Nuclear Operating Company
South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

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

STP NUCLEAR OPERATING COMPANY
Units 1 and 2
Docket Nos. STN 50-498; STN 50-499
Changes to Emergency Plan & Implementing Procedure

In accordance with 10CFR50.4(b)(5) and 10CFR50, Appendix E, Section V, the STP Nuclear Operating Company hereby submits the attached revisions to four (4) Emergency Plan Implementing Procedures.

If there are any questions regarding this matter, please contact either Mr. Morgan at (361) 972-7004 or myself at (361) 972-8053.

P. L. Serra
Manager, Plant Protection

AM/mk
Enclosure: Letter of Receipt
Description of Changes
0ERP01-ZV-TS08, Security Manager, Rev. 6
0ERP01-ZV-SH03, Acting Security Manager, Rev. 5
0ERP01-ZV-TP01, Offsite Dose Calculations, Rev. 12
0ERP01-ZV-TP02, Offsite Field Teams, Rev. 10

A045

cc:

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* The above copies distributed without Attachment except as noted by the asterisk. If copies are required, please contact us.

To: P. L. Serra
Manager, Emergency Response
STP Nuclear Operating Company
P. O. Box 289
Wadsworth, TX 77483

From: Tom Andrews
Region IV Office of the Regional Administrator
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Subject: **Receipt Acknowledgment for Changes to STP Emergency Plan Implementing Procedure(s)**

I hereby acknowledge having received changes to the STP Nuclear Operating Company's Emergency Classification Procedure transmitted by STP letter NOC-AE-01001177.

_____ _____
Signature Date

Description of Changes

Security Manager, 0ERP01-ZV-TS08, Rev. 6
This revision does not reduce the effectiveness or change the intent of the Emergency Response Program.

This revision addresses Editorial corrections: Page 6, Data Sheet 1, step 1.8.2, added affected unit. Page 10, Data Sheet 1, step 2.8 and 2.8.3, removed controlled area and clarified reference for which form to complete.

Acting Security Manager, 0ERP01-ZV-SH03, Rev. 5
This revision does not reduce the effectiveness or change the intent of the Emergency Response Program.

This revision addresses Editorial corrections:

Page 3, step 4.7, added reference to 0PGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide

Page 3, step 5.1 revised instructions for procedure usage.

Page 3, step 6.2 deleted Termination checklist.

Page 4, Data Sheet 1, step 1.7.2, added affected unit.

Page 9, Data Sheet 1, step 2.9 and 2.9.3, removed controlled area and clarified reference for which form to complete.

Offsite Dose Calculations, 0ERP01-ZV-TP01, Rev. 12
This revision does not reduce the effectiveness or change the intent of the Emergency Response Program.

This revision addresses Editorial corrections: Delete redundant calculations in Addendum 1, steps 3.0 – 3.2. Addendum 6, added Delta T to forms and statement to multiply dose rates by release duration. Addendum 7, Page 24, clarified flowchart.

Offsite Field Teams, 0ERP01-ZV-TP02, Rev. 10
This revision does not reduce the effectiveness or change the intent of the Emergency Response Program.

This revision addresses Editorial corrections: Data Sheet 1, page 18, step A.2, deleted each kit consists of 2 boxes, and step A.3.a inventory lists inside kit.

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1.0 Purpose and Scope

1.1 This procedure specifies the actions to be completed by the Security Manager in the Technical Support Center (TSC) during a declared emergency.

1.2 This procedure implements the requirements of the South Texas Project Electric Generating Station (STPEGS) Emergency Plan specific to the Security Manager.

2.0 Responsibilities

2.1 The Security Manager is responsible for:

2.1.1 Directing the implementation of on-site security emergency response activities.

2.1.2 Implementing accountability efforts.

2.1.3 Assisting with Protected and Owner Controlled Areas evacuation.

2.1.4 Establishing special access controls.

2.1.5 Providing for the expedient entry/exit of emergency vehicles.

2.1.6 Directing changes to security operations based on radiological conditions.

2.1.7 Determining level of compliance with current security procedures.

3.0 Precautions and limitations

3.1 0ERP01-ZV-IN04, Assembly and Accountability are required at a Site Area Emergency Classification or greater unless to do so would put site personnel at risk. Assembly and Accountability may be ordered by the Emergency Director at anytime as dictated by conditions.

3.2 0ERP01-ZV-IN05, Site Evacuation is required at a Site Area Emergency Classification or greater unless to do so would put site personnel at risk. Site Evacuation may be ordered by the Emergency Director at anytime as dictated by conditions.

3.3 The Technical Support Center is activated at an Alert Emergency or higher classification in accordance with Procedure 0ERP01-ZV-IN01, Emergency Classification.

3.3.1 The Emergency Director has ordered the activation of the Technical Support Center to support response activities.

4.0 References

4.1 STPEGS Emergency Plan

4.2 0ERP01-ZV-IN01, Emergency Classification

4.3 0ERP01-ZV-IN03, Emergency Response Organization Notification

4.4 0ERP01-ZV-IN04, Assembly and Accountability

4.5 0ERP01-ZV-IN05, Site Evacuation

4.6 0ERP01-ZV-SH03, Acting Security Manager

4.7 0ERP01-ZV-RE01, Recovery Operations

4.8 0ERP01-ZV-RE02, Documentation

4.9 0PGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide

4.10 0POP04-ZO-0007, Aircraft Crash Onsite

5.0 Procedure

5.1 At an Alert or higher Emergency Classification or as directed by the Emergency Director report to the affected Unit's Technical Support Center and implement Data Sheet 1, Step 1.0 Initial Activities.

5.2 Complete Checklist activities as follows:

5.2.1 Use the right column to log the time an activity is performed.

5.2.2 Reoccurring activities should be documented using the Emergency Action Log.

5.2.3 Implement other activities as necessary.

5.3 Use Checklists to help direct emergency activities.

6.0 Support Documents

6.1 Addendum 1, Shift Turnover Briefing

6.2 Data Sheet 1, Security Manager Checklist

6.3 Data Sheet 2, Site Security Control Orders

6.4 Data Sheet 3, TSC Manager Briefing Sheet

1.0 Provide a briefing of events to the relief person including the following areas:

- 1.1 Current Emergency Classification.
- 1.2 Completed checklists.
- 1.3 Completed Logs.
- 1.4 Data Sheet 2, Site Security Control Orders and any potential upcoming events that would require changing the security activities onsite.
- 1.5 Recovery plans developed and corrective action items for plant recovery.
- 1.6 Current shift schedule and staffing levels.

2.0 Inform the following personnel of the transfer of responsibility to the oncoming shift replacement:

- 2.1 All Technical Support Center Managers
- 2.2 Nuclear Regulatory Commission Counterpart
- 2.3 OSC Security Coordinator
- 2.4 Security Force Supervisor
- 2.5 Security Supervisor

3.0 Update the Technical Support Center Staffing Board.

4.0 Document the time of turnover and the identity of your relief on your LOG and provide copies to your replacement. Provide the original LOG sheets to the Administrative Manager.

5.0 Verify your phone number on the shift schedule. IF this phone number is inside the 10 mile Emergency Planning Zone, THEN provide an alternate number for contact should evacuation of the Emergency Planning Zone be necessary.

6.0 Take a copy of your shift schedule.

7.0 Verify possession of a STPNOC Picture Badge for access through possible road blocks when returning to the site for the next shift or request a replacement Picture Badge from the Administrative Manager.

8.0 Sign out when leaving the Technical Support Center.

-END-

_____ _____ _____
(Name) (Date) (Unit)

Action **Time**

1.0 INITIAL ACTIVITIES

1.1 Report to the Technical Support Center of the affected Unit and sign in on the Staffing Board. _____

1.2 Initiate an Emergency Action Log of significant activities. Document telephone calls made/received and any data or information received from or provided to other persons. _____

1.3 Obtain a briefing from the Acting Security Manager using 0ERP01-ZV-SH03, Data Sheet 3, Security Briefing Checklist. _____

1.4 Verify the Emergency Notification and Response System (ENRS) was activated in accordance with 0ERP01-ZV-IN03, Emergency Response Organization Notification. _____

1.5 Review with the Radiological Manager current radiological conditions which may impact security operations and advise the Security Force Supervisor of any necessary precautions. _____

1.6 Review with the Maintenance Manager the current and planned inplant team activities and their locations. Brief the Security Force Supervisor of planned inplant activities. _____

1.7 Ensure that the following documents/equipment are available:

1.7.1 Security Manager's Emergency Response Manual. _____

1.7.2 Safeguards Contingency Plan and Procedures (as necessary). _____

1.7.3 Security Radio. _____

1.8 Inform the Security Force Supervisor and Security Coordinator of the classification and review/implement the following actions:

Action	Time
1.8.1 Broadcast over the security frequency what classification has been declared and complete a roll call of the Security Force.	_____
1.8.2 Direct posting of the affected Unit and appropriate Emergency Classification signs at the East and West Gatehouses.	_____
1.8.3 Report any unusual activities or alarms that may be relevant to the current emergency condition to the TSC Manager.	_____
1.8.4 Instruct the Security Force Supervisor to activate additional personnel as required. Inform the Administrative Manager of the additional staffing activated.	_____
1.8.5 Determine status of any Local Law Enforcement Agency activities being implemented.	_____
1.8.6 Dispatch a Security Officer to the Emergency Operations Facility to perform access control functions.	_____
1.8.7 Establish access control to the Protected Area and Owner Controlled Area. Allow entry of Emergency Response Organization personnel and Nuclear Regulatory Commission augment personnel responding to the Emergency Operations Facility, Control Room, Technical Support Center, and Operations Support Center. TSC Manager approval is required for all Protected Area entries. EOF Director approval is required for all Owner Controlled Area entries.	_____
1.8.8 Establish access control for the Owner Controlled Area.	_____
1.9 Notify the Security Force Supervisor and Security Coordinator when the TSC Manager assumes Emergency Director authority and responsibility.	_____
1.10 If changes to standard security procedures are necessary:	
1.10.1 Document any deviations from standard procedures using Data Sheet 2, Site Security Control Orders, and obtain Emergency Director approval.	_____
1.10.2 Brief the Security Force Supervisor, Security Supervisor, Security Coordinator, and the NRC representatives at the Technical Support Center of any approved deviations.	_____

Action **Time**

1.10.3 Issue Data Sheet 2, Site Security Control Orders, to the Security Force Supervisor for briefing Security Officers and shift replacements. _____

1.11 Brief the TSC Manager of any special security actions underway in response to the emergency condition and any Local Law Enforcement Agency activities being implemented. _____

2.0 SPECIAL ACTIVITIES

2.1 Personnel Emergency

2.1.1 Coordinate with the Assistant TSC Manager when informed of the arrival of an offsite ambulance and the location where the ambulance will meet the injured person, then:

2.1.1.1 Arrange for expedient entry/exit of the ambulance. N/A

2.1.1.2 Inform the Security Force Supervisor of the location where the ambulance should be directed and request notification when the ambulance arrives at and leaves the site. N/A

2.1.2 Inform the Assistant TSC Manager when the ambulance arrives on site. N/A

2.1.3 Inform the Assistant TSC Manager when the ambulance leaves site. N/A

2.2 Assembly/Accountability

2.2.1 Coordinate with the Assistant TSC Manager and complete the Security Manager responsibilities in 0ERP01-ZV-IN04, Assembly and Accountability. N/A

2.2.2 Ten (10) minutes after assembly and accountability has been declared, make an announcement over the Technical Support Center public address system to remind personnel to card in on the facility Accountability Card Readers. N/A

Action	Time
2.3 Search and Rescue	
2.3.1 Record the names, badge numbers, and last known location of the missing persons identified by the Security Force Supervisor.	N/A
2.3.2 Inform the following of the missing persons:	
2.3.2.1 Assistant TSC Manager	N/A
2.3.2.2 Radiological Manager	N/A
2.3.2.3 OSC Security Coordinator	N/A
2.3.3 Site Evacuation	
2.3.3.1 Coordinate with the Assistant TSC Manager and complete the Security Manager responsibilities in 0ERP01-ZV-IN05, Site Evacuation.	N/A
2.4 Security Threat	
2.4.1 Coordinate with the Security Force Supervisor to ensure implementation of necessary response actions to the security threat.	N/A
2.4.2 Brief the Technical Support Center staff and Nuclear Regulatory Commission representatives of any special security actions underway in response to the emergency condition.	N/A
2.4.3 Coordinate with the Radiological Manager to implement any special radiological precautions for Security Force Personnel.	N/A
2.4.4 Brief the Security Coordinator of the security threat and identify special precautions necessary for the emergency teams.	N/A
2.4.5 Coordinate with the Assistant Operations Manager to:	
2.4.5.1 Identify vital equipment that could be at risk due to the security threat.	N/A
2.4.5.2 Identify protective measures that should be taken for the Control Room.	N/A

Action		Time
2.4.6	Direct the Security Force Supervisor to take special security measures to counter threats to vital areas and equipment at risk as identified by the Assistant Operations Manager.	N/A
2.4.7	Advise the EOF Radiological Director of any security related precautions which should be taken by environmental field teams.	N/A
2.4.8	Contact the Matagorda County Sheriff's Office and provide a briefing. Maintain periodic contact	N/A
2.5	Radiological Release Occurring or Imminent	
2.5.1	Confer with the Radiological Manager to determine which of the following facilities can continue to be occupied or used to shelter security personnel.	
2.5.1.1	Central Alarm Station	N/A
2.5.1.2	Secondary Alarm Station	N/A
2.5.1.3	East Gatehouse	N/A
2.5.1.4	West Gatehouse	N/A
2.5.1.5	Operations Support Center's	N/A
2.5.1.6	Technical Support Center's	N/A
2.5.2	Contact the Security Force Supervisor and:	
2.5.2.1	Specify the precautionary radiological actions to be taken by Security Force personnel in the field.	N/A
2.5.2.2	Request notification when any offsite agency personnel arrive onsite and recommend any precautionary radiological actions to be taken at that time.	N/A
2.5.2.3	If Electronic Dosimetry alarms, then notify a Radiation Protection Technician and the Security Manager.	N/A

