CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO 2
PLANT OPERATING MANUAL

VOLUME 2

PART 5

EMERGENCY PROCEDURE

EPPRO-00

EMERGENCY PREPAREDNESS PROGRAM AND TESTING

REVISION 2

EFFECTIVE DATE 2.7.97

Approval Michael D. Flora For 2/5/97
Supervisor - Emergency Preparedness Date

LIST OF EFFECTIVE PAGES

Page(s)	Revision
1	2
LEP	2
Table of Contents	1
4	1
5 through 9	2
10	1

Revision 2 Summary:

1. Correct coversheet revision.

2. Reflect new relief shift policy.

3. Clarify "ON-CALL" requirements for JIC staff and non-beeper staff.

4. Clarify Fire Brigade and offsite Fire Department training process.

3. Responding to the site in the event of a drill/exercise or a real emergency.

   a. Response to real emergencies is required even when not "ON CALL".

4. Keeping Emergency Preparedness (EP) informed of any changes (i.e., change of home phone number, moving to new location, etc.) which will effect their ability to respond to an emergency.

5. Maintaining Respirator Qualification as designated.

6. Becoming familiar with, and proficient in, the implementation of applicable procedures.

3.1.2 ERO members who are assigned a pager (beeper), individual or rotational, are responsible for the following functions:

1. Compliance with Fitness for Duty regulations during the period the ERO member is "ON CALL". "On Call" is generally rotated by Team and the specific position and time period assigned is documented by the "ON CALL" roster maintained by EP.

2. Arranging a relief for any period when the "ON CALL" position holder will not be able to respond to the applicable facility within the required time.

   a. When a relief is arranged, the requesting individual is responsible for ensuring that relief personnel obtain an ERO beeper for the period of relief.

   b. If the relief period is less than one week it is not necessary to notify Emergency Preparedness or the Control Room.

   c. If the relief period exceeds a week then the requesting individual is responsible for notifying EP during normal working hours and the Control Room at other times.

      - A week was chosen to approximate a complete "ON-CALL" cycle.

3. After being contacted by the dialogic system, ERO members are required to respond to computer requests and report to the applicable facility.

4. During real emergencies, ERO personnel who carry a pager are required to call Dialogic upon arrival at their facility unless directed by beeper code to do so prior to departure for the facility.

   a. This practice may be modified for conduct of drills and exercises.

5. Maintaining the beeper in close proximity and turned on at all times regardless of "ON-CALL" status, and responding to Beeper activation unless unfit for duty.

6. In the event that a beeper is lost by an on call person during non-working hours, the individual should:

   a. Obtain the spare beeper from Security or,

   b. Arrange for a qualified individual, with a beeper, to be on call or,

   c. Remain near your phone until a new beeper is obtained.

7. When notified of a real emergency, ERO members on vacation or not fit for duty should call their position and make themselves available for relief.

3.1.3 Individuals who are "ON-CALL" and **DO NOT** hold a beeper must:

1. Remain fit for duty during their "ON-CALL" period and stay within 60-75 minutes of their facility.

   a. Joint Information Center (JIC) personnel are required to report to the applicable facility within 2 hours following notification to activate.

   b. Personnel assigned to teams are considered "ON-CALL" the week their designated team has coverage.

3.2 EMERGENCY PREPAREDNESS (EP) STAFF

3.2.1 The EP Staff is responsible for the following:

1. Ensuring an ERO is staffed and prepared to respond to and mitigate any postulated emergency at H. B. Robinson Steam Electric Plant, Unit No. 2.

2. Develop and maintain the Robinson Emergency Plan and all required implementing procedures.

3. Tracking ERO Qualifications by maintaining a computer database.

4. Maintaining a roster of all qualified ERO personnel.

5. Planning, scheduling, and administration of drills and exercises (except fire drills).

6. Coordination of the public education and information program.

7. Assuring the annual dissemination of safety information in the possible plume exposure Emergency Planning Zone (EPZ).

3.3 EP TRAINING STAFF

3.3.1 EP staff personnel are responsible for the following:

1. Ensuring EP lesson plans are current based on changes made to procedures.

2. Coordinating initial and continuing training needs.

3. Maintaining ERO position task lists.

4. Coordinating training of onsite Fire Brigade and offsite Fire Department personnel as required.

   a. Normally, this is accomplished through regular fire brigade training which is arranged by Fire Protection or Fire Protection Training staff.

5. Evaluate training feedback reports for improvements to the training program.

3.3 EP TRAINING STAFF

6. Perform a needs or job analysis as required.

3.4 LINE MANAGEMENT

3.4.1 Line Management of assigned ERO members are responsible for the following functions:

1. Coaching of personnel assigned an ERO position on proper performance of that position.

2. Selection of personnel to staff the ERO positions and obtain EP concurrence on the selection.

   a. Alternately, selecting personnel to fill ERO positions at the request of EP.

   b. Notifying personnel selected for the ERO of their selection and the expectations for completion of qualification and ERO participation.

3. Ensuring the personnel in their area of responsibility maintain a current CP&L security badge.

4. Ensuring that personnel under their supervision are technically qualified for their ERO position.

5. Submitting request for additions or changes of personnel on the ERO.

6. Ensuring EP is notified of personnel changes that may affect their ability to respond to an emergency.

3.4.2 During a site or local Evacuation, management personnel are responsible for the following:

1. Ensuring that Contractors or offsite personnel reporting to them know where to assemble during the evacuation.

2. Ensuring that designees accounting for personnel during an evacuation are briefed on ensuring safe passage from one location to another.

3.4 LINE MANAGEMENT

3. Ensuring that personnel participate in the site wide (owner controlled area) evacuation drills unless specifically exempted by EP Management for critical work.

3.5 EP TRAINING PROGRAM COMMITTEE (TPC)

3.5.1 The EP TPC is responsible for the following:

1. Identify ERO continuing training needs.
2. Review Drill/Exercise critiques and EP related operating experience feedback items to identify ERO training needs.
3. Evaluate the effectiveness of ERO initial and continuing training.
4. Review/establish ERO training schedules.

4.0 PREREQUISITES

N/A

5.0 PRECAUTIONS AND LIMITATIONS

N/A

6.0 SPECIAL TOOLS AND EQUIPMENT

N/A

7.0 ACCEPTANCE CRITERIA

N/A

8.0 INSTRUCTIONS

See Individual Sections

CP&L

R
Reference
Use

CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

PLANT OPERATING MANUAL

VOLUME 2
PART 5

EMERGENCY PROCEDURE

EPPRO-00

EMERGENCY PREPAREDNESS PROGRAM AND TESTING

REVISION 3

SUMMARY OF CHANGES

DATE	REVISION #	REVISION COMMENTS
12/3/97	3	This procedure has been reformatted/converted to Word. No text has changed.

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SECTION PAGE

1.0 PURPOSE

1.1 To instruct personnel on the Emergency Preparedness Program and provide the method of qualification for the Emergency Response Organization (ERO).

1.2 This procedure also outlines the guidance for:

- Performance of drills and exercises,
- Coordinating and maintaining a Public Education program, and
- Dealing with inadvertent siren activations which will ensure prompt resolution of the problem and to minimize adverse public response to the event.
- Emergency Preparedness training and qualification program.

2.0 REFERENCES

2.1 PLP-007, Robinson Emergency Plan

2.2 NUREG-0654/FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, January 1980

2.3 10 CFR 50, Licensing of Production and Utilization Facilities

3.0 RESPONSIBILITIES

3.1 Emergency Response Organization Member

3.1.1 Each member of the ERO is responsible for:

1. Attending or performing the initial and continuing training required for the position(s) held in the ERO (i.e., respirator qualification).
2. Developing and maintaining adequate skills and knowledge to perform duties for the assigned position(s) within the ERO.

3.1.1 (Continued)

3. Responding to the site in the event of a drill/exercise or a real emergency.

   a. Response to real emergencies is required even when not "ON CALL".

4. Keeping Emergency Preparedness (EP) informed of any changes (i.e., change of home phone number, moving to new location, etc.) which will effect their ability to respond to an emergency.

5. Maintaining Respirator Qualification as designated.

6. Becoming familiar with, and proficient in, the implementation of applicable procedures.

3.1.2 ERO members who are assigned a pager (beeper), individual or rotational, are responsible for the following functions:

1. Compliance with Fitness for Duty regulations during the period the ERO member is "ON CALL". "On Call" is generally rotated by Team and the specific position and time period assigned is documented by the "ON CALL" roster maintained by EP.

2. Arranging a relief for any period when the "ON CALL" position holder will not be able to respond to the applicable facility within the required time.

   a. When a relief is arranged, the requesting individual is responsible for ensuring that relief personnel obtain an ERO beeper for the period of relief.

   b. If the relief period is less than one week it is not necessary to notify Emergency Preparedness or the Control Room.

   c. If the relief period exceeds a week then the requesting individual is responsible for notifying EP during normal working hours and the Control Room at other times.

      – A week was chosen to approximate a complete "ON-CALL" cycle.

3.1.2 (Continued)

3. After being contacted by the dialogic system, ERO members are required to respond to computer requests and report to the applicable facility.

4. During real emergencies, ERO personnel who carry a pager are required to call Dialogic upon arrival at their facility unless directed by beeper code to do so prior to departure for the facility.

   a. This practice may be modified for conduct of drills and exercises.

5. Maintaining the beeper in close proximity and turned on at all times regardless of "ON-CALL" status, and responding to Beeper activation unless unfit for duty.

6. In the event that a beeper is lost by an on call person during non-working hours, the individual should:

   a. Obtain the spare beeper from Security or,

   b. Arrange for a qualified individual, with a beeper, to be on call or,

   c. Remain near your phone until a new beeper is obtained.

7. When notified of a real emergency, ERO members on vacation or not fit for duty should call their position and make themselves available for relief.

3.1.3 Individuals who are "ON-CALL" and **DO NOT** hold a beeper must:

1. Remain fit for duty during their "ON-CALL" period and stay within 60-75 minutes of their facility.

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   b. Personnel assigned to teams are considered "ON-CALL" the week their designated team has coverage.

3.2 Emergency Preparedness (EP) Staff

3.2.1 The EP Staff is responsible for the following:

1. Ensuring an ERO is staffed and prepared to respond to and mitigate any postulated emergency at H. B. Robinson Steam Electric Plant, Unit No. 2.

2. Develop and maintain the Robinson Emergency Plan and all required implementing procedures.

3. Tracking ERO Qualifications by maintaining a computer database.

4. Maintaining a roster of all qualified ERO personnel.

5. Planning, scheduling, and administration of drills and exercises (except fire drills).

6. Coordination of the public education and information program.

7. Assuring the annual dissemination of safety information in the possible plume exposure Emergency Planning Zone (EPZ).

3.3 EP Training Staff

3.3.1 EP staff personnel are responsible for the following:

1. Ensuring EP lesson plans are current based on changes made to procedures.

2. Coordinating initial and continuing training needs.

3. Maintaining ERO position task lists.

3.3.1 (Continued)

4. Coordinating training of onsite Fire Brigade and offsite Fire Department personnel as required.

   a. Normally, this is accomplished through regular fire brigade training which is arranged by Fire Protection or Fire Protection Training staff.

5. Evaluate training feedback reports for improvements to the training program.

6. Perform a needs or job analysis as required.

3.4 Line Management

3.4.1 Line Management of assigned ERO members are responsible for the following functions:

1. Coaching of personnel assigned an ERO position on proper performance of that position.

2. Selection of personnel to staff the ERO positions and obtain EP concurrence on the selection.

   a. Alternately, selecting personnel to fill ERO positions at the request of EP.

   b. Notifying personnel selected for the ERO of their selection and the expectations for completion of qualification and ERO participation.

3. Ensuring the personnel in their area of responsibility maintain a current CP&L security badge.

4. Ensuring that personnel under their supervision are technically qualified for their ERO position.

3.4.1 (Continued)

5. Submitting request for additions or changes of personnel on the ERO.

6. Ensuring EP is notified of personnel changes that may affect their ability to respond to an emergency.

3.4.2 During a site or local Evacuation, management personnel are responsible for the following:

1. Ensuring that Contractors or offsite personnel reporting to them know where to assemble during the evacuation.

2. Ensuring that designees accounting for personnel during an evacuation are briefed on ensuring safe passage from one location to another.

3. Ensuring that personnel participate in the site wide (owner controlled area) evacuation drills unless specifically exempted by EP Management for critical work.

3.5 EP Training Program Committee (TPC)

3.5.1 The EP TPC is responsible for the following:

1. Identify ERO continuing training needs.

2. Review Drill/Exercise critiques and EP related operating experience feedback items to identify ERO training needs.

3. Evaluate the effectiveness of ERO initial and continuing training.

4. Review/establish ERO training schedules.

4.0 PREREQUISITES

N/A

5.0 PRECAUTIONS AND LIMITATIONS

N/A

6.0 SPECIAL TOOLS AND EQUIPMENT

N/A

7.0 ACCEPTANCE CRITERIA

N/A

8.0 INSTRUCTIONS

See Individual Sections

9.0 RECORDS

N/A

10.0 ATTACHMENTS

N/A

CP&L

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CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

PLANT OPERATING MANUAL

VOLUME 2
PART 5

EMERGENCY PROCEDURE

EPPRO-01

PROGRAM AND RESPONSIBILITIES

REVISION 3

SUMMARY OF CHANGES

DATE	REVISION #	REVISION COMMENTS
12/18/97	3	This procedure has been reformatted/converted to Word. No text has changed.

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8.1 PROGRAM AND RESPONSIBILITIES

8.1.1 DRILL AND EXERCISE PARTICIPATION:

1. ERO personnel are expected to drill/exercise with their designated team.

   a. If they will be unavailable for the drill it is their responsibility to ensure some one from another team will fill their position.

   b. Relief team personnel will participate in at least one team Drill, Exercise, or Tabletop each year.

   c. Non-Team designated ERO personnel are expected to coordinate with the other persons qualified for their position to ensure the position is staffed for each drill/exercise and that each ERO member participates in at least one Drill per calendar year.

2. ERO personnel filling critical positions shall be observed at least once in a calendar year performing their ERO duties.

3. Unless otherwise directed by Emergency Preparedness (EP), ERO personnel should respond during augmentation for their facility.

   a. Those personnel available to respond should establish 24 hour coverage for the position.

   b. Personnel on night shift may be exempted from augmentation, but should be used to establish 24 hour coverage.

   c. After the rotation is established, personnel may be simulated to be sent home and return to their place of work.

   d. Personnel are required to keep the manager responsible for their accountability informed of their location should an evacuation be conducted at a later time.

8.1.2 DRILLS AND EXERCISES

1. Emergency Response Organization (ERO) personnel will participate in periodic drills at least once each calendar year. Additionally one team, on a rotational basis, will participate in the Graded Exercise. The purpose of conducting drills is to ensure that each team has the skills to successfully deal with a real emergency. The following are the types of drills conducted:

   a. Medical Emergency Drills: Medical emergency drills will be conducted annually. They will involve a simulated contaminated and injured individual. Off-site portions of these drills may be conducted as part of an exercise.

   b. HP/PASS Drills: Health Physics drills, including response to and analysis of simulated elevated airborne and liquid samples and direct radiation measurements, will be conducted semi-annually.

      - At least one of these radiation protection drills will involve the use of the Post Accident Sampling System.

      - These drills may also include the Medical Services drill.

   c. Combined Functional Drills: Combined Functional Drills may include any of the required drills and serve as the primary method of practical training for new ERO members and continuing training for existing members.

2. An Exercise will be conducted as required by 10 CFR, Part 50, Appendix E.

   a. The scenario which will ultimately escalate to at least a Site Area Emergency.

8.1.2.2 (Continued)

b. The scenario will be varied from year to year such that all elements of the Plant, County, and State Plans and emergency organizations are tested within a six (6)-year period.

c. Each Exercise scenario will include a list of performance objectives and a description of the expected responses. Specific tasks that should be evaluated are listed in Attachment 8.1.14.4 and 8.1.14.5, "Drill Objectives" and "Acceptance Criteria" respectively.

- Attachments identify the Emergency Response facility where the activity is most likely to occur, however, the objective may be judged acceptable if performed in an alternate location.

- Credit may be taken for objectives that are satisfactorily completed during real events.

d. An off-hours exercise which starts between 6:00 p.m. and 4:00 a.m. will be conducted once every six (6) years.

e. Advance knowledge of the scenario content and the times of the exercises will be kept to a minimum to ensure a realistic participation by those involved.

3. The EP Staff is responsible for planning and conducting drills and exercises not addressed elsewhere (e.g., Fire Drills are addressed in the Fire Plan). They shall provide:

a. The scenario including objectives for the drill/exercise.

b. Qualified controller/evaluators to evaluate the drill/exercise.

c. A critique noting strengths, deficiencies and comments on drill/exercise performance.

8.1.2.3 (Continued)

d. Ensure implementation of comments or changes to Emergency Procedures as identified on EP Improvement Forms or drill critiques.

   – Comments will be screened by the EP staff for applicability.

e. A pre-drill and post-drill review of items needed to prepare for the drill/exercise or return to normal following the drill/exercise (i.e., reset simulator telephones).

f. Follow-up on drill identified deficiencies by initiating Condition Reports (CR) as needed.

8.1.3 EP PROCEDURE MAINTENANCE AND PROGRAM IMPROVEMENTS

1. Procedure improvements may be recommended by completing an Attachment 8.1.14.1, EP Improvement Form, or a DCF as specified in AP-022, Document Change Procedure, and routing it to the Supervisor Emergency Preparedness.

2. Procedure changes to the Robinson Emergency Plan and/or Emergency Procedures will be accomplished as required by AP-022, Document Change Procedure.

   a. Emergency Preparedness will be responsible to maintain the Emergency Action Levels (EAL) and supporting basis documents, as well as the Emergency Procedures.

   b. Documents will be developed and maintained to comply with applicable regulations.

   c. The EAL basis document will be revised to reflect NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," or other management directives and policies.

8.1.3.2 (Continued)

d. All Emergency Procedures, EALs, and the Emergency Plan shall receive a 10 CFR 50.54(q) review to ensure the effectiveness of the Emergency Plan is not inadvertently reduced.

– The form is provided as Attachment 8.1.14.6.

3. For each drill or real event, EP improvement forms will be available. A record of items submitted will be maintained by the EP staff.

4. Items reported on EP improvement forms or drill critiques will be screened for entry into the Corrective Action Program.

5. Feedback regarding disposition of items will be provided to the individual who initiated the comment.

a. This feedback is documented on the improvement form.

8.1.4 INADVERTENT SIREN ACTIVATION

1. Anyone, other than the Control Room, hearing or receiving a report of an inadvertent siren activation should contact/connect the caller with the Switchboard Operator during normal hours, or Security after hours.

2. The Plant Switchboard Operator or Security should:

a. Record the names of persons or organizations reporting and contacted along with the times and date of each contact.

8.1.4.2 (Continued)

b. If the Plant Switchboard Operator (or Security) has been informed, via the Plant Public Address or other means, that a real emergency or drill/exercise is in progress that involves sounding of the sirens direct callers to tune to an Emergency Alerting System Station listed in the emergency public information distributed annually by CP&L.

- However, If the caller insists on speaking with someone from CP&L, direct them to contact the CP&L public information number, (919) 546-6189.

c. Lacking prior notifications of Siren Sounding, the Switchboard Operator (or Security) should perform the following:

- Obtain information requested on Attachment 8.1.14.2, Siren System Inadvertent Activation Report, and ask the caller if a call back is desired once more information is known.

- Notify the Unit 2 Control Room (1278 or 1279) of a possible inadvertent siren system activation and verify that a real event or drill is not in progress.

- Provide available information on Attachment 8.1.14.2, Siren System Inadvertent Actuation Report to the Control Room.

- Call the person reporting the siren activation and inform them that no real emergency exists and personnel to repair the problem are being notified OR that an event is in progress and direct them to tune to an Emergency Alerting System Station listed in the emergency public information distributed annually by CP&L.

- However, If the caller insists on speaking with someone from CP&L, direct them to contact the CP&L public information number, (919) 546-6189.

8.1.4 (Continued)

3. If the Unit 2 Control Room is contacted directly they should complete Attachment 8.1.14.2, Siren System Inadvertent Activation Report.

4. If an Inadvertent Siren Activation has been confirmed the Unit 2 Control Room should:

   a. Notify the Telecommunications Help Desk, (8-770-4357) as first choice or the Florence distribution dispatcher (661-4210) that an inadvertent siren activation has occurred and request that repair personnel be dispatched to correct the problem. Request a return call when the sirens have been silenced.

   b. If the report was received from someone other than the Switchboard Operator or Security, notify the Switchboard Operator or Security of the inadvertent sounding so that they may handle any further calls from the public.

   c. Notify Corporate Communications at 919-546-6189 of the inadvertent siren activation and request immediate notification if a written press release is to be issued.

      – A press release relating to this event is reportable to the NRC. Consult AP-030, NRC Reporting Requirements.

8.1.4.4 (Continued)

d. Sirens are located as follows:

- Chesterfield County - 13 Siren Locations
  Siren #'s - 01, 02, 03, 04, 05, 06, 09, 10, 11, 15, 16, 17, and 45

- Darlington County - 28 Siren Locations
  Siren #'s - 07, 08, 12, 13, 14, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 30, 31, 32, 33, 34, 36, 37, 38, 39, 41, 42, 43, and 44

- Lee County - 4 Siren Locations
  Siren #'s - 28, 29, 35, and 40

Total Sirens - 45 Siren Locations
(All Counties)

5. When the Unit 2 Control Room is notified that the siren(s) have been silenced ensure that:

   a. Evaluate AP-030, NRC Reporting Requirements, for potential NRC reporting.

   b. Notify the State and County Warning Points concerning the status of the sirens.

   c. Notify Corporate Communications (919-546-6189).

6. Forward information gathered and any completed Attachment 8.1.14.2 forms to Emergency Preparedness for retention as appropriate.

8.1.5 EMERGENCY RESPONSE ORGANIZATION BEEPER DISTRIBUTION

1. After qualifying as an ERO member, EP will arrange an ERO beeper for the positions identified in Attachment 8.1.14.3, ERO Beeper Distribution.

2. Beepers are to ensure that the plant has the ability to meet the 30-45 minute response staffing requirements.

3. Plant Public Address, Non-Responding Emergency Communicators, dialogic and/or beepers are used to contact the 60-75 minute staff, and other positions not required by NUREGs.

8.1.6 INTENTIONALLY BLANK

8.1.7 INTENTIONALLY BLANK

8.1.8 INTENTIONALLY BLANK

8.1.9 INTENTIONALLY BLANK

8.1.10 DELETION FROM ERO

1. If an individual is to be deleted from the ERO for other than termination, the Line Manager is responsible for notifying EP <u>in writing</u> with reason for deletion.

   a. If individual is terminated, EP is notified via normal termination documentation.

2. The Supervisor - Emergency Preparedness will review the written request. If approved, the Line Manager will be notified and individual will be removed from ERO Database.

3. If The Supervisor - Emergency Preparedness cannot approve a request for deletion, he will document the reason for denial and send a copy to the Line Manager and individual.

8.1.11 **INTENTIONALLY BLANK**

8.1.12 **PUBLIC EDUCATION AND INFORMATION**

1. Emergency Preparedness and Site Communications shall perform the following actions:

   a. In cooperation with the State of South Carolina, local governments and with corporate CP&L efforts, ensure that public education and information efforts are consistent and complementary.

   b. Ensure that a public information program for persons living in the possible plume exposure Emergency Planning Zone includes the following elements:

      - Brochures or other media containing educational information on emergency preparedness, nuclear power and radiation, and how to contact CP&L for more information.

      - Coordination of speakers to address emergency preparedness when requested

      - Supplying news material for the media

   c. Ensure that the public education program includes the following information:

      - The potential for occurrence of a radiological emergency.

      - How to recognize a radiological emergency notification.

      - What proper, immediate actions (e.g., return to home, close windows and turn on radio) should be taken upon notification.

8.1.12.1.c (Continued)

- Protective actions to be taken if shelter is prescribed.
- General procedure to follow if an evacuation is required.
- General education on radiation.
- A contact for how to learn more about emergency preparedness.

8.1.13 **RECORDS**

N/A

8.1.14 **ATTACHMENTS**

8.1.14.1 EP Improvement Form

8.1.14.2 Siren System Inadvertent Activation Report

8.1.14.3 ERO Beeper Distribution

8.1.14.4 Drill Objectives

8.1.14.5 Acceptance Criteria

8.1.14.6 10 CFR 50.54(q) Evaluation Checklist

ATTACHMENT 8.1.14.1
Page 1 of 1

EP IMPROVEMENT FORM

DATE:_____ ERO POSITION: _____

NAME: _____

RECOMMENDED CHANGE IS IN REFERENCE TO:

_____ EMERGENCY PLAN _____ EMERGENCY FACILITY

_____ EP-_____ _____ EP TRAINING
(Give Number)

_____ EQUIPMENT _____ OTHER (List) _____

I RECOMMEND THE FOLLOWING CHANGE, ADDITION OR IMPROVEMENT:

(Be specific - list all information)_____

_____

_____

_____

_____

For Emergency Preparedness or Responsible Manager Use

RESOLUTION _____

_____

_____

_____

By: _____/Date:_____

ATTACHMENT 8.1.14.2
Page 1 of 1

SIREN SYSTEM INADVERTENT ACTIVATION REPORT

Date:__/__/__ Time:_____

Fill out as much of the following information as possible:

1. Incident Date:__/__/__ Incident Time:_____

2. Caller's Name:_____ Caller's Phone No.:_____

3. Location of siren(s) (include County and Community of caller):

The siren number is the preferred information. The siren number is located on the siren pole. If the caller cannot provide the siren number, obtain any information which may aid in identifying the siren. For example, request a description of the siren location, a road number, or of the location of the person who is making the report and the direction from which the sound is coming.

Siren Number(s) or Location _____

_____

_____

4. Additional questions: (circle one)

- What noise did the siren make (steady tone, wavering tone, etc.)?
- Is the siren still sounding? (Yes / No)
- For what length of time did the siren sound?
  (1 min / 2 min / 3 min / Continuous / Unknown)
- Is more than one siren sounding? (Yes / No)

5. _____ _____ _____

Name of Person Receiving Report | Location | Telephone Number

ATTACHMENT 8.1.14.3
Page 1 of 1

ERO BEEPER DISTRIBUTION

All Team Members in the following positions.

SEC	OSC Leader	Superintendent Shift Operations Desk
POD	ERM	NRC
TAD	A&LM	EP
ERD	TAM	En Mon TL
RCD/RCM	POA	Reactor Engineer
ESTL	EC	Computer Support
DPTL	Company Spokesperson	
AERM	JIC Director	

Rotational Beepers (number of beepers)

NRC Communicator (1)
State/County Communicator (1)
Electrical Engineer (1)
Mechanical Engineer (1)
Damage Control Leaders (2)
Mechanics (4)
I&C/Electricians (4)
Chemistry/Environmental Monitoring (2)
PI Communicator (1)
Security Lieutenant (1)
JIC Technical Spokesperson (1)
HPs (4)

DRILL OBJECTIVES

	NUREG 0654	OBJECTIVE	CR	TSC	OSC	JIC	EOF	FREQ
1	A.1.e F.1.a	Provide 24 hour per day on shift emergency response personnel as required by the Emergency Plan including the capability of 24 hour per day manning of communications.	X					6yr
2	A.4	Demonstrate ability to staff Emergency Response Facilities (ERF) 24 hours per day.		X	X	X	X	6yr
3	B.5 H.4 B.7 [1]b.2	Demonstrate the ability to augment shift staff and activate ERFs with Emergency Plan Table 5.3.2-1, "Capability for Additions" column for 30-45 min and 60-75 min.		X	X		X	2yr
4	 B.7.a B.7.b B.7.c B.7.d	Demonstrate the ability to augment shift staff with: -Logistics support personnel -Technical support for reentry/recovery operations -Management interface with governmental authorities -Corporate interface with news media		 X		 X	 X X X	2yr

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DRILL OBJECTIVES

	NUREG 0654	OBJECTIVE	CR	TSC	OSC	JIC	EOF	FREQ
5	B.8	Demonstrate the ability to contact Contractors and private organizations for technical assistance.					X	Ann
6	B.9 L.4 [1]b.12	Demonstrate the ability to obtain assistance from law enforcement, medical, and fire-fighting organizations including assistance for contaminated personnel.	X					Ann
7	C.2.b	Demonstrate the ability to provide a representative to the SEOC/FEOC (when activated) and County EOCs.						2yr
8	C.3 [1]b.9	Demonstrate the ability to coordinate radiological monitoring and analysis.					X	Ann
9	D.1 I.1 [1]b.4	Demonstrate the ability to identify and properly classify events using appropriate procedures, plant system parameter values, and the EALs.	X	X				Ann
10	E.2 F.1.e [1]b.2	Demonstrate the ability to alert, notify, and mobilize ERO personnel						Ann
11	E.3 [1]b.5	Demonstrate the ability to make initial emergency notification to State and Chesterfield, Darlington, and Lee County Warning Points or EOCs within 15 minutes following declaration of each emergency classification.						Ann

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DRILL OBJECTIVES

	NUREG 0654	OBJECTIVE	CR	TSC	OSC	JIC	EOF	FREQ
12	E.4 [1]b.5	Demonstrate the ability to make followup notifications to State and Chesterfield, Darlington, and Lee County Warning Points or EOCs within 60 minutes following initial and change of classification notifications.						Ann
13	E.7 J.7 [1]b.10	Demonstrate the ability to formulate protective action recommendations and transmit to State and County personnel.						Ann
14	F.1 F.1.a F.1.b	Demonstrate the ability to communicate with State and County personnel using primary and backup communication systems.	X				X	Ann
15	F.1.c	Demonstrate the provisions to communicate with Federal emergency response organizations.						Ann
16	F.1.d [1]b.6	Demonstrate the ability to communicate between the CR, TSC, EOF, OSC, and Enmon teams.	X	X	X		X	Ann
17	F.1.f	Demonstrate the ability to communicate with the NRC within 60 minutes following each emergency classification declaration.	X	X				Ann
18	G.3.a G.3.b	Demonstrate the ability to activate the JIC and interface with the news media.				X		2yr

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DRILL OBJECTIVES

	NUREG 0654	OBJECTIVE	CR	TSC	OSC	JIC	EOF	FREQ
19	G.4.a G.4.b [1]b.7	Demonstrate the ability to provide a Corporate spokesperson and timely dissemination of information to the news media.				X		2yr
20	G.4.c	Demonstrate the ability to deal with rumors.				X		2yr
21	H.6.a H.6.b I.5	Demonstrate the ability to obtain data from meteorological, hydrologic, seismic, radiological monitors, and sampling devices.	X				X	Ann
22	I.2 [1]b.9	Demonstrate the ability to obtain samples and analyze data from the PASS and other post accident monitoring equipment.			X			Ann
23	I.3.a I.3.b	Demonstrate the ability to determine the source term and magnitude of releases.	X				X	Ann
24	I.8 I.9 J.7	Demonstrate the ability to project dosage to the public, from the ingestion pathway, based on plant and field data.					X	Ann
25	J.1 [1]b.2	Demonstrate the ability to alert and advise individuals who are visitors, contractors, and members of the public onsite.	X					Ann

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DRILL OBJECTIVES

	NUREG 0654	OBJECTIVE	CR	TSC	OSC	JIC	EOF	FREQ
26	J.3 K.7	Demonstrate the ability to evacuate non-essential personnel from site to be monitored and decontaminated at an offsite location.						6yr
27	J.4	Demonstrate the ability to monitor, decontaminate and evacuate non-essential personnel from site.						6yr
28	J.5	Demonstrate the ability to account for individuals in the protected area and identify the names of those unaccounted for within 30 minutes.		X				6yr
29	J.6 K.3.a K.3.b	Demonstrate the ability to provide ERO personnel protective clothing, respiratory protection, dosimetry, and radioprotective drugs. This also includes determination of doses received and maintenance of dose records 24 hours per day.	X	X	X		X	2yr
30	K.1 [1]b.11	Demonstrate the ability to establish onsite exposure guidelines consistent with EPA emergency worker and lifesaving activities.		X				Ann
31	L.2	Demonstrate the ability to provide onsite first aid capability.			X			Ann

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DRILL OBJECTIVES

	NUREG 0654	OBJECTIVE	CR	TSC	OSC	JIC	EOF	FREQ
32	M.1 M.2 M.3 M.4	Demonstrate the ability to reassess plant conditions and evaluate recovery/reentry considerations.					X	6yr
33	N.1.b	Demonstrate the ability to augment the ERO, during an Exercise, between 6:00 p.m. and 4:00 a.m. or any weekend hours.	X					6yr
34		DELETED BY REVISION 2 to RAG-003, "EMERGENCY PREPAREDNESS OBJECTIVES."						
35	N.2.b	Perform fire drills which demonstrate the ability of the fire brigade to respond to a fire and interface with offsite fire assistance.	X					6yr
36	N.2.c	Perform medical emergency drills which demonstrate the ability to deal with a medical emergency involving a simulated contaminated individual including participation of offsite medical treatment agencies.						Ann

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DRILL OBJECTIVES

	NUREG 0654	OBJECTIVE	CR	TSC	OSC	JIC	EOF	FREQ
37	N.2.e (1) [1]b.9	Perform Health Physics Drills which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.						6mo
38	ACR 94-01156 CA .1	Perform an offsite hazards drill which will involve response to, and analysis of simulated offsite hazards (examples: chlorine, propane, hydrogen, gasoline or some other offsite hazard either natural man made). Samples and measurements as well as protective measures should be taken.	X	X	X		X	Ann
39	N.4	Perform a critique at the conclusion of an exercise to evaluate the ability of organizations to respond as required.						Ann
40		Demonstrate that NRC identified open items resulting from pervious exercises can be closed.						Ann

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ACCEPTANCE CRITERIA

	OBJECTIVE	ACCEPTANCE CRITERIA
1	Provide 24 hour per day on shift emergency response personnel as required by the Emergency Plan including the capability of 24 hour per day manning of communications.	This objective is met as long as the staffing requirements of Technical Specifications, Emergency Plan Table 5.3.2-1 "Minimum Shift Size" column are satisfied.
2	Demonstrate ability to staff ERFs 24 hours per day.	This objective is met when the ERFs are staffed and a shift turnover is complete.
3	Demonstrate the ability to augment shift staff and activate ERFs with Emergency Plan Table 5.3.2-1, "Capability for Additions" column for 30-45 min and 60-75 min.	This objective is met when the staffing requirements of the Emergency Plan Table 5.3.2-1, "Capability for Additions" column is satisfied.
4	Demonstrate the ability to augment shift staff with: -Logistics support personnel -Technical support for reentry/recovery operations -Management interface with governmental authorities -Corporate interface with news media	This objective is met when facilities are capable of being activated
5	Demonstrate the ability to contact Contractors and private organizations for technical assistance.	This objective is met when the ability to contact has been demonstrated. (Actual contact may be simulated.)
6	Demonstrate the ability to obtain assistance from law enforcement, medical, and fire-fighting organizations including assistance for contaminated personnel.	This objective is met when the ability to contact has been demonstrated. (Actual contact may be simulated.)

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ACCEPTANCE CRITERIA

	OBJECTIVE	ACCEPTANCE CRITERIA
7	Demonstrate the ability to provide a representative to the SEOC/FEOC (when activated) and County EOCs.	This objective is met when the facilities are activated and an ERO representative is present.
8	Demonstrate the ability to coordinate radiological monitoring and analysis.	This objective is met when appropriate monitoring and analysis data are received. (May be simulated)
9	Demonstrate the ability to identify and properly classify events using appropriate procedures, plant system parameter values, and the EALs.	This objective is met when events are correctly classified in a timely manner.
10	Demonstrate the ability to alert, notify, and mobilize ERO personnel.	This objective is met when the ERFs are activated.
11	Demonstrate the ability to make initial emergency notification to State and Chesterfield, Darlington, and Lee County Warning Points or EOCs within 15 minutes following declaration of each emergency classification.	This objective is met when initial notifications are accomplished within the required 15 minutes. Time starts at emergency declaration and ends at first contact.
12	Demonstrate the ability to make followup notifications to State and Chesterfield, Darlington, and Lee County Warning Points or EOCs within 60 minutes following initial and change of classification notifications.	This objective is met when follow-up notifications are accomplished within the required 60 minutes. Time starts at completion of the previous notification and ends at first contact.

