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A045-

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

PLANT OPERATING MANUAL

EMERGENCY PLAN IMPLEMENTING PROCEDURE

**EM-102**

***OPERATION OF THE TECHNICAL SUPPORT CENTER***

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1.0 PURPOSE

- 1.1 Provide instructions for the activation, operation, evacuation and deactivation of the Technical Support Center (TSC).

The primary function of the TSC is to assume responsibility for Radiological Emergency Response Plan implementation from the Control Room, minimizing the number of personnel in the Control Room to those necessary to bring the plant to a safe condition. [NOCS 1031]

The TSC functions as a point of assembly for experienced plant personnel in the planning and re-entry/recovery operation.

1.2 General Information

- 1.2.1 The TSC is co-located at the bottom of the northeast corner of the berm with the Operational Support Center (OSC), and is activated whenever an Alert, Site Area Emergency, or General Emergency classification is declared. [NOCS 1068]
- 1.2.2 The TSC combines both management and emergency teams needed for assuring appropriate measures are taken to protect public health and safety in the event of an emergency.
- 1.2.3 Notification for activation of the TSC is by PA announcement, activation of the emergency group pagers and telephone notification. Enclosure 1 illustrates the setup for functional areas described in this procedure.
- 1.2.4 Personnel fulfilling the functions to declare the TSC operational should have the capability of responding within 45 minutes of notification. Enclosure 2 illustrates the organizational structure of the TSC. [NOCS 1137]

2.0 DEVELOPMENTAL REFERENCES

- 2.1 10CFR50.47, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities
- 2.2 10CFR50.47, Emergency Plans
- 2.3 CR-3 Severe Accident Guideline
- 2.4 EM-202, Duties of the Emergency Coordinator
- 2.5 Health Physics Basis Document (HPB) 98-16, Potassium Iodide Use Guidelines for Radiation Emergency Workers
- 2.6 NEI 91-04, Rev. 1, Severe Accident Issue Closure Guidelines
- 2.7 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.8 Radiological Emergency Response Plan
- 2.9 RSP-600, ALARA Planning
- 2.10 RTM-96, Response Technical Manual, Section J, Use of Potassium Iodide and Thyroid Monitoring

### 3.0 PERSONNEL INDOCTRINATION

#### 3.1 Definitions

- 3.1.1 **Activation** - to provide notification to emergency response personnel of the need to respond to the TSC/OSC for staffing and operation.
- 3.1.2 **Badge-in** – Present Security badge briefly to TSC Card Reader. This ensures accountability of TSC/OSC personnel during emergency.
- 3.1.3 **Operational** - the minimum functions are established, required equipment is in proper working order, and the EC has assumed responsibility and authority for the emergency condition.
- 3.1.4 **Severe Accident** - An accident beyond that assumed in the CR-3 design and licensing basis that results in catastrophic fuel rod failure, core degradation, and fission product release into the Reactor Vessel, Reactor Building, or the environment.
- 3.1.5 **Ventilation System Emergency Mode** – re-circulates air through charcoal and HEPA filters and makes the TSC/OSC habitable similar to the Control Room for postulated accident conditions. [NOCS 12030]

#### 3.2 Responsibilities

- 3.2.1
- a. Emergency Coordinator
    - o Turn-over from Control Room.
    - o Implement EC responsibilities as identified in EM-202 (classification, notification and Protective Action Recommendations).
    - o Coordinate and direct on-site emergency response.
    - o Classify/terminate the emergency in accordance with the Emergency Action Levels (EALs).
  - b. Radiation Controls (Chemistry and Radiation Protection)
    - o Brief the EC on radiation matters, especially those affecting Emergency Action Levels (EALs) and Protective Action Recommendations (PARs).
    - o Update Release Significant Category board.
    - o Administer Potassium Iodine (KI) in accordance with RTM-96, Section J and HPB-98-016 recommended dosage.
    - o Maintain a log of individuals taking KI.
  - c. Accident Assessment
    - o Brief the EC on plant status (items contained in EM-225, Enclosure 2), especially those impacting Emergency Action Levels or Protective Action Recommendations.
    - o Update Critical Safety Functions Status board.
    - o Provide communication path between TSC and Control Room.
    - o Implement Accident Assessment Team responsibilities as identified in EM-225.
  - d. Repairs (Maintenance)
    - o Mobilize Maintenance Department resources to assist in emergency repairs.
    - o Ensure OSC activated

- e. Communications/Report Preparation
  - o Prepare Florida Nuclear Plant Emergency Notification Message Forms, and relay necessary information to State Warning Point Tallahassee.
  - o Prepare Reactor Plant Event Notification Worksheets if Accident Assessment personnel NOT already communicating on ENS. Ensure necessary information is relayed to the NRC via the Emergency Notification System (ENS). [NOCS 3054]
- f. Security and Accountability
  - o Call in additional TSC support using Emergency Response Personnel Roster, as needed.
  - o Direct Security in the implementation of emergency security procedures including accountability of personnel, evacuation of personnel, and access control within the CR-3 Protected Area.
  - o Provide Emergency Medical Technician (EMT) coverage
  - o Ensure notification of the injured personnel's family(s) is accomplished. This notification is normally made by the injured individual's Supervisor.

3.2.2 Functions managed from, but NOT required to declare the TSC operational, are as follows:

- a. NRC Liaison/Assistant Emergency Coordinator
  - o Coordinate entry of NRC Incident Response Team into TSC and Control Room.
  - o Hold briefing with NRC upon arrival at TSC. Brief the NRC on following:
    - Event history
    - Latest status of emergency
    - Latest Protective Actions taken
    - Explain displays and Status Board information
    - Determine NRC position and introduce to CR-3 counterpart (Review Enclosure 3)
    - Discuss TSC/OSC layout and location of NRC phones (ENS, HPN, RSCL, PMCL NRC extensions)
  - o Assist NRC during the emergency condition by providing logistic support and keeping the NRC continually informed of plant status and possible radiological consequences.
  - o Update NRC on plans for emergency and recovery actions and needs for assistance.
  - o Assist EC as needed.
- b. NRC Health Physics Network (HPN) Talker
  - o Provide radiological and meteorological data to the NRC when requested via HPN phone. This position requires someone with extensive Health Physics experience.
- c. Status Board Keeper
  - o Maintain the "Radiological Emergency Conditions" status board.
  - o Update the following information and ensure it is current for reporting requirements:
    - Release Data
    - Weather Data
    - Affected Downwind Sectors
    - Recommended Protective Actions
  - o Update Release Significant board and other data, as needed.