Action	Time
2.6 Issuance of Potassium Iodide (KI)	
NOTE Consumption of Potassium Iodide is voluntary	
2.6.1 If directed by the Emergency Director to ingest Potassium Iodide, then contact the Security Coordinator and verify distribution of sufficient Potassium Iodide for all Security Force personnel.	N/A
2.7 Toxic Gas/Chemical Release From Nearby Chemical Facilities	
2.7.1 Direct the Security Supervisor to warn personnel outside the Protected Area to seek shelter in buildings and turn off any ventilation system (or put in recirculation mode).	N/A
2.8 Aircraft Crash Onsite	
2.8.1 Coordinate response actions for the airplane crash (utilize Security Supervisor, if available, for areas outside Protected Area).	N/A
2.8.2 Dispatch security personnel to the scene to secure and preserve the crash scene as much as possible without hindering rescue efforts or plant emergency response efforts.	N/A
2.8.3 Assist in completion of procedure 0POP04-ZO-0007, Aircraft Crash Onsite, Form 1, Aircraft Crash Information and provide to the Technical Manager.	N/A
2.9 Evacuation of the Technical Support Center	
2.9.1 Collect the following items as necessary:	
2.9.1.1 Security Manager's Emergency Response Manual.	N/A
2.9.1.2 Security Procedures	N/A
2.9.1.3 Security Radio	N/A
2.9.1.4 All security checklists and logs	N/A

Action		Time
2.9.2	Follow any special precautions provided by the Radiological Manager for proceeding to the unaffected Unit's Technical Support Center or Emergency Operations Facility.	N/A
2.9.3	Contact the Security Force Supervisor and inform him of the Technical Support Center evacuation.	N/A
2.9.4	Confer with the Radiological Manager about the continued manning of Security facilities including the CAS/SAS. If possible, keep the CAS or SAS manned and make provisions for more frequent shift changes.	N/A
2.9.5	Upon arrival at the new location, contact the Security Force Supervisor and Security Coordinator and provide a telephone number for future contact.	N/A
3.0	ONGOING ACTIVITIES	
3.1	Periodically brief the TSC Manager of any special security activities onsite. Use Data Sheet 3, TSC Manager Briefing Sheet.	N/A
3.2	Periodically confer with the Radiological Manager concerning radiological conditions which could impact security operations and personnel.	N/A
3.3	Act as the primary Technical Support Center liaison with the Nuclear Regulatory Commission on security events.	N/A
3.4	Periodically brief the Security Force Supervisor and Security Supervisor, if available, of emergency team activities and locations. Provide an update of current Technical Support Center activities	N/A
3.5	Maintain communications with the Security Coordinator and provide briefings.	N/A
3.6	Maintain Data Sheet 2, Site Security Control Orders current.	N/A
3.7	Report instances of eating, drinking, or chewing to the TSC Manager after these actions have been prohibited.	N/A

Action	Time
4.0 SHIFT CHANGE	
4.1 Upon arrival of your shift replacement, complete all actions listed on Addendum 1, Shift Turnover Briefing.	N/A
5.0 RECOVERY ACTIVITIES	
5.1 Inform the Security Force Supervisor, Security Coordinator and Security Supervisor of the Recovery.	N/A
5.2 Ensure that a broadcast has been done, over the security frequency that Recovery has been declared and a roll call of the Security Force has been completed.	N/A
5.3 Ensure that a Recovery sign has been posted at the East and West Gatehouses.	N/A
5.4 Determine the manpower requirements necessary for upcoming security activities. Activate additional personnel, if necessary.	N/A
5.5 Develop a list of activities and tasks which should be completed using 0ERP01-ZV-RE02, Documentation, Data Sheet 1, Corrective Action Items List, and provide a copy to the Assistant TSC Manager.	N/A
5.6 Assist in development of recovery plans and procedures using guidance in 0ERP01-ZV-RE01, Recovery Operations.	N/A
6.0 TERMINATION ACTIVITIES	
6.1 Inform the Security Force Supervisor, Security Coordinator and Security Supervisor of the Termination of the emergency condition. Ensure the following are completed:	
6.1.1 Broadcast over the security frequency that Termination has been declared and complete a roll call of the Security Force.	N/A

Action		Time
6.1.2	Remove the emergency classification signs at the East and West Gatehouses.	N/A
6.1.3	Return the Emergency Response Manual, Safeguards Contingency Plan and Procedures as necessary.	N/A
6.2	Develop a list of activities and tasks which should be completed using 0ERP01-ZV-RE02, Form 1 Corrective Action Items List, and provide a copy of the list to the Assistant TSC Manager.	N/A
6.3	Provide a list of any supplies or forms needing replenishment to the Administrative Manager.	N/A
6.4	Collect and organize in chronological order all documents, checklists, and logs.	N/A
6.5	With the Security Force Supervisor and Security Supervisor, write an Emergency Response Summary report using the guidance in 0ERP01-ZV-RE02, Documentation. Provide this report to the Assistant TSC Manager.	N/A
6.6	Turn over all documentation generated during the emergency to the Administrative Manager.	N/A

Approved by Security Manager _____ Date/Time _____ Unit _____

Approved by TSC Manager _____ Date/Time _____

Approved by Emergency Director _____ Date/Time _____

A. Review of Administrative, Barrier, Monitoring, Response, and Security Procedures results with the following:

1. All current procedures remain in effect ☐

OR (check one)

2. Current procedures remain in effect except for the following deviations: ☐

   a. Fire door patrols:

   _____

   _____

   _____

   b. Locks and keys:

   _____

   _____

   _____

   c. Security barriers:

   _____

   _____

d. Compensatory posts:

e. Patrols:

f. Badging:

g. Routine alarm response:

h. Security patrols:

i. Contingency response:

j. Safeguards Information:

_____

_____

_____

k. Use of Force:

_____

_____

l. Other:

_____

_____

_____

-END-

_____ _____ _____
(Name) (Date) (Unit)

I. Special Security Events in progress Time _____

_____

_____

_____

_____

II. Radiological Conditions affecting Security

_____

_____

_____

_____

III. Local Law Enforcement Activities supporting STPNOC

_____

_____

_____

_____

_____

IV. Security Deviations

_____

_____

_____

_____

_____

-END-

	0ERP01-ZV-SH03	Rev. 5	Page 1 of 11
Acting Security Manager			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 09/17/01

Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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1.0 Purpose and Scope

1.1 This procedure specifies the actions to be completed by the Acting Security Manager during a declared emergency.

1.2 This procedure implements the necessary Security emergency response actions for an Unusual Event and for initial immediate response for higher emergency classifications until relieved by the Security Manager.

1.3 This procedure implements the requirements of the South Texas Project Electric Generating Station (STPEGS) Emergency Plan specific to the Acting Security Manager.

2.0 Responsibilities

2.1 The Security Force Supervisor assumes the responsibilities of the Acting Security Manager until relieved. Those responsibilities include:

2.1.1 Directing the implementation of on-site security emergency response activities.

2.1.2 Implementing assembly and accountability efforts.

2.1.3 Assisting with Protected and Owner Controlled Area evacuation.

2.1.4 Establishing special access controls.

2.1.5 Providing for the expedient entry/exit of emergency vehicles.

2.1.6 Directing changes to security operations based on radiological conditions.

2.1.7 Determining level of compliance with current security procedures.

2.1.8 Notification of Emergency Response Organization (ERO) personnel utilizing The Emergency Notification and Response System (ENRS) as described in 0ERP01-ZV-IN03, Emergency Response Organization Notification.

3.0 Precautions and Limitations

3.1 0ERP01-ZV-IN04, Assembly and Accountability are required at a Site Area Emergency Classification or greater unless to do so would put site personnel at risk. The Emergency Director at anytime as dictated by conditions may order assembly and Accountability.

3.2 0ERP01-ZV-IN05, Site Evacuation is required at a Site Area Emergency Classification or greater unless to do so would put site personnel at risk. The Emergency Director at anytime as dictated by conditions may order site Evacuation.

4.0 References

4.1 STPEGS Emergency Plan

4.2 0ERP01-ZV-IN03 Emergency Response Organization Notification

4.3 0ERP01-ZV-IN04 Assembly and Accountability

4.4 0ERP01-ZV-IN05 Site Evacuation

4.5 0ERP01-ZV-RE02 Documentation

4.6 0POP04-ZO-0007 Aircraft Crash Onsite

4.7 0PGP05-ZV-0004 Emergency Plan Implementing Procedure Users Guide

5.0 Procedure

5.1 IF an Unusual Event or higher emergency classification is declared, implement Data Sheet 1, Acting Security Manager Checklist. Use Checklist to help direct emergency activities.

5.2 IF contacted by the Security Manager, provide a briefing of the current situation and the security activities underway using Data Sheet 2, Security Briefing Checklist.

5.3 WHEN responsibilities have been transferred to the Security Manager, THEN return to the implementation of Security procedures and discontinue the use of this procedure.

5.4 During an Alert of higher classification, ensure an ERO Qualified EMT is onsite.

6.0 Support Documents

6.1 Data Sheet 1 Acting Security Manager Checklist

6.2 Data Sheet 2 Security Briefing Checklist

(Name) _____ (Date) _____ (Unit) _____

Action	Time
1.0 INITIAL ACTIONS	
1.1 Activate the Emergency Response Organization as required by and in accordance with 0ERP01-ZV-IN03, Emergency Response Organization Notification.	_____
1.2 Initiate an Emergency Action Log of significant activities. Document telephone calls made/received and any data or information received from or provided to other persons.	LOG
1.3 Verify the Emergency Notification and Response System (ENRS) was activated in accordance with 0ERP01-ZV-IN03, Emergency Response Organization Notification.	_____
1.4 Contact the Shift Supervisor (Emergency Director) and inform him of your location. Obtain a briefing of the current situation. Determine if any special security actions should be implemented.	_____
1.5 Contact Acting Radiological Manager to determine if any radiological conditions exist which may impact security operations. Advise Security Force personnel of the necessary precautions.	_____
1.6 Contact the Acting OSC Coordinator and determine if any special support from security is needed for planned inplant emergency team activities.	_____
1.7 Implement the following actions:	
1.7.1 Broadcast over the security frequency what classification has been declared, determine locations of, and complete a roll call of the Security Force.	_____
1.7.2 Ensure posting of the affected Unit and appropriate Emergency Classification signs at the East and West Gatehouses.	_____

Action		Time
1.7.3	Ensure an Emergency Response Organization qualified Emergency Medical Technician is responding to the Operations Support Center (OSC) when activated.	_____
1.7.4	Report any unusual activities or alarms that may be relevant to the current emergency condition to the Shift Supervisor (Emergency Director).	_____
1.7.5	Dispatch a Security Officer to the OSC (when activated) with vital area keys and 10 portable radios located at the MOF. This officer may be released upon arrival of the OSC Security Coordinator.	_____
1.7.6	During an Alert or higher emergency classification establish access control to the Protected Area. Allow entry of ERO personnel and NRC augment personnel responding to the Control Room, Technical Support Center (TSC), and Operations Support Center (OSC). Emergency Director approval is required for all other entries.	_____
1.7.7	Upon an Alert or higher emergency classification establish access control to the Owner Controlled Area by positioning Security personnel at the access roads to FM 521 and allowing entrance only to personnel with STP badges, Federal badges, State/County Agency badges, or emergency response vehicles. Shift Supervisor (Emergency Director) approval is required for all other entries.	_____
1.7.8	Dispatch a Security Officer to the Emergency Operations Facility (EOF) (when activated) to perform access control functions.	_____
1.7.9	Activate additional personnel as required.	_____
1.7.10	Initiate assembly and accountability as directed by Shift Supervisor (Emergency Director) or at a Site Area Emergency of higher classification.	_____

Action	Time
2.0 SPECIAL ACTIONS TO BE IMPLEMENTED AS NEEDED	
2.1 Personnel Emergency	
2.1.1 When informed by the Shift Supervisor (Emergency Director) of the arrival of an offsite ambulance, and the location where the ambulance would meet the injured person, then:	_____
2.1.1.1 Arrange for expedient entry/exit of the ambulance.	LOG
2.1.1.2 Determine where the ambulance should be directed and notify the Shift Supervisor (Emergency Director) when the ambulance arrives at and leaves the site.	LOG
2.2 Assembly/Accountability	
2.2.1 Coordinate with the Shift Supervisor (Emergency Director) and complete the Security Manager's responsibilities in 0ERP01-ZV-IN04, Assembly and Accountability.	_____
2.2.2 Direct the Secondary Alarm Station (SAS) Operator to activate the accountability software.	_____
2.2.3 Direct the Unit Lieutenants to implement assembly and accountability.	_____
2.3 Search and Rescue	
2.3.1 Coordinate with the Acting OSC Coordinator to assist in search and rescue efforts.	_____
2.3.2 Determine the names, badge numbers, and last known location of the missing persons identified.	_____
2.3.3 Provide the Acting OSC Coordinator with any Security information that could impact search and rescue team efforts.	_____

