



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

April 29, 2002
NOC-AE-02001313
STI: 31438640
FILE NO: Z18
ER 20020034
10CFR50.4(b)(5)
10CFR50 App E

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 Procedures

In accordance with 10CFR50.4(b)(5) and 10CFR50, Appendix E, Section V, the STP Nuclear Operating Company hereby submits the attached revisions to seven (7) Emergency Plan Implementing Procedures.

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

AR m'c FOR

P. L. Serra
Manager, Plant Protection

CM/mk

Enclosure: Letter of Receipt
Description of Changes
0ERP01-ZV-OS03, Radiological Coordinator, Rev. 4
0ERP01-ZV-OS06, Emergency Teams, Rev. 6
0ERP01-ZV-TS05, Chemical/Radiochemical Manager, Rev. 5
0ERP01-ZV-TS07, Technical Manager, Rev. 6
0ERP01-ZV-TS12, Security Supervisor, Rev. 4
0ERP01-ZV-TP01, Offsite Dose Calculations, Rev. 13
0ERP01-ZV-IN02, Notifications to Offsite Agencies, Rev. 13

A045

From: Emily Garcia
To: Hall, Maudester; Maier, Richard; Mikus, Alan; Morgan, Aubrey; Out of Office Memos
Date: 4/25/02 2:37PM
Subject: Delegation of Signature Authority

April 24, 2002
NOCNOC02006302
STI31439285
H05

The following individuals will assume the duties of the Plant Protection Manager, including signature authority, while Paul Serra is attending offsite meetings:

April 29-30
Alan Mikus

May 1
Clem Morgan

May 6-8
Alan Mikus

Please attach this e-mail to any documents signed by these individuals on the dates specified.

CC: Broadwater, Terry; Mills, Lois; Serra, Paul

cc:
(paper copy)

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Page 3

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

From: Plant Support Branch
Region IV Office of the Regional Administrator
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
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Subject: **Receipt Acknowledgment for Changes to STP
Emergency Plan Implementing Procedure**

I hereby acknowledge having received changes to the STP Nuclear Operating Company's Emergency Plan Implementing Procedures transmitted by STP letter NOC-AE-02001313.

Signature

Date

Description of Changes
0ERP01-ZV-OS03
Radiological Coordinator, Rev. 4

This revision does not reduce the effectiveness or change the intent of the Emergency Response Program.

Changes are designated by revision Bars.

Condition Reports associated with this change include:

CR 00-17600, TSC-274 - PREPARE LICENSING DOCUMENTATION NECESSARY TO REMOVE POST-ACCIDENT SAMPLING SYSTEM FROM REQUIREMENTS.

CR 01-13557-1-2, REVISE PROCEDURE 0ERP01-ZV-OS03, RADIOLOGICAL COORDINATOR, TO PERFORM HABITABILITY SURVEYS WHEN DEEMED NECESSARY.

CR 01-13557-8-6, REVISE PROCEDURE 0ERP01-ZV-OS03 TO DELETE REFERENCE TO PASS.

The changes are noted in the following table:

0ERP01-ZV-OS03, Radiological Coordinator, Rev. 4

NO.	Change to Revision 3	Reason
1	Page 3, step 3.2.2, added Assembly and Accountability	Describes when to ensure personnel in the protected Area have a TLD
2	Addendum 1, step 1.0, changed initial activation Habitability Survey to as deemed necessary	Initial activation Habitability Surveys are meaningless and poor use of Health Physics personnel
3	Addendum 1, step 2.0, changed shall to should	All surveys do not require rad, contamination & air samples
4	Addendum 1, Table, removed frequency column	Frequency is now as deemed necessary
5	Addendum 2, page 8, step 1.3.2, removed reference to PASS	Reference to PASS has being removed from the Emergency Plan (CR 00-17600)
6	Data Sheet 1, page 12, step 2.3, added Assembly and Accountability	Describes when to ensure personnel in the protected Area have a TLD
7	Data Sheet 1, page 13, step 3.1, changed to "do not use expired bottles"	Editorial Clarification

0ERP01-ZV-OS03, Radiological Coordinator, Rev. 4

NO.	Change to Revision 3	Reason
8	Data Sheet 1, page 13, step 4.1, changed to "Instruct radiological habitability surveys as necessary in accordance with Addendum 1, Emergency Facility Habitability Table"	Clarification for HP to conduct surveys as necessary
9	Data Sheet 1, page 14, steps 4.5, clarified instructions to monitor personnel exposure during facility evacuation	Editorial Clarification

Description of Changes

0ERP01-ZV-OS06, Emergency Teams, Rev. 6

This revision does not reduce the effectiveness or change the intent of the Emergency Response Program. Changes are designated by revision Bars. Deleted reference to PASS page 8.

In letter ST-AE-NOC-01000894, the Commission has issued amendments that delete Technical Specification (TS) Section 6.8.3.d, "Post Accident Sampling," for South Texas Project Units 1 and 2, thereby eliminating the requirement to have and maintain the Post Accident Sampling System (PASS). CR 00-17600-8.

0ERP01-ZV-TS05, Chemical/Radiochemical Manager, Rev. 5

This revision does not reduce the effectiveness or change the intent of the Emergency Response Program. Changes are designated by revision Bars. Deleted reference to PASS pages 2, 7, 10, 11 & 13.

In letter ST-AE-NOC-01000894, the Commission has issued amendments that delete Technical Specification (TS) Section 6.8.3.d, "Post Accident Sampling," for South Texas Project Units 1 and 2, thereby eliminating the requirement to have and maintain the Post Accident Sampling System (PASS). CR 00-17600-8-5.

Deleted old step 2.1.9, there is no longer a 3 hour requirement for PASS Samples.

Data Sheet 1, page 7, step 2, Isotopic sampling is not needed to determine extent of core damage.

0ERP01-ZV-TS07, Technical Manager, Rev. 6

This revision does not reduce the effectiveness or change the intent of the Emergency Response Program. Deleted reference to PASS.

In letter ST-AE-NOC-01000894, the Commission has issued amendments that delete Technical Specification (TS) Section 6.8.3.d, "Post Accident Sampling," for South Texas Project Units 1 and 2, thereby eliminating the requirement to have and maintain the Post Accident Sampling System (PASS). CR 00-17600-8. Affecting pages 4, 7, 9 & 10.

0ERP01-ZV-TS12, Security Supervisor, Rev. 4

This revision does not reduce the effectiveness or change the intent of the Emergency Response Program. Moved the Security Supervisor position into the TSC. Affected pages are 2, 3, 4 & 5.

**Description of Changes
Offsite Dose Calculations
0ERP01-ZV-TP01, Rev 13**

This revision does not reduce the effectiveness or change the intent of the Emergency Response Program.

Global changed data location identification from ERFDADS screens to ICS screens.

Changed procedure usage from IN HAND to N/A to compliance with procedure 0PGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide

Changes are designated by revision bars.

Revised pages include 2, 3, 5, 6, 8, 15, & 16

Condition Reports associated with this change include:

CR 02-1845, REVISE PROCEDURE 0ERP01-ZV-TP01, OFFSITE DOSE CALCULATIONS, TO COMPLY WITH CHANGES TO STAMPEDE REVISION 7.0.

The changes are noted in the following table:

Offsite Dose Calculations, 0ERP01-ZV-TP01, Rev 13

No.	Change to Revision 12	Reason
1	Page 2, step 2.3.1, deleted reference to IBM PC Computer	Editorial
2	Page 3, step 2.3.3, removed supervisor	Only HP Technicians have the responsibility to operate OPDA
3	Page 3, step 2.4, revised definition of a release	Definition changed to match procedure 0ERP01-ZV-IN01
4	Page 5, step 5.5, added Control Rooms	OPDA is also loaded in the Control Rooms
5	Page 6, step 6.5, added reference to ZV-0001, STAMPEDE Users Guide	Reference update
6	Page 6, deleted reference to 0PRP01-ZA-0034, Health Physics Division Computer Programs	CR 02-5595, Procedure is void
7	Revised Addendum's 1, 4, & 6 to remove IN HAND usage because it is not required	Brings usage into compliance with procedure 0PGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide
8	Addendum 1, page 8, step 1.0, added asterisk step to Sigma-Theta	Instructs use of the default Delta T when wind speed falls below 5 MPH

Offsite Dose Calculations, 0ERP01-ZV-TP01, Rev 13

No.	Change to Revision 12	Reason
9	Addendum 1, page 8, step 2.2.1, changed data lookup from ERFDADS to ICS	Computers have changed
10	Addendum 5, page 15, step 1.0, added "on the LAN and onto..."	STAMPEDE 7.0 is on the LAN and selected computer hard drives
11	Addendum 5, page 15, step 1.0, deleted, "The main program can be accessed using the following user identification with NO password: EPLAN"	STAMPEDE 7.0 no longer uses passwords
12	Addendum 5, page 15, step 2.0, deleted, 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	STAMPEDE Revision 7.0 deleted the requirement for active windows
13	Addendum 5, page 15, step 3.0, revised instructions for copying dose assessment data	Method changed with STAMPEDE version 7.0
14	Addendum 5, page 15, old step 4.0, deleted instructions for PAR beyond 10 miles	Instructions no longer needed in STAMPEDE Revision 7.0. The printout distance now goes to 20 miles
15	Addendum 6, page 16, step 4.0, changed STAMPEDE from version 6.3 to 7.0	Evaluated Data Tables to ensure no revision was required

**Description of Changes
Notifications to Offsite Agencies
0ERP01-ZV-IN02, Rev 13**

This revision does not reduce the effectiveness or change the intent of the Emergency Response Program.

- Condition Reports associated with this change include CR-623-2, CR 02-1885
- Changed ECDC to Qualified Scheduling Entity (QSE).
- Revised Data Sheet 1, Offsite Agency Notification Message Form (Typical) with editorial comments from DEM/BRC. (no revision bars)
- Changes are identified with revision bars in the right margin.
- Affected pages are: 2, 7, 12, 13, 19, 20, 21, 22, and 25

The changes are noted in the following table:

Notifications to Offsite Agencies, 0ERP01-ZV-IN02, Rev 13

No.	Change to Revision 12	Reason
1	Page 2, Note Box, changed Reliant Dispatcher to Master Qualified Scheduling Entity (QSE)	Title Change
2	Page 2, Note Box, removed (Control Room and Aux Shutdown panel room only)	QSE is also on the Quintrons located in the TSCs and EOF
3	Page 7, step 5.1.2.6, changed Reliant system operations on ECDC to Master QSE	Title Change
4	Page 12, Data Sheet 2, under Block 3, added Communicator to name field	Clarification
5	Page 13, Data Sheet 3, changed ECDC to MASTER QSE and QSE Ringdown	Title Change
6	Page 19, Addendum 3, step 1.1.4, changed from 6 to 7 methods to notify the NRC	Added 800 MHz Radios
7	Page 19, Addendum 3, changed ECDC to QSE	Title Change
8	Page 19, Addendum 3, added 800 MHz Radio to communicate with QSE and call forward to the NRC	800 MHz Radios are available in the Control Rooms, TSCs, and EOF

Notifications to Offsite Agencies, 0ERP01-ZV-IN02, Rev 13

No.	Change to Revision 12	Reason
9	Page 20, Addendum 3, step 1.1.9, changed ECDC to QSE	Title Change
10	Page 20, Addendum 3, step 1.1.10, changed ECDC to QSE	Title Change
11	Page 20, Addendum 3, step 1.1.11, added step for using the 800 MHz Radio	800 MHz Radios are available in the Control Rooms, TSCs, and EOF
12	Page 20, Addendum 3, step 1.2.3, changed from 6 to 7 methods to notify the NRC	Added 800 MHz Radios
13	Page 21, Addendum 3, added 800 MHz Radio Communications with the State/County	800 MHz Radios are available in the Control Rooms, TSCs, and EOF
14	Page 21, Addendum 3, steps 1.2.7, 1.2.8, & 1.2.9, added 800 MHz Radio Communications with the State/County, changed ECDC to QSE, and revised the order of use	Title Change, added 800 MHz Radio, & clarifications
15	Page 22, Addendum 3, step 1.4.1, changed ECDC to the Qualified Scheduling Entity	Title Change
16	Page 22, Addendum 3, step 1.5.3, changed ECDC to the Qualified Scheduling Entity	Title Change
17	Page 25, Addendum 5, added asterisk step to Sigma-Theta	Instructs use of the default Delta T when wind speed falls below 5 MPH

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Radiological Coordinator			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 04/24/02
Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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Radiological Coordinator**1.0 Purpose and Scope**

- 1.1 This procedure specifies the actions to be completed by the Radiological Coordinator in the Operations Support Center (OSC) 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 Radiological Coordinator.

2.0 Responsibilities

- 2.1 The Radiological Coordinator is responsible for:
 - 2.1.1 Providing Radiation Protection (RP) support during required maintenance activities, search and rescue efforts, and Protected Area surveys.
 - 2.1.2 Assigning Radiation Protection personnel to Emergency Response Teams, as required.
 - 2.1.3 Dosimetry issue and maintaining radiological exposure history for emergency response personnel.
 - 2.1.4 Providing for Emergency Response Team briefings and debriefings on radiological conditions.
 - 2.1.5 Ensuring emergency facilities are monitored for habitability.
 - 2.1.6 Implementing required protective clothing and monitoring requirements.
 - 2.1.7 Ensuring adherence to the As Low As Reasonably Achievable (ALARA) philosophy, as practicable.
 - 2.1.8 Obtaining necessary approvals to deviate from radiological protection procedures and requirements.

3.0 Precautions and Limitations

- 3.1 An Alert, Site Area Emergency or General Emergency has been declared in accordance with Procedure 0ERP01-ZV-IN01, Emergency Classification.
- 3.2 The Emergency Director has ordered the activation of the Operations Support Center to support response activities.

Radiological Coordinator

- 3.3 During an Alert, Site Area Emergency, or General Emergency, Administrative dose limits are not applicable.
- 3.2.1 Emergency responders shall be authorized an exposure limit of 5 rem TEDE.
- 3.2.2 When Assembly and Accountability is completed, ensure all personnel remaining in the Protected Area have Thermoluminescent Dosimetry.

4.0 References

- 4.1 STPEGS Emergency Plan
- 4.2 0ERP01-ZV-IN01, Emergency Classification
- 4.3 0ERP01-ZV-IN06, Radiological Exposure Guidelines
- 4.4 0ERP01-ZV-RE01, Recovery Operations
- 4.5 0ERP01-ZV-RE02, Documentation
- 4.6 NRC Inspection Report No. 86-35-36 (CR 87-282)
- 4.7 NRC Inspection Report No. 88-08-03 (CR 88-1509)
- 4.8 0ERP01-ZV-OS06, Emergency Teams
- 4.9 0PGP05-ZV-004, Emergency Plan Implementing Procedure Users Guide

5.0 Procedures

- 5.1 When responding to the affected Unit Operations Support Center, implement Data Sheet 1, Radiological Coordinator Checklist Initial Activities.
- 5.1.1 Insert the time an activity is completed, for reoccurring activities, document using the Emergency Action Log.
- 5.1.2 Implement other activities as necessary.
- 5.2 Implement the appropriate portions of Data Sheet 1, Radiological Coordinator Checklist based on the events in progress.
- 5.3 Use Addendum's and Checklists to help direct emergency activities.

6.0 Support Documents

- 6.1 Addendum 1, Emergency Facility Habitability Table
- 6.2 Addendum 2, Emergency Onsite Radiological Surveys
- 6.3 Data Sheet 1, Radiological Coordinator Checklist
- 6.4 Data Sheet 2, Radiological Briefing Checklist
- 6.5 Form 1, Emergency Exposure Tracking Log
- 6.6 Form 2, Potassium Iodide Issuance Log
- 6.7 Form 3, TLD Issuance Log

Radiological Coordinator

Addendum 1

Emergency Facility Habitability Table

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- 1.0 Conduct habitability surveys of occupied areas as deemed necessary (e.g., facility area/airborne radiation monitor increases, portal monitor alarm, facility dosimeter increase, onset of a radiological release).
- 2.0 Habitability surveys should include radiation, contamination, and air samples. Discuss air sample survey requirements with the Radiological Manager as necessary.

FACILITY	TYPE & LOCATION	RELOCATION CRITERIA	COMMENTS/GUIDELINES
CONTROL ROOM	<p>RADIATION:</p> <ul style="list-style-type: none"> • Control areas within the Control Room • Corridors outside of the Control Room • Kitchen area <p>AIRBORNE:</p> <ul style="list-style-type: none"> • Corridor outside of the Control Room <p>CONTAMINATION:</p> <ul style="list-style-type: none"> • Corridors outside of the Control Room • Kitchen area • Control areas and surfaces within the Control Room if contamination is found outside of the Control Room 	25 rem TEDE	<ol style="list-style-type: none"> 1. Rotate personnel to maintain exposures below 5 rem TEDE. 2. Include respiratory equipment protection factors in calculations.
OPERATIONS SUPPORT CENTER	<p>RADIATION:</p> <ul style="list-style-type: none"> • OSC Control Area • Men and Women Locker Room <p>AIRBORNE:</p> <ul style="list-style-type: none"> • OSC Control Area <p>CONTAMINATION:</p> <ul style="list-style-type: none"> • OSC Control Area • Men and Women Locker Room 	5 rem TEDE	<ol style="list-style-type: none"> 1. Consider relocation to the unaffected Unit OSC when dose rates exceed 1 rem/hr or airborne concentration levels exceed 400 DAC.
TECHNICAL SUPPORT CENTER	<p>RADIATION:</p> <ul style="list-style-type: none"> • TSC Control Area • Corridor outside of the TSC <p>AIRBORNE:</p> <ul style="list-style-type: none"> • Corridor outside of the TSC <p>CONTAMINATION:</p> <ul style="list-style-type: none"> • Corridor outside of the TSC • Control area within the TSC if contamination is found in the corridor outside of the TSC 	5 rem TEDE	<ol style="list-style-type: none"> 1. Consider relocation to the unaffected Unit TSC or the EOF when dose rates exceed 1 rem/hr or airborne concentration levels exceed 400 DAC. 2. Consider reducing the TSC staff to key essential personnel when exposure to personnel exceed 1 rem TEDE and begin rotation of key personnel to keep their exposures below 5 rem TEDE.