- d. Administrative Support
  - o Ensure computer setup for TSC viewing and EOF access to log via computer.
  - o Log key events, equipment problems and radiological events.
  - o Ensure computer clock correct.
  - o Update clock message as needed for time and emergency classifications.
  - o Update team status as appropriate.
  - o Ensure EC holds briefings on hourly basis, at a minimum.
  - o Obtain State and NRC forms from Communications/Report Preparation when complete and fax to EOF, State, Bureau of Radiation Control, Citrus, Levy & Control Room as needed.
  - o Fax other pertinent information to EOF (e.g., signed copy of TSC logbook) as needed.
  - o Distribute incoming faxes as appropriate.
- e. Recall/SPDS Data Specialist
  - o Display Plant Parameters and trend data as identified by the EC or Accident Assessment Coordinator on display screens.

3.2.3 Document Services maintains manuals, procedures, and drawings in the TSC/OSC.

### 3.3 Limits & Precautions

3.3.1 The TSC/OSC ventilation system, when in the emergency re-circulation mode, supplies breathing air to support 50 people.

3.3.2 IF the occupancy of the TSC/OSC exceeds 50,  
AND the TSC/OSC ventilation is in the Emergency Recirculation Mode,  
THEN O<sub>2</sub> and CO<sub>2</sub> monitoring must be performed to ensure habitability.

3.3.3 Consideration should be given to the staffing levels outlined in Enclosure 2. [NOCS 63010]

3.3.4 IF the TSC/OSC is uninhabitable due to inadequate ventilation, radiological conditions, security emergency, flooding, or for other reasons,  
THEN areas in the Control Complex should become the alternate TSC/OSC.

3.3.5 IF an exposure of greater than 25 REM to the thyroid is expected,  
THEN the administration of KI should be considered.

3.3.6 The TSC/OSC flood level is 101'6", raised to 103' or greater with flood protection.

### 3.4 TSC/OSC EQUIPMENT AND SUPPLIES

#### 3.4.1 Emergency Kits and Equipment [NOCS 1126]

**NOTE**

HPP-409 identifies the supplies contained in the emergency Kits a-c.

- a. TSC/OSC Emergency Supplies
- b. Decontamination Supplies [NOCS 15130, 24200]
- c. Environmental Survey Supplies (located in Survey Vehicle and Nuclear Security Operations Center) [NOCS 24290]
- d. Calculators (4)
- e. Portable Continuous Air Monitor
- f. Dose Assessment Computer (RADDOSE)
- g. Plant parameters via computer (PICS) [NOCS 24120]
- h. Safety Parameter Display System (SPDS) [NOCS 24120]
- i. Sandpiper Pump (electric & manual)
- j. Printer/Viewer for microfiche
- k. CO<sub>2</sub>/O<sub>2</sub> Monitor
- l. Decontamination Shower and Sink
- m. Severe Accident fittings (2)

#### 3.4.2 Reference Materials

The built-in cabinets located in the TSC contain various manuals and reference material. A current list of reference material in these cabinets is listed in a folder on the inside of the main TSC cabinet. In the event it becomes necessary to move the TSC/OSC functions to an alternate location, consider the items marked with an asterisk as items that may need to be moved to the alternate location.

#### 3.4.3 Controlled Procedures and Drawings

Most controlled procedures and drawings are located in file cabinets in the OSC, on the east wall. Various OP, EOP and other procedures are located in the Accident Assessment/Dose Assessment room files and in individual TSC files. Drawings NOT in hardcopy form are available on aperture cards in files in the Dosimetry room.

#### 3.4.4 Supplies

Administrative supplies are located in various locations throughout the TSC and OSC.

### 3.4.5

#### Communications Equipment [NOCS 3053]

- a. Commercial Telephone including two NRC lines [NOCS 10520, 24070]
- b. Company Microwave System
- c. Local Government Radio (LGR)
- d. Florida Emergency Satellite Communication (ESATCOM)
- e. Emergency Notification System (ENS) [NOCS 10520, 24070, 24080]
- f. Health Physics Network (HPN) [NOCS 10520, 24070, 24080]
- g. Public Address Exchange System (PAX)
- h. State Hot Ringdown System (SHRD)
- i. Portable Transceivers (as assigned)
- j. Telecopy Machine (FAX)
- k. High and Low Band Base Stations [NOCS 24110]
- l. TSC/EOF Ringdown System
- m. Dose Assessment Ringdown System
- n. Accident Assessment Ringdown (CR- TSC/OSC)
- o. Portable Satellite phone
- p. RSCL (Reactor Safety Counterpart Link) [NOCS 10520]
- q. PMCL (Protective Measure Counterpart Link) [NOCS 10520]
- r. Backup Quickpager Unit for notifying emergency personnel

## INSTRUCTIONS

The steps under this section are NOT required to be performed in sequence.

Check the listing below for required TSC position and refer to the designated section for instructions. Positions NOT listed below perform job functions as needed to support TSC activities and as identified under responsibility Section, 3.2.2.

IF YOUR TSC POSITION IS:	REFER TO SECTION:
EMERGENCY COORDINATOR	4.1
RADIATION CONTROLS COORDINATOR	4.2
ACCIDENT ASSESSMENT COORDINATOR	4.3
REPAIRS COORDINATOR	4.4
COMMUNICATIONS/REPORT COORDINATOR	4.5
SECURITY COORDINATOR	4.6

#### 4.1 Emergency Coordinator

##### 4.1.1 Activation

4.1.1.1 BADGE IN at TSC Card Reader and PLACE name on TSC Staffing Board.

4.1.1.2 OBTAIN turnover briefing on status of emergency from Control Room, using Enclosure 4.

4.1.1.3 DETERMINE TSC/OSC habitability (release in progress, wind direction). If necessary, ENSURE TSC/OSC ventilation is put into emergency recirculation mode. (EM-104, Enclosure 6)

4.1.1.4 OBTAIN needed procedures and logbook.

4.1.1.5 TEST operation of TSC/OSC Public Address (PA) system.

##### 4.1.2 Operation

**NOTE**

The EC may assign available personnel to functions until the designated personnel are available.

4.1.2.1 ENSURE Functions required to declare the TSC operational include the following personnel with capability to perform minimum functions as identified in Section 3.2.1

- o Emergency Coordinator
- o Radiation Controls Coordinator
- o Security Coordinator
- o Accident Assessment Coordinator
- o Communications/Report Coordinator (One required for initial operation)
- o Repairs (Maintenance) Coordinator

4.1.2.2 DECLARE TSC operational within 60 minutes of declaration of an Alert, Site Area Emergency, or General Emergency. [NOCS 1137]

4.1.2.3 USE TSC PA for TSC announcements and briefings.

4.1.2.4 ANNOUNCE to staff that the TSC is Operational, and PROVIDE update on status of plant and times next state and NRC notifications are due.

- 4.1.2.5 CONSIDER announcing to plant staff that the TSC is operational.
- 4.1.2.6 INITIATE log of activities to document times, and results of significant actions.
- 4.1.2.7 ENSURE support functions are available as needed.
- 4.1.2.8 IMPLEMENT and DOCUMENT EM-202 responsibilities.  
IF unable to obtain original EM-202 from Control Room,  
THEN START TSC copy and REQUEST previous pages be faxed to TSC.