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ACCEPTANCE CRITERIA

	OBJECTIVE	ACCEPTANCE CRITERIA
13	Demonstrate the ability to formulate protective action recommendations and transmit to State and County personnel.	This objective is met when protective action recommendations are transmitted to the State and Counties within 15 minutes following the declaration of a General Emergency.
14	Demonstrate the ability to communicate with State and County personnel using primary and backup communication systems.	This objective is met when communications have been established using the Selective Signaling system and one of the backup systems.
15	Demonstrate the provisions to communicate with Federal emergency response organizations.	This objective is met by agreement letters.
16	Demonstrate the ability to communicate between the CR, TSC, EOF, OSC, and Enmon teams.	This objective is met when none of the other Objectives fail due to communications.
17	Demonstrate the ability to communicate with the NRC within 60 minutes following each emergency classification declaration.	This objective is met when communications are established within the required time. Time starts at emergency declaration and ends at first contact.
18	Demonstrate the ability to activate the JIC and interface with the news media.	This objective is met when the JIC is activated and a press conference conducted.

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ACCEPTANCE CRITERIA

	OBJECTIVE	ACCEPTANCE CRITERIA
19	Demonstrate the ability to provide a Corporate spokesperson and timely dissemination of information to the news media.	This objective is met when a corporate spokesperson is present and briefings are conducted as appropriate.
20	Demonstrate the ability to deal with rumors.	This objective is met when false information is corrected by responsible personnel.
21	Demonstrate the ability to obtain data from meteorological, hydrologic, seismic, radiological monitors, and sampling devices.	This objective is met when data has been obtained and provided to appropriate personnel.
22	Demonstrate the ability to obtain samples and analyze data from the PASS and other post accident monitoring equipment.	This objective is met when samples have been obtained and accurately analyzed.
23	Demonstrate the ability to determine the source term and magnitude of releases.	This objective is met when source term and release magnitude/dose protection have been accurately determined.
24	Demonstrate the ability to project dosage to the public, from the ingestion pathway, based on plant and field data.	This objective is met when Dose Projection information is included in the General Emergency declaration notification or as a followup to the General Emergency notification.

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ACCEPTANCE CRITERIA

	OBJECTIVE	ACCEPTANCE CRITERIA
25	Demonstrate the ability to alert and advise individuals who are visitors, contractors, and members of the public onsite.	This objective is met when individuals receive, understand, and respond as required to notifications provided by alarms and PA.
26	Demonstrate the ability to evacuate non-essential personnel from site to be monitored and decontaminated at an offsite location.	This objective is met when personnel are sent to an offsite location for decontamination. (May be simulated.)
27	Demonstrate the ability to monitor, decontaminate and evacuate non-essential personnel from site.	This objective is met when personnel are able to discuss decontamination procedures.
28	Demonstrate the ability to account for individuals in the protected area and identify the names of those unaccounted for within 30 minutes.	This objective is met when accountability is completed within 30 minutes.
29	Demonstrate the ability to provide ERO personnel protective clothing, respiratory protection, dosimetry, and radioprotective drugs. This also includes determination of doses received and maintenance of dose records 24 hours per day.	This objective is met when adequate supplies are available and dose records are maintained during the drill.

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ACCEPTANCE CRITERIA

	OBJECTIVE	ACCEPTANCE CRITERIA
30	Demonstrate the ability to establish onsite exposure guidelines consistent with EPA emergency worker and lifesaving activities.	This objective is met when emergency worker and lifesaving exposure guidelines are implemented.
31	Demonstrate the ability to provide onsite first aid capability.	This objective is met when First Responders have provided initial treatment and the victims have been delivered to the rescue squad. (Portions may be simulated.)
32	Demonstrate the ability to reassess plant conditions and evaluate recovery/reentry considerations.	This objective is met when a recovery plan and an organization is formulated. (May be simulated.)
33	Demonstrate the ability to augment the ERO, during an Exercise, between 6:00 p.m. and 4:00 a.m. or any weekend hours.	This objective is met when augmentation is successfully completed between the hours of 6:00 p.m. and 4:00 a.m. or any weekend hours.
34	DELETED BY REVISION 2	
35	Preform fire drills which demonstrate the ability of the fire brigade to respond to a fire and interface with offsite fire assistance.	This objective is met when the fire brigade arrives at the scene with appropriate equipment and offsite fire assistance is coordinated. (Portions may be simulated.)

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ACCEPTANCE CRITERIA

	OBJECTIVE	ACCEPTANCE CRITERIA
36	Perform medical emergency drills which demonstrate the ability to deal with a medical emergency involving a simulated contaminated individual including participation of offsite medical treatment agencies.	This objective is met when first responders arrive at the scene and offsite assistance is coordinated. (Portions may be simulated.)
37	Perform Health Physics Drills which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.	This objective is met when environmental measurement and analysis of water, vegetation, soil, and air sample media have been completed.
38	Perform an offsite hazards drill which will involve response to and analysis of simulated offsite hazards (example chlorine, propane, hydrogen, gasoline or some other offsite hazard either natural or man made). Samples, measurements as well as protective measures should be taken.	This objective is met when an offsite hazard is included in a drill or exercise and protective measures are taken and the hazard is measured for the protective measures.
39	Perform a critique at the conclusion of an exercise to evaluate the ability of organizations to respond as required.	This objective is met when the critique report has been issued.
40	Demonstrate that NRC identified open items resulting from pervious exercises can be closed.	This objective is met by the closure of NRC open items.

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10CFR50.54(q) EVALUATION CHECKLIST

REFERENCE ITEM _____ Rev. _____

- ☐ The item is a statement in the Emergency Plan.
- ☐ The item is referenced in a Emergency Procedure, or is referenced in another procedure in order to implement an Emergency Procedure Step.
- ☐ The item is equipment or instrumentation referenced in the EALs.
- ☐ The item is included in a Emergency Response Facility or equipment inventory.
- ☐ The item is equipment or facilities specifically referenced in the Emergency Plan.
- ☐ The item requires a change to the Emergency Plan or Emergency Procedures.

If any of the above are checked continue with this form, otherwise the item does not represent any degridation of the effectiveness of the Emergency Plan. Use additional pages as necessary to support the bases below.

I. Changes to the Emergency Plan or Procedures:

A. Does the change provide equivalent capability to respond to an emergency or equivalent effectiveness of the emergency plan in protecting the health and safety of the public in the event of an emergency? ☐ Yes ☐ No

Basis: _____

_____

_____

B. Is the item rooted in a requirement contained in 10CFR50.47, 10CFR50.54(q), 10CFR50 Appendix E (and Statements of Consideration), EPA 400-R-92-001, an Emergency Plan commitment, or other requirement (List: _____) ☐ Yes ☐ No

Does the change provide equivalent effectiveness in implementing the base requirement? ☐ Yes ☐ No ☐ N/A

Basis: _____

_____

_____

II. Modification to Facilities or Equipment

A. Does the change to the Facilities or equipment maintain an equivalent ability to meet actions required in the Emergency Plan, Emergency Procedures, or other requirement? ☐ Yes ☐ No ☐ N/A

Basis: _____

_____

_____

B. Does the change comply with the requirement contained in 10CFR50.47, 10CFR50.54(q), 10CFR50 Appendix E (and Statements of Consideration), EPA 400-R-92-001, an Emergency Plan commitment, or other requirement? (List: _____) ☐ Yes ☐ No ☐ N/A

Basis: _____

_____

_____

If the answer to any of the above questions is no, the change must be reviewed and approved by the NRC prior to implementation.

INSTRUCTIONS ON USE OF EP REVIEW FORM

NOTE: The checklist should be filled out to cover the entire scope of the item reviewed. If any element, or elements, of the reviewed item reduces the effectiveness of the Emergency Plan or implementing procedures, then the response to the questions should include a discussion of each problem area.

REFERENCE ITEM: Fill in Emergency Plan & Rev., Procedure Number & Rev., equipment or facility change being made. "N/A" Rev. for changes not involving procedure changes.

ITEMS TO BE CHECKED: Check any items that apply. If none are checked, the effectiveness of the emergency plan is not impacted by the change, and no further review is required.

ALL REMAINING SECTIONS: Provide a basis for each question whether the question is answered yes or no.

ITEM I.A: The effectiveness of the Emergency Plan is measured against the 16 criteria in 10CFR50.47 which includes: responsibilities for emergency response, emergency response organization, augmentation, classification, notifications, communications, public information, emergency facilities, radiological monitoring, protective actions, radiological exposure control, medical services, recovery, exercises, training, and administration. As a minimum, if the change:

- delays the implementation of one or more elements relating to the 16 criteria, or
- decreases the probability that one or more elements relating to the 16 criteria is implemented in an emergency, or
- causes an element of the 16 criteria to not be implemented in an emergency, or
- reduces the radiological effectiveness of one or more elements relating to the 16 criteria.

then this question should be checked "no."

ITEM I.B: If the change removes or modifies a commitment to meet a requirement without providing an equivalent or compensatory measure that maintains the effectiveness of the Emergency Plan (ensures equivalent adherence to the 16 criteria) then this question should be checked "no."

Bases, reference, or background documents for the particular commitment referenced in the changes should be reviewed to ensure completeness in the effectiveness determination.

Any changes to the Emergency Plan or EALs should be reviewed with the understanding that the NRC has already approved these documents, and that any changes to them must provide equal or improved effectiveness.

ITEM II.A: If the facility or equipment change delays or prevents the implementation of an Emergency Plan or procedure step, or reduces the radiological effectiveness of implementation of an Emergency Plan or procedure step without providing an equivalent of compensatory measure, then this question should be checked "no."

ITEM II.B: If the facility or equipment change no longer meets an explicit requirement as listed in the question without providing an equivalent or compensatory measure, then this question should be checked "no."

CP&L

R
Reference
Use

CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

PLANT OPERATING MANUAL

VOLUME 2
PART 5

EMERGENCY PROCEDURE

EPPRO-02

MAINTENANCE AND TESTING

REVISION 5

SUMMARY OF CHANGES

DATE	REVISION #	REVISION COMMENTS
12/23/97	5	This procedure has been reformatted/converted to Word. No text has changed.

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TABLE OF CONTENTS (Continued)

8.2 MAINTENANCE AND TESTING

8.2.1 PURPOSE

1. To ensure periodic testing commitments of the Emergency Plan and 10 CFR 50 Appendix E are being met and properly documented.

8.2.2 RESPONSIBILITIES

1. The EP Staff is responsible for performance of the following periodic tests in this procedure as follows:

   a. Monthly Selective Signaling System Communications Drill - Once per 28 days + 10 days

   b. Monthly Local Government Radio Test - Once per 28 days + 10 days

   c. Monthly FTS 2000/ESSX/SSS Phone Tests - Once per 28 days + 10 days

   d. Monthly Siren Testing Including Growl Testing - Once per 31 days + 7 days

   e. Quarterly IPZ State Communications Drill - Once per 92 days + 23 days

   f. Quarterly ERO Phone Book Review - Once per 92 days + 23 days

   g. Quarterly Beeper test - Once per 92 days + 23 days

   h. Quarterly TSC/EOF Inventories - Once per 92 days + 23 days and after each drill

   i. Semi-Annual Health Physics and PASS Drills - Once per 184 days + 46 days

8.2.2.1 (Continued)

j. Contributions to Emergency Support Organizations -Once per 364 days + 91 days, and each Quarter as required

k. Annual Siren Full Volume Test - Once per 364 days + 91 days

l. Annual Siren Adequacy Review - Once per 364 days + 91 days

m. Annual EAL Review - Once per 364 days + 91 days

n. Annual PNSC review of Emergency Plan - Once per 364 days + 91 days

o. Annual Medical Emergency Drill - Once per 364 days + 91 days

p. Annual Environmental Team Communications - Once per 364 days + 91 days

q. Annual Lake Sign Verification - Once per 364 days + 91 days

r. Annual Audit Required by 10CFR50.54T - Once per 364 days + 91 days

s. Annual Letters of Agreement - Once per 364 days + 91 days

t. Hospital and Rescue Squad Training - Once per 364 days + 91 days

u. NRC Evaluated Exercise - Per 10 CFR, Part 50, Appendix E

v. Augmentation Drill - Once per 24 months + 182 days

w. Public Safety Information - Once per 364 days + 91 days and Once per 92 days + 23 days

8.2.3 GENERAL

1. Periodic test scheduling will be as follows:

   a. When a periodic test is completed prior to the scheduled date the next scheduled date will be the early completion date plus the frequency.

   b. When a periodic test is completed on or after the scheduled date but before the overdue date the next scheduled date will be the last scheduled date plus the frequency.

2. Emergency Preparedness (EP) personnel or Emergency Communicators may be used for communications drills.

3. A drill or exercise that uses the Selective Signaling System (SSS) to contact the State and Counties may be used to fulfill the requirements of the monthly communications test.

   a. The Superintendent - Shift Operations (SSO) is responsible for providing an emergency communicator for the off hours monthly communications drill.

4. If while performing a test or drill an offsite agency is involved in an actual emergency perform the following:

   a. If the agency is a State or County Warning Point or EOC, excuse the agency from the remainder of the test or drill, and annotate the situation in the test or drill documentation.

   b. If the agency is the NRC, perform that part of the test at a later time.

5. A drill or exercise that begins between 6 p.m. and 4 a.m. or a weekend, that includes in the objectives, the conduct of an off hours augmentation of the ERO, may be used to satisfy the requirements of the Augmentation Drill.

8.2.3 (Continued)

6. Attachment 8.2.28.1, Certification Test and Review Form, may be used to document completion of any test or other periodic Emergency Preparedness (EP) requirement unless other documentation is specified in the procedure.

7. When contacting the Control Room in the following procedure steps, it is desirable to contact the SSO, but not required.

8.2.4 MONTHLY SELECTIVE SIGNALING SYSTEM COMMUNICATIONS DRILL

1. The monthly communications drill is normally performed by EP personnel. Every third monthly drill, as resources are available, should be performed off hours by Operations personnel.

2. Contact the Control Room and inform them that a Selective Signaling System (SSS) Communications Drill will be performed.

3. Provide a scenario to the Emergency Communicator of sufficient detail to allow two Emergency Notification Forms to be completed.

   a. One form will be the initial notification and one form will be the termination notification.

4. The Emergency Communicator uses the scenario information provided to fill out a notification form (EPNOT-01, CR/EOF Communicator).

5. Review the completed notification form to ensure that "THIS IS A DRILL" is checked, and that all required elements of the form are completed per EPNOT-00 Notification and Emergency Communications.

6. If the form is correct, approve the notification form and instruct the Emergency Communicator to begin the notification.

8.2.4 (Continued)

7. The Emergency Communicator implements EPNOT-00 to notify Warning Points and EOCs.

8. If all parties responded to the communications drill skip to Step 8.2.4.13.

9. If any Warning Points or Emergency Operations Centers fail to respond verify that the nonresponding agencies can be contacted by commercial telephone using the phone number from the ERO Phone Book. During this call, attempt to determine why they did not answer the Selective Signaling System telephone.

10. Contact the nonresponding agency again using a Selective Signaling Telephone by dialing the specific dialing code for that agency. See Attachment 8.2.28.2, Selective Signaling System Dialing Codes.

11. If the agency called picks up, and communications can be established, consider the test successful.

12. If no agency can be contacted using the Selective Signaling System from any site location, via any method (including ESSX, Bell, etc.), inform the SSO that a 1 hour reportable event to the NRC has occurred. Consult AP-030, NRC Reporting Requirements. Assist the SSO in making the notification.

13. Notify the Control Room that the Selective Signaling System Communications Drill is concluded. State that the Selective Signaling System is returned to operational status.

14. Arrange for repair of any Selective Signaling System problems by calling the Telecommunications Help Desk. Notify Site Telecommunications of the problem for information purposes.

8.2.4 (Continued)

NOTE: Chesterfield, Darlington, and Lee Counties have locations named, "Warning Point" and "Emergency Operating Center". The State chose not to have a phone in the EOC. Therefore, they have a Warning Point, and a Backup Warning Point.

15. Acceptance Criteria:

    The monthly Selective Signaling System Communications drill is acceptable when:

    a. Contact has been made with the Warning Point and EOC for each of the Counties and the State Warning Points.

       – By decision of the State of South Carolina the Backup Warning Point phone is left with the ringer off since the Warning Point is manned 24 hours per day. The Backup Warning Point phone would be tested prior to use.

    b. An initial and termination message has been read to at least one of the locations for each of the agencies.

16. Documentation of the drill will consist of the notification forms used and a completed Attachment 8.2.28.1, Certification and Test Review Form.

17. Transmit the completed forms, to Records Storage in accordance with RMP-001. A copy of the record may be maintained in the EP files for the convenience of auditors.

8.2.5 MONTHLY LOCAL GOVERNMENT RADIO TEST

1. The State of South Carolina tests radio communications with various agencies and nuclear plants every Thursday starting at about 0900. Therefore, at approximately 0900 on the scheduled Thursday, or other prearranged day during the grace period, listen to the Local Government Radio (LGR) set in the EP office.

2. The LGR Instruction Manual lists "10" codes on Page 33. The only "10" codes necessary for the radio test are "10-1" (signal weak), "10-2" (signal good), and "10-97" (radio test).

3. Listen for the call from the State of South Carolina stating, "KNBD414 ROBINSON THIS IS WBS264."

4. Pick up the handset, press the button on the handset, and acknowledge the transmission by saying:

   "THIS IS KNBD414 ROBINSON, I READ YOU 10-2", if the transmission is clear, *OR* "I READ YOU 10-1" if the transmission is weak, and inform the operator that two more radio sets need to be tested.

5. After your transmission is acknowledged, state:

   "WBS 264 THIS IS KNBD414 SIGNING OFF."

6. After radio traffic on the channel has stopped, test the radio set in Rooms 425 TSC and 434 EOF as follows:
   "WBS 264 THIS IS KNBD414 ROBINSON FOR A 10-97 ON THE BACKUP RADIO", after the State operator responds answer with "THIS IS KNBD414 ROBINSON, I READ YOU 10-1 or 10-2" as appropriate.

7. After your transmission is acknowledged, state:

   "WBS 264 THIS IS KNBD414 SIGNING OFF."

8. Complete the third radio set per steps 8.2.5.6 and 8.2.5.7 above and inform the State operator that testing is complete.

8.2.5 (Continued)

9. If the radio communication is weak or not working, notify the Telecommunications Help Desk, Site Telecommunications, and the South Carolina Emergency Preparedness Division. Following repairs retest the radio sets.

10. Acceptance Criteria:

    The monthly LGR test is acceptable when satisfactory communication has been completed with the State of South Carolina using the handsets at the TSC, EOF, and EP office.

11. Document the monthly test on Attachment 8.2.28.1, Certification and Test Review Form.

12. Transmit the completed form to Records Storage in accordance with RMP-001. A copy of the record may be maintained in the EP files for the convenience of auditors.

8.2.6 **MONTHLY FTS 2000/ESSX/SELECTIVE SIGNALING SYSTEM PHONE TESTS**

1. Contact the Control Room and inform them that a test of the FTS 2000/ESSX/Selecting Signaling System will be performed. Request that the Control Room not answer the FTS 2000 telephone until notified again at the conclusion of this test.

2. From an available FTS-2000 telephone in the TSC or EOF, dial one of the 10 digit telephone numbers listed in the ERO telephone book to contact the NRC Operations Center.

3. When the NRC Duty officer answers, inform him of your name, state that you are calling from Robinson Plant, and that this is the monthly test of the Emergency Notification System (ENS). Request that the Duty Officer call back at (700) 256-0213.

8.2.6 (Continued)

4. When the ENS telephone rings, answer the telephone by identifying "ROBINSON NUCLEAR PLANT."

   a. Record the name of the Duty Officer contacted.

      – No other calls to the NRC Operations Center are required.

5. Use each of the ENS telephones listed on Attachment 8.2.28.3, FTS-2000/ESSX/SSS Monthly Telephone Test, to receive and originate a call.

   a. This will verify that a dial tone is present and that each ringer, handset, and dial keypad is operational.

   b. The Control Room FTS phone is tested daily and will not be included in this test.

6. To test the ERDS Link to the NRC take a telephone to Room 426 and open the first louvered door on the back of the ERFIS panel.

   a. Locate and disconnect the ERDS jack and connect the telephone in its place.

   b. Ensure the telephone has a dial tone.

   c. Disconnect the telephone and reconnect the ERDS jack previously disconnected.

8.2.6 (Continued)

7. If any problems are noted during the test:

   a. Contact the NRC Operations Center by FTS-2000, if available, or bell telephone at one of the numbers listed in the ERO telephone book.

   b. If no means of contacting the NRC Operations Center is available, contact the SSO and inform him that a 1 hour reportable event to the NRC has occurred.

      – Consult AP-030.

      – Assist the SSO in making the notification.

8. Use each of the ESSX telephones listed on Attachment 8.2.28.3, FTS-2000/ESSX/SSS Monthly Telephone Test, to receive and originate a call.

   a. This will verify that a dial tone is present and that each ringer, handset, and dial keypad is operational.

9. If any problems are identified with the ESSX telephones notify the Telecommunications Help Desk and onsite personnel to have the telephones repaired.

10. Notify the Control Room of the "Out of Service" condition. When the telephones are repaired and tested notify the Control Room that the telephones are returned to service.

    a. This condition above is not reportable to the NRC.

8.2.6 (Continued)

11. Use each of the SSS telephones listed on Attachment 8.2.28.3, FTS-2000/ESSX/SSS Monthly Telephone Test, to receive and originate a call.

    a. This will verify that each ringer, handset, and dial keypad is operational.

        – There is no dial tone on the SSS telephones.

12. If any problems are identified with the SSS telephones notify the Telecommunications Help Desk and onsite personnel to have the telephones repaired.

13. Notify the Control Room of the "Out of Service" condition.

    a. When the telephones are repaired the tested, notify the Control Room that the telephones are returned to service.

        – This condition is not reportable to the NRC provided a backup communications system (Site PBX, ESSX, etc.) is available.

14. Notify the Control Room that the phone test is complete.

15. Acceptance Criteria:

    The FTS-2000, ESSX, and SSS phone tests are satisfactory when:

    a. It has been verified that the dial tone (except SSS), ringer, handset, and keypad function for each FTS-2000, ESSX, and SSS telephones.

    b. A dial tone was obtained on the ERDS jack.

8.2.6 (Continued)

16. Documentation of the test will consist of Completed Attachment 8.2.28.3, FTS-2000/ESSX/SSS Monthly Telephone Test, and Attachment 8.2.28.1, Certification Test and Review Form.

17. Transmit the completed forms to Records Storage in accordance with RMP-001. A copy of the record may be maintained in the EP files for the convenience of auditors.

8.2.7 MONTHLY SIRENS TESTING INCLUDING GROWL TESTING

NOTE: Sirens are rotated each week, typically this automatically initiated early Monday morning. Once each quarter each siren is growl tested.

1. Obtain system records documenting the weekly rotation tests.

   a. On a weekly basis, if the automatic report has not been generated, perform a manual rotation. Guidance is available in the system technical manual.

NOTE: The siren feedback system provides real time information on siren status. This data is routinely reviewed each work day by a member of the EP staff.

2. If failures are noted which have not previously been reported:

   a. Enter the required information on Attachment 8.2.28.4, Siren Out of Service Notification.

      – Siren power supplies are listed as page 2 of the attachment to aid in determining the impact of power outages.

   b. Notify appropriate Telecommunications personnel.

8.2.7.2 (Continued)

c. Notify the Control Room that the siren is out of service.

d. Inform the County Emergency Management Director about the siren(s) out of service using the telephone number in the ERO Phone Book.

e. Notify the Telecommunications help desk to make repairs.

3. When notified by Transmission Maintenance or Telecommunications Help Desk that the siren has returned to service, perform the following:

   a. Log the notification on Attachment 8.2.28.4, Siren Out of Service Notification.

   b. Notify the Control Room that the siren is back in service.

   c. Inform the County Emergency Management Director about the siren(s) back in service.

4. Consult AP-030 NRC Reporting requirements, assist the SSO in making any notifications if desired.

5. Review siren test records to compare rotation and alarm data against the notifications logged on Attachment 8.2.28.4, Siren Out of Service Notification, and incoming repair records (Form 2000, Telecommunications Service Order Report or equivalent).

   a. If the records do not compare with the notification log, contact Telecommunications or Transmission Maintenance to resolve the differences.

8.2.7 (Continued)

6. On a monthly test basis, verify that there has been 1 rotation test each week since the last monthly verification.

   a. Also verify that a Form 2000, Telecommunications Service Order Report or equivalent has been received for each failed test or that a siren is listed as out of service for each failed test.

7. On a quarterly basis, Growl Test the sirens, note any failures on the notification logs and document any subsequent Form 2000, Telecommunications Service Order Reports or equivalent.

   a. Emergency Preparedness will establish a schedule for growl and full volume siren testing.

   b. The testing schedule will be entered into the site surveillance tracking system, or similar system, to provide prompts to interested parties such as Site Communications.

8. Include the Growl Test Forms 2000, Telecommunications Service Order Reports or equivalent as attachments to the test documentation.

9. Acceptance Criteria

   This test is satisfactory when:

   a. Each of the sirens has been rotated weekly or any sirens that failed to rotate have been repaired and successfully retested or listed as out of service. In all cases, sirens out of service must be less than criteria for an NRC report.

   b. On a quarterly basis, each siren Growl tested satisfactorily or any sirens that failed to growl have been repaired and successfully retested or listed as out of service. In all cases sirens out of service must be less than criteria for an NRC report.

8.2.7 (Continued)

10. Complete Attachment 8.2.28.1, Certification Test and Review Form, and attach completed forms or Service Reports.

11. Transmit the completed forms to Records Storage in accordance with RMP-001.

    a. A copy of the record may be maintained in the EP files for the convenience of auditors.

8.2.8 QUARTERLY IPZ STATE COMMUNICATIONS DRILL

1. Prepare two Emergency Notification Forms using EPNOT-00, Notification and Emergency Communications.

    a. One form will be the initial notification and one form will be the termination notification.

2. Review the completed notification form to ensure that "THIS IS A DRILL" is checked, and that all required elements of the form are completed per EPNOT-00, Notification and Emergency Communications.

3. Implement EPNOT-00, Notification and Emergency Communications to notify the NC Warning Point via commercial telephone at the number listed in the ERO Phone Book.

4. Verify the authentication code words if requested.

5. If the NC warning point fails to respond, perform the following:

    a. Contact N. C. Emergency Management at the number listed in the ERO telephone book and attempt to determine why the warning point did not answer the telephone.

    b. Attempt to contact the N. C. Warning Point again via commercial telephone.

8.2.8 (Continued)

6. If contact can be made with the N. C. Warning Point and communications are established, consider the test successful.

7. If the N. C. Agencies identified above cannot be contacted the test is unsuccessful.

   a. Notify the Telecommunications Help Desk and Site Telecommunications.

8. Acceptance Criteria:

   The IPZ Communications Drill is satisfactory when contact has been made with the N. C. Warning Point for an initial Drill Notification and a termination Notification.

9. The Emergency Notification Forms used and an Attachment 8.2.28.1, Certification Test and Review Form, will provide documentation of the drill.

10. Transmit the completed forms to Records Storage in accordance with RMP-001. A copy of the record may be maintained in the EP files for the convenience of auditors.

8.2.9 **QUARTERLY ERO PHONE BOOK REVIEW**

NOTE: The EP Staff maintains a copy of the ERO Phone Book in the EP Office as a markup copy. When changes to the ERO are processed in accordance with EPPRO-00, Program and Responsibilities, the markup copy is annotated with the change.

1. Arrange to have each person on the ERO called to confirm both their work number and their home telephone number.

2. Arrange to have each office telephone number in the "Other Contacts (Offsite)" section of the ERO Phone Book called and confirm home and car telephone numbers.

8.2.9 (Continued)

3. Review the ERO Phone Book and update any changes.

4. Update and publish the new ERO Phone Book revision.

5. Change out the new ERO Phone Book revision in each copy on distribution.

6. Acceptance Criteria:

   The ERO phone book review is satisfactory when the book has been reviewed, revised and distributed, if required.

7. Document completion of the quarterly review of the ERO Phone Book by completion of Attachment 8.2.28.1, Certification and Test Review.

8. Transmit the completed records to Records Storage in accordance with RMP-001. A copy of the form may be maintained in the EP office for the convenience of auditors.

8.2.10 **QUARTERLY BEEPER DRILL**

NOTE: The purpose of the beeper drill is to verify the adequacy of the activation hardware and beepers. It is intended to test the coverage and operability of the beeper system only.

1. The Beeper Drill may be conducted by using the Beeper Drill scenario contained in the Dialogic database, with code 0*0*1, or manual beeper activation, defined in EPNOT-00, Notification and Emergency Communication, using code 0*0*4. The drill will be initiated by Emergency Preparedness (EP) personnel.

2. Notify the Control Room when a Beeper Drill is to be conducted.

8.2.10 (Continued)

3. When the Dialogic scenario is used, Beeper holders will be required to call Dialogic and respond to the qualification questions.

   a. Dialogic will provide printouts that will identify the ERO positions filled and provide names of those people who called the system during the drill but did not qualify.

4. If the Dialogic Beeper Drill scenario was not used, Beeper holders will be required to complete Attachment 8.2.28.5, ERO Beeper Test Results, and ensure it is signed and returned to the EP Staff.

5. The Dialogic printouts, or the completed Attachment 8.2.28.5 will be used to determine the beeper holders that responded.

6. Acceptance Criteria:

   Greater than 80% of personnel issued a pager and expected to respond received the appropriate code. Failures to respond have been investigated.

   a. Total number of eligible pagers will be determined from IT records and will not include pagers which are not expected to respond. (e.g., Control Room, Security)

7. Additional Criteria: (not necessary to be satisfactory)

   Determine if personnel in the positions identified on the on-call roster have confirmed that their beeper functioned and they could have reported to the appropriate on-site facility in 60 minutes or less. JIC responders have 120 minutes.

   a. 60 minutes is based on the standard Dialogic qualification question.

   b. Appropriate management will be notified of failures to respond which are not due to extraordinary circumstances.

8.2.10 (Continued)

8. Document the completion of the Beeper Test on Attachment 8.2.28.1, Certification and Test Review, and attach other supporting documentation.

9. Transmit the completed records to Records Storage in accordance with RMP-001. A copy of the form may be maintained in the EP files for the convenience of auditors.

8.2.11 **QUARTERLY TSC/EOF INVENTORIES**

1. Perform an inventory using Attachment 8.2.28.6, TSC/EOF Inventory, once per quarter and after each facility activation. TSC/EOF inventories will be completed as soon as possible not to exceed 3 working days following an activation. Quarterly inventories will be completed within the established grace period.

2. Acceptance Criteria:

   The TSC/EOF inventory is acceptable when the requirements of Attachment 8.2.28.6, TSC/EOF Inventory, have been met.

3. Documentation will consist of completed Attachment 8.2.28.6, TSC/EOF Inventory and Attachment 8.2.28.1, Certification Test and Review Form.

4. Transmit the completed records to Records Storage in accordance with RMP-001. A copy of the form may be maintained in the EP Files for the convenience of auditors.

8.2.12 SEMI-ANNUAL HEALTH PHYSICS AND PASS DRILLS

1. Health Physics drills shall be conducted semi-annually. These drills will involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

2. On an annual basis the drill will include analysis of in plant samples with actual or simulated elevated radiation levels and use of the PASS System.

3. Acceptance Criteria:

   The acceptance criteria shall be as established in Emergency Preparedness Objectives.

4. The completion of the Health Physics and PASS drills will be documented by memorandum and an Attachment 8.2.28.1, Certification Test and Review Form.

5. Transmit completed records to Records Storage per RMP-001, Records and QA Records Storage.

8.2.13 CONTRIBUTIONS TO EMERGENCY SUPPORT ORGANIZATIONS

1. Annual Contributions

   a. During January of each year a check request will be submitted for each of the listed organizations and in the amounts shown below.

      - Hartsville Rescue Squad $1,000
      - Lake Robinson Rescue Squad $1,000
      - Hartsville Fire Department $2,000

8.2.13.1 (Continued)

b. Deliver the contribution checks to each receiving organization. Complete an Attachment 8.2.28.2, Certification and Test Review, to document the contribution.

2. Quarterly Contributions

a. Following the end of each quarter, contact the Hartsville Fire Department, Lake Robinson Rescue Squad, and Hartsville Rescue Squad to determine the number of call-outs that were responded to by each organization. The amount of reimbursement will be based on the number of call-outs as follows:

- Fire Department $250 per call-out
- Rescue Squads $100 per call-out

b. Develop check requests in the appropriate amounts. Deliver the contributions checks to each receiving organization.

c. Complete an Attachment 8.2.28.2, Certification and Test Review, to document the reimbursement.

3. Acceptance Criteria:

This task will be considered satisfactory when contributions and reimbursement checks (if required) have been delivered in a reasonable time.

4. Transmit copies of completed records to Records Storage per RMP-001, Records and QA Records Storage. An additional copy of the form may be maintained in the EP Files for the convenience of auditors.

8.2.14 ANNUAL FULL VOLUME SIREN TEST

1. In January of each year, schedule a Full Volume Siren Test with the State, Counties, Transmission Maintenance, Telecommunications Maintenance, Site Communications and Corporate Communications.

2. Approximately six weeks before the scheduled Full Volume Test, perform the following:

> **NOTE:** Site Communications will be notified of the Full Volume Test via a site surveillance system to prompt a public information plan to publicize the test.

   a. Arrange to have a volunteer siren watcher stationed at every siren for the test or monitor testing via feedback system.

   b. If volunteers are used, send each a map, test form, and a set of watcher instructions.

   c. If volunteers are used, schedule personnel as telephone operators to take telephone calls from the watchers after the test is concluded.

   d. Coordinate with South Carolina Emergency Preparedness Division to determine if the EAS system will be activated.

   e. If the EAS system will be activated during the annual siren test, inform Site Communications to ensure that this information is included in the public information plan.

3. If siren watchers are used schedule a briefing on the day of the test, to ensure coverage and a full understanding of what is required of the watchers.

4. The full volume test will be conducted from the County Activation points and/or site activation as appropriate.

8.2.14 (Continued)

5. If siren watchers are used they will call into the plant to inform the telephone operators of the results of the siren activations.

6. If the siren feedback system is used collect system activation reports for documentation.

7. If any siren fails to activate or rotate, perform notification steps in the monthly siren test section of this procedure.

8. Consult AP-030, NRC Reporting Requirements, assist the SSO in making any notifications if desired.

9. Acceptance Criteria:

   For the purpose of this procedure the Full Volume siren test will be considered acceptable when sirens have been activated from the site or county activation points, failed sirens identified for repair, NRC notified if required, and any watcher and/or feedback system test records collected. Corrective actions required will include schedule and completion dates as appropriate.

10. Compile all test records and attach to a completed Attachment 8.2.28.1, Certification and Test Review.

11. Transmit the completed records to Records Storage in accordance with RMP-001. A copy of the record may be maintained in the EP files for the convenience of auditors.

8.2.15 **ANNUAL SIREN ADEQUACY REVIEW**

1. Perform a survey of areas within the 10 mile EPZ that have the lowest siren coverage to determine if a significant change in demographics has occurred.

2. If an area appears to need additional siren coverage, schedule a noise level measurement for the area of interest during the next Annual Full Volume Test.