Action	Time
2.4 Site Evacuation	
2.4.1 Coordinate with the Shift Supervisor (Emergency Director) and complete the Security Manager's responsibilities in 0ERP01-ZV-IN05, Site Evacuation.	_____
2.5 Security Threat	
2.5.1 Direct the Security Force to implement necessary response actions to the security threat.	_____
2.5.2 Brief the Shift Supervisor (Emergency Director) of any special security actions underway in response to the emergency condition.	_____
2.5.3 Coordinate with the Shift Supervisor (Emergency Director) to identify vital equipment that could be at risk due to the Security threat and take the necessary Security precautions.	_____
2.5.4 Advise the Shift Supervisor (Emergency Director) of any protective measures that should be taken by the Control Room.	_____
2.5.5 IF the events underway are radiologically based, THEN coordinate with the Acting Radiological Manager and determine any special radiological precautions for Security Force Personnel. Broadcast over the Security frequency any radiological precautions that should be taken.	_____
2.5.6 Brief the Acting OSC Coordinator of the security threat and recommend precautionary actions that should be taken by the emergency teams.	_____
2.5.7 Contact the Matagorda County Sheriff's Office and provide a briefing. Maintain periodic contact.	_____

Action	Time
2.6 Radiological Release Occurring or Imminent	
2.6.1 Review with the Acting Radiological Manager the impact of the radiological release on Security operations.	_____
2.6.2 IF the events underway are radiologically based, THEN coordinate with the Acting Radiological Manager and determine any special radiological precautions for Security Force Personnel. Broadcast over the Security frequency any radiological precautions that should be taken.	_____
2.6.3 IF necessary, THEN reduce the number of Security Force personnel on patrol, in the Protected Area, and at Security facilities.	_____
2.6.4 IF necessary, THEN relocate Protected Area Access Control to other locations.	_____
2.6.5 Verify that Electronic Dosimeters are being provided to all Security Officers and to the following locations:	
2.6.5.1 West Gatehouse (SAS)	_____
2.6.5.2 Unit 1 Power Block 60′ Elev. (CAS)	_____
2.6.6 Direct the Security Officers to inform you of any alarms on the Electronic Dosimeters.	_____
2.6.7 Inform the Acting Radiological Manager of any alarms on Electronic Dosimeters and request further instructions.	LOG
2.6.7.1 Confer with the Acting Radiological Manager to determine which of the following facilities can continue to be occupied or used to relocate Security personnel and any support required.	_____
a. CAS (maintain operational by rotating personnel)	

Action	Time
b. SAS	_____
c. East Gatehouse	_____
d. West Gatehouse	_____
2.6.8 Request notification when any offsite agency personnel arrive onsite and recommend any precautionary radiological actions to be taken at that time.	_____

NOTE

Consumption of KI is voluntary.

2.7 Issuance of Potassium Iodide (KI)

2.7.1 Contact the Acting OSC Coordinator and verify distribution of KI to Security Force Personnel. Assist with distribution of KI to Security Force Personnel.	_____

2.8 Toxic Gas/Chemical Release From Nearby Chemical Facilities

2.8.1 Warn personnel outside the Protected Area to seek shelter in buildings and turn off any ventilation system (or put in recirculation mode).	_____

2.9 Aircraft Crash Onsite

2.9.1 Coordinate response actions for the airplane crash (utilize Security Supervisor, if available, for areas outside Protected Area).	_____
2.9.2 Dispatch security personnel to the scene to secure and preserve the crash scene as much as possible without hindering rescue efforts or plant emergency response efforts.	_____
2.9.3 Assist in completion of procedure 0POP04-ZO-0007, Aircraft Crash Onsite, Form 1, Aircraft Crash Information and provide to the Shift Supervisor (Emergency Director).	_____

Action	Time
3.0 ONGOING ACTIONS	
3.1 Periodically brief the Shift Supervisor (Emergency Director) of any special Security activities underway onsite.	_____
3.2 IF the events underway are radiologically based, THEN periodically confer with the Acting Radiological Manager concerning radiological conditions that could impact security operations and personnel.	_____
3.3 Periodically brief the Security Force of current activities.	_____
3.4 When the Security Manager arrives, provide a briefing of the current situation and security activities underway using Data Sheet 2, Security Briefing Checklist.	_____
3.5 When responsibilities have been transferred to the Security Manager, then return to the implementation of security procedures and discontinue the use of this procedure.	_____
4.0 TERMINATION ACTIONS	
4.1 Broadcast over the Security frequency that the emergency classification has been terminated.	_____
4.2 Remove the emergency classification signs at the East and West Gatehouses.	_____
4.3 Direct a Security Officer to collect the 10 portable radios and vital area keys delivered to the OSC.	_____
4.4 Develop a list of activities and tasks that should be completed using 0ERP01-ZV-RE02, Form 1, Corrective Action Items Lists, and provide a copy of the list to the Shift Supervisor (Emergency Director).	_____
4.5 Provide a list of any supplies or forms needing replenishment to the Shift Supervisor (Emergency Director).	N/A
4.6 Organize your logs and documents generated in chronological order and deliver to the Shift Supervisor (Emergency Director).	N/A
4.7 Assist the Shift Supervisor (Emergency Director) in completing the Emergency Response Summary Report in accordance with 0ERP01-ZV-RE02, Documentation.	N/A

ACTING SECURITY MANAGER: _____ _____ _____
(Name) (Date/Time) (Unit)

TSC SECURITY MANAGER: _____
(Name)

1. Security activities in response to the emergency:

_____
_____
_____

2. Status of Electronic Security System:

_____
_____
_____

3. Radiological events impacting Security operations:

_____
_____
_____

4. Current or expected deviation from Security procedures:

_____
_____
_____

5. Current staffing and needs for additional personnel:

_____
_____
_____

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Offsite Dose Calculations			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 09/17/01

Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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1.0 Purpose and Scope

1.1 This procedure provides instructions for performing offsite dose calculations by estimating offsite dose rates and integrated doses to the general public during a declared event when radioactive material is released from the South Texas Project Electric Generating Station (STPEGS).

1.2 Methods that may be used for dose calculations included in this procedure are STAMPEDE, Emergency Dose Rate Tables, and OPDA.

1.3 This procedure implements the requirements of the STPEGS Emergency Plan specific to calculating offsite doses to the General Public.

2.0 Definitions

2.1 OFFSITE DOSE CALCULATION: A calculation of the estimated offsite dose to the general public based on releases of radioactive material, meteorological conditions, time since reactor shutdown, and the expected release duration. The offsite dose calculation is helpful in formulating offsite Protective Action Recommendations (PAR).

2.2 PROTECTIVE ACTION GUIDE (PAG) : An action to be taken to avoid or reduce a projected dose as identified in EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.

2.3 OFFSITE DOSE CALCULATION METHODS:

2.3.1 South Texas Assessment Model Projecting Emergency Dose Evaluation (STAMPEDE)

A computer program used to perform offsite dose calculations using an IBM-PC or compatible computer. TEDE dose rates, inhalation thyroid CDE dose rates and doses integrated through the duration of the release are calculated.

2.3.2 Emergency Dose Rate Tables

Tables which predict TEDE and thyroid CDE dose rates at 1 to 10 miles from the STPEGS are based on an estimated release rate (μCi/sec) and the atmospheric stability class (A through G). The default isotopic mix was based on a gap inventory using STAMPEDE. Wind speed varies per stability class as indicated on each table.

2.3.3 Onshift Prompt Dose Assessment (OPDA)

A computerized calculation program which operates in a Windows environment to estimate TEDE and thyroid CDE dose based on an estimated release rate (μCi/sec), atmospheric stability class and release pathway. This method may be used by onshift Health Physics technicians and supervisors in performing a prompt dose assessment.

2.4 RELEASE: For radiological purposes, a release is any quantity of radioactive material that when released equals or exceeds the limit for an Unusual Event.

2.5 SOURCE TERM: With respect to offsite dose calculations, the characteristics and release rates of the radioactive material.

2.6 DEFAULT RELEASE DURATION - The amount of time in hours, automatically used by dose projection programs as the release duration. This default value is selected to best characterize release duration based on maximum evacuation times and historical meteorological data.

2.7 DELTA TEMPERATURE: The temperature differential measured between the 60 meter and 10 meter levels of the primary meteorological tower (60 m (^{o}F) - 10 m (^{o}F)).

2.8 SIGMA-THETA: A method to assign atmospheric stability classes based on the standard deviation of the wind direction in degrees (^{o}).

2.9 ATMOSPHERIC STABILITY CLASS: A letter designator indicating the relative stability or instability of an air mass.

2.10 GROUND LEVEL RELEASE: All releases at the STPEGS are assumed to be best modeled as though at ground level and are dispersed based on 10 meter meteorological data.

3.0 Precautions and Limitations

3.1 For Steam Generator Tube Rupture (SGTR) events with 100% S/G water level, the steam flow reported on the Integrated Computer System (ICS) will be high and result in an over conservative PAR. Use the default MSL flow rate specified by the dose assessment program.

3.2 The dose projection capabilities of all methods depend upon models that become less exact at greater distances from the release point.

3.3 When collecting wind speed and wind direction meteorological data from the primary or backup meteorological tower, or the National Weather Service Forecast Office, care must be taken to ensure that a 15 minute average value is used in dose calculations and not an instantaneous value.

3.4 Regional meteorological data may be required to help evaluate offsite dose calculations. This information can be obtained from the National Weather Service in Dickinson, Texas. The types of information that can be obtained include temperature, wind speed, wind direction, cloud height, and cloud cover. As time permits, forecast data may be used to supplement dose projections.

3.5 Default parameters are built into the STAMPEDE program for ground wind velocity, ground level wind direction, and atmospheric stability class. These parameters are displayed on screen while working with STAMPEDE.

3.6 IF dose assessment results indicate Protective Action Guides (PAGs) exceeded at >10 miles, AND the Emergency Director resides in the affected Unit Control Room, THEN as available, verify dose assessment results with field teams and notify the Emergency Director. Discuss with the Emergency Director expanded PARs for downwind sectors >10 miles in 2 mile increments until PAGs are not exceeded.

3.7 IF dose assessment results indicate PAGs exceeded at >10 miles, AND the Emergency Director resides in the TSC, THEN verify dose assessment results with field teams and notify the Radiological Manager. Discuss with the Radiological Manager expanded PARs for downwind sectors >10 miles in 2 mile increments until PAGs are not exceeded.

3.8 IF dose assessment results indicate PAGs exceeded at >10 miles, AND the Emergency Director resides in the EOF, THEN verify dose assessment results with field teams and notify the Radiological Director. Discuss with the Radiological Director expanded PARs for downwind sectors >10 miles in 2 mile increments until PAGs are not exceeded.

3.9 If multiple release paths are indicated by elevated radiological monitor readings, then calculate each pathway and sum result. (Example: Two S/G Tube Ruptures with two stuck open PORV's results in the following - Calculate Main Steam Line Monitors RT-8046 and RT-8049 and sum results).

4.0 Responsibilities

4.1 Prior to activation of the TSC or EOF, the Acting Radiological Manager is responsible for implementation of this procedure (i.e., Onshift Dose Assessment). Offsite dose calculation results shall be provided to the Emergency Director.

4.2 Upon activation of the TSC, the Radiological Manager is responsible for implementation of this procedure. Offsite dose calculation results shall be provided to the Emergency Director.

4.3 Upon activation of the EOF, the Radiological Director is responsible for implementation of this procedure. The Dose Assessment Specialist shall perform offsite dose calculations as directed by the Radiological Director and provide results.

4.4 Offsite dose calculations are updated as requested by the Emergency Director, Radiological Manager, or Radiological Director.

5.0 Procedure

5.1 Use the appropriate sections of Addendum 1, Offsite Dose Calculation Input Worksheet, as needed, to perform offsite dose calculations.

5.2 Review Addendum 2, UFSAR Accident Assumptions, as necessary.

5.3 Select the appropriate Dose Assessment tool using Addendum 7, Method Selection Flowchart.

5.4 Changes to any of the following parameters requires additional offsite dose calculations:

5.4.1 Increased release rates or wind speed (that add additional zones downwind)

5.4.2 Wind direction (that add additional zones)

5.4.3 Atmospheric stability classification (that add additional zones)

5.5 If a prompt dose assessment is required from onshift Health Physics personnel, the OPDA program as described in Addendum 3, Use of OPDA Program, may be used. The program is available on PC in both units at the 41 ft. Health Physics control point, and can be run by double-clicking on the OPDA icon and inputting the requested data.

5.6 IF the type of accident is a Loss of Coolant Accident, Fuel Handling Accident inside the Reactor Containment Building, Control Rod Ejection or Reactor Coolant Pump Shaft Seizure and Containment Leakage directly to the environment is the release pathway, THEN Addendum 4, Containment Leakage Nomograph, may be used to estimate containment source term in the absence of better indications of a release.

5.7 STAMPEDE may be used for performing offsite dose calculations, implement Addendum 5, Use of STAMPEDE Program.

5.8 IF all computer based dose assessment methods are unavailable, THEN implement Addendum 6, Emergency Dose Rate Tables.

5.9 Complete Form 1, Offsite Dose Calculations Transmittal Form.

6.0 References

6.1 STPEGS Emergency Plan

6.2 0ERP01-ZV-EF15, Dose Assessment Specialist

6.3 0ERP01-ZV-IN07, Offsite Protective Action Recommendations

6.4 0PRP01-ZA-0034, Health Physics Division Computer Programs

6.5 0PGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide

7.0 Support Documents

7.1 Form 1, Offsite Dose Calculations Transmittal Form (Sample)

7.2 Addendum 1, Offsite Dose Calculation Input Worksheet (IN HAND)

7.3 Addendum 2, UFSAR Accident Assumptions

7.4 Addendum 3, Use of OPDA Program

7.5 Addendum 4, Containment Leakage Nomograph (IN HAND)

7.6 Addendum 5, Use of STAMPEDE Program

7.7 Addendum 6, Emergency Dose Rate Tables (IN HAND)

7.8 Addendum 7, Method Selection Flowchart

RESULTS

Method of Projection:

- ☐ STAMPEDE
- ☐ OPDA
- ☐ EMERGENCY DOSE RATE TABLES

Offsite Dose Projection:

	1 mile	2 mile	5 mile	10 mile
TEDE (Rem)	_____	_____	_____	_____
CDE (Rem)	_____	_____	_____	_____

Projected duration of release _____

IF dose assessment results indicate PAGs exceeded at >10 miles, AND the Emergency Director resides in the TSC, THEN verify dose assessment results with field teams and notify the Radiological Manager. Discuss with the Radiological Manager expanded PARs for downwind sectors >10 miles in 2 mile increments until PAGs are not exceeded.