**NOTE**

Update briefings should be held hourly, at a minimum. These briefings should include a brief update from every required function at the table or as a summary from the EC. These briefings are heard throughout the TSC and OSC and each person speaking is to speak into the microphone, identify themselves and what function they are representing.

- 4.1.2.9 CONDUCT initial and periodic briefings.
- 4.1.2.10 UPDATE the TSC on any of the following as it occurs:
  - o Change in emergency classification
  - o Change in Protective Action Recommendations
  - o Significant plant evolutions, equipment failures, releases
  - o EOF operational (EOF assumes State notification, Protective Action Recommendations, Dose Assessment)
- 4.1.2.11 ENSURE classifications, notifications and PARs are performed as required, as the TSC staff becomes focused on accident assessment and mitigation activities.
- 4.1.2.12 ENSURE emergency teams are dispatched as needed.
- 4.1.2.13 APPROVE Emergency RWP and Emergency Team Authorization forms according to EM-104 as needed.
- 4.1.2.14 OBTAIN guidance as needed on radiological and habitability matters, accident mitigation, repair and security functions.
- 4.1.2.15 ENSURE the Radiological Emergency Conditions Status Board has updated Protected Action Recommendations (PARs) for reports made to the NRC and State of Florida.
- 4.1.2.16 ENSURE TSC/OSC habitability is maintained. If necessary, EVACUATE to Alternate TSC and OSC areas in the Control Complex.
- 4.1.2.17 ENSURE the NRC and the EOF Director are informed of plant status.
- 4.1.2.18 REVIEW and APPROVE mitigation strategies during a Severe Accident as developed by the Accident Assessment Team.

**NOTE**

A separate notification is required to the NRC for each occasion defined by 50.54x. Once a Severe Accident is declared, 50.54 (x)(y) applies. Only one notification to the NRC is required while in a Severe Accident.

- 4.1.2.19 IMPLEMENT 10CFR50.54(x)(y) as required. DOCUMENT time entered and reason.

**NOTE**

The TSC Accident Assessment Team is responsible for determining emergency and non-emergency notifications to the NRC as defined in CP-151.

- 4.1.2.20 ENSURE Accident Assessment Team notifies the NRC and the Control Room of 10CFR50.54(x)(y) decisions. The TSC AAT is responsible for non-emergency related reportability.

**4.1.3 Evacuation**

- 4.1.3.1 EVACUATE the TSC/OSC based on:

- o Radiological data obtained by the Radiation Monitoring Team and recommendations of the Radiation Controls Coordinator.
- o Inadequate ventilation (CO<sub>2</sub>/O<sub>2</sub>).
- o Violent weather conditions.
- o Other conditions warranting evacuation.

- 4.1.3.2 REVIEW Enclosure 5 prior to evacuation.

- 4.1.3.3 DETERMINE required staff needed based on plant conditions and RELOCATE to rooms adjacent to the Control Room as identified in Enclosure 6.

- 4.1.3.4 IF emergency teams are designated to relocate to the Control Complex  
THEN DIRECT them to the 124' elevation of the Control Complex.

- 4.1.3.5 IF flooding is projected,  
THEN TAKE precautions as outlined in Enclosure 5 and in EM-220.

**4.1.4 Deactivation**

- 4.1.4.1 DIRECT deactivation/termination of TSC/OSC after concurrence with the Control Room, EOF Director, State of Florida and NRC and as identified in EM-202.

- 4.1.4.2 DIRECT TSC/OSC staff to collect all documentation and submit to Emergency Preparedness staff.

- 4.1.4.3 DIRECT TSC/OSC staff to ensure equipment and materials are returned to their pre-activation status, if possible.

- 4.1.4.4 DIRECT TSC/OSC staff to identify equipment and supply deficiencies to Emergency Preparedness.

4.1.5 Shift Change for Declared Emergencies

4.1.5.1 The Emergency Coordinator is responsible to:

- ASSESS need for continued long-term support
- IDENTIFY the emergency positions necessary for maintaining adequate response
- ESTABLISH time for alternates to be at facility
- REQUEST the individuals currently filling the position to contact their alternate

4.1.5.2 Individuals currently filling the position are responsible to:

- CONTACT alternate for relief
- PROVIDE the name of the alternate to the EC
- BRIEF the on-coming alternate thoroughly of actions taken and in-progress, summarizing the scenario and how their position is affected

## 4.2 Radiation Controls Coordinator

### 4.2.1 Activation

4.2.1.1 BADGE IN at TSC Card Reader and PLACE name on TSC Staffing Board.

4.2.1.2 DETERMINE TSC/OSC habitability (release in progress, met data, air monitoring system). If necessary, NOTIFY the EC to put the TSC/OSC ventilation into the emergency re-circulation mode.

4.2.1.3 PERFORM the following as minimum functions to declare the TSC operational: (REFER TO EM-202 Enclosure 2)

- o DETERMINE Release Significant Category
- o DETERMINE radiological and chemistry matters affecting EALs and PARs.

4.2.1.4 IF release in progress,  
THEN OBTAIN information on release and core status from REDAS, SPDS/RECALL,  
AND DETERMINE Release Significance Category.

4.2.1.5 OBTAIN logbook and procedures, as needed.

4.2.1.6 TEST push-to-talk headsets, as needed.

4.2.1.7 BRIEF the EC on radiation issues, especially those affecting EALs and PARs.

4.2.1.8 IF emergency occurs off hours,  
THEN ENSURE OSC Chemistry and Health Physics Coordinators staff the OSC,  
AND ENSURE an adequate number, as identified on page 2 of Enclosure 2, of qualified Radiation Monitoring Team, Dose Assessment Team and Sample Team members are notified to respond.

### 4.2.2 Operation

4.2.2.1 ASSIGN an individual to the Dose Assessment Ringdown in the Control Room to monitor radiological and meteorological data.

4.2.2.2 NOTIFY OSC Health Physics and Chemistry Coordinators and the EST Dispatcher to determine availability of the Dose Assessment Team, Sample Team and Radiation Monitoring Teams and their readiness to perform:

- Dose projection
- Re-entry coverage
- Chemistry
- Environmental monitoring
- Dosimetry

4.2.2.3 PROVIDE the Radiological Dose Assessment Data for the Supplemental Data Sheet of the Florida Nuclear Plant Emergency Notification Form to Communicator/Report Coordinator as requested.

4.2.2.4 REQUEST Sample Team dispatches through TSC Repairs Coordinator. Contact OSC Chemistry Coordinator, as needed, to discuss dispatch.

4.2.2.5 ENSURE the setup and testing of monitoring and counting equipment is taking place and qualified individuals are available to operate and interpret the data from this equipment.