8.2.15 (Continued)

3. Compile all test records for a yearly interval to determine the simple arithmetic average of total test successes divided by total tests performed.

   a. The arithmetic average should equal 90% or greater.

   b. All regularly scheduled silent, growl and the full volume test for each siren is considered a test.

4. Submit letters to the Federal Emergency Management Agency (FEMA) and the State of South Carolina informing them of the Test Results.

   a. Route the letters to the vault.

5. Acceptance Criteria:

   For the purpose of this procedure the Annual Siren Adequacy Review will be considered acceptable when:

   a. The survey required above is complete.

   b. The report has been developed and issued. If the arithmetic average is less than 90%, resulting corrective actions will include schedules and completion dates.

8.2.16 **ANNUAL EAL REVIEW**

1. On an annual basis, arrangements shall be made to review the EALs with the State and County Emergency Preparedness representatives.

2. A memorandum will be generated by the EP staff documenting the review.

8.2.16 (Continued)

3. Acceptance Criteria:

   The EAL review will be considered satisfactory when the review is complete and the memorandum above is signed.

4. Complete Attachment 8.2.28.1, Certification Test and Review Form, and attach to the memorandum from above to document the review.

5. Transmit completed records to Records Storage per RMP-001, Records and QA Records Storage.

8.2.17 **ANNUAL PNSC REVIEW OF EMERGENCY PLAN**

1. The Emergency Preparedness staff will review the Robinson Emergency Plan annually.

   a. The purpose of this review is to determine if any revisions are required due to regulatory revisions, experiences of drills and exercises, or other requirements.

2. Following review, the Robinson Emergency Plan will be presented to the PNSC for review.

3. Revision to the Robinson Emergency Plan will be completed following PNSC review.

4. Acceptance Criteria:

   The Emergency Plan review will be considered acceptable following review and acceptance by the PNSC.

5. The PNSC Minutes shall provide documentation of satisfactory completion of this activity.

8.2.18 ANNUAL MEDICAL EMERGENCY DRILL

1. A Medical Emergency Drill, involving a simulated contaminated and injured individual and participation of the local offsite medical services agencies, shall be conducted annually.

2. Acceptance Criteria:

   The acceptance criteria shall be as established in Emergency Preparedness Objectives.

3. Records of the drill shall consist of the Scenario, Critique, and an Attachment 8.2.28.1, Certification Test and Review Form.

4. Transmit completed records to Records Storage per RMP-001, Records and QA Records Storage. A copy of the record may be maintained in the EP Files for the convenience of auditors.

8.2.19 ANNUAL ENVIRONMENTAL TEAM COMMUNICATIONS

1. On an annual basis, and normally during a regularly scheduled drill, the Environmental Team communications shall be monitored to ensure that communications equipment is adequate and that the ability to communicate effectively is demonstrated.

2. Acceptance Criteria:

   The acceptance criteria shall be as established in Emergency Preparedness Objectives.

3. The completion of the Environmental Team Communications shall be documented in the Drill critique.

4. Complete an Attachment 8.2.28.1, Certification and Test Review Form, and attach to a copy of the critique from above.

5. Transmit completed records to Records Storage per RMP-001, Records and QA Records Storage. A copy of the record may be maintained in the EP Files for the convenience of auditors.

8.2.20 ANNUAL LAKE SIGN VERIFICATION

1. Perform an inspection of the Evacuation Warning signs posted at each public access to Lake Robinson and Lake Prestwood on a Annual basis.

2. The signs are typically lettered with the following information:

   IN THE EVENT OF AN IDENTIFIED EMERGENCY REQUIRING EVACUATION OF THE LAKE AREA YOU WILL BE NOTIFIED BY SIRENS. IF THIS SIGNAL IS OBSERVED PLEASE:

   a. LEAVE THE LAKE AREA IMMEDIATELY.

   b. TURN ON THE RADIO OR TELEVISION FOR INFORMATION AND INSTRUCTIONS.

3. Lake signs are located at the following locations:

a.	Lake Robinson	Atkinson Landing Easterling Landing Johnson Landing Chesterfield County (Morrisons Bridge) Landing
b.	Lake Prestwood	Sonovista Park Landing

4. Acceptance Criteria:

   The Evacuation Warning Sign inspection is considered satisfactory when they are found to be appropriately posted and readily readable.

5. Complete Attachment 8.2.28.1, Certification Test and Review Form, to document the inspection and any corrective actions taken.

6. Transmit completed record to Records Storage per RMP-001, Records and QA Records Storage.

8.2.21 ANNUAL AUDIT REQUIRED BY 10 CFR 50.54T

1. A review of the Emergency Preparedness Program shall be conducted at the frequency specified in the Code of Federal Regulations. This review shall be accomplished by individuals who do not have any responsibility for implementation of the program.

2. This review shall include an evaluation of the adequacy of interfaces with State and County Emergency Preparedness organizations as well as Drills, Exercises, program capabilities, and procedure effectiveness.

3. The results of the review and evaluation, including recommendations for improvement, shall be documented in an appropriate report.

4. The report shall be distributed to Plant and Corporate Management. Those portions of the report that concern the State and County Emergency Preparedness organizations shall be made available to them.

5. Acceptance Criteria:

   For the purpose of this procedure the Audit shall be considered acceptable when it is complete. Any resulting corrective actions shall include schedules and completion dates.

6. Copies of the report shall be distributed and filed as required by the reviewing organization.

8.2.22 ANNUAL LETTERS OF AGREEMENT UPDATE

1. On a annual basis, a memorandum will be sent to each agreement organization requesting that they sign and return the document. This will indicate concurrence with the content of the respective Agreement Letter.

2. If necessary new Agreement Letters will be negotiated and entered into the plan by procedure revision.

8.2.22 (Continued)

3. Acceptance Criteria:

   The Agreement Letters shall be considered acceptable when the signed memorandum have been returned or new agreements negotiated.

4. Complete an Attachment 8.2.28.1, Certification and Test Review Form, and attach to the signed memorandum.

5. Transmit completed records to Records Storage per RMP-001, Records and QA Records Storage.

8.2.23 **HOSPITAL AND RESCUE SQUAD TRAINING**

1. On an annual basis a package of self directed training material will be prepared and sent to the Darlington County Rescue Squad, Byerly Hospital, and Wilson Medical Center. At the same time actual training will also be offered.

2. Acceptance Criteria:

   The training shall be considered acceptable when the packages have been sent and training has been provided or refusal documented.

3. Complete an Attachment 8.2.28.1, Certification Test and Review Form, and attach to the memorandums, training material (if used), and documentation of training refusal if applicable.

4. Transmit completed records to Records Storage per RMP-001, Records and QA Records Storage.

8.2.24 NRC EVALUATED EXERCISE

1. A graded exercise shall be conducted as required by 10 CFR, Part 50, Appendix E. The date of the exercise will be coordinated with the NRC, FEMA, State of South Carolina, Harris and Brunswick plants, and Chesterfield, Darlington, and Lee Counties.

2. The exercise scenario will be planned and developed to demonstrate the applicable Objectives from EPPRO-01, Program and Responsibilities.

3. The exercise is an event that tests the integrated capability of major response organizations and will include the attributes identified in PLP-007, Robinson Emergency Plan.

4. Acceptance Criteria:

   For the purpose of this procedure the exercise shall be considered acceptable when the exercise and critique are complete.

   a. Any resulting corrective actions or re-demonstrations shall include schedules and completion dates.

5. Records of the exercise shall consist of the Scenario, and Critique. Documentation such as NRC and other regulatory reports may also be included.

6. Transmit completed records to Records Storage per RMP-001, Records and QA Records Storage. A copy of the record may be maintained in the EP Files for the convenience of auditors.

8.2.25 AUGMENTATION DRILL

NOTE: The conduct of Augmentation Drills is one of the Objectives that is normally satisfied during a drill or exercise. However, an augmentation drill may be conducted separate from a regular scheduled drill as follows.

1. Arrange with a member of senior management to conduct an unannounced off hours augmentation drill.

2. Station controllers in the TSC, OSC, and EOF to supervise the completion of augmentation forms.

3. Access the Dialogic computer and select an appropriate scenario to conduct an augmentation drill and activate using an appropriate code or manual beeper activation and NREC callout.

4. Contact the Control Room and request that they perform a site-wide announcement over the plant PA (with VLC switch in the "EMERGENCY" position):

   "ATTENTION ALL PERSONNEL. THIS IS A DRILL. EMERGENCY RESPONSE ORGANIZATION PERSONNEL REPORT TO YOUR DESIGNATED FACILITY".

   a. Repeat The Announcement.

5. ERO Members will respond to the site, comply with fitness for duty requirement, and respond to their designated emergency facility.

6. The controllers will ensure that Attachment 8.1.5.10 of EPOSC-01, Attachment 8.3.5.1, and Attachment 8.3.5.5 of EPEOF-03, in their respective facilities, are completed as each member of the ERO arrives.

7. ERO members may be dismissed once they have signed in on the attachments.

8.2.25 (Continued)

8. Document the completion of the augmentation drill using Attachment 8.2.28.1, Certification and Test Review Form. Include whether or not the requirements of Table 5.3.2-1, PLP-007, Robinson Emergency Plan, were met.

9. Acceptance Criteria:

   This drill is satisfactory when the positions identified in PLP-007, Robinson Emergency Plan, Table 5.3.2-1 have been filled within the time specified in the Table.

10. Transmit the completed records to Records Storage per RMP-001. A copy of test records may be maintained in EP files for the convenience of auditors.

8.2.26 **PUBLIC SAFETY INFORMATION**

1. Safety Information

   a. During the preparation and review process for the annual distribution of the Safety Information, the EP staff will ensure that an updated list of area schools is provided.

      – This will normally be accomplished by contacting County Emergency Preparedness Directors.

   b. Acceptance Criteria:

      This action will be considered acceptable when the list of area schools has been updated and provided personnel who are responsible for production of the safety information.

8.2.26 (Continued)

2. Safety Information Quarterly Distribution

a. During the last month of each calendar quarter Emergency Preparedness personnel will survey the local hotels/motels to ensure they have adequate supplies of literature for transient personnel.

b. By agreement, inventories should be as follows:

- Landmark - approximately 150
- Lakeview Motel - approximately 25
- Hartsville Motel - approximately 50
- These numbers are to provide a reasonable inventory based on occupancy rates, maintaining an exact number is not required.

c. Acceptance Criteria:

This item will be considered complete and acceptable when the results are documented via memorandum to Emergency Preparedness Management.

8.2.27 **RECORDS**

N/A

8.2.28 **ATTACHMENTS**

8.2.28.1 Certification and Test Review Form

8.2.28.2 Selective Signaling System Dialing Codes

8.2.28.3 FTS-2000/ESSX/SSS Monthly Telephone Test

8.2.28.4 Siren Out of Service Notification

8.2.28.5 ERO Beeper Test Results

8.2.28.6 TSC/EOF Inventory

ATTACHMENT 8.2.28.1
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CERTIFICATION TEST AND REVIEW FORM

Test Performed: _____ Task No. _____

_____

_____

Scheduled/Unscheduled (Circle one)

(If unscheduled, state reason for test _____

_____

_____

	Initials	Name (Print)	Date
Test Performed by	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Test Complete: Date _____ Time _____

Test Satisfactory: Yes / No (Circle one)

Comments: (Required if results were unsatisfactory) _____

_____

_____

_____

_____

Approved by: _____ Date _____
Supervisor - Emergency Preparedness

ATTACHMENT 8.2.28.2
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SELECTIVE SIGNALING SYSTEM DIALING CODES

Location	Individual Phone Code	Group Dialing Code			
		A1	A2	A3	A4
Control Room	42				X
Work Control Center	43				X
TSC	44				X
EOF	45				X
Simulator	46				X
PBX Room	47				
State Backup Warning Point	32	X	X		
Lee County Warning Point	34	X	X		
Darlington County Warning Point	36	X	X		
Chesterfield County Warning Point	38	X	X		
State Warning Point	50	X		X	
State FEOC #1	52	X		X	
State FEOC #2	53	X		X	
Lee County EOC #1	54	X		X	
Lee County EOC #2	55	X		X	
Darlington County EOC #1	56	X		X	
Darlington County EOC #2	57	X		X	
Chesterfield County EOC #1	58	X		X	
Chesterfield County EOC #2	59	X		X	

ATTACHMENT 8.2.28.3
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FTS 2000/ESSX/SSS MONTHLY PHONE TEST

NOTE: A single line instrument is required to test OCL and ERDS.

Location/Circuit	Time	Contact	Results
EOF, Rm 434			
ENS (256-0213)			
HPN (256-0216)			
ENS (256-0213)			
RSCL (256-0210)			
ESSX (383-3680)			
ESSX (383-3681)			
SSS (45)			
EOF, Rm 435			
PMCL (256-0215)			
ADMIN Building, NRC Office			
ENS (256-0213)			
EOF, Rm 412			
HPN (256-0216)			
MCL (256-0211)			
OCL (256-0214)**			
TSC, Rm 421			
HPN (256-0216)			
MCL (256-0211)			
TSC, Rm 422			
RSCL (256-0210)			
TSC, Rm 424			
PMCL (256-0215)			
SC, Rm 425			
ENS (256-0213)			
HPN (256-0216)			
ENS (256-0213)			
ESSX (383-3682)			
ESSX (383-3683)			
SSS (44)			
ERFIS COMPUTER Rm 426			
ERDS (256-0212)*			
CONTROL ROOM			
ESSX (383-3684)			
ESSX (383-3685)			
SSS (42)			
OSC			
ESSX (383-3686)			
ESSX (383-3687)			
WORK CONTROL CENTER			
SSS (43)			

* Plug into jack in the back of computer cabinet and listen for dial tone.

**Plug another FTS-2000 phone into the OCL jack (bottom jack near door by other FTS phones, labeled "OCL") and test similar to other phone circuits.

ATTACHMENT 8.2.28.4
Page 1 of 2

SIREN OUT OF SERVICE NOTIFICATIONS

Date	Notification	Name	Time	Siren(s)	County	IN/OUT Service	Initial
	Noted By Telecom County Control Rm	_____ _____ _____ _____	_____ _____ _____ _____			IN/OUT (Circle)	
	Noted By Telecom County Control Rm	_____ _____ _____ _____	_____ _____ _____ _____			IN/OUT (Circle)	
	Noted By Telecom County Control Rm	_____ _____ _____ _____	_____ _____ _____ _____			IN/OUT (Circle)	
	Noted By Telecom County Control Rm	_____ _____ _____ _____	_____ _____ _____ _____			IN/OUT (Circle)	
	Noted By Telecom County Control Rm	_____ _____ _____ _____	_____ _____ _____ _____			IN/OUT (Circle)	
	Noted By Telecom County Control Rm	_____ _____ _____ _____	_____ _____ _____ _____			IN/OUT (Circle)	

SIREN POWER SUPPLIES

Darlington County

Site	Feeder	Substation	Site	Feeder	Substation
7	Pee Dee Coop	Pee Dee Coop	30	Kellytown	Segars
8	Pee Dee Coop	Pee Dee Coop	31	West Carolina	Segars
12	Pee Dee Coop	Pee Dee Coop	32	Tenth Street	Hartsville
13	Pee Dee Coop	Pee Dee Coop	33	Prestwood	Hartsville
14	Club Colony	Segars	34	Byrdtown	Hartsville
18	Pee Dee Coop	Pee Dee Coop	36	West Carolina	Segars
19	Club Colony	Segars	37	West Carolina	Segars
20	Pee Dee Coop	Pee Dee Coop	38	Lydia	Hartsville (115KV)
21	Pee Dee Coop	Pee Dee Coop	39	Pee Dee Coop	Pee Dee Coop
22	Pee Dee Coop	Pee Dee Coop	41	West Carolina	Segars
23	Kellytown	Segars	42	West Carolina	Segars
24	Pee Dee Coop	Pee Dee Coop	43	West Carolina	Segars
25	Pee Dee Coop	Pee Dee Coop	44	Lydia	Hartsville (115KV)
26	Club Colony	Segars			
27	Club Colony	Segars			

Chesterfield County

Site	Feeder	Substation	Site	Feeder	Substation
1	McBee (12KV)	Bethune	10	Pineridge	Segars
2	Pee Dee Coop	Pee Dee Coop	11	Pineridge	Segars
3	Pee Dee Coop	Pee Dee Coop	15	Pee Dee Coop	Pee Dee Coop
4	Pee Dee Coop	Pee Dee Coop	16	Pee Dee Coop	Pee Dee Coop
5	McBee (12KV)	Bethune	17	Pineridge	Segars
6	Pee Dee Coop	Pee Dee Coop	45	McBee (12KV)	Bethune
9	McBee (12KV)	Bethune			

Lee County

Site	Feeder	Substation
28	Kellytown	Segars
29	Kellytown	Segars
35	Church Street	Bishopville
40	Church Street	Bishopville

ATTACHMENT 8.2.28.5
Page 1 of 1

ERO BEEPER TEST RESULTS

NOTE: Report any beeper malfunctions to Emergency Preparedness for repair and/or replacement.

DATE OF DRILL: _____

RESPONDER'S NAME	ERO POSITION	TIME RECEIVED	DUPLICATE YES/NO	ETA FACILITY	REMARKS

Reviewed by: _____

ROUTE TO EMERGENCY PREPAREDNESS WITHIN TWO (2) WORKING DAYS OF TEST.

ATTACHMENT 8.2.28.6
Page 1 of 1

TSC/EOF INVENTORY

Suggested Quantity	Item	TSC	TSC Cabinet	EOF	EOF Cabinet	Room 422	Room 424	OSC
NA	Clerical supplies - Pens, Markers, Paper, etc.		( )		( )	( )	( )	
1 Each	First Aid Kit		( )		( )			
3 Each	Radar Lights		( )		( )			
OSC=3 EOF=10 TSC=7	Facility - Emergency Procedures	( )		( )				
1 Each	Full Set - Emergency Procedures	( )		( )				( )
1	Set - State Emergency Procedures (SCORERP)			( )				
422=8 424=3	Telephones					( )	( )	

Satisfactory (√)
Comment (*)

Comments:

_____

_____

_____

NOTE: Less than the suggested quantity does not make the TSC/EOF Inventory unsatisfactory provided replacements are being obtained.

Completed by _____ _____
Signature Date

CP&L

R
Reference
Use

CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

PLANT OPERATING MANUAL

VOLUME 2
PART 5

EMERGENCY PROCEDURE

EPPRO-03

TRAINING AND QUALIFICATION

REVISION 5

SUMMARY OF CHANGES

DATE	REVISION #	
1/29/98	5	
STEP	**CHANGE**	**REASON FOR REVISION**
Various	Administrative Changes	Correct format or grammar
Att. 8.3.9.1	Delete Emergency Switchboard Operator	Position is being deleted

TABLE OF CONTENTS

8.3 EMERGENCY PREPAREDNESS TRAINING AND QUALIFICATION PROGRAM

8.3.1 ADMINISTRATION

1. The Supervisor - Emergency Preparedness shall implement the Emergency Preparedness (EP) Training Program as described in this procedure.

2. The Emergency Preparedness Training Program applies to candidates and members of the Emergency Response Organization (ERO) who are expected to fill positions listed in Attachment 8.3.9.3, Emergency Preparedness Position Requirements, with the following exceptions:

   a. Operations and Operations Training Personnel enrolled in an initial or continuing training program will normally receive Emergency Preparedness (EP) training through normal license training or requalification training cycles. Operations personnel qualifying as Emergency Communicator will qualify through the normal EP Training Program. Training is controlled through the Training Program Procedures (TPP).

   b. Security Force - conducts their own training and qualification for their respective Non-ERO and Non-Emergency Security Team Leader (ESTL) positions. ESTL is through the ERO Training Program.

   c. Rescue Personnel - First aid/CPR is provided for select individuals.

   d. Offsite Training - The Emergency Preparedness Unit Staff coordinates training for offsite agencies outside of this program and documents this training.

8.3.1.2 (Continued)

e. Fire Brigade training and qualification is maintained through a separate program. TPP-219, "Fire Protection Training Program"

f. Some positions in Attachment 8.3.9.3, "Emergency Preparedness Position Requirements", have an N/A in the column for position specific training. The tasks performed by these individuals are either taught in Fundamentals or are performed daily in their Non-ERO jobs.

3. The Line Manager of the ERO Member shall ensure Respiratory Protection Training is maintained according to ERO positions listed in Attachment 8.3.9.1, ERO Positions Requiring Respiratory Protection.

8.3.2 PROGRAM OVERVIEW

1. The Emergency Preparedness Training Program provides trainees with the guidance required to perform their job as a member of the ERO.

2. The Program consists of Initial and Continuing training courses, and is designed to accomplish the following:

   a. Train ERO candidates to perform tasks that are unique to their ERO position (Initial).

   b. Maintain and enhance the knowledge and skill levels of ERO members in a changing environment (Continuing).

   c. Various training settings may be used including self-study, computer-based, classroom, in-plant, and tabletops. The setting chosen will be a function of productivity and efficiency.

8.3.2.2 (Continued)

d. Throughout the classroom portions of training, the candidate's progress will be evaluated through written examinations. Successful completion of classroom training requires a combined average grade of not less than 80% for all portions of classroom training received. Continuing Training does not normally include testing.

e. Passing criteria for a Laboratory or Simulated setting would be a "Satisfactory" rating on the activity.

f. Any individual exam failure requires written notification to the ERO candidate and their supervisor.

3. ERO members who respond to the site shall have received Plant Access Training and Radiation Worker Training according to their ERO position and be badged at a CP&L Nuclear Plant. This provides initial orientation and annual retraining on the basics of Emergency Preparedness including but not limited to:

a. Notification and instruction methods used in the event of an emergency.

b. Alarms (local, site, and fire) and associated responses.

c. Assembly areas for various alarms.

d. Overview of the plant and a basic discussion of security areas.

e. Basic fire protection principles.

8.3.2 (Continued)

4. Waivers from qualification requirements based on previous job experience or education are requested using Attachment 8.3.9.5, Training \ Prerequisites Waiver Form. Personnel who are current ERO members and have received credit for Emergency Response Organization Fundamentals under an old course code will automatically be given credit for the new course code. This will be accomplished by a signature on the individual's initial qualification checklist.

5. ERO Initial and Continuing training needs are evaluated by the Emergency Preparedness Training Program Committee (TPC) on an as needed basis. Training deemed appropriate by the TPC will be developed or revised and implemented.

6. Personnel designated to fill First Aid requirements shall receive initial and subsequent annual retraining. This training shall include, but not be limited to, Basic First Aid and Cardiopulmonary Resuscitation (CPR) and is conducted at a local Technical School. This program is controlled through the Site Safety Representative.

7. Plant personnel who are designated as Fire Brigade members shall receive training as described in TPP-219, Fire Protection Training Program.

8. Offsite organizations (i.e., hospital, ambulance, rescue, police and fire personnel) are trained in accordance with their Radiological Emergency Plans which include procedures for notification, basic radiation protection, and expected roles of support. The EP Staff will assist/coordinate this training as necessary.

9. Changes to the ERO Training Program will be presented to the TPC when deemed significant by the Supervisor - Emergency Preparedness.

10. Revisions to the qualification checklists and the Job Task Lists will be controlled by an approval signature. The approval authority will be the Supervisor - Emergency Preparedness.

8.3.2 (Continued)

11. Job specific training for Joint Information Center (JIC) personnel are included in the Fundamentals course. The job positions are described, communications to and from the JIC, and management expectations for communications with the media are all included in the Fundamentals course.

8.3.3 EP INITIAL TRAINING AND QUALIFICATION PROGRAM DESCRIPTION

1. ALL ERO positions require an Initial Qualification Checklist, which are maintained by the EP Staff.

2. When an individual has been identified as a potential ERO candidate by plant management, the Supervisor - Emergency Preparedness will provide the candidates supervisor a Letter addressing managements expectations, including the appropriate Initial Qualification Checklist, a flow path to qualification, and if possible, a schedule of training times and dates.

3. The Initial Qualification Checklist contains applicable elements to be reviewed or evaluated as follows:

a.	Section 1	Prerequisites, including Respirator Qualification if required, for holding a specific ERO Position
b.	Section 2	Procedure(s) that must be read
c.	Section 3	Job list(s) that must be read
d.	Section 4	EP Initial Training courses that must be satisfactorily completed
e.	Section 5	Observation/evaluation of performance in a drill/exercise/tabletop
f.	Section 6	Qualification Signatures
g.	Section 7	Database Entry Signatures

8.3.3 (Continued)

4. The candidates supervisor will deliver the memorandum to the candidate and coach them on the supervisors expectation for participation in the ERO and completing the qualification.

5. To complete the checklist the candidate will circle initial in the checklist title, provide the personal information, and complete Sections 1, 2, and 3.

   a. ERO positions requiring training, typically have a position-specific training course and/or fundamentals course. It is preferred the fundamental course be completed prior to the position-specific course. Matrices of lessons, courses, and requirements are provided as attachments to this procedure.

   b. The candidate is responsible for attending the training on the scheduled date and making arrangements with EP to attend a drill, exercise, or tabletop and signed by an evaluator.

      1) An evaluator is defined as;

         – any Emergency Preparedness Staff Member.

         – anyone qualified for the ERO position to which your ERO position directly reports.

         – anyone previously designated by the Supervisor - Emergency Preparedness. This would be on a case-by-case basis.

   c. The candidate shall present the Checklist at the time training and performance evaluation are performed.

8.3.3 (Continued)

6. Following completion of Sections 1 through 5 of the Qualification Checklist, the candidate will forward it to the EP Staff for permanent record retention, entry into the ERO Data Base, issuance of a beeper if required, access to Emergency Response Information Service (ERIS) authorized if required, and addition to the "ON CALL" schedule.

   a. Candidates are not "officially" qualified until the field in the ERO database indicating they are qualified is updated to indicate "Yes" AND the candidate is notified by the EP Unit they are qualified.

   b. Candidates shall not take duty until they are issued an ERO beeper, if applicable, and entered into the Data Base.

7. Individuals will only be qualified for one ERO position at a time except when Line Management and the Supervisor - Emergency Preparedness agree that it is appropriate for one individual to hold additional qualifications.

   a. The EP staff will identify and track the ERO member's qualification.

8. Occasionally ERO members will be required to be removed from the database and Dialogic. In situations where an employee is terminating their employment from HBR, the employee should be removed no later than the end of the next working day. For other situations, the employee should be removed on the same day they are disqualified.

8.3.3 (Continued)

9. ERO members may be qualified a position which is similar in training and skills to their existing position without completing all Sections of the Initial Qualification Checklist for the new position. To accomplish this, the incumbent will complete through Section 1 of the Checklist and complete an Attachment 8.3.9.5, "Training/Prerequisites Waiver Form" to waive Sections 2-5. Previous training, experience on the ERO, or normal day-to-day job functions are examples of appropriate justification for EP to approve these moves.

8.3.4 ERO REQUALIFICATION REQUIREMENTS

1. The qualifications for each ERO member shall be reviewed during each calendar year following initial qualification by the responsible individual. An Annual Re-Qualification Checklist is used to document requalification. The completed checklist shall be sent to the EP Unit for qualification tracking, then to the Vault.

2. An Annual Re-Qualification Checklist uses the same form as an Initial Qualification Checklist with the option to N/A Section 4.

3. The ERO Member obtains a computer generated Initial / Annual Re-Qualification Checklist, or contacts EP to obtain a copy, circles Annual requalification in the title, and completes the requirements of the Checklist including:

   a. Ensuring the applicable prerequisites listed in Section 1 are complete.

   b. Reading the applicable procedures listed in Section 2.

   c. Reviewing the applicable job lists listed in Section 3, submit any changes and or recommendations to EP Training.

   d. Participate in a drill, exercise, or tabletop and ensure Section 3 is signed by an evaluator as noted on the Qualification Checklist.

8.3.4 (Continued)

4. Upon satisfactory completion of Sections 1 through 5 the EP Staff reviews the Checklist, signs and enters position-specific data into the Qualification Database.

5. An Initial Qualification Checklist will be used when an individuals' previous qualification has lapsed.

   a. In addition EP may require completion of continuing training for the elapsed time.

6. If an individual's qualifications are pulled because they no longer meet the prerequisites, when the prerequisites are met they can be entered into the database without another Initial Qualification checklist, provided their qualifications have not lapsed.

8.3.5 EP CONTINUING TRAINING PROGRAM DESCRIPTION

1. ERO Continuing Training (CT) needs will be assessed through the EP Training Program Committee (TPC).

2. The TPC will identify Continuing Training <u>needs</u> based on:

   a. Drill \ Exercise critiques

   b. Student feed back

   c. Related current industry events

3. Topics for ERO Continuing Training will be selected by the ERO Instructor and concurred by the Supervisor - Emergency Preparedness.

4. The TPC will critique completed training exercises during their regularly scheduled meetings.

8.3.6 EMERGENCY PREPAREDNESS STAFF TRAINING

1. Continuing Training for Project Analyst, Senior Analyst, and Analyst - Emergency Preparedness should include:

   a. Qualified Safety Reviewer Training

   b. Mitigating Core Damage Training (once only)

   c. Corrective Action or Root Cause Analysis Training (once only)

   d. Emergency Preparedness Training (every 5 years; Harvard, Regional, INPO, etc.)

2. The EP Staff should be considered for the following professional development:

   a. Attend at least one regional emergency preparedness meeting or conference (annually)

   b. Attend one off-system drill (annually)

   c. Participate in one drill or emergency event (annually)

   d. On-system visit to CP&L nuclear site for one or two days (annually)

   e. Off-system visit to another EP organization (biennial)

3. The EP Staff members are subject matter experts and are considered qualified to provide training based on continued involvement and awareness of emergency planning regulations and Emergency Plan and procedures development and revision.

4. The EP Staff member designated as the ERO trainer shall be a certified trainer subject to the same qualification and retraining requirements of those trainers in the Training Section.

8.3.7 ERO RESPIRATOR QUALIFICATION

1. Certain positions on the ERO require, by the nature of their emergency duties, that they be prepared to enter a radioactive plume. These positions must maintain respirator qualification.

   a. Qualification on a full face air purifying or air supply respirator satisfies this requirement. Examples of these would be an MSA "Ultra Twin" or Scott "AV 2000".

2. The positions requiring respiratory protection are listed in Attachment 8.3.9.1, ERO Positions Requiring Respirator Protection.

3. Positions which would be evacuated should a facility be exposed to airborne radiation are noted as "Evacuate" on the Attachment.

4. For positions located in the Technical Support Center \ Emergency Operations Facility (TSC / EOF) which are not likely to exit this habitability controlled area, Respiratory Protection is not needed. These positions are noted with "TSC/EOF".

5. If a position is normally located offsite, then respiratory protection is not needed. Position noted as "Offsite".

6. "All" means all individuals qualified this position must be respirator qualified.

8.3.8 RECORDS

1. Training records of individuals participating in the Emergency Preparedness Training Program shall include, but are not limited to:

   a. Attendance rosters which will be sent to the vault.

   b. Exam results in the form of answer sheets will be sent to the vault.

   c. Initial / Annual Requalification Checklists will be sent to the vault.

   d. If Student Feedback documents are determined to require action, they will be tracked by the EP Improvement process.

   e. Memos sent to notify personnel of their requirement to qualify an ERO position will be maintained for information only during the qualification process. When the ERO members qualifications are complete the Memo is no longer maintained.

   f. Hard-copy records maintained are for information use only. Official copies of all required documentation mentioned above will be sent to the vault.

8.3.9 ATTACHMENTS

8.3.9.1 ERO POSITIONS REQUIRING RESPIRATORY PROTECTION

8.3.9.2 EMERGENCY PREPAREDNESS LESSONS

8.3.9.3 EMERGENCY PREPAREDNESS POSITION REQUIREMENTS

8.3.9.4 EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

8.3.9.5 TRAINING \ PREREQUISITES WAIVER FORM

ERO POSITIONS REQUIRING RESPIRATORY PROTECTION

ERO Position	Respirator	Justification
Accident Assessment Team Electrical	Yes	All
Accident Assessment Team Leader	No	TSC / EOF
Accident Assessment Team Mechanical	Yes	All
Accident Assessment Team Reactor Engineer	Yes	All
Administration & Logistics Manager (A&LM)	No	TSC / EOF
Administrative & Badging	No	Off Site
Assistant to ERM	No	TSC / EOF
Company Spokesperson	No	Off Site
Computer Support	Yes	All
Damage Control Team Electrical	Yes	All
Damage Control Team Leader Electrical	Yes	All
Damage Control Team Leader Mechanical	Yes	All
Damage Control Team Mechanical	Yes	All
Dose Projection Team Leader	No	TSC / EOF
Emergency Communicator	No	TSC / EOF
Emergency Communicator Admin. Assistant	No	TSC / EOF
Emergency Communicator Control Room	Yes	All
Emergency Repair Director	Yes (1)	All
Emergency Response Manager	No	TSC / EOF
Emergency Security Team Leader	No	TSC / EOF
Environmental & Chemistry Technician	Yes	All
Environmental Monitoring Team	No	(4)

ERO POSITIONS REQUIRING RESPIRATORY PROTECTION

ERO Position	Respirator	Justification
Environmental Monitoring Team Leader	No	TSC / EOF
EOC Representative (Darlington County)	No	Off Site
EOC Representative (Lee County)	No	Off Site
EOF Representative (Chesterfield County)	No	Off Site
ERM Administrative Assistant	No	TSC / EOF
Facility Administrative Assistant (EOF)	No	TSC / EOF
Facility Administrative Assistant (OSC)	No	Evacuate
Facility Administrative Assistant (TSC)	No	TSC / EOF
FEOC / SEOC Representative	No	Off Site
JIC Director	No	Off Site
Maintenance Planner Electrical	Yes	All
Maintenance Planner Mechanical	Yes	All
NRC Emergency Communicator	No	TSC / EOF
NREC	No	Off Site
OSC Leader	Yes	All
OSC Leader Administrative Assistant	No	Evacuate
Plant Operations Advisor	No	TSC / EOF
Plant Operations Director	Yes (2)	All
Public Information Coordinator	No	TSC / EOF
Public Information Emergency Communicator	No	TSC / EOF
Public Information Specialist	No	Off Site
Radiation Control Technician Damage Control	Yes	All
Radiation Control Technician Facilities	Yes	All

ERO POSITIONS REQUIRING RESPIRATORY PROTECTION

ERO Position	Respirator	Justification
Radiological Control Director	No	TSC / EOF
Radiological Control Manager	No	TSC / EOF
SEC Administrative Assistant	No	TSC / EOF
Site Emergency Coordinator	No	TSC / EOF
SPDS Communicator	No	TSC / EOF
State / County Emergency Communicator	No	Off Site
Storekeeper	No (3)	TSC / EOF
Support Services	No	TSC / EOF
Technical Analysis Director	No	TSC / EOF
Technical Analysis Manager	No	TSC / EOF
Technical Spokesperson	No	Off Site

1. May be required to go to job site or OSC.

2. Required to initially report to the Control Room.

3. Storekeepers would be moved from the OSC to the TSC / EOF and use the mainframe terminals in the TSC \ EOF to perform their function.

4. Enmon teams are not required to wear respirators for safety considerations and to maintain dose ALARA. This is consistent with the practices of the DHEC Enmon teams.