IF dose assessment results indicate PAGs exceeded at >10 miles, AND the Emergency Director resides in the EOF, THEN verify dose assessment results with field teams and notify the Radiological Director. Discuss with the Radiological Director expanded PARs for downwind sectors >10 miles in 2 mile increments until PAGs are not exceeded.

PERFORMED BY:

_____ Name

_____ Date/Time

REVIEWED BY:

_____ Radiological Director

_____ Date/Time

-END-

1.0 Atmospheric Stability Classification

Stability Classification	Class	Delta T (60m-10m)°F	Sigma-Theta
Extremely Unstable	A	< -1.71	≥ 22.5
Moderately Unstable	B	-1.71 to -1.53	17.5 to 22.5
Slightly Unstable	C	-1.52 to -1.35	12.5 to 17.5
Neutral	D	-1.34 to -0.45	7.5 to 12.5
Slightly Stable	E	-0.44 to 1.35	3.8 to 7.5
Moderately Stable	F	1.36 to 3.60	2.1 to 3.8
Extremely Stable	G	> 3.60	< 2.1

2.0 Estimating Release Rates:

2.1 If the release point is the unit vent

2.1.1 The release rate can be obtained from the RM-11 channel (1 or 2) UV610.

2.1.2 If the Unit Vent release rate channel is unavailable, the following calculation applies

_____ = _____ x _____ x _____

Release Rate (µCi/sec)	=	Flow Rate (scfm)	x	Concentration (µCi/cc)	x	Conversion Factor (4.72 E + 2)

2.2 If the release point is the Main Steam Line PORV or Safety Valve, either of the following calculations applies.

> NOTE
>
> Use .2% Iodine for coolant leakage through the S/G.

2.2.1

_____ = _____ x _____ x _____

Release Rate (µCi/Sec)	=	MSL Flow (lb. mass/hr) ERFDADS Screen 3015	x	MSL Activity (µCi/cc) RT-8046-49	x	Conversion Factor (2.54)

2.2.2

_____ = _____ x _____ x _____

Release Rate (µCi/Sec)	=	Primary to Secondary Leak Rate (GPM)	x	RCS Activity (µCi/ml)	x	Conversion Factor (63.08)

2.3 If the release point is containment leaking directly to the environment then either estimate the release rate from field team data or use the containment leakage nomograph, Addendum 4 (if the proper conditions apply).

3.0 Release Estimates From Field Radiological Data: _____ _____ _____
Date Time Location

NOTE

Field measurements taken off centerline of the plume will not estimate source terms accurately using this method.

This method will underestimate the release rate if particulates and Iodines are present.

3.1 Release estimates from DDE (Deep Dose Equivalent) dose rates taken in plume

a. Determine DDE dose rate at plume centerline _____ mrem/hour.

b. Approximate distance downwind that the measurement in Step a. was made _____ miles.

c. Use STAMPEDE to perform the following steps.

1. Enter the appropriate meteorological data.

2. Select the Field Data option.

3. Enter the approximate distance and dose rate estimated in Steps a. and b. above.

4. The estimated release rate is _____. Use this value to reexamine emergency classification and PARs.

d. Perform additional calculations as necessary to correct for wind speed.

Type of Accident	UFSAR Section/Table	Release Locations
LOCA	15.6.5/15.6-10	RCB Leakage Unit Vent
Fuel Handling Accident	15.7.4/15.7-9	RCB Leakage Unit Vent
Parameters For Other Accidents Listed Below:	Misc. Chapter 15	As Indicated Below
Mainsteam Line Break	15.1.5/15.1-2	Turbine Building Isolation Valve Cubicles
Locked Rotor	15.3.3/15.3-3	RCB Leakage Unit Vent (*)
RCCA Ejection	15.4.8/15.4-4	RCB Leakage Unit Vent (*)
CVCS Letdown Line Break Outside RCB	15.6.2/15.6-13	Unit Vent
Steam Generator Tube Rupture	15.6.2/15.6-13	PORV's Turbine Building Isolation Valve Cubicles Unit Vent
Recycle Holdup Tank Rupture	15.7.1/15.7-1	Unit Vent
Liquid Tank Rupture	15.7-2	Ground Seepage Unit Vent

(*) IF primary-to-secondary leakage is present, THEN the Turbine Building, Isolation Valve Cubicles, and Power Operated Relief Valves (PORV's) are additional release points.

OPDA is a computerized calculation loaded into selected computers at STPEGS. The Met Data entry button allows the operator to set the stability class, affected zones and sectors by entering a delta temperature and wind direction. If the release rate is known, push Unit Vent Release button, enter the monitored release rate, and push the Calculate Projection button. If the release rate is not know but may be estimated from other information, select the most appropriate of the following buttons:

- MAJOR LEAK FROM RCB
- S/G TUBE RUPTURE
- SLOW PRESSURE DROP - RCB

After entering the required information, click on the Calculate Projection button.

The results are displayed for review. They may be printed if a printer is available by selecting the Print button.

IF dose assessment results indicate Protective Action Guides (PAGs) exceeded at >10 miles, AND the Emergency Director resides in the affected Unit Control Room, THEN as available, verify dose assessment results with field teams and notify the Emergency Director. Discuss with the Emergency Director expanded PARs for downwind sectors >10 miles in 2 mile increments until PAGs are not exceeded.

NOTE

Four hours is automatically used by the OPDA dose projection programs for the release duration.

1. The containment activity concentration may be estimated by use of the High Range Containment Monitor (RT-8050, RT-8051):

   RT-8050 _____ R/hr @ Time _____

   RT-8051 _____ R/hr @ Time _____

2. Time after reactor trip (in hours): _____

3. Estimate the release rate by recording the initial pressure in containment:

   a. Record the initial pressure and time [ERFDADS Screen Z]

      pressure P_1 _____ at T_1 _____

   b. Record the subsequent pressure and time [ERFDADS Screen Z]

      pressure P_2 _____ at T_2 _____

      Calculate pressure drop:

      P_1 _____ - P_2 _____ = _____ P

      Calculate time in hours:

      T_2 _____ - T_1 _____ = _____ T(hrs)

   c. <u>IF</u> a decrease in pressure is recorded, <u>AND</u> containment spray is <u>NOT</u> in progress, <u>THEN</u> calculate decrease in pressure per hour:

      P / _____ T(hrs) = _____ P/hr

4. Using the Containment Leakage Nomograph (page 3 of 3), connect point for radiation level on line A <u>THRU</u> time after reactor trip on line B, to concentration (Ci/m^3 or μCi/cc) on line C. Connect point on line C <u>THRU</u> point on line D (decrease in pressure per hour) to value on line E (μCi/sec release rate).

5. Complete dose projections using Addendum 5, Use of STAMPEDE Program or Addendum 6, Emergency Dose Rate Tables.

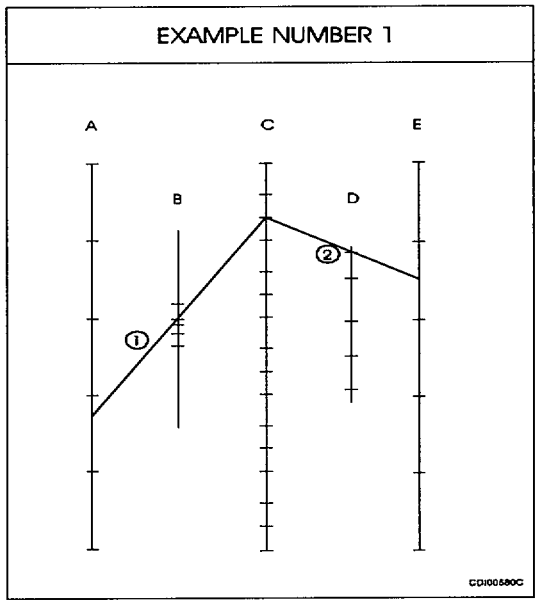
NOTE

Scales are logarithmic or nonlinear

EXAMPLE CALCULATIONS:

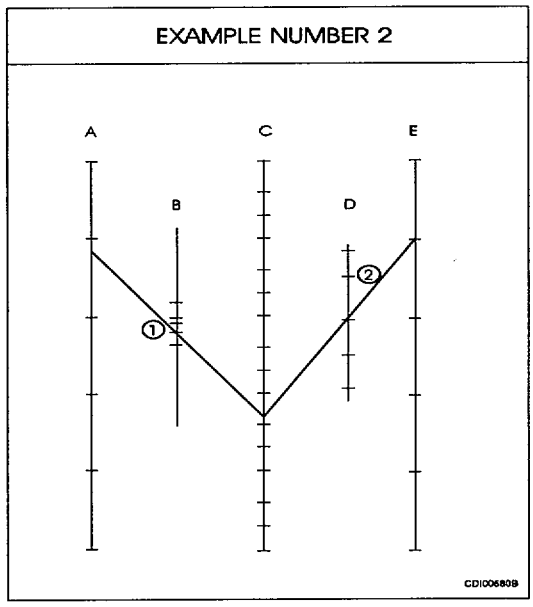
1. Data: RT-8050/8051 = 2E+4 R/hr, 10 hrs after reactor trip. No RCB pressure decreases are noted!

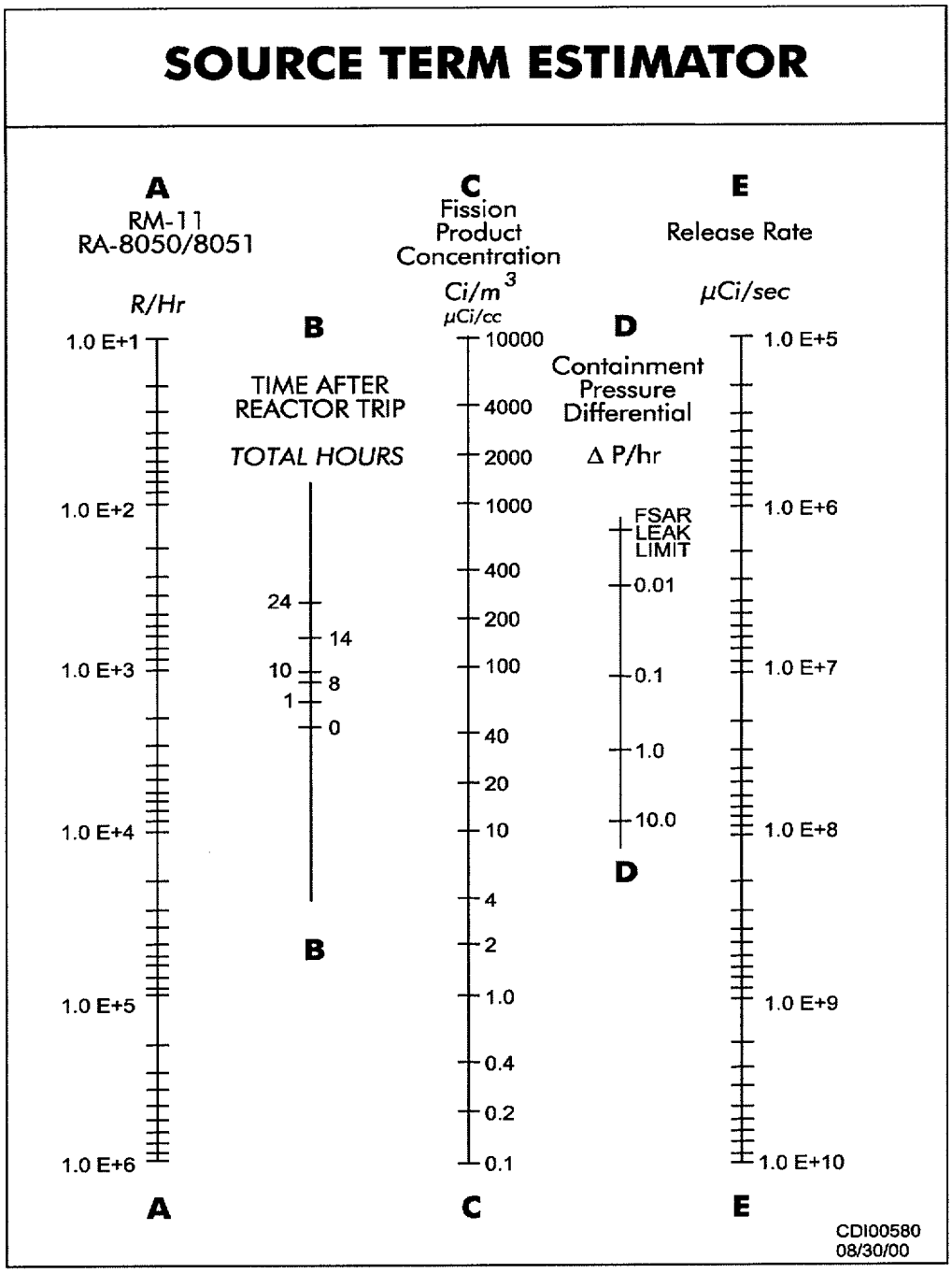
   Find: RT-8050 reading of 2E+4 R/hr on A scale, and 10 hrs on B scale. Connect the two points with a straight line through C scale to find 2000 Ci/m^3 (2000 µCi/cc). Connect the point at 2000 Ci/m^3 to FSAR LEAK LIMIT (0.3% containment volume/day) on D scale. Extend line from C scale through D scale to read 4.0E+6 µCi/sec release rate.