4.2.2.5.1 ENSURE monitoring of TSC/OSC for radiological, O<sub>2</sub> and CO<sub>2</sub> (when TSC in Recirc) is accomplished and EVALUATE Total Risk associated with ventilating with outside air, in accordance to EM-210A, Section 4.2.

4.2.2.6 ENSURE Emergency Teams and security personnel have TLDs, and area TLDs are established throughout the TSC/OSC.

- 4.2.2.7 ASSIGN anyone with extensive Health Physics experience to the Health Physics Network as a communicator when necessary.
- 4.2.2.8 ENSURE Status Board keeper is available for updating Radiological Conditions on Status Boards.
- 4.2.2.9 ENSURE Release Significant Status is updated. REFER TO Enclosure 2 of EM-202 for Release Significance Guidance.
- 4.2.2.10 INITIATE log of activities to document times and results of significant actions.

**NOTE**

The TSC/OSC ventilation should be placed into the emergency re-circulation mode at the discretion of the EC or Radiation Controls Coordinator.

- 4.2.2.11 IF the outside iodine concentration is estimated to be >1 DAC, THEN CONSIDER placing the TSC ventilation into the emergency recirculation mode.

**CAUTION**

Individuals who have known allergies to iodide should NOT be issued KI as KI could produce the same allergic reaction.

- 4.2.2.12 ISSUE KI as needed when the calculated dose of 25 Rem to the thyroid is determined.
- 4.2.2.12.1 ISSUE one KI tablet to each individual who is to receive KI. One tablet equals 130 mg. RTM-96 recommended dosage is 130 mg./day for a minimum of three days.
- 4.2.2.12.2 DOCUMENT in TSC Radiation Controls Coordinator log or OSC Health Physics Coordinator log the following:
  - (a) Lot number and expiration date of the KI administered.
  - (b) Name and badge number of each individual the KI was given.
  - (c) IF a bottle of KI tablets is given to a Supervisor for distribution, THEN the Supervisor is responsible for documenting names of those receiving KI.
  - (d) Name of any individual declining to take the KI and the reason for NOT taking the drug.
- 4.2.2.13 UPDATE Emergency Coordinator with the following information: [NOCS 13040]
  - Radiological aspects of the event
  - TSC/OSC area dose rate information
  - Potential reclassification of the event based on radiological conditions
  - When TSC/OSC ventilation should be put into recirculation based on radiological, CO<sub>2</sub> or O<sub>2</sub> results
- 4.2.2.14 UPDATE Accident Assessment with the following information as plant conditions change:
  - Radiation Monitor readings and assessments
  - Release status (magnitude, direction, relative severity)
  - PASS data
  - RCS
    - Radionuclide composition
    - Chloride concentration
    - pH
    - Dissolved Hydrogen concentration
    - Boron concentration
  - Containment Atmosphere - Radionuclide composition
  - Sample results for estimation of core damage

- 4.2.2.15 PROVIDE ongoing technical and administrative direction to OSC Chemistry and Health Physics Coordinators.
- 4.2.2.16 ENSURE TSC staff is aware of offsite radiological conditions and meteorological data.
- 4.2.2.17 REVIEW Enclosure 3 for possible NRC Incident Response personnel functions, and provide assistance as needed.
- 4.2.2.18 PROVIDE the Security representative with radiological conditions to ensure Security patrols are properly protected.
- 4.2.2.19 IF Security Personnel are required to evacuate,  
THEN DISCUSS suspension of Safeguards with EC.
- 4.2.2.20 ENSURE the status Board is updated.
- 4.2.2.21 ENSURE TLDs are issued to TSC/OSC personnel (non-team members) as time permits.
- 4.2.2.22 IF non-essential personnel are evacuated from the Site,  
AND personal vehicles are contaminated,  
THEN COORDINATE washdown stations with EOF.
- 4.2.2.23 SEND Health Physics Technicians to EOF for monitoring as requested by EOF Radiation Controls Manager/Corporate Health Physicist.

4.3 Accident Assessment Coordinator

4.3.1 Activation

4.3.1.1 BADGE IN at TSC Card Reader and PLACE name on TSC Staffing Board.

4.3.1.2 PERFORM the following as minimum functions to declare the TSC operational:

- o DETERMINE Critical Safety Functions
- o Ability to BRIEF EC on plant status to include impact of EALs or PARs through use of either SPDS or phone link established with Control Room.

4.3.2 Operation

4.3.2.1 PROVIDE plant status for the Supplemental Data Sheet of the Florida Nuclear Plant Emergency Notification Form as required by Communication/Report Coordinator.

4.3.2.2 REFER to EM-225 and COORDINATE Accident Assessment Team activities to implement the following:

- o INITIATE log of activities to document times and results of significant actions.
- o ENSURE EC informed of AAT activities and developments in plant status, especially those that may impact Emergency Action Levels and Protective Action Recommendations.
- o ENSURE Control Room is informed of changing radiological conditions and ongoing TSC activities, including accident mitigation priorities.
- o PROVIDE engineering support to develop mitigation strategies.
- o ENSURE direct communications with AAT at the EOF is established as needed.
- o MAINTAIN Critical Safety Function Status Board.
- o ENSURE the EC and Radiation Controls Coordinator informed of core status.
- o ENSURE the effects of proposed maintenance activities and operational manipulations on plant equipment are evaluated.
- o REQUEST operator support through Repairs Coordinator once operators established in OSC.
- o EVALUATE and develop mitigation strategies using the CR-3 Severe Accident Guideline during a Severe Accident. [NOCS 100056]
- o REQUEST repair activities through TSC Repairs Coordinator.

#### 4.4 Repairs Coordinator

##### 4.4.1 Activation

4.4.1.1 BADGE IN at TSC Card Reader and PLACE name on TSC Staffing Board.

4.4.1.2 IF TSC/OSC needs to be put into emergency recirculation mode (per Emergency Coordinator, Radiation Controls Coordinator ),  
THEN ENSURE emergency recirculation mode is established by OSC.

4.4.1.3 PERFORM the following as minimum functions to declare the TSC operational:

- o MOBILIZE OSC personnel
- o DETERMINE on-going maintenance activities

4.4.1.4 OBTAIN Maintenance Logbook and procedures, as needed.

4.4.1.5 TEST push-to-talk headsets, as needed.

4.4.1.6 ESTABLISH communications with OSC Manager, and request status on emergency teams in the field.

4.4.1.7 IF emergency occurs off hours,  
THEN ENSURE OSC Maintenance Coordinator or OSC Manager staff the OSC,  
AND NOTIFY an adequate number, as identified on page 2 of Enclosure 2, of qualified Emergency Repair Team members to respond.

4.4.1.8 PERFORM as OSC Manager, as necessary, until relieved.

##### 4.4.2 Operation

4.4.2.1 INITIATE log of activities to document times and results of repair activity.

4.4.2.2 MAINTAIN direct communications with OSC Manager

4.4.2.3 IDENTIFY equipment repair priorities as established by the TSC (EC and Accident Assessment) and COORDINATE with OSC Manager for implementation.