EMERGENCY PREPAREDNESS LESSONS

HOURS	COURSE	LESSON
	FUNDAMENTALS:	
3.0	EP100R	EP PROGRAM STRUCTURE/ORGANIZATION
0.5	EP101R	COMMAND AND CONTROL
0.5	EP102R	LOGKEEPING AND DOCUMENTATION
0.5	EP103R	PARTICIPATION/EXPECTATIONS
0.5	EP104R	FACILITY ACTIVATION/DEACTIVATION
2.5	EP105R	TSC FACILITY
0.5	EP106R	RELIEF STAFFING
2.5	EP107R	OSC FACILITY
2.5	EP108R	EOF FACILITY
3.0	EP109R	ERFIS/EDS
0.5	EP606R	JIC ORGANIZATION
	FUNCTION SPECIFIC:	
1.0	EP200R	RADIATION CONTROL DIRECTOR/MANAGER RESPONSIBILITIES
1.0	EP201R	DOSE PROJECTION TEAM RESPONSIBILITIES
1.0	EP202R	ACCIDENT ASSESSMENT TEAM RESPONSIBILITIES
3.0	EP203R	RADIATION CONTROL RESPONSIBILITIES
1.0	EP204R	ENVIRONMENTAL & CHEMISTRY TECHNICIAN RESPONSIBILITIES
1.0	EP205R	ENVIRONMENTAL MONITORING TEAM RESPONSIBILITIES
1.0	EP206R	DAMAGE CONTROL TEAM RESPONSIBILITIES
2.0	EP207R	EMERGENCY OPERATIONS CENTER REPRESENTATIVES
0.5	EP208R	ADMINISTRATIVE ASSISTANT RESPONSIBILITIES
2.0	EP209R	EMERGENCY SWITCHBOARD
2.0	EP210R	SITE EMERGENCY COORDINATOR RESPONSIBILITIES
2.0	EP211R	EMERGENCY RESPONSE MANAGER RESPONSIBILITIES
1.0	EP212R	STATUS BOARD PLOTTER
2.0	EP213R	LOGISTICS SUPPORT
1.0	EP214R	NOTIFICATION FORM AND NEWS RELEASES
1.0	EP215R	ACTIVATION OF EMERGENCY RESPONSE ORGANIZATION
0.5	EP216R	ASSISTANT TO EMERGENCY RESPONSE ORGANIZATION
1.0	EP217R	EMERGENCY COMMUNICATOR RESPONSIBILITIES

EMERGENCY PREPAREDNESS LESSONS

ADMINISTRATIVE:

0.5	EP300R	COMMUNICATION PROTOCOL
0.5	EP301R	OFF-SITE AGENCY INTERFACE
0.5	EP302R	EMERGENCY FACILITY EQUIPMENT
0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
0.5	EP304R	ACCOUNTABILITY

TECHNICAL:

2.0	EP400R	EMERGENCY ACTION LEVELS (EALs)/EMERGENCY CLASSIFICATION
1.0	EP401R	ON-SITE PROTECTIVE MEASURES
1.0	EP402R	PROTECTIVE ACTION RECOMMENDATIONS (PARs)
2.0	EP403R	PLANT RECOVERY OPERATIONS
1.0	EP404R	PLANT DAMAGE ASSESSMENT
4.0	EP405R	CORE DAMAGE ASSESSMENT

E&RC:

3.0	EP500R	SOURCE TERM DETERMINATION
1.0	EP502R	EMERGENCY KITS/EQUIPMENT
2.0	EP503R	ENVIRONMENTAL MONITORING SAMPLING
1.0	EP504R	MAP/PLUME STRATEGY
2.0	EP505R	STATE ENVIRONMENTAL TEAM INTERFACE
2.0	EP506R	METEOROLOGICAL THEORY
3.0	EP510R	RADIATION MONITORING SYSTEM
4.0	EP511R	HBR DOSE PROJECTION

MISCELLANEOUS:

0.5	EP600R	MISSION BRIEFING/DEBRIEFING
0.5	EP601R	MISSION FORMATION/PRIORITY
0.5	EP602R	OSC RELOCATION
0.5	EP603R	EVACUATION/ASSEMBLY
0.5	EP604R	SECURITY CONTROL POINTS
NA	EP605R	DELETED (Rev. 4)

EMERGENCY PREPAREDNESS POSITION REQUIREMENTS

ERO Position	Fundamentals	Position Specific
Accident Assessment Team Electrical	EP6C044R	EP6C046R
Accident Assessment Team Leader	EP6C044R	EP6C046R
Accident Assessment Team Mechanical	EP6C044R	EP6C046R
Accident Assessment Team Reactor Engineer	EP6C044R	EP6C046R
Administration & Logistics Manager (A&LM)	EP6C044R	EP6C048R
Administrative & Badging	EP6C044R	N/A
Assistant to ERM	EP6C044R	EP6C041R
Company Spokesperson	EP6C044R	N/A
Computer Support	EP6C044R	N/A
Damage Control Team Electrical	EP6C044R	EP6C050R
Damage Control Team Leader Mechanical	EP6C044R	EP6C050R
Damage Control Team Leader Electrical	EP6C044R	EP6C050R
Damage Control Team Mechanical	EP6C044R	EP6C050R
Dose Projection Team Leader	EP6C044R	EP6C054R
Emergency Communicator	EP6C044R	EP6C052R
Emergency Communicator Admin. Assistant	EP6C044R	EP6C045R
Emergency Repair Director	EP6C044R	EP6C053R
Emergency Response Manager	EP6C044R	EP6C047R
Emergency Security Team Leader	EP6C044R	EP6C024R
Emergency Switchboard Operator	EP6C044R	EP6C031R
Environmental & Chemistry Technician	EP6C044R	EP6C050R
Environmental Monitoring Team	EP6C044R	EP6C051R

EMERGENCY PREPAREDNESS POSITION REQUIREMENTS

ERO Position	Fundamentals	Position Specific
Environmental Monitoring Team Leader	EP6C044R	EP6C051R
EOC Representative (Darlington County)	EP6C044R	EP6C052R
EOC Representative (Lee County)	EP6C044R	EP6C052R
EOF Representative (Chesterfield County)	EP6C044R	EP6C052R
ERM Administrative Assistant	EP6C044R	EP6C045R
Facility Administrative Assistant (EOF)	EP6C044R	EP6C045R
Facility Administrative Assistant (OSC)	EP6C044R	EP6C045R
Facility Administrative Assistant (TSC)	EP6C044R	EP6C045R
FEOC / SEOC Representative	EP6C044R	EP6C052R
JIC Director	EP6C044R	N/A
Maintenance Planner Electrical	EP6C044R	EP6C036R
Maintenance Planner Mechanical	EP6C044R	EP6C036R
NRC Emergency Communicator	EP6C044R	EP6C052R
NREC	EP6C044R	EP6C029R
OSC Leader	EP6C044R	EP6C053R
OSC Leader Administrative Assistant	EP6C044R	EP6C045R
Plant Operations Advisor	EP6C044R	EP6C046R
Plant Operations Director	EP6C044R	EP6C047R
Public Information Coordinator	EP6C044R	N/A
Public Information Emergency Communicator	EP6C044R	EP6C052R
Public Information Specialist	EP6C044R	N/A
Radiation Control Technician Damage Control	EP6C044R	EP6C050R

EMERGENCY PREPAREDNESS POSITION REQUIREMENTS

ERO Position	Fundamentals	Position Specific
Radiation Control Technician Facilities	EP6C044R	EP6C050R
Radiological Control Director	EP6C044R	EP6C049R
Radiological Control Manager	EP6C044R	EP6C049R
SEC Administrative Assistant	EP6C044R	EP6C045R
Site Emergency Coordinator	EP6C044R	EP6C047R
SPDS Communicator	EP6C044R	EP6C052R
State / County Emergency Communicator	EP6C044R	EP6C052R
Storekeeper	EP6C044R	N/A
Support Services	EP6C044R	EP6C048R
Technical Analysis Director	EP6C044R	EP6C046R
Technical Analysis Manager	EP6C044R	EP6C046R
Technical Spokesperson	EP6C044R	N/A

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

JIC – All Positions	Fundamentals Only		
ERFIS – ERFIS Maintenance	Fundamentals Only		
Storekeeper – Storekeeper	Fundamentals Only		
EP6C024R, Security –Emergency Security Team Leader	0.5 0.5 1.0 0.5 0.5	EP301R EP304R EP401R EP603R EP604R	OFF-SITE AGENCY INTERFACE ACCOUNTABILITY ON-SITE PROTECTIVE MEASURES EVACUATION/ASSEMBLY SECURITY CONTROL POINTS
EP6C029R, NREC – Non-Responding Emergency Communicators	1.0	EP215R	ACTIVATION OF EMERGENCY RESPONSE ORGANIZATION

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C031R, Emergency Switchboard Operator – Emergency Switchboard Operator	2.0	EP209R	EMERGENCY SWITCHBOARD
EP6C036R, Planners – Maintenance Planners	FUNDAMENTALS ONLY		
EP6C041R, AERM – Assistant to the Emergency Response Manager	0.5	EP216R	ASSISTANT TO EMERGENCY RESPONSE ORGANIZATION
EP6C044R, Emergency Response Organization Fundamentals – Emergency Response Organization Fundamentals	3.0	EP100R	EP PROGRAM STRUCTURE/ORGANIZATION
	0.5	EP101R	COMMAND AND CONTROL
	0.5	EP102R	LOGKEEPING AND DOCUMENTATION
	0.5	EP103R	PARTICIPATION/EXPECTATIONS
	0.5	EP104R	FACILITY ACTIVATION/DEACTIVATION
	2.5	EP105R	TSC FACILITY
	0.5	EP106R	RELIEF STAFFING
	2.5	EP107R	OSC FACILITY
	2.5	EP108R	EOF FACILITY
	3.0	EP109R	ERFIS/EDS
	0.5	EP602R	OSC RELOCATION
	0.5	EP606R	JIC ORGANIZATION

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C045R, Administrative – Emergency Communicator Administrative Assistant – SEC Administrative Assistant – ERM Administrative Assistant – OSC Leader Administrative Assistant – Facility Administrative Assistant	0.5	EP208R	ADMINISTRATIVE ASSISTANT RESPONSIBILITIES
	1.0	EP212R	STATUS BOARD PLOTTER
	1.0	EP214R	NOTIFICATION FORM AND NEWS RELEASES
	0.5	EP302R	EMERGENCY FACILITY EQUIPMENT
	0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
	0.5	EP304R	ACCOUNTABILITY
EP6C046R, Accident Assessment – Accident Assessment Team Members – Accident Assessment Team Leaders – Technical Analysis Manager – Technical Analysis Director – Plant Operations Advisor	1.0	EP202R	ACCIDENT ASSESSMENT TEAM RESPONSIBILITIES
	0.5	EP300R	COMMUNICATION PROTOCOL
	0.5	EP301R	OFF-SITE AGENCY INTERFACE
	0.5	EP304R	ACCOUNTABILITY
	2.0	EP400R	EMERGENCY ACTION LEVELS (EALs)/EMERGENCY CLASSIFICATION
	1.0	EP402R	PROTECTIVE ACTION RECOMMENDATIONS (PARs)
	2.0	EP403R	PLANT RECOVERY OPERATIONS
	1.0	EP404R	PLANT DAMAGE ASSESSMENT
	4.0	EP405R	CORE DAMAGE ASSESSMENT
	3.0	EP510R	RADIATION MONITORING SYSTEM
	0.5	EP601R	MISSION FORMATION/PRIORITY

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C047R, ERM\SEC\POD – Emergency Response Manager – Site Emergency Coordinator – Plant Operations Director	2.0	EP210R	SITE EMERGENCY COORDINATOR RESPONSIBILITIES
	2.0	EP211R	EMERGENCY RESPONSE MANAGER RESPONSIBILITIES
	1.0	EP214R	NOTIFICATION FORM AND NEWS RELEASES
	0.5	EP300R	COMMUNICATION PROTOCOL
	0.5	EP301R	OFF-SITE AGENCY INTERFACE
	0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
	0.5	EP304R	ACCOUNTABILITY
	2.0	EP400R	EMERGENCY ACTION LEVELS (EALs)/EMERGENCY CLASSIFICATION
	1.0	EP401R	ON-SITE PROTECTIVE MEASURES
	1.0	EP402R	PROTECTIVE ACTION RECOMMENDATIONS (PARs)
	2.0	EP403R	PLANT RECOVERY OPERATIONS
	1.0	EP404R	PLANT DAMAGE ASSESSMENT
	3.0	EP510R	RADIATION MONITORING SYSTEM
	4.0	EP511R	HBR DOSE PROJECTION

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C048R, Logistics – Administrative and Logistics Manager – Support Services Coordinator	2.0	EP213R	LOGISTICS SUPPORT
	0.5	EP301R	OFF-SITE AGENCY INTERFACE
	0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
	0.5	EP304R	ACCOUNTABILITY
	1.0	EP401R	ON-SITE PROTECTIVE MEASURES
	2.0	EP403R	PLANT RECOVERY OPERATIONS
	0.5	EP603R	EVACUATION/ASSEMBLY
	0.5	EP604R	SECURITY CONTROL POINTS

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C049R, RCM\RCD – Radiation Control Manager – Radiation Control Director	1.0	EP200R	RADIATION CONTROL DIRECTOR/MANAGER RESPONSIBILITIES
	1.0	EP201R	DOSE PROJECTION TEAM RESPONSIBILITIES
	1.0	EP205R	ENVIRONMENTAL MONITORING TEAM RESPONSIBILITIES
	1.0	EP214R	NOTIFICATION FORM AND NEWS RELEASES
	0.5	EP301R	OFF-SITE AGENCY INTERFACE
	0.5	EP304R	ACCOUNTABILITY
	2.0	EP400R	EMERGENCY ACTION LEVELS (EALs)/EMERGENCY CLASSIFICATION
	1.0	EP401R	ON-SITE PROTECTIVE MEASURES
	1.0	EP402R	PROTECTIVE ACTION RECOMMENDATIONS (PARs)
	2.0	EP403R	PLANT RECOVERY OPERATIONS
	3.0	EP500R	SOURCE TERM DETERMINATION
	2.0	EP503R	ENVIRONMENTAL MONITORING SAMPLING
	1.0	EP504R	MAP/PLUME STRATEGY
	2.0	EP506R	METEOROLOGICAL THEORY
	3.0	EP510R	RADIATION MONITORING SYSTEM
	4.0	EP511R	HBR DOSE PROJECTION
	0.5	EP603R	EVACUATION/ASSEMBLY

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

– EP6C050R,Damage Control\E&RC – Damage Control Team Member – Damage Control Team Leader – Environmental & Chemistry Technician – Radiation Control Technician	3.0	EP203R	RADIATION CONTROL RESPONSIBILITIES
	1.0	EP204R	ENVIRONMENTAL & CHEMISTRY TECHNICIAN RESPONSIBILITIES
	1.0	EP206R	DAMAGE CONTROL TEAM RESPONSIBILITIES
	0.5	EP300R	COMMUNICATION PROTOCOL
	0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
	0.5	EP304R	ACCOUNTABILITY
	2.0	EP403R	PLANT RECOVERY OPERATIONS
	1.0	EP404R	PLANT DAMAGE ASSESSMENT
	1.0	EP502R	EMERGENCY KITS/EQUIPMENT
	0.5	EP600R	MISSION BRIEFING/DEBRIEFING
	0.5	EP601R	MISSION FORMATION/PRIORITY
	0.5	EP603R	EVACUATION/ASSEMBLY

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C051R, ENMON – Environmental Monitoring Team Member – Environmental Monitoring Team Leader	1.0	EP205R	ENVIRONMENTAL MONITORING TEAM RESPONSIBILITIES
	0.5	EP300R	COMMUNICATION PROTOCOL
	0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
	1.0	EP502R	EMERGENCY KITS/EQUIPMENT
	2.0	EP503R	ENVIRONMENTAL MONITORING SAMPLING
	1.0	EP504R	MAP/PLUME STRATEGY
	2.0	EP505R	STATE ENVIRONMENTAL TEAM INTERFACE

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C052R, Emergency Communicator – Emergency Communicator - NRC – Emergency Communicator - State / Counties – Emergency Communicator - Public Information – Emergency Communicator – Emergency Operations Center Representative – Forward Emergency Operations Center Representative – Safety Parameter Display System Communicator	2.0	EP207R	EMERGENCY OPERATIONS CENTER REPRESENTATIVES
	1.0	EP214R	NOTIFICATION FORM AND NEWS RELEASES
	1.0	EP215R	ACTIVATION OF EMERGENCY RESPONSE ORGANIZATION
	1.0	EP217R	EMERGENCY COMMUNICATOR RESPONSIBILITIES
	0.5	EP300R	COMMUNICATION PROTOCOL
	0.5	EP301R	OFF-SITE AGENCY INTERFACE
	0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
	2.0	EP400R	EMERGENCY ACTION LEVELS (EALs)/EMERGENCY CLASSIFICATION
	1.0	EP402R	PROTECTIVE ACTION RECOMMENDATIONS (PARs)
	2.0	EP403R	PLANT RECOVERY OPERATIONS
EP6C053R, Repair \ Operations Support – Emergency Repair Director – Operations Support Center Leader	0.5	EP304R	ACCOUNTABILITY
	2.0	EP403R	PLANT RECOVERY OPERATIONS
	0.5	EP601R	MISSION FORMATION/PRIORITY

EMERGENCY PREPAREDNESS COURSE CODES AND REQUIREMENTS

EP6C054R, Dose Projection – Dose Projection Team Leader	1.0	EP201R	DOSE PROJECTION TEAM RESPONSIBILITIES
	1.0	EP214R	NOTIFICATION FORM AND NEWS RELEASE
	0.5	EP303R	EMERGENCY COMMUNICATION EQUIPMENT
	1.0	EP402R	PROTECTIVE ACTION RECOMMENDATIONS (PARs)
	3.0	EP500R	SOURCE TERM DETERMINATION
	2.0	EP506R	METEOROLOGICAL THEORY
	3.0	EP510R	RADIATION MONITORING SYSTEM
	4.0	EP511R	HBR DOSE PROJECTION

TRAINING \ PREREQUISITES WAIVER FORM

Employee Name:	Social Security Number:
Training or Prerequisites to be Waived:	
Basis for Waiver: **ATTACH SUPPORTING DOCUMENTATION.**	

I acknowledge I possess the required skills, knowledge, and abilities to perform the required task without having to attend training.

_____ _____
Employee Signature Date

I certify the above named individual possesses the required skills, knowledge, and abilities to perform the required task without having to attend training.

Requested By: _____ _____
ERO Candidate's Supervisor Date

Concurred By: _____ _____
ERO Training Instructor Date

Approved By: _____ _____
Supervisor - Emergency Preparedness Date

Route completed form to the Training Section Scheduler
c: Individual
Unit Manager or Supervisor

CAROLINA POWER & LIGHT COMPANY
H.B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO 2
PLANT OPERATING MANUAL

VOLUME 2
BOOK 5

EMERGENCY PROCEDURE

EPRAD-01

ENVIRONMENTAL MONITORING

REVISION 4

EFFECTIVE DATE
9.25 97

Approval

Supervisor - Emergency Preparedness

9/24/97
Date

LIST OF EFFECTIVE PAGES

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Revision 4 Summary:

1. Enhance information for encoding Environmental Monitoring radios and use of digital voice protection.

TABLE OF CONTENTS

SECTION PAGE

8.1.1 PURPOSE

1. This procedure provides instructions for Radiological Assessment and Consequences. This procedure addresses the in-plant/on-site monitoring and emergency off-site environmental monitoring.

8.1.2 RESPONSIBILITIES

1. The Radiological Control Director (RCD) and the assigned Environmental & Radiation Control (E&RC) Supervisor or Lead Technician are responsible for the direction and completion of the applicable requirements of this procedure by the Radiation Monitoring Teams

2. The Environmental Monitoring Team Leader is responsible for the direction and completion of the applicable requirements of this procedure by the Environmental Monitoring Teams

8.1.3 INSTRUCTIONS

1. For Emergency Exposure limits refer to EPOSC-04, Emergency Work Control.

2. The off site radiation monitoring environmental monitoring teams shall report to the Emergency Operations Facility at the declaration of an Alert or higher emergency classification.

   a. Report to Room 424, across from the TSC Command Room.

3. Obtain a briefing from the Site Emergency Coordinator (SEC), RCD, RCM, or Environmental Monitoring Team Leader regarding the following:

   a. The need for the immediate dispatch of the Emergency Environmental Monitoring Team,

   b. Required monitoring data,

   c. Anticipated levels of radiation,

   d. Suggested routes/sample points,

   e. Required protective gear,TLD, and

   f. Exposure limits allowed.

8.1.3 INSTRUCTIONS

4. Obtain necessary calibrated monitoring equipment from designated areas.

   a. Radiation monitoring equipment for on site monitoring is located in the OSC storage location.

   b. Environmental Monitoring emergency monitoring kits are located in the mechanical equipment room in the EOF/TSC. The Environmental Monitoring team will ensure that R-38 ventilation has been switched from "Auto" to "Hand".

5. Prior to the use of any instruments a check will be performed which will include the following:

   a. Power Supply.

   b. Current Calibration Sticker.

   c. Modifications or limitations(per Sticker).

   d. Source check(if source is available).

6. Obtain radio communications equipment and assure operability. If radios are not available use applicable telephone line or available public address system.

   a. Radiological monitoring teams use radio channel 1 or 2 as a default.

   b. Environmental Teams use radio channel 3 as a default.

8.1.3 INSTRUCTIONS

7. For Damage Control Teams entries observe the following:

   a. Use surveying and sampling practices as per the normal health physic practices.

      - Normal plant maps may be used for documentation of all surveys and air samples.

   b. Under emergency conditions monitor radiations levels continuously while proceeding to the requested locations.

      - Document any unanticipated high radiation levels incurred while in route.

   c. Report any unanticipated high radiation levels incurred, while in route, to the E&RC Supervisor or Lead Technician.

   d. Collect filters and charcoal cartridges from fixed samplers as directed by the E&RC Supervisor or Lead Technician, label with the following:

      - Name of sample;
      - Time and date of sample;
      - Volume of sample;
      - mRem/hr on contact after sample containment;
      - Sample rate or dilution factor if applicable.

   e. Samples are to be counted in the E&RC facility if available.

      - Assure adequate integrity of sample containers and strict handling to avoid contamination of the facilities.
      - All samples of greater than 2 Rem/hr will be handled as Very High Level Radioactive Samples (EPRAD-02, Processing Very High Level Radioactive Samples).

8.1.3 INSTRUCTIONS

- If Robinson facilities are not available consider:
  - Use of other CP&L sites, or
  - Request State/Federal assistance through the State of South Carolina

8. Habitability will meet the following criteria unless other-wise directed by the RCD.

   a. Less than 5 mRem/hr direct radiation,

   b. Less than 1000 dpm/100cm^2 contamination,

   c. Less than .25 DAC airborne.

9. Perform surveys as per normal health physics practices in all areas which must remain habitable. Consideration should be given to placing TLDS in the following areas:

   a. OSC

   b. TSC

   c. EOF

   d. Assembly Areas

   e. Machine Shops

   f. Counting Room

   g. Administrative Building

10. As emergency facilities become inhabited personnel monitoring for ingress and egress must be set up in concert with Security Access Control.

    a. See EPSPA-00, Site Protective Actions, for details on Access Control.

8.1.3 INSTRUCTIONS

11. Emergency Environmental Monitoring off site should proceed as follows:

a. Dispatch of Emergency Environmental Monitoring teams during emergency conditions should be done as soon as the need arises.

- Therefore activation of any facility need not be a precursor for team dispatch.

b. Obtain survey vehicles and emergency kits as needed.

c. Verify gas is available for survey vehicles and emergency generators.

d. Make quick visual check of the Emergency kit inventory.

- Verify calibration dates on survey instruments and air samplers.

- Battery check instruments.

e. Perform radio check with Environmental Monitoring Team Leader (EMTL).

- Radio range is typically 10 miles, depending on conditions.

- Normally Channel 3 will be used.

- If Channel 3 is not available, switch to Channel 1 then 2 (in order of priority).

- Use "open channel" to verify function, then switch to Digital Voice Protection (DVP).

- If the automatic signaling function is not operable, repeat the call letters "WGGN-381" (base station) and "KT-2890" (portable/mobile) every 15 minutes unless call letters are used to sign off following transmissions.

- Guidelines for encoding and use of Environmental Radios are included in Attachment 8.1.5.10, Use of Environmental Radios.

f. If no dosimetry was issued in the Operational Support Center then issue each team member dosimetry.

g. Record TLD and SRPD numbers on Attachment 8.1.5.2, Personnel Dose Data.

h. Test start emergency generators to ensure proper operation.

- Start outside building to avoid activating fire detection system.

i. Load air samplers with Iodine Cartridge(Silver Zeolite) and a particulate filter.

- Charcoal iodine cartridge may be used in drills/exercises.

j. Load emergency kits, generators and mobile chargers (in green box) into survey vehicle(s).

- The mobile chargers connect to the vehicles electrical system and convert "portable" radios to a mobile unit, thus extending the range of the radio.

12. Locate the plume or confirm offsite doses as follows.

a. Obtain current information from the Environmental Monitoring Team Leader (EMTL).

- Wind direction
- Initial survey location
- Expected radiation levels
- Protective equipment required

b. Travel downwind to initial survey location.

c. Maintain contact with EMTL at least every 30 minutes via radio or phone.

- Attachment 8.1.5.9, Communications Log may be used to document communications.

- If desired the EMTL may maintain all communications records.

d. At designated locations travel at a right angle to the reported wind direction via most convenient roadway.

- From designated location travel into plume, record odometer readings at entrance, max and exit as indicated by survey meter.
- Maintain survey instruments on and near a window or windshield.
- Report readings 0.2 mRem/hr or greater to the EMTL.
- Drive slowly to ensure accurate readings and locations.

e. Repeat survey traveling in the opposite direction.

f. Proceed to location of maximum dose rate and collect a 2-10 minute air sample.

- 10 minute samples, at 2 scfm flow rate, will meet 1E-07 μCi/cc detection requirement when using the appropriate curve.
- Sample period should be based on collecting sufficient volume to attain the sensitivity necessary to detect the radioactive concentration.
- Place air sampler so that exhaust does not stir up loose contamination which would interfere with obtaining a representative sample.

g. Record sample start and stop times to the nearest whole minute on Attachment 8.1.5.1, Environmental Data.

- If no suitable timing device is available, contact the EMTL for "marks" on start and stop times.

h. While sample is being drawn record:

- Closed window radiation level at approximately waist level (1 meter from ground),

8.1.3 INSTRUCTIONS

- Open window radiation level at approximately waist level (1 meter from ground), and

- Open window radiation level at approximately six inches above ground.

- Record levels on Attachment 8.1.5.2, Personal Dose/Dose Rate Data.

i. Proceed to a location outside the plume.

j. Periodically read dosimeters and notify EMTL.

- Attachments 8.1.5.6, Thyroid Dose From Inhalation and 8.1.5.7, Internal Dose From Inhalation may be used to estimate internal and thyroid doses, based on field readings.

k. Remove filter and cartridge, perform initial activity measurements, and place in separate plastic bags marked with sample start/stop times, sample flow rate, activity, ambient radiation levels, date, location, volume, and initials of team member.

- Use tweezers or gloves to prevent cross contamination.

- <u>DO NOT CLOSE OR SEAL THE BAGS</u>, this will allow the cartridge to off-gas.

l. Using a frisker type instrument and pancake probe, such as LM-177 and 44-9 combination, determine readings for sample.

- Place probe against surface of each side of each bag.

- Use the highest reading for activity determination.

- Report any off scale readings to EMTL immediately.

m. Repeat activity measurements after 5 minutes and record initial and follow-up readings on Attachment 8.1.5.1, Environmental Data.

n. Use Attachments 8.1.5.3, Iodine Activity With a Frisker on Contact (approximately 1/2" reading) with Sample Cartridge, 8.1.5.4, Particulate Activity With a Frisker on Contact (approximately 1/2" reading) with Sample Filter, 8.1.5.5, Particulate/Iodine Activity Using GM Detector One Inch from Sample to determine gross particulate and iodine activities.

- Record on Attachment 8.1.5.1, Environmental Data Chart.

o. Report readings to EMTL.

p. Complete entries on Attachment 8.1.5.1, Environmental Data Chart.

q. After appropriate samples are collected, return samples to site or other assigned location.

r. Perform additional monitoring as assigned by EMTL.

- Environmental Monitoring Procedures contain locations for TLDs and routine monitoring.

- Existing Environmental TLDs SHOULD NOT be replaced, additional TLDs should be used.

13. Collect Environmental samples as directed by the EMTL.

a. Attachment 8.1.5.8, Collection of Environmental Samples establishes the method for collecting various liquid, soil, and vegetation samples.

b. Environmental samples will be collected as conditions permit.

c. Methods and storage for transport will be as directed in the Attachment.

d. Additional sampling instructions, where required, should be requested from the EMTL.

8.1.3 INSTRUCTIONS

e. All samples collected should be labeled with the following:

- sample type,
- location,
- date and time,
- activity upon collection,
- initials and team designation of sample collector.

8.1.4 RECORDS

N/A

8.1.5 ATTACHMENTS

8.1.5.1 Environmental Data
8.1.5.2 Personal Dose/Dose Rate Data
8.1.5.3 Iodine Activity Using a Frisker on Contact with Cartridge
8.1.5.4 Particulate Activity Using a Frisker on Contact with Sample
8.1.5.5 Particulate/Iodine Activity Using GM Detector
8.1.5.6 Thyroid Dose From Inhalation
8.1.5.7 Internal Dose From Inhalation
8.1.5.8 Collection of Environmental Samples
8.1.5.9 Communications Log
8.1.5.10 Guidelines To Encode Environmental Radios

ENVIRONMENTAL DATA

SAMPLE LOCATION						
AIR SAMPLE START/STOP	/	/	/	/	/	/
AIR SAMPLE FLOWRATE (cfm)						
AIR SAMPLE VOLUME (ft^3)						
PART. FILTER READING (mRem/hr or CPM)						
PART. FILTER AIR ACTIVITY (μCi/cc)						
IODINE CARTRIDGE READING (mRem/hr or CPM)						
IODINE CARTRIDGE ACTIVITY (μCi/cc)						
5 MIN. PART. FILTER READING (mRem/hr or CPM)						
5 MIN. PART. FILTER ACTIVITY (μCi/cc)						
5 MIN. IODINE CART. READING (mRem/hr or CPM)						
5 MIN. IODINE CART. ACTIVITY (μCi/cc)						
INSTRUMENT MODEL/SERIAL						
TECHNICIAN						

VOLUME (ft^3) = FLOWRATE (CFM) X TIME (MIN.)
AIR ACTIVITY = μCi/cc (derived from Attachment 8.1.5.3, 8.1.5.4, 8.1.5.5)

PERSONAL DOSE DATA

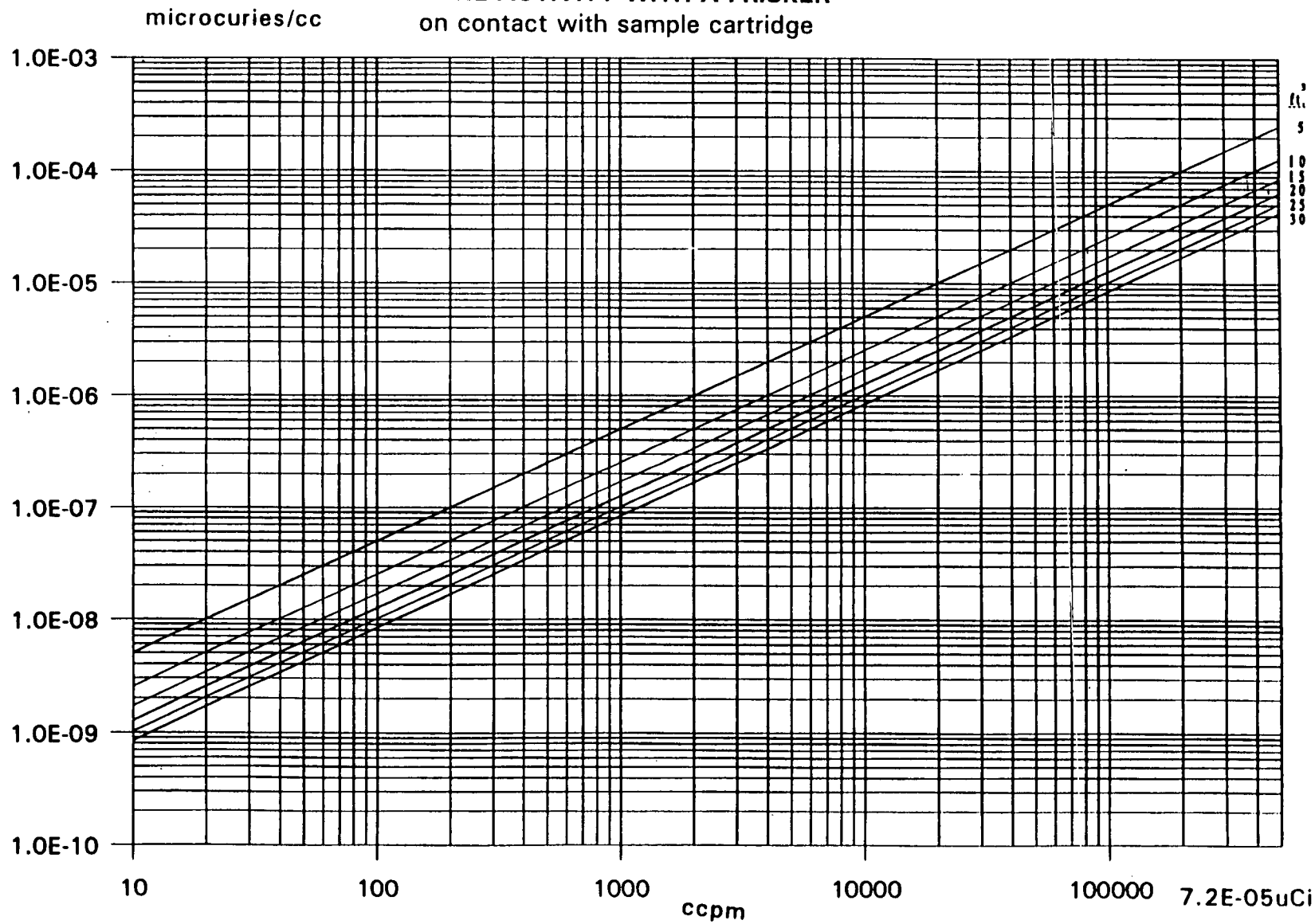
NAME	EMT #	TLD #	DOSIMETER #	INITIAL DOSIMETER READING (mRem)	FINAL DOSIMETER READING (mRem)	NET DEEP DOSE EQUIVALENT (mRem)

DOSE RATE DATA

LOCATION					
1 METER CLOSED WINDOW RADIATION LEVEL (mRem/hr)					
1 METER OPEN WINDOW RADIATION LEVEL (mRem/hr)					
6 INCH OPEN WINDOW RADIATION LEVEL (mRem/hr)					
INSTRUMENT MODEL/SERIAL NUMBER	/	/	/	/	/
DATE / TIME	/	/	/	/	/
TECHNICIAN					