Radiological Coordinator

Addendum 1

Emergency Facility Habitability Table

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FACILITY	TYPE & LOCATION	RELOCATION CRITERIA	COMMENTS/GUIDELINES
CENTRAL ALARM STATION (CAS)	RADIATION: <ul style="list-style-type: none"> • CAS Control Area AIRBORNE: <ul style="list-style-type: none"> • Corridor outside of CAS CONTAMINATION: <ul style="list-style-type: none"> • CAS Control Area • Corridor outside of CAS 	5 rem TEDE	<ol style="list-style-type: none"> 1. Consider additional radiological habitability checks when: <ol style="list-style-type: none"> a. Contamination is found in the Unit 1 Control Room, <u>or</u> b. Unit 1 Control Room ventilation monitoring systems indicate the spread of contamination is occurring through the ventilation system, <u>or</u> c. Radiation levels in the Unit 1 Control Room exceed 100 mrem/hr. 2. Rotation of personnel should be established to maintain personnel exposures below 5 rem TEDE.
EAST GATEHOUSE	RADIATION: <ul style="list-style-type: none"> • East Gatehouse Area AIRBORNE: <ul style="list-style-type: none"> • Area outside of the Control Area CONTAMINATION: <ul style="list-style-type: none"> • Exit corridor of East Gatehouse 	5 rem TEDE	<ol style="list-style-type: none"> 1. Consider additional radiological habitability checks when the portal monitors are in a continuous alarm condition due to the presence of radiation or elevated airborne concentration levels. 2. Relocate access control operations to the East Gatehouse when dose rates exceed 1 rem/hr or airborne concentration levels exceed 400 DAC. Evacuate unnecessary personnel. 3. Rotation of personnel should be established to maintain personnel exposures below 5 rem TEDE.
COLD CHEMISTRY LAB	RADIATION, AIRBORNE, CONTAMINATION <ul style="list-style-type: none"> • Working area of Chemistry Lab 	1 rem TEDE	<ol style="list-style-type: none"> 1. Rotation of personnel should be established to maintain personnel exposures below 5 rem TEDE.

Radiological Coordinator

Addendum 1

Emergency Facility Habitability Table

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FACILITY	TYPE & LOCATION	RELOCATION CRITERIA	COMMENTS/GUIDELINES
WEST GATEHOUSE	RADIATION, AIRBORNE, CONTAMINATION <ul style="list-style-type: none"> • Occupied areas of the West Gatehouse 	5 rem TEDE	<ol style="list-style-type: none"> 1. Consider additional radiological habitability checks when the portal monitors are in a continuous alarm condition due to the presence of radiation or elevated airborne concentration levels. 2. Relocate access control operations to the East Gatehouse when dose rates exceed 1 rem/hr or airborne concentration levels exceed 400 DAC. Evacuate unnecessary personnel. 3. Rotation of personnel should be established to maintain personnel exposures below 5 rem TEDE.
SECONDARY ALARM STATION (SAS)	RADIATION, AIRBORNE, CONTAMINATION <ul style="list-style-type: none"> • SAS Control Area 	5 rem TEDE	<ol style="list-style-type: none"> 1. Consider additional radiological habitability checks when: <ol style="list-style-type: none"> a. Contamination is found in the West Gatehouse, <u>or</u> b. Radiation levels exceed 100 mrem/hr. 2. Rotation of personnel should be established to maintain personnel exposures below 5 rem TEDE.
ASSEMBLY AREAS	RADIATION, AIRBORNE, CONTAMINATION <ul style="list-style-type: none"> • Occupied areas of all Assembly Areas • Occupied areas of the Nuclear Support Center • Occupied areas of the Warehouse • Occupied areas of the Maintenance Operations Facility 	1 rem TEDE	<ol style="list-style-type: none"> 1. Consider additional radiological habitability checks when assembly has been implemented and site evacuation has not been performed. 2. Relocation of personnel should be established when dose rates exceed 100 mrem/hr or airborne concentration levels exceed 1 DAC.

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Addendum 2	Emergency Onsite Radiological Surveys		Page 1 of 2

1.0 IN-PLANT SURVEYS

1.1 Radiation/Contamination Surveys

- 1.1.1 Use appropriate maps to identify location of survey.
- 1.1.2 Consider the use of a telescoping instrument over other types of hand-held instruments.
- 1.1.3 Whenever handling samples, obtain a contact dose rate and a dose rate at 30 centimeters.
- 1.1.4 Start with instrument on highest scale and switch downward when entering areas of unknown radiation levels.
- 1.1.5 Check dose rates on contaminated samples and take care to prevent the spread of contamination.
- 1.1.6 Use an Ionization Meter when beta dose rate surveys are necessary.

1.2 Air Sampling

- 1.2.1 Use iodine specific cartridges (e.g., silver zeolite) instead of charcoal.
- 1.2.2 Do not obtain air samples in explosive environments.
- 1.2.3 Consider running air sampler for a shorter time than normal when high airborne levels are expected. Use dose rates on sample when feasible to limit sample time.
- 1.2.4 Check dose rates on samples and keep samples at a distance when necessary.

1.3 Sample Transport

- 1.3.1 Bag samples and keep samples at a distance when possible. Count noble gas samples as soon as possible to account for short-lived isotopes.
- 1.3.2 Any sample reading greater than 1 rem/hr gamma on contact should be reported to the Radiological Coordinator.

1.4 Sample Analysis

- 1.4.1 Designate a counting system for samples reading greater than 5 mrem/hr gamma on contact.
- 1.4.2 Count samples on the gamma spectrometry counting system in accordance with Count Room Procedures.

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Addendum 2	Emergency Onsite Radiological Surveys		Page 2 of 2

1.4.3 A quick field analysis may be used for iodine cartridges based on sample activity using the following calculation with an efficiency of (0.49%).

$$\text{I-131 } \mu\text{Ci/cc} = \text{Net cpm} \div ([\text{vol ft}^3] \times [0.0049 \text{ c/d}] \times [28,350 \text{ cc/ft}^3] \times [2.22\text{E}^{+6} \text{ dpm}/\mu\text{Ci}])$$

1.4.4 A quick field analysis may be used for particulate filters based on sample activity using the following calculation with an efficiency of (10%).

$$\mu\text{Ci/cc} = \text{Net cpm} \div ([\text{vol ft}^3] \times [0.10 \text{ c/d}] \times [28,350 \text{ cc/ft}^3] \times [2.22\text{E}^{+6} \text{ dpm}/\mu\text{Ci}])$$

1.4.5 To calculate stay times based upon I-131 air concentration:

$$\text{Stay Time (HRS)} = 2.0\text{E}^{-5} (\mu\text{Ci-hr/cc}) \div \text{I-131 Concentration } (\mu\text{Ci/cc})$$

1.4.6 To calculate dose rate to Thyroid based upon I-131 air concentration with no protection factor:

$$\text{Dose rate (rem/hr)} = \text{I-131 Concentration } (\mu\text{Ci/cc}) \div 8.0\text{E}^{-7} (\mu\text{Ci-hr/cc-rem})$$

2.0 OUT-OF-PLANT SURVEYS

2.1 Radiation Surveys

2.1.1 Use appropriate maps to identify location of survey.

2.1.2 Normally use an ionization chamber type instrument.

2.1.3 Take open window and closed window readings.

2.1.4 A waist level higher open-window-to-closed-window reading will indicate the presence of a radioactive plume.

2.1.5 When necessary, scan a square meter about two inches above ground for highest open window/closed window reading to indicate ground deposition.

2.2 Air Sampling

2.2.1 If power is unavailable, use a battery operated portable air sampler if available.

2.2.2 Use appropriate survey maps to identify location of samples.

2.2.3 Check dose rate on samples, bag, label, and transport back to counting room.

2.2.4 Determine sample storage area.

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Radiological Coordinator			
Data Sheet 1	Radiological Coordinator Checklist		Page 1 of 9

	(Name)	(Date)	(Unit)
Action			Time

1.0 INITIAL ACTIVITIES

1.1 Report to the designated Unit's Operations Support Center and perform the following.

- Sign in on the Staffing Board.
- Inform the OSC Coordinator or Assistant OSC Coordinator upon arrival.
- Inform the Radiological Manager upon arrival.
- Initiate an Emergency Action Log of activities.
- Verify 7 additional Radiation Protection Technicians, responded to pager activation from the Emergency Notification and Response System (ENRS) print out as necessary.

1.2 Assist in Operations Support Center Activation.

- Open the Operations Support Center storage cage, if you do not have a key, use the emergency key in the key box next to the door.
- Move necessary equipment and materials from the storage cage to the Operations Support Center Command Center.
- Ensure the bin contents titles match the titles hanging above each position.
- Setup and connect communication equipment, ensure the phones and fax have a dial tone.
- Attach Operations Support Center Position Badge to your outer clothing.
- Establish Radiation Protection Technician(s) at the Radiologically Controlled Area (RCA) Access Control Point, ensure they perform the following:
 - RCA Access Control

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Action	Time
<ul style="list-style-type: none"> • Dosimetry issue • Radiological briefings • RM-11 Console Operation • Radiological Communications • Inform the Operations Support Center Coordinator when Radiation Protection functions are available to support Emergency Response Teams. 	
1.3 If deviation from station radiological protection procedures is necessary, THEN obtain approval from the Radiological Manager.	_____
1.4 Review exposures of all work in progress.	_____
<ul style="list-style-type: none"> • Evaluate all work in progress inside the Radiologically Controlled Area, only support work required by operations. • At a Site Area or higher classification, terminate all active RWPs in the affected area and arrange for notification of personnel to leave the RCA. 	
1.5 Dispatch station Survey Teams as required.	_____
1.6 Evaluate moving the Breathing Air Compressor out of the potential release path and identify an operator in case it is needed.	_____
1.7 Support formation and dispatch of Emergency Teams per 0ERP01-ZV-OS06, Emergency Teams.	_____
1.8 Brief Radiation Protection personnel using Addendum 2, Emergency Onsite Radiological Surveys as necessary.	_____
1.9 Maintain radiological status of Emergency Teams and modify radiation protection requirements as necessary for changing radiological conditions.	_____
1.10 Ensure updated radiological conditions are communicated to the Operations Support Center staff and the Operations Support Center radiological Status Board Keeper.	_____
1.11 Maintain communications with the Radiological Manager and keep the OSC Coordinator informed of radiological conditions.	_____
1.12 Maintain communications with the Nuclear Regulatory Commission Health Physics Liaison, when present.	_____

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Radiological Coordinator			
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Action	Time
2.0 EXPOSURE CONTROL ACTIVITIES	
2.1 Monitor personnel exposures using the computerized exposure monitoring system or if not available, document exposures manually using Form 1, Emergency Exposure Tracking Log. <ul style="list-style-type: none"> • Report elevated personnel exposures to the Radiological Manager. 	_____
2.2 If not already completed, issue a facility dosimeter to occupied facilities listed in Addendum 1, Emergency Facility Habitability Table. <ul style="list-style-type: none"> • Instruct personnel to monitor the dosimeter every 15 to 20 minutes, and to report any increases to Radiation Protection. 	_____
2.3 When Assembly and Accountability is completed, ensure all personnel remaining in the Protected Area have Thermoluminescent Dosimetry. Document issue using Form 3, TLD Issuance Log.	_____
2.4 If a release of radioactive material has begun or is imminent, evaluate issuing a dosimeter to all emergency response personnel.	_____
2.5 Through the Radiological Manager, obtain Emergency Director approval for exposures that may exceed 10CFR20 limits as per 0ERP01-ZV-IN06, Radiological Exposure Guidelines, and obtain the Emergency Director's signature.	_____
3.0 POTASSIUM IODIDE (KI) ISSUANCE ACTIVITIES	
3.1 Through the Radiological Manager, obtain Emergency Director approval to issue Potassium Iodide. <ul style="list-style-type: none"> • Consumption of Potassium Iodide is voluntary. • Ingestion of Potassium Iodide Tablets occurs when an exposure of 25 rem Thyroid CDE is calculated or imminent. 	_____

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Radiological Coordinator			
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Action	Time
---------------	-------------

- Ensure the following actions are performed:
 - Obtain a sufficient number of potassium iodide bottles and instructions from the emergency cabinet for all personnel.
 - Inspect bottles and dates, do not use expired bottles.
 - Issue each person a bottle and instruction page, direct them to take one tablet initially and to continue to take one tablet daily in accordance with instructions provided with the bottle.
 - Document using Form 2, Potassium Iodide Issuance Log.

3.2 Notify the Radiological Manager that potassium iodide has been issued within the Protected Area, and until further notice, all responding personnel should take potassium iodide before arriving. _____

3.3 Continuously monitor I-131 Activity to determine when potassium iodide issuance can be terminated. Notify the Radiological Manager, when the use of potassium iodide is no longer required. _____

4.0 **HABITABILITY ACTIVITIES**

4.1 Instruct radiological habitability surveys as necessary in accordance with Addendum 1, Emergency Facility Habitability Table. _____

4.2 Request the facility managers not allow eating, drinking, or chewing until habitability is verified. (CR 88-282) _____

4.3 Determine required actions to be taken for the facility based on guidance in Addendum 1, Emergency Facility Habitability Table (CR 88-1509). _____

4.4 Communicate recommended actions to the OSC Coordinator and Radiological Manager. _____

4.5 Evacuation of an Emergency Response Facility by performing the following. _____

- Determine the radiological precautions and protective clothing requirements necessary for persons evacuating to the new location.

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Action	Time
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- Select evacuation routes that will minimize exposures. Brief the Facility Manager on the planned evacuation routes and protective requirements.
- If radiological exposures are anticipated, ensure all personnel have a TLD and issue at least one person in the group a dosimeter. Prior to evacuation record initial dosimeter reading(s).
- When personnel arrive at the new facility, record final dosimeter reading and calculate the transient dose for all personnel during the relocation.
 - Survey all personnel and document contamination as necessary.

5.0 ACCIDENT ASSESSMENT ACTIVITIES

- | | |
|---|-------|
| 5.1 Review RM-11 monitor data for adverse radiological trends. | _____ |
| 5.2 Review Radiation Protection survey data for adverse radiological trends. | _____ |
| 5.3 Report radiological conditions above normal levels to the OSC Coordinator and Radiological Manager. | _____ |
| 5.4 Evaluate the need for additional radiation protection supplies including SCBA reserves. | _____ |

6.0 ASSEMBLY AND ACCOUNTABILITY ACTIVITIES

- | | |
|--|-------|
| 6.1 Upon notification of Assembly and Accountability, perform the following. | _____ |
|--|-------|
- Review RM-11 data to determine if any radiological problems exist that may impact assembly and accountability, notify the OSC Coordinator and Radiological Manager.
 - Key card your ID badge into the facility accountability card reader.
 - Verify 41' MAB RCA Access Control Point personnel Key card into the facility accountability card reader.
 - Determine location of personnel in the field and inform the Security Coordinator as necessary.

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Action	Time
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- Coordinate assembly and accountability actions with the OSC Coordinator.
- Ensure a Radiation Protection Technician(s) is maintaining contamination control for personnel exiting the Radiologically Controlled Area.
- Dispatch a Radiation Protection Technician to perform Habitability Checks at assembly areas in accordance with Addendum 1, Emergency Facility Habitability Table.
- If Gatehouse portal monitoring equipment is not operable, dispatch a Radiation Protection Technician to perform radiological monitoring.

7.0 SITE EVACUATION ACTIVITIES

7.1 Upon notification of Site Evacuation, perform the following.

- Review RM-11 data to determine if any radiological problems exist that may impact site evacuation, notify the OSC Coordinator and Radiological Manager.
- Perform actions as requested by the Radiological Manager.
- Periodically provide briefings to the OSC Coordinator on site evacuation activities.

8.0 WORK CONTROL ACTIVITIES

8.1 Review RM-11 and survey data to determine if any radiological problems exist that may impact work, notify the OSC Coordinator and Radiological Manager.

8.2 If restoration activities or surveys can not be performed under Radiation Work Permits, consider using emergency teams.