4.4.2.3.1 UPDATE TSC Priority and Equipment Out-of-Service board.

4.4.2.4 NOTIFY the OSC Manager for Repair Team, Sample Team, and Operator dispatch as requested by the TSC.

4.4.2.5 ENSURE requests for operator dispatch with Teams is cleared with the Accident Assessment Coordinator before dispatch.

4.4.2.6 ENSURE the Emergency Coordinator and Accident Assessment Coordinator are immediately aware of major plant repairs.

4.4.2.7 MAINTAIN awareness of OSC Team Activity and ensure OSC repair status is properly updated on the TSC display of Team status.

4.4.2.8 ENSURE the Emergency Coordinator concurs with Team dispatch.

#### 4.5 Communication/Report Coordinator

##### 4.5.1 Activation

4.5.1.1 BADGE IN at TSC Card Reader and PLACE name on TSC Staffing Board.

4.5.1.2 OBTAIN logbook.

4.5.1.3 OBTAIN necessary procedures.

4.5.1.4 PERFORM the following as minimum functions to declare the TSC operational:

- o PREPARE Florida Nuclear Plant Emergency Notification Form, as necessary (also referred to as State Form).
- o PREPARE Reactor Plant Event Notification Worksheet, as necessary.

4.5.1.5 Make copies of State and NRC Reactor Plant Event Notification form Enclosures from EM-202 for use as needed.

4.5.1.6 NOTIFY additional communicators, as identified on page 2 of Enclosure 2, for support. COMBINE functions as necessary.

##### 4.5.2 Operation

4.5.2.1 OBTAIN times of last State and NRC notification from EC and PREPARE next report.

4.5.2.2 OBTAIN copy of previous notifications made in Control Room from EC or Administrative Support.

4.5.2.3 MAINTAIN Notifications Board and ENSURE updates are timely.

4.5.2.4 REQUEST Supplemental Data for State Form from Accident Assessment and Radiation Controls.

4.5.2.5 ENSURE the State Form is prepared as required, following guidelines associated with form and faxing forms to Group 1.

4.5.2.6 PREPARE Reactor Plant Event Notification Worksheet, as needed.

4.5.2.7 ENSURE the following EM-202 notifications and updates are documented: [NOCS 21207]

- State notification and updates (via SWPT, Commercial line, ESATCOM or LGR)
- NRC notification and updates via ENS
- Resident NRC notification (if NOT previously done by Control Room)
- Notification of event and updates to Units 1,2,4,5
- Notification of Risk Management (to notify ANI and NEIL). It is acceptable to leave voice message and ask them to return call to (352) 795-5078.

**NOTE**

Once NRC is on ENS continuously, Reactor Plant Event Notification Worksheet forms are NO longer required to be filled out.

- 4.5.2.8 IF NRC requests ENS/NRC Communicator to stay on the line for operational updates, THEN ENSURE the Accident Assessment Coordinator appoints someone who has extensive operational experience and is well versed on the emergency condition. [NOCS 96042]
- 4.5.2.9 ENSURE once EOF is operational, the TSC/EOF Ringdown between the EOF and TSC is established for communicating plant status, TSC actions, EOF actions, State and County actions. UPDATE the EC and boardkeeper on Protective Action, State and County actions, as significant information is received from the EOF.
- 4.5.2.10 ENSURE proper turnover to EOF for notifications.
- 4.5.2.11 INITIATE log of activities to document times and results of significant actions.
- 4.5.2.12 EVALUATE needs of Communications/Report Preparation personnel once EOF is operational and dismiss as necessary for future relief shift.

4.6 Security Coordinator

4.6.1 Activation

4.6.1.1 BADGE IN at TSC Card Reader and PLACE name on TSC Staffing Board.

4.6.1.2 ENSURE card readers are used upon entry and exit to TSC/OSC during emergency conditions to provide accurate accountability throughout the emergency.

4.6.1.3 PERFORM the following as minimum functions to declare the TSC operational:

- o CALL IN additional TSC/OSC support as requested.
- o MOBILIZE Security personnel to perform personnel accountability and evacuation, as needed.

4.6.1.4 OBTAIN logbook and procedures as necessary.

4.6.2 Operation

4.6.2.1 ENSURE proper Security staffing to perform access control, personnel accountability, and badging of external responders.

4.6.2.2 INITIATE log of activities to document times, actions and results.

4.6.2.3 ESTABLISH and MAINTAIN contact with Plant, Corporate Security and Main Assembly Area Supervisor, as appropriate.

4.6.2.4 NOTIFY Corporate Security immediately upon Site Area Emergency declaration.

4.6.2.5 ENSURE availability of EMT and possibility of calling additional qualified EMTs for standby.

4.6.2.6 NOTIFY EC of evacuation status and accountability of CR-3 and Units 1,2,4 and 5. Protected Area Accountability must be completed within 30 minutes of Site Area Emergency evacuation.

4.6.2.7 DETERMINE coordination efforts needed by Security supervision dispatched to perform functions associated with the Main Assembly Area Supervisor.

4.6.2.8 ENSURE Security personnel inform the TSC immediately when EMTs are dispatched.

4.6.2.9 ENSURE Security personnel (including EMTs) maintaining posts or responding to an emergency scene during radiological conditions are coordinated with the Radiation Controls Coordinator for RMT coverage.

4.6.2.10 INFORM Security personnel of the overall radiological conditions of the plant to include instrumentation, TLDs, and protective clothing as indicated by the Radiation Controls Coordinator.

4.6.2.11 IF suspension of Safeguards per Security Plan is required,  
THEN COORDINATE with EC,  
AND ENSURE 10CFR50.54(x)(y) is invoked.

4.6.2.12 IF suspension of Safeguards has been invoked,  
AND Security personnel have been evacuated,  
THEN OBTAIN key for OSC Team dispatch into locked plant areas.