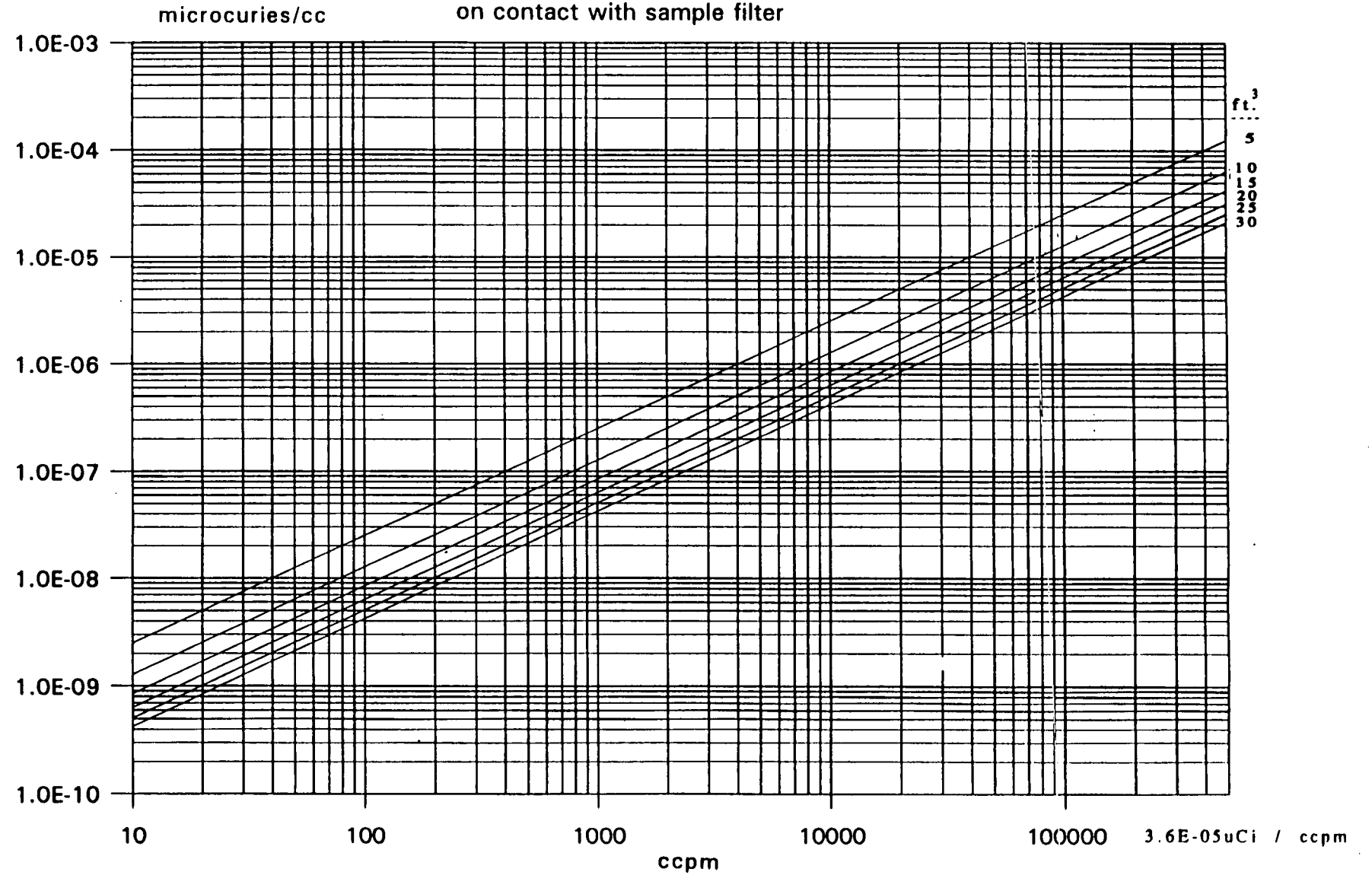
IODINE ACTIVITY WITH A FRISKER

on contact with sample cartridge



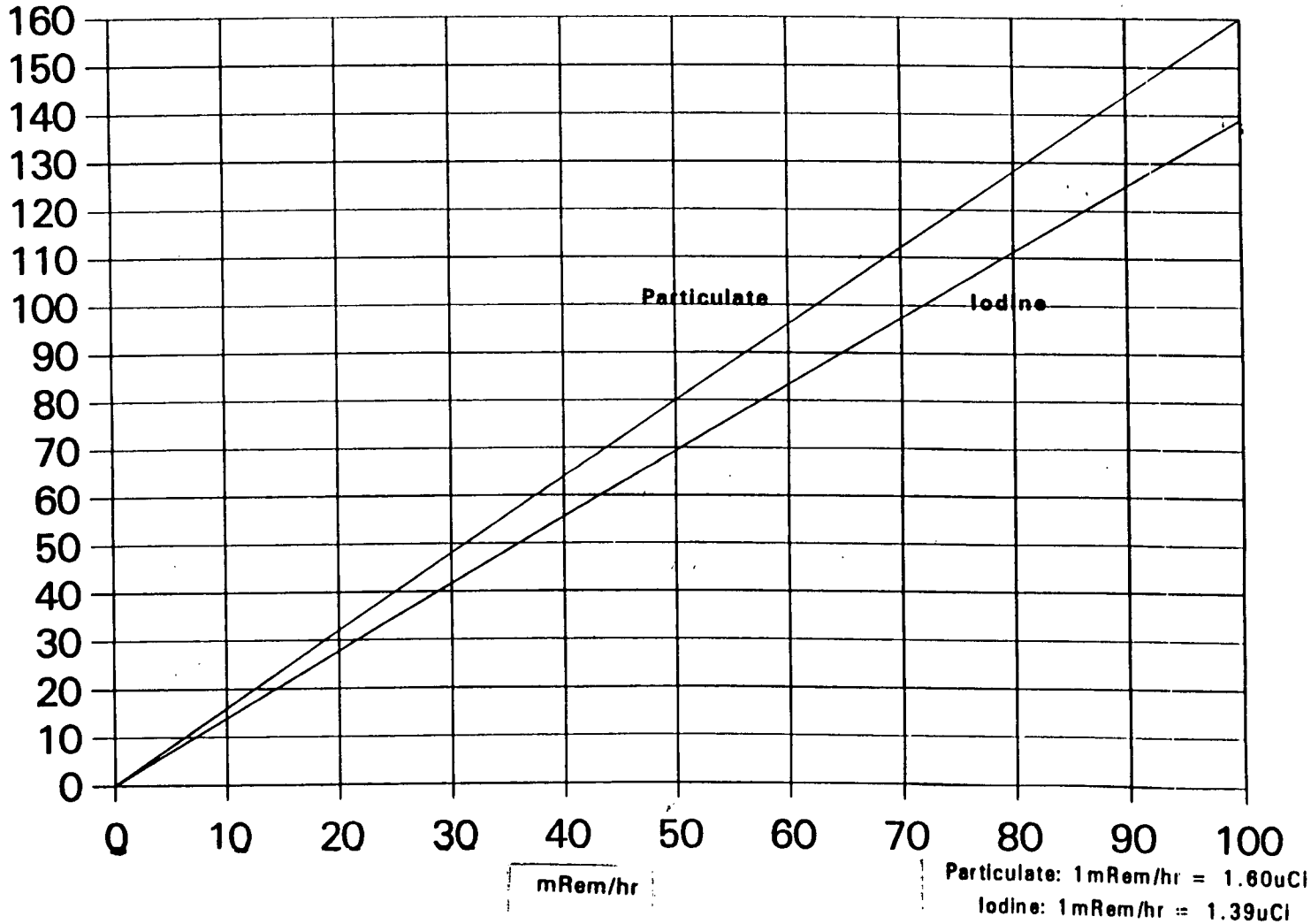
PARTICULATE ACTIVITY WITH A FRISKER

on contact with sample filter

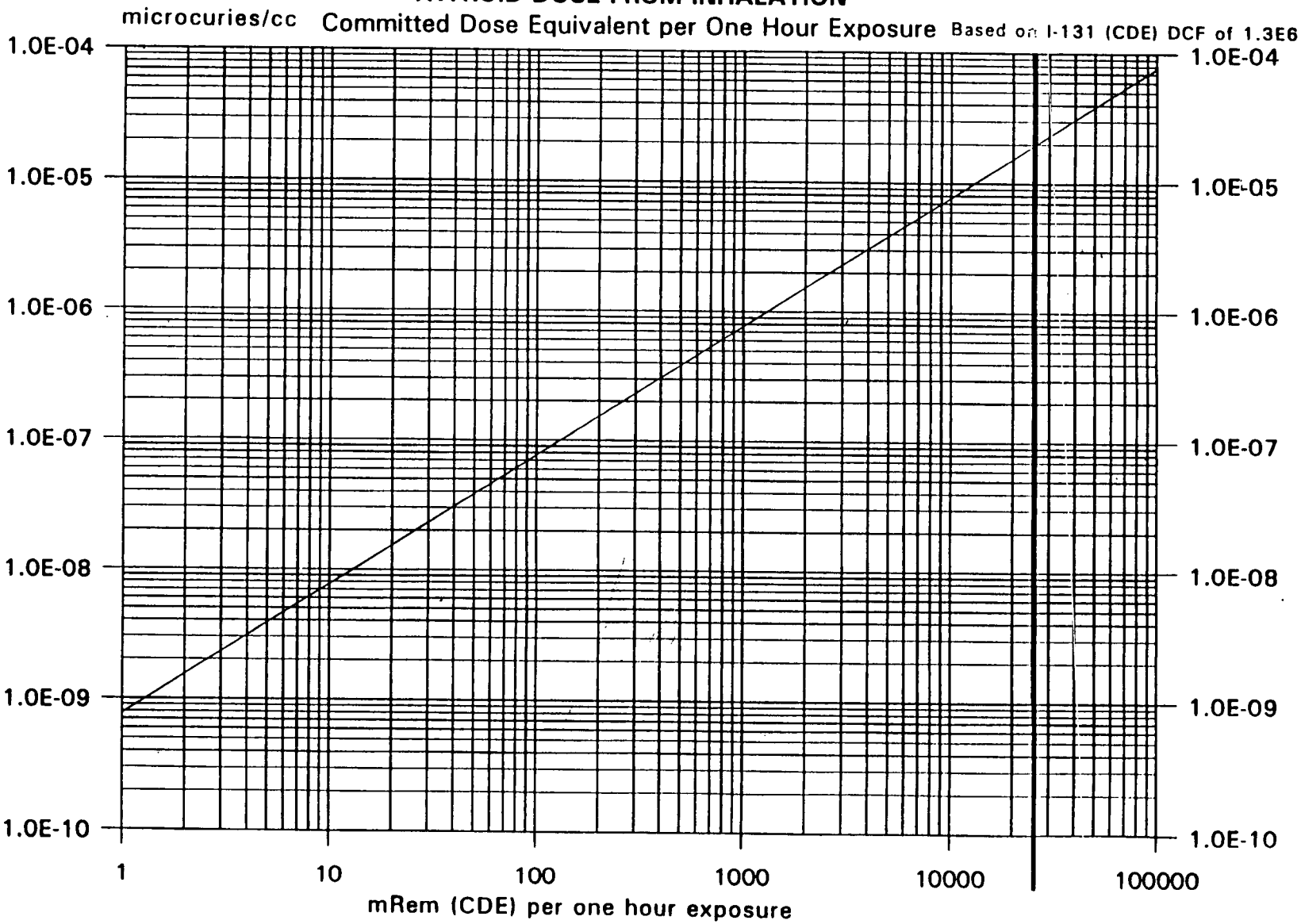


PARTICULATE/IODINE ACTIVITY

Using GM Detector One Inch from Sample



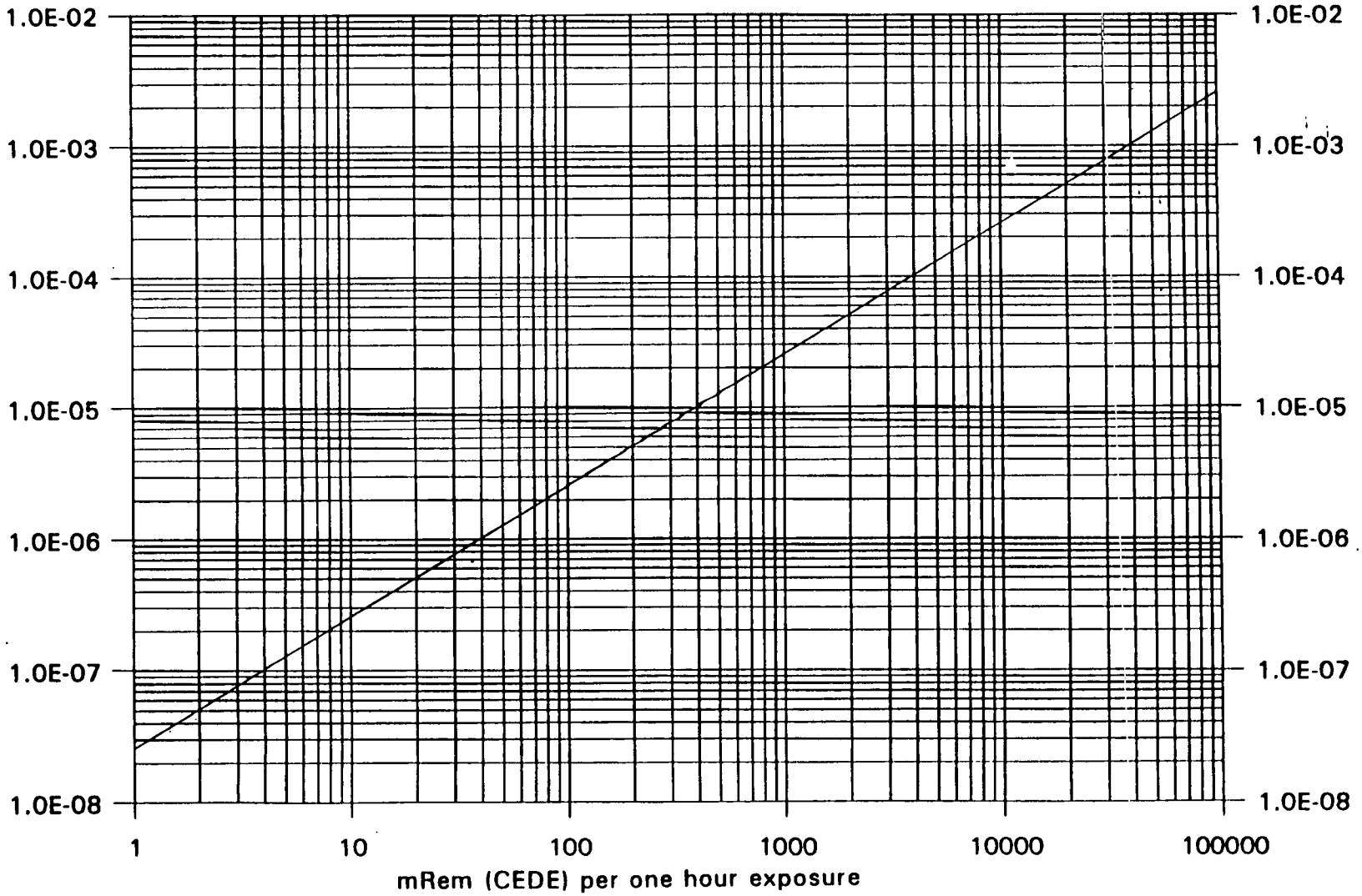
THYROID DOSE FROM INHALATION



INTERNAL DOSE FROM INHALATION

Committed Effective Dose Equivalent per One Hour Exposure

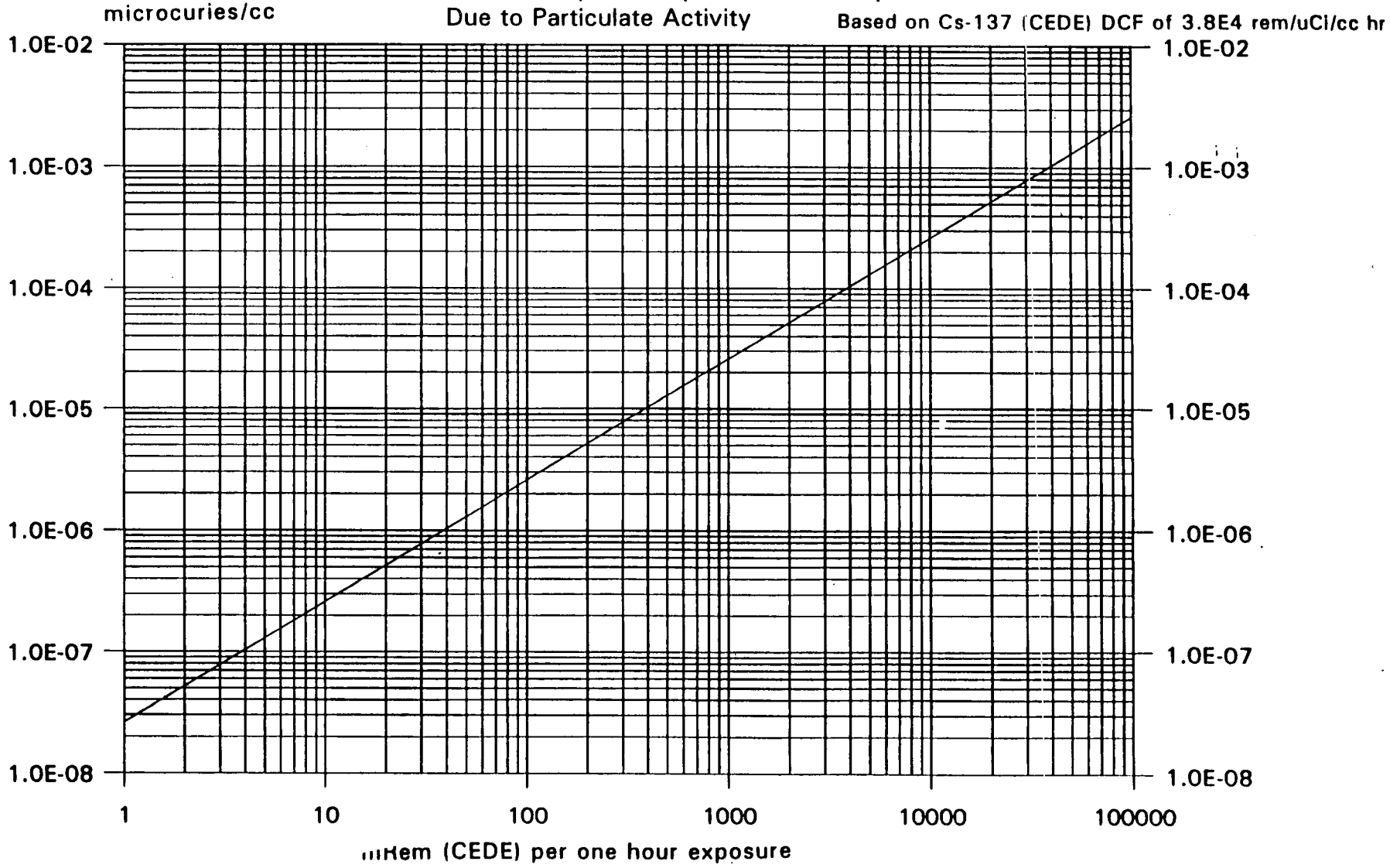
microcuries/cc — Due to Iodine Activity — Based on I-131 (CEDE) DCF of 3.9E4 rem/uCi/cc hr



INTERNAL COMMITTED DOSE FROM INHALATION

Committed Effective Dose Equivalent per One Hour Exposure

Due to Particulate Activity



COLLECTION OF ENVIRONMENTAL SAMPLES

SAMPLE TYPE	PRECAUTIONS	METHODS AND GUIDELINES
A. SOIL	1. Assume <u>All</u> samples are contaminated and handle using techniques to prevent cross-contamination. 2. <u>Do Not Seal</u> container of soil until sample is delivered to the site or other location for analysis. This will permit radon gases to off-gas.	1. When possible, select an open, level area for sampling. 2. Clear ~1 ft.^{2} area of vegetation, rocks, litter, and other nonsoil items. 3. Mark out ~1 ft.^{2} and remove soil within area to a depth of 2" (~5 cm). 4. Place soil in container.
B. POTABLE WATER	1. Assume <u>All</u> samples are contaminated and handle using techniques to prevent cross-contamination.	1. Collect at lest 1-gallon sample of drinking water. 2. Flush sample lines and rinse sample container before filling. 3. Cap container.
C. SURFACE WATER	1. Assume <u>All</u> samples are contaminated and handle using techniques to prevent cross-contamination.	1. Surface water samples from the plant cooling water and discharge structures may be collected from the automatic samples (SW 40 & 41, refer to EMP-001, Attachment 11.1, for sample location.) 2. If samplers are out-of-service, obtain a grab sample from boat, bridge, or shore. Note: More specific sampling instructions will be provided by the EMT Leader. 3. Collect 1-gallon sample and secure tightly.
D. SNOW & ICE	1. Assume <u>All</u> samples are contaminated and handle using techniques to prevent cross-contamination.	1. OBJECTIVE - Obtain the equivalent of at least 500 mls. of liquid for analysis. This will require 4-liter sample of snow, ice, etc.
E. VEGETATION & CROPS	1. Assume <u>All</u> samples are contaminated and handle using techniques to prevent cross-contamination. 2. <u>Do Not Close or Seal Container</u> until directly prior to delivering sample to location for analysis.	1. Obtain ~3 lb. samples of leafy vegetables and/or other vegetation as directed by the EMT Leader. 2. If milk is to be collected, collect samples of pasture grass as close to the roots as possible without including dirt in the sample. 3. If possible, tree leaves should be sampled from topmost part of tree. 4. Large, leafy vegetation is better than small. 5. Ground covers should be selected from open areas.

COLLECTION OF ENVIRONMENTAL SAMPLES

SAMPLE TYPE	PRECAUTIONS	METHODS AND GUIDELINES
F. MILK	1. Assume <u>All</u> samples are contaminated and handle using techniques to prevent cross-contamination.	1. Sampling should begin the day after an atmospheric release of radioactive material and every 2 days thereafter until levels of I-131 return to normal. Note: Peak Iodine (I-131) activity is expected on Day 3 following the release. 2. If available, collect at least a 1-gallon sample from a thoroughly mixed tank or from a single milk cow when available. 3. Collect approximately 1000 grams of pasture grass and/or feed whenever milk samples are collected.

COMMUNICATIONS LOG

Location: _____ Device: _____
Include Telephone # or Radio Call Sign

Date: _____

Time	Call From	Call To	Remarks (include data transmitted and decisions or recommendations made)

This log is to be routed to the Radiological Control Manager.

USE OF ENVIRONMENTAL RADIOS

How to Encode Environmental Monitoring Radios:

1- Press "on" button of the Encoder
2- Select a channel to use for encoding, for example channel 1.
3- Press the load button and selected channel from the previous step.
4- Enter the following code: 1 2 3 4 5 6 6 5 4 3 2 1, 1 2 3 4 5 6 6 5 4 3 2 1*. The encoder should display the channel number and ready.
5- Press the "enter" button
6- Turn on the radio(s) to be encoded
7- Attach the encoder cord to the radio
8- Press the "side button" on the Encoder
9- Listen for a beep and/or the display says "beep."
10- If a beep is heard, the code is loaded
11- If a beep is not heard, repeat Steps 1 through 9

This process must be used for each radio AND the base unit to ensure that all parties can communicate in digital voice protection mode.

* The code was chosen arbitrarily; any sequence of numbers may be used as long as they are documented.

General Information on Radio Performance and Testing:

1. When changing batteries the switch must be made within 15 seconds or encoding for digital voice protection will be lost.

2- If the Environmental Monitoring Radios are used without the repeater, the maximum communication range is slightly less than 2 miles.

3- If the Environmental Monitoring Radios are used with the repeater, the maximum communication range is approximately 20 miles.

4- Surrounding terrain may negatively affect the reception of the radios, if reception is unclear moving a few feet in either direction may help.

5- Use of the plug-in capability of the mobile (hand held) radios may increase reception capability, in addition, if reception is poor, stepping out of the vehicle may improve reception.

6- The Base Station and on site repeater are checked annually by Telecommunications personnel. During this check receiver frequency along with power output are verified to be within manufacturers specifications.

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BOOK 5

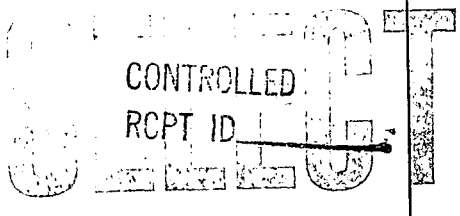
EMERGENCY PROCEDURE

EPRAD-04

PERSONNEL DECONTAMINATION

REVISION 1

EFFECTIVE DATE
3.17.97



Approval

Supervisor - Emergency Preparedness

3/12/97
Date

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Revision 1 Summary:

1. Delete references to E&RC Team Leader.

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8.4.1 PURPOSE

1. To outline the actions necessary for personnel decontamination during an emergency.

8.4.2 RESPONSIBILITIES

1. An E&RC Supervisor or "lead" technician as assigned by the OSC Leader is responsible for ensuring appropriate decontamination processes are implemented.

2. The Radiation Control Team members are responsible for performing or supervising personnel decontamination.

8.4.3 INSTRUCTIONS

1. Decontamination of injured personnel should be in accordance with HPP-005, Control of Personnel Decontamination Techniques, and EPSPA-02, First Aid and Medical Care.

2. Radiation Control Team personnel will perform or supervise the following activities:

   a. Remove loose clothing.

   b. Remove loose dry contamination by lightly pressing tape to contaminated areas of the skin.

      - This method can not be used if persons have large quantities of hair over the contaminated area.

   c. Wash the contaminated area with soap and tepid water.

      - Cover the contaminated area with a good lather.

      - Wash for 2 or 3 minutes, then rinse thoroughly.

   d. Monitor the area for residual contamination.

   e. If contamination persists repeat the washing procedure.

      - Repeat washing a maximum of 2 times.

      - Monitor area after each washing.

8.4.3 INSTRUCTIONS

3. If contamination persists after repeated washing consult the RCM or RCD.

   a. Consult HPP-005, Control of Personnel Decontamination Techniques for additional decontamination activities.

8.4.4 RECORDS

N/A

8.4.5 ATTACHMENTS

N/A

9.0 RECORDS

N/A

10.0 ATTACHMENTS

N/A

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EMERGENCY PROCEDURE

EPSPA-00

SITE PROTECTIVE ACTIONS

REVISION 0

EFFECTIVE DATE
5.31.96

Approval

Supervisor - Emergency Preparedness

5/8/96
Date

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1.0 PURPOSE

1.1 This procedure specifies protective actions which may be implemented during an emergency to protect site personnel.

2.0 REFERENCES

2.1 PLP-007, Robinson Emergency Plan

2.2 Federal Register, Vol. 50, No. 142, p. 30258, July 24, 1985 - Federal Emergency Management Agency - "Federal Policy on Distribution of Potassium Iodide Around Nuclear Power Sites for use as a Thyroidal Blocking Agent."

2.3 NRC Notice 88-15, "Availability of U.S. Food and Drug Administration (FDA) Approved Potassium Iodide for Use in Emergencies Involving Radioactive Iodine."

2.4 Memorandum To Messrs. A. G. Cheetham, J. R. Sipp, R. M. Smith; from B. H. Webster; Subject: NRC Notice 88-15, "Availability of U.S. Food and Drug Administration Approved Potassium Iodide for Use in Emergencies Involving Radioactive Iodine"; May 12, 1988.

2.5 Journal of the Health Physics Society, Volume 48, Number 2, February 1985, Figure 2.

2.6 EPA 400-r-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, " May, 1992.

3.0 RESPONSIBILITIES

3.1 See individual sections

3.2 The Unit 2 Control Room will request all fire and ambulance assistance unless casualty mitigation prohibits. In such case, Logistics personnel or other available individuals, may request this assistance.

4.0 PREREQUISITES

4.1 An emergency has been declared.

5.0 PRECAUTIONS AND LIMITATIONS

5.1 Guidelines for administration of potassium iodide (KI) are for CP&L and contract personnel where CP&L is responsible as set forth in the H. B. Robinson Steam Electric Plant, Unit No. 2, Operating License.

5.1.1 Potassium Iodide has been approved by the Food and Drug Administration for use as an agent to block the uptake of radioactive iodine species.

a. A level of 25 Rem or greater has been determined to be the point where the risk of radioiodine induced thyroid nodules outweigh the risks of any detrimental side effects form taking potassium iodide.

b. All Emergency Workers have the right to refuse to take KI when offered.

6.0 SPECIAL TOOLS AND EQUIPMENT

N/A

7.0 ACCEPTANCE CRITERIA

N/A

8.0 INSTRUCTIONS

See Individual Sections

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EMERGENCY PROCEDURE

EPSPA-04

ACCESS CONTROL

REVISION 0

EFFECTIVE DATE
5.31.96

Approval

Supervisor - Emergency Preparedness

5/8/96
Date

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8.4.1 PURPOSE

1. Provide guidance for access control upon declaration of a Site Area Emergency or as directed by the Site Emergency Coordinator (SEC).

8.4.2 RESPONSIBILITIES

N/A

8.4.3 INSTRUCTIONS

1. The Emergency Security Team members shall control access to the plant site as follows:

   a. Security personnel on patrol or assigned to a post shall report by radio or telephone to the Central Alarm Station (CAS) for instructions.

   b. Designated personnel shall establish Security Control Points on the main access roads to the plant.

      - Non-CP&L personnel are not allowed access to the plant site unless authorized by the Site Emergency Coordinator or his designee.

      - Verification or validation of responders to the site may be obtained through the Emergency Security Team Leader.

   c. Provide specific destinations to arriving personnel requiring access to the site.

      - Special reporting requirements, like use of alternate facilities will be provided by Emergency Response Personnel as appropriate.

8.4.3 INSTRUCTIONS

d. When a radiological release is in progress Emergency Security Team members shall perform the following:

- Permit exit only to those personnel cleared by Radiation Control personnel.
- Establish additional control points as directed by the Radiological Control Director if necessary, to control the spread of contamination.
- Assist in establishing a decontamination area, for any vehicles found to be contaminated when exiting the plant. Decontamination will be accomplished as directed by the Radiological Control Director.

8.4.4 RECORDS

N/A

8.4.5 ATTACHMENTS

N/A

9.0 RECORDS

N/A

10.0 ATTACHMENTS

N/A

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BOOK 5

EMERGENCY PROCEDURE

EPTSC-01

SITE EMERGENCY COORDINATOR

REVISION 0

EFFECTIVE DATE
5-31-96

CONTROLLED
RECIPIENT
ID 15

Approval

Supervisor - Emergency Preparedness

5/8/96
Date

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SITE EMERGENCY COORDINATOR (SEC) QUICK START GUIDE

NOTE: Blanks are provided for place keeping √'s only, logs are the official record. This is a summary level guide and does not replace the procedure steps.

1. Sign in on Facility Sign-In Board. Log on Electronic Display System (EDS). _____
2. If Dialogic was utilized for callout, upon arrival at the Facility, notify Dialogic at X 1777. _____
3. Verify TSC staffing and resources available to prepare for facility activation. _____
4. Review Emergency Notification Forms and press releases issued. _____
5. Review Nuclear Regulatory Commission (NRC) Event Notification Worksheets issued. _____
6. Direct staff to prepare for initial plant status briefing. _____
7. Coordinate with EOF and JIC (if available) to receive initial Plant Status briefing. _____
8. Obtain initial plant status briefing from the Control Room (CR). _____
9. Activate the TSC as soon as possible. A minimum of the Site Emergency Coordinator (SEC) and the NRC Emergency Communicator shall be available. _____
10. Direct health physics activities until the arrival of the Radiological Control Director (RCD). _____
11. Refer to EPCLA-00, Emergency Classification and Protective Action Recommendations, for specific instructions to upgrade or downgrade the emergency. _____
12. Establish a briefing schedule with facility staff and the EOF. _____
13. Refer to procedure steps _____

8.1 SITE EMERGENCY COORDINATOR (SEC)

8.1.1 PURPOSE

1. This procedure describes the functional responsibilities and procedure steps for the Site Emergency Coordinator (SEC).

8.1.2 RESPONSIBILITIES

1. Maintain command and control of the Technical Support Center (TSC) and the onsite activities and response to the emergency.

2. Classify, terminate or downgrade the emergency using the Emergency Action Level (EALs) flowpaths.

3. Approve communications regarding the emergency with the Nuclear Regulatory Commission (NRC).

4. In the absence of the Plant General Manager (PGM), authorize planned radiation exposures in excess of routine yearly exposure limits for lifesaving or equipment repair missions.

8.1.3 INSTRUCTIONS

1. Upon declaration of an emergency, the Control Room SEC shall determine the necessity for TSC activation.

   a. TSC activation is required at an Alert or higher emergency classification level. Earlier activation is at the discretion of the SEC/CR or the Superintendent - Shift Operations (SSO).

2. The TSC shall relieve the Control Room (CR) of emergency classification and NRC communications as soon as possible.

3. Direct the TSC staff to prepare for activation.

4. Complete Attachment 8.1.5.1, Turnover Checklist.

8.1.3 INSTRUCTIONS

5. Brief the TSC staff regarding turnover if not performed on speaker phone or video.

6. Prioritize/establish strategies to prevent/limit core damage.

7. Continuously monitor and review the Emergency Action Level (EAL) flowpaths to determine changes in the emergency classification.

8. Advise TSC staff regarding eating and drinking requirements.

9. Schedule subsequent facility briefings. (30-60 minute time frame)

   a. Coordinate briefings with EOF, CR, and OSC staff to preclude unnecessary interruptions.

10. Request personnel accountability for personnel reporting to the TSC from the Administration & Logistics Manager (ALM).

    a. This will expedite the accountability process in the event of a site evacuation if not already required.

11. Review dose projections.

12. Approve administration potassium iodide (KI) to onsite emergency response personnel, as appropriate.

    a. Radiation Control staff will make recommendations based on guidance in EPSPA-00.

13. In the absence of the Plant General Manager (PGM) approve planned radiation exposures > 5 REM whole body or entries into areas > 100 REM/HR.

14. Approve relocation/evacuation of the Operations Support Center (OSC).

15. Confer with the Emergency Response Manager (ERM) periodically to ensure continuity of operations, response, and information.

16. Control personnel during re-entry/recovery.

8.1.4 RECORDS

N/A

8.1.5 ATTACHMENTS

8.1.5.1 Turnover Checklist

TURNOVER CHECKLIST

This checklist is guidance for turning over Emergency Response activities from one facility to another or between personnel holding Emergency Response positions.

NOTE: Blanks are provided for place keeping √'s only, logs are the official record.

A. SYNCHRONIZE CLOCKS to ERFIS/EDS TIME _____

B. ONSITE SITUATION

1. Review Emergency Classification, basis for declaration, and mitigating actions. _____

   a. Review status of safety equipment and systems.
   b. Review status of fission product barriers.
   c. Review condition/stability of reactor.
   d. Review any Emergency Action Levels exceeded.
   e. Review cause, history, initiating events leading to declaration of emergency.

2. Review onsite protective actions taken. _____

   a. Assembly
   b. Shelter
   c. Evacuations (Local, Protected Area, Site, Exclusion Area)

NOTE: If there is a Site Evacuation, Unit 1 may need to continue operating.

   d. Potassium Iodide Administration
   e. Complete PLP-015 Overtime Form for ERO as appropriate.

TURNOVER CHECKLIST (Continued)

3. Review status of offsite assistance requested for the site. _____

   a. Fire Department
   b. Rescue Squad
   c. Local Law Enforcement Agency

C. OFFSITE SITUATION

1. Review Status of Offsite Notifications. _____

   - State and County initial and any follow-up messages
   - NRC
   - Other: ANI, INPO, Westinghouse
   - Any needed notifications that have not been made

2. Review Protective Action Recommendations made and notifications made to the State and Counties. _____

3. Review any status received from the State or Counties regarding activation, readiness, protective actions, or requests for information. _____

4. Review data on any projected or actual radiological releases. _____

5. Review the time and content of any press releases or media briefing. _____

TURNOVER CHECKLIST (Continued)

D. EMERGENCY RESPONSE

1. Review status of Emergency Response Organization Activation. _____

   - Notifications made to off-duty and offsite personnel. _____
   - Emergency Response Facilities that are activated. _____
   - Emergency Response Facilities that will be activated. _____
   - Other notifications needed. _____

2. Review outside organizations requested to mobilize. _____

3. Review assistance needed. _____

E. TURNOVER COMPLETED _____

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EMERGENCY PROCEDURE

EPTSC-07

DAMAGE ASSESSMENT

REVISION 0

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8.7 DAMAGE ASSESSMENT

8.7.1 PURPOSE

1. The purpose of this procedure is to provide guidance and direction to the Technical Analysis Director and the Accident Assessment Team in the evaluation of core damage and implementation of accident assessment actions of PLP-007, Robinson Emergency Plan.

   This procedure provides methods used to identify the four major fuel conditions; 1) no damage, 2) clad damage, 3) fuel overtemperature, and 4) fuel melt using Auxiliary indications, (e.g. core exit thermocouples, hydrogen, subcooling and R-32 A/B) for initial estimates. These results are then followed by an analysis of system radionuclide concentrations for the confirmation.