8.3 With the OSC Coordinator approval, implement procedure 0ERP01-ZV-OS06, Emergency Teams.

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Action	Time
<p>8.4 Interface with Discipline Leads to obtain appropriate information.</p> <ul style="list-style-type: none"> • Job location and access and exit routes. • Number of entries and length of job. 	_____
<p>9.0 OFFSITE MEDICAL TRANSPORT OF CONTAMINATED PERSONNEL</p>	
<p>9.1 When notified of medical emergency in a radiation area, perform the following.</p> <ul style="list-style-type: none"> • Dispatch Radiation Protection Technician(s) to perform personnel monitoring and contamination control. • Ensure contamination control activities do not hinder the medical response. • Evaluate the possibility of a Radiation Protection Supervisor /Technician from offsite meeting the ambulance at the hospital to assist in radiological controls. • Ensure arrangements are made for a Radiation Protection Technician to accompany the ambulance to the hospital to assist as follows: • Ensure Thermoluminescent Dosimetry is properly worn by ambulance personnel. • Advise the ambulance attendant on contamination control and hazards. • Assist the hospital staff with contamination control and implementation of the hospital radiological plan. • Assist the hospital and ambulance staff with cleanup, decontamination, and return all contaminated waste and dosimetry to the station. • Brief the Radiological Manager on details about the medical emergency and the response efforts. 	_____
<p>10.0 RADIOLOGICAL RELEASE ACTIVITIES</p>	
<p>10.1 Initiate installation of Step Off Pads at the Power Block Access Points.</p>	_____

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Action	Time
10.2 Inform the OSC Coordinator and Radiological Manager of any abnormal radiological conditions that indicate an imminent or actual release.	_____
10.3 Refer to Addendum 2, Emergency Onsite Radiological Surveys, for dispatch an onsite survey teams.	_____
10.4 Advise the Security Coordinator of any radiological precautions that should be taken by Security personnel.	_____
11.0 SHIFT TURNOVER ACTIVITIES	
11.1 As necessary, use Data Sheet 2, Radiological Briefing Checklist, provide a briefing of events to the relief person and the Operations Support Center Radiological Staff. Include the following areas.	_____
<ul style="list-style-type: none"> • Basis of the current Emergency Classification and Emergency Action Levels of importance. • Completed Checklists. • Completed Log. • Radiation Monitor readings and trends, inplant radiological problems, status of personnel exposures and any approvals to exceed limits, environmental monitoring activities, manpower status, current shift schedule, and any supplies/equipment expected from offsite. • Inform the OSC Coordinator and Radiological Manager of the transfer of responsibilities to the oncoming shift replacement. • Document the time of turnover and the identity of your relief in your log. 	
12.0 RECOVERY ACTIVITIES	
12.1 Determine the manpower requirements necessary for upcoming radiation protection and repair efforts.	_____
12.2 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 of the list to the OSC Coordinator	_____

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Radiological Coordinator			
Data Sheet 1	Radiological Coordinator Checklist		Page 9 of 9

Action	Time
12.3 Assist in the development of recovery plans and procedures using the guidance in 0ERP01-ZV-RE01, Recovery Operations.	_____
12.4 Evaluate the radiation protection supplies that will be needed for recovery with the Radiological Manager.	_____
13.0 TERMINATION ACTIVITIES	
13.1 Develop a list of activities and tasks that should be completed using 0ERP01-ZV-RE02, Documentation, Data Sheet 1, Corrective Action Items List, and provide a copy of the list to the Assistant Technical Support Center Manager.	_____
13.2 Provide a list of any supplies or forms needing replenishment to the Administrative Manager.	_____
13.3 If a Site Area Emergency or General Emergency was reached due to a Radiologically based event, advise the Radiological Manager that all persons who had been onsite during the emergency should be whole body counted.	_____
13.4 Arrange for all site Thermoluminescent Dosimeters to be processed if significant personnel radiological doses were received. Have the processing facility generate a report of accumulated exposures during the emergency including total man-rem expended and highest doses received.	_____
13.5 Collect and organize in chronological order all Operations Support Center Radiological Staff documents, checklists, and logs.	_____
13.6 With the Assistant Radiological Coordinator, write an Emergency Response Summary report using the guidance in 0ERP01-ZV-RE02, Documentation. Provide this report to the Assistant Operations Support Center Coordinator.	_____
13.7 Turn over all documentation generated during the emergency to the OSC Coordinator.	_____

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Radiological Coordinator			
Data Sheet 2	Radiological Briefing Checklist		Page 1 of 2

Person Providing Briefing	Person Receiving Briefing	Date	Time
1. Current station problems:			

2. Current station radiological problems:			

3. Personnel exposure problems or approved dose extensions in effect:			

4. Locations and actions of onsite/inplant emergency teams:			

5. Any contaminated, injured personnel being prepared for transport or being transported to offsite medical facilities:			

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Radiological Coordinator			
Data Sheet 2	Radiological Briefing Checklist		Page 2 of 2

6. Instructions given to Security on radiological concerns that may affect Security operations or personnel:

7. Adequacy of Radiation Protection personnel staffing in the Operations Support Center to support emergency response efforts:

8. Radiation Protection Equipment Problems:

9. Other radiological concerns which could potentially affect emergency response activities in the Control Room, East and West Gatehouse(s), Operations Support Center, and Technical Support Center:

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Emergency Teams			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 04/24/02

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

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Emergency Teams**1.0 Purpose and Scope**

- 1.1 This procedure establishes guidance for coordinating and contacting Emergency Response Teams (ERTs) dispatched from the Operations Support Center (OSC) for emergency maintenance or immediate entry.
- 1.2 This procedure provides recommendations for Emergency Response Team composition, briefing and debriefing, and for information, which should be obtained from the accident scene.

2.0 Definitions

- 2.1 **Emergency Maintenance:** Action required to be performed immediately to prevent or mitigate the consequences of an accident, prevent release of radioactive material to the environment or to protect human life or property. Emergency maintenance is performed at the discretion of the Shift Supervisor/Emergency Director and may start without an approved work package.
- 2.2 **Immediate Entry:** A method of entry to a suspected or known radiologically hazardous area that takes priority over normal entry methods. Emergency Response Teams given this priority are initially provided continuous Radiation Protection coverage. This classification is used when, in the opinion of the Shift Supervisor or Technical Support Center (TSC) Manager, normal methods of entry would be too time consuming (i.e., response to a medical emergency, security event, or a major plant component failure to prevent a major loss of radioactive material, etc.).

3.0 Precautions and Limitations

- 3.1 In accordance with OPGP03-ZA-0090, Work Process Program, the Shift Supervisor is responsible for authorizing and directing emergency maintenance activities. Upon activation of the Emergency Response Organization (ERO) and assumption of Emergency Director responsibilities, the TSC Manager establishes emergency work priorities. Close coordination must be maintained between Shift Supervisor and TSC Manager with regard to emergency repair efforts that are being accomplished by Emergency Response Teams.
- 3.2 When the emergency situation no longer exists, the Maintenance Manager shall ensure a Condition Report (CR) is initiated, and that the Condition Report contains sufficient detail of actions taken to allow the Emergency Response Team and Maintenance Planner to determine any additional maintenance activities left to be performed. Subsequent documentation required shall be completed in accordance with OPGP03-ZA-0090, Work Process Program.

Emergency Teams

- 3.3 Plant Operators not assigned onshift duties in operation of the unaffected Unit by the Emergency Director shall report to Operations Support Center of affected Unit at an Alert or higher Emergency Classification. The Emergency Director may utilize the Plant Operators via the OSC Coordinator.
- 3.4 This procedure shall be implemented upon activation of Technical Support Center and Operations Support Center.

4.0 Responsibilities

- 4.1 The TSC Manager is responsible for:
- 4.1.1 Prioritizing requests for Emergency Response Team assistance.
 - 4.1.2 Coordinating priorities and repair efforts with the Shift Supervisor.
 - 4.1.3 Ensuring that Emergency Response Teams are formed, properly briefed, and dispatched and their status is monitored.
- 4.2 The Radiological Manager is responsible for defining radiation protection requirements for Emergency Response Team personnel.
- 4.3 The OSC Coordinator is responsible for overall coordination of Operations Support Center activities to support Technical Support Center requests.
- 4.4 The Maintenance Manager is responsible for functioning as the Technical Support Center interface for repair team activities requested of the Operations Support Center, and ensuring follow-up Condition Reports are initiated to properly document emergency repairs accomplished.
- 4.5 The Assistant OSC Coordinator is responsible for:
- 4.5.1 Assigning Discipline Leads to complete various tasks such as forming, briefing, and debriefing Emergency Response Teams.
 - 4.5.2 Assigning Emergency Response Team numbers for identification, accountability, and tracking purposes.
 - 4.5.3 Tracking status of key emergency activities.
- 4.6 The Radiological Coordinator is responsible for:
- 4.6.1 Ensuring Emergency Response Teams are equipped with proper radiation protection equipment and dosimetry.

Emergency Teams

- 4.6.2 Briefing Emergency Response Teams on radiological considerations utilizing Form 1, Emergency Response Team Briefing/Debriefing Form.
- 4.6.3 As necessary, briefing Emergency Response Teams on radiological considerations utilizing Addendum 2, Briefing for Workers Who May Receive Emergency Exposures to the Thyroid.
- 4.6.4 As necessary, briefing Emergency Response Teams on radiological considerations utilizing procedure 0ERP01-ZV-IN06, Radiological Exposure Guidelines, Addendum 2, Risks Involved with Exposures Greater Than 25 rem TEDE.
- 4.6.5 Reviewing each Form 1, Emergency Response Team Briefing/Debriefing Form upon completion of job.
- 4.7 The Resource Coordinator is responsible for obtaining parts and materials required by Emergency Response Team personnel to perform repairs and ensuring adequate tools, equipment, and personnel to perform emergency tasks.
- 4.8 The Security Coordinator is responsible for coordinating Security Force response activities with Operations Support Center and Emergency Response Teams.
- 4.9 The Operations Support Center Discipline Leads are responsible for assisting in:
 - 4.9.1 Selecting Emergency Response Team members.
 - 4.9.2 Ensuring Emergency Response Team briefings and debriefings using Form 1, Emergency Response Team Briefing/Debriefing Form.
 - 4.9.3 Determining extent of repair required, planning Emergency Response Team Work and identifying personnel, tools, and equipment needs.
 - 4.9.4 Requesting personnel, tools, and equipment from Resource Coordinator.
 - 4.9.5 Coordinating access to vital areas for Emergency Response Team with Security Coordinator.
 - 4.9.6 Keeping Assistant OSC Coordinator informed of the status of Emergency Response Team activities.

Emergency Teams

- 4.10 Emergency Response Team personnel are responsible for:
- 4.10.1 Attending Team Leader briefings and debriefings as specified in this procedure.
 - 4.10.2 Adhering to prescribed safety rules, radiological control requirements, following work instructions, and completing assigned tasks in a quality manner.
- 4.11 The OSC Communicator is responsible for collecting completed Emergency Response Team Work documentation and forwarding it to the Maintenance Manager.

5.0 Procedure**NOTE**

Prior to activating Technical Support Center and Operations Support Center, if the emergency condition requires emergency repairs and damage control activities to be performed, these actions will be taken in accordance with guidelines as set forth in OPGP03-ZA-0090, Work Process Program.

- 5.1 Assistant OSC Coordinator:
- 5.1.1 Direct Discipline Lead to form an Emergency Response Team.
 - 5.1.2 Provide the Team Number, Priority, Problem Description, Task/Objectives and Location of work.
 - 5.1.3 Approve dispatch of Emergency Response Team.
 - 5.1.4 Monitor status of team dispatch, work and return.
- 5.2 Discipline Leads:
- 5.2.1 Selects Emergency Response Team members and briefs team on objectives and destination.
 - 5.2.2 Coordinates with the appropriate Planner and Resource Coordinator to obtain special parts or materials and completes applicable steps of Form 1, Emergency Response Team Briefing/Debriefing Form.
 - 5.2.3 Provides Form 1, Emergency Response Team Briefing/Debriefing Form to the Radiological Coordinator.

Emergency Teams

5.2.4 Upon team return:

5.2.4.1 Debrief team and review documentation of work/investigation performed.

5.2.4.2 Provides completed Form 1, Emergency Response Team Briefing/Debriefing Form to the Assistant OSC Coordinator for Team Close Out.

5.3 Radiological Coordinator:

5.3.1 Conduct radiological brief of Emergency Response Team, record on Form 1, Emergency Response Team Briefing/Debriefing Form

5.3.2 Upon team return, determine if expected radiological conditions where found.

5.4 The Assistant OSC Coordinator determines if a security threat, missing personnel or an operational hazard exists, completes applicable sections of Form 1, Emergency Response Team Briefing/Debriefing Form, and briefs the OSC Coordinator as items are completed.

5.4.1 Provides completed Form 1, Emergency Response Team Briefing/Debriefing Form to the OSC Communicator for retention.

5.5 At event termination or recovery, the OSC Communicator provides all Form 1, Emergency Response Team Briefing/Debriefing Forms to the Technical Support Center Maintenance Manager to ensure follow-up Condition Reports are initiated to document emergency repairs.

6.0 References

6.1 STPEGS Emergency Plan

6.2 OPGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide

6.3 0ERP01-ZV-IN06, Radiological Exposure Guidelines

6.4 0ERP01-ZV-OS01, OSC Coordinator

6.5 0ERP01-ZV-OS03, Radiological Coordinator

6.6 0ERP01-ZV-TS06, Maintenance Manager

6.7 OPGP03-ZA-0090, Work Process Program

Emergency Teams**7.0 Support Documents**

- 7.1 Addendum 1, Recommended Emergency Response Team Composition
- 7.2 Addendum 2, Briefing for Workers Who May Receive Emergency Exposures to the Thyroid
- 7.3 Form 1, Emergency Response Team Briefing/Debriefing Form

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Emergency Teams			
Addendum 1	Recommended Emergency Response Team Composition		Page 1 of 1

Radiation Protection personnel are required for entries into radiologically controlled areas or areas within the Protected Area that may have elevated radiological levels.

<u>Team Type</u>	<u>Team Composition</u>
Search and Rescue	1 Radiation Protection Technician 1 Security Officer (EMT)
Plant Area Survey Team/Offsite Field Team*	1 Radiation Protection Technician 1 designated individual
Damage Investigation	1 Mechanical/Electrical/I&C (Team Leader) 1 Radiation Protection Technician 1 Plant Operator
Equipment Repair Team	1 Mechanical/Electrical/I&C (Team Leader) 1 Radiation Protection Technician 1 Required repair personnel
Medical Emergency Team	1 Radiation Protection Technician 1 Security Officer (EMT)
Sample Team	2 Chemists 1 Radiation Protection Technician
Security Response Team	2 Security Officers for non-radiologically controlled areas. 1 Security Officer and 1 Radiation Protection Technician for radiologically controlled areas.**
Operations Support Team	1 Plant Operator in non-radiologically controlled area. 1 Plant Operator and 1 Radiation Protection Technician in radiologically controlled area.**

* Applies to Offsite Field Team dispatched from the Operations Support Center only.

** Radiation Protection Technician not required with approval from the Radiological Manager if no unusual radiological conditions are occurring.

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Emergency Teams			
Addendum 2	Briefing for Workers Who May Receive Emergency Exposures to the Thyroid		Page 1 of 1

The Radiological Manager has recommended and the Emergency Director has approved the issuance of potassium iodide. The conditions, which currently exist, indicate you may receive an exposure to a fission product gas, radioactive iodine, which will be at a level which could cause harm to your thyroid. The thyroid is an organ located in your lower neck. The purpose of the thyroid in an adult is to regulate metabolism.

The Emergency Director has authorized the distribution of potassium iodide tablets that will minimize the harmful effects of radioactive iodine to your thyroid. You may remember from your training that potassium iodide is beneficial; however, it is not without risk. If you know you are allergic to iodine, do NOT take potassium iodide. Persons allergic to iodine who take potassium iodide will experience a severe reaction that may require hospitalization.

The risks from the use of potassium iodide for thyroid blocking in a radiation emergency are outweighed by the risks of developing radioiodine-induced thyroid nodules or cancer at a projected dose to the thyroid gland of 25 Rem. The Food and Drug Administration (FDA) recommends potassium iodide be considered for thyroid blocking in radiation emergencies.

Your agreement to take potassium iodide is a voluntary action.

Team # Priority: Time: Date:

Discipline Lead: _____

Problem Description: _____

Task/Objective: _____

Location: _____

(DISCIPLINE LEAD)		(RADIOLOGICAL COORDINATOR)		
Name/SSN	Badge #	Current Dose (Rem)	Expected Dose (Rem)	Approved Extension

Communications

Radio Channel: _____ Radio Check. YES OSC Telephone Number: _____

Personnel Safety

Equipment Clearance and Tagging: YES NO N/A
 Confined Space Entry Permit: YES NO N/A

Radiation Protection Requirements

Protective Clothing: None Full Plastic Other:
 Respiratory Protection: None Full Face SCBA Dosimetry: Elec TLD SRD

ALARA Brief: _____

Turnback Dose Rate (mR/hr) Turnback Dose (mrem) KI Y / N

Entry Route: _____

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Emergency Teams			
Form 1	Emergency Response Team Briefing/Debriefing Form		Page 2 of 2

Date/Time of Return:

Conditions Found:

Tasks Performed:

Current Status/Work to be completed:

Recommended Actions/Other comments:

Debriefed By:	Date/Time:
Reviewed By Radiation Protection:	Date/Time:

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Chemical/Radiochemical Manager			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 04/24/02
Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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Chemical/Radiochemical Manager**1.0 Purpose and Scope**

- 1.1 This procedure specifies the actions to be completed by the Chemical/Radiochemical 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 Chemical/Radiochemical Manager.

2.0 Responsibilities

- 2.1 The Chemical/Radiochemical Manager is responsible for:
 - 2.1.1 Obtaining and analyzing primary coolant sample data and containment atmosphere data to determine reactor core conditions.
 - 2.1.2 Evaluating process and effluent monitor data to determine releases in progress.
 - 2.1.3 Determining priority of samples to be collected and types of analysis to be performed.
 - 2.1.4 Authorizing the collection of a Post Accident Sampling System sample.
 - 2.1.5 Ensuring the Post Accident Sampling System is maintained operational.
 - 2.1.6 Ensuring adequate inventories of chemical/radiochemical supplies, equipment, and Chemistry personnel are available.
 - 2.1.7 Providing assistance for hazardous chemical/non-hazardous chemical spill containment and cleanup.
 - 2.1.8 Ensuring notifications are made to offsite agencies until the EOF Director assumes Emergency Director responsibilities and authorities.
 - 2.1.9 Provide periodic TSC status updates to NRC via the NRC open line (Emergency Notification System).

Chemical/Radiochemical Manager**3.0 References**

- 3.1 STPEGS Emergency Plan
- 3.2 0ERP01-ZV-IN02, Notifications to Offsite Agencies
- 3.3 0PGP03-ZH-0006, Nonradioactive Spill Response, Cleanup, and Reporting
- 3.4 0ERP01-ZV-RE01, Recovery Operations
- 3.5 0ERP01-ZV-RE02, Documentation
- 3.6 0PEP02-ZG-0007, Post Accident Failed Fuel Guidelines
- 3.7 0PSP07-WL-LDP1, Liquid Effluent Permit
- 3.8 0PSP07-WL-LDP2, Liquid Effluent Permit with RT-8038 Inoperable
- 3.9 0PGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide

4.0 Procedure

- 4.1 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.
- 4.2 Complete Checklist activities as follows:
 - 4.2.1 Use the right column to log the time an activity is performed.
 - 4.2.2 Reoccurring activities should be documented using the Emergency Action Log.
 - 4.2.3 Implement other activities as necessary.
- 4.3 Use Checklists to help direct emergency activities.

