesting state.

\_\_\_\_\_  
\_\_\_\_\_

**No** Go to Step 13.

13. Review conditions for upgrade or downgrade criteria.

\_\_\_\_\_

14. Is emergency termination possible?

**Yes** 14.1 Review Attachment 6.6 for termination guidelines.

\_\_\_\_\_

14.2 Complete and approve the termination Emergency Notification Form (FC-1188).

\_\_\_\_\_

Attachment 6.1

Page 5 of 5

✓ TIME

14.3 Verify all data on the Emergency Notification Form is accurate. \_\_\_\_\_

14.4 Direct the Communicator to notify the states and counties using the Emergency Notification Form. \_\_\_\_\_

**NOTE:** If a Sub Area 1 evacuation was ordered Blair Industrial Park Co-Op facilities may not be staffed.

14.5 Was the Blair Industrial Park Co-Op notified?

**Yes**      Reactivate the system and inform Co-Op members of the event termination. \_\_\_\_\_

**No**      Go to Step 14.6.

14.6 Notify the NRC using the FTS-ENS phone (commercial line is backup). \_\_\_\_\_

14.7 Announce Emergency termination using:

- Plant Gai-Tronics \_\_\_\_\_
- Facility PA system \_\_\_\_\_
- MOP network for all other Emergency Response Facilities \_\_\_\_\_

**No**      Review this list and repeat applicable steps as required. \_\_\_\_\_

FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

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Attachment 6.2 - Notification Checklist for the TSC

Page 1 of 4

Classification: ☐ NOUE ☐ Site Area  
☐ Alert ☐ General

Declared at \_\_\_\_\_ / \_\_\_\_\_  
Date Time  
EAL # \_\_\_\_\_

Command and Control: \_\_\_\_\_

Relief: (complete Attachment 6.7) \_\_\_\_\_ Time \_\_\_\_\_

**NOTE:** The following steps are ordered in a suggested sequence, but the Command and Control position may modify the sequence, if necessary.

**NOTE:** If the emergency classification changes prior to completion of this checklist, ensure the state and county notifications are initiated as a minimum before beginning another checklist.

✓ TIME

1. Within 15 minutes of the emergency declaration you must:

1.1 Complete required sections of the Emergency Notification Form (FC-1188) \_\_\_\_\_

1.2 Ensure the COP Communicator notifies the states and counties using the completed Emergency Notification Form. \_\_\_\_\_

2. Is a Site Evacuation to North Omaha necessary (required at General Emergency)? [AR 10026]

**Yes** 2.1 Go to Attachment 6.5, to determine the evacuation route to be used, (primary or alternate) and the announcement to be made. \_\_\_\_\_

2.2 Direct the COP Communicator to make the evacuation announcement found in the Emergency Planning Activations Instruction Booklet to the Training Center and Administration Building. \_\_\_\_\_

**No** 2.3 Make a plant announcement per Attachment 6.5. [AR 10026] \_\_\_\_\_

2.4 Direct the COP Communicator to make the announcement for no site evacuation found in the Emergency Planning Activations Instruction Booklet to the Training Center and Administration Building. \_\_\_\_\_

FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-OSC-2  
PAGE 13 OF 29

Attachment 6.2

Page 2 of 4

✓ TIME

3. Has plant/site accountability been established?

Yes Go to Step 4.

No 3.1 Ensure CR/OSC/TSC Accountability Clerks are logging personnel in/out (if OSC/TSC are activated).

3.2 Ensure that the TSC Security Coordinator initiates the accountability procedure, if the TSC is activated.

3.3 Ensure the accountability completion time is documented in the Control Room Log.

**NOTE:** NRC contact should be maintained from at least one facility. The FTS-ENS at the EOF can be patched in with the Control Room/TSC line if a request is made to the NRC.

4. Immediately (not later than one hour from declaration) after notification of the states and counties ensure the NRC is contacted using the FTS-ENS phone (commercial phone is the backup)

4.1 As a minimum, report new classification time and reason.

4.2 Is new classification Alert or higher?

Yes Ensure the Control Room activated the ERDS using OI-ERFCS-1A.

No Go to Step 5.

5. Direct the Control Room to use Attachment 6.9 to prepare the notification for the Blair Industrial Park Co-Op.

6. Ensure the COP Communicator updates the states and counties using an approved Emergency Notification Form (FC-1188)

- At least hourly (from the time of the last notification) and on an hourly basis thereafter
- Within 15 minutes of a PAR change

Attachment 6.2

Page 3 of 4

✓ TIME

7. Have the states requested that we activate the ANS (sirens)?

Yes 7.1 Contact the EOF Emergency Director and request ANS activation. \_\_\_\_\_

No Go to Step 8.

8. Has a state or county requested that Fort Calhoun Station activate the Emergency Alert System (EAS)?

Yes 8.1 Get the applicable EAS Message number from the state and county. \_\_\_\_\_

8.2 For the preliminary message direct the COP Communicator to contact the National Weather Service using the Emergency Activations Booklet. \_\_\_\_\_

8.3 For all follow-up messages have the COP Communicator contact KFAB and give them the selected EAS message number for the requesting state. \_\_\_\_\_

No Go to Step 9.

9. Periodically review conditions for event upgrade or downgrade criteria. \_\_\_\_\_

10. Is emergency termination possible?

Yes 10.1 Review Attachment 6.6 for termination guidelines. \_\_\_\_\_

10.2 Complete and approve the termination Emergency Notification Form (FC-1188). \_\_\_\_\_

10.3 Verify that all Emergency Notification Form data is correct. \_\_\_\_\_

10.4 Direct the COP Communicator to notify the states and counties using the Emergency Notification Form. \_\_\_\_\_

Attachment 6.2

Page 4 of 4

✓ TIME

**NOTE:** If a Sub Area 1 evacuation was ordered, Blair Industrial Park Co-Op facilities may not be staffed.

10.5 Was the Blair Industrial Park Co-Op notified?

**Yes** Have the Control Room inform Co-Op members of the event termination. \_\_\_\_\_

**No** Go to Step 10.6.

10.6 Notify the NRC using the FTS-ENS phone (commercial line is backup). \_\_\_\_\_

10.7 Announce Emergency termination using:

- Plant Gai-Tronics \_\_\_\_\_
- Facility PA system \_\_\_\_\_
- MOP network for all other Emergency Response Facilities \_\_\_\_\_

**No** Review this list and repeat applicable steps as required. \_\_\_\_\_

FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

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Attachment 6.3 - Notification Checklist for the EOF

Page 1 of 4

Classification: ☐ NOUE ☐ Site Area Declared at \_\_\_\_\_ / \_\_\_\_\_  
☐ Alert ☐ General EAL # \_\_\_\_\_  
Date Time

Command and Control: \_\_\_\_\_

Relief: (complete Attachment 6.7) \_\_\_\_\_ Time \_\_\_\_\_

**NOTE:** The following steps are ordered in a suggested sequence, but the Command and Control position may modify the sequence, if necessary.

**NOTE:** If the emergency classification changes prior to completion of this checklist, ensure the state and county notifications are initiated as a minimum before beginning another checklist.

✓ TIME

1. Within 15 minutes of the emergency declaration you must:

1.1 Complete required sections of the Emergency Notification Form. \_\_\_\_\_

1.2 Ensure the COP Communicator notifies the states and counties using the completed Emergency Notification Form. \_\_\_\_\_

2. Is a Site Evacuation to North Omaha necessary (required at General Emergency)? [AR 10026]

**Yes** 2.1 Go to Attachment 6.5, to determine the evacuation route to be used, (primary or secondary) and the announcement to be made. \_\_\_\_\_

2.2 Direct the COP Communicator to make the evacuation announcement found in the Emergency Planning Activations Instructions Booklet to the Training Center/Administration Building. \_\_\_\_\_

**No** 2.3 Direct the Control Room to make plant announcement per Attachment 6.5. [AR 10026] \_\_\_\_\_

2.4 Direct the COP Communicator to make the announcement for no site evacuation found in the Emergency Planning Activations Instruction Booklet to the Training Center and Administration Building. \_\_\_\_\_

3. Has plant/site accountability been established? (AR 10026)

**Yes** Go to Step 4.

**No** 3.1 Direct Site Director to initiate personnel accountability. \_\_\_\_\_

Attachment 6.3

Page 2 of 4

✓ TIME

**NOTE:** NRC contact should be maintained from at least one facility. The FTS-ENS at the EOF can be patched in with the Control Room/TSC line if a request is made to the NRC.

4. Immediately (not later than one hour from declaration) after notification of the states and counties ensure the NRC is contacted using the FTS-ENS phone (commercial phone is the backup)

4.1 As a minimum, report new classification time and reason. \_\_\_\_\_

4.2 Is new classification Alert or higher? \_\_\_\_\_

Yes Ensure the Control Room activated the ERDS using  
OI-ERFCS-1A. \_\_\_\_\_

No Go to Step 5. \_\_\_\_\_

5. Direct the Control Room to use Attachment 6.9 to prepare the notification for the Blair Industrial Park Co-Op. \_\_\_\_\_

6. Ensure the COP Communicator updates the states and counties using an approved Emergency Notification Form (FC-1188). \_\_\_\_\_

- At least hourly (from the time of the last notification) and on an hourly basis thereafter until event termination \_\_\_\_\_
- Within 15 minutes of a PAR change \_\_\_\_\_

7. Ensure that the staffs of each facility are given timely updates on any significant change in plant or release status, even if the emergency classification remains unchanged. \_\_\_\_\_



**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-OSC-2  
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**Attachment 6.3**

**Page 3 of 4**

**✓ TIME**

**8. Have the states requested that we activate the ANS (sirens)?**

**Yes 8.1** Direct the Administrative Logistics Manager to activate the ANS activation. \_\_\_\_\_

**No** Go to Step 9.

**9. Has a state or county requested that Fort Calhoun Station activate the Emergency Alert System (EAS)?**

**Yes 9.1** Get the applicable EAS Message number from the state or county. \_\_\_\_\_

**9.2** For the preliminary message direct the COP Communicator to contact the National Weather Service using the Emergency Activations Booklet. \_\_\_\_\_

**9.3** For all follow-up messages have the COP Communicator contact KFAB and give them the selected EAS message number for the requesting state. \_\_\_\_\_

**No** Go to Step 10.

**10. Periodically review conditions for event upgrade or downgrade criteria.** \_\_\_\_\_

Attachment 6.3

Page 4 of 4

✓ TIME

11. Is emergency termination possible?

Yes 11.1 Review Attachment 6.6 for termination guidelines. \_\_\_\_\_

11.2 Verify that Emergency Notification Form (FC-1188) data is correct. \_\_\_\_\_

11.3 Complete and approve the termination Emergency Notification Form. \_\_\_\_\_

11.4 Direct the COP Communicator to notify the states and counties using the Emergency Notification Form. \_\_\_\_\_

**NOTE:** If a Sub Area 1 evacuation was ordered, Blair Industrial Park Co-Op facilities may not be staffed.

11.5 Was the Blair Industrial Park Co-Op notified?

Yes Have the Control Room inform Co-Op members of the event termination. \_\_\_\_\_

No Go to Step 11.6.

11.6 Notify the NRC using the FTS-ENS phone (commercial line is backup). \_\_\_\_\_

11.7 Direct the Site Director to announce the emergency termination using:

- Plant Gai-Tronics \_\_\_\_\_
- Facility PA system \_\_\_\_\_
- MOP network for all other Emergency Response Facilities \_\_\_\_\_

No Review this list and repeat applicable steps as required. \_\_\_\_\_

Attachment 6.4 - ERO Activation Announcement

(✓)



1. Select from the options below, the information to be announced. \_\_\_\_\_
2. Notify Security if a plant/site evacuation is planned. \_\_\_\_\_
3. Sound the Emergency Alarm for approximately 30 seconds. \_\_\_\_\_
4. Read the selected announcement over the Gai-Tronics. \_\_\_\_\_
5. Again sound the Emergency Alarm for approximately 30 seconds. \_\_\_\_\_
6. Again read the selected announcement over the Gai-Tronics. \_\_\_\_\_

**ANNOUNCEMENT**

**"Attention all personnel...Attention all personnel...A(n) (Classification) has been declared, due to ... (state reason)... All Emergency Response Organization personnel report to their assigned facility immediately...Personnel in the Radiation Controlled Area proceed to the RCA Access Point...No eating, drinking, smoking or chewing is allowed anywhere in THE OWNER CONTROLLED AREA until further notice...All other personnel:**



Optional: NOUE \_\_\_\_\_ Continue with normal duties

Optional: NOUE \_\_\_\_\_ Evacuate to the Admin Building using the South  
Required: Alert Security Access Point  
Site Area

Optional: Alert \_\_\_\_\_ Evacuate to the North Omaha Power Station using the:  
Site Area

Required: General \_\_\_\_\_ PRIMARY Route. (No release, or release with  
wind direction  $\geq 57^\circ$  and  $< 304^\circ$ )

\_\_\_\_\_ ALTERNATE Route. (wind direction from  $\geq 304^\circ$  or  
 $< 57^\circ$  with known release)



Attachment 6.5 - Classification Announcement

(✓)

**NOTE:** The Site Director and the Emergency Director should select the information to be announced and direct the Control Room to sound the Emergency Alarm and make the Gai-tronics announcements.

1. Select, from the options below, the information to be announced. \_\_\_\_\_
2. Notify Security if a plant/site evacuation is planned. \_\_\_\_\_
3. Sound the Emergency Alarm for approximately 30 seconds. \_\_\_\_\_
4. Read the selected announcement over the Gai-Tronics. \_\_\_\_\_
5. Sound the Emergency Alarm for approximately 30 seconds (second time). \_\_\_\_\_
6. Read the selected announcement over the Gai-Tronics (second time). \_\_\_\_\_
7. At the EOF, verify that the above steps have been completed using the Operations Liaison Circuit or other communication. \_\_\_\_\_

**ANNOUNCEMENT**

**"Attention all personnel...Attention all personnel...A(n) (Classification) has been declared, due to...(state reason)...No eating, drinking, smoking or chewing is allowed anywhere in THE OWNER CONTROLLED AREA until further notice"... (Continue only if a plant/site evacuation is required)**

**All Non-Emergency Response personnel must:**

Optional: NOUE \_\_\_\_\_ **Evacuate to the Administration Building using the South**  
Required: Alert \_\_\_\_\_ **Security Access Point**  
Site Area

Optional: Alert \_\_\_\_\_ **Evacuate to the North Omaha Power Station using the:**  
Site Area  
Required: General

\_\_\_\_\_ **PRIMARY Route.** (No release, or release with wind direction  $\geq 57^\circ$  and  $< 304^\circ$ )

\_\_\_\_\_ **ALTERNATE Route.** (wind direction from  $\geq 304^\circ$  or  $< 57^\circ$  with known release)

Attachment 6.6 - Emergency Termination Guidelines

Page 1 of 2

**NOTE:** Prior to recommending establishment of recovery operations (if necessary) and termination of the Emergency Response Organization, the following conditions should be considered.

1. A Recovery Operations Manager has been designated per EPIP-EOF-19 if extensive recovery actions are needed to return the plant or environs to a pre-accident status.
2. Radiation Protection personnel are/have been monitoring access to any radiologically controlled areas of the plant necessary for recovery operations.

COMMENTS:

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3. Off-site conditions allow access of personnel and needed support resources to the plant.

COMMENTS:

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4. Plant status with respect to Technical Specifications has been evaluated by the Command and Control position OR Technical Support personnel if ERO was activated.

COMMENTS:

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5. Emergency termination recommendations have been discussed with the NRC Operations Center.

COMMENTS:

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Attachment 6.6

Page 2 of 2

6. The states of Nebraska and Iowa and the counties have been notified of the pending termination.

COMMENTS:

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7. The transition from Emergency to Recovery phase has been discussed with the designated Recovery Operations Manager and an initial recovery operations meeting has been scheduled, if needed.

COMMENTS:

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Additional Discussions/Comments:

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Attachment 6.7 - Relief Checklist [AR 07071]

Page 1 of 2

**NOTE:** Prior to assuming Command and Control of an emergency, Steps 1 through 8 of the following steps must be completed.

**NOTE:** By signing below the person assuming Command and Control of the emergency acknowledges that they have reviewed and accept the responsibilities contained in Attachment 6.8 of this procedure.

Command & Control Position/Time: \_\_\_\_\_ / \_\_\_\_\_

Person Assuming Command & Control/Time: \_\_\_\_\_ / \_\_\_\_\_

(✓)

1. Review/Discuss cause of the emergency condition. \_\_\_\_\_

2. Review/Discuss current status of the emergency condition and classification level. \_\_\_\_\_

3. Review/Discuss current plant status. \_\_\_\_\_

4. Review/Discuss each step of current Notification Checklist (Attachments 6.1, 6.2 or 6.3), including any county/state/NRC notifications made and determine any steps **NOT** yet performed. \_\_\_\_\_

5. Review and discuss when next FC-1188 should be sent to state/counties. \_\_\_\_\_

6. Determine activation status of the ERO and ERF facilities:

Control Room:	<input type="checkbox"/> ERO Positions Activated	
TSC:	<input type="checkbox"/> Activated	<input type="checkbox"/> In Progress
OSC:	<input type="checkbox"/> Activated	<input type="checkbox"/> In Progress
EOF:	<input type="checkbox"/> Activated	<input type="checkbox"/> In Progress
MRC:	<input type="checkbox"/> Activated	<input type="checkbox"/> In Progress <input type="checkbox"/> N/A

\_\_\_\_\_

7. Determine current status of dose assessment, habitability checks, radiological surveys and other tasks being performed by the Emergency Response Organization. \_\_\_\_\_

8. Determine if position being relieved is ready to complete the transfer of Command and Control. \_\_\_\_\_

9. WHEN both positions are ready, THEN perform the transfer of Command and Control. \_\_\_\_\_

Attachment 6.7

Page 2 of 2

(✓)

10. Announce your name, and who has Command and Control to the lead personnel in the following facilities, if staffed:

Control Room, TSC, OSC, EOF and MRC.

11. Sign your name, title and the relief time in the "Relief" space of the Notification Checklist. Initiate the appropriate Notification Checklist if transfer is between facilities.

12. Log relief information in the Command and Control position log.



Attachment 6.8 - Command and Control Position Responsibilities

The following responsibilities CAN NOT BE DELEGATED by the Command and Control position. The responsibility of their completion rests with the Command and Control position until relieved by another qualified individual or the emergency is terminated. The Command and Control position may assign other personnel to assist in conducting the actions necessary.

1. Overall **COMMAND AND CONTROL** of the Emergency Response Organization.
2. Ensuring the proper **CLASSIFICATION AND DECLARATION** of the emergency situation is made in accordance with EPIP-OSC-1 and is periodically reviewed to determine if the classification should be upgraded, downgraded or terminated.
3. Ensuring all required **NOTIFICATIONS** are made to appropriate state, local and federal officials.
4. Ensuring any appropriate **PROTECTIVE ACTION RECOMMENDATIONS (PARs)** are provided to offsite officials.
5. Authorizing OPPD emergency worker exposure extensions beyond the Federal Radiation Protection Guidance.
6. Authorizing issuance of Potassium Iodide for OPPD emergency workers.

The Command and Control position also has the following responsibilities which may be delegated to other personnel, as necessary.

7. Request for assistance from federal agencies.
8. Authorizing any emergency information to be released to the media or the general public.
9. Coordinating the transfer of emergency information from the Emergency Response Organization (ERO) to other OPPD and outside organizations called upon to assist.
10. Ensuring a timely and complete turnover of information to any qualified relief.
11. Providing information to authorized representatives of the states of Nebraska, and Iowa, and associated local governments.
12. Ensuring plant operations are in compliance with Technical Specifications and other license conditions. If deviations are necessary to protect the public health and safety, they must be evaluated with respect to 10CFR50.54(x) and (y) and approved, as a minimum, by a senior licensed operator, prior to taking the action.

Attachment 6.9 - Classifying and Reporting Events to the Blair Industrial Park Co-Op

Page 1 of 3

**NOTE:** The purpose of this attachment is to keep members of the Blair Industrial Park Co-Op aware of significant events that have occurred at the Fort Calhoun Station. It is intended that the system be used for notification of situations which have or are anticipated to have visibility or impact beyond the Fort Calhoun station property lines. These situations may include, but are not limited to:

- Any gas or chemical leaks of significant magnitude
- Any radiation leaks of significant magnitude
- Any "news worthy" information (such as major fires, explosions, large medical response, etc.) which could result in news media interviewing neighboring industries
- Any plant evolutions resulting in large noises or having a visual impact which can be heard or seen by the public

1. INITIAL ASSESSMENT

**NOTE:** FC-EPF-38 is designed to aid you in gathering data prior to contacting members of the Co-Op. Existing FC-1188 and/or SO-R-1 can be used to provide the necessary information.