8.7.2 RESPONSIBILITIES

1. The Technical Analysis Director is responsible for ensuring appropriate Accident Assessment Team activation and utilization of this procedure.

2. The Accident Assessment Team is responsible for implementation of this procedure.

8.7.3 INSTRUCTIONS

NOTE:	This procedure uses two methods of core damage assessment. The first, and best, is based on radionuclide analysis, which requires upwards of three hours. (Three hours are needed for analysis alone). The second, or "quick" method, is based on direct interpretation of plant instrumentation and is considerably simplified and less accurate.

1. This procedure is arranged into 8 Work Packages. Work Package 1 is applicable to all core damage assessments and should be used first.

8.7.3 INSTRUCTIONS

2. Work Packages 2, 3, and 4 comprise the best assessment method. They are based on sampling and subsequent analysis, and are dependent on how long the reactor has been at a constant power level.

3. Work Packages 5, 6, and 7 are plant instrument specific. These comprise the "quick" method of core damage assessment.

4. Work Package 8 is a summary of assessment activities, incorporating the information from the other work packages.

5. Use of the work package flowchart (Attachment 8.7.5.12) will avoid the use of work packages which are not needed or for which data are not available.

6. The following Attachments are provided as informational materials or as a summary of information contained within the work packages.

   a. Attachment 8.7.5.9, Characteristics of Categories of Fuel Damage,

   b. Attachment 8.7.5.10, Core Protection,

   c. Attachment 8.7.5.11, Functional Restoration Procedures,

   d. Attachment 8.7.5.13, Definitions.

8.7.4 RECORDS

N/A

8.7.5 ATTACHMENTS

8.7.5.1 Work Package 1 - General Information Needed for All Assessment Methods
8.7.5.2 Work Package 2 - Assessment Using Radionuclide Analysis - Reactor Power Constant 30 Days or More
8.7.5.3 Work Package 3 - Assessment Using Radionuclide Analysis - Reactor Power Constant 4-30 Days
8.7.5.4 Work Package 4 - Assessment Using Radionuclide Analysis - Reactor Power Constant Less Than 4 Days
8.7.5.5 Work Package 5 - Assessment Based on Containment Radiation Monitors
8.7.5.6 Work Package 6 - Assessment Based on Hydrogen Concentration in Containment
8.7.5.7 Work Package 7 - Assessment Based on Core Exit Thermocouple Readings
8.7.5.8 Work Package 8 - Summary of Assessments
8.7.5.9 Characteristics of Categories of Fuel Damage
8.7.5.10 Core Protection
8.7.5.11 Function Restoration Procedures
8.7.5.12 Work Package Flowchart
8.7.5.13 Definitions

WORK PACKAGE 1-GENERAL INFORMATION NEEDED FOR ALL ASSESSMENTS

Work Package 1 - General Information Needed for all Assessment Methods.

1. Use this work package first.

NOTE:	If radiochemistry data is not available, complete as much of page 2 of this package as possible, then go directly to Work Package 5 - Assessment Based on Containment Radiation Monitors.

2. Obtain plant data and radiochemistry sample data necessary to complete Page 2 of this package.

3. Use an ERFIS/EDS Terminal to obtain Plant data, as follows:

   a. Access the group library function

      - Located under turn on core "Real," for real time data display on EDS.

   b. Select "COREDAMG"

   c. A copy of the group may be printed for convenience.

4. Record sample times, dates, temperatures, pressures and corrected system volumes on the worksheet.

5. Use Page 3 of this package to correct reactor coolant and RHR system density where requested.

6. Use Page 4 of this package to convert sump level to total gallons of RHR system volume in containment.

WORK PACKAGE 1-GENERAL INFORMATION NEEDED FOR ALL ASSESSMENTS

CORE DAMAGE ASSESSMENT
SAMPLE DATA WORKSHEET

1.0 CONTAINMENT ATMOSPHERE

A. Date and time sample drawn: ___/___/___, _____ hours
B. CV temperature @ time of sample: _____ °F + 460 = _____ °R
C. CV pressure @ time of sample: _____ psig + 14.7 = _____ psia
D. CV volume (corrected): (1.561 E09) x (Step B ÷ Step C) = _____ cc @ STP

2.0 REACTOR COOLANT SYSTEM

A. Date and time sample drawn: ___/___/___, _____ hours
B. RCS temperature @ time of sample: _____ °F
C. Pressurizer level @ time of sample: _____% x .01 = _____
D. Water density ratio (See Page 3 of 4): _____ = ρ(t)/ρ(@STP)
E. RCS volume (corrected):
[(2.29 E08) + (Step C)(3.34 E07)] x (Step D) = _____ cc

3.0 RHR SYSTEM

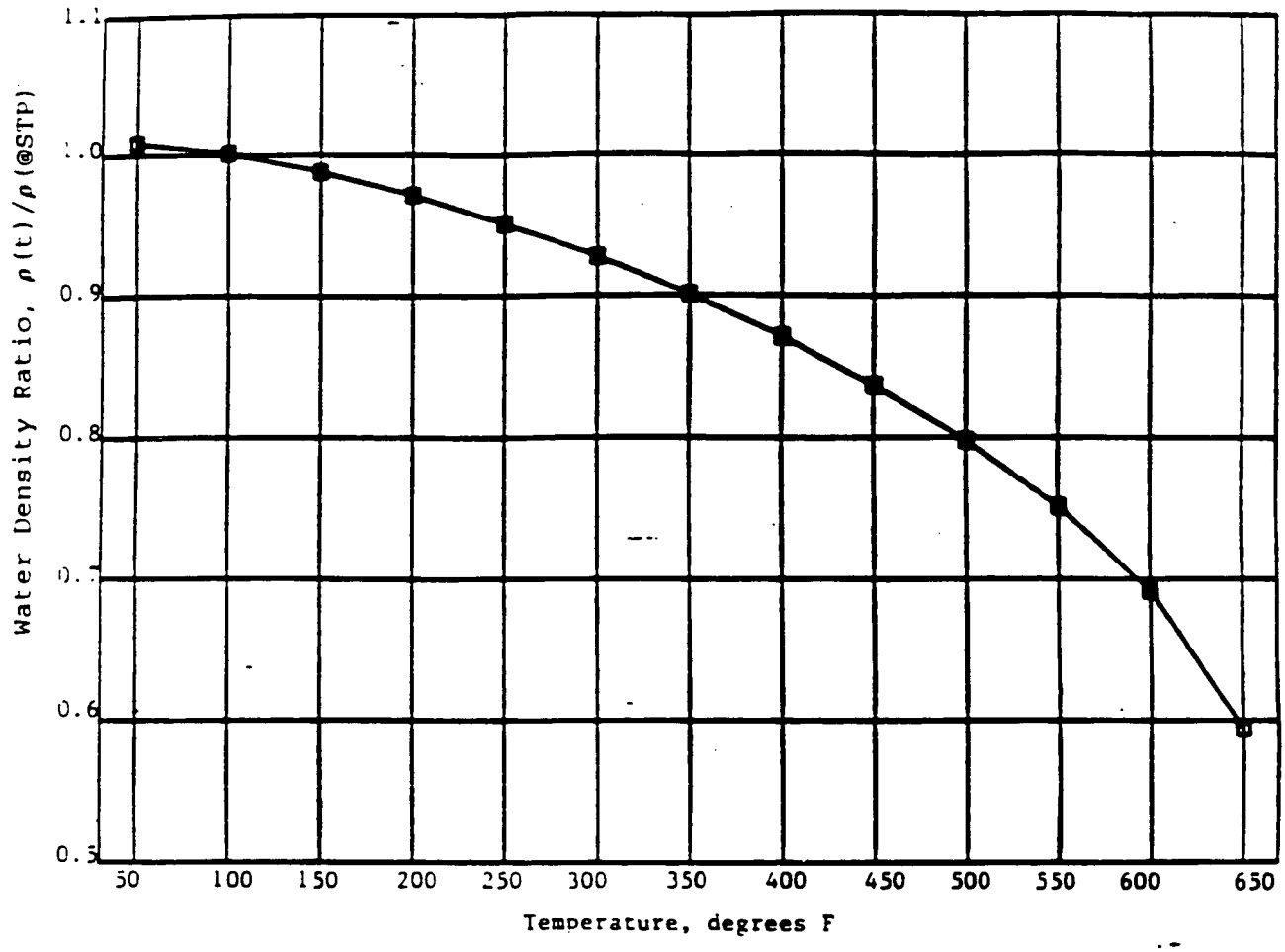
A. Date and time sample drawn: ___/___/___/, _____ hours
B. CV sump level @ time of sample:
(LI-801 or LI-802 and Page 4 of 4)
_____ (gallons in sump) x 3785.6 cc/gal
= _____ cc
C. If the RHR System is used during a LOCA event, then the RHR volume is determined as:
Step B + 3.7856 E07 cc = _____ cc
If the RHR System is used in a cooldown mode with the RCS intact, then the RHR volume is determined as:
[(2.29 E08) + (Step C in Section 2.0) (3.34 E07)] cc +
3.7856 E07 cc = _____ cc
D. Water density ratio (See Page 3 of 4): _____ = ρ(t)/ρ(@STP)
E. RHR volume (corrected): (Step C) x (Step D) = _____ cc

4.0 TIME OF REACTOR SHUTDOWN

A. Time _____
B. Date _____
C. Percent power prior to shutdown _____
D. Core Burnup _____EFPD

WORK PACKAGE 1-GENERAL INFORMATION NEEDED FOR ALL ASSESSMENTS

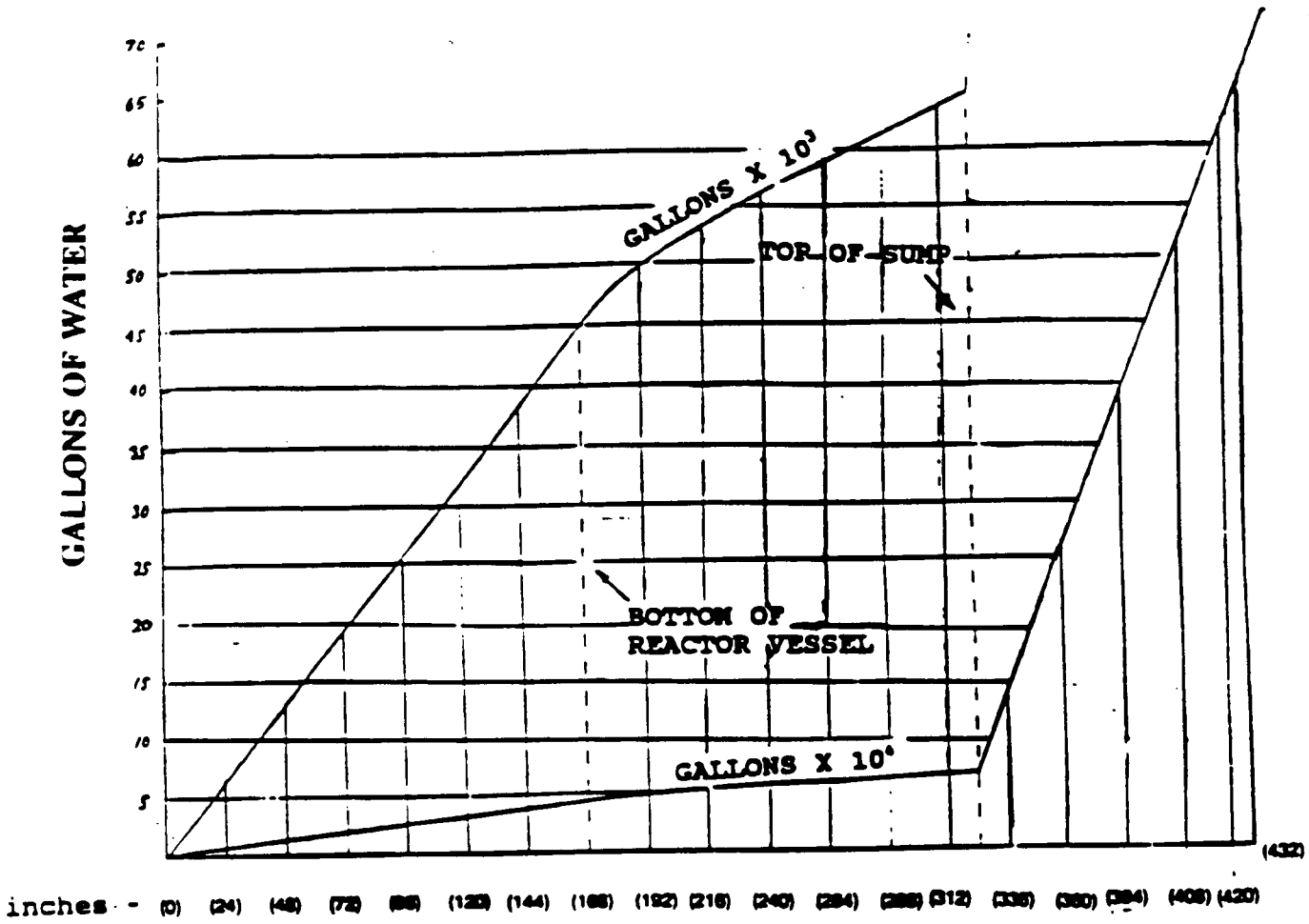
WATER DENSITY RATIO VS. TEMPERATURE



This graph assumes 2250 psia, however it can b used with lower pressures with a very small (< 1%) error.

WORK PACKAGE 1-GENERAL INFORMATION NEEDED FOR ALL ASSESSMENTS

CONTAINMENT WATER VOLUME VS. SUMP LEVEL



(INCHES) ABOVE BOTTOM OF CONTAINMENT SUMP

WORK PACKAGE 2 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT 30 DAYS OR MORE

NOTE: Constant reactor power is defined as the operating condition where there is less than 10% rated thermal power variation during the period.

1. Obtain the results of the radionuclide analysis from the Radiological Control Director and complete Page 3 of this package.

2. Enter the uCi/cc sample activity in the appropriate space (i.e., RCS, RHR, or CV) for each nuclide.

NOTE: Because of the long counting time associated with accurate strontium analysis, Ba-140 will serve as the initial fuel melt indicator until the strontium results are obtained and confirmed.

3. Using the decay constant provided in Column (2) for each isotope, divide the Column (1) sample activity by the Column (2) value which is the product of the decay constant and the time difference between sample time and reactor shutdown, to determine the corrected specific activity in Column (3).

NOTE: On page 3 of this package, the sample activity in Column (1) is corrected during laboratory analysis back to the original activity at the time of sampling. To accurately assess core damage, this activity must be corrected to the specific activity at shutdown on Column (3) and the total activity in Column (5) which would have yielded that sample activity if the release had occurred at shutdown. This activity is compared to the adjusted power source term in Column (6) to estimate % of nuclide release. Columns (3) and (5) are representative activities if the release occurs at the instant of reactor shutdown. All total activities are corrected to time of shutdown to make calculations easier.

NOTE: RCS pressure, temperature, or power transients may result in increased RCS iodine concentrations without clad damage (iodine spiking). Do not use iodine concentrations alone as evidence of fuel clad damage.

4. Record the specific system corrected volume from Work Package 1 in Column (4). Multiply the corrected specific activity from Column (3) by the volume in Column (4) to determine the corrected system total uCi content. Record the results in Column (5).

WORK PACKAGE 2 -- ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT 30 DAYS OR MORE

5. Obtain the percent constant reactor power prior to the incident and the Effective Full Power Days (EFPD) of fuel used in the cycle from the Plant Operations Director. Use this data where applicable to determine the correction terms identified in Column (6).

6. Divide Column (5) by Columns (6) and (7) and multiply by 100 to obtain the percent released per system in Column (8).

7. To obtain the total percent released, sum all three sample system results from Column (8) and record in Column (9).

8. Proceed to Work Package 8 - Summary of Assessments.

WORK PACKAGE 2 - ASSESSMENT USING RADIONCLIDE ANALYSIS - REACTOR POWER CONSTANT 30 DAYS OR MORE

≥30 DAY NUCLIDE RELEASE WORKSHEET

NUCLIDE	SAMPLE	SAMPLE ACTIVITY uCi/cc	+	$e^{-\lambda t}$	=	CORRECTED SPECIFIC ACTIVITY uCi/cc	x	CORRECTED VOLUME cc	=	CORRECTED SYSTEM TOTAL ACTIVITY uCi	+	CORRECTION TERM + SOURCE TERM uCi	x100 =	PERCENT RELEASE	Σ	TOTAL PERCENT RELEASED %
		(1)		(2)		(3)		(4)		(5)		(6)	(7)	(8)		(9)
	RCS		+	e-.545t	=		x		=		+	% power/100	+ 3.22E13 x100 =			
Kr-87	RHR		+	e-.545t	=		x		=		+	% power/100	+ 3.22E13 x100 =			
	CV		+	e-.545t	=		x		=		+	% power/100	+ 3.22E13 x100 =			
	RCS		+	e-.244t	=		x		=		+	% power/100	+ 4.53E13 x100 =			
Kr-88	RHR		+	e-.244t	=		x		=		+	% power/100	+ 4.53E13 x100 =			
	CV		+	e-.244t	=		x		=		+	% power/100	+ 4.53E13 x100 =			
	RCS		+	e-.004t	=		x		=		+	% power/100	+ 6.12E13 x 100 =			
I-131	RHR		+	e-.004t	=		x		=		+	% power/100	+ 6.12E13 x 100 =			
	CV		+	e-.004t	=		x		=		+	% power/100	+ 6.12E13 x 100 =			
	RCS		+	1	=		x		=		+	.9	+ 6.83E12 x100 =			
Cs-134	RHR		+	1	=		x		=		+	.9	+ 6.83E12 x100 =			
	CV		+	1	=		x		=		+	.9	+ 6.83E12 x100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 5.37E12 x 100 =			
Cs-137	RHR		+	1	=		x		=		+	EFPD/1140	+ 5.37E12 x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 5.37E12 x 100 =			
	RCS		+	e-.009t	=		x		=		+	% power/100	+ 8.71E13 x 100 =			
Te-132	RHR		+	e-.009t	=		x		=		+	% power/100	+ 8.71E13 x 100 =			
	CV		+	e-.009t	=		x		=		+	% power/100	+ 8.71E13 x 100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 6.19E13 x 100 =			
Sr-89	RHR		+	1	=		x		=		+	EFPD/1140	+ 6.19E13 x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 6.19E13 x 100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 3.92E12 x 100 =			
Sr-90	RHR		+	1	=		x		=		+	EFPD/1140	+ 3.92E12 x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 3.92E12 x 100 =			
	RCS		+	e-.002t	=		x		=		+	% power/100	+ 1.09E14 x 100 =			
Ba-140	RHR		+	e-.002t	=		x		=		+	% power/100	+ 1.09E14 x 100 =			
	CV		+	e-.002t	=		x		=		+	% power/100	+ 1.09E14 x 100 =			

REACTOR POWER LEVEL CONSTANT FOR 30 DAYS (LESS THAN 10% CHANGE)
t = (hours) time difference between sample time and reactor shutdown
EFPD = effective full power days
λ = (hours^{-1}) decay constant

NOTE: Due to the long analysis time associated with Strontium analysis these columns will not be completed initially, but can be recorded upon receiving sample results.

WORK PACKAGE 3 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT 4 - 30 DAYS

NOTE: Constant reactor power is defined as the operating condition where there is less than 10% rated thermal power variation during the period.

1. Obtain the results of the radionuclide analyses from the Radiological Control Director (RCD) and complete Page 2 of this package.

2. Complete Columns (1) through (5) in accordance with the instructions of Work Package 2.

3. Obtain the reactor power history for the 30 days prior to the incident and the Effective Full Power Days (EFPD) of fuel used in the cycle from the Plant Operations Director. As applicable, use the power history data, Pages 3 through 5 or the EFPD data to determine the correction terms identified in Column (6).

NOTE: If the thermal power has not been constant over the last 30 days prior to shutdown, then some isotopes have not reached equilibrium concentrations. If the power level has not been constant, adjustments for the effects of power changes must be made. Where core power levels have changed by more than 10% of rated thermal power, a separate line must be completed for I-131, Te-132, and Ba-140 (Pages 3, 4, and 5 of this package) at each power level.

NOTE: RCS pressure, temperature, or power transients may result in increased RCS iodine concentrations without clad damage (iodine spiking). Do not use iodine concentrations alone as evidence of fuel clad damage.

4. Complete Columns (8) and (9) of Page 2 of this package.

5. Proceed to Work Package 8.

WORK PACKAGE 3 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT 4 - 30 DAYS

≥4 DAY, <30 DAY NUCLIDE RELEASE WORKSHEET

NUCLIDE	SAMPLE	SAMPLE ACTIVITY uCi/cc	+	$e^{-\lambda t}$	=	CORRECTED SPECIFIC ACTIVITY uCi/cc	x	CORRECTED VOLUME cc	=	CORRECTED SYSTEM TOTAL ACTIVITY uCi	+	CORRECTION TERM + SOURCE TERM uCi	x100 =	PERCENT RELEASE	Σ	TOTAL PERCENT RELEASED %
		(1)		(2)		(3)		(4)		(5)		(6)	(7)	(8)		(9)
	RCS		+	e-.545t	=		x		=		+	% power/100	+ 3.22E13 x100 =			
Kr-87	RHR		+	e-.545t	=		x		=		+	% power/100	+ 3.22E13 x100 =			
	CV		+	e-.545t	=		x		=		+	% power/100	+ 3.22E13 x100 =			
	RCS		+	e-.244t	=		x		=		+	% power/100	+ 4.53E13 x100 =			
Kr-88	RHR		+	e-.244t	=		x		=		+	% power/100	+ 4.53E13 x100 =			
	CV		+	e-.244t	=		x		=		+	% power/100	+ 4.53E13 x100 =			
	RCS		+	e-.004t	=		x		=		+	Complete	6.12E13 x 100 =			
I-131	RHR		+	e-.004t	=		x		=		+	Att. 8.7.5.3	6.12E13 x 100 =			
	CV		+	e-.004t	=		x		=		+	Page 3	6.12E13 x 100 =			
	RCS		+	1	=		x		=		+	9	+ 6.83E12 x100 =			
Cs-134	RHR		+	1	=		x		=		+	9	+ 6.83E12 x100 =			
	CV		+	1	=		x		=		+	9	+ 6.83E12 x100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 5.37E12 x 100 =			
Cs-137	RHR		+	1	=		x		=		+	EFPD/1140	+ 5.37E12 x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 5.37E12 x 100 =			
	RCS		+	e-.009t	=		x		=		+	Complete	8.71E13 x 100 =			
Te-132	RHR		+	e-.009t	=		x		=		+	Att. 8.7.5.3	8.71E13 x 100 =			
	CV		+	e-.009t	=		x		=		+	Page 4	8.71E13 x 100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 6.19E13 x 100 =			
Sr-89	RHR		+	1	=		x		=		+	EFPD/1140	+ 6.19E13 x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 6.19E13 x 100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 3.92E12 x 100 =			
Sr-90	RHR		+	1	=		x		=		+	EFPD/1140	+ 3.92E12 x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 3.92E12 x 100 =			
	RCS		+	e-.002t	=		x		=		+	Complete	1.09E14 x 100 =			
Ba-140	RHR		+	e-.002t	=		x		=		+	Att. 8.7.5.3	1.09E14 x 100 =			
	CV		+	e-.002t	=		x		=		+	Page 5	1.09E14 x 100 =			

REACTOR POWER LEVEL CONSTANT FOR 30 DAYS (LESS THAN 10% CHANGE)
t = (hours) time difference between sample time and reactor shutdown
EFPD = effective full power days
λ = (hours^{-1}) decay constant

NOTE: Due to the long analysis time associated with Strontium analysis these columns will not be completed initially, but can be recorded upon receiving sample results.

WORK PACKAGE 3 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT 4 - 30 DAYS

CORRECTION TERM WORKSHEET FOR I-131

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	$1-\exp(-\lambda t_j)$	$\exp(-\lambda t_{ji})$	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 720 hours.
Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j
t_j = (hours) Duration of operation at P_j
t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

I-131 λ = 0.004 $HOURS^{-1}$

WORK PACKAGE 3 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT 4-30 DAYS

CORRECTION TERM WORKSHEET FOR Te-132

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	$1-\exp(-\lambda t_j)$	$\exp(-\lambda t_{ji})$	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 720 hours.
Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j
t_j = (hours) Duration of operation at P_j
t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

Te-132 λ = 0.009 $HOURS^{-1}$

WORK PACKAGE 3 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT 4- 30 DAYS

CORRECTION TERM WORKSHEET FOR Ba-140

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	1-exp ($-\lambda t_j$)	exp($-\lambda t_{ji}$)	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 720 hours.
Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j
t_j = (hours) Duration of operation at P_j
t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

Ba-140 λ = 0.002 $HOURS^{-1}$

WORK PACKAGE 4 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT LESS THAN 4 DAYS

1. Obtain the results of the radionuclide analyses from the Radiological Control Director (RCD) and complete Page 2 of this package.

2. Complete Columns (1) through (5) in accordance with the instructions of Work Package 2.

3. Obtain the reactor power history for the 4 days prior to the incident and the Effective Full Power Days (EFPD) of fuel used in the cycle from the Plant Operations Director. As applicable, use the power history data and Page 3 through Page 7 or the EFPD data to determine the correction terms identified in Column (6).

NOTE: If the power level has not been constant, adjustments for the effects of power changes must be made. Where core power levels have changed by more than 10% of rated thermal power, a separate line must be completed on Page 3 through Page 7 for Kr-87, Kr-88, I-131, Te-132, and Ba-140 for each power level.

NOTE: RCS pressure, temperature, or power transients may result in increased RCS iodine concentrations without clad damage (Iodine spiking). Do not use iodine concentrations alone as evidence of fuel clad damage..

4. Complete Columns (8) and (9) of Page 2 of this package.

5. Proceed to Work Package 8.

WORK PACKAGE 4 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT LESS THAN 4 DAYS

<4 DAY NUCLIDE RELEASE WORKSHEET

NUCLIDE	SAMPLE	SAMPLE ACTIVITY uCi/cc	+	$e^{-\lambda t}$	=	CORRECTED SPECIFIC ACTIVITY uCi/cc	x	CORRECTED VOLUME cc	=	CORRECTED SYSTEM TOTAL ACTIVITY uCi	+	CORRECTION TERM + SOURCE TERM uCi		x100 =	PERCENT RELEASE	Σ	TOTAL PERCENT RELEASED %
		(1)	+	(2)	=	(3)	x	(4)	=	(5)	+	(6)	(7)		(8)		(9)
	RCS		+	e-.545t	=		x		=		+	Complete	+ 3.22E13	x100 =			
Kr-87	RHR		+	e-.545t	=		x		=		+	Att. 8.7.5.4	+ 3.22E13	x100 =			
	CV		+	e-.545t	=		x		=		+	Page 3	+ 3.22E13	x100 =			
	RCS		+	e-.244t	=		x		=		+	Complete	+ 4.53E13	x100 =			
Kr-88	RHR		+	e-.244t	=		x		=		+	Att. 8.7.5.4	+ 4.53E13	x100 =			
	CV		+	e-.244t	=		x		=		+	Page 4	+ 4.53E13	x100 =			
	RCS		+	e-.004t	=		x		=		+	Complete	6.12E13	x 100 =			
I-131	RHR		+	e-.004t	=		x		=		+	Att. 8.7.5.4	6.12E13	x 100 =			
	CV		+	e-.004t	=		x		=		+	Page 5	6.12E13	x 100 =			
	RCS		+	1	=		x		=		+	. 9	+ 6.83E12	x100 =			
Cs-134	RHR		+	1	=		x		=		+	. 9	+ 6.83E12	x100 =			
	CV		+	1	=		x		=		+	. 9	+ 6.83E12	x100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 5.37E12	x 100 =			
Cs-137	RHR		+	1	=		x		=		+	EFPD/1140	+ 5.37E12	x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 5.37E12	x 100 =			
	RCS		+	e-.009t	=		x		=		+	Complete	8.71E13	x 100 =			
Te-132	RHR		+	e-.009t	=		x		=		+	Att. 8.7.5.4	8.71E13	x 100 =			
	CV		+	e-.009t	=		x		=		+	Page 6	8.71E13	x 100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 6.19E13	x 100 =			
Sr-89	RHR		+	1	=		x		=		+	EFPD/1140	+ 6.19E13	x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 6.19E13	x 100 =			
	RCS		+	1	=		x		=		+	EFPD/1140	+ 3.92E12	x 100 =			
Sr-90	RHR		+	1	=		x		=		+	EFPD/1140	+ 3.92E12	x 100 =			
	CV		+	1	=		x		=		+	EFPD/1140	+ 3.92E12	x 100 =			
	RCS		+	e-.002t	=		x		=		+	Complete	1.09E14	x 100 =			
Ba-140	RHR		+	e-.002t	=		x		=		+	Att. 8.7.5.4	1.09E14	x 100 =			
	CV		+	e-.002t	=		x		=		+	Page 7	1.09E14	x 100 =			

REACTOR POWER LEVEL CONSTANT FOR 30 DAYS (LESS THAN 10% CHANGE)
t = (hours) time difference between sample time and reactor shutdown
EFPD = effective full power days
λ = (hours^{-1}) decay constant

NOTE: Due to the long analysis time associated with Strontium analysis these columns will not be completed initially, but can be recorded upon receiving sample results.

WORK PACKAGE 4 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT LESS THAN 4 DAYS

CORRECTION TERM WORKSHEET FOR Kr-87

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	$1-\exp(-\lambda t_j)$	$\exp(-\lambda t_{ji})$	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 96 hours.

Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j

t_j = (hours) Duration of operation at P_j

t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

Kr-87 $\lambda = 0.545$ hours^{-1}

WORK PACKAGE 4 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT LESS THAN 4 DAYS

CORRECTION TERM WORKSHEET FOR Kr-88

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	$1-\exp(-\lambda t_j)$	$\exp(-\lambda t_{ji})$	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 96 hours.
Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j
t_j = (hours) Duration of operation at P_j
t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

Kr-88 $\lambda = 0.244$ hours^{-1}

WORK PACKAGE 4 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT LESS THAN 4 DAYS

CORRECTION TERM WORKSHEET FOR I-131

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	1-exp ($-\lambda t_j$)	exp($-\lambda t_{ji}$)	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 96 hours.

Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j

t_j = (hours) Duration of operation at P_j

t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

I-131 λ = 0.004 $HOURS^{-1}$

WORK PACKAGE 4 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT LESS THAN 4 DAYS

CORRECTION TERM WORKSHEET FOR Te-132

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	$1-\exp(-\lambda t_j)$	$\exp(-\lambda t_{ji})$	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 96 hours.

Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j

t_j = (hours) Duration of operation at P_j

t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

Te-132 λ = 0.009 $HOURS^{-1}$

WORK PACKAGE 4 - ASSESSMENT USING RADIONUCLIDE ANALYSIS - REACTOR POWER CONSTANT LESS THAN 4 DAYS

CORRECTION TERM WORKSHEET FOR Ba-140

	(C1)	(C2)	(C3)	(C4)	(C5)	(C6)
	P_j	t_j	t_{ji}	1-exp ($-\lambda t_j$)	exp($-\lambda t_{ji}$)	(C1)*(C4)*(C5)
Sum						

Sum (C2) = Must be equal to 96 hours.

Correction Term = Sum (C6)/100

P_j = % Average reactor power for period j

t_j = (hours) Duration of operation at P_j

t_{ji} = (hours) Duration from end of interval t_j to reactor shutdown

Ba-140 λ = 0.002 $HOURS^{-1}$

WORK PACKAGE 5 - ASSESSMENT BASED ON CONTAINMENT RADIATION MONITORS

NOTE: The following assumptions are made:

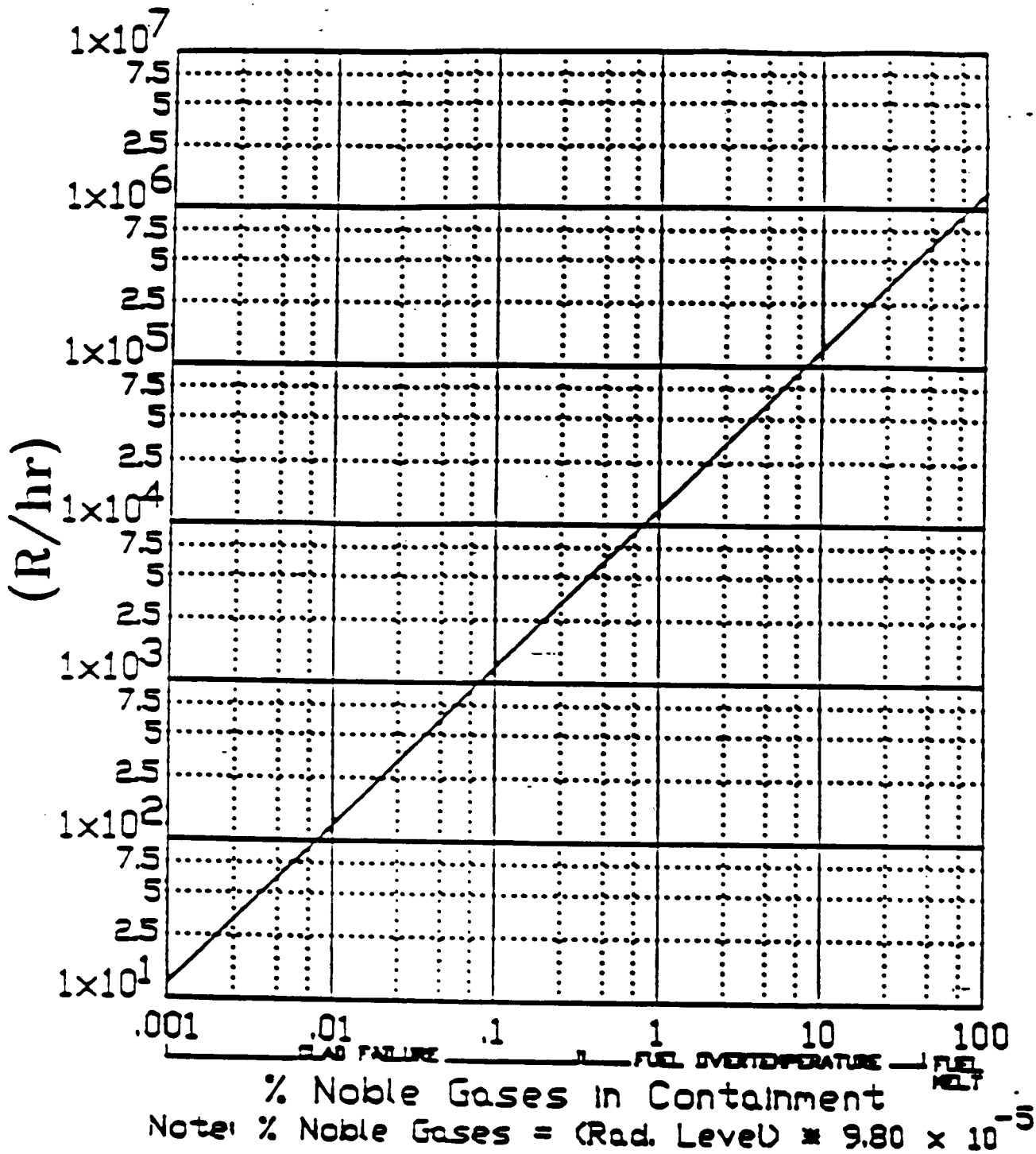
- Radiogases released from the fuel are instantaneously and uniformly distributed throughout containment.
- The source terms were developed with the Origin II fuels code using information contained in the Siemens Report, "H. B. Robinson Unit 2 Radiological Assessment of Postulated Accidents," which assumes reactor operation at 2300 MWth with peak assembly exposures up to 52,500 MWd/MTu.
- 100% of the noble gases, 25% of the halogens, and 1% of all others are released.