5.0 Support Documents

- 5.1 Addendum 1 - Shift Turnover Briefing
- 5.2 Data Sheet 1 - Chemical/Radiochemical Manager Checklist
- 5.3 Data Sheet 2 - Chemical/Radiochemical Briefing Checklist

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Chemical/Radiochemical Manager			
Addendum 1	Shift Turnover Briefing		Page 1 of 1

- 1.0 Provide a briefing of events to the relief person. Include the following areas:
 - Basis of the current Emergency Classification and the Emergency Action Levels (EAL) of importance.
 - Completed checklists & logs.
 - Information on the Status Boards.
 - Process and Effluent Monitor readings and trends, inplant radiological problems, status of chemistry personnel exposures and any approvals to exceed limits, environmental monitoring activities, and any chemical supplies/equipment expected from offsite.
 - Manpower status.
 - Recovery plans developed and corrective action items for plant recovery.
 - Current shift schedule.
 - Notifications to offsite agencies issued and facility issuing notifications.
- 2.0 Inform the following personnel of the transfer of responsibilities to the oncoming shift replacement:
 - All TSC Managers
 - OSC Coordinator
 - Chemical Analysis Supervisor
 - Update the TSC Staffing Board.
- 3.0 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.
- 4.0 Verify your telephone number on the Administrative Manager's shift schedule. If this telephone number is inside the 10 mile Emergency Planning Zone (EPZ), then provide an alternate telephone number for contact should evacuation of the EPZ be necessary.
- 5.0 Take a copy of your shift schedule.
- 6.0 Verify possession of a STPNOC Picture Badge for access through possible roadblocks when returning to site for the next shift or request a replacement Picture Badge from the Administrative Manager.
- 7.0 Inform the Security Manager of the shift change and sign out when leaving the TSC.

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Data Sheet 1	Chemical/Radiochemical Manager Checklist		Page 2 of 9

Action

Time

1.10 IF assembly and accountability, and evacuation has not been completed, THEN complete the following actions.

- Identify any effluent or process system releases that could impact personnel during assembly, accountability, or evacuation actions. Notify the Radiological Manager of potential radiological problems.
- Determine which Chemistry personnel need to return to their duty stations.

1.11 Initiate an Emergency Action Log of activities. In particular, document telephone calls made or received and any data or information received from or provided to other persons.

2.0 CHEMICAL/RADIOCHEMICAL ACTIVITIES

- Recommend to the TSC Manager priorities for emergency activities based on chemical/radiochemical conditions.
- Evaluate with the Radiological Manager initial process and effluent monitor data. Determine if any unplanned radiological releases are in progress or unusual radiological conditions exist within the process and effluent monitoring systems. Notify the TSC Manager of any unusual conditions.
- Evaluate plant conditions relating to the three fission product boundaries and the potential for a radiological release.
- Evaluate the Failed Fuel Monitor (RT-8039) readings to confirm that fuel failure has not occurred (<870 $\mu\text{Ci/ml}$). If containment has isolated, then confer with the Technical Manager to determine if a Reactor Coolant System (RCS) sample should be taken.

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Chemical/Radiochemical Manager			
Data Sheet 1	Chemical/Radiochemical Manager Checklist		Page 3 of 9

Action

Time

- Evaluate emergency response activities and plant conditions to establish chemical/radiochemical sampling priorities and locations. Advise the Chemical Analysis Supervisor in the Operations Support Center (OSC) of priorities and direct that samples be taken, as necessary, using approved Chemistry Procedures.
- Monitor all chemistry data trends associated with plant systems. Advise the TSC Manager of adverse trends and their possible indications of problems.
- IF the emergency affects chemical and/or radiochemical analysis capabilities in the affected Unit, THEN establish alternate chemical and/or radiochemical analysis capabilities in the unaffected Unit. Notify the TSC Manager, Radiological Manager, OSC Coordinator, Radiological Coordinator, Chemical Analysis Supervisor, and the NRC Representative, if present, of the change in analysis location.

3.0 SPECIAL ACTIVITIES

3.1 Transfer of Command & Control from TSC to EOF:

- Contact the Engineering Assistant in the EOF and coordinate the status of offsite notification messages in conjunction with the transfer of command and control to the EOF.
- Ensure that the Engineering Assistant in the EOF has copies of the most recently completed offsite notification message and the current offsite notification log prior to the transfer of command and control to the EOF, OR provide the necessary information by telecom.

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Chemical/Radiochemical Manager			
Data Sheet 1	Chemical/Radiochemical Manager Checklist		Page 4 of 9

Action

Time

- Ensure that the Engineering Assistant in the EOF has copies of the most recently completed offsite notification message and the current offsite notification log prior to the transfer of command and control to the EOF, OR provide the necessary information by telecom.

3.2 Assembly and Accountability

- Identify any effluent or process system releases that could impact personnel during assembly and accountability. Notify the Radiological Manager of potential radiological problems.
- Determine which Chemistry personnel should remain onsite to support the emergency response effort. Provide the Security Manager with a list of any Chemistry personnel not assigned to the OSC who should be considered essential and not evacuated.

3.3 Search and Rescue

- Identify any effluent or process system releases that could impact personnel during Search and Rescue efforts. Notify the Radiological Manager of potential radiological problems.

3.4 Site Evacuation

- Identify any effluent or process system releases that could impact personnel evacuating the site. Notify the Radiological Manager of potential radiological problems.

3.5 Radiological Release Occurring or Imminent

- Unplanned Radiological Releases - Assist the Radiological Manager in reviewing process and effluent monitor data to determine the release point. Notify the TSC Manager of the results.

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Action

Time

- Planned Radiological Releases - IF directed by the TSC Manager to initiate a planned radiological release, THEN implement OPSP07-WL-LDP1, Liquid Effluent Permit, or OPSP07-WL-LDP2, Liquid Effluent Permit with RT-8038 Inoperable.

3.6 Chemical Spills

- Assist implementation of the STPEGS Oil and Hazardous Materials Spill Contingency Plan, and OPGP03-ZH-0006, Nonradioactive Spill Response, Cleanup, and Reporting.
- IF the spill results in the formation of hazardous vapors, AND emergency response facilities could be affected by the toxic cloud, THEN notify the TSC Manager and recommend the Control Room and Technical Support Center ventilation systems be shifted to the recirculation mode.
- Advise the Technical Support Center Manager of any protective precautions that should be taken by onsite personnel.

3.7 Post Accident Sample

- Upon receiving a request to collect a post accident sample, coordinate the following with the Team Leader and the OSC Coordinator (through the Maintenance Manager):
 - Direct the team leader to contact the Chemical/Radiochemical Manager prior to the team leaving the OSC.

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Action

Time

- When contacted, and if plant conditions are still favorable for sample collection, direct the team to proceed to the sample point. Inform the team that upon team arrival, the leader should re-assess overall safety of the operation and then re-contact the Chemical/Radiochemical Manager for final authorization for sample collection.
- Continuously monitor plant conditions while the team transits to the sample point. Immediately terminate the operation if changes in plant conditions indicate an unnecessary challenge to team safety.
- Upon the teams arrival at the sample point, the team leader will provide a final safety assessment. When the Team Leader and the Chemical/Radiochemical Manager agree on the overall safety of the operation, then authorize the team to collect the sample. Log time in the Emergency Action Log.
- Continue to monitor the generation of sample results and inform the TSC Manager of progress until the results are provided.

3.8 Evacuation Of The Technical Support Center

- Collect the Chemical/Radiochemical Manager Emergency Response Manual, checklists and logs.
- Follow any special precautions provided by the Radiological Manager for proceeding to the unaffected Unit's TSC or EOF.
- Confer with the Radiological Manager about continued manning of the chemistry laboratories by Chemistry personnel.

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Chemical/Radiochemical Manager			
Data Sheet 1	Chemical/Radiochemical Manager Checklist		Page 7 of 9

Action

Time

- Instruct the TSC Communicator to gather copies of all logs and notification forms.
- When directed by the TSC Manager, proceed as directed by the TSC Manager via the evacuation route identified by the Radiological Manager.
- Upon arrival at the new location, contact the Chemists and provide a telephone number for future contact.

4.0 ONGOING ACTIVITIES

- IF Command and Control resides in the Technical Support Center, THEN issue appropriate notification updates in accordance with 0ERP01-ZV-IN02, Notifications to Offsite Agencies.
- Periodically evaluate process and effluent monitor data for increasing/decreasing trends. Provide status to the TSC Manager and the Radiological Manager of any unusual conditions.
- Assist the Technical Manager in evaluating plant conditions and Reactor Coolant System sampling results relating to the three fission product barriers and the potential for a radiological release.
- Evaluate primary coolant sample data to determine reactor core conditions. Provide status to the TSC Manager.
- Periodically evaluate ongoing activities and current plant conditions to establish chemical/radiochemical sampling priorities.
- Ensure continued operability of chemical and radiochemical analysis equipment.
- Assist the Radiological Manager with the implementation of Radiological Manager responsibilities, as time permits.

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Chemical/Radiochemical Manager			
Data Sheet 1	Chemical/Radiochemical Manager Checklist		Page 8 of 9

Action

Time

- Maintain an Emergency Action Log of activities, telephone calls, and important information.
- Provide periodic TSC status updates to NRC via the NRC open line (Emergency Notification System).

5.0 SHIFT CHANGE

- Upon arrival of your shift replacement, complete all actions listed in Addendum 1, Shift Turnover Briefing.

6.0 RECOVERY ACTIVITIES

- IF the TSC Manager is the Emergency Director, THEN complete the required notifications of the new emergency classification in accordance with 0ERP01-ZV-IN02, Notifications to Offsite Agencies, Notifications to Offsite Agencies.
- Determine the manpower requirements necessary for upcoming chemical or radiochemical activities. Request the Administrative Manager activate additional personnel, if necessary.
- Continue to monitor the status of ongoing chemical and radiochemical activities until termination.
- Develop a list of activities and tasks that should be completed using 0ERP01-ZV-RE02, Data Sheet 1, Corrective Action Items List, and provide a copy of the list to the Assistant TSC Manager.
- Assist in the development of recovery plans and procedures per 0ERP01-ZV-RE01, Recovery Operations.
- Evaluate the chemical or radiochemical supplies that will be needed for recovery. Request the Administrative Manager to obtain the needed supplies.

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Action

Time

7.0 TERMINATION ACTIVITIES

- IF the TSC Manager is the Emergency Director, THEN complete the required notifications of the new emergency classification in accordance with 0ERP01-ZV-IN02, Notifications to Offsite Agencies, Notification to Offsite Agencies.
- Develop a list of activities and tasks that should be completed using 0ERP01-ZV-RE02, Data Sheet 1, Corrective Action Items List, and provide a copy of the list to the Assistant TSC Manager.
- Provide a list of any supplies or forms needing replenishment to the Administrative Manager.
- Determine status of Isotopic Samples and initiate any documentation required to repair or decontaminate the system. Submit this documentation to the Assistant TSC Manager.
- Collect and organize in chronological order all documents, checklists and logs.
- With the assistance of selected Chemistry personnel, write an Emergency Response Summary report using the guidance in 0ERP01-ZV-RE02, Documentation. Provide this report to the Assistant TSC Manager.
- Turn over all documentation generated during the emergency to the Administrative Manager.

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Chemical/Radiochemical Manager			
Data Sheet 2	Chemical/Radiochemical Briefing Checklist		Page 1 of 2

Person Providing Briefing	Person Receiving Briefing	Date	Time

1.0 Emergency activities being performed by Chemistry personnel:

2.0 Chemistry personnel in the affected Unit and their locations:

3.0 Status of current releases in progress:

4.0 Current alarming conditions or equipment failures on process and effluent monitors and corrective actions being taken:

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Data Sheet 2	Chemical/Radiochemical Briefing Checklist		Page 2 of 2

5.0 Specific radiological conditions that may affect Chemical Analysis activities:

6.0 Unusual exposure and/or approved dose extensions for Chemistry personnel:

7.0 Adequacy of Chemistry personnel to support all emergency response efforts:

8.0 Chemistry/radiochemistry equipment problems:

9.0 Other chemistry/radiochemistry concerns which could potentially affect emergency response activities.

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Technical Manager				
Quality	Non Safety-Related	Usage: N/A	Effective Date: 04/24/02	
Max Keyes	N/A	N/A	Emergency Response Division	
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION	

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Technical Manager**1.0 Purpose and Scope**

- 1.1 This procedure specifies the actions to be completed by the Technical 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 Technical Manager.

2.0 Responsibilities

- 2.1 The Technical Manager is responsible for:
 - 2.1.1 Monitoring the status of plant systems.
 - 2.1.2 Identifying potential failures of key systems.
 - 2.1.3 Monitoring the status of the three fission product barriers (fuel cladding, reactor coolant system, and containment).
 - 2.1.4 Evaluating vital station parameters on ICS/ERFDADS or from backup sources as required.
 - 2.1.5 Evaluating Emergency Action Levels against current plant conditions including Emergency Operating Procedures and Off Normal Operating Procedures in effect.
 - 2.1.6 Assisting in the determination of priorities for repair efforts.
 - 2.1.7 Assigning activities to the Engineering Supervisor and staff.

3.0 Precautions and Limitations

- 3.1 The Technical Support Center will be activated when an alert or higher classification has been declared in accordance with Procedure OERP01-ZV-IN01, Emergency Classification, or when instructed by the Emergency Director.

4.0 References

- 4.1 STPEGS Emergency Plan
- 4.2 OPGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide
- 4.3 OERP01-ZV-IN01, Emergency Classification
- 4.4 OPGP04-ZO-0007, Aircraft Crash Onsite

Technical Manager

- 4.5 OPOP05-EO-F001, Subcriticality Critical Safety Function Status Tree
 - 4.6 OPOP05-EO-F002, Core Cooling Critical Safety Function Status Tree
 - 4.7 OPOP05-EO-F003, Heat Sink Critical Safety Function Status Tree
 - 4.8 OPOP05-EO-F004, Integrity Critical Safety Function Status Tree
 - 4.9 OPOP05-EO-F005, Containment Critical Safety Function Status Tree
 - 4.10 OPOP05-EO-F006, Inventory Critical Safety Function Status Tree
 - 4.11 OPEP02-ZG-0007, Post Accident Failed Fuel Guidelines
 - 4.12 0ERP01-ZV-RE01, Recovery Operation
 - 4.13 0ERP01-ZV-RE02, Documentation
 - 4.14 LCTS 9101252-936, CR 91-762
- 5.0 Procedure
- 5.1 At an alert or higher emergency notification 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; use checklists to help direct emergency activities.
- 6.0 Support Documents
- 6.1 Addendum 1, Shift Turnover Briefing
 - 6.2 Data Sheet 1, Technical Manager Checklist
 - 6.3 Form 1, TSC Management Briefing Sheet

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Technical Manager			
Addendum 1	Shift Turnover Briefing		Page 1 of 1

- 1.0 Provide a briefing of the event to the relief person including the following areas:
 - Basis of the current emergency classification and the EALs of importance.
 - Status of the primary fission product barriers and critical safety systems, include core damage assessment, if in progress.
 - Information on the status boards.
 - Completed checklists & logs.
 - Emergency Operating Procedures and Off Normal Operating Procedures that were initiated.
 - Evaluations underway concerning deviations from Tech Specs or Plant Procedures.
 - Recovery plans developed and corrective action items for plant recovery.
 - Current shift schedule.
- 2.0 Inform the following of the transfer of responsibilities to the oncoming shift replacement.
 - TSC Manager
 - Technical Support Center Technical Staff
 - NRC Counterpart
 - EOF Technical Director
- 3.0 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.
- 4.0 Verify your telephone number on the shift schedule. If the telephone number is inside the 10-mile EPZ, then provide an alternate telephone number for contact should evacuation of the EPZ be necessary.
- 5.0 Take a copy of your shift schedule.
- 6.0 Verify possession of a STPNOC picture badge for access through possible roadblocks when returning to site on the next shift or request a replacement picture badge from the Administrative Manager.
- 7.0 Inform the Security Manager of the shift change and sign out when leaving the Technical Support Center.