2. Data: RT-8050/8051 = 1.1E+2 R/hr, 1 hour after the reactor trip, with 0.1 psi pressure drop per hour.

   Find: 1.1E+2 R/hr on A scale. Draw a line through 1 hour on B scale to find 5 Ci/m3 (5 µCi/cc) on C scale. Connect the point from C scale through 0.1 psi/hr on D scale to find 1E+6 µCi/sec release rate on E scale.





WARNING

Do NOT use this Nomograph greater than 24 hours after reactor shutdown due to isotopic decay.

NOTE

Four hours is automatically used by the STAMPEDE dose projection programs for the release duration.

1.0 The STAMPEDE computer program and its associated data tables are loaded into selected computers at STPEGS and the Texas Bureau of Radiation Control. Detailed operating instructions (User Manual) are available at these locations. The program is accessed from the MicroSoft Windows display by clicking on the appropriate icon. The main program can be accessed using the following user identification with NO password:

EPLAN

2.0 The program may be run using a mouse to point to the appropriate data field after which the operator clicks the mouse to make that data field active. Although the code is generally self-explanatory, user manuals are located at each work station as an aid to operation. Default values are provided for all entries should actual data not be available.

3.0 A set of program diskettes is located at each work station. Should the work area require evacuation, stored data should be copied to one of these diskettes as described in the user instructions. This data along with the other program diskettes can be loaded into a computer at an alternate location as described in the users manual.

4.0 If necessary to issue Protective Action Recommendations beyond 10 miles, then perform the following:

4.1 Click on Dose Calc Distances, enter 6 <CR>

4.2 Enter the correct value (in miles), enter 12 <CR>

4.3 Review results to ensure the 12 mile PAG Doses do not exceed 1 rem TEDE or 5 rem thyroid CDE.

4.4 If it does, return to step 4.1 and repeat the calculation with a larger number not to exceed 20.

1.0 Use the following Emergency Dose Rate Table that corresponds to the current stability class. [DEFAULT: Stability Class D]

2.0 Locate the TEDE and thyroid CDE dose rate (Rem/hr) for the one, two, five and ten-mile radii that corresponds to the release rate.

3.0 Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)

4.0 Data in the tables was generated by STAMPEDE, Revision 6.3, using the GAP Inventory at time 00:00 after reactor trip.

STABILITY CLASS A
Delta T °F < -1.71

NOTE

IF the release rate is between two values, THEN interpolate.

	DOSE RATE (Rem/hour)							
Release Rate (μCi/sec)	1 Mile TEDE	1 Mile CDE	2 Mile TEDE	2 Mile CDE	5 Mile TEDE	5 Mile CDE	10 Mile TEDE	10 Mile CDE
1.00E+06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+07	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
2.00E+08	0.01	0.02	0.00	0.01	0.00	0.01	0.00	0.00
4.00E+08	0.01	0.03	0.01	0.03	0.00	0.01	0.00	0.01
1.00E+09	0.03	0.12	0.01	0.06	0.01	0.02	0.00	0.01
2.00E+09	0.06	0.24	0.03	0.13	0.01	0.05	0.00	0.02
4.00E+09	0.12	0.50	0.06	0.26	0.02	0.10	0.01	0.05
1.00E+10	0.29	1.20	0.14	0.62	0.05	0.24	0.02	0.12
2.00E+10	0.58	2.44	0.27	1.26	0.10	0.49	0.04	0.23
4.00E+10	1.16	4.76	0.54	2.45	0.19	0.96	0.08	0.46

TEDE = Total Effective Dose Equivalent
(External + Internal)
CDE = Committed Dose Equivalent
(Thyroid)

Wind Speed: 14.8 mph

Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)

STABILITY CLASS B
(Delta T °F -1.71 to -1.53)

NOTE

IF the release rate is between two values, THEN interpolate.

	DOSE RATE (Rem/hour)							
Release Rate (μCi/sec)	1 Mile TEDE	1 Mile CDE	2 Mile TEDE	2 Mile CDE	5 Mile TEDE	5 Mile CDE	10 Mile TEDE	10 Mile CDE
1.00E+06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+06	0.001	0.00	0.00	0.00	0.0	0.00	0.00	0.00
1.00E+07	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+07	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+07	0.01	0.04	0.00	0.01	0.00	0.00	0.00	0.00
1.00E+08	0.02	0.09	0.01	0.02	0.00	0.00	0.00	0.00
2.00E+08	0.04	0.19	0.01	0.05	0.00	0.01	0.00	0.00
4.00E+08	0.09	0.38	0.02	0.09	0.00	0.01	0.00	0.01
1.00E+09	0.22	0.92	0.05	0.22	0.01	0.03	0.00	0.02
2.00E+09	0.43	1.78	0.09	0.43	0.01	0.07	0.01	0.03
4.00E+09	0.86	3.62	0.19	0.88	0.03	0.13	0.01	0.06
1.00E+10	2.17	9.29	0.48	2.25	0.06	0.34	0.03	0.16
2.00E+10	4.31	17.94	0.94	4.35	0.13	0.66	0.05	0.31
4.00E+10	8.65	36.49	1.90	8.85	0.25	1.33	0.11	0.62

TEDE = Total Effective Dose Equivalent
(External + Internal)
CDE = Committed Dose Equivalent
(Thyroid)

Wind Speed: 14.2 mph

Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)

STABILITY CLASS C
(Delta T °F -1.52 to -1.35)

NOTE

IF the release rate is between two values, THEN interpolate.

	DOSE RATE (Rem/hour)							
Release Rate (μCi/sec)	1 Mile TEDE	1 Mile CDE	2 Mile TEDE	2 Mile CDE	5 Mile TEDE	5 Mile CDE	10 Mile TEDE	10 Mile CDE
1.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+06	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+06	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+07	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
2.00E+07	0.01	0.05	0.00	0.01	0.00	0.00	0.00	0.00
4.00E+07	0.02	0.11	0.01	0.03	0.00	0.01	0.00	0.00
1.00E+08	0.06	0.24	0.01	0.07	0.00	0.01	0.00	0.00
2.00E+08	0.12	0.50	0.03	0.14	0.00	0.02	0.00	0.05
4.00E+08	0.24	1.01	0.06	0.28	0.01	0.05	0.00	0.01
1.00E+09	0.59	2.45	0.15	0.68	0.02	0.11	0.01	0.03
2.00E+09	1.18	5.01	0.29	1.38	0.04	0.23	0.01	0.06
4.00E+09	2.33	9.70	0.58	2.68	0.09	0.45	0.02	0.11
1.00E+10	5.88	25.04	1.47	6.91	0.22	1.16	0.05	0.29
2.00E+10	11.80	50.75	2.96	14.01	0.44	2.35	0.10	0.58
4.00E+10	23.43	98.62	5.84	27.23	0.86	4.57	0.20	1.13

TEDE = Total Effective Dose Equivalent
(External + Internal)
CDE = Committed Dose Equivalent
(Thyroid)

Wind Speed: 13.6 mph

Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)

STABILITY CLASS D
(Delta T °F -1.34 to -0.45)

NOTE

IF the release rate is between two values, THEN interpolate.

	DOSE RATE (Rem/hour)							
Release Rate (μCi/sec)	1 Mile		2 Mile		5 Mile		10 Mile	
	TEDE	CDE	TEDE	CDE	TEDE	CDE	TEDE	CDE
1.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+06	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+06	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00
4.00E+06	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
1.00E+07	0.02	0.08	0.01	0.03	0.00	0.01	0.00	0.00
2.00E+07	0.04	0.17	0.01	0.06	0.00	0.01	0.00	0.00
4.00E+07	0.08	0.33	0.03	0.12	0.01	0.03	0.00	0.01
1.00E+08	0.19	0.80	0.06	0.28	0.01	0.07	0.00	0.02
2.00E+08	0.39	1.65	0.12	0.58	0.03	0.13	0.01	0.04
4.00E+08	0.78	3.34	0.25	1.18	0.05	0.27	0.02	0.09
1.00E+09	1.95	8.15	0.62	2.87	0.12	0.66	0.04	0.21
2.00E+09	3.86	16.35	1.23	5.76	0.25	1.33	0.07	0.42
4.00E+09	7.75	33.18	2.47	11.69	0.50	2.70	0.15	0.86
1.00E+10	19.23	80.62	6.08	28.40	1.23	6.56	0.36	2.09
2.00E+10	38.72	161.74	12.34	58.38	2.52	13.49	0.74	4.30
4.00E+10	77.75	336.78	24.88	118.62	5.10	27.42	1.44	8.73

TEDE = Total Effective Dose Equivalent
(External + Internal)
CDE = Committed Dose Equivalent
(Thyroid)

Wind Speed: 13.2 mph

Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)

STABILITY CLASS E
(Delta T °F -0.44 to 1.35)

NOTE

IF the release rate is between two values, THEN interpolate.

	DOSE RATE (Rem/hour)							
Release Rate (μCi/sec)	1 Mile		2 Mile		5 Mile		10 Mile	
	TEDE	CDE	TEDE	CDE	TEDE	CDE	TEDE	CDE
1.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+06	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00
2.00E+06	0.01	0.04	0.00	0.02	0.00	0.00	0.00	0.00
4.00E+06	0.02	0.09	0.01	0.03	0.00	0.01	0.00	0.00
1.00E+07	0.05	0.21	0.02	0.08	0.00	0.02	0.00	0.01
2.00E+07	0.09	0.42	0.03	0.16	0.01	0.04	0.00	0.02
4.00E+07	0.18	0.83	0.06	0.31	0.01	0.08	0.00	0.03
1.00E+08	0.46	2.12	0.15	0.78	0.03	0.19	0.01	0.07
2.00E+08	0.92	4.16	0.30	1.54	0.07	0.38	0.02	0.13
4.00E+08	1.85	8.47	0.61	3.130	0.13	0.78	0.04	0.27
1.00E+09	4.56	20.47	1.49	7.57	0.32	1.88	0.10	0.64
2.00E+09	9.17	41.63	3.02	15.38	0.65	3.81	0.21	1.31
4.00E+09	18.50	88.17	6.12	31.47	1.33	7.80	0.42	2.68
1.00E+10	46.12	211.50	15.24	78.16	3.31	19.38	1.04	6.65
2.00E+10	91.24	411.27	29.93	151.98	6.46	37.69	2.03	12.93
4.00E+10	184.06	841.05	60.75	310.81	13.16	77.07	4.15	26.45

TEDE = Total Effective Dose Equivalent
(External + Internal)
CDE = Committed Dose Equivalent
(Thyroid)

Wind Speed: 9.3 mph

Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)

STABILITY CLASS F
(Delta T °F 1.36 to 3.60)

NOTE

IF the release rate is between two values, THEN interpolate.

	DOSE RATE (Rem/hour)							
Release Rate (μCi/sec)	1 Mile		2 Mile		5 Mile		10 Mile	
	TEDE	CDE	TEDE	CDE	TEDE	CDE	TEDE	CDE
1.00E+04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
4.00E+05	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00
1.00E+06	0.01	0.07	0.01	0.03	0.00	0.01	0.00	0.00
2.00E+06	0.03	0.14	0.01	0.06	0.00	0.02	0.00	0.01
4.00E+06	0.05	0.27	0.02	0.11	0.01	0.03	0.00	0.01
1.00E+07	0.14	0.70	0.05	0.29	0.01	0.08	0.00	0.03
2.00E+07	0.27	1.38	0.10	0.58	0.02	0.16	0.01	0.06
4.00E+07	0.55	2.74	0.20	1.15	0.05	0.31	0.02	0.11
1.00E+08	1.36	6.78	0.51	2.85	0.12	0.77	0.04	0.28
2.00E+08	2.77	14.00	1.03	5.90	0.24	1.57	0.08	0.57
4.00E+08	5.47	27.29	2.03	11.50	0.48	3.12	0.16	1.12
1.00E+09	13.80	69.46	5.14	29.26	1.21	7.93	0.40	2.85
2.00E+09	27.13	134.70	10.04	56.73	2.35	15.38	0.78	5.51
4.00E+09	54.79	274.09	20.36	115.44	4.78	31.29	1.58	11.21
1.00E+10	138.64	699.83	51.72	294.76	12.17	79.89	4.04	28.63

TEDE = Total Effective Dose Equivalent
(External + Internal)
CDE = Committed Dose Equivalent
(Thyroid)

Wind Speed: 5.9 mph

Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)

STABILITY CLASS G
(Delta T °F > 3.60)