- 1.1 If notified of an onsite toxic chemical/hazardous material or radiological release, complete Sections 3, 5, 6 and 7 of FC-EPF-38. If all the information is not known, leave that section blank. DO NOT GIVE UNVERIFIED INFORMATION.

**NOTE:** Assistance in classification may be obtained from the Shift Chemist.

2. EVENT CLASSIFICATION

- 2.1 Report the event as classified (NOUE, ALERT, SITE AREA or GENERAL EMERGENCY) in Section 2 of FC-EPF-38.

Attachment 6.9

Page 2 of ?

**NOTE:** If the involved chemical is not listed, or further information on chemicals is desired refer to SO-G-106, "Hazardous Material Chemical Assessment and Emergency Response Guidelines", the Material Safety Data Sheet, if available, or The North American Emergency Response Guidebook.

**NOTE:** If the involved chemical is not listed below, refer to the North American Emergency Response Guidebook for guidelines.

2.2 If the involved chemical is one of the following, consider it a SMALL HAZARD:

- Acetylene
- Amerzine
- Chemtreat
- Ethanolamine
- Diesel Fuel
- Hydrazine
- Hydrogen

2.3 Use the guide below to classify the event class. The four codes are further defined in the definitions section of this procedure:

CODE	HAZARD POTENTIAL	CONDITIONS
------	------------------	------------

Blue	Small or large	Situation under control - <b>NO</b> offsite threat
Green	Small or large	Situation <b>NOT</b> under control - No immediate offsite threat
Yellow	Large	Situation <b>NOT</b> under control - Onsite protective actions will be needed
Red	Large	Situation <b>NOT</b> under control - Protective actions for neighboring industries and residents needed

**NOTE:** All members of the Co-Op are staffed 24 hours per day except Kelly Ryan and Blair Ag. MACC may not have staff onsite on some weekends and/or holidays.

**NOTE:** Alternate emergency numbers and routine day to day contact numbers for all Co-Op members and other vital agencies may be found in the Emergency Phone Book under the Blair Industrial Co-Op tab.

**NOTE:** All Notifications to the Blair Industrial Park Co-Op should be made through the Control Room if possible.

### 3. NOTIFICATIONS

- 3.1 Obtain the instructions marked "Blair Industrial Park Co-Op Notification" from the Emergency Planning Activation Instructions Booklet.
- 3.2 Direct the Communicator to perform the Blair Industrial Park Co-Op Notifications.
- 3.3 If event is on-going, update the Blair Industrial Park Co-Op members as conditions warrant.

Fort Calhoun Station  
Unit No. 1

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**EPIP-OSC-15**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: COMMUNICATOR ACTIONS**

---

**FC-68 Number: EC 25614**

**Reason for Change:** Change action steps about obtaining keys to a note. Edit step(s) about EP Activation Booklet to clarify intent.

**Requestor:** Mark Reller

**Preparer:** Rhonda Hankins

**Correction (a):** Page 5 (05-28-03) (Issue all pages)

COMMUNICATOR ACTIONS

NON-SAFETY RELATED

1. PURPOSE

- 1.1 This procedure provides guidance to designated Communicators in the Control Room, TSC and EOF for making required notifications.

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 SO-R-1, Reportability Determinations
- 2.2 FC-1188, Emergency Notification Form
- 2.3 Emergency Planning Activation Instructions Booklet
- 2.4 Emergency Telephone Book
- 2.5 EPIP-OSC-2, Command and Control Position Actions/Notifications
- 2.6 Ongoing Commitment Documents
- AR 13301, IER 92-20

3. DEFINITIONS

- 3.1 ANS - "Alert Notification System". The system of sirens within OPPD's designated EPZ, used to provide public warning of a plant emergency event.
- 3.2 BLAIR INDUSTRIAL PARK CO-OP - Emergency Notification System. An organization of industries including the Fort Calhoun Station that have banded together to form a warning system to notify member industries and the Washington County Dispatch Center of a potential or actual release of toxic chemicals and/or hazardous material from its facility.
- 3.3 CODE SYSTEM - A system devised by members of the Blair Industrial Park Co-Op to classify events that have occurred at the initiating facility's site. These codes are:
- 3.3.1 CODE BLUE - A minor emergency or problem such as a fire, explosion, gas or liquid release, unusual noise or odor, abnormal or extended flaring activity or other internal event has occurred which may be visible or detectable by off-site people, but which presents **NO OFF-SITE THREAT** and requires no protective actions. The situation is under control.

- 3.3.2 **CODE GREEN** - An emergency such as a fire, explosion, gas or liquid release or other event has occurred which effects plant operations and/or has the potential to escalate to a more serious emergency. **THE SITUATION IS NOT UNDER CONTROL BUT POSES NO IMMEDIATE OFF-SITE THREAT.** The Washington County EOC may activate.
- 3.3.3 **CODE YELLOW** - A serious accident such as a fire, explosion, gas or liquid release or other event has occurred or is imminent which seriously affects plant operations and/or poses a threat to residents or industries in the immediate vicinity of the affected industry. **THE SITUATION IS NOT UNDER CONTROL AND ON-SITE PROTECTIVE ACTIONS WILL BE NECESSARY.** The Washington County EOC would activate.
- 3.3.4 **CODE RED** - A severe emergency such as fire, explosion, gas or liquid release or other event has occurred or is imminent which seriously affects plant operations and/or off-site areas well beyond site boundaries. **THE SITUATION IS NOT UNDER CONTROL AND PROTECTIVE ACTIONS FOR NEIGHBORING INDUSTRIES AND RESIDENTS ARE NECESSARY.** The Washington County EOC would fully activate at a safe location.
- 3.4 **COMMAND AND CONTROL POSITION** - The Shift Manager, Control Room Coordinator, Site Director, or Emergency Director currently charged with the authorities and responsibilities for directing the emergency response.
- 3.5 **COMMERCIAL LINE** - OPPD installed phone system, for interplant and normal outside phone communication.
- 3.6 **COMMUNICATOR** - The Communicator position associated with the Command and Control position in charge. For the Shift Manager and Control Room Coordinator, it is the Control Room Communicator. For the Site Director, it is the TSC COP Communicator. For the Emergency Director, it is the EOF COP Communicator
- 3.7 **COP** - "Conference Operations Network". The phone system installed to provide rapid state and county notifications.
- 3.8 **EAGLE** - OPPD computerized dose assessment system - "Emergency Assessment of Gaseous and Liquid Effluents".
- 3.9 **EAS** - "Emergency Alert System". The radio system providing announcements to the general public in the event of a nuclear or other public emergency.
- 3.10 **ENS/FTS phone** - NRC notification system phones, **ENS** - "Emergency Notification System", **FTS** - "Federal Telecommunications System".

**3.11 ERDS - "Emergency Response Data System". The system that provides ERF data to the NRC Operations Center.**

**3.12 ERO - "Emergency Response Organization".**

**4. PREREQUISITES**

None

**5. PROCEDURE**

**5.1 Upon activation of your position, use the applicable checklist listed to complete required actions:**

**Attachment 6.1 - Control Room Notifications Checklist**

**Attachment 6.2 - TSC Notifications Checklist**

**Attachment 6.3 - EOF Notifications Checklist**

**5.2 Review the procedure and checklist, and accomplish the applicable steps upon initial activation and when required thereafter.**

**5.3 Maintain a log of notifications/other contacts made.**

**5.4 At the completion of the shift or at event termination, initial the steps which are completed.**

**5.5 Provide a detailed briefing to your shift relief of any actions taken and the current emergency and notification status.**

**5.6 Retain all documentation (logs, notes, etc.) generated or used during the emergency. At the termination, deliver all documentation to the Administrative Logistics Coordinator in the TSC and/or the Administrative Logistics Manager in the EOF.**

**5.7 IF the ERO was not activated, THEN contact the Emergency Planning Contact Person to pickup all documentation associated with the event.**

**6. ATTACHMENTS**

**6.1 Control Room Notifications Checklist**

**6.2 TSC Notifications Checklist**

**6.3 EOF Notifications Checklist**



Attachment 6.1 - Control Room Notifications Checklist

Maintain a log of all key activities

✓ INITIALS

**NOTE:** Keys needed to unlock cabinets are in the lockbox on the cabinet doors. Keys to door 115 are in the lockboxes located near the door.

1. Obtain the "Emergency Planning Activation Instruction Booklet" from the Shift Manager.

—

1.1 Don a position identification badge from the locker.

—

1.2 Maintain a log of emergency activities.

—

—

2. Using the Emergency Planning Activation Instruction Booklet perform notifications as requested by the Shift Manager or Command and Control Position.

—

**NOTE:** In the event that the ERFCS is not available in the TSC or EOF, you may be called to obtain necessary information.

3. Have Control Room Data Collector collect requested data using:

- FC-194
- FC-197
- FC-1336

—

—

—

3.1 Provide data to the TSC or EOF.

—

—

4. IF forced evacuation of the Control Room is necessary, and the TSC is not activated, THEN:

4.1 Follow the appropriate steps in the AOP's.

—

4.2 Perform your duties as directed from the COP work station in the TSC.

—

—

Attachment 6.2 - TSC Notifications Checklist

Maintain a log of all key activities

✓ INITIALS

1. Upon arrival:

\_\_\_\_\_

1.1 Put on position identification badge.

2. Using the Emergency Planning Activation Instruction Booklet:

\_\_\_\_\_

2.1 Perform the actions and notification in this book as directed by the  
Command and Control Position.

\_\_\_\_\_

**NOTE:** The Protective Measures Coordinator is your contact to obtain  
status board information.

3. Maintain the Radiological Status Board using data from Emergency  
Notification Forms (FC-1188). [AR 13301]

\_\_\_\_\_

Attachment 6.3 - EOF Notifications Checklist

Maintain a log of all key activities

✓ INITIALS

1. Upon arrival:

1.1 Sign in on Accountability Roster.

—

1.2 Put on position identification badge.

—

—

2. Using the Emergency Planning Activation Instruction Booklet:

2.1 Perform the actions and notifications in this book as directed by the  
Command and Control Position.

—

—

—

3. Maintain the PAR Status Board.

—

—

Fort Calhoun Station  
Unit No. 1

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**EPIP-OSC-21**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: ACTIVATION OF THE OPERATIONS SUPPORT CENTER**

---

**FC-68 Number: EC 31020**

**Reason for Change: Delete step requiring synchronizing clocks to the ERF since we now use atomic clocks.**

**Requestor: Rhonda Hankins**

**Preparer: Rhonda Hankins**

**Correction (a): Page 4 (05-28-03) (Issue all pages)**

ACTIVATION OF THE OPERATIONS SUPPORT CENTER

NON-SAFETY RELATED

1. PURPOSE

- 1.1 This procedure provides instruction for the Operations Support Center (OSC) Director and other OSC personnel for activation and deactivation of the OSC. It also provides guidance for relocating the OSC to its alternate location should the need arise.

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 EPIP-RR-21, Operations Support Center Director Actions
- 2.2 EPIP-EOF-11, Dosimetry Records, Exposure Extensions, and Habitability

3. DEFINITIONS

- 3.1 Activated - minimum staffing and basic setup requirements have been attained to allow the OSC to provide support to the Control Room.
- 3.2 Augmented - A facility is augmented when all augmenting and minimum staffing positions are filled.

4. PREREQUISITES

None

5. PROCEDURE

- 5.1 Upon reporting to the OSC, activate the OSC using Attachment 6.1.
- 5.2 Should the need arise to relocate the OSC, use Attachments 6.5 and 6.6.
- 5.3 Upon event termination, restore the equipment in the OSC per Attachment 6.4.

6. ATTACHMENTS

- 6.1 Checklist for Activation of the OSC
- 6.2 Typical Floor Plan for the Operations Support Center
- 6.3 Typical Accountability Boundaries for the Operations Support Center
- 6.4 Checklist for Deactivation of the OSC

6.5 Guidelines for Setup of the Operations Support Center in an Alternate Location

6.6 Typical Location of Alternate Operations Support Center

FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-OSC-21  
PAGE 3 OF 13

Attachment 6.1 - Checklist for Activation of the OSC

Page 1 of 3

**NOTE:** It is the goal of Omaha Public Power District (OPPD) to activate the OSC within one hour following declaration of an Alert or higher classification. In the event of adverse weather and/or other conditions that may limit or slow response, either manmade or natural, it is understood that staffing time may exceed this goal.

(✓) INIT/TIME

1. Verify the following minimum staffing positions are available:

- OSC Director
- Radiation Protection Technician or Radiation Protection Coordinator
- One other person to form a team

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\_\_\_\_\_ /

2. Set up accountability boundaries per Attachment 6.3.

\_\_\_\_\_ /

3. Connect phone harness P10:

- Storekeeper (ext 7055)
- Maintenance Planner (ext 7057)
- Maintenance Technicians (ext 7059)
- Extra OSC phone (ext 7060)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ /

4. Connect phone harness W10:

- OSC Director (ext 7051)
- Radiation Protection Coordinator (ext 7052)
- Chemistry Coordinator (ext 7053)
- Maintenance Coordinator (ext 7054)
- ERMS Operator (used only if ERMS is inoperable, ext 7056)
- OSC OPS Liaison Network Phone
- Conference Health Physics (CHP) Network Phone
- Management Operations Phone (MOP) Network

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5. Connect PA microphone.

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6. Turn on power switch for:

- Writeboard monitor
- Document reader/printer

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ /

7. Adjust volume controls on Gaitronics units so announcements can be heard in the OSC.

\_\_\_\_\_ /

Attachment 6.1 - Checklist for Activation of the OSC

Page 2 of 3

(✓) INIT/TIME

8. Prepare team tracking board for use.

/

9. Post "NO EATING/DRINKING/SMOKING OR CHEWING" signs from the RP Coordinator's Kit in the following locations:

- I&C Shop Area
- OSC - Conference Room Area
- Access Control Area

      
      
     /

10. When Steps 1 through 9 are complete perform the following:

10.1 Make the following announcement on the OSC PA system:

"This is     (ININSERT NAME)    . I have assumed the duties of OSC Director. **The OSC is now activated.** Eating, drinking, smoking or chewing is **NOT** allowed."

10.2 Inform the Site Director the OSC is activated, ready to provide minimal support to the Control Room and who is filling the OSC Director position.

     /

11. Verify habitability per EPIP-EOF-11.

     /

12. Set up a portable air monitoring system (AMS).

     /

13. Set up a portable area monitor with the alarm set at about 15 mr/hr.

     /

14. Within one hour of initial emergency declaration, verify the following augmenting staff are present:

- Chemistry Technician
- Dosimetry Technician
- Electrical Maintenance Technicians (2)
- I&C Technician
- Maintenance Coordinator
- Mechanical Maintenance or Steam Fitter Mechanic
- Operations Liaison
- Radiation Protection Technicians (6 of which one may be minimum staffing)
- Radiation Protection Coordinator (if not counted for minimum staffing)

      
      
      
      
      
      
      
      
      
     /



**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-OSC-21  
PAGE 5 OF 13**

**Attachment 6.1 - Checklist for Activation of the OSC**

**Page 3 of 3**

**(✓) INIT/TIME**

**15. After one hour determine if any OSC positions are not filled.**

\_\_\_\_\_

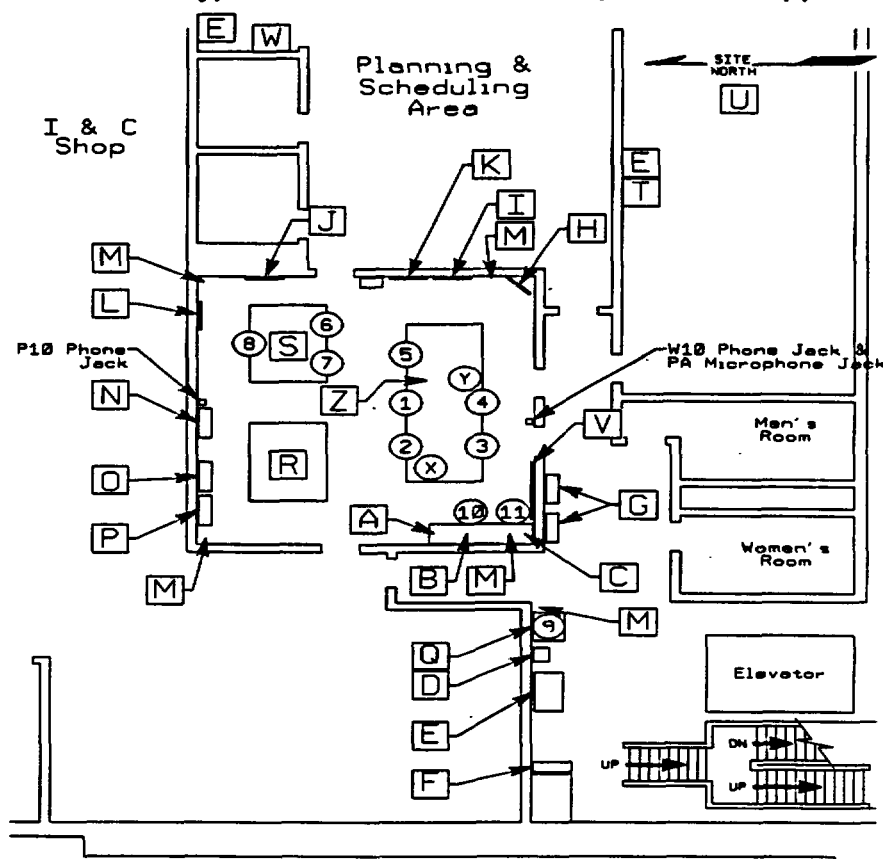
**15.1 If a position is not filled, based on the nature of the emergency  
determine if that position is required.**

\_\_\_\_\_

**15.2 Request assistance from the TSC in contacting additional staff, as  
needed.**

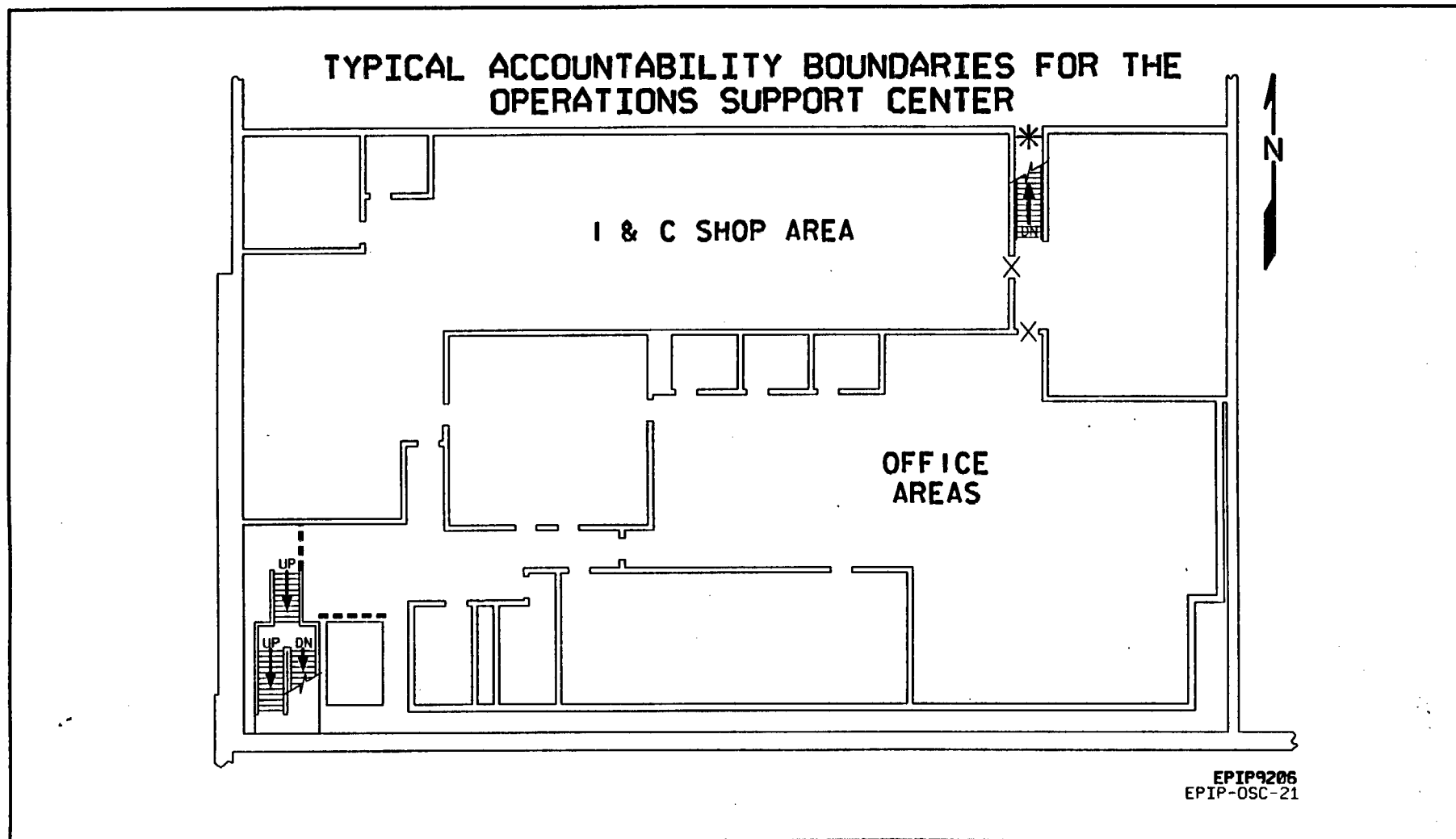
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Attachment 6.2 - Typical Floor Plan For The Operations Support Center



- |                          |  |  |
|--------------------------|--|--|
| A. ERF Computer          | J. EGG Map                               | S. Conference Area                         |
| B. ERMS                  | K. Procedure Rack                        | T. Fax Machine                             |
| C. OSC Base Radio        | L. Sign-In Board                         | U. Procedures (Official Copy)              |
| D. Dosimetry Issue Kit   | M. Gaitronics                            | V. Team Status Board                       |
| E. Copy Machine          | N. Radios/Protective Clothing            | W. ERMS Network Printer                    |
| F. Respirators/Air Tanks | O. Kits, Phones, Admin. Supplies         | X. OSC OPS Liaison Network Phone           |
| G. SCBA's                | P. RP Instruments, Sample Monitoring Kit | Y. Conference Health Physics Network Phone |
| H. Writeboard Monitor    | Q. HIS-20 System                         | Z. MOP Phone                               |
| I. Plant Maps            | R. Briefing Area                         |  |
- 
- |                            |                             |
|----------------------------|-----------------------------|
| 1. OSC DIRECTOR            | 7. OSC STOREKEEPER          |
| 2. OSC OPS LIAISON         | 8. OSC TECHNICIANS          |
| 3. OSC CHEMISTRY COORD.    | 9. OSC ACCT/DOSIMETRY CLERK |
| 4. OSC RP COORD.           | 10. OSC ERMS OPERATOR       |
| 5. OSC MAINTENANCE COORD.  | 11. OSC RADIO OPERATOR      |
| 6. OSC MAINTENANCE PLANNER |                             |

Attachment 6.3 - Typical Accountability Boundaries for the Operations Support Center



**NOTE:** OSC Boundaries are determined by the OSC Director.

---Accountability Boundary

X NO Exit - Use Southwest Staircase

\* DO NOT ENTER - Use Southwest Staircase

Attachment 6.4 - Checklist for Deactivation of OSC

Upon termination of emergency activities the following actions should be completed to restore the OSC.