1. Obtain most current R-32 A/B readings from the ERFIS System or radiation reading at "x" outside CV from Radiological Control Director, then using Page 2 of 3 or Page 3 of 3, respectively, determine % noble gas released and estimate core damage.

2. Proceed to Work Package 8.

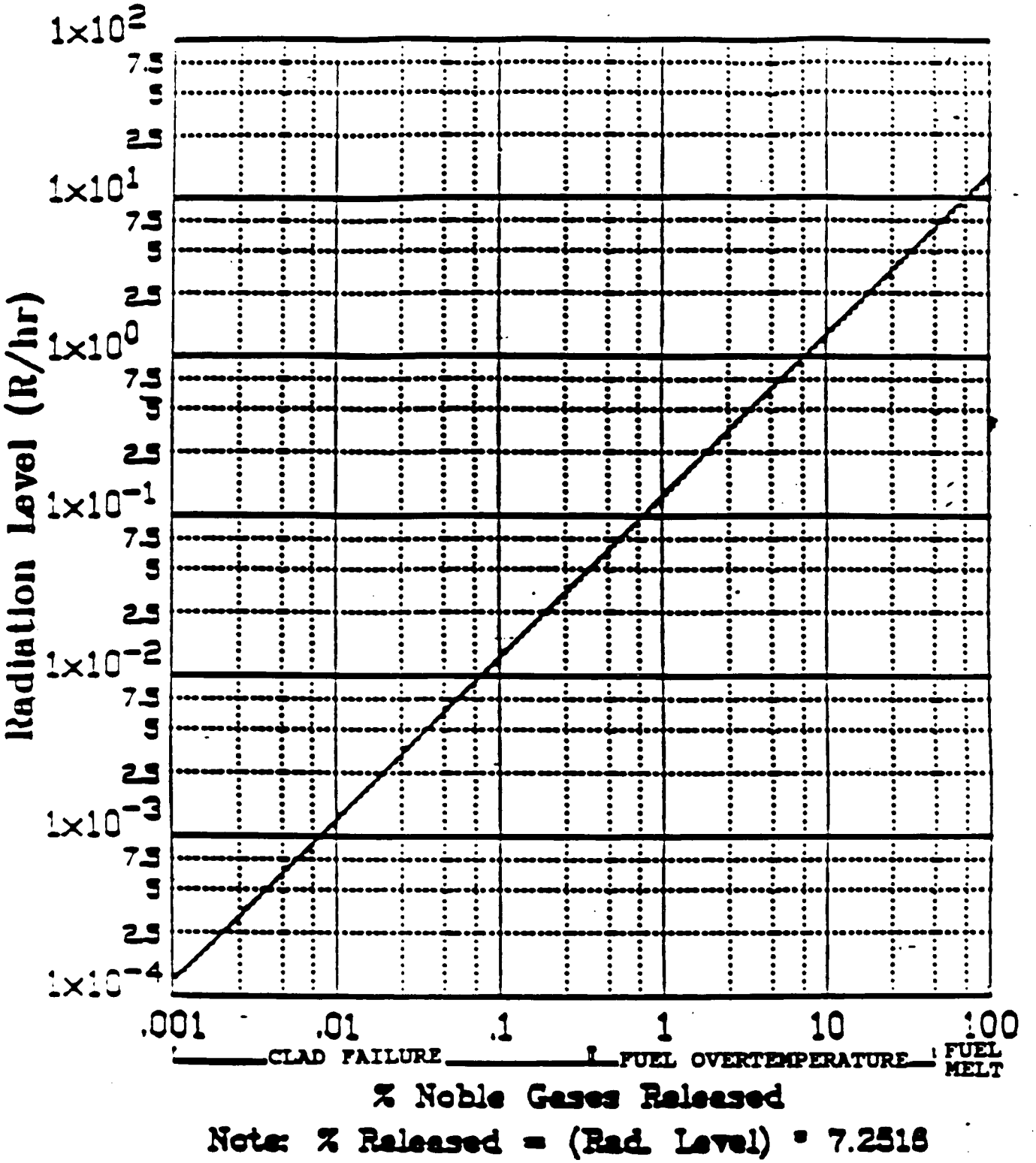
WORK PACKAGE 5 - ASSESSMENT BASED ON CONTAINMENT RADIATION MONITORS

CONTAINMENT HIGH RADIATION MONITORS
R32 A/B



WORK PACKAGE 5 - ASSESSMENT BASED ON CONTAINMENT RADIATION MONITORS

CV OUTSIDE (AT "X")



Note: % Released = (Rad. Level) * 7.2518

WORK PACKAGE 6 - ASSESSMENT BASED ON HYDROGEN CONCENTRATION IN CONTAINMENT

1. Obtain containment atmosphere H_2 monitor reading from the ERFIS/EDS System.

CAUTION

A VERY LOW OXYGEN CONCENTRATION MAY INDICATE THAT THERE HAS BEEN A HYDROGEN BURN. IF THE SUMMARY REPORT (WORK PACKAGE 8) INDICATES THAT THERE SHOULD HAVE BEEN ELEVATED H_2 LEVELS IN CONTAINMENT AIR, REQUEST AN O_2 DETERMINATION FROM THE RADIOLOGICAL CONTROLS DIRECTOR. ALSO, DETERMINE IF THERE HAS BEEN A CONTAINMENT PRESSURE SPIKE, WHICH MAY ALSO INDICATE A HYDROGEN BURN.

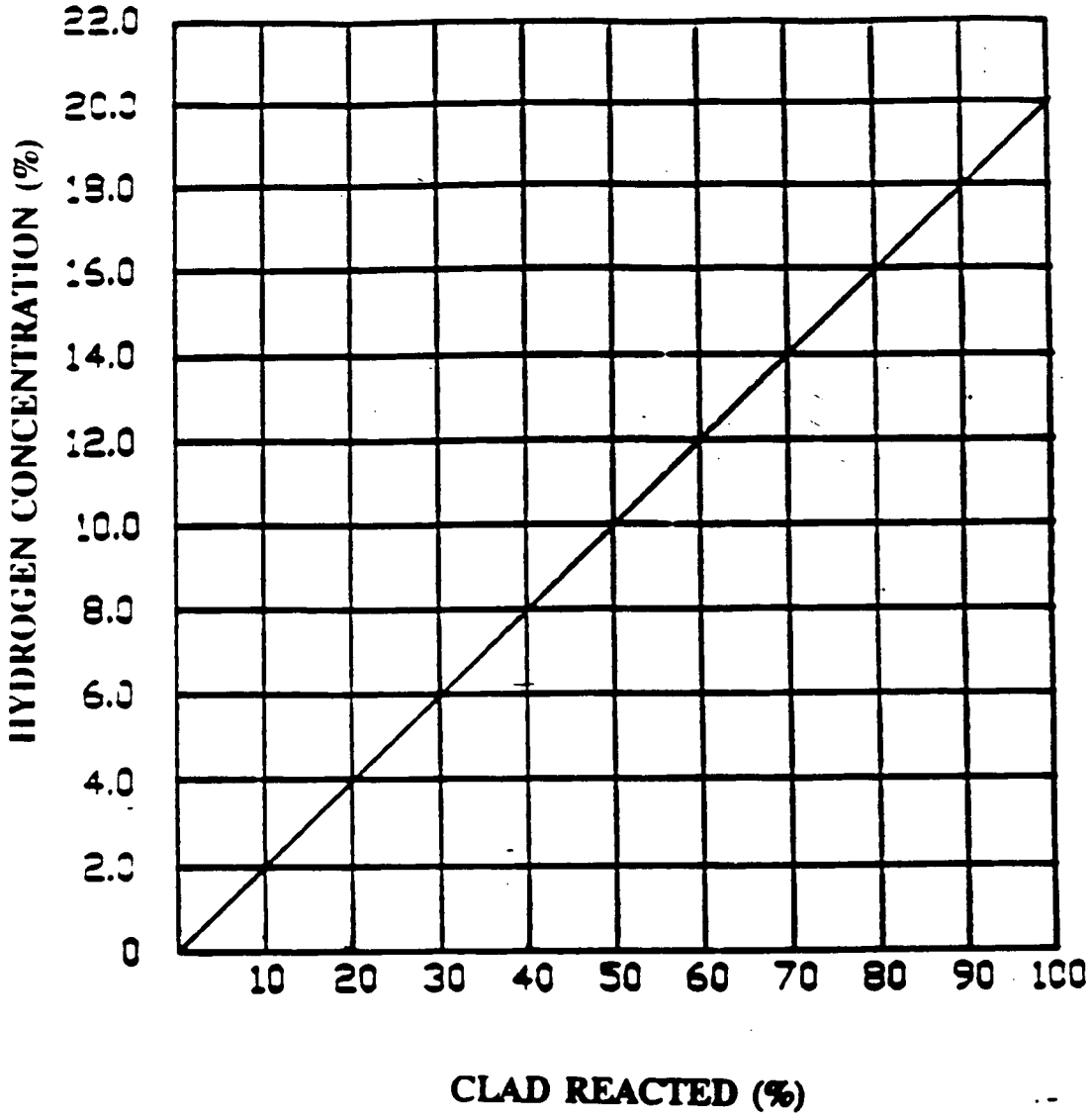
2. Use Page 2 of this package to estimate the percentage of fuel cladding reacted. (This applies to containment only.)

3. Use Page 3 of this package for a second estimate of fuel cladding reacted.

4. Proceed to Work Package 8.

WORK PACKAGE 6 - ASSESSMENT BASED ON HYDROGEN CONCENTRATION IN CONTAINMENT

CONTAINMENT
HYDROGEN CONCENTRATION VS. % CLAD REACTED



WORK PACKAGE 6 - ASSESSMENT BASED ON HYDROGEN CONCENTRATION IN CONTAINMENT

IDEAL GAS LAW FOR DETERMINING % Zr CLAD FAILURE

1. $n = \frac{PV}{RT}$ where:

   R = 670.0 psia-cc/gm-mole-°R
   n = number of moles of H_2 gas in CV
   P = absolute pressure, psia
   V = H_2 volume = fraction H_2 detected x total CV volume

   $A_{CV} = (\frac{\_\_\_\_}{100}$ % H_2 in CV) x (____ corrected CV_{vol} from Step 1.0,

   Work Package 1 = _____ cc H_2 in CV

NOTE:	The cc H_2/kg H_2O value used in the B_{RCS} calculation below should be the measured value minus the cc H_2/kg H_2O normally maintained dissolved in solution.

B_{RCS} = (____ cc H_2/kg H_2O in RCS) x (_____corrected RCS_{vol}
1000 cc/kg

from Step 2, Work Package 1 x 1.057 cc H_2

@ 60°F/cc H_2 @ 32° F = _____ cc H_2 in RCS

2. (A_{CV} _____ + B_{RCS} _____) = _____ total cc H_2

   _____ total cc H_2 ÷ (2.37 X 10^4 cc/gm-mole) = _____ total moles H_2

3. _____ total moles H_2 ÷ 2 = _____ total moles of Zr reacted

4. To obtain total reacted lbs_m Zr:

   [____ moles Zr from Step 3.0, Attachment 1-A] x [(91.22 gm/mole) ÷ 453.59 gm/lb] = ____ total lbs Zr

5. To determine total % of clad reacted:

   [____lbs_m Zr from Step 4.0, above] x 100 = ____ % clad reacted

   49279 lbs_m Zr in core

WORK PACKAGE 7 - ASSESSMENT BASED ON CORE EXIT THERMOCOUPLE READINGS

CAUTION

- AS MANY TC'S AS POSSIBLE SHOULD BE USED FOR EVALUATION OF CORE TEMPERATURE CONDITIONS. IT IS RECOMMENDED THAT A MINIMUM OF ONE TC NEAR THE CENTER OF THE CORE AND ONE IN EACH QUADRANT BE MONITORED.
- CAUTION MUST BE USED IF A TC READS OFFSCALE - LOW OR IS READING CONSIDERABLY DIFFERENT FROM NEIGHBORING TC'S AS IT MAY HAVE FAILED.

1. Use Page 3 of this package to select the thermocouples to be read.
2. Read TC data from the ERFIS Print-Out.
3. Analyze the readings as follows:
   a. If core exit TC's indicate less than 700°F and a subsequent RVLIS check indicates no degraded core cooling, go to Work Package B.
   b. If at least 5 or more core exit TC's are more than 700°F, and if RVLIS full range indicates less than 41% of collapsed liquid level in the core, there may be inadequate core cooling with potential cladding breach.
   c. Check R-2, R-7, R-9, and R-32 A/B to validate that fuel damage has occurred.
      - Note that R-9, Letdown Monitor, may be isolated if Phase A isolation has occurred.

WORK PACKAGE 7 - ASSESSMENT BASED ON CORE EXIT THERMOCOUPLE READINGS

NOTE: If at least 5 core exit TC's indicate more than 1200°F; this condition indicates that most of the reactor coolant has gone from the core and that decay heat is superheating the steam in the core. This means that there is a real potential for fuel overtemperature conditions.

d. Use the following table for fuel damage vs. fuel rod temperatures.

Fuel Damage	Temperature °F
No Damage	<1300
Clad Damage	1300 - 2000
Ballooning of zircaloy cladding	1300
Burst of zircaloy cladding	1300 - 2000
Oxidation of cladding and hydrogen generation	>1600
Fuel Overtemperature	
Fission product fuel lattice mobility	2000 - 2550
Grain boundary diffusion Release of fission products	2450 - 3450

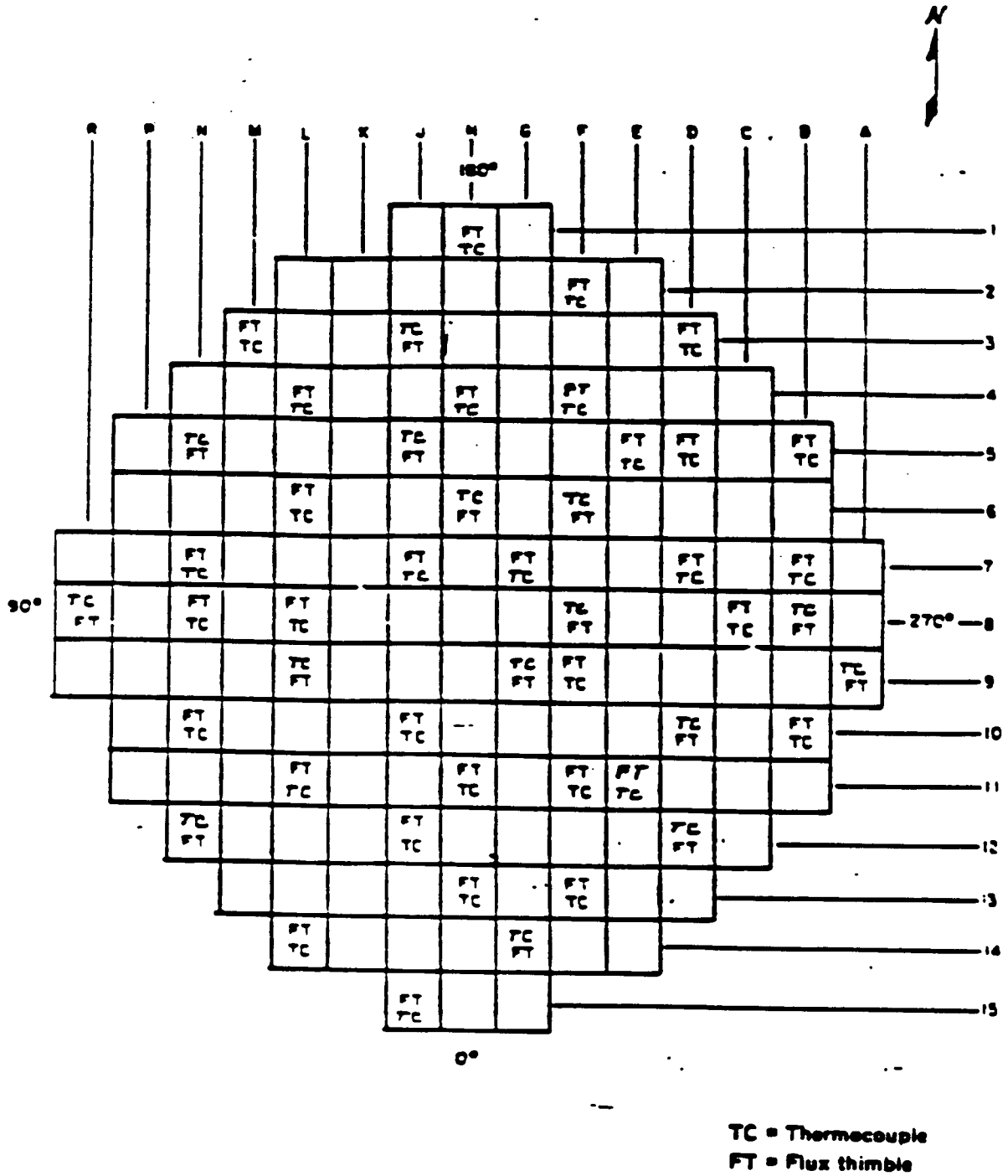
NOTE: The response of a core exit thermocouple remains valid up to 2300°F making it useful under accident conditions. However, it is to be emphasized that because the thermocouples do not directly measure fuel rod temperature, this method is qualitative only and should be used for confirming other indications only.

e. Review TC readings for indications of localized high temperatures or core damage areas.

NOTE: Excore and Incore Neutron Instrumentation may also be used to qualitatively determine very high temperatures in the core and/or the presence or absence of liquid water in the downcomer and core regions near the axial locations of the detectors. In general, high temperature water/steam formation in the downcomer would result in increased excore detector output. High temperature water/steam formation in the core would result in local decreases in incore detector output.

4. Proceed to Work Package 8.

WORK PACKAGE 7 - ASSESSMENT BASED ON CORE EXIT THERMOCOUPLE READINGS



WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

1. Use this work package to prepare the Core Damage Assessment Summary Report (Page 2 and 3).

   a. If available, convert results from Work Packages 2, 3, or 4, using Pages 4-10 of this package.

NOTE: Sections b and c of page 3 of this package may be used alone as a preliminary report, pending availability of radionuclide analysis.

   b. Complete Sections 1, b, c and d of this package.

2. Complete all sections for which data is available on previous work packages.

3. Transmit full or partial report to Technical Analysis Manager and Plant Operations Director.

4. Repeat this procedure as directed.

5. Records of actions taken (work sheets and major communications) will be given to the Technical Analysis Manager.

WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

CORE DAMAGE ASSESSMENT SUMMARY REPORT

1. The implementation of EPTSC-07 has been completed. Based on an analysis of specific indicators the core damage status is as follows:

Analytical Source

		NO	CLAD	OVER TEMP	MELT
_____ A.	Reactor Coolant System				
_____ B.	RHR System				
_____ C.	Containment Atmosphere				
_____ D.	Core Thermocouple (estimated)				
_____ E.	CV CHRM R32 a or b				
_____ F.	Hydrogen Levels				

2. Core Damage Assessment Definition - complete the appropriate section based on the above source and status.

Since it is probable that more than one type of damage may have occurred in the core, it is best to predict a range of estimated core damage. For example, the isotopic analysis may indicate major cladding failure (50-100%) with indications of some degree of fuel overheat (<10%) and the possibility of minor fuel melting (<1%).

a. Percent core damage indicated by isotope release fractions. (Use Pages 2 of 10 through 10 of 10).

ISOTOPE	CLAD FAILURE %	FUEL OVERTEMP. %	FUEL MELT %
Kr-87	_____	_____	_____
Kr-88	_____	_____	_____
I-131	_____	_____	_____
Cs-134	_____	_____	_____
Cs-137	_____	_____	_____
Te-132	_____	_____	_____
Sr-89	_____	_____	_____
Ba-140	_____	_____	_____

b. Core degradation identified by core exit thermocouples/RVLIS

_____ Core Exit Therm. <700°F
_____ 700°F <Core Exit Therm. <1200°F
_____ 1200°F <Core Exit Therm. <2000°F = Clad Failure
_____ 2000°F <Core Exit Therm. <3450°F = Fuel Overtemperature

WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

c. Percent zirconium-water reaction based on hydrogen

Total Containment H_2 _____ cc
Total RCS H_2 _____ cc

_____% clad reacted (from Item 5 of Attachment 8.7.5.6, Page 3)

d. Does qualitative analysis agree with radionuclide analysis?

_____ Yes _____ No

Comments: _____

_____

_____

_____

Initiated By: _____ Date: _____

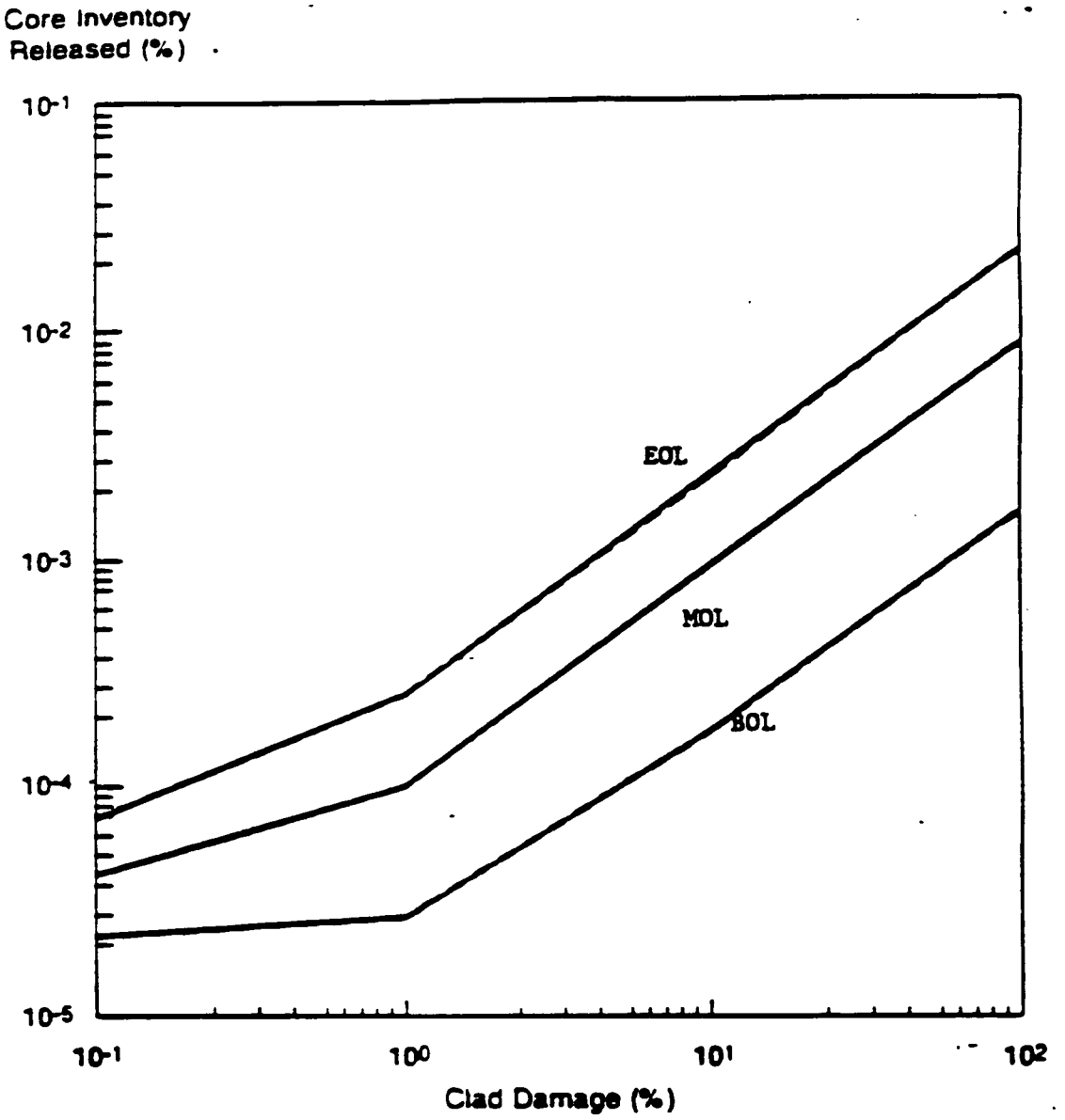
Time: _____

Reviewed By: _____ Date: _____
Technical Analysis Director

Approved By: _____ Date: _____
Plant Operations Director

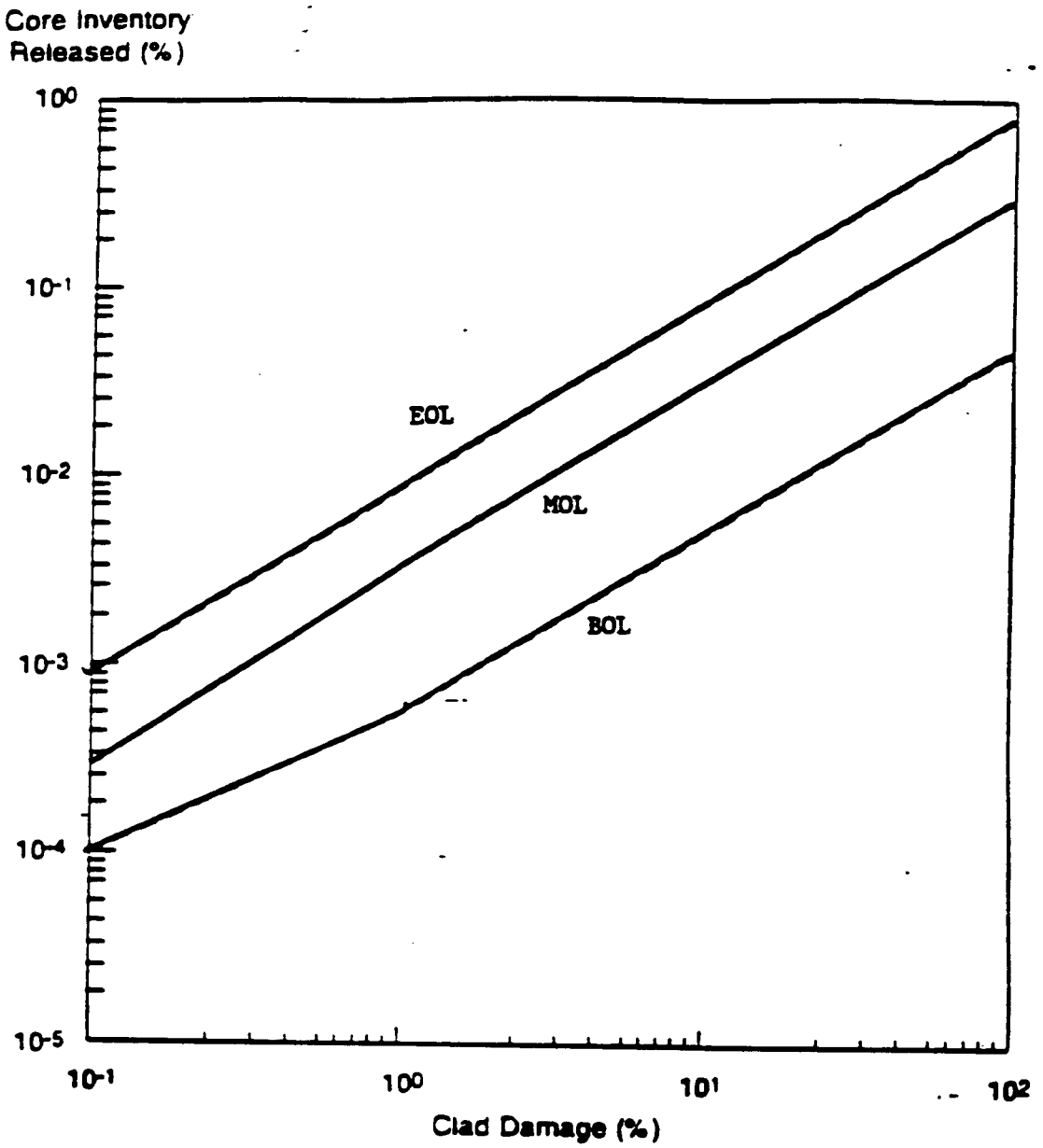
WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

RELATIONSHIP OF % CLAD DAMAGE WITH % CORE INVENTORY RELEASED OF Kr-87, Kr-88



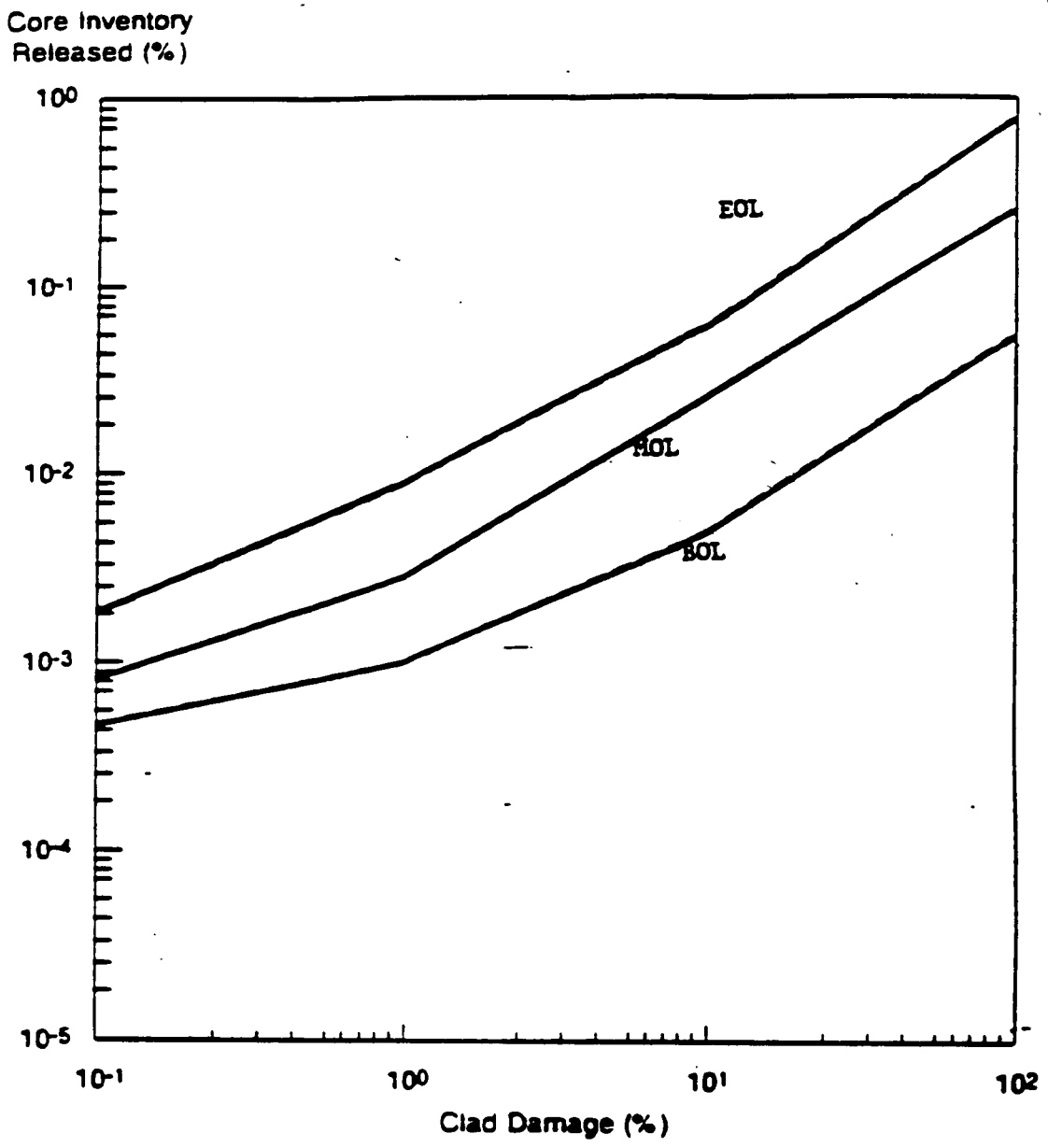
WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

RELATIONSHIP OF % CLAD DAMAGE WITH % CORE INVENTORY RELEASE OF I-131



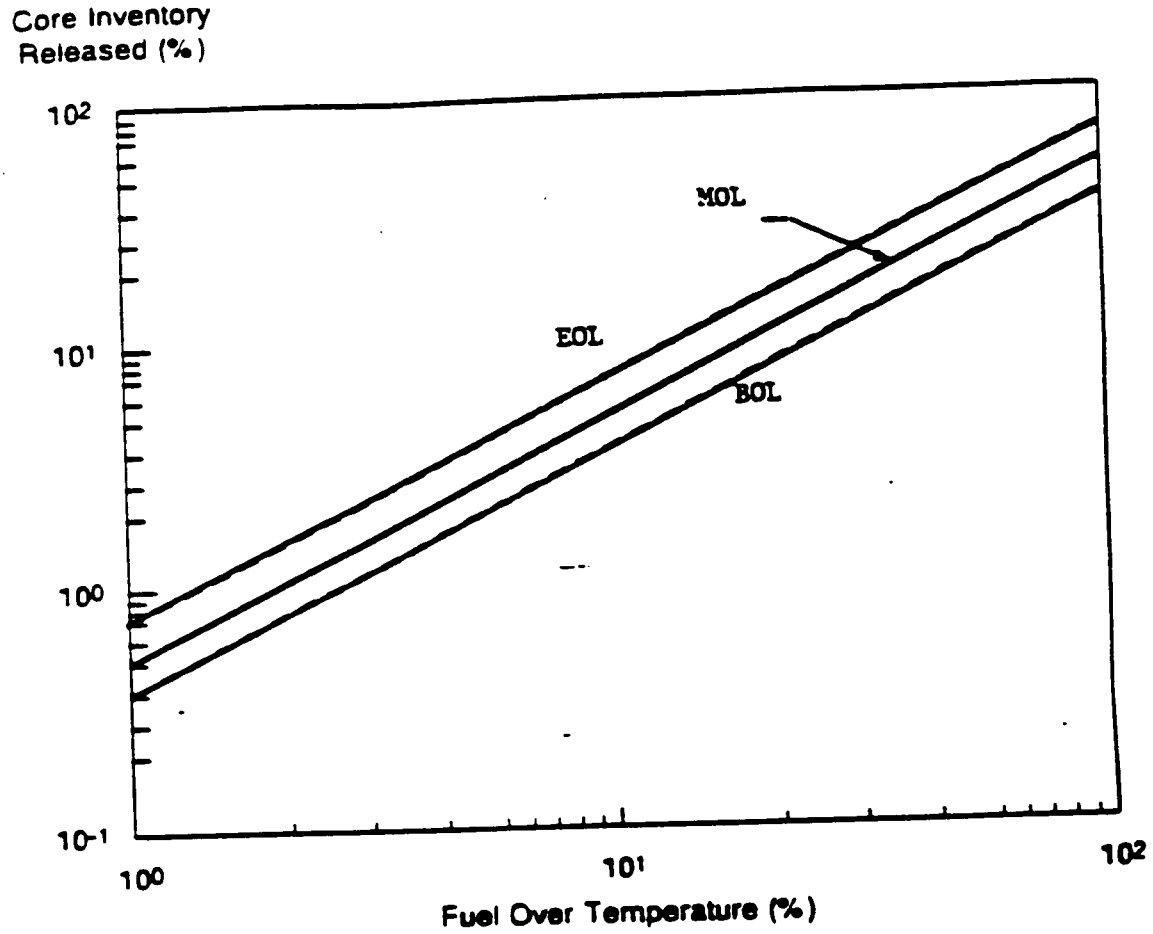
WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