NOTE

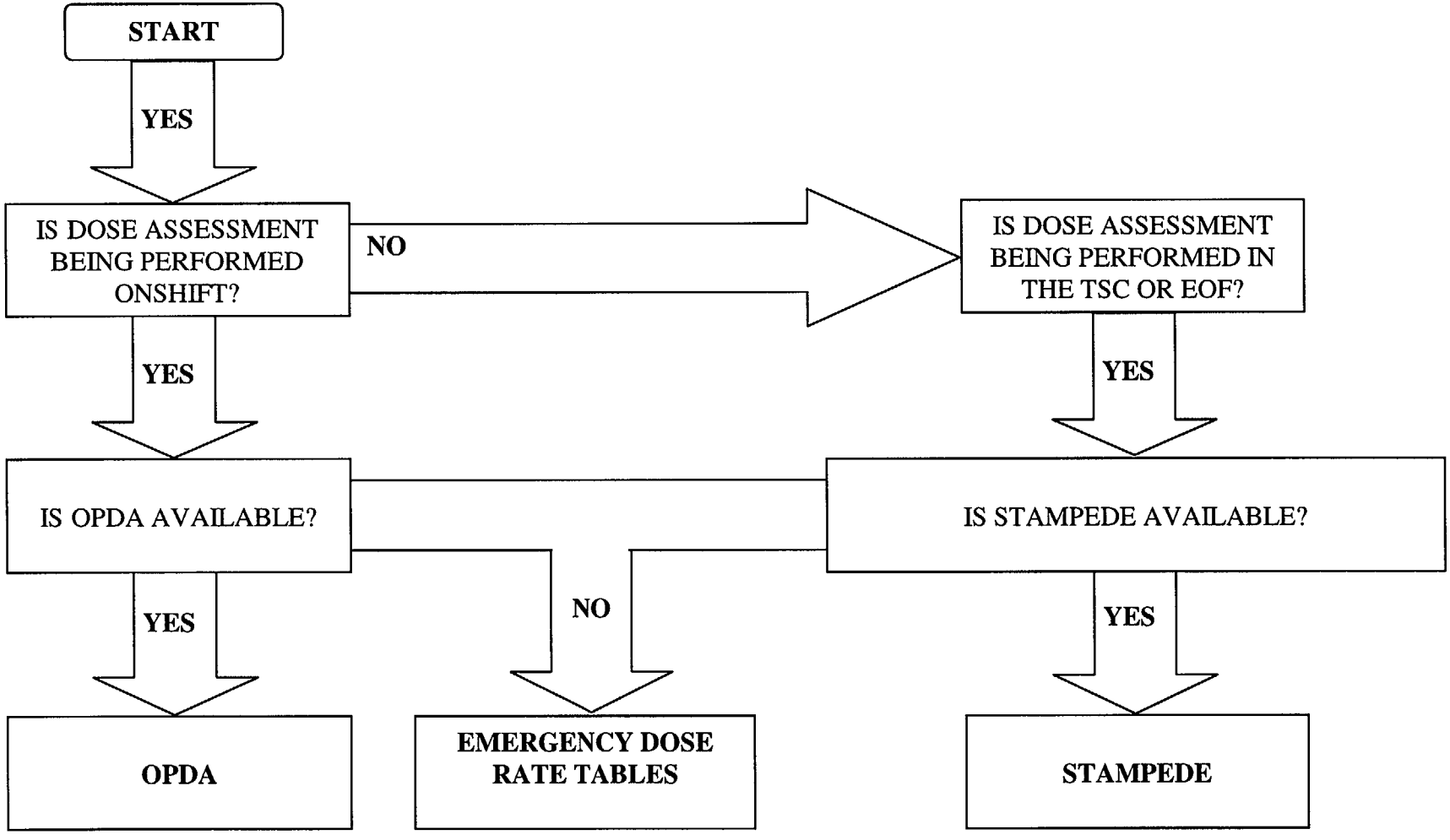
IF the release rate is between two values, THEN interpolate.

Release Rate (µCi/sec)	DOSE RATE (Rem/hour) 1 Mile TEDE	1 Mile CDE	2 Mile TEDE	2 Mile CDE	5 Mile TEDE	5 Mile CDE	10 Mile TEDE	10 Mile CDE
1.00E+04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00E+04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00E+04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
1.00E+05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
2.00E+05	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00
4.00E+05	0.01	0.05	0.00	0.02	0.00	0.01	0.00	0.00
1.00E+06	0.03	0.13	0.01	0.06	0.00	0.02	0.00	0.01
2.00E+06	0.05	0.26	0.02	0.13	0.01	0.04	0.00	0.02
4.00E+06	0.10	0.51	0.05	0.26	0.01	0.08	0.00	0.03
1.00E+07	0.25	1.26	0.11	0.64	0.03	0.20	0.01	0.07
2.00E+07	0.50	2.58	0.23	1.31	0.06	0.40	0.02	0.15
4.00E+07	0.99	497	0.44	2.53	0.12	0.77	0.04	0.29
1.00E+08	2.49	12.63	1.12	6.43	0.30	1.97	0.10	0.73
2.00E+08	5.02	25.65	2.26	13.05	0.60	3.99	0.21	1.48
4.00E+08	9.84	49.56	4.39	25.24	1.16	7.71	0.40	2.86
1.00E+09	24.88	126.18	11.14	64.20	2.95	19.64	1.01	7.28
2.00E+09	50.23	256.47	22.57	130.48	5.99	39.92	2.05	14.80
4.00E+09	98.73	498.20	44.12	253.47	11.66	77.54	4.00	28.75
1.00E+10	249.38	1267.20	111.79	644.71	29.61	197.24	10.15	73.12

TEDE = Total Effective Dose Equivalent
(External + Internal)
CDE = Committed Dose Equivalent
(Thyroid)

Wind Speed: 5.5 mph

Multiply the dose rates by the expected duration of the release. (Use 4 hour release duration if actual duration not known.)


START
YES
IS DOSE ASSESSMENT BEING PERFORMED ONSHIFT?
NO
IS DOSE ASSESSMENT BEING PERFORMED IN THE TSC OR EOF?
YES
YES
IS OPDA AVAILABLE?
IS STAMPEDE AVAILABLE?
YES
NO
YES
OPDA
EMERGENCY DOSE RATE TABLES
STAMPEDE

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Offsite Field Teams			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 09/17/01

Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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1.0 Purpose and Scope

1.1 This procedure describes the radiological monitoring and analysis techniques to be used by Offsite Field Teams during a declared emergency.

1.2 This procedure does not describe the radiological environmental monitoring and analysis activities to be implemented during the Recovery phase of a declared emergency. Recovery phase monitoring will be performed in accordance with Radiological Laboratory procedures.

2.0 Responsibilities

2.1 The Radiological Director is responsible for overall coordination of STPEGS Offsite Field Team operations.

2.2 The Offsite Field Team Supervisor is responsible for:

2.2.1 Forming, briefing, and directing the activities of the Offsite Field Teams.

2.2.2 Coordinating Offsite Field Team activities with State and Federal agencies.

2.2.3 Evaluating dose projection calculations to determine monitoring locations and transit routes.

2.2.4 Tracking Offsite Field Team radiological exposures.

2.2.5 Advising Offsite Field Teams of changes in meteorology, source terms, and plant conditions which could impact downwind doses.

2.2.6 Functioning as the primary technical interface with the NRC Environmental Dose Assessment Coordinator.

2.3 The Offsite Field Teams are responsible for obtaining and field analyzing environmental samples, performing environmental radiation surveys, adhering to prescribed safety rules and radiological protection requirements, and completing assigned tasks.

3.0 References

3.1 STPEGS Emergency Plan

3.2 0ERP01-ZV-EF10, Offsite Field Team Supervisor

3.3 0PRP10-ZU-0001, REMP Sample Collection

3.4 0PGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide

3.5 Bureau of Radiation Control, Procedure 10, Monitoring and Sampling Airborne Gamma Releases.

3.6 STPNOC Correspondence with the Bureau of Radiation Control ER20000094.

3.7 ST-HS-HS-033948, reference for the 100,000 dpm/mR/hr factor.

4.0 Procedure

4.1 At an Alert or higher emergency classification, Offsite Field Team personnel shall:

4.1.1 Respond to the EOF and sign in on the EOF Staffing Board.

4.1.2 Report to the Offsite Field Team Supervisor and receive a briefing on plant status and current environmental monitoring activities.

4.1.3 Receive Offsite Field Team assignments from the Offsite Field Team Supervisor and perform required actions in Data Sheet 1, Offsite Field Team Leader Checklist.

4.1.4 Perform radiological surveys and environmental sampling and analysis per guidance in Addendum 1 through 6.

5.0 Support Documents

5.1 Addendum 1 - Monitoring Techniques

5.2 Addendum 2 - Sample Preparation and Analysis

5.3 Addendum 3 - Particulate Concentration

5.4 Addendum 4 - Iodine Concentration

5.5 Addendum 5 - Plume Location Guidance

5.6 Addendum 6 - Sample Area Map

5.7 Form 1 - Offsite Monitoring Data Form

5.8 Form 2 - Sample Analysis Calculation Form

5.9 Data Sheet 1 - Offsite Field Team Leader Checklist

A. Plume Locating and Tracking

1. Record all data on Form 1, Offsite Monitoring Data Form.

2. While in route to the affected area, one member of the Offsite Field Team should continuously observe the meter scale of the monitoring instrument or keep the instrument speaker turned on in order to identify the plume boundaries and to detect changes in dose rates within the affected area. Readings above background indicate that the plume is in close proximity. Peak readings indicate approximate plume centerline.

   a. Readings while in motion should be taken with the detector of the instrument held inside the vehicle and above the lap of the team member.

   b. Readings taken in motion should not be interpreted as actual measurements of dose rate at any given location due to the time lag between detection and meter response. These readings should only be used as indicators of trends in dose rate changes, initial plume detection, and an early warning of areas in which exposure rates may exceed guidelines for Offsite Field Team activities.

   c. Plume edges are identified by instrument readings three (3) times normal background readings.

3. Upon initial detection of the plume, the vehicle should be stopped and dose rate measurements performed outside the vehicle by obtaining open and closed window dose rate readings at three feet (3') and six inches (6") above the ground. Record results and report them to the Offsite Field Team Supervisor.

   a. Survey measurements which are to be recorded and transmitted should be selected, where possible, for ease in communicating the measurement location (i.e., pre-selected monitoring points, road intersections, landmarks, etc.). Sector designations or approximate compass direction from the plant and estimated distance should be recorded.

4. Using Addendum 5, Plume Location Guidance, assess possible location of the plume and inform the Offsite Field Team Supervisor.

5. Coordinate with the Offsite Field Team Supervisor and drive from monitoring point to monitoring point in the affected area searching for the plume boundaries, centerline, and leading edge.

   a. Plume edge boundaries may be located by driving along roadways running perpendicular to the path of the plume.

   b. Plume centerline may be located by traversing the plume while observing instrument reading and looking for the highest reading.

   c. The leading edge of the plume may be located by driving downwind along roadways parallel to the path of the plume. Whenever possible the leading edge should be approached from a downwind direction in advance of the plume.

6. Traverse the plume at a speed slow enough to ensure adequate meter response time but not so slow as to unnecessarily expose personnel to radiation.

7. Assess plume deposition and location by taking open and closed window dose rate readings at three feet (3') and six inches (6") above the ground. Record results. Refer to Addendum 5 to assess plume location and whether contamination is present.

8. If air samples are <u>not</u> needed after completing plume tracking activities, then move to a low background area, assess personnel and vehicle contamination levels, personnel exposures, and await instructions from the Offsite Field Team Supervisor.

B. <u>Air Sample Collection</u>

1. Air sample collection should not take place in areas where the exposure rate from the plume exceeds 100 mrem/hr. Air samples should be collected in areas where the exposure rate is < 10 mrem/hr.

2. If precipitation is occurring, then take precautions to shield the air sampling equipment and survey instruments from moisture (i.e., place air sampler in the vehicle or under hood).

3. Record all data on Form 1, Offsite Monitoring Data Form.

4. Grab Sampling

a. Place a particulate filter (fuzzy side out) in the front chamber of the sampling head, centering the filter in the recessed area just ahead of the metal screen. Screw the filter holder cap down carefully and examine assembly to ensure the filter disc remains centered.

b. Place a silver zeolite cartridge in the rear chamber of the sampling head with the arrow on the cartridge pointing in the direction of the air flow and reassemble the sampling head.

c. Screw the sampling head into the air sampler.

d. Place the air sampler in the desired location for sampling. The air sampler should be positioned upwind from the vehicles exhaust.

e. Connect the negative (BLACK) cable to a grounded portion of the vehicle.

f. Connect the positive (RED) cable to the positive (+, larger) battery post.

g. Place the 12V/24V switch to 24V.

h. Set the timer for the desired time (flow rate with a standard particulate filter and Silver Zeolite cartridge will be approximately 2.2 cfm). A 10 ft^3 sample can be obtained in approximately 5 minutes.

NOTE

The air sampler may be operated without vehicle battery assist for up to 2 hours on a fully charged battery by placing the 12V/24V switch to 12V and setting the timer for the desired time (flow rate with standard particulate filter and Silver Zeolite cartridge will be approximately 0.8 cfm). A 10 ft^3 sample can be obtained in approximately 13 minutes.

i. If not already running, then start the vehicle's engine. The engine should remain running during the entire sampling period.

j. Press the START button to begin sampling.

k. Record the start time and initial flow rate.

l. Check the air sampler head periodically during the sampling period for surface dose rate readings. The volume of air sampled may be varied depending on dose rates at the location but should not exceed 10 ft^3, nor be less than 1 cubic foot.

m. The air sampler will shut off when the set time has expired, or can be manually stopped by pressing the STOP button.

n. Just prior to the air sampler being shut off, note the final flow rate.

o. When the air sampler has stopped, record stop time and record time and final flow rate. If final flow rate is different than the initial flow rate, then record the average of the start and stop flow rates.

p. When the air sampler has stopped, then disconnect the cables from the battery.

q. Place the entire air sampler, including air sample head, into a plastic bag. If the air sample head is reading greater than 10 mrem/hr, then place the air sampler in the far rear of the vehicle and proceed to a low background area (i.e., less than 300 cpm on a frisker) for sample preparation and analysis, Addendum 2.

C. Smear Collection

1. Record all data on Form 1, Offsite Monitoring Data Form.

2. Allowing only one side of the smear to come in contact, wipe a 100 cm^2 area of a smooth, flat, exposed, horizontal surface.

3. Being careful not to contaminate other smears or to shake collected material off of the smear, carefully fold the smear cover over the smear and store in a secure place until the smear can be analyzed.