	<u>INIT/TIME</u>
1. Disconnect phone harnesses and store phones in the appropriate emergency gear locker.	<u>          /          </u>
2. Disconnect the PA microphone and store in the appropriate emergency gear locker.	<u>          /          </u>
3. Place emergency kits in the appropriate emergency gear locker.	<u>          /          </u>
4. Turn off all portable radios and place in their chargers.	<u>          /          </u>
5. Turn off RP instruments, return to the appropriate emergency gear locker and notify RP of any equipment that may have malfunctioned during use.	<u>          /          </u>
6. Place the portable air monitor in the cage next to the copy machine and lock the cage.	<u>          /          </u>
7. Return respirators and air bottles to the appropriate location and notify RP of equipment requiring recharging.	<u>          /          </u>
8. Turn off the writeboard monitor.	<u>          /          </u>
9. Turn in all logs, paperwork, procedures, etc. to the Administrative Logistics Coordinator in the TSC.	<u>          /          </u>
10. Secure status boards for normal use.	<u>          /          </u>
11. Remove accountability boundary signs from ropes and doors and place in the dosimetry issue kit cabinet.	<u>          /          </u>
12. Place the EATING/DRINKING/SMOKING OR CHEWING signs in the RP Coordinator's kit.	<u>          /          </u>

Attachment 6.5 - Guidelines for Setup of the Operations Support Center  
in An Alternate Location

Page 1 of 4

**NOTE:** Continue to provide emergency support as practicable during relocation.

**NOTE:** The TSC is the preferred relocation facility.

(✓) INIT/TIME

1. The OSC Director should:

1.1 Determine the location to which personnel will be relocated:

- Ensure the receiving facility is safe and prepared to accept OSC personnel. \_\_\_\_\_
- Determine that the chosen route to that facility is safe and free of unexpected obstacles. \_\_\_\_\_
- Assign a Relocation Coordinator to direct Steps 1.2 through 2.2. \_\_\_\_\_
- Promptly relocate himself to the facility to coordinate an orderly transfer. \_\_\_\_\_

1.2 The Relocation Coordinator shall make everyone aware of impending relocations including:

**NOTE:** A Site Announcement should be considered, but it shall not replace individual contact.

- OSC Staff \_\_\_\_\_
- Teams that have been dispatched from the OSC \_\_\_\_\_
- Control Room \_\_\_\_\_
- TSC \_\_\_\_\_
- Command and Control position \_\_\_\_\_
- EOF \_\_\_\_\_

Attachment 6.5 - Guidelines for Setup of the Operations Support Center  
in An Alternate Location

Page 2 of 4

(✓) INIT/TIME

1.3 The OSC Radiation Protection Coordinator should:

- Determine the need for and if needed, establish radiological control points. \_\_\_\_\_
- Authorize Issuance of dosimeters as conditions warrant. \_\_\_\_\_
- If transferring to the TSC, coordinate with the TSC Protective Measures Coordinator to ensure the TSC is prepared to receive the OSC staff and equipment. Issues to be discussed should include:
  - Maintaining TSC Airlocks \_\_\_\_\_
  - Monitoring of personnel and equipment \_\_\_\_\_
  - Decontamination procedures \_\_\_\_\_
  - Where the OSC Staff should go \_\_\_\_\_
- Coordinate the transfer of OSC RP Personnel and needed equipment. \_\_\_\_\_

1.4 The OSC Accountability/Dosimetry Technician should:

- Issue dosimeters as directed by the RP Coordinator. \_\_\_\_\_
- Take to the new facility:
  - Dosimeters \_\_\_\_\_
  - Dosimeter charger \_\_\_\_\_
  - Dosimetry records \_\_\_\_\_
  - Accountability rosters \_\_\_\_\_
  - Other records and logs \_\_\_\_\_
- Verify accountability has been maintained as the OSC staff arrives. \_\_\_\_\_

Attachment 6.5 - Guidelines for Setup of the Operations Support Center  
in An Alternate Location

Page 3 of 4

(✓) INIT/TIME

1.5 The Maintenance Coordinator should ensure that needed equipment is prepared for transfer, including but not limited to:

- Protective clothing
- SCBA
- Respirators
- Radios
- Phone head sets, etc.
- All logs and facility records

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. When all preparations are completed the Relocation Coordinator shall ensure that the rest of the entire OSC staff is aware of:

**NOTE:** The Coordinator for each position should coordinate relocation their staff and equipment to aid in maintaining accountability.

- Where they are going
- The route to taken
- How the transfer will be made
- The proper actions to follow upon arrival

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2.1 The Relocation Coordinator shall call the alternate facility to inform them that transfer has begun.

\_\_\_\_\_

2.2 The Relocation Coordinator and a Radiation Protection Technician shall remain in the OSC until informed that accountability has been verified in the new facility.

- Upon confirmation of reestablished accountability the Relocation Coordinator and the RP Technician should proceed to the relocated facility.

\_\_\_\_\_

- If someone is not accounted for a search for that individual(s) shall be conducted.

\_\_\_\_\_

Attachment 6.5 - Guidelines for Setup of the Operations Support Center  
in An Alternate Location

Page 4 of 4

(✓) INIT/TIME

3. Upon arrival of personnel in the new facility:

3.1 The OSC Director shall ensure:

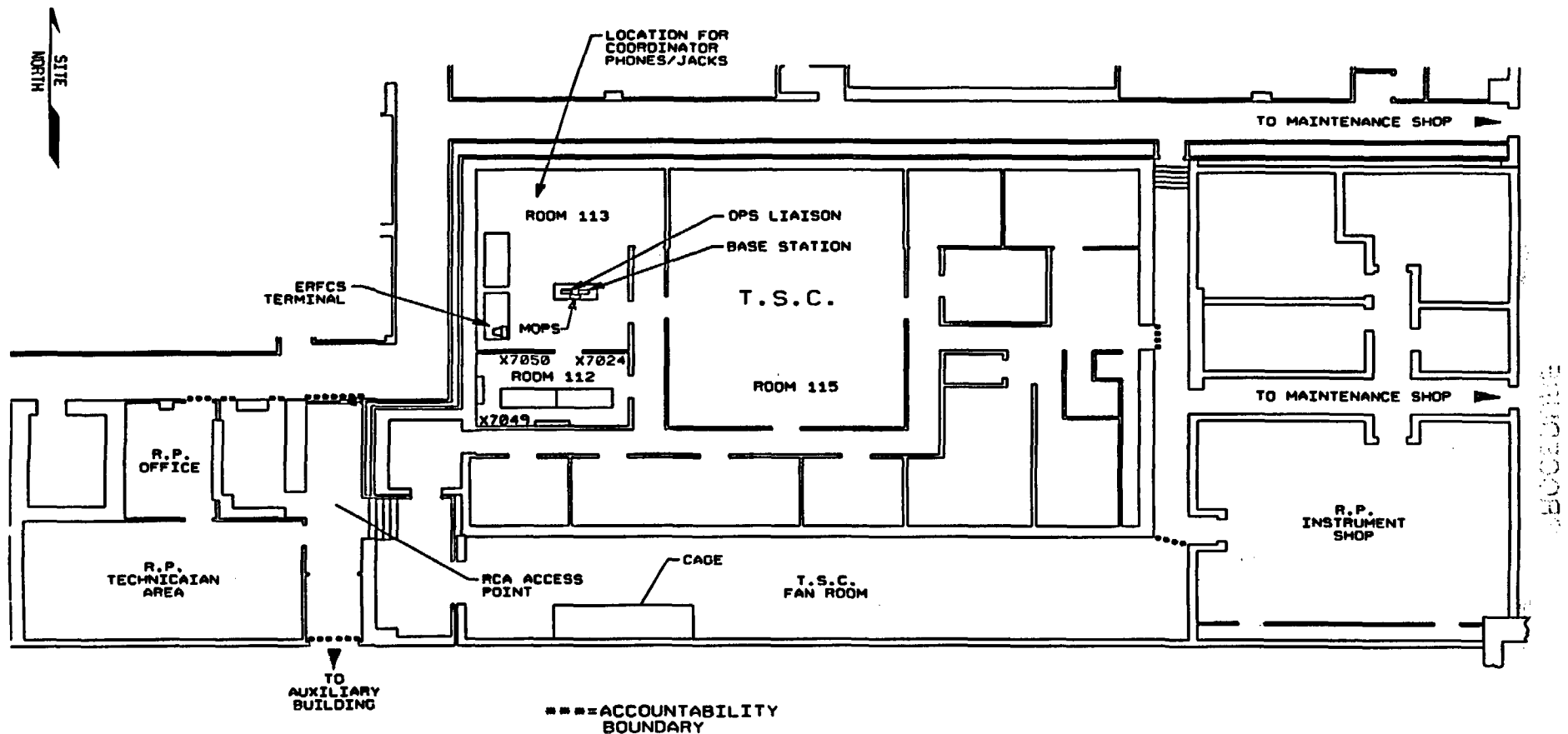
- The Accountability/Dosimetry Technician has verified accountability by ensuring those previously signed in on the roster with those arriving in the new facility. \_\_\_\_\_
- Arrangements for personnel and equipment decon have been made. \_\_\_\_\_
- The Operations Liaison has reestablished contact with other facilities Ops Liaisons. \_\_\_\_\_
- The facility is set up in a reasonable manner to be reactivated. \_\_\_\_\_
- The Radio Operator has reestablished the radio system and contact with dispatched teams, if applicable. \_\_\_\_\_
- Sufficient phone service is established. \_\_\_\_\_

4. Report to the other facilities that the OSC has been relocated.

- 4.1 Make an announcement within the facility that the OSC has been reactivated. \_\_\_\_\_ / \_\_\_\_\_



Attachment 6.6 - Typical Location of Alternate Operations Support Center



Fort Calhoun Station  
Unit No. 1

**EPIP-RR-11**

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**EMERGENCY PLANT IMPLEMENTING PROCEDURE**

**Title: TECHNICAL SUPPORT CENTER DIRECTOR ACTIONS**

---

**FC-68 Number: 53204**

**Reason for Change: Revise Format, Delete Note, Delete reference to Chemistry Liaison. Change ERMS operator to Site Directors Secretary. Change CID to ARs'.**

**Preparer: Mark Reller**

**Correction (a): Page 3 (issue all pages) (05-28-03)**

TECHNICAL SUPPORT CENTER DIRECTOR ACTIONS

NON-SAFETY RELATED

1. PURPOSE

- 1.1 The purpose of this procedure is to outline assignment and responsibilities of personnel in the Emergency Response Organization filling the position of Technical Support Center Director.

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 EPIP-TSC-1, "Activation of the Technical Support Center"
- 2.2 EPIP-EOF-21, "Potassium Iodide Issuance"
- 2.3 EPIP-OSC-1, "Emergency Classification"
- 2.4 EPIP-EOF-7, "Protective Action Guidelines"
- 2.5 EPIP-OSC-2, "Command and Control Position Actions/Notifications"
- 2.6 Commitment Documents (other than Ongoing)
- AR 11809, LIC-91-189

3. DEFINITIONS

None

4. PREREQUISITES

None

5. PROCEDURE

- 5.1 Use the Technical Support Center Director Checklist, Attachment 6.1, as an aid to completing required actions.
- 5.2 Review the procedure and checklist, and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.

- 5.3 Retain all documentation (logs, calculation sheets, notes, etc.) generated or used during the emergency. At the termination, deliver all documentation to the TSC Administrative Logistics Coordinator position in the TSC.

6. ATTACHMENTS

6.1 Technical Support Center Director Checklist

Attachment 6.1 - Technical Support Center Director Checklist

**\*\* Maintain a log of all key activities \*\***

(✓) INIT/TIME

1. Obtain worker packet and put on the Personnel Identification Badge.

      /      

2. If not yet completed, activate the TSC per EPIP-TSC-1.

      /      

**NOTE:** The TSC Administrative Logistics Coordinator is responsible for coordinating shift rotations and necessary notifications for call out personnel.

3. Working with your staff determine 24-hour staffing schedule for all TSC positions and provide to the TSC Administrative Logistics Coordinator.

      /      

4. Periodically review the following steps and perform, as required.

      /      

4.1 Maintain control of the TSC working area and keep noise levels down.

\_\_\_\_\_

4.2 Coordinate the actions of the TSC Security Coordinator, the TSC Administrative Logistics Coordinator, the Reactor Safety Coordinator, Protective Measures Coordinator, and the TSC Operations Liaison.

\_\_\_\_\_

4.3 Keep the Site Director informed of operational and radiological analyses occurring as a result of the emergency.

\_\_\_\_\_

4.4 Ensure only necessary personnel are in the TSC working area.

\_\_\_\_\_

4.5 Review TSC support needed and have needed expertise called in.

\_\_\_\_\_

4.6 If directed by the Site Director, approve information releases to the public (via available communications).

\_\_\_\_\_

4.7 Ensure communications are maintained between the TSC, Control Room, OSC and the EOF.

\_\_\_\_\_

4.8 When staffed, keep the Site Directors Secretary up to date with event chronology information for transmission to other ERMS locations.

\_\_\_\_\_

Attachment 6.1 - Technical Support Center Director Checklist

(✓) INIT/TIME

- 4.9 If advised by the Protective Measures Coordinator that Potassium Iodide (KI) issuance is warranted, then refer to EPIP-EOF-21 and discuss with the Site Director. \_\_\_\_\_
- 4.10 If advised by the Protective Measures Coordinator that habitability conditions in the OSC have degraded, then consider and recommend to the Site Director the relocation of the OSC to an appropriate location. Possible alternatives are: \_\_\_\_\_
- TSC
  - Training Center
  - Warehouse
  - Administration Building
- 4.11 Review status board information, and ensure status boards, including "priorities" listings, are kept up-to-date. \_\_\_\_\_
- 4.12 Whenever relieved by another qualified TSC Director, fully brief your relief on current emergency status, actions taken during shift, and actions in progress. \_\_\_\_\_
- 4.13 CLASSIFICATION: Assess the current emergency classification with the Site Director to determine whether it is still valid per EPIP-OSC-1. \_\_\_\_\_
- 4.14 PARs: Review with the Site Director, the need to authorize issuance of protective action recommendations to offsite authorities per EPIP-EOF-7. \_\_\_\_\_
- 4.15 NOTIFICATIONS: Assist the Site Director in ensuring that all notifications, including PARs are made per EPIP-OSC-2. \_\_\_\_\_
- 4.16 If directed by the Site Director, coordinate with the Shift Manager the sounding of the appropriate plant alarm and associated Gai-Tronics announcement for: \_\_\_\_\_
- emergency classification upgrades
  - other imminent dangers (tornadoes, fires, etc.)
- 4.17 Ensure TSC personnel are performing necessary technical analyses of the emergency and providing alternative solutions to concerns. \_\_\_\_\_

Attachment 6.1 - Technical Support Center Director Checklist

(✓) INIT/TIME

- 4.18 Ensure the Reactor Safety Coordinator's group is performing core damage assessments, as needed. \_\_\_\_\_
- 4.19 If it is determined that an assessment team is needed to verify if any radioactive release is in progress or to determine the source and release path of any release in progress, assign adequate personnel to assist with this task. They are to coordinate with and report any findings to the Protective Measures Coordinator. (AR 11089) \_\_\_\_\_
- 4.20 Coordinate with the Control Room Coordinator to identify approved procedures, or direct the TSC Staff to provide new procedures to which operators may transition from off-normal procedures when the event has been mitigated. \_\_\_\_\_ / \_\_\_\_\_
5. Review EPIP-OSC-2 with the Site Director for guidelines when conditions warrant a downgrade or termination of an emergency classification. Discuss proposed downgrades or termination with the Site Director. \_\_\_\_\_ / \_\_\_\_\_

Fort Calhoun Station  
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**EPIP-RR-17**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: TSC SECURITY COORDINATOR ACTIONS**

---

**FC-68 Number: EC 28023**

**Reason for Change:** Revise format. Add instructions as required by users. Add instructions for actions to be taken upon event termination.

**Requestor:** M. Reller

**Preparer:** M. Reller

**Correction (a):** Page 2 (05-28-03) (Issue all pages)



TSC SECURITY COORDINATOR ACTIONS

NON-SAFETY RELATED

1. PURPOSE

- 1.1 This procedure details assignments and responsibilities of the TSC Security Coordinator.

2. REFERENCES/COMMITMENT DOCUMENTS

None

3. DEFINITIONS

None

4. PREREQUISITES

None

5. PROCEDURE

**NOTE:** The attached checklist is designed as a reminder of actions which are required to be performed during an emergency condition.

- 5.1 Review the procedure and checklist, and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.
- 5.2 At the completion of the shift or at event termination, initial the steps which are completed.
- 5.3 Retain all non-safeguards documentation (logs, calculations sheets, notes, etc.) generated or used during the emergency. At the termination, deliver all non-safeguards documentation to the Administrative Logistics position in the TSC. The TSC Security Coordinator will retain all safeguards documentation.

6. ATTACHMENTS

- 6.1 TSC Security Coordinator Checklist

Attachment 6.1 - TSC Security Coordinator Checklist

Page 1 of 3

\* \* Maintain a log of all key activities \* \*

(✓) INITIALS

**NOTE:** Actions may be performed out of sequence based on the judgement of the user.

1. Upon arrival:

- Don Personnel Identification Badge
- Obtain Worker Packet
- Report your arrival to the TSC Director
- Establish communication with Shift Security Supervisor (SSS)
- Assist in the activation of the TSC per EPIP-TSC-1

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2. Interface with:

2.1 The SSS to ensure: Contact Number \_\_\_\_\_

- All onsite Security Force personnel have required Dosimetry
- The needs of the Security Force are met
- The TSC is aware of any changes in location of Security Force personnel (ensure movements are coordinated through the OSC)
- Security Force recall is initiated, if required
- Coordination of 24 hour security staffing
- The Security Force maintains plant security
- Personal safety issues (haz-mat, fires, etc.) are discussed

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2.2 The Protective Measures Coordinator to ensure:

2.2.1 The Security Force is located in areas to maintain personnel safety and their radiological dose ALARA. Consider:

- In-plant response
- Wind direction
- Radiological conditions

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2.2.2 If relocation is required, personnel movement is coordinated with the OSC.