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Technical Manager			
Data Sheet 1	Technical Manager Checklist		Page 1 of 5

_____ (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 Ensure the Technical Manager's Emergency Response Manual is available. _____
- 1.3 Ensure the Technical Manager telephone has a dial tone. _____
- 1.4 Verify the following individuals have responded. _____
 - Nuclear Engineer
 - Electrical Engineer
 - Mechanical Engineer
 - I&C Engineer
 - Engineering Supervisor
- 1.5 Direct the Administrative Manager to call out any of the above individuals as required. _____
- 1.6 Direct the Nuclear Engineer to perform the following: _____
 - Plot the following graphs for Fission Product Barrier Trending.
 - Containment Pressure
 - Highest Core Exit Thermocouple Temperature
 - Subcooling Margin
 - High Range Containment Radiation
 - Criticality

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Technical Manager			
Data Sheet 1	Technical Manager Checklist		Page 2 of 5

Action	Time
<ul style="list-style-type: none"> • Monitor the Critical Safety Function Status Trees for: <ul style="list-style-type: none"> • Subcriticality (0POP05-EO-FO01) • Core Cooling (0POP05-EO-FO02) • Heat Sink (0POP05-EO-FO03) • Integrity (0POP05-EO-FO04) • Containment (0POP05-EO-FO05) • Inventory (0POP05-EO-FO06) • Perform core damage calculations using 0PEP02-ZG-0007, Post Accident Failed Fuel Guidelines, whenever parameters indicate core damage may have occurred. 	
<p>1.7 Direct the Electrical Engineer to review the status of electrical systems including.</p> <ul style="list-style-type: none"> • Standby Diesel Generator Status • Offsite Power Availability • Vital Instrumentation Power • Vital D. C. Power 	_____
<p>1.8 Direct the Mechanical and I&C Engineers to review the status of systems that are out of service and their impact on the ability to maintain the plant in a safe condition.</p>	_____
<p>1.9 Discuss with the Engineering Supervisor, if available, the need to activate additional engineering personnel or Nuclear Steam Supply System (NSSS) and Architect Engineer (AE) support. Ensure adequate resources to support engineering activities are maintained.</p>	_____

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Technical Manager			
Data Sheet 1	Technical Manager Checklist		Page 3 of 5

Action	Time
<p>2.0 ASSESSMENT ACTIVITIES</p> <ul style="list-style-type: none"> • Review the current technical parameters and 0ERP01-ZV-IN01, Emergency Classification, with the Technical Staff and the Nuclear Engineer to confirm the correct Emergency Classification is declared. Determine the EALs which could cause an escalation and the conditions which must be met to Terminate or enter Recovery: • Evaluate plant parameters to determine if plant conditions are improving or worsening. Identify additional plant parameters that should be monitored by the Technical Staff. • Brief the TSC Manager, Operations Manager, and Assistant TSC Manager of the assessment. 	<hr/>
<p>3.0 EMERGENCY REPAIR ACTIVITIES</p> <ul style="list-style-type: none"> • When informed by the Maintenance Manager of the need to use a repair part that may not be fully qualified for use, coordinate an evaluation of the suitability for the repair part for its intended application. Evaluate the urgency of the repair, the time required obtaining a qualified part, and the possible consequence of the unqualified part failing in service. 	<hr/>
<p>4.0 SECURITY THREATS ACTIVITIES</p> <ul style="list-style-type: none"> • When informed of a bomb threat in the plant or acts of sabotage, assist the Security Manager and the Operations Manager in performing an evaluation of the consequences of the damage which may result/has resulted and any compensatory actions which should be taken. • Evaluate potential threats to plant systems: <ul style="list-style-type: none"> • Possible critical targets • Contingency actions • Advise the TSC Manager and Security Manager of recommended additional security actions that should be taken to protect important equipment. 	<hr/>

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Technical Manager			
Data Sheet 1	Technical Manager Checklist		Page 4 of 5

Action	Time
<p>5.0 AIRCRAFT CRASH ACTIVITIES</p> <ul style="list-style-type: none"> • Assist the Control Room in implementing procedure OPGP04-ZO-0007, Aircraft Crash Onsite. <ul style="list-style-type: none"> • Assess the impact on current plant conditions 	_____
<p>6.0 EVACUATION OF THE TECHNICAL SUPPORT CENTER</p> <ul style="list-style-type: none"> • Collect your Emergency Response Manual, completed checklists, and logs. • Direct the Technical Staff to collect their logs and necessary documents. • Follow any special precautions issued by the Radiological Manager. • When directed by the TSC Manager, proceed to the unaffected Unit's Technical Support Center or Emergency Operations Facility. 	_____
<p>7.0 ONGOING ACTIVITIES</p> <ul style="list-style-type: none"> • Function as the primary Technical Support Center liaison with the NRC Operations Coordinator, Core Damage Assessor, and Reactor Systems Specialists. Ensure NRC personnel are cognizant of all information that is transmitted to NRC Headquarters. • Evaluate corrective actions planned by the Operations and/or Maintenance Manager(s) for returning systems or equipment to service when approved procedures do not exist or equipment will be operated in a less than fully operable condition. • Monitor Control Room implementation of Emergency Operating Procedures and/or Off Normal Operating Procedures via periodic briefings from the Operations Manager. • Periodically confer with the Technical Staff and System Status Evaluator to compare plant conditions versus the EALs in 0ERP01-ZV-IN01, Emergency Classification. Review the status of the three fission product barriers (fuel cladding, reactor coolant system, and containment) and verify the current Emergency Classification is still correct. 	_____

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Technical Manager			
Data Sheet 1	Technical Manager Checklist		Page 5 of 5

Action	Time
<ul style="list-style-type: none"> • As necessary, use Form 1, TSC Management Briefing Sheet, to periodically brief personnel during the Managers Meetings on plant status. (LCTS 9101252-936) • Ensure adverse trends identified by the Technical Staff are reported to the TSC Manager and the Operations Manager. 	
8.0 SHIFT CHANGE ACTIVITIES	_____
<ul style="list-style-type: none"> • Upon arrival of your shift replacement, complete all actions listed in Addendum 1, Shift Turnover Briefing. Include the Technical Staff in the briefing. 	
9.0 RECOVERY ACTIVITIES	_____
<ul style="list-style-type: none"> • Determine the manpower requirements necessary for upcoming technical activities. Request the Administrative Manager notify additional personnel, if necessary. • Continue to monitor the status of ongoing technical activities until termination. • Develop a list of activities and tasks that should be completed using 0ERP01-ZV-RE02, Documentation, Form 1, Corrective Action Items List, and provide a copy of the list to the TSC Manager. • Assist in the development of recovery plans and procedures using the guidance in 0ERP01-ZV-RE01, Recovery Operations. 	
10.0 TERMINATION ACTIVITIES	_____
<ul style="list-style-type: none"> • Provide a list of any supplies or forms needing replenishment to the Administrative Manager. • Develop a list of activities and tasks that should be completed using 0ERP01-ZV-RE02, Documentation, Form 1, Corrective Action Items List, and provide a copy of the list to the Assistant TSC Manager. • Collect and organize in chronological order all documentation, checklists, logs, and status board data sheets. • With the assistance of the Technical Staff, write an Emergency Response Summary report using the guidance in 0ERP01-ZV-RE02, Documentation. Provide this report and all documentation to the Assistant TSC Manager. 	_____

1.0 Critical Safety Function Status Date/Time _____

- S Subcriticality _____
- C Core Cooling _____
- H Heat Sink _____
- P Integrity _____
- Z Containment _____
- I Inventory _____
- R Radiation _____

<u>Status of Boundaries</u>	<u>Cladding</u>	<u>RCS</u>	<u>Containment</u>
Unavailable	()	()	()
Intact	()	()	()
Potential Loss	()	()	()
Imminent Loss	()	()	()
Breached/Stable	()	()	()
Breached/Degrading	()	()	()
Re-Established	()	()	()

3.0 Assessment of Core Damage

_____ % Damage based on	Isotopic Samples	Available Indicator	1
	_____ RCS	_____ CETC	
	_____ RCB Atmos	_____ RVWL	
	_____ RCB Sump	_____ RCB H ₂ Conc	
		_____ RCB Rad Levels	

4.0 Major Systems Problems

5.0 Conversations with NRC

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Security Supervisor			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 04/24/02
Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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Security Supervisor**1.0 Purpose and Scope**

- 1.1 This procedure specifies the actions to be completed by the Security Supervisor 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 Supervisor.

2.0 Responsibilities

- 2.1 The Security Supervisor is responsible for:
 - 2.1.1 Establishing and maintaining Owner Controlled Area (OCA) access control and security.
 - 2.1.2 Coordinating security operations outside the Protected Area and ensuring that security personnel are positioned such that radiological exposures will be minimized.
 - 2.1.3 Functioning as the primary interface with Local Law Enforcement Agencies.
 - 2.1.4 Coordinating with Local Law Enforcement Agencies to allow access through established roadblocks for responding Emergency Response Organization (ERO) personnel, supplies, and equipment.
 - 2.1.5 Arranging for the augmentation of the site Security Force as needed.
 - 2.1.6 Establishing offsite access control and security operations if Protected Area radiological problems require the evacuation of onsite security personnel.
 - 2.1.7 Proceeding to the Emergency Operations Facility (EOF) during the Recovery phase to coordinate security support for the Recovery organization.

3.0 References

- 3.1 STPEGS Emergency Plan
- 3.2 0ERP01-ZV-IN04, Assembly and Accountability
- 3.3 0ERP01-ZV-TS08, Security Manager
- 3.4 0ERP01-ZV-IN01, Emergency Classification
- 3.5 0ERP01-ZV-IN05, Site Evacuation
- 3.6 0ERP01-ZV-RE01, Recovery Operations

Security Supervisor

- 3.7 0ERP01-ZV-RE02, Documentation
- 3.8 OPGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide
- 4.0 Procedure
 - 4.1 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.
 - 4.2 Complete Checklist activities as follows:
 - 4.2.1 Use the right column to log the time an activity is performed.
 - 4.2.2 Reoccurring activities should be documented using the Emergency Action Log.
 - 4.2.3 Implement other activities as necessary.
 - 4.3 Use Checklists to help direct emergency activities.
- 5.0 Support Documents
 - 5.1 Addendum 1, Shift Turnover Briefing
 - 5.2 Data Sheet 1, Security Supervisor Checklist

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Security Supervisor			
Addendum 1	Shift Turnover Briefing		Page 1 of 1

- 1.0 Provide a briefing of events to the relief person including the following areas:
 - 1.1 Basis of the current Emergency Classification
 - 1.2 Completed checklists and Logs
 - 1.3 0ERP01-ZV-TS08, Data Sheet 6, Site Security Control Orders
 - 1.4 Recovery plans developed and corrective action items for plant recovery
 - 1.5 Current shift schedule and staffing levels
- 2.0 Inform the following personnel of the transfer of responsibilities to the oncoming shift replacement:
 - 2.1 TSC Security Manager
 - 2.2 Security Force Supervisor
- 3.0 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 Security Manager.
- 4.0 Verify your telephone number on the shift schedule. If this telephone number is inside the ten mile Emergency Planning Zone (EPZ), then provide an alternate telephone number for contact should evacuation of the EPZ be necessary.
- 5.0 Take a copy of your shift schedule.
- 6.0 Verify possession of a STPNOC Picture Badge for access through possible roadblocks when returning to the site for the next shift.
- 7.0 Sign out when leaving the Technical Support Center.

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Security Supervisor			
Data Sheet 1	Security Supervisor Checklist		Page 1 of 5

(Name)
(Date)
(Unit)

Action	Time
---------------	-------------

1.0 INITIAL ACTIVITIES

- 1.1 Obtain a security radio, report to the Technical Support Center of the affected Unit, and sign in on the Staffing Board. _____
- 1.2 Obtain a briefing from the Security Manager. _____
- 1.3 Initiate an Emergency Action Log of activities. In particular, document telephone calls made and received and any data or information received from or provided to other persons. _____

2.0 SECURITY ACTIVITIES

- 2.1 Coordinate any radiological precautions for Security Force personnel outside the Protected Area when directed by the Security Manager. _____
- 2.2 Consult with the Security Manager concerning the establishment of access control to the Owner Controlled Area. If access control is determined necessary, then position security personnel at the access roads to FM 521 and allow entrance only to personnel with STPNOC picture badges, Federal badges, State/County Agency badges, or emergency response vehicles. Emergency Director approval is required for all other entries. _____
- 2.3 Contact the Texas Department of Public Safety, Pierce Region, and the Matagorda County Sheriff's Office, and provide a briefing of any special security activities being implemented. _____
- 2.4 Contact the Security Force contractor to determine the number of additional Security Officers (beyond the basic manning levels) that could be made available and the mobilization time for their arrival onsite. Inform the Security Manager of the availability of additional personnel. _____

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Action	Time
---------------	-------------

3.0 SPECIAL ACTIVITIES

3.1 Site Evacuation _____

- Assist the Security Manager with verification of the evacuation of the Owner Controlled Area using 0ERP01-ZV-IN05, Site Evacuation.

3.2 Security Threat _____

- Assist the Security Force Supervisor in briefing the Texas Department of Public Safety, Pierce Region, and the Matagorda County Sheriff's Office of the current situation. Maintain periodic contact and provide updates.
- Brief the Security Manager of any Local Law Enforcement Agency activities in response to the emergency condition.
- Assist the Security Force Supervisor with the implementation of any special precautions required by the Security Plan.

3.3 Radiological Release Occurring or Imminent: _____

- Coordinate the implementation of precautionary radiological actions for Security Force personnel outside the Protected Area as directed by the Security Manager.
- Coordinate with the Security Manager to facilitate issuance of electronic dosimeters to Security personnel.
- Obtain exposure authorization increase for security personnel outside the Protected Area.
- Coordinate issuance of respiratory protection equipment to security personnel outside the Protected Area.

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Security Supervisor			
Data Sheet 1	Security Supervisor Checklist		Page 3 of 5

Action

Time

NOTE

Consumption of Potassium Iodide (KI) is voluntary.

- Upon receiving authorization from the Radiological Manager, coordinate administration of KI to security personnel outside the Protected Area.
- Coordinate with the Security Manager and determine if East and West Gatehouse access control activities need to be moved to the Emergency Operations Facility. If relocation of access control activities is necessary, then establish access control at the Emergency Operations Facility by:
 - Announcing over the security frequency, that all unassigned security personnel shall report to the Emergency Operations Facility to establish access control and security operations.
 - Informing the Security Manager when the Emergency Operations Facility has established access control and security operations.
 - Providing security escort between the East and West Gatehouses and the Emergency Operations Facility.

4.0 ONGOING ACTIVITIES

- Periodically brief the Security Manager of any Local Law Enforcement Agency activities underway.
- Periodically confer with the Security Manager concerning radiological conditions that could impact security operations and personnel outside the Protected Area.
- Periodically interface with the Procurement/Resources Supervisor on expected delivery times for equipment and supplies and ensure expedient processing of materials into the Owner Controlled Area.

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Data Sheet 1	Security Supervisor Checklist		Page 4 of 5

Action	Time
---------------	-------------

- Periodically coordinate with Local Law Enforcement Agencies to ensure access for responding ERO personnel, supplies, and equipment through any established offsite roadblocks.

5.0 SHIFT CHANGE _____

- Upon arrival of your shift replacement, complete all actions listed on Addendum 1, Shift Turnover Briefing.

6.0 RECOVERY ACTIVITIES _____

- Proceed to the EOF to coordinate Security support for the Recovery organization.
- Determine the manpower requirements necessary for upcoming security activities. Arrange for additional security support personnel, if necessary.
- Continue to monitor ongoing security activities outside the Protected Area until termination.
- Assist in developing recovery plans and procedures using the guidance in 0ERP01-ZV-RE01, Recovery Operations.

7.0 TERMINATION ACTIVITIES _____

- Develop a list of activities and tasks that should be completed using 0ERP01-ZV-RE02, Documentation, Form 1, Corrective Action Items List, and provide a copy of the list to the Security Manager.
- Provide a list of any supplies or forms needing replenishment to the Administrative Manager.
- If Security access control activities were moved to the EOF, then return access control activities to the Gatehouses.
- Collect and organize in chronological order all documents, checklists, and logs.

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Action

Time

- Assist the Security Manager in writing an Emergency Response Summary report using the guidance in 0ERP01-ZV-RE02, Documentation.
- Turn over all documentation generated during the emergency to the Administration Manager.

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Offsite Dose Calculations			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 04/24/02
Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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Offsite Dose Calculations**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, 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 ($\mu\text{Ci}/\text{sec}$) 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.

Offsite Dose Calculations**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 ($\mu\text{Ci}/\text{sec}$), atmospheric stability class and release pathway. This method may be used by onshift Health Physics technicians in performing a prompt dose assessment.

- 2.4 **RADIOLOGICAL RELEASE:** Any radiological release from the plant that exceeds the EAL limits established 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 ($^{\circ}\text{F}$) - 10 m ($^{\circ}\text{F}$)).
- 2.8 **SIGMA-THETA:** A method to assign atmospheric stability classes based on the standard deviation of the wind direction in degrees ($^{\circ}$).
- 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.

Offsite Dose Calculations

- 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.

Offsite Dose Calculations

- 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 in both unit Control Rooms and 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.

Offsite Dose Calculations

- 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 OPGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide
 - 6.5 ZV-0001, STAMPEDE Users Manual
- 7.0 Support Documents
 - 7.1 Form 1, Offsite Dose Calculations Transmittal Form (Sample)
 - 7.2 Addendum 1, Offsite Dose Calculation Input Worksheet
 - 7.3 Addendum 2, UFSAR Accident Assumptions
 - 7.4 Addendum 3, Use of OPDA Program
 - 7.5 Addendum 4, Containment Leakage Nomograph
 - 7.6 Addendum 5, Use of STAMPEDE Program
 - 7.7 Addendum 6, Emergency Dose Rate Tables
 - 7.8 Addendum 7, Method Selection Flowchart

Offsite Dose Calculations

Form 1

Offsite Dose Calculations Transmittal Form (Sample)

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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

1.0 Atmospheric Stability Classification

<u>Stability Classification</u>	<u>Class</u>	<u>Delta T (60m-10m)^oF</u>	<u>*Sigma-Theta</u>
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

* Do not use Sigma-Theta if wind speed is less than 5 mph, use default Stability Class D.

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

$$\begin{array}{ccccccc}
 \underline{\hspace{2cm}} & = & \underline{\hspace{2cm}} & \times & \underline{\hspace{2cm}} & \times & \underline{\hspace{2cm}} \\
 \text{Release Rate} & = & \text{Flow Rate} & \times & \text{Concentration} & \times & \text{Conversion Factor} \\
 (\mu\text{Ci/sec}) & & (\text{scfm}) & & (\mu\text{Ci/cc}) & & (4.72 \text{ E} + 2)
 \end{array}$$

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

$$\begin{array}{ccccccc}
 \underline{\hspace{2cm}} & = & \underline{\hspace{2cm}} & \times & \underline{\hspace{2cm}} & \times & \underline{\hspace{2cm}} \\
 \text{Release Rate} & = & \text{MSL Flow} & \times & \text{MSL Activity} & \times & \text{Conversion Factor} \\
 (\mu\text{Ci/Sec}) & & (\text{lb. mass/hr}) & & (\mu\text{Ci/cc}) & & (2.54) \\
 & & \text{ICS (FW Display)} & & \text{RT-8046-49} & & \\
 & & \text{FW-15} & & & &
 \end{array}$$

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Addendum 1	Offsite Dose Calculation Input Worksheet		Page 2 of 2

2.2.2

$$\begin{array}{r}
 \text{_____} \\
 \text{Release Rate} \\
 (\mu\text{Ci/Sec})
 \end{array}
 =
 \begin{array}{r}
 \text{_____} \\
 \text{Primary to Secondary} \\
 \text{Leak Rate} \\
 (\text{GPM})
 \end{array}
 \times
 \begin{array}{r}
 \text{_____} \\
 \text{RCS Activity} \\
 (\mu\text{Ci/ml})
 \end{array}
 \times
 \begin{array}{r}
 \text{_____} \\
 \text{Conversion Factor} \\
 (63.08)
 \end{array}$$

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.