4. Obtain a contact dose rate of the smear. If dose rate is > 10 mrem/hr, then place smear in rear of vehicle.

5. Record the time the smear was taken and the location.

D. Environmental Sampling

1. If environmental sampling is directed, then implement the appropriate sampling procedure.

   a. When assisting the State Bureau of Radiation Control, implement appropriate sections of Procedure 10, Monitoring and Sampling Airborne Gamma Releases.

   b. When sampling for the station, implement the appropriate sections of 0PRP10-ZU-0001, REMP Sample Collection.

1. Field Evaluations

A. Air Samples

1. Record all data on Form 2, Sample Analysis Calculation Form.

2. Obtain a background reading. Record counting instrument number, model, and background reading.

3. Remove air sampler from the vehicle. Remove the air sampler from the plastic bag. Run the air sampler for 30 to 60 seconds to purge the filter of residual noble gas.

4. Gently remove the particulate filter from the air sample head. Measure the count rate on the collection side of the filter at 1/2 inch from the filter. Subtract the background reading and record ccpm reading.

5. Place particulate filter into a clean, labeled plastic bag or petri dish for further analysis.

6. Remove the cartridge from the air sampler head and place it into a clean, labeled plastic bag. Measure the count rate through the plastic bag by direct contact frisk on the collection side of the cartridge. Subtract the background reading and record ccpm reading.

7. Use Addendum 3, Particulate Concentration and Addendum 4, Iodine Concentration, to convert the ccpm readings to a μCi/cc concentration. Record the μCi/cc concentration and report air sample results to the Offsite Field Team Supervisor.

8. If necessary, then calculate μCi/cc concentration using Form 2, Sample Analysis Calculation Form and record results. Report air sample results to the Offsite Field Team Supervisor.

9. Record air sample analysis data in the appropriate spot on Form 1, Offsite Monitoring Data Form as necessary.

10. Save both the particulate filter and the cartridge for further analysis. Ensure samples are properly labeled and packaged to prevent cross contamination. A completed Form 2, Sample Analysis Calculation Form, should accompany each sample.

B. Smears

1. Record all data on Form 1, Offsite Monitoring Data Form.

2. Analyze the smear in a low background area (<300 CPM) and obtain a background reading.

3. Open the smear cover being careful not to dislodge any material from the smear.

4. Place the smear directly under the frisker probe at a distance of approximately 1/2".

5. Measure the count rate on the smear.

6. Subtract the background reading from the gross counts to obtain smear ccpm. Divide ccpm by count rate meter efficiency to obtain DPM. Record smear DPM and save all smears, ensuring that they are properly labeled and packaged.

7. If the smear activity is beyond the range of the count rate meter, obtain a "contact" open window reading of the smear using an RO2-type ion chamber instrument. Multiply the open window reading in mR/hr by 100,000 and record the results on Form 1, Smear dpm column.

C. Lapel Air Samples

1. Record all data on Form 2, Sample Analysis Calculation Form.

2. Analyze the sample in a low background area (<300 CPM) and obtain a background reading.

3. Carefully remove the lapel sample particulate filter from the sample head.

4. Place the filter directly under the frisker probe at a distance of approximately 1/2".

5. Measure the count rate on the filter.

6. Subtract the background reading from the gross counts to obtain filter ccpm and record.

7. Calculate and record the particulate concentration using the Lapel Particulate Filter calculation.

8. Place the filter in a clean, labeled bag and save in a secure place for future analysis.

9. Carefully remove the sample cartridge from the sample head and place into a clean, labeled bag.

10. Place the cartridge directly under and in direct contact with the frisker probe.

11. Measure the count rate on the cartridge.

12. Subtract the background reading from the gross counts to obtain cartridge ccpm and record.

13. Calculate and record the iodine DAC-hours using the Lapel Iodine Cartridge calculation.

14. Place the filter, cartridge, and Form 2, as necessary, in a secure place and save for future analysis.

15. Inform the Offsite Field Team Supervisor of lapel air sample field analysis results.

Airborne particulate concentration should be estimated using the following table:

CCPM	10 ft ^{3} µCi/cc	5 ft ^{3} µCi/cc	2 ft ^{3} µCi/cc	1 ft ^{3} µCi/cc
100	1.6E - 9	3.2E - 9	8.0E - 9	1.6E - 8
200	3.2E - 9	6.4E - 9	1.6E - 8	3.2E - 8
300	4.8E - 9	9.6E - 9	2.4E - 8	4.8E - 8
400	6.4E - 9	1.3E - 8	3.2E - 8	6.4E - 8
500	8.0E - 9	1.6E - 8	4.0E - 8	8.0E - 8
600	9.6E - 9	1.9E - 8	4.8E - 8	9.6E - 8
700	1.1E - 8	2.3E - 8	5.6E - 8	1.1E - 7
800	1.3E - 8	2.6E - 8	6.4E - 8	1.3E - 7
900	1.4E - 8	2.9E - 8	7.2E - 8	1.4E - 7
1,000	1.6E - 8	3.2E - 8	8.0E - 8	1.6E - 7
2,000	3.2E - 8	6.4E - 8	1.6E - 7	3.2E - 7
3,000	4.8E - 8	9.6E - 8	2.4E - 7	4.8E - 7
4,000	6.4E - 8	1.3E - 7	3.2E - 7	6.4E - 7
5,000	8.0E - 8	1.6E - 7	4.0E - 7	8.0E - 7
6,000	9.6E - 8	1.9E - 7	4.8E - 7	9.6E - 7
7,000	1.1E - 7	2.3E - 7	5.6E - 7	1.1E - 6
8,000	1.3E - 7	2.6E - 7	6.4E - 7	1.3E - 6
9,000	1.4E - 7	2.9E - 7	7.2E - 7	1.4E - 6
10,000	1.6E - 7	3.2E - 7	8.0E - 7	1.6E - 6
20,000	3.2E - 7	6.4E - 7	1.6E - 6	3.2E - 6
30,000	4.8E - 7	9.6E - 7	2.4E - 6	4.8E - 6
40,000	6.4E - 7	1.3E - 6	3.2E - 6	6.4E - 6
50,000	8.0E - 7	1.6E - 6	4.0E - 6	8.0E - 6
60,000	9.6E - 7	1.9E - 6	4.8E - 6	9.6E - 6
70,000	1.1E - 6	2.3E - 6	5.6E - 6	1.1E - 5
80,000	1.3E - 6	2.6E - 6	6.4E - 6	1.3E - 5
90,000	1.4E - 6	2.9E - 6	7.2E - 6	1.4E - 5
100,000	1.6E - 6	3.2E - 6	8.0E - 6	1.5E - 5
200,000	3.2E - 6	6.4E - 6	1.6E - 5	3.2E - 5
300,000	4.8E - 6	9.6E - 6	2.4E - 5	4.8E - 5
400,000	6.4E - 6	1.3E - 5	3.2E - 5	6.4E - 5
500,000	8.0E - 6	1.6E - 5	4.0E - 5	8.0E - 5

1. Check air sample filter by direct frisk 1/2" from filter.

2. Determine the corrected counts per minute (CCPM) by subtracting the background counts per minute (cpm).

3. Run down CCPM column to the most accurate number (i.e., for 7,600 CCPM, use 8,000 CCPM, for 7,200 CCPM use 7,000 CCPM).

4. Read across to the column with the appropriate sample volume and record the corresponding µCi/cc reading.

5. If a sample indicates 900 CCPM and its volume is 10 ft^3, read down to 900 and across to 10 ft^3. Record 1.4E-8 µCi/cc.

   Assumptions: These numbers are based on 100% collection efficiency for particulate filters and friskers efficiency of at least 10% for unknown particulate.

6. 1 DAC for unknown particulate equals 3.0E – 9 µCi/cc for radiation workers (based on the most limiting isotope anticipated during an accident situation).

Airborne Iodine concentration should be estimated using the following table:

CCPM	10 ft^3 µCi/cc	5 ft^3 µCi/cc	2 ft^3 µCi/cc	1 ft^3 µCi/cc
100	3.2E - 8	6.5E - 8	1.6E - 7	3.2E - 7
200	6.5E - 8	1.3E - 7	3.2E - 7	6.5E - 7
300	9.7E - 8	1.9E - 7	4.8E - 7	9.7E - 7
400	1.3E - 7	2.6E - 7	6.5E - 7	1.3E - 6
500	1.6E - 7	3.2E - 7	8.1E - 7	1.6E - 6
600	1.9E - 7	3.9E - 7	9.7E - 7	1.9E - 6
700	2.3E - 7	4.5E - 7	1.1E - 6	2.3E - 6
800	2.6E - 7	5.2E - 7	1.3E - 6	2.6E - 6
900	2.9E - 7	5.8E - 7	1.5E - 6	2.9E - 6
1,000	3.2E - 7	6.5E - 7	1.6E - 6	3.2E - 6
2,000	6.5E - 7	1.3E - 6	3.2E - 6	6.5E - 6
3,000	9.7E - 7	1.9E - 6	4.8E - 6	9.7E - 6
4,000	1.3E - 6	2.6E - 6	6.5E - 6	1.3E - 5
5,000	1.6E - 6	3.2E - 6	8.1E - 6	1.6E - 5
6,000	1.9E - 6	3.9E - 6	9.7E - 6	1.9E - 5
7,000	2.3E - 6	4.5E - 6	1.1E - 5	2.3E - 5
8,000	2.6E - 6	5.2E - 6	1.3E - 5	2.6E - 5
9,000	2.9E - 6	5.8E - 6	1.5E - 5	2.9E - 5
10,000	3.2E - 6	6.5E - 6	1.6E - 5	3.2E - 5
20,000	6.5E - 6	1.3E - 5	3.2E - 5	6.5E - 5
30,000	9.7E - 6	1.9E - 5	4.8E - 5	9.7E - 5
40,000	1.3E - 5	2.6E - 5	6.5E - 5	1.3E - 4
50,000	1.6E - 5	3.2E - 5	8.1E - 5	1.6E - 4
60,000	1.9E - 5	3.9E - 5	9.7E - 5	1.9E - 4
70,000	2.3E - 5	4.5E - 5	1.1E - 4	2.3E - 4
80,000	2.6E - 5	5.2E - 5	1.3E - 4	2.6E - 4
90,000	2.9E - 5	5.8E - 5	1.6E - 4	2.9E - 4
100,000	3.2E - 5	6.5E - 5	1.3E - 4	3.2E - 4
200,000	6.5E - 5	1.3E - 4	4.8E - 4	6.4E - 4
300,000	9.7E - 5	1.9E - 4	6.5E - 4	9.7E - 4
400,000	1.3E - 4	2.6E - 4	8.1E - 4	1.3E - 3
500,000	1.6E - 4	3.2E - 4	9.7E - 4	1.6E - 3

1. Through the plastic bag, check the iodine cartridge by direct contact frisk on the collection side of the cartridge.

2. Determine the corrected counts per minute (CCPM) by subtracting the background counts per minute (cpm).

3. Run down CCPM column to the most accurate number (i.e., for 7,600 CCPM, use 8,000 CCPM, for 7,200 CCPM use 7,000 CCPM).

4. Read across to the column with the appropriate sample volume and record the corresponding µCi/cc reading.

5. If a sample indicates 900 CCPM and its volume is 10 ft^3, read down to 900 and across to 10 ft^3. Record 2.9E-7 µCi/cc.

   Assumptions: These numbers are based on 100% collection efficiency for silver zeolite cartridge and frisker efficiency of 0.49% for I-131.

6. 1 DAC for I-131 equals 2E-8 µCi/cc for radiation workers.

1. PLUME HAS PASSED AND CONTAMINATION DEPOSITED

   - 6 inch open window reading is significantly higher than 3 foot open window reading.

   AND

   - 6 inch open window reading is significantly higher than 6 inch closed window reading.

2. IN THE PLUME

   - 6 inch open window reading is approximately the same as 3 foot open window reading

   AND

   - 3 foot open window reading is significantly higher than 3 foot closed window reading.

   AND

   - Instrument readings three (3) times normal background readings indicate the edges of the plume.