RELATIONSHIP OF % CLAD DAMAGE WITH % CORE INVENTORY RELEASE OF I-131 WITH SPIKING



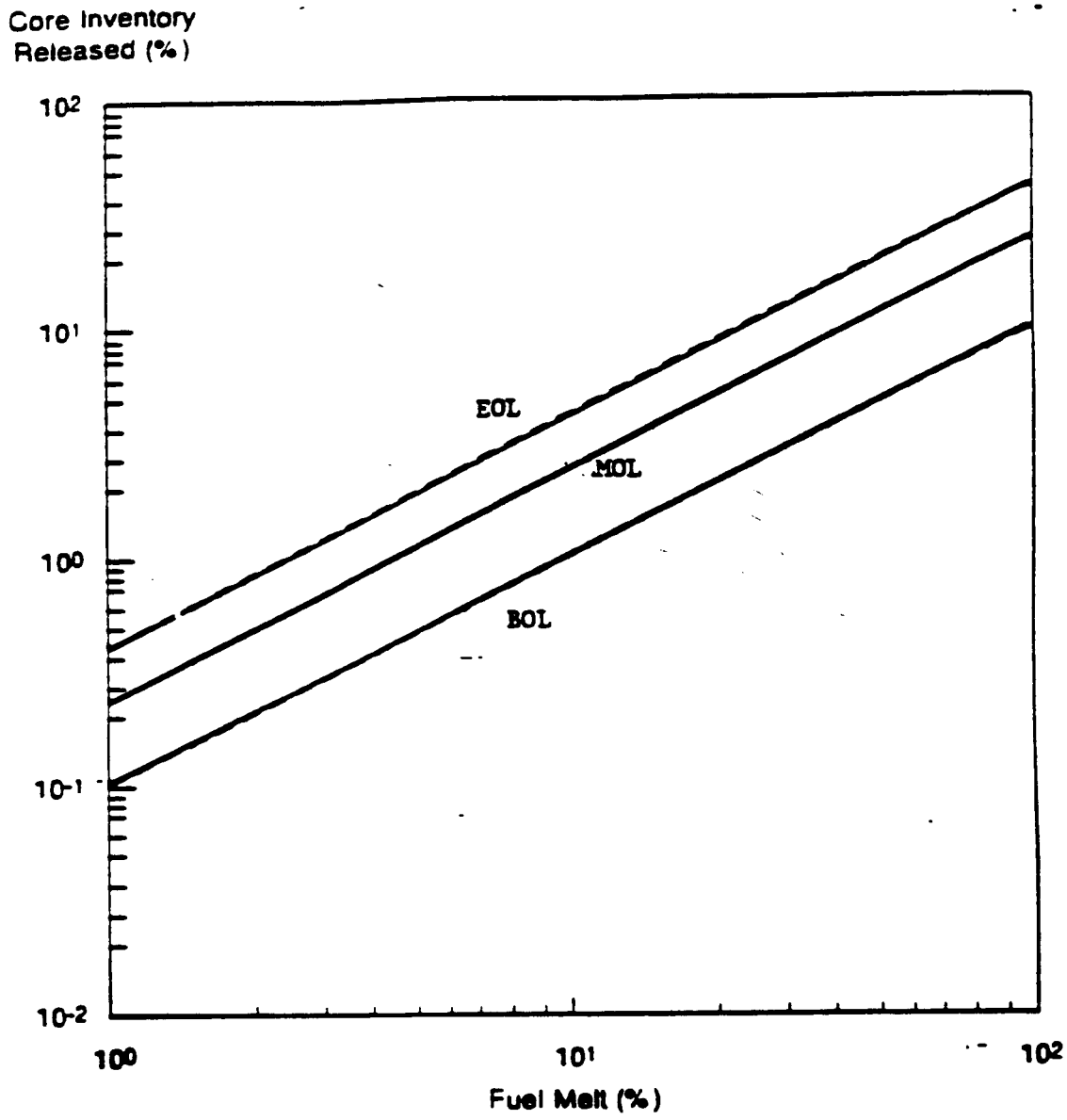
WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

RELATIONSHIP OF % FUEL OVERTEMPERATURE WITH % CORE INVENTORY RELEASED OF Kr, I, Cs, OR Te



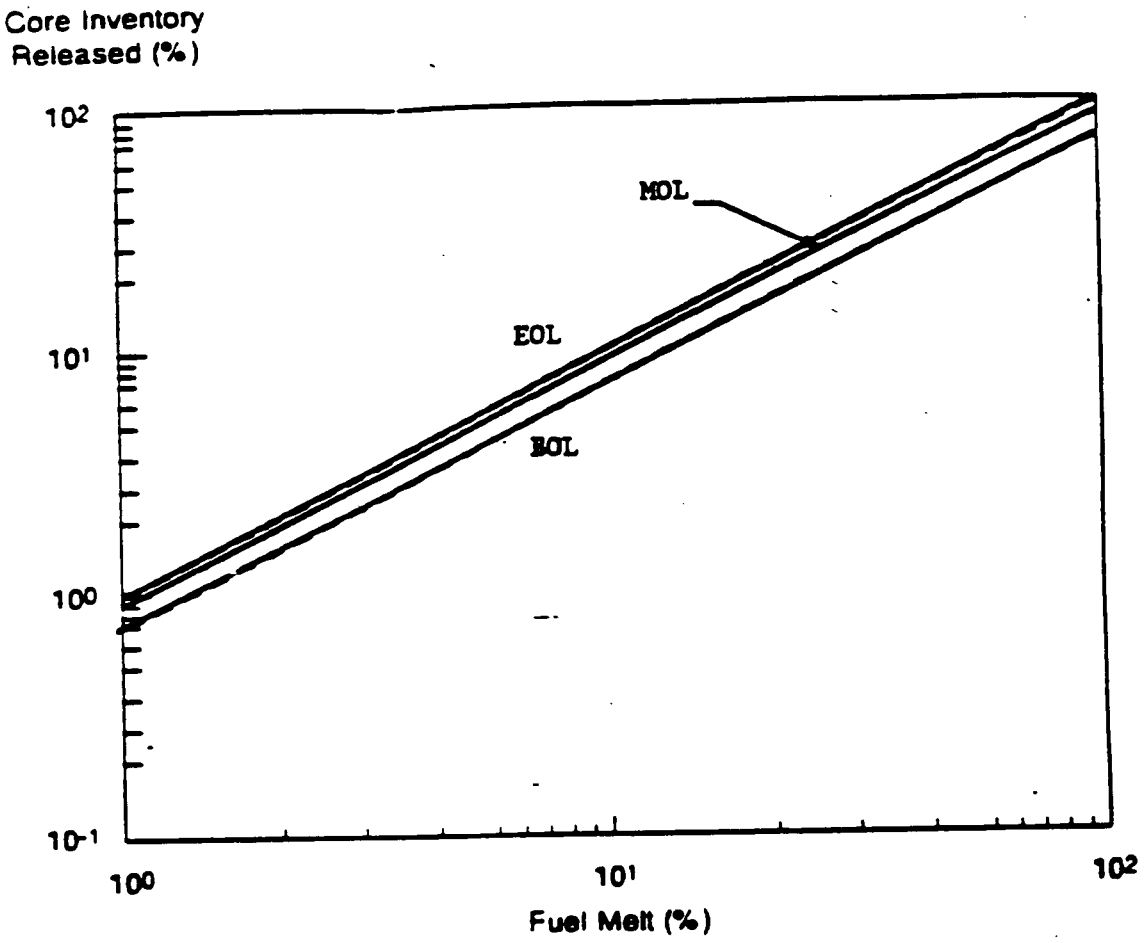
WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

RELATIONSHIP OF % FUEL OVERTEMPERATURE WITH % CORE INVENTORY RELEASED OF Ba OR Sr



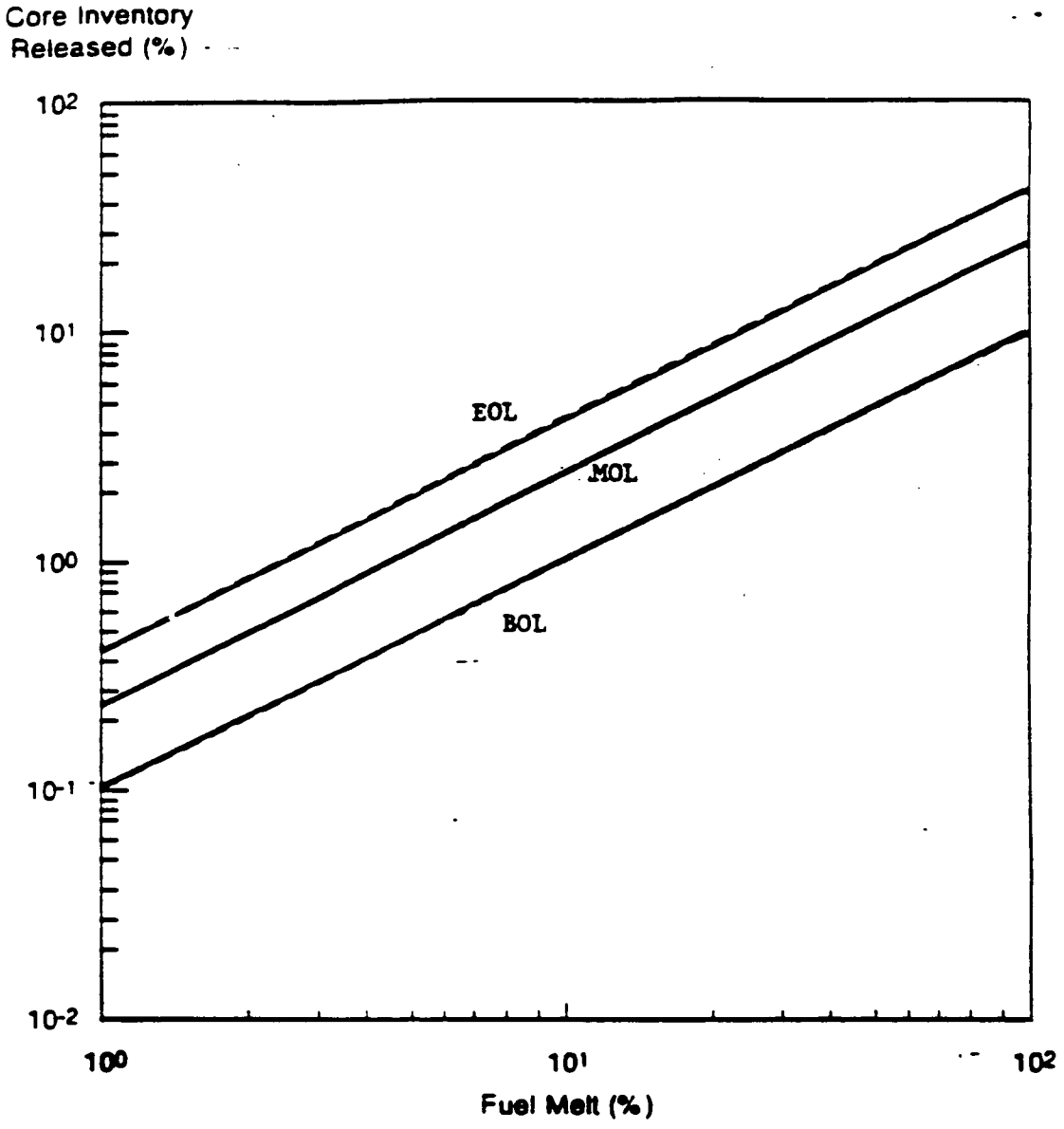
WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

RELATIONSHIP OF % FUEL MELT WITH % CORE INVENTORY RELEASED OF Kr, I, Cs, OR Te



WORK PACKAGE 8 - SUMMARY OF ASSESSMENTS

RELATIONSHIP OF % FUEL MELT WITH % CORE INVENTORY RELEASED OF Ba OR Sr



CHARACTERISTICS OF CATEGORIES OF FUEL DAMAGE

	No Fuel Damage	0-50% Cladding Failure	50-100% Cladding Failure	0-50% Fuel OverTemp	50-100% Fuel OverTemp	0-50% Core Melt	50-100% Core Melt
Fission Product Concentrations:							
Kr-87 (Kr)	<4E-5%	-0.005%	-0.01%	1-25%	-50%	-50%	>50%
Xe-131 (Xe)	<4E-3%	-0.08%	-0.1%	1-25%	-50%	-50%	>50%
Xe-133	<2E-3%	-0.05%	-0.1%				
I-131 (I)	<3E-4%	-0.01%	-0.3%	1-25%	-50%	-50%	>50%
I-132	<5E-5%	-0.02%	-0.03%				
I-133	<1E-4%	-0.05%	-0.1%				
I-135	<8E-5%	-0.03%	-0.05%				
(Cs)				1-25%	-50%	-50%	>50%
(Sr)				.001-.08%	-0.15%	-15%	>15%
(Ba)				.001-08%	-0.15%	-15%	>15%
(Te)						1-50%	>50%
(Pr)						0.1-0.8%	>0.8%
Activity Ratios:							
Kr-87/Xe-133		0.022	0.022	0.22	0.22	0.22	0.22
I-132/I-131		0.17	0.17	1.5	1.5	1.5	1.5
I-133/I-131		0.71	0.71	2.1	2.1	2.1	2.1
I-135/I-131		0.39	0.39	1.9	1.9	1.9	1.9
Core Exit Thermocouples:	<750%	1300°F	1650°F	>1650°F	>1650°F	>1650°F	>1650°F
RVLIS Indication:	>58%	<58%	<58%	<58%	<58%	<58%	<58%
Core Uncovery Begins						<41%	
Core Completely Uncovered							<25%
Containment Hydrogen Concentration:	Negligible	<10%	20%	20%	20%	20%	20%
Containment Radiation Monitors:	Background	<1500 R/hr	-3000	2.7E5	5.3E5	7.8E5	>7.8E5

CORE PROTECTION

1. Critical Safety Function Status Tree (CSFST's)

   a. Subcriticality (FRP-S)

      - Verify Automatic Actions or Perform Manual Actions to Reduce Core Power
      - Emergency Borate
      - Check for Possible Sources of Positive Reactivity and Eliminate them
      - Verify Subcriticality

   b. Core Cooling (FRP-C)

      - Establish Safety Injection Flow to the RCS
      - Rapidly Depressurize SGs to Depressurize RCS
      - Start RCPs and Open All RCS Vent Paths to Containment

   c. Heat Sink (FRP-H)

      - Attempt Restoration of Feed Flow to Steam Generators
      - Initiation of RCS Bleed and Feed Heat Removal
      - Restore and Verify Secondary Heat Sink
      - Termination of RCS Bleed and Feed heat Removal

   d. Integrity (FRP-P)

      - Stop RCS Cooldown
      - Terminate SI if Criteria Satisfied
      - Depressurize RCS to Minimize Pressure Stress
      - Establish Normal Operating Conditions and Stable RCS Conditions
      - Soak if Necessary Prior to Further Restricted Cooldown

   e. Containment (FRP-J)

      - Verify Containment Isolation and Heat Removal
      - Check for and Isolate a Faulted Steam Generator
      - Check for Excessive Containment Hydrogen and Determine Appropriate Action

   f. Inventory (FRP-I)

      - Establish Charging and Letdown
      - Reduce PZR Pressure
      - Energize PZR Heaters and Control Charging and Letdown to Draw a Bubble

CORE PROTECTION

2. DBA Large Break LOCA (1 ft^2 total area up to double-ended break)

   a. Blowdown

      - Reactor Trip Signal and SI Signal in about 1 second
      - 2235 psig to atmosphere in about 24 seconds
      - Break flow 70,000 lbm/sec to zero by end of blowdown
      - SI accumulator flow initiates at 600 psig in about 16 seconds

   b. Refill

      - 2000 ppm water from RWST injected into RCS cold legs

   c. Reflood

      - Bottom of Core (BOC) recovery time about 45 seconds
      - Accumulator empties at about 58 seconds

   d. Long Term Recirculation

      - RHR pumps transferred when RWST level reach switchover setpoint
      - Cooling water backflushed from Containment Sump to the hot legs
      - Core maintained in shutdown state by borated water

3. Possible Consequences of the DBA

   a. Cladding Failure

   b. Fuel Overtemperature

   c. Core Melt

4. Instrument Errors/Malfunctions

   a. G-M tube saturation

   b. Steam voids

   c. Flooding of RTD connection blocks

FUNCTION RESTORATION PROCEDURES

1. Subcriticality (FRP-S)

   a. S.1 Response to Nuclear Power Generation/ATWS
   b. S.2 Response to Loss of Core Shutdown

2. Core Cooling (FRP-C)

   a. C.1 Response to Inadequate Core Cooling
   b. C.2 Response to Degraded Core Cooling
   c. C.3 Response to Saturated Core Cooling

3. Heat Sink (FRP-H)

   a. H.1 Response to Loss of Secondary Heat Sink
   b. H.2 Response to Steam Generator Overpressure
   c. H.3 Response to Steam Generator High Level
   d. H.4 Response to Loss of Normal Steam Release Capability
   e. H.5 Response to Steam Generator Low Level

4. Integrity (FRP-P)

   a. P.1 Response to Imminent Pressurized Thermal Shock
   b. P.2 Response to Anticipated Pressurized Thermal Shock

5. Containment (FRP-J)

   a. J.1 Response to High Containment Pressure
   b. J.2 Response to Containment Flooding
   c. J.3 Response to High Containment Radiation Level

6. Inventory (FRP-I)

   a. I.1 Response to High Pressurizer Level
   b. I.2 Response to Low Pressurizer Level
   c. I.3 Response to Voids in Reactor Vessel

ABNORMAL OPERATING PROCEDURES

AOP-001 Malfunction of Reactor Control System
AOP-003 Malfunction of Reactor Make-up Control
AOP-004 Control Room Inaccessibility
AOP-005 Radiation Monitoring System
AOP-010 Main Feedwater/Condensate Malfunction
AOP-013 Fuel Handling Accident
AOP-018 Reactor Coolant Pump Abnormal Conditions
AOP-019 Malfunction of RCS Pressure Control
AOP-020 Loss of Residual heat Removal (Shutdown Cooling)
AOP-021 Seismic Disturbances

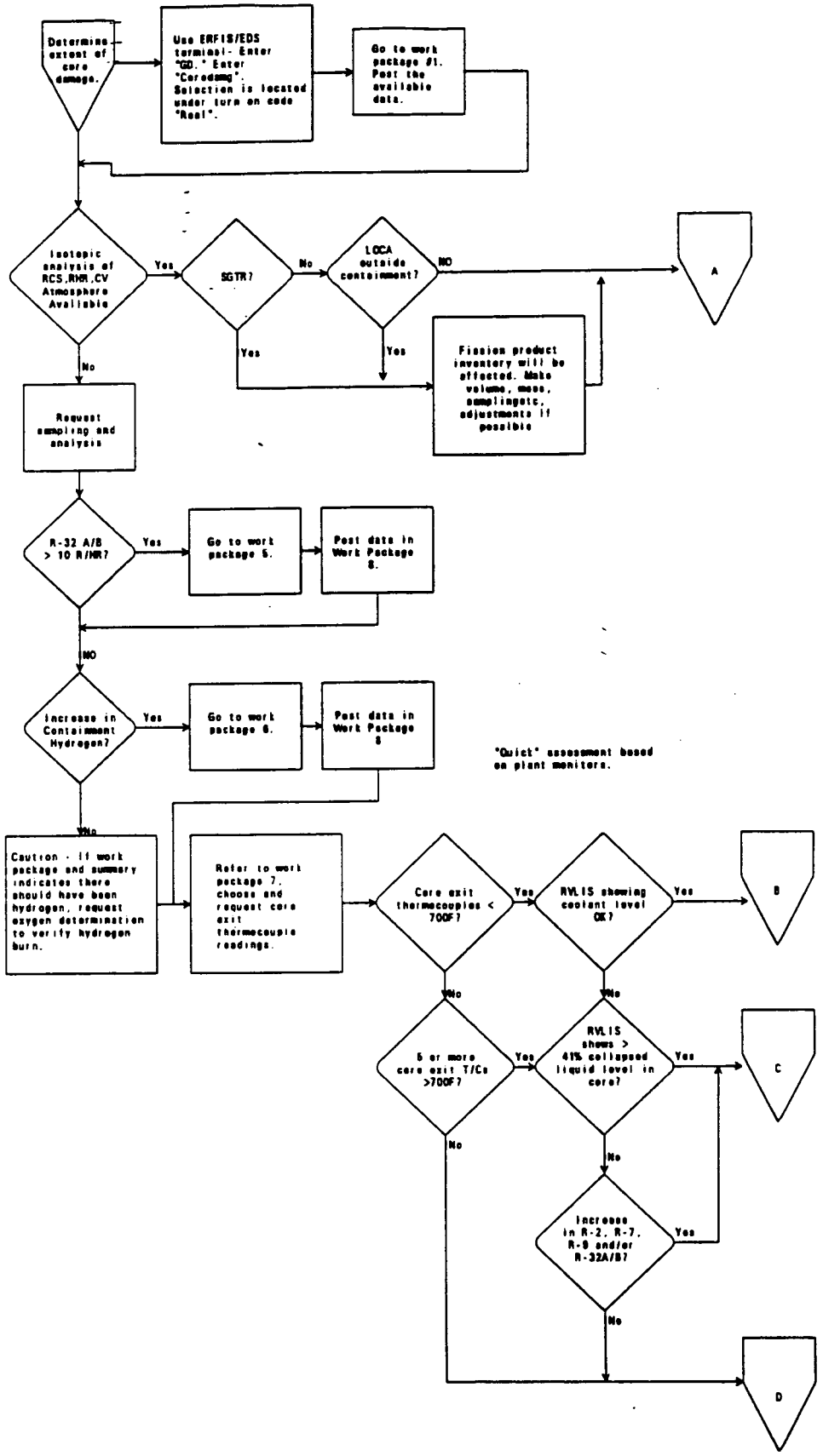
FUNCTION RESTORATION PROCEDURES

AOP-023 Loss of Containment Integrity
AOP-024 Loss of Instrument Bus
AOP-028 ISFSI Abnormal Events
AOP-033 Shutdown LOCA
AOP-035 S/G Tube Leak

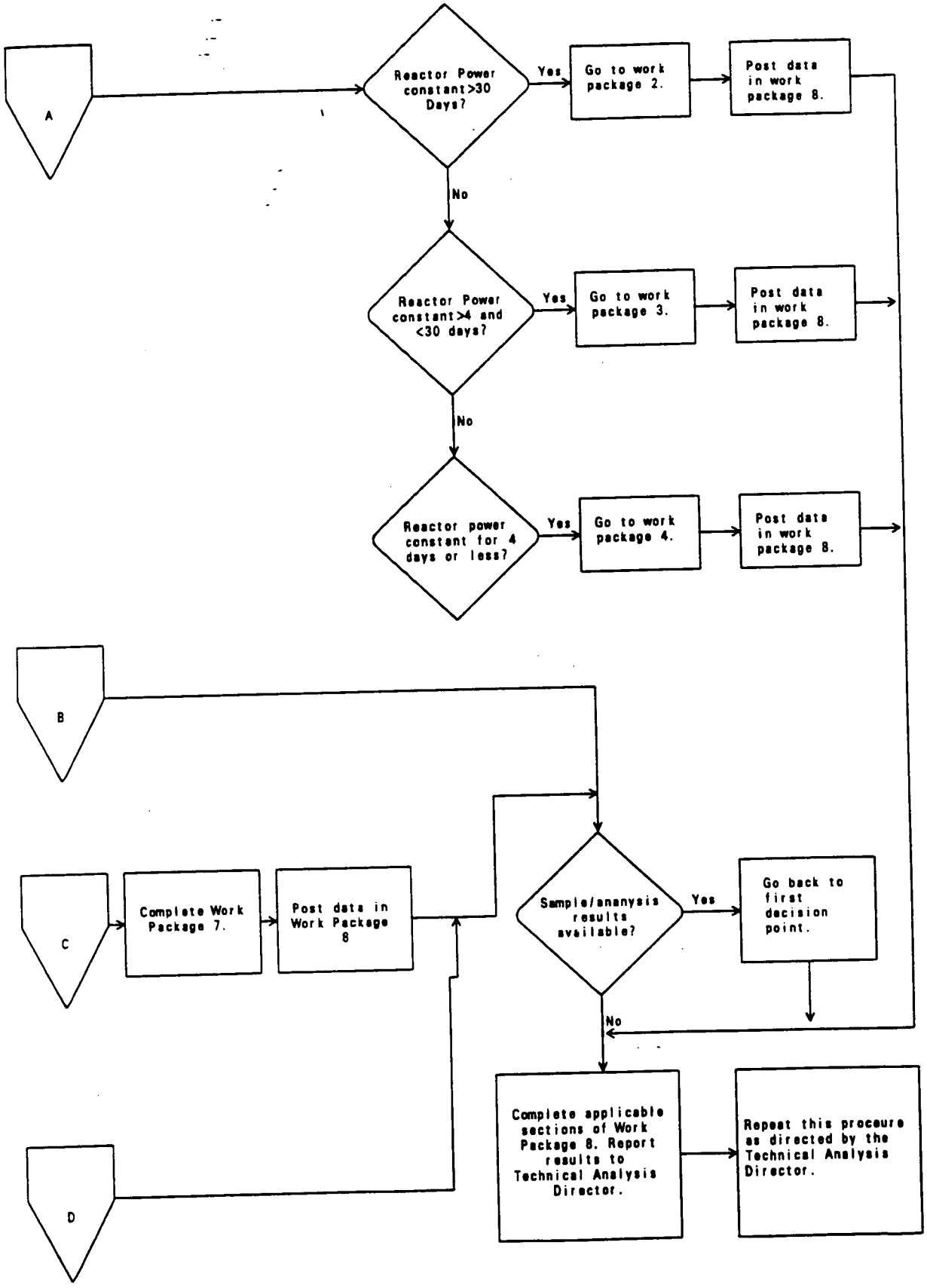
ANNUNCIATOR PANEL PROCEDURES

APP-001 Miscellaneous NSSS
APP-002 Engineering Safeguards
APP-003 RCS & Makeup Systems
APP-004 First Out Reactor Trips
APP-005 NIS & Reactor Control

WORK PACKAGE FLOWCHART



WORK PACKAGE FLOWCHART



DEFINITIONS

1. Gap Activity- volatile fission products (nobel gases, halogens, cesiums) produced during operation which migrate into the gap region of the fuel pin.

2. Clad Damage- structural deformation of the zirconium clad housing the UO_2 fuel allowing the escape of fission products to the reactor coolant. Usually predominate with core temperatures > 1300°F - 2000°F.

3. Fuel Overtemperature- refers to the release of fission products from the grain boundary during fuel overtemperature conditions >2000°F - 3450°F.

4. Fuel Melt- refers to fission product release from the fuel associated with melting temperatures >3450°F.

5. Accuracy - This procedure has been developed to provide definition of the four categories of fuel damage. The auxiliary or "quick" methods should only be used for preliminary estimates of core damage. Confirmation of core damage shall always be accomplished through an analysis of the radionuclide inventory.

6. Spiking Phenomena Spiking is an increase in the normal primary coolant iodine activity due to Reactor Coolant System pressure, temperature or power transients, where in fact no clad damage has occurred.

7. Oxygen Concentration in the Containment A decrease in oxygen concentration may indicate a hydrogen burn has occurred. This should be considered during the evaluation of percent containment hydrogen.

8. Steam Generator Tube Rupture or Outside Containment Loss of Coolant If core activity has been released to systems not covered by the Post Accident Sampling System (e.g. secondary system, component cooling water), this procedure will not accurately reflect actual core damage. This will be identified by auxiliary methods which estimate more severe damage than the isotopic analysis. If accurate samples of these systems are available as well as reasonable estimates of the sample space volume or mass, the methods in this procedure may be applied to improve the accuracy of the nuclide release estimate of core damage.

CAROLINA POWER & LIGHT COMPANY
H.B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO 2
PLANT OPERATING MANUAL

VOLUME 2
BOOK 5

EMERGENCY PROCEDURE

EPTSC-09

TECHNICAL SUPPORT CENTER (TSC) GENERIC INFORMATION

REVISION 0

EFFECTIVE DATE
5-31-96

Approval

Supervisor - Emergency Preparedness

5/8/96
Date

LIST OF EFFECTIVE PAGES

Page(s)	Revision
9-1	0
LEP	0
Table of Contents	0
9-4 through 9-7	0

TABLE OF CONTENTS

8.9 TECHNICAL SUPPORT CENTER (TSC) GENERIC INFORMATION

8.9.1 PURPOSE

1. This procedure describes the generic functions in the TSC.

8.9.2 RESPONSIBILITIES

N/A

8.9.3 INSTRUCTIONS

1. Activation

   a. TSC activation is required following declaration of an Alert or higher emergency classification level.

   b. The TSC shall be activated within 45 to 60 minutes following declaration of an alert or higher emergency classification or beeper request for activation.

   c. TSC activation prior to an Alert shall occur at the discretion of the Control Room Site Emergency Coordinator (SEC).

   d. The TSC Emergency Response Organization (ERO) shall be notified to activate the TSC via any combination of public address (PA), beeper, and Dialogic. Refer to EPNOT-00, Notification and Emergency Communications for details.

   e. In order to relieve the Control Room of activities other than plant operation, activation of the TSC can occur, without a full staffing complement, upon arrival and readiness of the SEC and the NRC Communicator.

   f. The TSC ERO shall sign-in on the security access roster, the TSC sign-in roster and, for those positions listed, the TSC organization chart. (Located near the entrance to the TSC)

   g. ERO members shall verify operability of equipment and availability of reference materials and forms necessary. Report deficiencies to the Administrative and Logistics Manager (ALM) in the Emergency Operations Facility (EOF).

8.9.3 INSTRUCTIONS

h. Determine the need for additional resources and report these to ALM in the EOF.

i. Emergency Response Organization (ERO) Team Leaders/Supervisors shall verify readiness of staff personnel.

- Leaders/Supervisors shall verify readiness to the position they report to.

j. Initiate a written or electronic log of significant emergency response activities.

- Log name, date, communications, key decisions and data collected and transmitted.

k. Announce your name and position title to Technical Support Center (TSC) staff members and subordinates.

l. Receive plant status briefing from the SEC-Control Room (CR). Participate in the initial briefing by providing status information regarding your emergency response area.

- Brief subordinates.

m. Establish a schedule for subsequent TSC facility briefings.

- Communicate times to subordinates.

n. Activate the TSC.

- Notify onsite/offsite locations.

8.9.3 INSTRUCTIONS

o. Dynamic situations which arise in an emergency condition may require that steps be performed out of sequence or alternate methods be devised to accomplish the intent of the step.

- Deviations which do not violate license requirements may be approved by the SEC or Emergency Response Manager (ERM)
- Deviations which violate license requirements shall be implemented per 10CFR50.54 (x, y, and z). Time permitting, SEC or ERM approval shall also be obtained.
- Deviations are reportable to the NRC within one hour.

p. The SEC or the ERM shall authorize effected emergency response personnel to exceed the Technical Specification Limits for extended overtime utilizing PLP-015, Program For Nuclear Power Plant Staff Working Hours.

2. Turnover

a. Upon determination that a shift change is necessary, the ALM in the EOF will coordinate the shift change schedule.

- Each ERO member shall notify a relief individual.
- Team Leaders will notify a relief shift for teams under their leadership.
- Individual team members shall not notify relief personnel.
- Relief times should be staggered to promote continuity of response.

b. Each ERO member shall brief their relief on event status.

c. Review log or other documentation. Log the name of oncoming personnel, the date and the time of turnover in the log/documentation.

8.9.3 INSTRUCTIONS

d. Relief staff shall sign-in on the organization chart (if appropriate), announce name and position title to TSC staff and subordinates.

3. Deactivation

a. Determine the need to deactivate facilities.

b. Notify offsite/onsite/industry contacts of the deactivation time.

c. Evaluate condition of equipment/supplies. Report deficiencies to the ALM in the EOF.

d. Log your name and the date on the log/documentation.

e. Provide these materials to the Emergency Preparedness group.

8.9.4 RECORDS

N/A

8.9.5 ATTACHMENTS

N/A

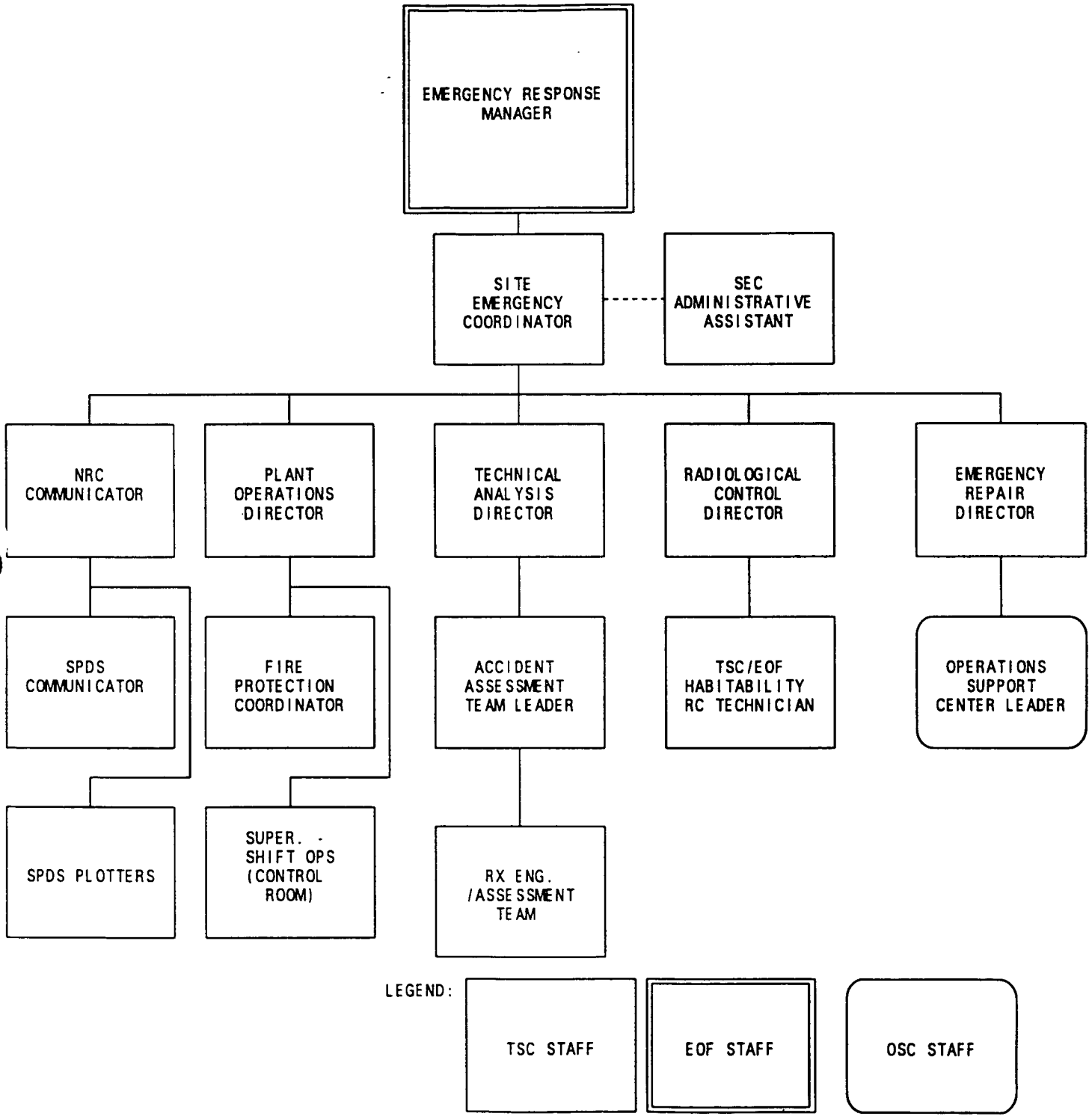
9.0 RECORDS

N/A

10.0 ATTACHMENTS

10.1 Technical Support Center (TSC) Organization Chart
10.2 Technical Support Center (TSC) Command Room Recommended Layout

TECHNICAL SUPPORT CENTER (TSC) ORGANIZATION



TECHNICAL SUPPORT CENTER (TSC)
COMMAND ROOM RECOMMENDED LAYOUT