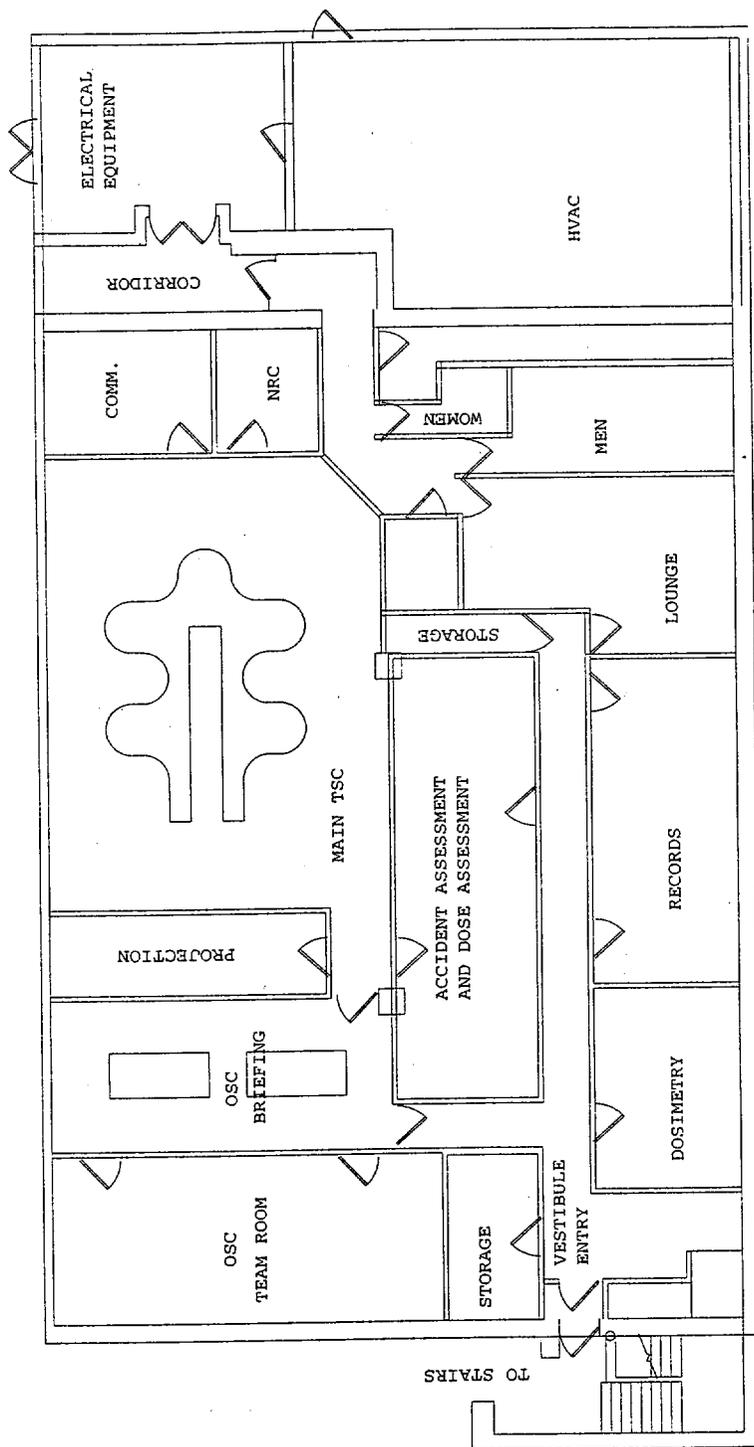
4.6.2.13 IF Security personnel are evacuated,  
THEN ENSURE EMT reports to TSC/OSC.

4.6.2.14 DETERMINE if additional Personnel Protective Equipment (PPE) is needed by OSC personnel.

4.6.2.15 IF OSC Manager determines additional PPE is needed,  
THEN REQUEST Security to bring visitor PPE supplies to OSC.

4.6.2.16 In the event of injury, ENSURE notification of injured individual's family (s) is made. This is normally performed by the injured individual's Supervisor.

TSC/OSC Floor Plan  
(NOCS 10520, 20470)





TSC/OSC Staffing  
[NOCS 24060, 63010]

TSC

<u>FUNCTION</u>	<u>INDIVIDUALS</u>
Emergency Coordinator	1
Administrative Support	1
NRC Liaison/Assistant Emergency Coordinator	1
*Radiological Emergency Planning	1
*State/NRC Form Preparation	1
TSC/EOF Ringdown Communicator	1
*SWPT Communicator	1
Repairs/Maintenance	1
Radiation Controls	1
HPN Communicator	1
ESV Dispatcher 1	
*Dose Assessment Team	1-3
Accident Assessment	3
Accident Assessment Ringdown Communicator	1
Engineers	2
Security 1	
NRC Resident	1
Other NRC (NOT part of initial staffing)	5

OSC

Emergency Teams	
Radiation Monitoring Teams	12 (4 ESV)
Sampling Team	3
Emergency Repair Team (Elec, I/C, Mech)	7 (2 elec, 2 I/C, 3 mech)
Operators (when available)	2
OSC Manager	1
OSC Health Physics Coordinator	1
OSC Chemistry Coordinator	1
OSC Maintenance Coordinator	1
Fire Assessment	1
Procurement	1
Admin Support	1
Engineer (Engineering support as needed)	1
EMT	1
Fire Brigade (Main Assembly Area as needed)	10

\* Once the EOF is operational and these functions are supported at the EOF, TSC function can be discontinued.

### Possible NRC Incident Response Team Members at TSC/OSC

If CR-3 enters a GENERAL EMERGENCY, and possibly a SITE AREA EMERGENCY, the NRC sends an Incident Response Team. The following represents possible NRC positions that could be at the TSC/OSC and the CR-3 counterpart.

**Senior Resident Inspector/Operations Coordinator** - Verifies accuracy of information provided by licensee. Establishes open line from TSC to NRC. Briefs the NRC Site Team Leader. Will want to be briefed on plant status, radiological conditions, special instructions before proceeding into the 10-mile EPZ. Establishes contact and manages other NRC on-site.

This individual stays at the TSC and coordinates NRC functions through NRC Liaison or Emergency Coordinator.

**Reactor Safety/Operations Coordinator** Needs overall status of facility - sequence and details of the events in progress, classification of the event, emergency core cooling, ability to achieve/maintain adequate core cooling, degree of core damage or potential damage, potential consequences, status of safety related or important to safety equipment including ultimate heat sink, vital shutdown equipment and vital electrical distribution, containment integrity, licensee actions taken or to be taken to mitigate the consequences.

CR-3's counterpart is the "Accident Assessment Team."

**Reactor Safety Counterpart Link (RSCL) Or Emergency Notification System (ENS) Communicator** - One or the other will be at the TSC, NOT both. NRC management has their discussions over the RSCL by reporting reactor safety-related recommendations, decisions and implementation status to headquarters.

As CR-3 supplies information over ENS, NRC monitors the exchange of the reactor safety technical data. The NRC RSCL communicator is stationed in NRC office or with the Accident Assessment Team.

**Radiation Safety Coordinator** - Monitors CR-3s radiological survey program, actions to ensure radiation protection of emergency workers, evaluates and recommends protective measures for in-plant personnel, ensures radiological safety of NRC emergency workers, assess and report to NRC status on in-plant surveys, monitored releases, radwaste systems, licensee and NRC personnel exposures.

CR-3's counterpart is the Radiation Controls Coordinator or the OSC Health Physics Coordinator.

**Health Physics Specialist/In-Plant Coordinator** - Assesses status of on-site/in-plant radiological systems and equipment, monitors HP activities, evaluates on-site protective measures and makes appropriate recommendations, monitors in-plant surveys, releases, radwaste systems.