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**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-RR-17  
PAGE 3 OF 4**

**Attachment 6.1 - TSC Security Coordinator Checklist**

**Page 2 of 3**

**(✓) INITIALS**

**2.3 Ensure the onsite Command and Control Position is kept abreast of all security issues and concerns.**

\_\_\_\_

**3. Ensure support for accountability by:**

**NOTE: Since the TSC does not normally assume Command and Control, the accountability status report should go to the Shift Manager.**

- Providing adequate security personnel for the effort
- Providing initial accountability status to the Shift Manager
- Supporting search for any missing personnel

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**4. If a Site Evacuation is ordered or is imminent ensure:**

- Local Law Enforcement agencies are contacted
- Traffic control is established on the plant access road
- The Administration Building and Training Center personnel are notified
- The entire Owner Controlled and Protected Area are cleared of unnecessary personnel
- Evacuees are aware of their destination, and the correct route to be taken

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**5. Determine what security contingency measures need to be initiated or terminated and ensure the NRC is aware of conditions, as required.**

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**6. When relieved ensure:**

- Relief is aware of emergency conditions
- Actions taken by your position (including status of these actions)
- Review this checklist and provide extra copy for next shift
- All paper work is retained until event terminations

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**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-RR-17  
PAGE 4 OF 4**

**Attachment 6.1 - TSC Security Coordinator Checklist**

**Page 3 of 3**

**(✓) INITIALS**

**7. Upon event termination:**

- Inform SSS of termination and ensure the requirements of SECOP-28 are met \_\_\_\_\_
- Provide assistance as requested by the Recovery Manager \_\_\_\_\_
- Turn in all documentation generated by your position and the Security Department during the event to the TSC Administrative Logistics Coordinator \_\_\_\_\_

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**EPIP-RR-17A**

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**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: TSC ADMINISTRATIVE LOGISTICS COORDINATOR ACTIONS**

---

**FC-68 Number: EC 29517**

**Reason for Change:** Add instructions for TSC Admin Logistics Coordinator to interface with the EOF Admin Logistics Manager to determine what special needs may be needed. To ensure that it is understood who performs these tasks.

**Requestor: Mark Reller**

**Preparer: Mark Reller**

**Correction (a): Page 2 (05-28-03) (Issue all pages)**

TSC ADMINISTRATIVE LOGISTICS COORDINATOR ACTIONS

1. PURPOSE

- 1.1 This procedure provides guidance to the TSC Administrative Logistics Coordinator in performing actions outlined in the Emergency Plan Implementing Procedures (EPIPs).

2. REFERENCES/COMMITMENT DOCUMENTS

2.1 Commitment Documents

- AR 13301, IER 92-20
- AR 12110, IER 91-23

3. DEFINITIONS

None

4. PREREQUISITES

None

5. PROCEDURE

- 5.1 Review the procedure and checklist, Attachment 6.1 and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.
- 5.2 At the completion of the shift or at event termination, check the steps which are completed.
- 5.3 Retain all documentation (logs, calculation sheets, notes, etc) generated or used during the emergency.
- 5.4 At event termination, collect all documentation from the TSC, OSC and CR.
- 5.4.1 Assemble all documentation for legal records and event analysis. Request the Emergency Planning Department to place in safe storage.

6. ATTACHMENTS

- 6.1 TSC Administrative Logistics Coordinator Checklist
- 6.2 Procurement or Addition of Diesel Fuel for Emergency Diesel Generators

Attachment 6.1 - TSC Administrative Logistics Coordinator Checklist Page 1 of 4

\* \* Maintain a log of all key activities \* \*

	(✓)	INIT/TIME
1. Upon arrival:		
• Obtain worker packet	___	
• Put on the Personnel Identification badge	___	
• Assist in activation of TSC per EPIP-TSC-1	___	___ / ___
2. Direct:		
2.1 Site Director's Secretary to:		
• Maintain a log for the Site Director	___	
• Gather information for input to the ERMS.	___	
2.2 Other Site Directors Secretary to operate the ERMS.	___	
2.3 The COP Communicator to:		
• Perform required notifications on the COP Network	___	
• Maintain the Radiological Status Board [AR 13301]	___	
2.4 The Status Board Keeper to obtain data from the ERFCS or Control Room to maintain the Status Board.	___	
2.5 The Emergency Response Coordinator to assist other TSC positions.	___	
2.6 Direct one Administrative Assistant to maintain the TSC Accountability Roster.	___	
2.7 Direct the other Administrative Assistant to:		
• Perform copying duties in the TSC	___	
• Distribution duties in the TSC	___	
• Operate the fax machine	___	___ / ___

FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

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Attachment 6.1  
(continued)

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(✓)

INIT/TIME

3. Secure access/egress to the TSC from the back (west) entrance using the following signs:

- TSC IS ACTIVATED NO EXIT
- TSC IS ACTIVATED AUTHORIZED PERSONNEL ONLY
- WHEN TSC IS ACTIVATED DO NOT ENTER. USE EAST ENTRANCE
- TSC IS ACTIVATED

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4. Establish 24 hour staffing:

4.1 Determine 24 hour Staffing for:

- TSC (assist the Site Director using FC-EPF10)
- Control Room (use FC-EPF-10)
- OSC (request that OSC Director prepare using FC-EPF-9 and fax to you)

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4.2 When you have all the staffing schedules:

- Verify that all positions are filled
- Verify that second shift positions are filled
- Post shift schedules in the TSC
- Fax shift schedules to the CR and OSC for posting
- Distribute shift schedules in the TSC

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4.3 Notify personnel on the second shift to inform them of their work schedule (use other personnel to assist in this task as needed)

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5. Periodically review the following steps and perform them as required:

5.1 Prepare copies of the following and distribute them throughout the TSC and transmit to the OSC, as required.

- Data sheets
- Messages

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5.2 Assist the Site and TSC Director, as needed.

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**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-RR-17A  
PAGE 4 OF 6**

**Attachment 6.1  
(continued)**

**Page 3 of 4**

(✓)

INIT/TIME

**5.3 Contact the EOF Administrative Logistics Manager's when:**

- Evacuation of plant personnel to the North Omaha is ordered
- Any person is injured, contaminated and requires off-site medical response

**5.4 Working with the EOF Administrative Logistics Manager coordinate logistics support, including:**

- Transportation
- Food
- Lodging
- Special equipment
- Supplies

**NOTE:** Step 6 may be performed by the EOF Administrative Logistics Manager.

**6. Determine from the Control Room Coordinator the status of the emergency diesel generators.**

**6.1 If one or both are operating, within 10 hours [AR 12110]:**

**NOTE:** The phone number for the diesel fuel supplier can be found in the Emergency Phone Book in the "Off-Site Support Agencies" section.

- Contact the diesel fuel supplier to arrange for the potential delivery of diesel fuel.
- If Diesels are loaded arrange for continuous fuel deliveries to the site.

**6.2 If diesel fuel can not be delivered to the site within 20 hours of the start of the diesels:**

- Request that the TSC or Site Director request an emergency work order to install the hardware for diesel fuel transfer described in Attachment 6.2.

**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-RR-17A  
PAGE 5 OF 6**

**Attachment 6.1  
(continued)**

**Page 4 of 4**

**(✓)**

**INIT/TIME**

**7. As required, provide a detailed briefing to your relief covering:**

- Emergency conditions
- Actions taken (current status)

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**8. At emergency termination:**

- Collect documentation and logs from all onsite facilities
- Ensure that the TSC is placed back into a state of readiness
- Review this checklist and ensure that special orders or supplies that were ordered are canceled
- Ensure personnel on the shift roster are informed of status of emergency and whether or not to report for their shift

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Attachment 6.2 - Procurement or Addition of Diesel Fuel for Emergency Diesel Generators

INITIALS

1. DIESEL FUEL TRANSFER FROM FO-10 TO FO-1 (Auxiliary Boiler Fuel Storage Tank to Diesel Generator Fuel Oil Storage Tank)

**NOTE:** At full rated power, each diesel generator consumes approximately 3 gallons per minute. FO-37 delivers approximately 6 gallons per minute. If only one diesel is in service, or if the diesels are running at less than rated load, the level in FO-1 will steadily increase when adding fuel oil to FO-1 from FO-10.

There are several possible methods to transfer diesel fuel from FO-10 to FO-1. This method allows using installed equipment that will require a minimum amount of "temporary" changes to accomplish the fuel transfer:

- 1.1 Connect a 1 inch hose from FO-201 "Auxiliary Feedwater Pump FW-54 Fuel Oil Transfer Pump FO-37 Discharge Drain Valve" to the 3 inch fill connection on FO-1. This will require approximately 400 feet of hose. The 1 inch hose may be run inside the 3 inch fill connection and duct taped in place. All mechanical joints should be stabilized with lock wires and taped to prevent leakage. Sleeves or blocks should be used around hoses that are run through doors to prevent damage to the hose. (Hose fittings and a hand pump are available in the warehouse stored under Stock Code Number 30869-2(fuel)).
- 1.2 The normal Auxiliary Feedwater Pump fuel oil system lineup in OI-AFW-1 can be used, but HC-FO-37 must be placed in the "Hand" position, or it will automatically shut off when the Fuel Oil Day Tank FO-38 is full. Also, FO-196 must be closed or fuel will recirculate through FO-38 back to FO-10 if that is the path of least resistance. FO-38 should be checked and refilled periodically; it contains an 8 hour supply of fuel oil when full.
- 1.3 Continue to monitor LI-2107 and shut off the transfer pump when FO-1 level is approximately 17,500 gallons.
- 1.4 Upon completion of the fuel transfer evolution, drain and store hose properly to prevent possible fuel jelling in the hose.

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**EPIP-RR-19A**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: OPERATIONS LIAISON ACTIONS**

---

**FC-68 Number: EC 31900**

**Reason for Change: Insert step in Attachment 6.2 to include tracking of EOP's and AOP's by TSC Ops Liaison.**

**Requestor: Mark Reller**

**Preparer: Mark Reller**

**Correction (a): Pages 3, 4 and 8 (Issue all pages) (05-28-03)**

OPERATIONS LIAISON ACTIONS

NON-SAFETY RELATED

1. PURPOSE

- 1.1 This procedure provides guidance to the Control Room, TSC, OSC and EOF Operations Liaisons in performing actions in response to an emergency at Fort Calhoun Station [AR 11390].

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 EPIP-OSC-1, Emergency Classification
- 2.2 EPIP-EOF-7, Protective Action Guidelines
- 2.3 FCS Abnormal Operating Procedures (AOPs)
- 2.4 FCS Emergency Operating Procedures (EOPs)
- 2.5 Ongoing Commitments
- AR 11390, LIC-91-065R

3. DEFINITIONS

None

4. PREREQUISITES

None

5. PROCEDURE

**NOTE:** The attached checklist are designed as a reminder of actions which are required to be performed during an emergency condition.

- 5.1 The Control Room Operations Liaison will use Attachment 6.1 as an aid to completing required actions [AR 11390].
- 5.2 The TSC Operations Liaison will use Attachment 6.2 as an aid to completing required actions.
- 5.3 The EOF Operations Liaison will use Attachment 6.3 as an aid to completing required actions.

- 5.4 The OSC Operations Liaison will use Attachment 6.4 as an aid to completing required actions.
- 5.5 Review the procedure and appropriate checklist, and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.
- 5.6 At the completion of the shift or at event termination, initial the steps which have been completed.
- 5.7 Retain all documentation (logs, calculation sheets, notes, 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 Control Room Operations Liaison Checklist
- 6.2 TSC Operations Liaison Checklist
- 6.3 EOF Operations Liaison Checklist
- 6.4 OSC Operations Liaison Checklist

Attachment 6.1 - Control Room Operations Liaison Checklist

Page 1 of 1

\* \* Maintain a log of all key activities \* \*

(✓)

INIT/TIME

1. Obtain worker packet and put on Position Identification Badge.

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2. Interface with the Control Room Coordinator to receive a briefing on the following:

2.1 Plant status and actions taken;

\_\_\_\_\_

2.2 Current Classification;

\_\_\_\_\_

2.3 Plant prognosis;

\_\_\_\_\_

2.4 Status of AOPs;

\_\_\_\_\_

2.5 Status of EOPs.

\_\_\_\_\_ / \_\_\_\_\_

3. Stand by to establish a conference call with the TSC, OSC and EOF Operations Liaisons. The TSC and/or OSC and/or EOF will initiate this conference by calling the Control Room upon their arrival.

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4. Periodically review the following steps and perform, as required.

4.1 Provide updates of the information listed above to the TSC, OSC and EOF Operations Liaisons using the established communications link.

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4.2 Provide a detailed briefing to your shift relief of any actions taken and the current emergency status.

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**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-RR-19A  
PAGE 4 OF 8**

**Attachment 6.2 - TSC Operations Liaison Checklist**

**Page 1 of 2**

**\* \* Maintain a log of all key activities \* \***

**(✓)**

**INIT/TIME**

1. Obtain worker packet and put on the Personnel Identification Badge.
2. Using the Ops Liaison phone, perform the following:
  - 2.1 Pick up the receiver and ask if the Control Room is on the line.
  - 2.2 IF the Control Room is already on the line, THEN go to Step 3. Otherwise, continue.
  - 2.3 Dial the Control Room number (listed on the pull-out template on the bottom of the phone) to access the Control Room Operations Liaison.
3. Interface with the Control Room Operations Liaison to receive a briefing on the following:
  - 3.1 Plant status and actions taken;
  - 3.2 Current Classification;
  - 3.3 Plant prognosis;
  - 3.4 Status of AOP's;
  - 3.5 Status of EOP's.
4. Brief the Site and TSC Director on operational status and review status boards and ERFCS for accurate data.
5. Assist the Site Director in formulating an appropriate protective action recommendation based on plant parameters when necessary.

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Attachment 6.2 - TSC Operations Liaison Checklist

Page 2 of 2

\* \* Maintain a log of all key activities \* \*

(✓)

INIT/TIME

6. Periodically review the following steps and perform, as required:

- 6.1 Interface with the NRC Response Team and OPPD support personnel on technical and operational matters relating to the emergency.
- 6.2 Review EPIP-OSC-1 to determine if the current classification is valid.
- 6.3 Follow the status of EOPs and AOPs and report significant changes or problems to the TSG Director.
- 6.4 Provide a detailed briefing to your shift relief of any actions taken and the current emergency status.

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**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP-RR-19A  
PAGE 6 OF 8**

**Attachment 6.3 - EOF Operations Liaison Checklist**

**Page 1 of 2**

**\*\* Maintain a log of all key activities \*\***

**(✓)**

**INIT/TIME**

1. Obtain and put on the Personnel Identification Badge.
2. Using the Ops Liaison phone, perform the following:
  - 2.1 Pick up the receiver and ask if the Control Room is on the line.
  - 2.2 IF the Control Room is already on the line, THEN go to Step 3. Otherwise, continue.
  - 2.3 Dial the Control Room number (listed on the pull-out template on the bottom of the phone) to access the Control Room Operations Liaison.
3. Interface with the Control Room Operations Liaison and the TSC Operations Liaison to receive a briefing on the following:
  - 3.1 Plant status and actions taken;
  - 3.2 Current Classification;
  - 3.3 Plant prognosis;
4. Brief the Emergency Director on operational status and review status boards and ERFCS for accurate data.
5. Periodically review the following steps and perform, as required:
  - 5.1 Interface with the NRC Response Team and OPPD support personnel on technical and operational matters relating to the emergency.
  - 5.2 Assist the Emergency Director with staff and non-OPPD agency briefings.
  - 5.3 Review EPIP-OSC-1 to determine if the current classification is valid and keep the Emergency Director informed.

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Attachment 6.3 - EOF Operations Liaison Checklist

Page 2 of 2

\* \* Maintain a log of all key activities \* \*

(✓)

INIT/TIME

- 5.4 Provide a detailed briefing to your shift relief of any actions taken and the current emergency status.

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**FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE**

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**Attachment 6.4 - OSC Operations Liaison Checklist**

**Page 1 of 1**

**\*\* Maintain a log of all key activities \*\***

**(✓)      INIT/TIME**

1. Obtain worker packet and put on the Personnel Identification Badge.
2. Using the Ops Liaison phone, perform the following:
  - 2.1 Pick up the receiver and ask if the Control Room is on the line.
  - 2.2 IF the Control Room is already on the line, THEN go to Step 3. Otherwise, continue.
  - 2.3 Dial the Control Room number (listed on the pull-out template on the bottom of the phone) to access the Control Room Operations Liaison.
3. Interface with the Control Room Operations Liaison only when necessary to determine information applicable to OSC functions. Brief the OSC Director when necessary. Some of these functions include:
  - 3.1 Information concerning equipment/system status, especially when needed for team briefings.
  - 3.2 Operator dispatch directly to an affected area, so that the OSC personnel may be directed to assist if necessary.
  - 3.3 Operator dispatch to the OSC, so that the OSC may better prepare for necessary team briefing/dispatch process.
4. Monitor the network to determine any other information that may impact the OSC, and inform the OSC Director.
5. Periodically review the following steps, and perform, as required:
  - 5.1 Provide a detailed briefing to your shift relief of any actions taken and the current emergency status.

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**EPIP-RR-21**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: OPERATIONS SUPPORT CENTER DIRECTOR ACTIONS**

---

**FC-68 Number: DCR 10112**

**Reason for Change:** Add ERMS operator to list of people needed for 24-hour staffing schedule. Remove step 5 of Att 6.1 as this is redundant to EPIP-OSC-21 Att 6.2 step 4.b

**Initiator:** D. Levine

**Preparer:** M. Reller

**Correction (a):** Page 2 (issue all pages) (05-28-03)

OPERATIONS SUPPORT CENTER DIRECTOR ACTIONS

NON-SAFETY RELATED

1. PURPOSE

- 1.1 The purpose of this procedure is to provide guidance to the Operations Support Center (OSC) Director.

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 EPIP-OSC-9, "Emergency Team Briefings"  
2.2 EPIP-OSC-21, "Activation of the Operations Support Center"  
2.3 EPIP-EOF-11, "Dosimetry Records, Exposure Extensions, and Habitability"

3. DEFINITIONS

None

4. PREREQUISITES

None

5. PROCEDURE

- 5.1 Review the procedure and checklist, and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.  
5.2 At the completion of the shift or at event termination, initial the steps which are completed.  
5.3 Retain all documentation (logs, calculation sheets, notes, etc.) generated or used during the emergency. At the termination, deliver all documentation to the TSC Administrative Logistics Coordinator position in the TSC.

6. ATTACHMENTS

- 6.1 OSC Director's Checklist

## Page 1 of 2

(✓) INIT/TIME

- R12

Attachment 6.1 - OSC Director's Checklist

Page 2 of 2

(✓) INIT/TIME

6. Ensure a 24 hour work schedule for the following positions is prepared and provide a copy to the TSC Administrative Logistics Coordinator. (use EPF-9, as necessary)

- OSC Director
- OSC Operations Liaison
- Radiation Protection Coordinator
- Chemistry Coordinator
- Maintenance Coordinator
- ERMS Operator

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\_\_\_\_\_ /

7. Provide a detailed briefing to your shift relief of any actions taken and the current emergency status.

\_\_\_\_\_ /

8. When the emergency is terminated direct that all personnel restore their emergency equipment and worker packets. Release the OSC personnel when complete.

\_\_\_\_\_ /



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**EPIP-RR-21A**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: MAINTENANCE COORDINATOR ACTIONS**

---

**FC-68 Number: DCR 10961**

**Reason for Change: Reformat per Writers Guide.**

**Initiator: Doug Levine**

**Preparer: Mark Reller**

**Correction (a): Page 2 (05-28-03) (Issue all pages)**

MAINTENANCE COORDINATOR ACTIONS

NON-SAFETY RELATED

1. PURPOSE

- 1.1 The purpose of this procedure is to provide guidance to the Operations Support Center's Maintenance Coordinator.

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 EPIP-OSC-9, Emergency Team Briefings
- 2.2 EPIP-OSC-21, Activation of the Operations Support Center
- 2.3 EPIP-EOF-11, Dosimetry Records, Exposure Extensions, and Habitability
- 2.4 EPIP-RR-21, OSC Director Actions

3. DEFINITIONS

NONE

4. PREREQUISITES

NONE

5. PROCEDURE

**NOTE:** The attached checklist is designed as a reminder of actions which are required to be performed during an emergency condition.

- 5.1 Review the procedure and checklist, and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.
- 5.2 At the completion of the shift or at event termination, initial the steps which are completed.
- 5.3 Retain all documentation (logs, calculation sheets, notes etc) generated or used during the emergency. At the termination, deliver all Maintenance group documentation to the TSC Administrative Logistics Coordinator in the TSC.