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Offsite Dose Calculations			
Addendum 2	UFSAR Accident Assumptions		Page 1 of 1

<u>Type of Accident</u>	<u>UFSAR Section/Table</u>	<u>Release Locations</u>
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.

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Offsite Dose Calculations			
Addendum 3	Use of OPDA Program		Page 1 of 1

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 known 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.

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Offsite Dose Calculations			
Addendum 4	Containment Leakage Nomograph		Page 1 of 3

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 [ICS Screen Z]

pressure P_1 _____ at T_1 _____

- b. Record the subsequent pressure and time [ICS 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. IF a decrease in pressure is recorded, AND containment spray is NOT in progress, THEN 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 THRU time after reactor trip on line B, to concentration (Ci/m^3 or $\mu Ci/cc$) on line C. Connect point on line C THRU point on line D (decrease in pressure per hour) to value on line E ($\mu Ci/sec$ release rate).
5. Complete dose projections using Addendum 5, Use of STAMPEDE Program or Addendum 6, Emergency Dose Rate Tables.

Offsite Dose Calculations

NOTE

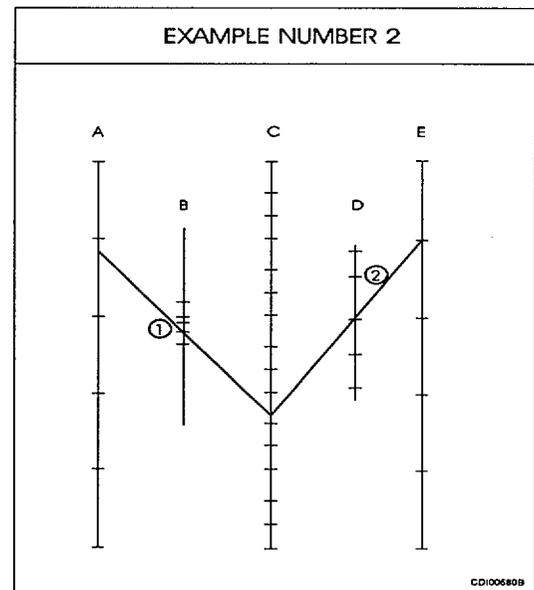
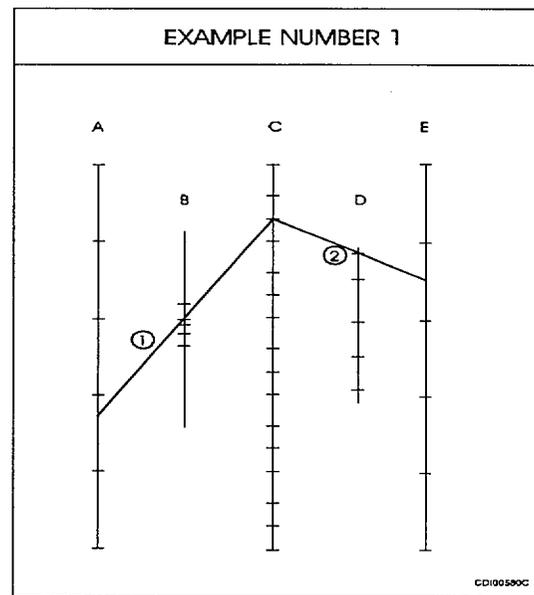
Scales are logarithmic or nonlinear

EXAMPLE CALCULATIONS:

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

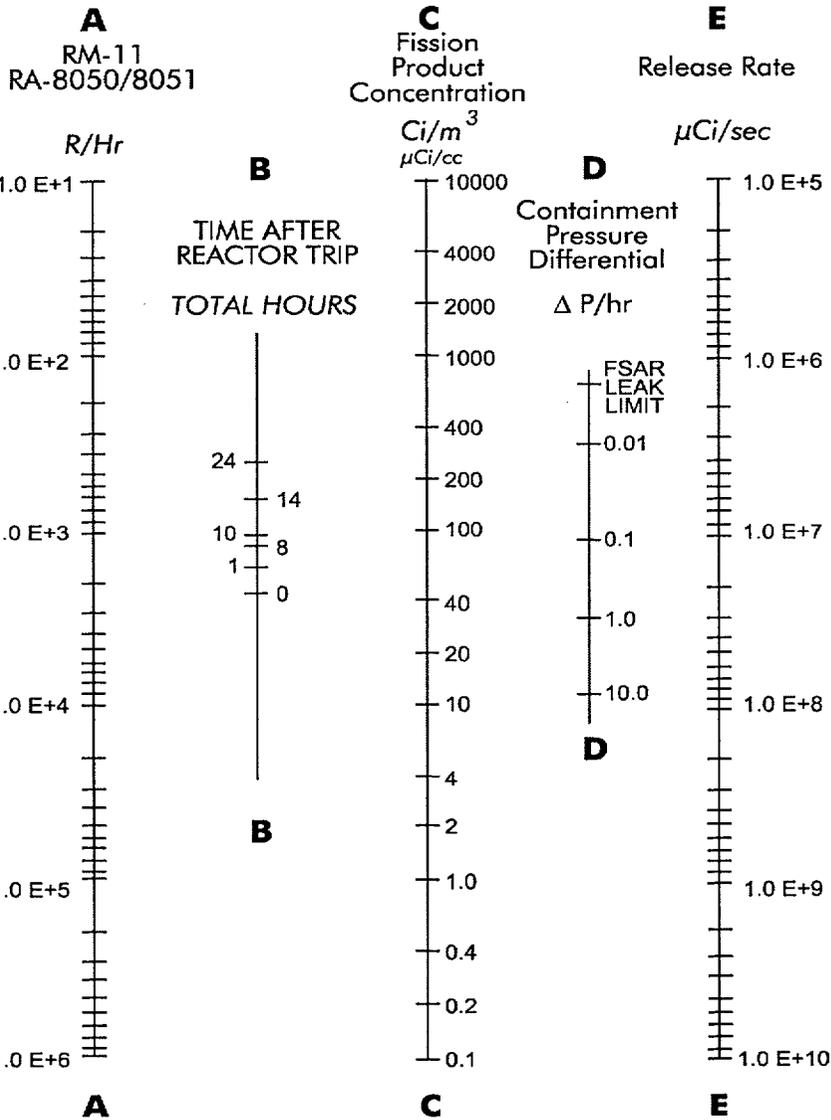
Find: RT-8050 reading of $2E+4$ R/hr
on A scale, and 10 hrs on B
scale. Connect the two points
with a straight line through C
scale to find 2000 Ci/m^3 (2000
 $\mu\text{Ci/cc}$). Connect the point at
 2000 Ci/m^3 to FSAR LEAK LIMIT
(0.3% containment volume/day)
on D scale. Extend line from
C scale through D scale to read
 $4.0E+6 \mu\text{Ci/sec}$ release rate.
- 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/m^3 ($5 \mu\text{Ci/cc}$) on C scale.
Connect the point from C scale
through 0.1 psi/hr on D scale to
find $1E+6 \mu\text{Ci/sec}$ release rate on
E scale.



Offsite Dose Calculations

SOURCE TERM ESTIMATOR



CDI00580
08/30/00

WARNING

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

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Offsite Dose Calculations			
Addendum 5	Use of STAMPEDE Program		Page 1 of 1

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 on the LAN and onto selected computers at STPEGS and the Texas Bureau of Radiation Control. The program is accessed from the MicroSoft Windows display by clicking on the appropriate icon.
- 2.0 Although the code is generally self-explanatory. Detailed operating instructions (User Manual) 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 Should the work area require evacuation, stored data should be copied to a diskette transported and loaded into a computer at an alternate location as described in Desktop Guide Instruction ZV-0001, STAMPEDE Users Manual.

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Offsite Dose Calculations			
Addendum 6	Emergency Dose Rate Tables		Page 1 of 8

- 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 7.0, 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.

Release Rate ($\mu\text{Ci/sec}$)	DOSE RATE (Rem/hour)							
	1 Mile		2 Mile		5 Mile		10 Mile	
	TEDE	CDE	TEDE	CDE	TEDE	CDE	TEDE	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)

Wind Speed: 14.8 mph

CDE = Committed Dose Equivalent
 (Thyroid)

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.

Release Rate (µCi/sec)	DOSE RATE (Rem/hour)							
	1 Mile		2 Mile		5 Mile		10 Mile	
	TEDE	CDE	TEDE	CDE	TEDE	CDE	TEDE	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.

Release Rate ($\mu\text{Ci/sec}$)	DOSE RATE (Rem/hour)							
	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	0.00	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.

Release Rate ($\mu\text{Ci/sec}$)	DOSE RATE (Rem/hour)							
	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.

Release Rate ($\mu\text{Ci/sec}$)	DOSE RATE (Rem/hour)							
	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.

Release Rate (µCi/sec)	DOSE RATE (Rem/hour)							
	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		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	0.01	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

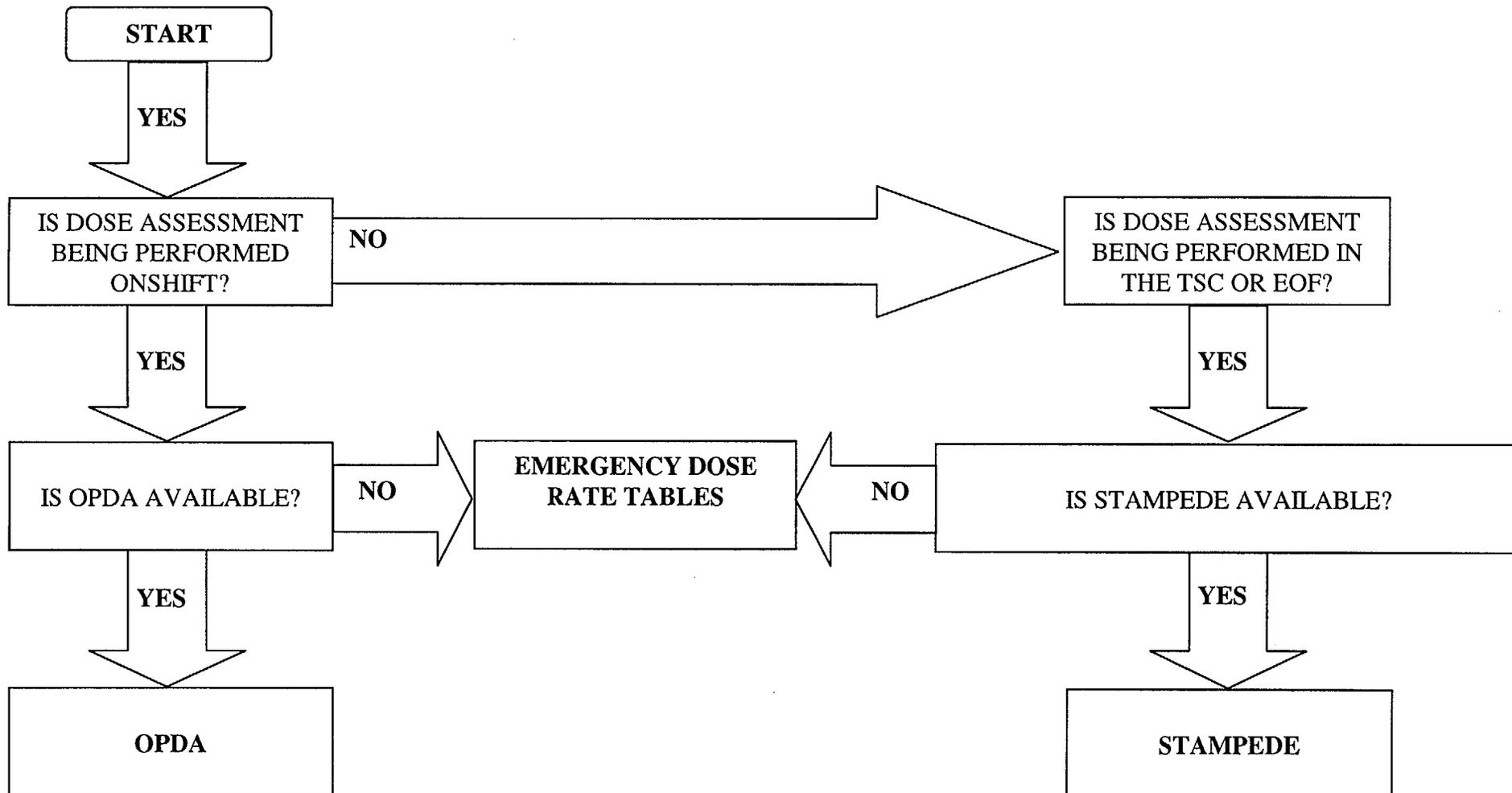
TEDE = Total Effective Dose Equivalent
(External + Internal)

Wind Speed: 5.5 mph

CDE = Committed Dose Equivalent
(Thyroid)

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

Offsite Dose Calculations



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Notifications To Offsite Agencies			
Quality	Non Safety-Related	Usage: N/A	Effective Date: 04/24/02
Max Keyes	N/A	N/A	Emergency Response Division
PREPARER	TECHNICAL	USER	COGNIZANT ORGANIZATION

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Notifications To Offsite Agencies**1.0 Purpose and Scope**

- 1.1 This procedure specifies the actions to be taken for notifying offsite agencies and the Nuclear Regulatory Commission of a declared emergency at the South Texas Project Electric Generating Station (STPEGS).

2.0 Definitions

- 2.1 Emergency Notification System (ENS) – FTS - 2001 Telephone System, used for initial notification of an emergency to the NRC.

3.0 Precautions and Limitations**NOTE**

Addendum 3, Emergency Communications provides information on the following communications links:

- NRC Emergency Notification System (ENS)
- State and County Ringdown Line
- Health Physics Network (HPN)
- Master Qualified Scheduling Entity (QSE) Ringdown Line
- 800 Mhz Radio

3.1 Notifications to offsite agencies shall meet the following time limits and criteria:**3.1.1 The State of Texas and Matagorda County shall be contacted within 15 minutes of the Emergency Director declaring:**

- Initial classification of the emergency;
- Change in the classification; or
- Change in Protective Action Recommendations (PARs) for the public, including changes in wind direction resulting in PARs affecting additional zones.

Once contacted, the information contained in Items 1-8 and 12 of Data Sheet 1, Offsite Agency Notification Message Form shall be transmitted. All information shall be provided after message Number 1.

Notifications To Offsite Agencies

- 3.1.2 Notify the NRC Operations Center immediately following notifications to the State/County and no later than one hour after the emergency has been declared. Use Data Sheet 4, NRC Event Notification Worksheet, as a record of conversation. If more than one communicator is available, NRC notification may be made concurrently with State/County notification.
 - 3.1.3 The Emergency Response Data System (ERDS) shall be activated at the time the NRC Operations Center is notified of the Alert, Site Area Emergency or General Emergency (see Addendum 4, Instructions for Operating Emergency Response Data System).
 - 3.1.4 Issue updates to the State and County approximately hourly unless a State/County consensus is obtained for a reduced frequency (e.g. a static condition).
 - 3.1.5 Immediately update the NRC, via the open line of communications, per Section 5.2.1.4 of this procedure.
 - 3.1.6 After Offsite Agency Notification Message Number 1, all subsequent notifications shall be completed in entirety.
- 3.2 If the Emergency Classification or PARs are changed during the 15 minute notification period, then continue to complete notifications to the State/County prior to initiating the new notification, and inform the agencies that a change in classification or change in PAR will be forthcoming. (LCTS 9100453-936)
- 3.2.1 An exception to this situation is when termination is declared before the offsite agencies are notified of the emergency condition. For this situation, issue both notification forms concurrently.
- 3.3 Notifications to offsite agencies shall follow the guidelines in Addendum 3, Emergency Communications, when communication system deficiencies exist.
- 3.4 Any revisions to this procedure that directly or indirectly affect the format or usage of Data Sheet 1 shall be reviewed by the Texas Department of Health, Bureau of Radiation Control (BRC) prior to becoming effective.

Notifications To Offsite Agencies

4.0 Responsibilities

NOTE

Refer to Addendum 1, Responsibilities for Notification.

- 4.1 The individual with Emergency Director authority is responsible for approving all notifications to offsite agencies and ensuring notifications are made within the required time frames.
- 4.2 The Shift Supervisor is responsible for implementation of this procedure while functioning as the Emergency Director. Actual completion of forms may be delegated to the communicators.
- 4.3 The Control Room ENS Communicator is responsible for maintaining the open line with the NRC, unless otherwise directed by the NRC. This responsibility shall not transfer to the Technical Support Center (TSC) or Emergency Operations Facility (EOF).
- 4.4 The Control Room ENS Communicator is responsible for activating the ERDS at the time the NRC Operations Center is notified of the Alert, Site Area Emergency, or General Emergency (see Addendum 4).
- 4.5 The Control Room State/County Communicator is responsible for notifications to the State/County and for maintaining Data Sheet 3, Offsite Agencies Log, while the Shift Supervisor has Emergency Director authority.
- 4.6 The Chemical/Radiochemical Manager in the TSC is responsible for gathering information and preparing Data Sheet 1 and implementation of this procedure while the TSC Manager has Emergency Director authority. The Chemical/Radiochemical Manager is responsible for ensuring the correctness and timeliness of Data Sheet 1.
- 4.7 The TSC Communicator in the TSC is responsible for completing notifications to the State/County and NRC when provided completed notification forms from the Chemical/Radiochemical Manager, and maintaining Data Sheet 3. The TSC Communicator shall maintain a file containing copies of all Data Sheet 1 which originate from either the Control Room or Technical Support Center.
- 4.8 The Engineering Assistant in the EOF is responsible for implementation of this procedure while the EOF Director has Emergency Director authority. The Engineering Assistant is responsible for gathering information and preparing Data Sheet 1, and has primary responsibility for the correctness and timeliness of Data Sheet 1. The Engineering Assistant should also, if time permits, routinely complete Data Sheet 2.