CR-3's counterpart is the OSC Health Physics Coordinator.

**Health Physics Network (HPN) Monitor Or Protective Measures Counterpart Link (PMCL)** - One or the other is at the TSC, NOT both. NRC management holds discussions over the PMCL. CR-3's HPN talker provides radiological data. NRC monitors and requests information such as: plant conditions as they relate to source term, source term information, meteorological data and forecasts, dose projections, survey data, contamination levels, sample results, personnel exposures.

NRC monitors the PMCL from the NRC Office.

Facility Turnover/Briefing Worksheet

A. STATUS OF EMERGENCY PLAN IMPLEMENTATION

1. TIME: Alert \_\_\_\_\_ Site Area Emergency \_\_\_\_\_ General Emergency \_\_\_\_\_
2. EALs met. \_\_\_\_\_  
\_\_\_\_\_
3. Time SWPT Notification Due: \_\_\_\_\_ Time NRC Notification Due: \_\_\_\_\_
4. Release Significance Category \_\_\_\_\_ EM-204A completed \_\_\_\_\_
5. EM-202 EC guide completed through step \_\_\_\_\_ (fax copy)
6. Energy Complex protective actions: \_\_\_\_\_
7. Offsite Protective Action Recommendations made: \_\_\_\_\_
8. EOP status: \_\_\_\_\_  
\_\_\_\_\_

B. PLANT STATUS: Degrading \_\_\_\_\_ Stable \_\_\_\_\_ Improving \_\_\_\_\_

1. Is the reactor shutdown? \_\_\_\_\_
2. Is the core adequately cooled? \_\_\_\_\_
3. Fission product barriers Assessment:
 

Fuel clad	<input type="checkbox"/> Intact	<input type="checkbox"/> Challenged	<input type="checkbox"/> Lost	<input type="checkbox"/> Regained
RCS	<input type="checkbox"/> Intact	<input type="checkbox"/> Challenged	<input type="checkbox"/> Lost	<input type="checkbox"/> Regained
Containment	<input type="checkbox"/> Intact	<input type="checkbox"/> Challenged	<input type="checkbox"/> Lost	<input type="checkbox"/> Regained
4. Electrical Power Status:
 

Off-Site Power Available?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
ES Buses Energized?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Emergency Diesel Generator's Available?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
DC Power Available?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
5. Control Complex Status:
 

Ventilation/Cooling Available?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Necessary instrumentation Available?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
6. Other Conditions/Challenges: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Contingency Plan for Securing TSC/OSC and Establishing An Alternate TSC/OSC

**EQUIPMENT AVAILABLE IN CONTROL ROOM:**

CHECK

- a. Commercial Telephone System
- b. Company Microwave
- c. Dose Assessment Ringdown Telephone
- d. State Hot Ringdown
- e. Florida ESATCOM
- f. Emergency Notification System (ENS)
- g. PAX System
- h. Accident Assessment Ringdown
- i. Portable Transceivers (as assigned by the EC)
- j. PICS
- k. RADDOSE IV (on computer in the office adjacent to the Control Room)
- l. Telecopy machine (Fax)

**BEFORE GOING TO ALTERNATE LOCATION (ADJACENT TO CONTROL ROOM)**

- a. IDENTIFY minimum staff necessary based on plant conditions. \_\_\_\_\_
- b. CONSIDER taking items identified with "" on list of TSC cabinet. \_\_\_\_\_
- c. TAKE satellite phone(s) (located in TSC cabinet) if conditions warrant. \_\_\_\_\_
- d. TAKE LGR to alternate location and connect in SSO office outside Control Room. \_\_\_\_\_
- e. TAKE Quickpager to alternate location. \_\_\_\_\_

**STEPS TO SECURE TSC/OSC IF STORM SURGE IS EXPECTED**

- a. PLACE high value items on tables:
  - Computers and peripherals \_\_\_\_\_
  - Communication equipment \_\_\_\_\_
  - Anything else that can be placed on tables \_\_\_\_\_
- b. VERIFY flood protection is placed around TSC/OSC (EM-220). \_\_\_\_\_
- c. ENSURE appropriate TSC equipment is de-energized (EM-220, Encl. 2). \_\_\_\_\_
- d. DISABLE auto start on diesel by selecting the "Auto/Test" switch to the center "Off" position on the generator Kohler Controller, AND notify Security. \_\_\_\_\_
- e. RELOCATE to Alternate TSC and ENSURE plant personnel/Security is informed of new TSC/OSC location. \_\_\_\_\_

Alternate TSC/OSC Control Complex Area Setup and Staffing Guidelines  
[NOCS 24130]

**CAUTION**

Once the Control Complex is placed in the Emergency Recirculation Mode, and the Alternate TSC/OSC is operational, O<sub>2</sub> and CO<sub>2</sub> monitoring must be performed according to EM-210A to ensure habitability.

**OPERATION OF THE ALTERNATE TSC**

The focus for Alternate TSC operation is to assume responsibility for emergency declarations, off-site notifications, and PAR decision making. Traffic into the Control Room must be kept to a minimum.

This enclosure identifies areas outside the Control Room for Alternate TSC operation. Minimum requirements as identified in Section 3.2.1 must be maintained. Additional responsibilities as identified in Section 4.0 are implemented as necessary.

**OPERATIONS BREAK AREA**

ACTIVITY - Serves as the main TSC conference room

PERSONNEL - Emergency Coordinator, Radiation Controls Coordinator, Accident Assessment Coordinator, Repairs Coordinator, Report Preparation/Communications, Security Coordinator, Accident Assessment Ringdown Communicator and NRC representative.

SETUP - Arrange TSC functions around the table, adding chairs as needed. The Accident Assessment Ringdown telephone must be connected.

OPERATION - Required TSC function personnel will need to access information from the Control Room to keep the EC and other functions informed. The Accident Assessment Ringdown must be maintained. This provides communication with the Control Room and is monitored by the EOF Accident Assessment Team.

**AREA ADJACENT TO THE BREAK ROOM**

ACTIVITY - Communication by PAX with emergency team personnel located on 124' elevation. Possible work area for Accident Assessment personnel.

SETUP - NO setup required. PICS is on computer in this area. One PAX phone in area.

OPERATION - Repairs Coordinator maintains contact with Emergency Teams located on the 124' elevation by radio or at PAX number 237. Communication to teams located on the 124' elevation should be established and maintained as much as possible to keep them informed of changing plant conditions. As teams are requested to be dispatched, personnel should be identified and briefed on the 124' elevation.

#### ADMIN. SUPPORT OFFICE OUTSIDE OF CONTROL ROOM

ACTIVITY - Dose assessment, dispatch of EST

PERSONNEL - Dose Assessment Team and EST Dispatcher

SETUP - REDAS and RADDOSE IV are installed on computer in room

OPERATION - Perform dose projections until the EOF DAT is operational. The phone will be used for contacting the EOF DAT for communication with the Off-site RMT. Update TSC staff as needed for dose projections and Environmental Survey Team results.