3. PLUME ABOVE OR OFF TO SIDE

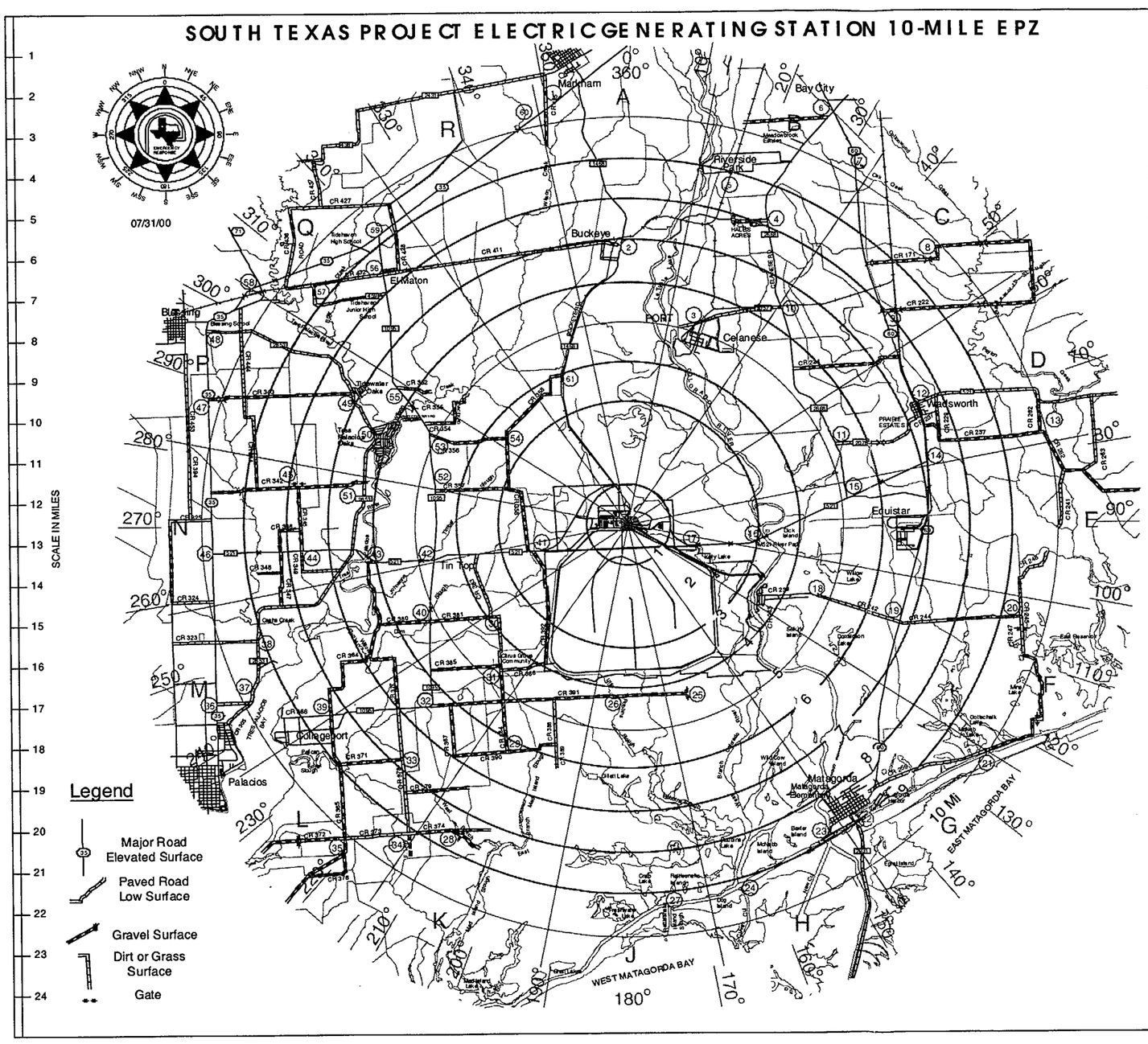
   - 3 foot open window reading is approximately the same as 3 foot closed window reading

   AND

   - 6 inch open window reading is approximately the same as 6 inch closed window reading.

   AND

   - Instrument readings three (3) times normal background readings indicate the edges of the plume.



PRE-SELECTED MONITORING POINTS

Monitoring Point	Map Sector	Coordinates	Location
1	A	N28.57.14 W96.03.73	Intersection of SH35 and FM1468 (On STP Directional Sign to N of SH35)
2	A	N28.53.68 W96.02.90	Intersection of FM1468 & CR 411
3	B	N28.51.93 W96.01.26	Intersection of Celanese Avenue A and FM3057
4	B	N28.54.13 W95.59.49	Intersection of FM2668 and entrance of Hale's Acres Subdivision
5	B	N28.56.28 W95.57.98	Riverside Park at Railroad Tracks
6	B	N28.56.40 W95.57.86	Intersection of FM2668 and SH60
7	B	N28.54.48 W95.57.35	SH60 at Live Oak Creek
8	C	N28.53.37 W95.55.54	Second 90 degree bend on Sims Lane (CR 177), east of SH60
9	C	N28.52.11 W95.56.85	Intersection of SH60 and CR 222
10	C	N28.52.25 W95.59.23	Intersection of FM3057 and FM2668
11	D	N28.49.32 W95.58.08	Intersection of FM2078 and FM2668
12	D	N28.50.12 W95.56.18	Intersection of FM521 and SH60 in Wadsworth
13	D	N28.49.41 W95.53.33	Intersection of CR 237 and CR 262
14	D	N28.48.87 W95.55.96	Intersection of FM521 and SH60 south of Wadsworth
15	E	N28.48.12 W95.57.85	Intersection of FM521 and FM2668
16	E	N28.47.30 W95.59.95	FM521 and Colorado River
17	F	N28.47.21 W96.01.39	FM521 at Kelly Lake
18	F	N28.46.12 W95.58.79	CR 239 and CR 242
19	F	N28.45.44 W95.56.72	Intersection of SH60 and CR 244
20	F	N28.45.48 W95.53.92	Intersection of CR 244 and CR 245
21	G	N28.42.65 W95.54.85	Bridge on CR 259, 2.6 miles east of SH60
22	G	N28.41.45 W95.58.09	Junction of SH60 and FM2031 in Matagorda
23	H	N28.41.03 W95.58.53	Intersection of Intracoastal Waterway and Colorado River at the barge traffic signal
24	H	N28.39.14 W96.01.50	Intracoastal Waterway and Old Colorado River at sunken barge
25	H	N28.44.06 W96.01.72	East end of CR 391
26	J	N28.44.04 W96.03.40	CR 391 at Bridge over Robbins Slough
27	J	N28.38.86 W96.02.50	Intracoastal Waterway at Rattlesnake Island Slough
28	K	N28.41.30 W96.07.18	CR 374 at Mad Island Hunting Lodge gate
29	K	N28.42.93 W96.05.95	Intersection of CR 390 and CR 384
30	L	N28.45.81 W96.02.20	Intersection of CR 383 and CR 381
31	L	N28.44.76 W96.06.03	Intersection of CR 384 and CR 385
32	L	N28.43.95 W96.07.65	Intersection of FM1095 and CR 391
33	L	N28.42.83 W96.08.36	Intersection of CR 371 and CR 378
34	L	N28.41.26 W96.08.26	Intersection of CR 378 and CR 374
35	L	N28.41.21 W96.09.74	Intersection of CR 372 and CR 365
36	M	N28.44.57 W96.12.59	Intersection of SH35 and FM2853 north of Palacios
37	M	N28.44.69 W96.11.63	90 degree bend in FM2853 and CR 305
38	M	N28.45.44 W96.11.63	Intersection of FM2853 and CR 323
39	M	N28.43.83 W96.09.98	Intersection of CR 366 and CR 364
40	M	N28.45.76 W96.07.61	Intersection of FM1095 and CR 380
41	M	N28.47.20 W96.05.17	Intersection of FM521 and CR 358
42	N	N28.47.08 W96.07.47	Intersection of FM521 and FM1095 at Tin Top
43	N	N28.47.06 W96.08.79	Intersection of FM521 and CR 364
44	N	N28.47.35 W96.10.54	Intersection of FM521 and CR 349
45	N	N28.48.70 W96.10.56	Intersection of CR 342 and CR 345
46	N	N28.47.34 W96.12.57	Intersection of SH35 and FM 521
47	P	N28.50.64 W96.12.58	Intersection of SH35 and CR 343
48	P	N28.52.12 W96.12.57	Intersection of SH35 and FM2853 at Blessing
49	P	N28.50.80 W96.09.27	Intersection of FM2853 and Tidewater Oaks Subdivision North of Harbor
50	P	N28.49.74 W96.08.70	FM2853 at Tres Palacios Oaks Subdivision at the Fire Station
51	N	N28.48.77 W96.09.01	Intersection of FM2853 and CR 342
52	P	N28.48.55 W96.07.36	Intersection of FM1095 and CR 357
53	P	N28.49.76 W96.07.46	Intersection of FM1095 and CR 356
54	Q	N28.49.61 W96.05.69	Intersection of CR 358 and CR 356
55	P	N28.50.78 W96.08.17	Intersection of FM1095 and CR 352
56	Q	N28.53.21 W96.08.40	Intersection of FM1095 and CR 411
57	Q	N28.53.04 W96.10.08	Intersection of FM459 and CR 432
58	Q	N28.53.06 W96.11.30	Intersection of SH71 and SH35
59	Q	N28.54.05 W96.08.48	Intersection of SH35 and FM1095
60	R	N28.56.22 W96.05.17	SH35 NE of Wilson Creek Bridge
61	R	N28.50.92 W96.04.36	Intersection of FM1468 and CR 358

Offsite Field Teams

Form 1 | Offsite Monitoring Data Form | Page 1 of 1

Team No.: _____ Date: ___/___/___

Event: _____

Team	Time	Distance	Location/Sample No.	Meter Reading MR/HR				Ground Contamination		Airborne µCi/cc		Field Team Total Dose MR
				Open Window		Closed Window		Direct CPM	Smear DPM	Particulate	Iodine	
				6"	3'	6"	3'					

Complete and attach to air sample as necessary.

_____	_____	_____
Model No.	ID No.	Bkgd CPM

Particulate Filter:

_____ ÷ (_____ × _____ × **6.3E^{+10}** (C)) = _____

CCPM Volume ft^3 Efficiency*A µCi/cc

Iodine Cartridge:

_____ ÷ (_____ × _____ × **6.3E^{+10}** (C)) = _____

CCPM Volume ft^3 Efficiency*B µCi/cc

Lapel Particulate Filter:

_____ ÷ (**2000** × _____ × **0.4** (D) × _____) = _____

CCPM *F Efficiency*A *PF DAC-hr

Lapel Iodine Cartridge:

_____ ÷ (**2000** × _____ × **2.7** (E) × _____) = _____

CCPM *F Efficiency*B *PF DAC-hr

*Notes:

A = Efficiency for a frisker system is assumed to be 10% for particulate filters with Unknown activities.

B = Efficiency for a frisker system is assumed to be .49% for Silver Zeolite cartridges with I-131 activity.

C = 6.3E^{+10} cc-dpm/ft^3-µCi = 2.83E^{+4} cc/ft^3 × 2.22E^{+6} dpm/µCi.

D = 0.4 dpm-min/cc-DAC-hr = 2.22E^{+6} dpm/µCi × 3E^{-9} µCi/cc/DAC × 60 min/hr.

E = 2.7 dpm-min/cc-DAC-hr = 2.22E^{+6} dpm/µCi × 2E^{-8} µCi/cc/DAC × 60 min/hr.

F = Lapel sampler default flow rate 2,000 cc/min = 2 LPM.

PF = Respirator protection factor, If none worn, use default value of 1.

Analyzed by: _____ _____

(Name) (Date/Time)

_____ (Name) _____ (Date) _____ (Unit)

Action _____ Time _____

A. Team Preparations

1. Obtain keys to the Emergency Response Site Vehicle (ERSV) from the key box located in the EOF. _____

2. Obtain the following from the EOF:

   - 1 - Offsite Field Team Kit _____
   - 1 - battery powered air sampler _____
   - 1 - lapel air sampler _____
   - 1 - portable radio _____
   - 1 - spare radio battery _____
   - 1 - portable cellular telephone _____

3. Check the Offsite Field Team Kit by performing the following actions:

   a. Compare the contents of the kit against the inventory list. This step does not have to be performed if the seals on the kits are are intact. Notify the Offsite Field Team Supervisor of any discrepancies. _____

   b. Verify operability of the radiation survey instrumentation by checking the calibration dates, battery response levels, and functional checks. Notify the Offsite Field Team Supervisor of any inoperable equipment. _____

   c. Verify operability of the dosimeter charger and calculator. Notify the Offsite Field Team Supervisor if either is inoperable. _____

Action _____ Time _____

d. Perform a pre-operational check of the battery powered air sampler by performing the following actions:

1) Verify that the calibration due date on the calibration sticker has not been exceeded. _____

2) With the unit not plugged into an AC power supply, place the 12V/24V switch to 12V, set Timer to 01, CAL/NORM switch to NORM and press the START button. _____

3) If the motor starts, then press the STOP button. _____

4) If the motor does not operate, then notify the Offsite Field Team Supervisor. _____

e. Wrap the RO-2 (or equivalent) radiation survey instrument in a plastic bag to minimize intrusion of noble gases into the ionization chamber. _____

4. Assign each member of the Offsite Field Team a TLD, 0-200 mrem SRD, and a 0-5 rem SRD. Notify the Offsite Field Team Supervisor of TLDs issued, the TLD numbers, to whom the TLDs were issued, and the initial readings of the SRDs. _____

5. Perform a communications check between the ERSV and the Offsite Field Team Supervisor. Radio settings will be in accordance with 0PGP07-ZA-0011, Addendum 1. _____

a. Use MODE A, CHANNEL 9 on the ERSV.

b. Use Channel 9 with toggle switch on A for repeater or B for direct communications on the hand-held radios.

Action _____ Time _____

c. Set up the portable cellular telephone by performing the following:

1) Plug power cord into the cigarette lighter.

2) Pull antenna out to the vertical position.

3) Refer to operation summary card located in the base of the telephone pack for activating and operating the phone.

d. If radios fail in the field, use the portable cellular telephone to contact the Offsite Field Team Supervisor. Telephone numbers for Emergency Response Facilities are in the Emergency Communications Directory or ERO Facility Telephone List.

6. When directed by the Offsite Field Team Supervisor to initiate offsite monitoring, then obtain a briefing from the Offsite Field Team Supervisor. _____

7. Ensure each member of the Offsite Field Team dons protective clothing/equipment as directed by the Offsite Field Team Supervisor. One team member shall don a lapel air sampler (this should be the member performing the surveys). _____

8. When dispatched, use guidance in Addendum 1 through 6 for performing radiological surveys, obtaining samples, performing analysis, and evaluating results. N/A

9. Ensure all survey and sample information obtained by the Offsite Field Teams is documented properly on Form 1, Offsite Monitoring Data Form, and Form 2, Sample Analysis Calculation Form. N/A

10. When directed by the Offsite Field Team Supervisor, deliver required Emergency response equipment to the Staging Area. _____

- Inform the Offsite Field Team Supervisor when delivery is complete. _____

Action	Time
11. Maintain communication with the Offsite Field Team Supervisor. Inform him/her of all monitoring activities, analysis results, and personnel exposures.	_____