Notifications To Offsite Agencies

- 4.9 The Offsite Agency Communicator in the EOF is responsible for completing notifications to the State/County, when directed by the Emergency Director, and for maintaining Data Sheet 3. The Offsite Agency Communicator shall maintain a file containing a copy of all Data Sheet 1 from the start of the event to recovery.
- 4.10 The Licensing Director in the EOF is responsible for completing notifications to the NRC over the ENS once the EOF is activated.

5.0 Procedure

CAUTION

The State and County are required to be contacted within 15 minutes of the Emergency Director declaring any of the following:

- Initial classification of the emergency, (Item 4)
- Change in the classification, (Item 4) or
- Change in Protective Action Recommendations (PARs) for the public, including changes in wind direction resulting in PARs affecting additional Zones, (Item 6).

5.1 Offsite Agency Notification (State/County)

NOTE

Print the information on Data Sheet 1 (black ink should be used).

ONLY BLOCKS 1-8 AND 12 ARE REQUIRED TO BE COMPLETED UPON INITIAL NOTIFICATION. ALL INFORMATION SHALL BE PROVIDED AFTER MESSAGE NUMBER 1.

5.1.1 Complete Data Sheet 1

NOTE

The Communicator, at the time of contact, enters the names of the persons contacted at DPS Pierce and Matagorda County at the top of each form. Record the time of contact.

- 5.1.1.1 ITEM 1 - Name of the STPEGS person communicating information to offsite agencies. Mark the applicable Unit. If the event is common unit, then mark Unit 1.
- 5.1.1.2 ITEM 2 - Mark if notification is or is not a drill.

Notifications To Offsite Agencies

- 5.1.1.3 ITEM 3 - Start with number one (1). Number sequentially, independent of facility originating Data Sheet 1, and indicate which facility is originating the message.
- 5.1.1.4 ITEM 4 - Mark if the classification is new or unchanged. Fill in the date and time the current classification was declared. Mark the event classification.
- 5.1.1.5 ITEM 5 - A radiological release is defined as exceeding the Emergency Action Level (EAL) for an Unusual Event.
- 5.1.1.6 ITEM 6 - Mark if the recommended protective actions are new or unchanged.
- a. Refer to 0ERP01-ZV-IN07, Offsite Protective Action Recommendations for PARs. Mark Block A or B. If Block A is marked then go to Step 5.1.1.7.
- b. Ensure correct notations are used for zones and sectors. Zones range from 1 to 11. Sectors range from A to R. Refer to Addendum 4 in 0ERP01-ZV-IN07, Offsite Protective Action Recommendations, for a cross reference of zones and sectors.
- 5.1.1.7 ITEM 7 - Indicate BRC disposition on PARs recommendation or BRC Not Contacted.
- 5.1.1.8 ITEM 8 - Mark if the event description is new or unchanged. Enter the alpha numeric designator in the initiating condition line.
- a. Addendum 6 contains suggested wording which may be used by the communicator as an aid.
- b. If wording other than that provide in Addendum 6 is used, then, include a brief explanation of the event in lay terms for clarification to offsite agencies. Legibly print a non-technical description of the event. DO NOT USE ACRONYMS.

Notifications To Offsite Agencies

NOTE

Only Blocks 1 - 8 and 12 are required to be completed upon initial notification. The remainder of the form should be completed if time allows. The entire form shall be completed on all subsequent notifications or updates.

- 5.1.1.9 ITEM 9 - Mark NEW or UNCHANGED. Meteorological data is available on the Integrated Computer System (ICS) Emergency Response Facility Data Acquisition Display System (ERFDADS). Ensure 15 minute average lower wind speed and wind direction are used. See Addendum 5, Atmospheric Stability Classification.
- 5.1.1.10 ITEM 10 - Mark NEW or UNCHANGED. A radiological release is defined as exceeding the EAL for an Unusual Event. Use a default 4 hour value if the release duration unknown.
- 5.1.1.11 ITEM 11 - Additional remarks, if any.
- 5.1.1.12 ITEM 12 - Signature of Emergency Director authorizing release of Data Sheet 1.
- 5.1.2 Complete notifications using Data Sheet 3.
- 5.1.2.1 Contact State/County on ringdown line or alternate numbers.
- Read ITEMS 1-8.
 - Supply information in Items 9-11, if available.
- 5.1.2.2 Fax notification forms. Log time fax completed and confirmed.
- 5.1.2.3 If the Communicator is also making NRC notifications, complete Section 5.2 of this procedure prior to continuing.
- 5.1.2.4 Contact BRC and issue information on Data Sheet 1.
- 5.1.2.5 Notify unaffected Unit Control Room that an emergency fax notification has been made.
- 5.1.2.6 Notify the Master QSE that emergency fax notification has been made.

Notifications To Offsite Agencies

- 5.1.3 Issue update notifications to State and County approximately hourly unless a State/County consensus is obtained for a reduced frequency (e.g. a static condition).
- 5.1.3.1 Update notifications are made using Data Sheet 1, Offsite Agency Notification Message Form.
- 5.1.3.2 If the Emergency Director is located in the Emergency Operations Facility and events are not rapidly changing, then, following issuance of Data Sheet 1, issue Data Sheet 2, Supplemental Notification Form. (Guidance for issuing Data Sheet 2 is found in Addendum 2, Special Instructions for Completing Supplemental Notification Form.)
- 5.1.4 If Data Sheet 1 or Data Sheet 2 is issued with incorrect information, then immediately contact the notified agencies, correct the information and follow-up with a corrected Data Sheet 1 or Data Sheet 2.
- 5.1.5 If Data Sheet 1 or Data Sheet 2 is being transmitted with incorrect information, then immediately stop transmission, gather the correct information, and re-transmit a corrected Data Sheet 1 or Data Sheet 2.

5.2 NRC Notification

NOTE

Complete Data Sheet 4 (black ink should be used) for initial NRC notification. Complete all applicable blocks on the worksheet.

- 5.2.1 Notify the NRC Operations Center immediately following initial notification of State/County agencies and no later than one hour after the emergency has been declared. If more than one communicator is available, these notifications may be done concurrently. Use Data Sheet 4 as a record of initial conversation. Additional records of conversation may be made on Emergency Action Log Sheets.
- 5.2.1.1 Description - Provide a description of the event to include systems affected, actuation's and initiating signals, causes, effect of event on plant, actions taken or planned, etc. Additional space is provided on back of Data Sheet 4. Check block when Control Room Log Book entry is made.

Notifications To Offsite Agencies

- 5.2.1.2 Radiological Releases - Complete this section if the event is radiologically based. Information from Data Sheet 1 may be used if information described in Data Sheet 4 is not available and obtaining it would likely cause a late notification.
- 5.2.1.3 Activate the ERDS at the time the NRC Operations Center is notified of the Alert, Site Area Emergency or General Emergency (see Addendum 4).
- 5.2.1.4 The Control Room ENS Communicator must maintain an open telephone line with the NRC, unless otherwise directed by the NRC. During the course of the event, immediately report any further degradation in the level of safety of the plant or other worsening conditions, including those that require declaration of any of the emergency classes, or may change from one emergency class to another, or a termination of the emergency class. Immediately report the results of ensuing evaluations or assessments of plant conditions, the effectiveness of response or protective measures taken, and information relating to plant behavior that is not understood.
- 5.2.2 Notify NRC Resident Inspector. Log time of contact on Data Sheet 4.

6.0 References

- 6.1 STPEGS Emergency Plan
- 6.2 OPGP05-ZV-0004, Emergency Plan Implementing Procedure Users Guide
- 6.3 0ERP01-ZV-IN07, Offsite Protective Action Recommendations
- 6.4 0ERP01-ZV-IN01, Emergency Classification
- 6.5 10CFR50.72(a)ii.3
- 6.6 Inspection Report 91-03-01 (LCTS 9100453-936)
- 6.7 10CFR50 Appendix E - IV.D.3
- 6.8 IEN 89-89

7.0 Support Documents

- 7.1 Data Sheet 1 - Offsite Agency Notification Message Form (Typical)
- 7.2 Data Sheet 2 - Supplemental Notification Form (Typical)

Notifications To Offsite Agencies

- 7.3 Data Sheet 3 - Offsite Agencies Log
- 7.4 Data Sheet 4 - NRC Event Notification Worksheet (Typical)
- 7.5 Addendum 1 - Responsibilities for Notifications
- 7.6 Addendum 2 - Special Instructions for Completing Supplemental Notification Form
- 7.7 Addendum 3 - Emergency Communications
- 7.8 Addendum 4 - Instructions for Operating Emergency Response Data System (ERDS)
- 7.9 Addendum 5 - Atmospheric Stability Classification
- 7.10 Addendum 6 - Suggested Wording for Event Description

Notifications To Offsite Agencies

Data Sheet 2

Supplemental Notification Form (Typical)

Page 1 of 1

TP 1686C (04/02)
REV. 9

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

SUPPLEMENTAL NOTIFICATION FORM

THIS IS A DRILL

THIS IS NOT A DRILL

1. MESSAGE S- _____ 3. EMERGENCY DIRECTOR LOCATION: () CR () TSC () EOF
() AEOF
2. UNIT STATUS: UNIT 1 POWER _____
UNIT 2 POWER _____ COMMUNICATOR NAME: _____

STATUS OF BOUNDARY	4. FUEL CLADDING	5. REACTOR COOLANT SYSTEM	6. CONTAINMENT
INTACT	()	()	()
POTENTIAL LOSS	()	()	()
LOSS	()	()	()
RE-ESTABLISHED	N/A	()	()

7. PROGNOSIS OF SITUATION
() IMPROVING () STABLE
() DEGRADING SLOWLY () DEGRADING QUICKLY
() UNKNOWN, UNDER ASSESSMENT
8. EAL #: _____
9. NUMBER OF FUNCTIONAL SAFETY TRAINS: _____

10. OFFSITE SUPPORT REQUESTED
() NONE
() AMBULANCE
() FIRE
() LOCAL LAW ENFORCEMENT
() WESTINGHOUSE
() BECHTEL
() INPO
() NRC
() OTHER _____

11. ONSITE PROTECTIVE MEASURES ORDERED	YES	NO
ACCOUNTABILITY	_____	_____
EVACUATION OF NON-ESSENTIALS	_____	_____
CONTROL ROOM EVACUATION	_____	_____
TSC/OSC RELOCATION	_____	_____
EOF RELOCATION	_____	_____
POTASSIUM IODIDE ISSUED	_____	_____
MEDICAL EMERGENCY OFFSITE TRANSPORT	_____	_____
OTHER _____	_____	_____

12. ORGANIZATION /FACILITIES ACTIVATED
() TSC/OSC
() EOF
() ALTERNATE EOF
() JIC

14. MISCELLANEOUS INFORMATION

13. PROJECTED OFFSITE DOSES (CENTERLINE)	TEDE (REM)	THYROID CDE (REM)
A. EXCLUSION AREA BOUNDARY	_____	_____
B. 2 MILES	_____	_____
C. 5 MILES	_____	_____
D. 10 MILES	_____	_____
E. ESTIMATED RELEASE DURATION	_____	HRS
F. RELEASE RATE	_____	µCi/sec

15. EMERGENCY DIRECTOR APPROVAL:

SIGNATURE
16. ACKNOWLEDGMENT OF RECEIPT:

SIGNATURE

DATE TIME

DATE TIME

MESSAGE NUMBER	*MATAGORDA COUNTY	*DPS - PIERCE	FAX COMPLETED AND CONFIRMED	*TEXAS DEPT. OF HEALTH (BRC)	*UNAFFECTED UNIT CONTROL ROOM MASTER QSE	NOTIFICATIONS COMPLETED
	CONSOLE OR 979-245-5526 OR 979-244-1178 (When EOC Activated)	CONSOLE OR 979-543-6878 OR 979-532-1740	(Refer to Addendum 2)	512-834-6688 OR 512-458-7460	U1-8614/8610/ 8595/7732 U2-7953/8549/ 8683/8156 QSE Ringdown	BY: NAME/LOCATION

15 MINUTE NOTIFICATION REQUIRED
--

*LOG THE TIME OF CONTACT.

NRC FORM 361 (12-2000)	REACTOR PLANT EVENT NOTIFICATION WORKSHEET	U.S. NUCLEAR REGULATORY COMMISSION OPERATIONS CENTER EN #
---------------------------	---	---

NRC OPERATION TELEPHONE NUMBER: PRIMARY -- 301-816-5100 or 800-532-3469*, BACK UPS -- [1st] 301-951-0550 or 800-449-3694*, [2nd] 301-415-0550 and [3rd] 301-415-0553
 *Licensees who maintain their own ETS are provided these telephone numbers.

NOTIFICATION TIME ET CT	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	CALL BACK #
EVENT TIME & ZONE CT	EVENT DATE	POWER/MODE BEFORE /	POWER/MODE AFTER /	
EVENT CLASSIFICATIONS		1-Hr. Non-Emergency 10 CFR 50.72(b)(1)		<input type="checkbox"/> (v)(A) Safe S/D Capability AINA
<input type="checkbox"/> GENERAL EMERGENCY GEN/AECC		<input type="checkbox"/> TS Deviation ADEV		<input type="checkbox"/> (v)(B) RHR Capability AINB
<input type="checkbox"/> SITE AREA EMERGENCY SIT/AECC		4-Hr. Non-Emergency 10 CFR 50.72(b)(2)		<input type="checkbox"/> (v)(C) Control of Rad Release AINC
<input type="checkbox"/> ALERT ALE/AECC		<input type="checkbox"/> (i) TS Required S/D ASHU		<input type="checkbox"/> (v)(D) Accident Mitigation AIND
<input type="checkbox"/> UNUSUAL EVENT UNU/AECC		<input type="checkbox"/> (iv)(A) ECCS Discharge to RCS ACCS		<input type="checkbox"/> (xii) Offsite Medical AMED
<input type="checkbox"/> 50.72 NON-EMERGENCY (see next columns)		<input type="checkbox"/> (iv)(B) RPS Actuation (scram) ARPS		<input type="checkbox"/> (xiii) Loss Comm/Asmt/Resp ACOM
<input type="checkbox"/> PHYSICAL SECURITY (73.71) DDDD		<input type="checkbox"/> (xi) Offsite Notification APRE		60-Day Optional 10 CFR 50.73(a)(1)
<input type="checkbox"/> MATERIAL/EXPOSURE B???		8-Hr. Non-Emergency 10 CFR 50.72(b)(3)		<input type="checkbox"/> Invalid Specified System Act AINV
<input type="checkbox"/> FITNESS FOR DUTY HFIT		<input type="checkbox"/> (ii)(A) Degraded Condition ADEG		Other Unspecified Requirement (Identify)
<input type="checkbox"/> OTHER UNSPECIFIED REQMT (see last column)		<input type="checkbox"/> (ii)(B) Unanalyzed Condition AUNA		<input type="checkbox"/> NONR
<input type="checkbox"/> INFORMATION ONLY NNF		<input type="checkbox"/> (iv)(A) Specified System Actuation AESF		<input type="checkbox"/> NONR

DESCRIPTION

Include: Systems affected, actuations and their initiating signals, causes, effect on plant, actions taken or planned, etc. *(Continue on back)*

NOTIFICATIONS	YES	NO	WILL BE	ANYTHING UNUSUAL OR NOT UNDERSTOOD?	<input type="checkbox"/> YES (explain above)	<input type="checkbox"/> NO
NRC RESIDENT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
STATE(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DID ALL SYSTEMS FUNCTION AS REQUIRED?	<input type="checkbox"/> YES	<input type="checkbox"/> NO (explain above)
LOCAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
OTHER GOV AGENCIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MODE OF OPERATION UNTIL CORRECTED:	ESTIMATE FOR RESTART DATE:	ADDITIONAL INFO ON BACK
MEDIA/PRESS RELEASE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/> YES <input type="checkbox"/> NO

ADDITIONAL INFORMATION

RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS (specific details/explanations should be covered in event description)					
<input type="checkbox"/> LIQUID RELEASE	<input type="checkbox"/> GASEOUS RELEASE	<input type="checkbox"/> UNPLANNED RELEASE	<input type="checkbox"/> PLANNED RELEASE	<input type="checkbox"/> ONGOING	<input type="checkbox"/> TERMINATED
<input type="checkbox"/> MONITORED	<input type="checkbox"/> UNMONITORED	<input type="checkbox"/> OFFSITE RELEASE	<input type="checkbox"/> T.S. EXCEEDED	<input type="checkbox"/> RM ALARMS	<input type="checkbox"/> AREAS EVACUATED
<input type="checkbox"/> PERSONNEL EXPOSED OR CONTAMINATED		<input type="checkbox"/> OFFSITE PROTECTIVE ACTIONS RECOMMENDED		*State release path in description.	

	Release Rate (Ci/sec)	% T.S. Limit	HOO Guide	Total Activity (Ci)	% T.S. Limit	HOO Guide
Noble Gas			0.1 Ci/sec			1000 Ci
Iodine			10 µCi/sec			0.01 Ci
Particulate			1 µCi/sec			1 mCi
Liquid (excluding tritium and dissolved noble gases)			10 µCi/min			0.1 Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total Activity						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	SG BLOWDOWN	OTHER
RAD MONITOR READINGS					
ALARM SETPOINTS					
% T. S. LIMIT (if applicable)					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS (specific details/explanations should be covered in event description)			
LOCATION OF THE LEAK (e.g., SG #, valve, pipe, etc)			
LEAK RATE	UNITS: gpm/gpd	T. S. LIMITS	SUDDEN OR LONG TERM DEVELOPMENT
LEAK START DATE:	TIME: MST	COOLANT ACTIVITY AND UNITS: PRIMARY -	SECONDARY -

LIST OF SAFETY EQUIPMENT NOT OPERATIONAL:

<p style="text-align:center;">EVENT DESCRIPTION (Continued from front)</p>	<p style="text-align:center;">INITIALS AND DATE</p> <hr/> <hr/> <hr/> <hr/> <hr/>
---	--

Notifications To Offsite Agencies

Addendum 1

Responsibilities For Notification

Page 1 of 1

RESPONSIBILITY	RESPONSIBLE PERSON BASED ON LOCATION OF EMERGENCY DIRECTOR		
	CR	TSC	EOF
Complete Data Sheet 1, Offsite Agency Notification Message Form	State/County Communicator	Chemical/Radiochemical Manager	Engineering Assistant
Complete Data Sheet 4, NRC Event Notification Worksheet and Maintain Open line	ENS Communicator	N/A	N/A
Update NRC on event status	ENS Communicator	Chemical/Radiochemical Manager	Licensing Director
Complete Data Sheet 2, Supplemental Notification Form	N/A	N/A	Engineering Assistant
Log State/County Notifications using Data Sheet 3, Offsite Agencies Log	State/County Communicator	TSC Communicator	Offsite Agency Communicator

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Notifications To Offsite Agencies			
Addendum 2	Special Instructions for Completing Supplemental Notification Form		Page 1 of 2

NOTE

- Data Sheet 2 should be completed using black ink. No items are to be left blank even if information is unchanged.
- The Engineering Assistant should, if time permits, routinely complete Data Sheet 2.