6. ATTACHMENTS

- 6.1 Maintenance Coordinator's Checklist

FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-RR-21A  
PAGE 2 OF 2

Attachment 6.1 - Maintenance Coordinator's Checklist

**\*\* Maintain a log of all key activities \*\***

- |  | (✓) INIT/TIME |
|--|---------------|
| 1. Obtain worker packet and put on the Personnel Identification Badge.   | ____ / ____   |
| 2. Coordinate setting up the OSC per EPIP-OSC-21.  | ____ / ____   |
| 3. Update the OSC Personnel Assignment Board with the names of current shift of Maintenance group personnel.   | ____ / ____   |
| 4. Periodically review the following steps and perform, as required:   |               |
| 4.1 Coordinate the maintenance and damage control activities of the Maintenance Coordinator group as necessary to mitigate the consequences of the accident and as directed by the OSC Director. | ____          |
| 4.2 Assist the OSC Director in forming and briefing emergency teams for medical response, damage control, and accident mitigation.   | ____          |
| 4.3 Interface with the Radiation Protection Coordinator and Chemistry Coordinator as required to complete briefings for all teams dispatched from the OSC per EPIP-OSC-9.                        | ____          |
| 4.4 Coordinate "Administrative Exposure Limit Increases" as necessary for the Maintenance Coordinator group per EPIP-EOF-11.   | ____          |
| 4.5 Coordinate the acquisition of repair parts and supplies as necessary to support emergency activities.  | ____ / ____   |
| 5. Provide a detailed briefing to your shift relief of any actions taken and the current emergency status.   | ____ / ____   |

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**EPIP-RR-28**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: OSC ACCOUNTABILITY AND DOSIMETRY TECHNICIAN ACTIONS**

---

**FC-68 Number: EC 27778**

**Reason for Change: Revise per Writer's Guide. Delete reference to RP-604 and HIS-20 since they do not address emergency exposure.**

**Requestor: M. Reller**

**Preparer: M. Reller**

**Correction (a): Page 2 (05-28-03) (Issue all pages)**

OSC ACCOUNTABILITY AND DOSIMETRY TECHNICIAN ACTIONS

1. PURPOSE

This procedure provides instruction and guidance to the Operations Support Center's Accountability and Dosimetry Technician.

2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 RPI-6, Alternate Access Control of Radiologically Controlled Area
- 2.2 RP-602, Personnel Dosimetry Issue and Changeout
- 2.3 EPIP-OSC-21, Activation of the Operations Support Center
- 2.4 EPIP-EOF-11, Dosimetry Records, Exposure Extensions and Habitability

3. DEFINITIONS

None

4. PREREQUISITES

None

5. PROCEDURE

- 5.1 Use the OSC Accountability and Dosimetry Technician's Checklist, Attachment 6.1, as an aid to completing required actions.

**NOTE:** The attached checklist is designed as a reminder of actions which are required to be performed during an emergency condition.

- 5.2 Review the procedure and checklist, and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.
- 5.3 At the completion of the shift or at event termination, initial the steps which are completed.
- 5.4 Retain all documentation (logs, calculation sheets, note, etc.) generated or used during the emergency. At the termination, deliver all documentation to the Radiation Protection Coordinator.

6. ATTACHMENTS

- 6.1 OSC Accountability and Dosimetry Technician's Checklist

FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-RR-28  
PAGE 2 OF 2

Attachment 6.1 - OSC Accountability and Dosimetry Technician's Checklist

Page 1 of 1

\*\* Maintain a log of all key activities \*\*

(✓) INITIALS

1. Obtain worker packet and put on the Personnel Identification Badge. \_\_\_\_\_
2. Set up the accountability boundaries as described in EPIP-OSC-21. \_\_\_\_\_
3. Obtain the OSC Accountability Roster and maintain it at the access control point. \_\_\_\_\_
4. Assume access control duties for the radiologically control area per RPI-6 and EPIP-EOF-11. \_\_\_\_\_
5. Notify the Radiation Protection Coordinator that access control and accountability control has been established. \_\_\_\_\_
6. Periodically review the following steps and perform as required:
  - 6.1 Maintain the OSC Accountability Roster by ensuring all personnel sign in and out of the OSC. \_\_\_\_\_
  - 6.2 If requested provide a copy of the current OSC Accountability Roster to Security Officers. \_\_\_\_\_
  - 6.3 Issue TLDs as necessary. \_\_\_\_\_
7. Provide a detailed briefing to your shift relief of any action taken and the current emergency status. \_\_\_\_\_

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**EPIP-RR-39**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: CONTROL ROOM MEDICAL RESPONDER ACTIONS**

---

**FC-68 Number: EC 26708**

**Reason for Change: New procedure to provide guidance for Control Room Medical Responder.**

**Requestor: Mark Reller**

**Preparer: Rhonda Hankins**

**Correction (a): Page 2 (05-28-03) (Issue all pages)**

**CONTROL ROOM MEDICAL RESPONDER ACTIONS**

**NON-SAFETY RELATED**

**1. PURPOSE**

- 1.1** The purpose of this procedure is to provide guidance to the Control Room Emergency Medical Responder in performing actions in response to an emergency at Fort Calhoun Station.

**2. REFERENCES/COMMITMENT DOCUMENTS**

None

**3. DEFINITIONS**

None

**4. PREREQUISITES**

None

**5. PROCEDURE**

- 5.1** Review the procedure and checklist, Attachment 1, and accomplish the applicable steps both upon initial activation and periodically, as required, thereafter.
- 5.2** At the completion of the shift or at event termination, initial the steps which are completed.
- 5.3** Retain all documentation (logs, calculations sheets, notes, etc.) generated or used during the emergency. At the termination, deliver all documentation to the Administrative Logistics position in the TSC.

**6. ATTACHMENTS**

- 6.1** Control Room Medical Responder Checklist



FORT CALHOUN STATION  
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-RR-39  
PAGE 2 OF 2

Attachment 6.1 - Control Room Medical Responder Checklist

(✓) INIT/TIME

1. Obtain and put on Position Identification Badge. \_\_\_\_\_
2. Inform the Control Room Coordinator/Shift Manager of your arrival and position. \_\_\_\_\_
3. Obtain a 0-500 mR and a 0-50 R dosimeter from the gear locker. \_\_\_\_\_
  - 3.1 Sign in on FC-RP-214-2, Manual RCA Access. \_\_\_\_\_
4. Ensure your First Aid kit is ready and accessible for immediate response. \_\_\_\_\_
5. Obtain a radio and conduct a radio check (outside the Control Room). \_\_\_\_\_
6. Standby to respond as directed by Control Room Coordinator/Shift Manager. \_\_\_\_\_
  - 6.1 Request information on radiological and industrial safety hazards that may exist prior to responding. \_\_\_\_\_
  - 6.2 Request any assistance needed in your response from the Control Room Coordinator/Shift Manager. \_\_\_\_\_
7. Provide detailed briefing to oncoming shift relief of emergency conditions and status of any actions taken. \_\_\_\_\_

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**EPIP-TSC-1**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title:     ACTIVATION OF THE TECHNICAL SUPPORT CENTER**

---

**FC-68 Number:       EC 31020**

**Reason for Change:   Delete step requiring synchronizing clocks to the ERF since we now use atomic clocks.**

**Requestor:           Rhonda Hankins**

**Preparer:            Rhonda Hankins**

**Correction (a):       Page 2 (05-28-03) (Issue all pages)**

ACTIVATION OF THE TECHNICAL SUPPORT CENTER

NON-SAFETY RELATED

1. PURPOSE

- 1.1 This procedure provides a checklist to provide guidance for activation and deactivation of the Technical Support Center (TSC).

2. REFERENCES/COMMITMENT DOCUMENTS

None

3. DEFINITIONS

- 3.1 Activated - minimum staffing and basic setup requirements have been attained to allow the TSC to provide limited support to the Control Room.
- 3.2 Augmented - A facility is augmented when all augmenting and minimum staffing positions are filled.

4. PREREQUISITES

None

5. PROCEDURE

**NOTE:** The Site Director or TSC Director is responsible for completion of this procedure. They may assign this task to other members of the TSC staff.

- 5.1 Upon reporting to the TSC, activate the TSC using Attachment 6.1.
- 5.2 Upon event termination, deactivate the TSC per Attachment 6.2.

6. ATTACHMENTS

- 6.1 Checklist for Activation of the TSC
- 6.2 Checklist for Deactivation of the TSC
- 6.3 Activation/Deactivation of the TSC Air and Area Radiation Monitors
- 6.4 Operation of the TSC HVAC System

Attachment 6.1 - Checklist For Activation of the TSC

Page 1 of 2

**NOTE:** It is the goal of Omaha Public Power District (OPPD) to activate the TSC within one hour following declaration of an Alert or higher classification. In the event of adverse weather and/or other conditions that may limit or slow response, either manmade or natural, it is understood that staffing time may exceed this goal.

- |   | (✓) | <u>INIT/TIME</u> |
|---|-----|------------------|
| 1. Contact the Control Room to determine if there is a toxic gas threat in the vicinity of Fort Calhoun Station.            |     |                  |
| 1.1 If YES, secure the TSC HVAC system per Attachment 6.4, Step 3.  | —   |                  |
| 1.2 If NO, place the TSC HVAC System in the FILTERED MODE per Attachment 6.4, Step 1.                                       | —   | — / —            |
| 2. Verify the following minimum staffing positions are available.   |     |                  |
| • Site Director   | —   |                  |
| • Protective Measures Coordinator   | —   |                  |
| • TSC COP Communicator  | —   |                  |
| • Reactor Safety Coordinator  | —   | — / —            |
| 3. Ensure that the volume buttons on both Gai-tronics are turned up.  |     | — / —            |
| 4. Using the Gai-Tronics, announce the following message:   |     |                  |
| 4.1 "Attention all personnel....Attention all personnel....This is<br><u>(Insert name and position)</u> .                   | —   |                  |
| 4.2 Repeat the message above.   | —   | — / —            |
| 5. Open all TSC room doors.   |     | — / —            |
| 6. Post "NO EATING/DRINKING/SMOKING OR CHEWING" signs in the TSC Room 115 and near the entrance door.                       |     | — / —            |
| 7. In Room 118, unlock the aperture card file using the key from the key box, and turn on the aperture card reader/printer. |     | — / —            |

Attachment 6.1 (continued)

Page 2 of 2

(✓)

INIT/TIME

8. When Steps 2 through 7 are complete, make the following announcement on the TSC PA system:

This is (insert name and position) the TSC is activated. Command and Control for the emergency is in the name of facility at this time. No eating, drinking, smoking or chewing is allowed in the TSC until further notice.

\_\_\_\_\_ /

9. Notify the Control Room, OSC and EOF that the TSC is activated.

\_\_\_\_\_ /

10. Verify radiological habitability per EPIP-EOF-11.

\_\_\_\_\_ /

11. Initiate operation of the TSC Air Monitor and Area Radiation Monitor per Attachment 6.3.

\_\_\_\_\_ /

12. Within one hour of the initial emergency declaration, verify the following augmenting staff are present:

- Field Teams (2 Technicians, 2 Drivers)
- I&C/Electrical Systems Engineer
- Operations Liaison
- Primary System Engineer

\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_

13. After one hour determine TSC positions are filled.

\_\_\_\_\_

- 13.1 If any positions are not filled, based on the nature of the emergency determine if that position is required.

\_\_\_\_\_

- 13.2 Request assistance from the TSC staff in contacting additional staff.

\_\_\_\_\_ /

Attachment 6.2 - Checklist for Deactivation of the TSC

Upon termination of emergency activities, the following actions should be completed to restore the TSC:

INIT/TIME

- Place emergency kits in the Emergency Gear Locker.
- Properly restore all computer systems to their standby mode.
- Turn off the writeboard system.
- Deactivate the TSC Air Monitor and Area Radiation Monitor per Attachment 6.3.
- Place the TSC HVAC System in the NORMAL MODE per Attachment 6.4, Step 2.
- Remove all posted signs within the TSC.
- Turn in all logs, paperwork, procedures, etc. to the Administrative Logistics Coordinator.
- Turn off the aperture card reader/printer, and relock the aperture card file.
- Restock all Emergency Kits
- Relock all room doors.

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Attachment 6.3 - Activation/Deactivation of the TSC Air and Area Radiation Monitors

(✓) INIT/TIME

1. To activate the Air and Area Radiation Monitors, perform the following:

1.1 Enter Room 109 (the ERF computer system room). \_\_\_\_\_

1.2 Plug in and turn on the Area Radiation Monitor as necessary. \_\_\_\_\_

1.3 Plug in and turn on the PING Monitor as necessary. \_\_\_\_\_

1.4 Allow the PING to stabilize for several minutes, clearing the initial alarms as necessary. \_\_\_\_\_

1.5 Check both units on a routine basis during the emergency to ensure habitability is being maintained. \_\_\_\_\_

1.6 If either monitor alarms at any time during startup or operation, perform the following:

1.6.1 Reset the alarm by pressing the reset/acknowledge button. \_\_\_\_\_

1.6.2 If alarm resounds, read the affected meter and call a Radiation Protection Technician for further instructions. \_\_\_\_\_ / \_\_\_\_\_

2. To deactivate the Air and Area Radiation Monitors, perform the following:

2.1 Obtain permission from the Radiological Operations Coordinator to secure this equipment. \_\_\_\_\_

2.2 If permission is granted, unplug both units. \_\_\_\_\_

2.3 If permission is not granted, leave equipment operating and inform the Control Room. \_\_\_\_\_ / \_\_\_\_\_

Attachment 6.4 - Operation of the TSC HVAC System

Page 1 of 1

(✓)

INIT/TIME

1. Placing the TSC HVAC in the FILTERED MODE.

- 1.1 On panel AI-200A (in TSC Room 109) ensure the Air Handler, VA-107 is ON as indicated by the red light above the VA-107, TSC Ventilation Unit Fan Start/Stop Pushbuttons. If VA-107 is not ON, start VA-107 with the START push button.
- 1.2 Ensure the VA-109, Charcoal Filter Fan Selector Switch, HC/VA-109, is in AUTO.
- 1.3 Place the TSC Ventilation Filtered Air Mode Switch, SS/VA-109 is in the ON position.

2. Placing the TSC HVAC in the NORMAL MODE.

- 2.1 On panel AI-200A (in TSC Room 109), place the TSC Ventilation Filtered Air Mode Switch, SS/VA-109 in OFF.
- 2.2 Verify VA-109, Charcoal Filter Fan Selector Switch, HC/VA-109, is in AUTO and VA-107 in ON as indicated by red light above VA-107, TSC Ventilation Fan Unit Start/Stop Pushbuttons.

3. Securing the TSC HVAC System.

- 3.1 On panel AI-200A (in TSC Room 109), ensure or place the TSC Ventilation Filtered Air Mode Switch, SS/VA-109, in the OFF position.
- 3.2 Place the Air Handler, VA-107 in OFF by pushing the VA-107, TSC Ventilation Unit Fan Stop pushbutton AND verify the red light above the VA-107, TSC Ventilation Unit Fan Start/Stop pushbuttons is off.



## RERP

T01020088

Document	Document Title	Revision/Date
RERP	Definitions and Abbreviations	R16 03-20-03
RERP-SECTION A	Assignment of Organizational Responsibility (Organizational Control)	R11 02-27-97c
RERP-SECTION B	Organizational Control of Emergencies	R25 08-24-00
RERP-SECTION C	Emergency Response Support and Resources	R9 09-30-98a
RERP-SECTION D	Emergency Classification System	R10 09-17-02
RERP-SECTION E	Notification Methods and Procedures	R23 08-24-00a
RERP-SECTION F	Emergency Communications	R15 08-24-00a
RERP-SECTION G	Public Education and Information	R11 08-08-02
RERP-SECTION H	Emergency Facilities and Equipment	R30 08-08-02
RERP-SECTION I	Accident Assessment	R12 03-20-03
RERP-SECTION J	Protective Response	R18 05-28-03
RERP-SECTION K	Radiological Exposure Control	R10 04-03-03
RERP-SECTION L	Medical and Public Health Support	R11 01-27-00
RERP-SECTION M	Recovery and ReEntry Planning and Post Accident Operations	R14 03-11-97b

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**RERP-SECTION J**

**RADIOLOGICAL EMERGENCY RESPONSE PLAN**

**Title: PROTECTIVE RESPONSE**

---

**FC-68 Number: EC 32383**

**Reason for Change: Make changes to comply with new security card readers.**

**Requestor: Mark Reller**

**Preparer: Mark Reller**

RADIOLOGICAL EMERGENCY RESPONSE PLAN  
RERP-J

PROTECTIVE RESPONSE

1. PROTECTIVE RESPONSE FOR ONSITE PERSONNEL

1.1 Notification

Onsite personnel are notified of a nuclear emergency via the emergency alarm. This alarm is identified by an intermittent howl and is distinguished from the fire alarm which is a continuous howl. Once the emergency alarm is sounded, the command and control position will give the emergency classification, with other pertinent information, using the intra-plant communication system (Gaitronics). If the owner-controlled area is to be evacuated, personnel will be notified by: 1) Gaitronics System, 2) Administration and Training Building paging systems, 3) Security Personnel, and/or 4) Alert Notification System, if used.

1.2 Evacuation

If the emergency requires Protected Area evacuation, personnel not assigned specific emergency duties will normally proceed to the Administration Building. In the event the site must be evacuated, all non-essential personnel, will be given instructions by the command and control position. One of the two routes shown in Figures J-1 and J-2 will be used to proceed to the North Omaha Power Station.

Approximately 600 persons might be evacuated during normal work hours and operation; approximately 900 persons might be evacuated during a major outage. During normal operating off-shift hours, no evacuation of onsite individuals is expected. Both OPPD and personal vehicles are used for site evacuation transportation. Agreements with the State of Nebraska and specifically the State Patrol guarantee professional handling and control of traffic. Normal travel time to North Omaha Station is 25 minutes at an average speed of 40 mph. RP personnel reporting to the EOF will coordinate personnel/vehicle monitoring and decontamination activities, if required.

Security and RP personnel inspect the owner controlled area after a site evacuation has taken place. If any persons other than emergency workers are in the owner controlled area during or after site evacuation, they will be given specific directions and/or escorted off-site.

### 1.3 Security and Accountability

#### 1.3.1 Security

The security program is designed to deter, delay and detect an intruder. The Security Area of the plant site is enclosed by an eight foot security fence topped by three strands of barbed wire. All gates to the fence are normally kept locked. An inner perimeter consists of personnel doors, roof hatches, and overhead doors equipped with magnetic alarm switches.

Personnel assigned by the Site Director to enter the plant must pass through the main gate which is guarded. It is extremely unlikely that any unauthorized person would be able to enter the site undetected even during an emergency condition.

#### 1.3.2 Accountability

If accountability of onsite personnel is necessary, the onsite command and control position will notify personnel onsite by announcements on the Gaitronics System, and by sounding the Emergency Alarm (if required). At the completion of the notification(s), the accountability process begins, to be completed within 30 minutes.

Accountability is a process taking place in several areas:

- A. Accountability of personnel reporting to the Control Room, TSC, or OSC for emergency response will be performed by personnel using the card readers at these locations.
- B. Accountability of security force personnel will be accomplished using established security procedures.
- C. Once initial accountability is complete, the command and control position, will be notified of the results.
- D. Accountability is maintained by the use of rosters at the Control Room, OSC and TSC. Persons must sign in and out as they enter and leave. These rosters will be compared to a list of personnel who accessed the protected area whenever necessary. Continuous accountability of security personnel is accomplished using established security procedures.

**1.4 Protective Measures**

**1.4.1** It is the policy of OPPD to keep personnel radiation exposure within federal regulations, and station limits and guidelines, beyond that, to keep it As Low As Reasonably Achievable (ALARA). Every effort will be made to keep their exposures within the limits of 10 CFR 20.

**1.4.2** Personnel monitoring devices are required for all personnel meeting the conditions specified in 10 CFR 20 Section 20.1502, Technical Specifications Section 5.11 and in Radiation Protection Procedures. During emergency conditions, implementing procedure EPIP-EOF-11 will be utilized.

Dosimeters and TLD's are typically located in each of the emergency lockers in the Control Room, EOF, OSC and the TSC. Additional dosimeters and TLD's may be obtained from the dosimetry group.

**1.4.3 Clothing**

Protective clothing is a normal use item utilizing both washable and disposables. For entry into affected areas, the OSC has approximately 50 complete sets of protective clothing available. The Control Room has approximately 12 complete sets available. Additional sets are available at the Radiation Control Point. Approximately 2000 sets are maintained in the laundering cycle, and a large supply of washable and disposable coveralls is maintained in the warehouse and RP storage areas. Water-proof protective clothing is also a standard stock item.

#### 1.4.4 Respiratory Protection

Respiratory protective devices may be required in any situation arising from plant operations where an airborne radioactivity condition is potential or existent. In such cases, the air will be monitored and the necessary protective devices specified according to the concentration and type of airborne contaminants present. Monitoring and issue of respiratory protection equipment will be conducted in accordance with Radiation Protection Manual Procedures. Precautions will be taken to keep airborne contamination to a minimum through the use of proper engineering controls and decontamination.

Limits for inhalation of radionuclides are established in Appendix B, Table 1 of 10CFR20. The Radiation Protection Manual establishes the station's administrative limits for inhalation which will be adhered to in emergencies if possible.