- ITEM 1 - Use same number as on Data Sheet 1, which will be completed in conjunction with this form.
- ITEM 3 - Identify the location of the Emergency Director and the name of the Communicator.
- ITEM 9 - Enter the number of Engineered Safety Features (ESF) trains in the affected unit which are functional.
- ITEM 10 - Mark offsite support requested which will be responding to the site. This block is completed to facilitate the support group requested through county established road blocks.
- ITEM 14 - Examples of miscellaneous information:
- a. Estimate of quantity of radioactive material released or being released and the points and heights of releases.
 - b. Chemical and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates.
 - c. Estimate of any surface radioactive contamination in plant, onsite or offsite.
 - d. Any licensee emergency response actions underway.
- GENERAL -
- a. Enter unavailable if information is not known.
 - b. Enter N/A if item is not applicable.

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Addendum 2	Special Instructions For Completing Supplemental Notification Form		Page 2 of 2

c. Fax the completed and approved Data Sheet 2 to all agencies listed below:

- Matagorda County Sheriff's Office Dispatcher
- Matagorda County Emergency Operations Center
- Texas Department of Public Safety (DPS) - Pierce, TX
- Texas Department of Health - BRC
- Division of Emergency Management
- Texas Department of Public Safety - Houston, TX
- Emergency Operations Facility
- Affected Unit's TSC
- Affected Unit's Control Room (when Emergency Direction is not in Control Room)
- Unaffected Unit's Control Room
- Site Public Affairs (EOF)
- Joint Information Center (JIC) (if activated)
- Energy Control Data Center

NOTE

Fax numbers can be found in the STPEGS Emergency Communications Directory.

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Notifications To Offsite Agencies			
Addendum 3	Emergency Communications (SPR 91-0447)		Page 1 of 4

1.0 Emergency Communications System

1.1 Emergency Notification System (ENS)

1.1.1 The ENS is a telephone circuit provided by the NRC.

1.1.2 The ENS is activated to notify the NRC of a declared emergency or drills/exercises and to maintain communications with the NRC Operations Center as needed.

1.1.3 If the ENS is activated, then a person SHALL remain on the line until the NRC agrees that the ENS may be terminated.

1.1.4 There are seven (7) methods to notify the NRC. These are:

- ENS telephone
- Outside phone lines
- Control Room direct phone line to Bay City
- Microwave line to Reliant Energy Plaza and call forwarded to the NRC
- Ringdown line to QSE and call forward to the NRC
- 800 MHz Radio to communicate with QSE and call forward to the NRC
- Security radio communications to Matagorda County Sheriff's Office and forwarded to the NRC

1.1.5 The principal method of communications with the NRC is the ENS. The circuit may also be activated by the NRC.

1.1.6 If the ENS is out of service, then use outside phone lines to notify the NRC at one of the following telephone numbers (in order of priority) AND remain on the line.

- 9-1-301-816-5100
- 9-1-301-951-0550

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Addendum 3	Emergency Communications (SPR 91 0447)		Page 2 of 4

- 1.1.7 If the outside telephone lines are out of service, then use the Control Room direct phone line to Bay City and notify the NRC at one of the following telephone numbers (in order of priority) AND remain on the line.
- 1-301-816-5100
 - 1-301-951-0550
- 1.1.8 If the Control Room direct telephone line to Bay City is out of order, then use the microwave tower line (32-0) to Reliant Energy Plaza (24 hours) and have the Operator/Security complete the phone call to the NRC AND remain on the line if requested by the NRC.
- 1.1.9 If the microwave tower line is out of service, then use the QSE Ringdown line and have the dispatcher forward the call or information to the NRC AND remain on the line if requested by the NRC.
- 1.1.10 If the QSE Ringdown line is out of service, then use the 800 MHz Radio to communicate with QSE and have the dispatcher forward the information to the NRC AND remain on the radio if requested by the NRC.
- 1.1.11 If the 800 MHz Radio is out of service, then use the Security radio console to contact the Matagorda County Sheriff's Office and request the information be forwarded to the NRC. Stay on the radio with the Matagorda County Sheriff's Office.
- 1.2 State and County Ringdown line
- 1.2.1 The State and County ringdown line is provided to notify State and County officials of a declared emergency.
- 1.2.2 The State-County ringdown line is an automatic ringdown telephone circuit terminated on a communications console or an ORANGE telephone (EOF).
- 1.2.3 There are seven (7) methods to notify the State/County. These are:
- State/County ringdown telephone
 - Outside telephone lines
 - Control Room direct telephone line to Bay City
 - Microwave line to Reliant Energy Plaza and call forwarded to the State and County

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Addendum 3	Emergency Communications (SPR 91 0447)		Page 3 of 4

- 800 MHz Radio Communications with the State/County
- Ringdown line to QSE and call forward to the State/County
- Security radio communications with the County

1.2.4 If the State/County ringdown line is out of service, then use outside telephone lines to notify the State and County at one of the following telephone numbers:

- State/DPS-Pierce
 - 9-1-979-543-6878

OR

- 9-1-979-532-1740
- Matagorda County Sheriff's Office
 - 9-1-979-245-5526

1.2.5 If outside telephone lines are out of service, then use the Control Room direct telephone line to Bay City to notify the State/County.

1.2.6 If the Control Room direct telephone line to Bay City is out of service, then use the microwave line (32-0) to Reliant Energy Plaza (24 hours) and have the Operator/Security complete the telephone calls to the State/County.

1.2.7 If the microwave line is out of service, then use the 800 MHz Radio to communicate with the State/County.

1.2.8 If the 800 MHz Radio is out of service, then use the QSE Ringdown line and forward the telephone call or information to the State/County.

1.2.9 If the QSE Ringdown line is out of service, then use the Security radio to notify the County and request they forward the information to the State.

1.3 Health Physics Network (HPN)

1.3.1 The HPN is terminated on an FTS - 2001 telephone.

1.3.2 The HPN is to be used only at the request of the NRC.

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1.3.4 If the outside telephone lines are out of service, then use the microwave line (32-0) to Reliant Energy Plaza (24 hours) and have the Operator/Security complete the telephone call to the NRC/HPN.

1.3.5 If the HPN telephone line is out of service, then notify the NRC Operations Center. (IEN 89-19)

- NOTIFY the NRC when the telephone set has been returned to service. (IEN 89-19)

1.3.6 The HPN telephone is designed to provide communications with the NRC Health Physics Section and/or other nuclear power plants during a declared emergency or drill/exercise. STPEGS health physics personnel MAY request a conference call with other nuclear power plants on the HPN by asking the NRC to connect the desired plant(s).

1.4 Reliant Dispatcher Ringdown line

1.4.1 The Qualified Scheduling Entity ringdown line is an automatic ringdown between the Co-owners and the plant.

1.5 800 MHz Radio

1.5.1 Press HOME on keypad to ensure channel 65 is on the LCD display. Channel 65 is monitored by the dispatcher.

1.5.2 If unnecessary traffic is coming over the radio, use MODE on the keypad until the prompt appears to put the radio to sleep. Entering 0 will put the unit to sleep. Pressing any button on the keypad will wake the unit up. Traffic will again be monitored.

1.5.3 To contact Master QSE, press QSE on the keypad. Channel 65 should be displayed, and momentarily, QSE will acknowledge the unit calling. The handset is a push to talk handset.

1.5.4 The 800 MHz has many additional capabilities, including, use as a radio-telephone. Contact the EOF Communications System Supervisor for additional instructions.

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Notifications To Offsite Agencies			
Addendum 4	Instructions for Operating Emergency Response Data Systems (ERDS)		Page 1 of 2

- 1.0 Emergency Response Data System (ERDS) Activation, Termination, and Error Handling Instructions:
- 2.0 Steps to Activate the ERDS from Integrated Computer System / Emergency Response Facility Data Acquisition Display System (ICS/ERFDADS) Main Menu:
 - 2.1 Click on the Menu UP Arrow (WDPF Main Menu)
 - 2.2 Select Custom Graphics
 - 2.3 Select Top Level Menu
 - 2.4 Select AF, AM, AP, BR, & CC DISPLAYS
 - 2.5 Select NRC Link Control
 - 2.6 Click in ACTIVATE Block to connect with the NRC ERDS Computer at the NRC Operations Center in Rockville, Maryland, via a dedicated telephone line.
 - 2.7 The dial-up should generally succeed within one minute, at which time the NRC Link Control screen will indicate ACTIVE and ONLINE and will begin counting GOOD CYCLES. Otherwise, the ICS/ERFDADS will automatically re-dial and attempt to connect with the NRC ERDS computer several additional times. If no connection is established within approximately five minutes, then NRC Link Control screen will indicate the link status via error messages. If more than five minutes elapses without a successful response, then site personnel should notify the NRC before terminating efforts to establish the ERDS datalink.
 - 2.8 The display terminal may now be used for other purposes while the ERDS data continues to be transmitted to the NRC. Whenever the ERDS is active, it is suggested that NRC Link Control or NRC Link Status screen be used to monitor the status of the ERDS datalink.
- 3.0 Steps to terminate the ERDS:
 - 3.1 If NRC Link Control screen is not present on an ICS/ERFDADS terminal, repeat the ERDS activation steps 2.1, 2.2, 2.3, 2.4, and 2.5.
 - 3.2 When NRC Link Control screen is present on the terminal CLICK in the TERMINATE Block. This action causes the ICS/ERFDADS to disconnect the telephone connection with the NRC ERDS computer in Rockville, Maryland.
 - 3.3 When the ERDS is terminated by STP, the NRC Link Control and NRC Link Status screens will show the message Terminated and the Link Status Block with the message OFFLINE. When STP terminates the ERDS, then 15 minutes must lapse before attempting to activate the ERDS again from the same STP Unit.

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Addendum 4	Instructions For Operating Emergency Response Data Systems (ERDS)		Page 2 of 2

4.0 Steps to handle ERDS error conditions:

- 4.1 If an error condition occurs, then the error messages will be displayed on NRC Link Control and NRC Link Status screens. If an error condition occurs, then obtain a hardcopy of the error message using Print Screen.
- 4.2 When the ERDS is active and no errors are occurring, then displays NRC Link Control and NRC Link Status screens will tag the ERDS Messages block with the message Active, the Link Status block with the message Online, the Read Error block with the message OK, the Nonsensical error block with the message OK. and the Write Error block with the message OK.
- 4.3 If an attempt is made to activate the ERDS by STP and all telephone lines at NRC are busy, then displays NRC Link Control and NRC Link Status screens will tag the ERDS Messages block with the message NRC lines busy. Obtain a hardcopy of the display showing the NRC lines busy message and then follow the steps to terminate the ERDS. Periodically try again to activate the ERDS, producing a hardcopy of the display each time the NRC lines busy message is shown.
- 4.4 If an attempt is made to activate the ERDS by STP and NRC denies access to the ERDS computer system in Rockville, Maryland, then displays NRC Link Control and NRC Link Status will tag the ERDS Messages block with the message Unaccepted by NRC. Obtain a hardcopy of the display showing the denied access by NRC message and then follow the steps to terminate the ERDS. Periodically try again to activate the ERDS, producing a hardcopy of the display each time the denied access by NRC message is shown.
- 4.5 NRC has the ability to terminate an active ERDS link. If NRC terminates such a link, then displays NRC Link Control and NRC Link Status will tag the ERDS Messages block with the message Terminated by NRC and the Link Status block with the message Offline. Obtain a hardcopy the display showing the ERDS link termination by NRC.
- 4.6 If the ERDS link is active and the telephone line is disconnected, then the ICS/ERFDADS will automatically re-dial and attempt to reconnect with the NRC ERDS computer system. If the telephone line is disconnected, then displays NRC Link Control and NRC Link Status will tag the ERDS Messages block with either the message Active or with the message Modem trouble, the Link Status block with the message Offline, and the remainder of the status messages blocks with the message OK or the message TRBL.

If the ERFDADS is not able to reconnect with the NRC ERDS computer system, then hardcopy the displayed error messages and contact the ERFDADS System Engineer.

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Addendum 5	Atmospheric Stability Classification		Page 1 of 1

Stability Classification	Class	Delta T (60m-10m)°F	*Sigma-Theta
Extremely Unstable	A	< -1.7	≥ 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

* Do not use Sigma-Theta if wind speed is less than 5 mph, use default Stability Class D.

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NOTE

Obtain Initiating Condition alpha-numeric designation from the Emergency Director. Match designation with list below and enter into item 8 of Data Sheet 1.

Fission Product Barrier Degradation

FU1	Loss or potential loss of Containment barrier
FA1	Loss or potential loss of Fuel Clad or Reactor Coolant System barrier
FS1	Loss or potential loss of two fission product barriers
FG1	Loss of two fission product barriers with potential loss or loss of the third barrier

System Malfunction

SU1	Loss of offsite power to safety systems. Multiple sources of emergency power are available.
SU2	Plant operation determined to be outside of plant safety specifications.
SU3	Unplanned loss of most Control Room safety system alarm indications.
SU4	Unplanned loss of all onsite or offsite communications capabilities.
SU5	Unplanned loss of safety related battery power causing difficulty monitoring plant conditions while shutdown.
SU6	Indication of degradation or potential loss of the Fuel Clad fission product barrier.
SU7	Indication of degradation of Reactor Coolant System fission product barrier.
SA1	Loss of all power to safety systems while the plant is shutdown and cooled down.
SA2	Reactor failed to automatically shutdown when required. Manual shutdown was successful.
SA3	Inability to maintain appropriate cooled down temperature while shutdown.
SA4	Difficulty monitoring changing plant conditions due to unplanned loss of most Control Room safety system alarm indications.
SA5	Electrical power to safety systems has degraded to a single source.
SA6	Indication of potential loss of the Fuel Clad fission product barrier.
SS1	Loss of all electrical power to safety systems.
SS2	Reactor failed to automatically shutdown when required. Initial attempts at manual shutdown were not successful.
SS3	Unplanned loss of safety related battery power compromising the ability to monitor and control plant safety functions.
SS4	Complete loss of systems required for plant cooldown.
SS5	Loss of water level in the Reactor Vessel that has or will uncover the fuel in the Reactor Vessel while the plant is shutdown and cooled down.
SS6	Inability to monitor changing plant conditions due to unplanned loss of most Control Room safety system alarm indications.
SG1	Prolonged loss of all electrical power to safety systems which will lead to a loss of all three fission product barriers unless restored.
SG2	All attempts to shutdown the reactor have been unsuccessful which may lead to loss of all three fission product barriers.

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Abnormal Radiological Levels

- RU1 Unplanned release to the environment of very low levels of radioactivity which exceed effluent limits and indicates a degradation in plant radiological controls.
- RU2 Unexpected increase in plant radiation levels.
- RA1 Unplanned release to the environment of low levels of radioactivity which significantly exceed effluent limits and indicates a substantial degradation in plant radiological controls.
- RA2 Potential damage or damage to spent nuclear fuel outside of the Reactor Vessel.
- RA3 Elevated plant radiation levels impede necessary access to plant operating stations.
- RS1 Actual or projected radiological dose at the site boundary has reached a level which is equal to 10% of the dose which would prompt an offsite protective action recommendation.
- RS2 An unexpected increase in containment radiation levels indicate a loss or potential loss of two fission product barriers.
- RG1 Actual or projected radiological dose at the site boundary has reached a level which requires an offsite protective action recommendation.
- RG2 An unexpected increase in containment radiation levels indicate a loss of two fission product barriers with potential loss or loss of third barrier.

Hazards and Other Conditions

- HU1 Security event affecting normal operation of the plant.
- HU2 (Fire or Explosion) in the (Protected Area or Switchyard) which affects normal plant operations.
- HU3 (Toxic or Flammable) gasses are affecting normal plant operations.
- HU4 (Describe destructive event) _____ is affecting normal plant operations.
- HU5 Conditions exist, not specifically covered by the Station Emergency Plan, which are impacting normal plant operations and, in the judgment of the Emergency Director, warrants declaration of an Unusual Event.
- HA1 Security event inside the Protected Area may potentially affect safe operation of the plant.
- HA2 (Fire or Explosion) in a plant vital area may potentially affect safe operation of the plant.
- HA3 (Toxic or Flammable) gasses may potentially affect safe operation of the plant.
- HA4 (Describe destructive event) _____ may potentially affect safe operation of the plant.
- HA5 Evacuation of Main Control Room. Plant controls established at Auxiliary Shutdown Panel.
- HA6 Conditions exist, not specifically covered by the Station Emergency Plan, which may affect safe operation of the plant, and, in the judgment of the Emergency Director, warrants the declaration of an Alert.
- HS1 Security event in a plant vital area which could affect safe shutdown.
- HS2 Evacuation of Main Control Room and plant controls cannot be established.
- HS3 Events affect the ability to shutdown the plant or maintain it in a safe shutdown condition.
- HG1 Security event resulting in loss of ability to reach and maintain safe shutdown.
- HG2 Conditions exist, not specifically covered by the Station Emergency Plan, which may potentially result in a hazard to the public, and in the judgment of the Emergency Director, warrants the declaration of a General Emergency.