Types and recommended use for each type of respirator is specified in the Radiation Protection Manual.

Approximately 35 self contained breathing apparatus are maintained onsite. Of these, a portion are maintained for fire brigade use, or normal use, and the remainder for emergency response. Spare bottles are also stored in some locations. The site has the capability to refill bottles with a compressor/air bank unit, with a cascade tank unit as a backup. Full-face respirators are maintained in some emergency gear lockers. Respirators are staged for use in plant radiation areas. The onsite Stores warehouse stocks approximately 150 full-face respirators for reserve supply.

#### 1.4.5 Radioprotective Drugs

The need for issuance of radioprotective drugs, specifically potassium-iodide, is determined using appropriate procedures.

Radioprotective drugs in the form of potassium iodide tablets are available in the Control Room, Technical Support Center, Operations Support Center, Emergency Operations Facility and the Field Team equipment lockers. Each bottle contains dosage supply for 14 days. Emergency workers are instructed on the advantages and disadvantages of taking the tablets to provide thyroid blockage. The final decision for use of the potassium iodide is made by the emergency worker.

2. PROTECTIVE RESPONSE FOR RESIDENTS WITHIN THE PLUME EXPOSURE PATHWAY

2.1 Protective Action Recommendations

2.1.1 OPPD Guidelines

Fort Calhoun Station is designed and equipped with a series of safety systems engineered to meet all of 10 CFR 100 criteria for reactor safety. OPPD recognizes that in any accident situation, it would be prudent and logical to make every effort to further reduce and minimize exposure to the public. OPPD management will recommend to appropriate State and local authorities that protective actions be initiated if any person is expected to receive an emergency exposure in excess of Environmental Protection Agency (EPA) guidelines.

Tables J-1<sup>1</sup> through J-4<sup>1</sup> provide some information and guidance on formulating Protective Action Recommendations (PAR's). Table J-1<sup>1</sup> summarizes the considerations for selecting the evacuation Protective Action Guides (PAG's). Table J-2<sup>1</sup> outlines the early (plume) phase PAG's due to exposure of airborne and deposited radioactivity. Table J-3<sup>1</sup> summarizes the considerations for selecting relocation PAG's. Table J-4<sup>1</sup> outlines the immediate (relocation) phase PAG's due to exposure to deposited radioactivity.

During the early (plume) phase of a radiological emergency, professional judgement will be required in the application of PAG's, due to varying characteristics, such as; plant conditions, evacuation time estimates, environmental conditions, affected population groups, etc. In all cases, the PAR's transmitted by OPPD to the states of Iowa and/or Nebraska are strictly recommendations. The respective government agencies in each state have the ultimate responsibility for implementing necessary protective actions for the general public.

Tables J-5 and J-6 provide information pertaining to emergency worker exposure limits and health risks associated with exposure to higher dose levels.

<sup>1</sup> Taken from "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." EPA-400-R-92-001, Revised May, 1992.

### 2.1.2 Initiation of Recommendations

Recommendations will originate from an Emergency Response Facility based upon data derived from implementing procedure, EPIP-EOF-6. This procedure establishes a method for determining projected doses to the population-at-risk. Protective action recommendations based on radiological parameters or plant conditions are determined using EPIP-EOF-7. Total population exposure can be estimated using projected or known dose values and population densities.

## 2.2 Notification

In the event public notification is required, both transient and resident population within the plume exposure pathway will be initially notified through the Alert Notification System (reference Section E) and as described in state and county radiological emergency plans. Information will be provided for transient and resident population as well as the general public outside the EPZ through the Emergency Alert System. Radio station KFAB-AM (1110 KHz) is the Local Primary One (LP1) information station for local emergencies.

Information brochures describing notification, protective actions and general radiological education are provided to residents by mail and by public service posting to transients within the EPZ. The States of Iowa and Nebraska will issue messages describing the incident and recommended public protective actions.

## 2.3 Evacuation

### 2.3.1 Evacuation Time Estimate Study

Studies estimating the time required to evacuate the residents in the plume exposure pathway from the emergency planning zone were conducted in accordance with NUREG-0654, Rev. 1, Appendix 4 criteria. These studies are supporting documents to this Plan. Summaries of the Nebraska and Iowa evacuation time estimate studies are outlined in Figures J-3 and J-4, and Tables J-9 and J-10.

During normal weather conditions the maximum time to evacuate the approximately 4,365 residents of Iowa and the 13,138 Nebraska residents of the EPZ, is estimated at 170 minutes. In adverse conditions these times would increase to 175 minutes for Iowa and 185 Minutes for Nebraska.



**2.3.2 Evacuation of Areas within the EPZ**

The Governor (or Governor's Authorized Representative) of Nebraska can authorize the Nebraska State Patrol and Emergency Management Agency, based on recommendations of the State Health Department, to evacuate Nebraska residents to reception centers in Fremont and Bellevue, Nebraska.

The Governor (or Governor's Authorized Representative) of Iowa can authorize the Iowa State Patrol and the Emergency Management Division to evacuate Iowa residents to Denison, Iowa, based upon recommendations of the Iowa Department of Public Health.

Normal evacuation routes within the EPZ are, on the Nebraska side of the river, people in Sub Area 1, Blair, North of Blair and North of U.S. Highway 30 (Sub Area 2) should go to the Fremont Reception Center. People south of Blair between the Missouri River and U.S. Highway 30 (Sub Areas 3, 4 and 5) should go to the Bellevue Reception Center. People in the Iowa portion of the EPZ should proceed to the Denison Reception Center. If alternate evacuation is necessary, directions will be given through the designated local primary one (LP1) Emergency Alert System radio station. Figure J-5 shows the boundaries and highways leading to the Reception Centers.

The relocation centers for the host areas are as follows:

- A. Bellevue  
First Baptist Church Activities Building  
Hancock Street and 23rd Avenue
- B. Fremont  
Fremont Senior High School  
1750 N. Lincoln
- C. Denison  
Denison Community High School, North 16th

- 2.3.2** The ingestion planning zone (IPZ) encompasses a 50 mile radius as illustrated in Figure J-6. Population for the IPZ is presented in Figure J-7 by sectors.

The plume exposure EPZ encompasses an approximate 10 mile radius as illustrated in Figure J-5. The EPZ includes portions of Harrison and Pottawattamie Counties in Iowa, Washington and Douglas Counties in Nebraska. The States of Iowa and Nebraska are separated by the Missouri River. Figure J-8 shows the total population within the EPZ, and population totals for each sector by ring miles (0-2, 2-5 and 5-10 miles) and total miles (0-2, 0-5 and 0-10 miles). Figure J-4 shows Sub Area population, including Estimated Transient population.

## **2.4 Protective Methods (Other than Evacuation)**

### **2.4.1 Sheltering**

Remaining indoors during the passage of a radioactive cloud affords the dweller a reduction in the quantity of radionuclides inhaled, as well as providing shielding. Figure J-9<sup>1</sup> shows the ratio of the inhaled dose inside a shelter to that outside the shelter as a function of the ventilation rate. A ventilation rate survey showed a rate variance of 0.07 to 3.0 per hour. The ventilation rate is affected by temperature differential, wind speed and direction, quality of construction and topographical setting.

Walls of buildings absorb and scatter gamma rays, thus providing a lower dose to the occupants. The shielding factor of a building is the ratio of the interior dose to the exterior dose. Shielding factor estimates applicable to residential housing units were made using the shielding technology by Z. G. Burson and A. E. Profio (1975). Table J-7<sup>2</sup> summarizes shielding factors for designated structures/locations from a gamma cloud source.

1,2,3

2.4.1 Table J-8<sup>3</sup> summarizes the shielding factors for designated structures/locations from surface deposition of radioactive material. Burson and Profio proved that the fallout shielding technology developed via nuclear weapons tests could be directly applied to radioactivity deposited on surfaces after a reactor accident. The shielding factors listed in Table J-8 assumes uniform distribution of the radioactive fallout.

In each of the cases discussed, inhalation and shielding factors from a gamma cloud source and shielding factors from surface deposition of radioactive material, it is noted that the shielding factors using sheltering as a method of protection ranges from 0.6 to 0.005. Although the best protection seems to be the basement of large multi-structured buildings, the basement of any house has been proven to provide significant shelter from airborne and surface deposited radioactive material.

## 2.5 Radiological Environmental Monitoring

In the event of an emergency, the permanent air particulate stations are first utilized for immediate data, concerning airborne releases. Background radiation stations (TLD's) provide short term exposure data and are periodically replaced. See the specific Radiological Environmental Monitoring Surveillance Test for more information. TLD use can be increased during the longer term as the District maintains a TLD services contract with a off-site vendor. The environmental laboratory personnel perform accelerated collection and analysis of samples as their primary responsibility after an emergency occurs. Sampling requirements will be determined by the environmental laboratory personnel.

Sample analysis will be performed by the station and at offsite facilities as deemed necessary.

<sup>1</sup> Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI.11-4.

<sup>2</sup> Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-7.

<sup>3</sup> Taken from WASH-1400(NUREG-75/014), October 1975, Figure VI-11-8.

Table J-1 - Summary of Considerations for Selecting the Evacuation PAG's<sup>1</sup>

DOSE Rem (mrem)	Consideration(s)
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Maximum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose to the general population from all sources from nonrecurring, non-accidental exposure.
0.5 Rem (500 mrem)	Minimum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose <sup>2</sup> to the to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable dose to the general population from all sources from routine (chronic) non-accidental exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from evacuation.

<sup>1</sup> Taken, in part, from Table C-8, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA-400-R-92-001, May, 1992.

<sup>2</sup> This is also the dose to the 8- to 15-week-old fetus at which the risk of mental retardation is assumed to be equal to the risk of fatal cancer to adults from a dose of 5 rem.

Table J-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)	<b>None (NO PAR REQUIRED)</b> and continue to monitor radiological conditions
≥1 rem TEDE ≥5 rem CDE (thyroid)	<b>Evacuate</b> Shelter, if it will provide protection equal to or greater than evacuation up to 10 rem ( <b>NOTE</b> )
≥50 rem SDE (skin)	<b>Evacuate</b>

**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.

**Table J-3 - Summary of Considerations for Selecting PAG's for Relocation<sup>1</sup>**

<b>DOSE Rem (mrem)</b>	<b>Consideration(s)</b>
<b>50 Rem (50000 mrem)</b>	Assumed threshold for acute health effects in adults.
<b>10 Rem (10000 mrem)</b>	Assumed threshold for acute health effects in the fetus.
<b>6 Rem (6000 mrem)</b>	Maximum projected dose in first year to meet 0.5 Rem in the second year <sup>2</sup> .
<b>5 Rem (5000 mrem)</b>	Maximum acceptable dose for normal occupational exposure for adults.
<b>5 Rem (5000 mrem)</b>	Minimum dose that must be avoided by one year relocation based on cost.
<b>3 Rem (3000 mrem)</b>	Minimum projected first-year dose corresponding to 5 Rem in 50 years <sup>2</sup> .
<b>3 Rem (3000 mrem)</b>	Minimum projected first-year dose corresponding to 0.5 Rem in the second year <sup>2</sup> .
<b>2 Rem (2000 mrem)</b>	Maximum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
<b>1.25 Rem (1250 mrem)</b>	Minimum dose in first year corresponding to 5 Rem in 50 years from a reactor incident, based on radioactive decay and weathering only.
<b>0.5 Rem (500 mrem)</b>	Maximum acceptable single-year dose to the general population from all sources from non-recurring, non-incident exposure.
<b>0.5 Rem (500 mrem)</b>	Maximum acceptable dose to the fetus from occupational exposure of the mother.
<b>0.1 Rem (100 mrem)</b>	Maximum acceptable annual dose to the general population from all sources due to routine (chronic), non-incident, exposure.
<b>0.03 Rem (30 mrem)</b>	Dose that carries a risk assumed to be equal to or less than that from relocation.

<sup>1</sup> Taken, in part, from Table E-5, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA-400-R-92-001, May, 1992.

<sup>2</sup> Assumes the source term is from a reactor incident and that simple dose reduction methods are applied during the first month after the incident to reduce the dose to persons not relocated from contaminated areas.

Table J-4 - Protective Action Guides for Exposure to Deposited Radioactivity <sup>1</sup>

Protective Action	PAG (projected dose in first year) <sup>2</sup>	Comments
Relocate the general population. <sup>3</sup>	≥ 2 Rem (≥ 2000 mrem)	Beta dose to skin may be up to 50 times higher.
Apply simple dose reduction techniques. <sup>4</sup>	< 2 Rem (< 2000 mrem)	These protective actions should be taken to reduce doses to as low as practicable levels.

<sup>1</sup> Taken, in part, from the "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA-400-R-92-001, May, 1992.

<sup>2</sup> The projected sum of total effective dose equivalent (TEDE) from external gamma radiation and committed effective dose equivalent (CEDE) from inhalation of resuspended materials, from exposure or intake during the first year. Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These PAG's may not provide adequate protection from some long-lived radionuclides.

<sup>3</sup> Persons previously evacuated from areas outside the relocation zone defined by this PAG may return to occupy their residences. Cases involving relocation of persons at high risk from such action (e.g., patients under intensive care) should be evaluated individually.

<sup>4</sup> Simple dose reduction techniques include scrubbing and/or flushing hard surfaces, soaking or plowing soil, minor removal of soil from spots where radioactive materials have concentrated, and spending more time than usual indoors or in other low exposure rate areas.

Table J-5 - Emergency Worker Exposure Limits

DOSE LIMIT	ACTIVITY	CONDITION(S)
≤500 mrem TEDE	All Activities	Declared Pregnant Emergency Workers
≤5 Rem TEDE	All Activities	Non-Pregnant Emergency Workers
≤10 Rem TEDE	Protecting Valuable Property	A lower dose is not practicable
≤25 Rem TEDE	Life Saving or Protection of Large Populations	A lower dose is not practicable
>25 Rem TEDE	Life Saving or Protection of Large Populations	Only on a voluntary basis to persons fully aware of the risks involved. (See Table J-6)

**NOTE:** Fort Calhoun Station has established separate administrative limits for use during normal operating conditions. These limits are outlined in various Radiation Protection procedures and policies.



Table J-6 - Summary of Risks Involved with Higher Dose Limits  
(taken from EPA 400\_R-92-001, May, 1992)

Health Effects Associated with Whole-Body Absorbed Doses Received Within a Few Hours<sup>a</sup>

Whole Body Absorbed Dose (rad)	Early Fatalities <sup>b</sup> (percent)	Whole Body Absorbed Dose (rad)	Prodromal Effects <sup>c</sup> (percent affected)
140	5	50	2
200	15	100	15
300	50	150	50
400	85	200	85
460	95	250	98

<sup>a</sup> Risks will be lower for protracted exposure periods.

<sup>b</sup> Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

<sup>c</sup> Forewarning symptoms of more serious health effects associated with large doses of radiation.

Approximate Cancer Risk to Average Individuals from 25 Rem Effective Dose Equivalent  
Delivered Promptly

Age at Exposure (years)	Approximate Risk of Premature Death (deaths per 1,000 persons exposed)	Average Years of Life Lost in Premature Death Occurs (years)
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

Table J-7 - Representative Shielding Factors from Gamma Cloud Source

Structure or Location	Shielding Factor <sup>(a)</sup>	Representative Range
Outside	1.0	----
Vehicles	1.0	----
Wood - frame <sup>(b)</sup> (no basement)	0.9	----
Basement of wood house	0.6	0.1 to 0.7 <sup>(c)</sup>
Masonry house (no basement)	0.6	0.4 to 0.7 <sup>(c)</sup>
Basement of masonry house	0.4	0.1 to 0.5 <sup>(c)</sup>
Large office or industrial building	0.2	0.1 to 0.3 <sup>(c,d)</sup>

<sup>(a)</sup> The ratio of the interior dose to the exterior dose.

<sup>(b)</sup> A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.

<sup>(c)</sup> This range is mainly due to different wall materials and different geometries.

<sup>(d)</sup> The reduction factor depends on where the personnel are located within the building (e.g., the basement or an inside room).

**NOTE:** Consideration is limited to gamma radiation since beta and alpha particles cannot penetrate the walls of structures.

\* Taken from WASH-1400 (NUREG-75/104), October 1975.

Table J-8 - Representative Shielding Factors for Surface Deposition

Structure or Location	Representative <sup>(a)</sup> Shielding Factor	Representative Range
1 m above an infinite smooth surface	1.00	----
1 m above ordinary ground	0.70	0.47 - 0.85
1 m above center of 50-ft roadways, half contaminated	0.55	0.4 - 0.6
Cars on 50-ft road: Road fully contaminated Road 50% decontaminated Road fully decontaminated	0.5 0.5 0.25	0.4 - 0.7 0.4 - 0.6 0.2 - 0.5
Trains	0.40	0.3 - 0.5
One and two-story wood-frame house (no basement)	0.4 <sup>(b)</sup>	0.2 - 0.5
One and two-story block and brick house (no basement)	0.2 <sup>(b)</sup>	0.04 - 0.40
House basement, one or two walls fully exposed:	0.1 <sup>(b)</sup>	0.03 - 0.15
One story, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.03 - 0.07
Two stories, less than 2 ft of basement, walls exposed	0.3 <sup>(b)</sup>	0.02 - 0.05
Three or four-story structures, 5,000 to 10,000 ft <sup>2</sup> per floor:		
First and second floor	0.05 <sup>(b)</sup>	0.01 - 0.08
Basement	0.01 <sup>(b)</sup>	0.001 - 0.07
Multistory structures, >10,000 ft <sup>2</sup> per floor		
Upper floors	0.01 <sup>(b)</sup>	0.001 - 0.02
Basement	0.005 <sup>(b)</sup>	0.001 - 0.015

<sup>(a)</sup> The ratio of the interior dose to the exterior dose.

<sup>(b)</sup> Away from doors and windows.

Table J-9

STATE OF NEBRASKA EVACUATION TIME ANALYSIS					
	SUB AREA 1	SUB AREA 2	SUB AREA 3	SUB AREA 4	SUB AREA 5
Approximate distance from FCS, in miles	0-2	2-10	2-9	2-9	9-10
Permanent population	488	8972	2064	2767	353
Permanent population vehicles	197	3589	826	1107	142
Transient population	1110	1873	0	1678	0
Transient population vehicles	1110	1736	0	678	0
Persons without vehicles *	0	3105	0	610	0
Special vehicles	0	78	0	16	0
Notification Time	00:15	00:15	00:15	00:15	00:15
Preparation time, permanent population	01:35	01:35	01:35	01:35	01:35
Preparation time, transient population	00:45	00:45	00:45	00:45	00:45
Preparation time, special population *	NA	2:00	NA	2:00	2:00
Evacuation time, permanent population, normal conditions	2:40	2:55	2:55	2:50	2:40
Evacuation time, permanent population, adverse conditions	3:20	3:55	3:55	3:20	2:40
Evacuation time, transient population, normal conditions	2:40	2:55	2:55	2:50	2:40
Evacuation time, transient population, adverse conditions	3:20	3:55	3:55	3:20	2:40
Evacuation time, special population, normal conditions	NA	2:55	2:55	2:50	NA
Evacuation time, special population, adverse conditions	NA	3:55	3:55	3:20	NA
Confirmation time					
* includes schools, nursing homes and transportation dependent					

Table J-10

STATE OF IOWA EVACUATION TIME ANALYSIS					
	SUB AREA 10	SUB AREA 11	SUB AREA 12	SUB AREA 13	SUB AREA 14
Approximate distance from FCS, in miles	0-2	2-9	8-11	8-11	2-11
Permanent population	29	162	423	3023	142
Permanent population vehicles	12	65	170	1210	57
Transient population	5000	0	0	536	500
Transient population vehicles	1667	0	0	361	167
Persons without vehicles *	0	0	0	1062	0
Special vehicles	0	0	0	29	0
Notification time	00:15	00:15	00:15	00:15	00:15
Preparation time, permanent population	02:30	02:30	02:30	02:30	02:30
Preparation time, transient population	00:60	00:60	00:60	00:60	00:60
Preparation time, special population *	NA	NA	NA	2:15	NA
Evacuation time, permanent population, normal conditions	2:35	2:35	2:55	2:45	2:45
Evacuation time, permanent population, adverse conditions	2:40	2:40	3:05	2:50	2:50
Evacuation time, transient population, normal conditions	2:35	NA	2:55	2:45	2:45
Evacuation time, transient population, adverse conditions	2:40	NA	NA	2:50	2:50
Evacuation time, special population, normal conditions	NA	NA	NA	2:50	NA
Evacuation time, special population, adverse conditions	NA	NA	NA	2:55	NA
Confirmation time					
* includes schools, nursing homes and transportation dependent					

Figure J-1 - Normal Evacuation Routes

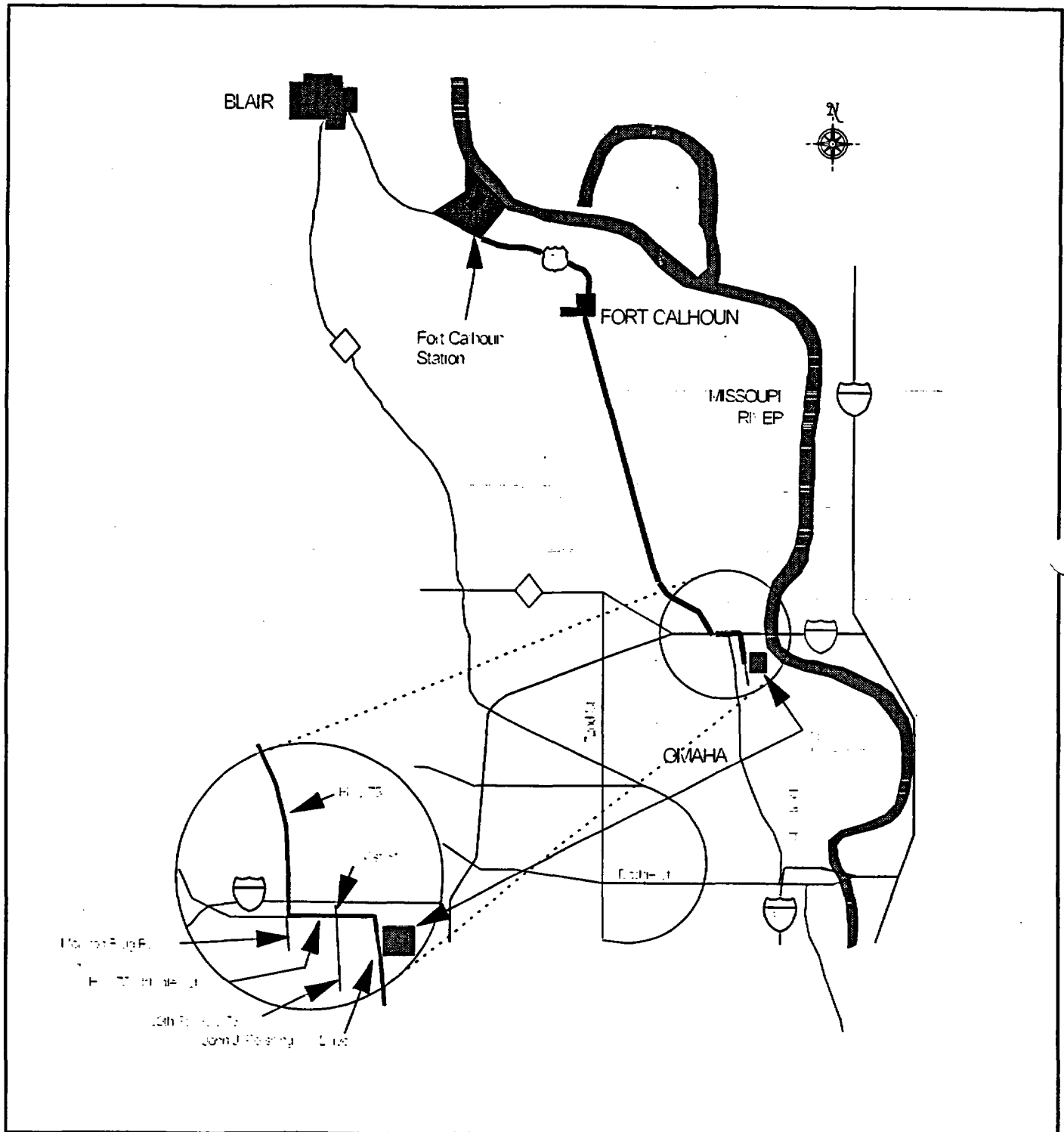


Figure J-2 - Alternate Evacuation Route

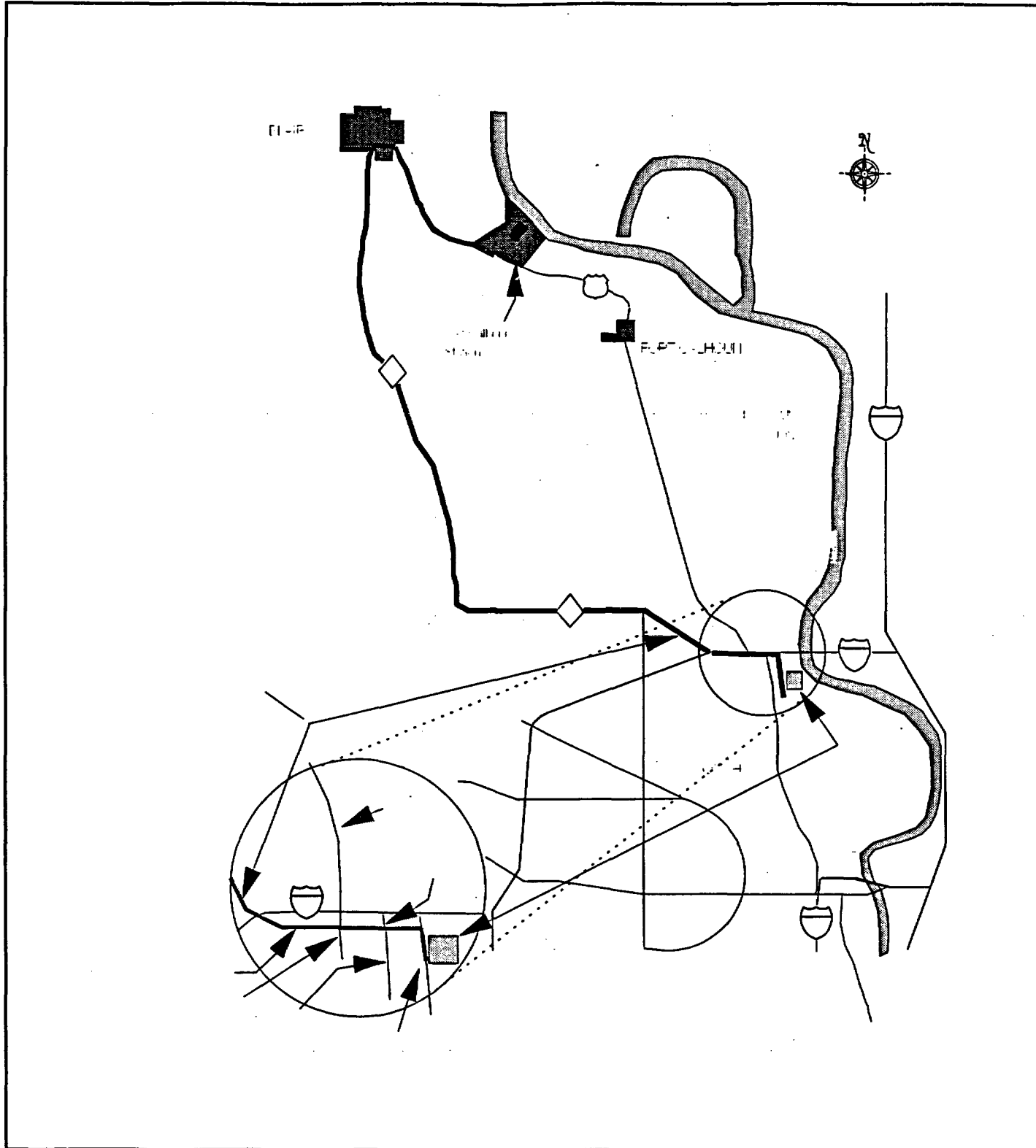


Figure J-3 - Evacuation Time Estimate Study Sub-area Designations

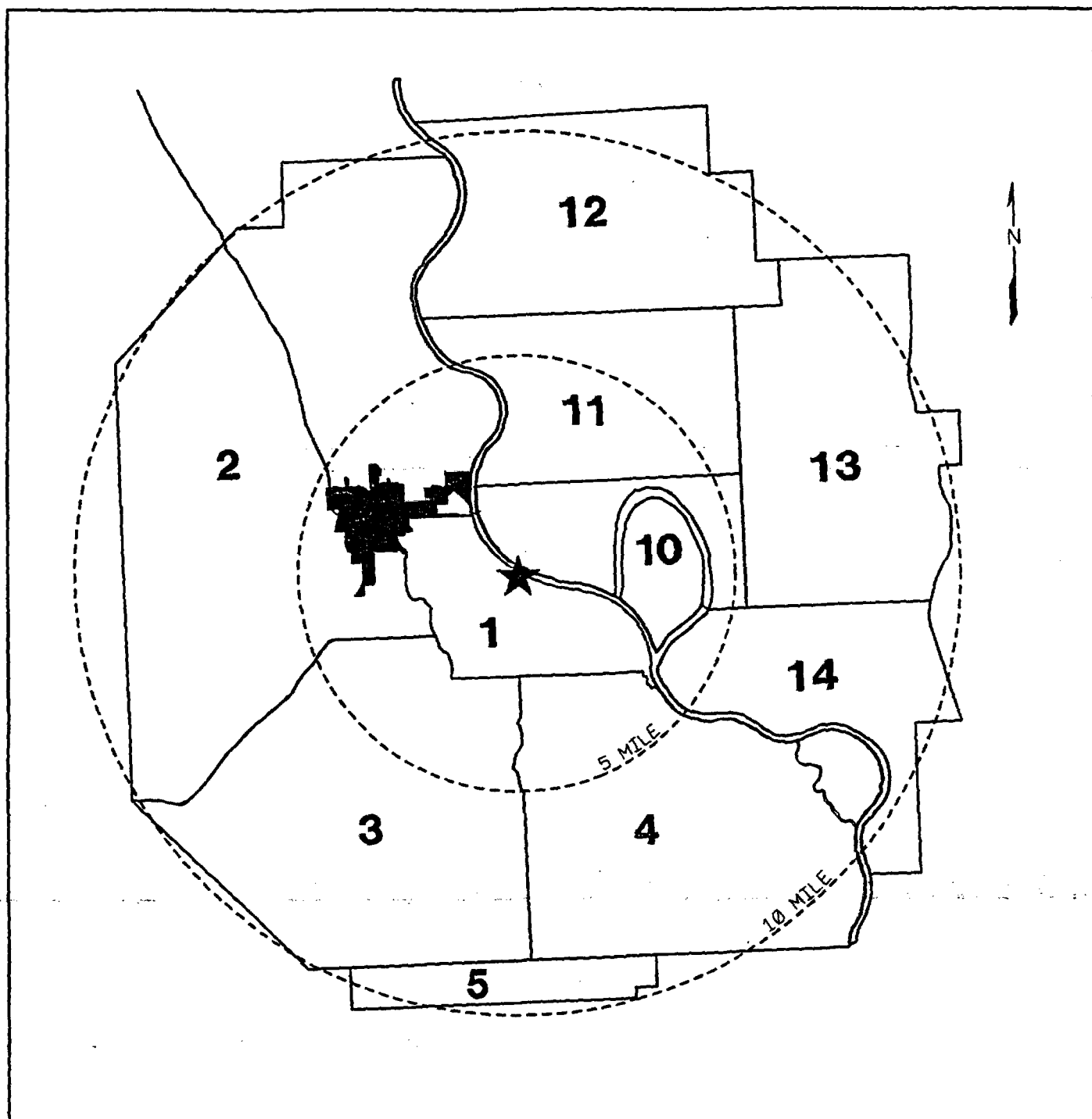
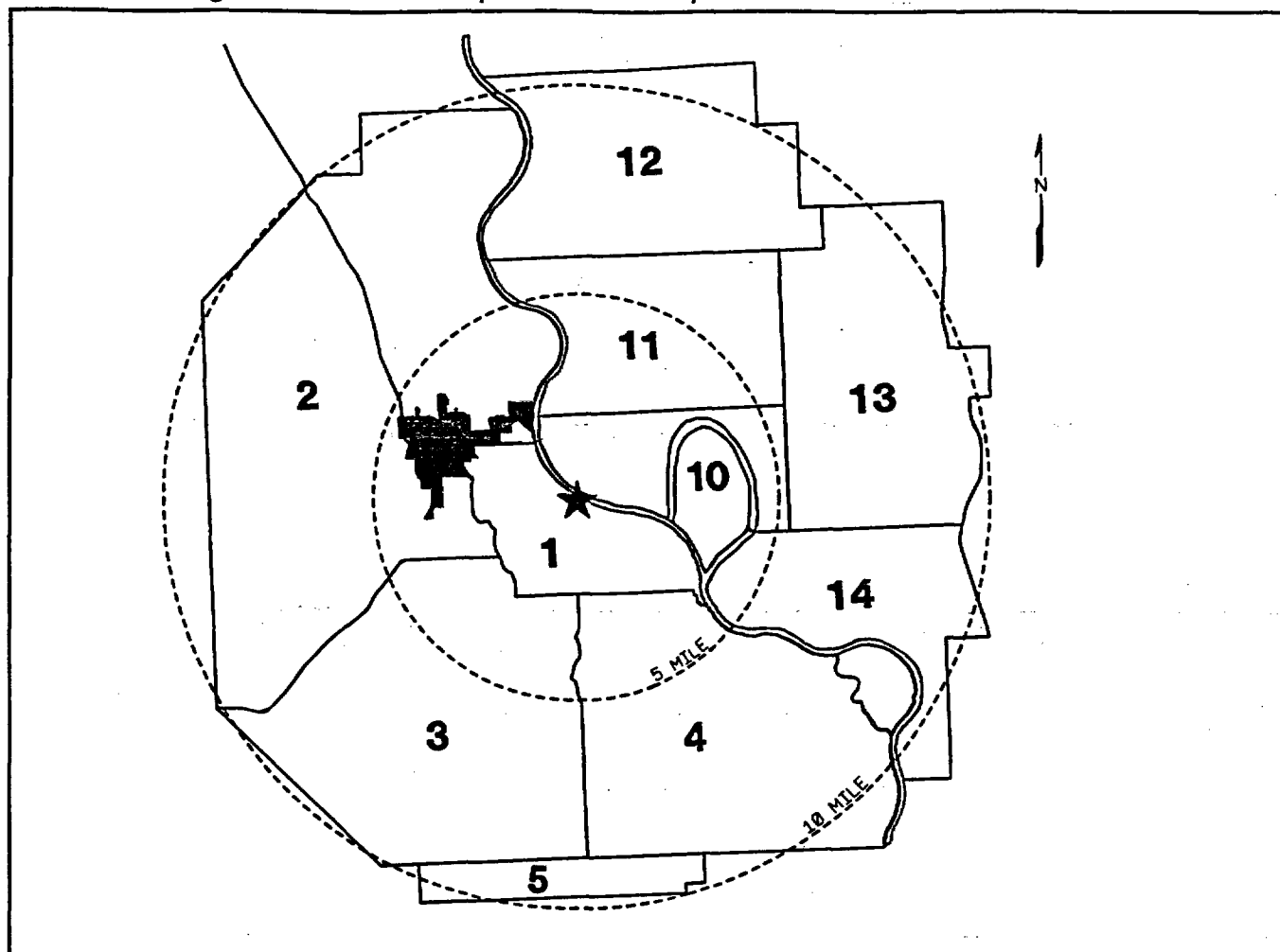




Figure J-4 - Plume Exposure EPZ Population and Evacuation Times



Nebraska					Iowa				
Sub Area	Population		Evacuation Time		Sub Area	Population		Evacuation Time	
	Minimum	Maximum	Normal	Adverse		Minimum	Maximum	Normal	Adverse
1	488	1598	2:40	3:10	10	29	5044	2:35	2:40
2	8972	13950	2:55	3:55	11	162	162	2:35	2:40
3	2064	2064	2:55	3:55	12	423	423	2:55	3:05
4	2767	3705	2:50	3:10	13	3023	4784	2:45	2:50
5	353	353	2:40	2:40	14	142	642	2:50	2:50
Total	14644	21670	2:50	3:10	Total	3779	11055	2:55	3:05

Figure J-5 - Routes to Relocation Centers

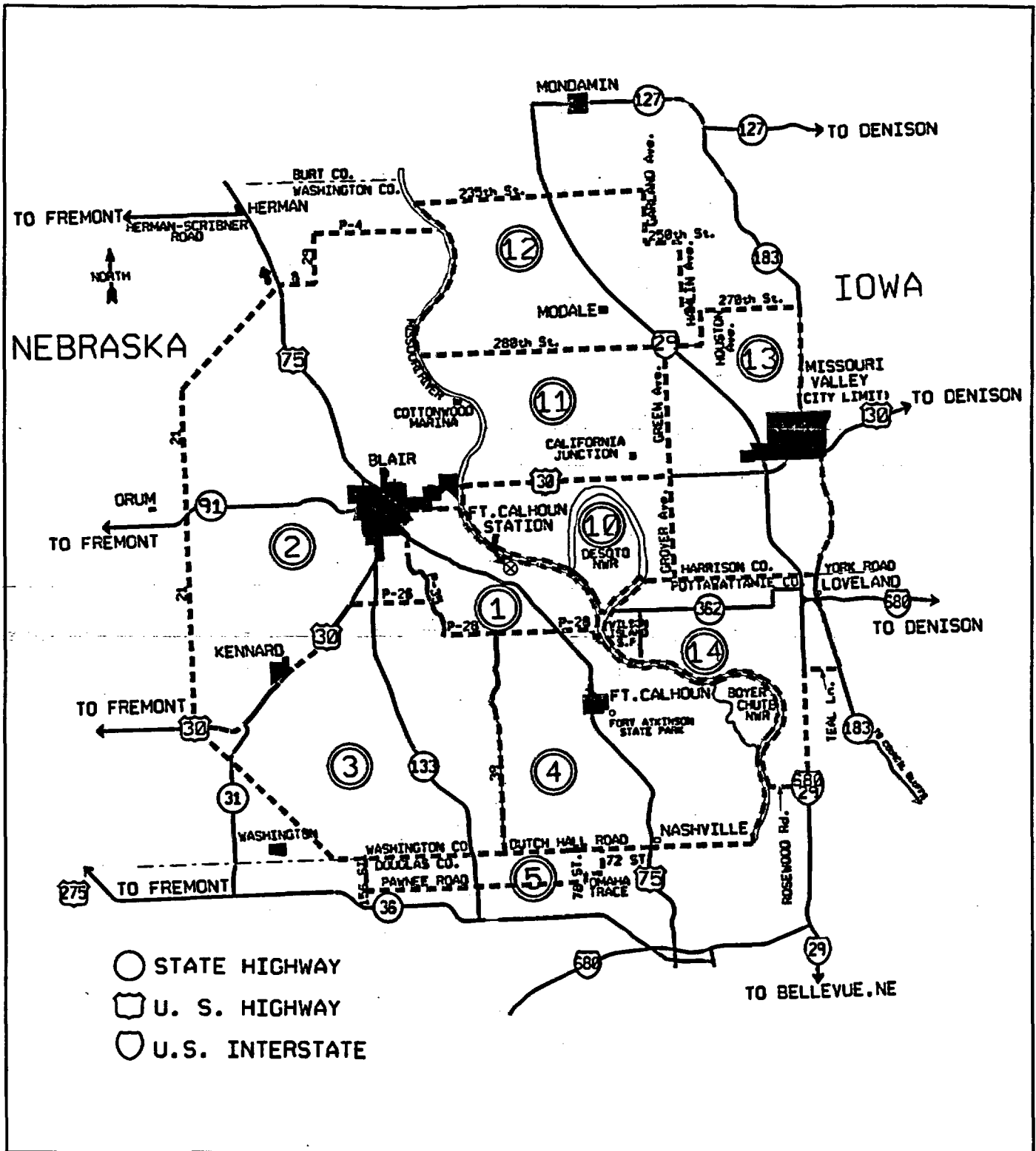


Figure J-6 - Ingestion Pathway EPZ

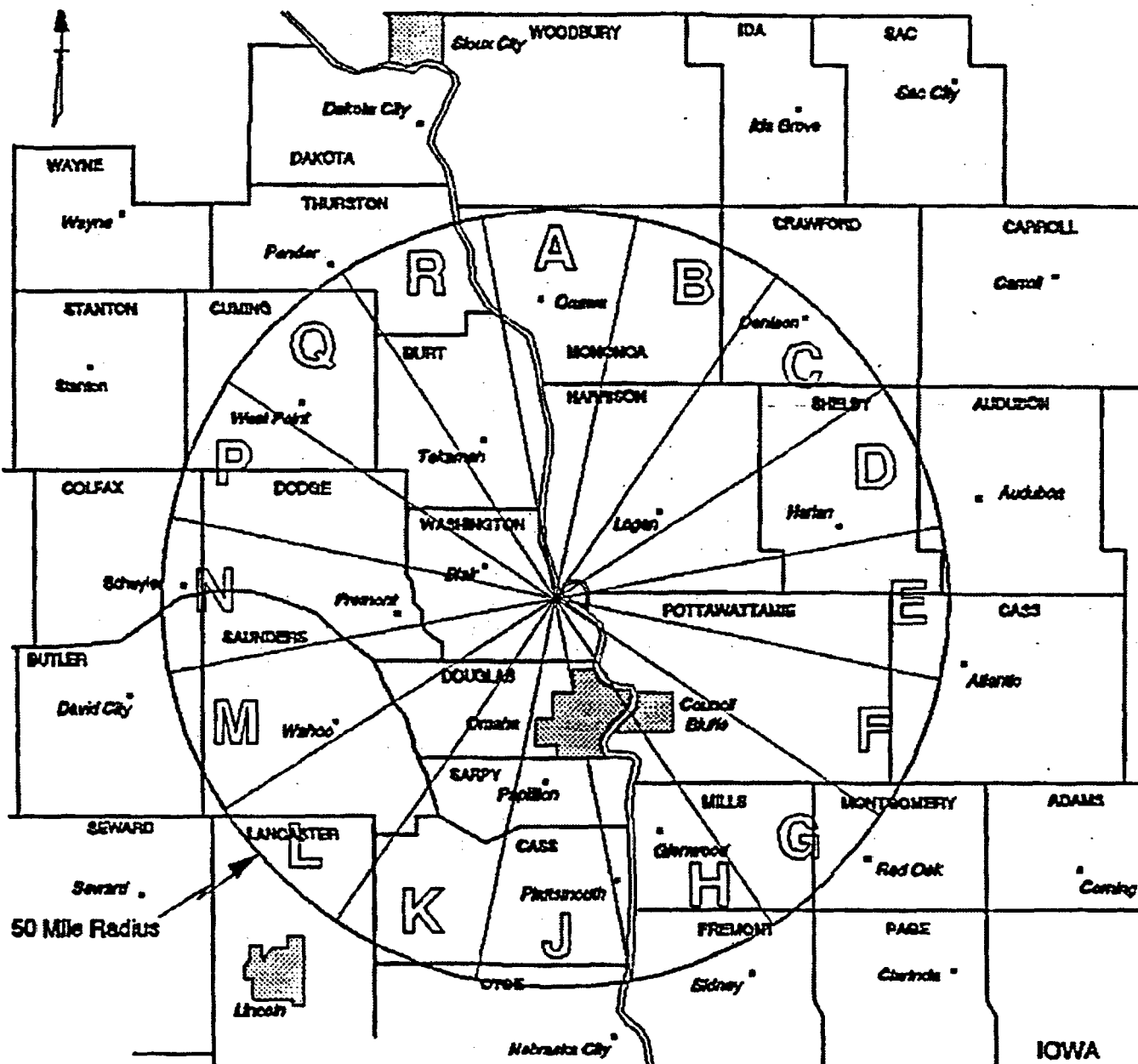


Figure J-7 - Population Estimates Ingestion Pathway SPZ

POPULATION DISTRIBUTION AS OF 1990						
DISTANCE FROM FCS IN MILES OF SECTOR SEGMENT						
SECTOR	0 TO 10	10 TO 20	20 TO 30	30 TO 40	40 TO 50	TOTALS
A	49	710	948	3720	1871	7298
B	393	499	1067	1578	3351	6888
C	114	703	2299	2369	1151	6636
D	2077	5092	1009	1903	7748	17829
E	102	696	2820	2615	2319	8552
F	120	893	1795	3699	2307	8814
G	879	5432	12296	3151	3012	24730
H	1961	107123	151221	13637	3801	277743
J	807	163724	82464	6740	4745	258480
K	1405	18269	23318	4452	6335	53779
L	420	2996	4534	5111	3176	16237
M	881	2263	22334	1672	1984	29134
N	516	1184	4030	2731	1693	10154
P	6361	1085	2060	5494	2838	17838
Q	1273	1271	740	3437	2492	9213
R	146	1085	2364	1356	3087	8038
TOTALS	17504	313025	315299	63665	51910	761403
CUMULATIVE	17504	330529	645828	709493	761403	761403

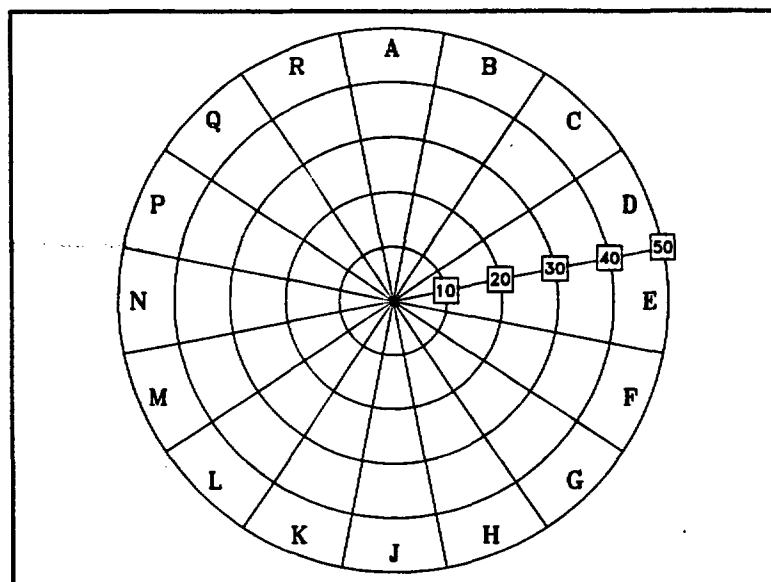
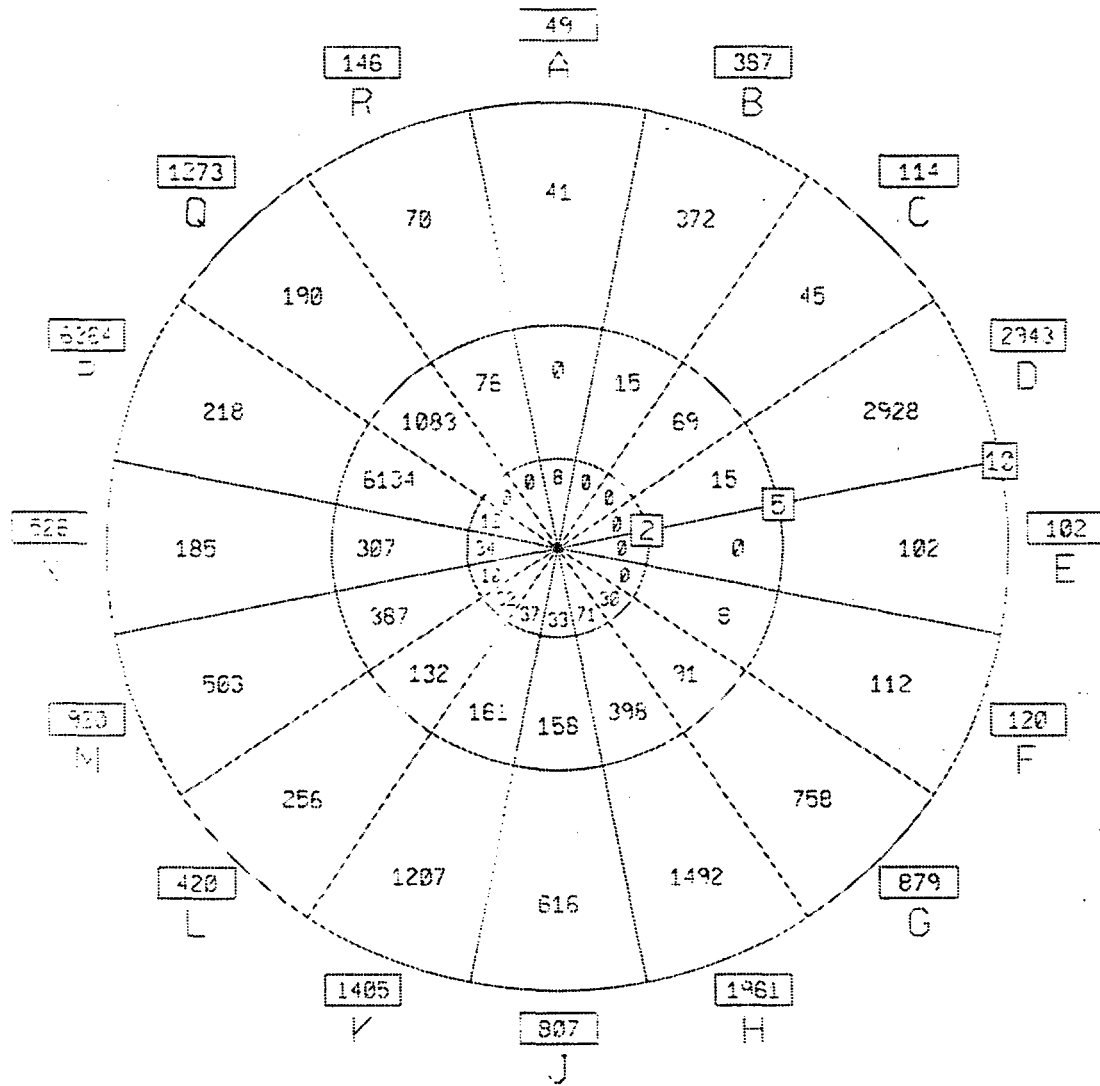
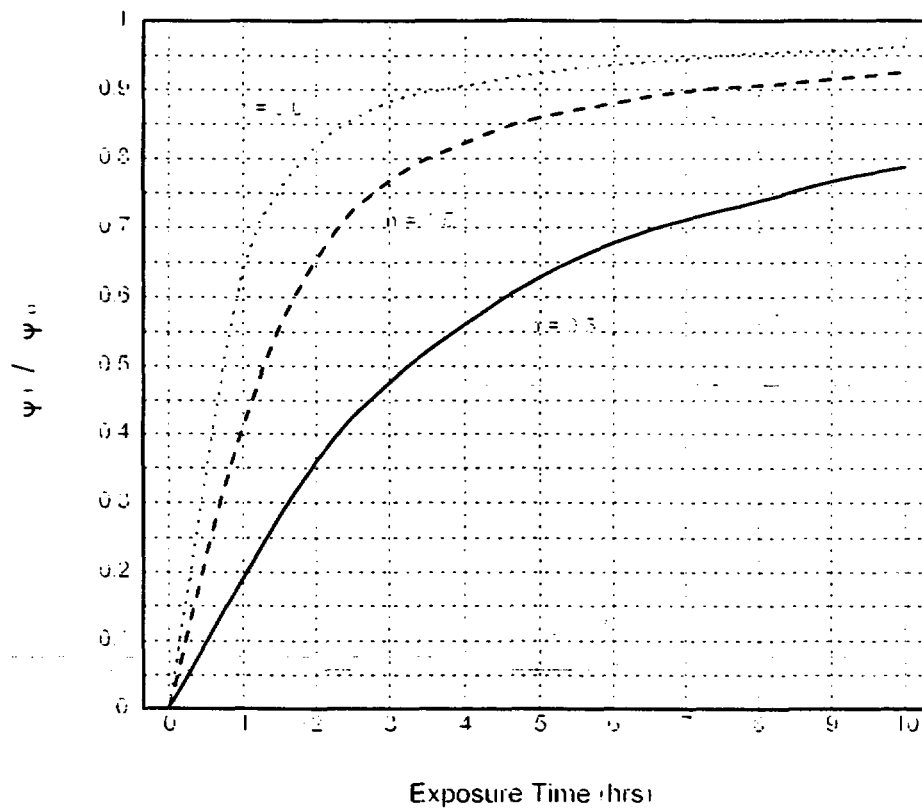


Figure J-8 - Population Estimates Plume Exposures EPZ



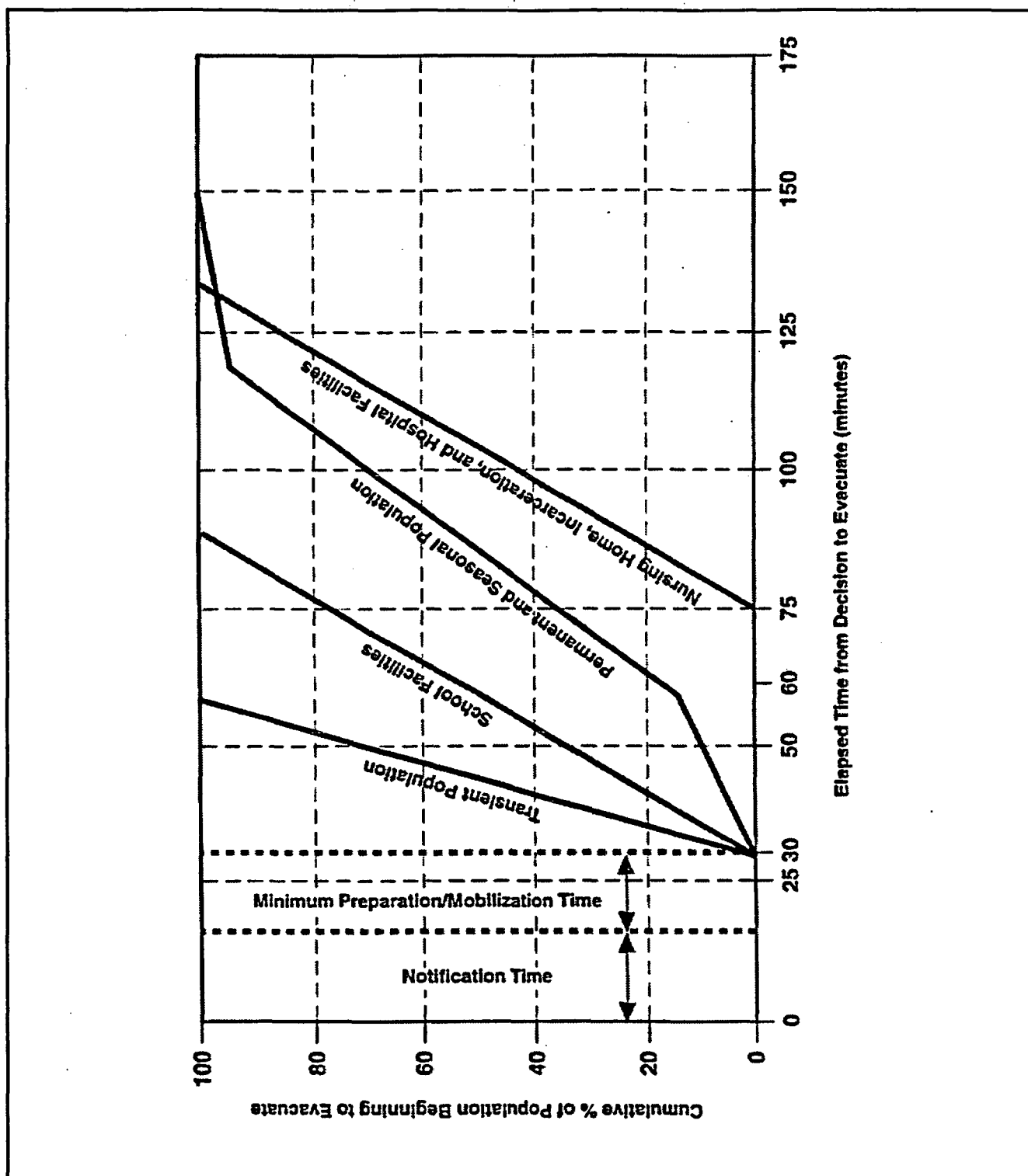
Population Totals			
Ring Miles	Ring Population	Total Miles	Cumulative Population
0-2	267	0-2	267
2-5	9034	0-5	9301
5-10	9095	0-10	18396

Figure J-9 - Ratio of Inhaled Dose Inside a Shelter to That Outside the Shelter as a Function of Ventilation Rates



K.E.	
$\psi$	
$\psi$	

Figure J-10 - Notification/Preparation/Mobilization Time Distributions



Document	Document Title	Revision/Date
FC-EPF-15	Drill Exercise Comment Form	R3 07-11-97a
FC-EPF-17	Pager Response Follow Up Questionnaire	R3 11-06-99
FC-EPF-19	Process and Area Monitor Locations	R7 04-22-03
FC-EPF-20	Site Boundary/Owner Control Area	R2 06-03-03
FC-EPF-21	Fort Calhoun Station Sector Map	R2 05-15-97
FC-EPF-27	Onsite/Offsite Dose Comparison Data Record (Using Eagle Program)	R3 11-07-00
FC-EPF-29	Estimation of Unmonitored Release Rates	R1 12-30-93
FC-EPF-31	$\Delta T/\sigma$ Stability Class Chart	R2 03-14-02
FC-EPF-32	Area Monitor Trending	R0 06-10-93
FC-EPF-33*	Emergency Response Facility Computer System (ERFCS)	R1 07-02-96
FC-EPF-33A	ERFCS Function Key Mapping	R0 10-08-02
FC-EPF-34	MRC Director Checklist	R0 06-23-93
FC-EPF-35	Iowa EOC Route Map (double-sided)	R0 06-21-94
FC-EPF-36	Briefing Guidelines	R3 10-22-01



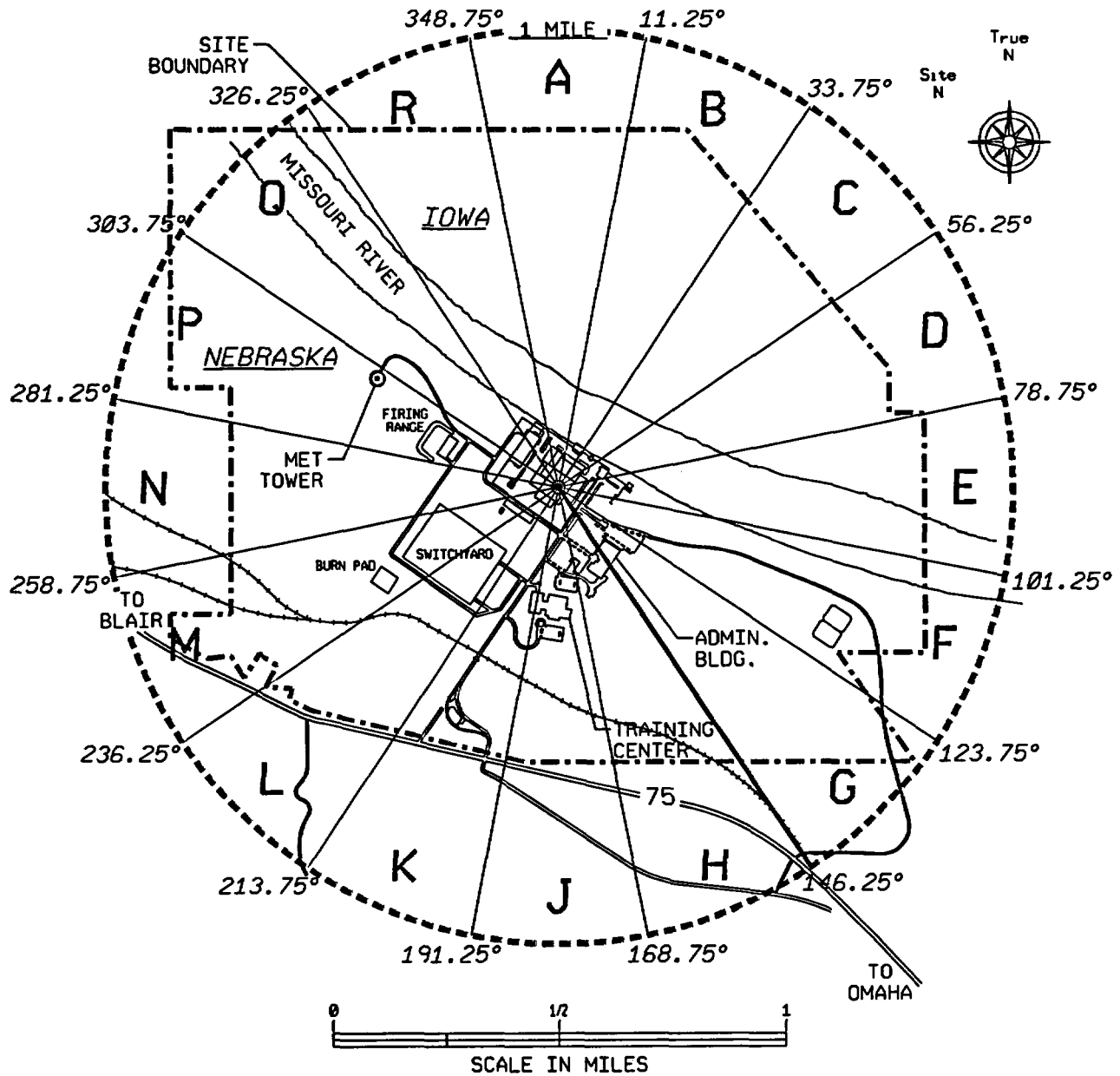
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FORT CALHOUN STATION  
EMERGENCY PLAN FORM

FC-EPF-20  
R2

SITE BOUNDARY/OWNER CONTROL AREA



SITE BOUNDARY/OWNER CONTROL AREA