#### SUPERINTENDENT SHIFT OPERATION OFFICE

PERSONNEL - To be used as needed by TSC personnel.

SETUP - NO setup required. REDAS is on this computer. Office is location for backup LGR connection.

#### 124' ELEVATION

ACTIVITY - Team Staging Area.

PERSONNEL - Fire Brigade, Sample Team, Emergency Repair Team, Radiation Monitoring Team (on-site), Security.

SETUP - Setup may include chairs, tables and emergency kits as needed.

OPERATION - The OSC Manager remains on 124' elevation with emergency teams. He should assign someone to the PAX phone to remain in communication with the Alternate TSC. Teams are dispatched as needed according to EM-104. OSC Coordinators may be on 124' with teams or may reside across from the Control Room, as needed.

#### CONTROL ROOM - (See Enclosure 5 for available communication/equipment)

ACTIVITY - State Warning Point notifications on SHRD, NRC Operations Center notifications on ENS, Accident Assessment Ringdown communications to Alternate TSC conference room, Dose Assessment Ringdown communications to EOF, SPDS data gathering.

PERSONNEL - Communications/Report Preparation, Dose Assessment communicator, Accident Assessment.

SETUP - Use Control Room equipment, as needed. NO setup required other than headsets if desired.

OPERATION - Alternate TSC personnel enter the Control Room as necessary and use the designated equipment to complete their duties. Once EOF is operational, State notification and Dose Assessment responsibilities transfer. Accident Assessment personnel observe plant parameters on the SPDS computer in Computer Main Cabinet #5 or on the main control board as accessible.

# PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0102

New Rev: 43

PRR#: 21293

Title: OPERATION OF THE TECHNICAL SUPPORT CENTER

## MINOR CHANGES

If Minor Changes are included, check the applicable box(es) and provide a list of affected steps.  
The following corrections are incorporated throughout:

- |   |   |
|---|---|
| <input type="checkbox"/> Sentence Structure   | <input type="checkbox"/> Redundant words or phrases                 |
| <input type="checkbox"/> Punctuation  | <input type="checkbox"/> Abbreviations                              |
| <input type="checkbox"/> Capitalization   | <input type="checkbox"/> Obviously incorrect units of measure       |
| <input type="checkbox"/> Spelling   | <input type="checkbox"/> Inadvertently omitted symbols (#, %, etc.) |
| <input type="checkbox"/> Organizational Changes: position titles,<br>department names, or telephone numbers | <input type="checkbox"/> Obvious step numbering discrepancies       |
|   | <input type="checkbox"/> Format                                     |

The following corrections are incorporated in the step(s) indicated: "Throughout" is used in lieu of Step# if a specific change affects a large number of steps.

Changing information that is obviously incorrect and referenced correctly elsewhere

Misplaced decimals that are neither setpoint values nor tolerances

Reference to a procedure when an approved procedure has taken the place of another procedure

Fixing branching points when it is clear the branching steps were originally intended but were overlooked or incorrectly stated due to step number changes

Adding clarifying information such as NOTES and CAUTIONS

Adding words to clarify steps, NOTES, or CAUTIONS which clearly do not change the methodology or intent of the steps

# PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0102                      New Rev: 43                      PRR#: 21293  
Title: OPERATION OF THE TECHNICAL SUPPORT CENTER

## NON-INTENT CHANGES

Changes are incorporated for the reasons provided. "Throughout" is used in lieu of Step # if a specific change affects a large number of steps. For new or cancelled procedures the reason is provided.

Throughout	Changed Dose Assessment Coordinator to Radiation Controls Coordinator. More in line with activities performed. (NUPOST 101568)
3.2.2 c	Changed "Dose Assessment Status Board Keeper" to Status Board Keeper. More in line with activities performed. (NUPOST 101568)
4.1.2.20	Added NOTE to state that the Accident Assessment Team is responsible for determining emergency and nonemergency notifications to the NRC as defined in CP-151, External Report Requirements.
4.1.4.2	Changed Emergency Planning Staff to Emergency Preparedness - title change.
4.1.5	Added section for Shift Change for declared emergencies. This has been located in EM-206 and REP-02 and is being moved to appropriate procedure implementation for the EC and EOF Director (NUPOST 97806 and 98556)
4.2.2.8	Clarified statement to ensure status board keeper is available for updating radiological conditions on status board.
4.2.2.23	Added responsibility for Radiation Controls Coordinator to send HP Techs to EOF for monitoring as requested by EOF Radiation Controls Manager/Corporate Health Physicist.
Enclosure 6	Change Nuclear Shift Manager to Superintendent Shift Operations
2.9	Changed ALARA Program to ALARA Planning (title change)
3.1 NOTE	Deleted NOTE for 50.59 exemption. Emergency Plan Implementing procedures are no longer exempt from process.
3.2.2.e	Added SPDS/Recall position. This position was removed from an earlier revision, however is one of the TSC positions for assisting Accident Assessment.
3.4.1	Deleted reference to Radiation Monitoring Kit. The names of these kits have been changed to the TSC/OSC Emergency Supplies. Relettered remaining items on list appropriately.
4.2.2.7	Eliminated titles and assigned anyone with Health Physics experience to the HPN phone.
Enclosure 2	Added Fire Brigade numbers of 10 to be called in as needed. These individuals will be in Main Assembly Area until needed during day shift. (NUPOST 98065)

**PROCEDURE DEVELOPMENT AND REVISION RECORD**

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Procedure: EM0102

New Rev: 43

PRR#: 21293

Title: OPERATION OF THE TECHNICAL SUPPORT CENTER

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FLORIDA POWER  
CRYSTAL RIVER UNIT 3  
PLANT OPERATING MANUAL

EMERGENCY PLAN IMPLEMENTING PROCEDURE

**EM-104**

**OPERATION OF THE OPERATIONAL SUPPORT CENTER**

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1.0 **PURPOSE [NOCS 1031]**

1.1 Provide instructions for the activation and operation of the Operational Support Center (OSC).

Provide a point of assembly for emergency response teams assisting the Technical Support Center (TSC) in managing repair and monitoring activities during an emergency.

Provide planning, pre-job briefings and dispatch of emergency team personnel to areas evacuated during emergency conditions and areas where the radiological conditions are NOT well known.

1.2 **General Information**

1.2.1 The OSC is co-located at the bottom of the northeast corner of the berm with the TSC, and is activated whenever an Alert, Site Area Emergency, or General Emergency classification is declared.

1.2.2 The OSC receives direction from the TSC concerning activities and priorities.

1.2.3 Notification for activation of the OSC is by public address announcement, activation of the emergency group pagers and telephone notification according to EM-206. Enclosure 1 illustrates the layout for the OSC.

1.2.4 The Radiation Monitoring Teams, Sampling Team, Emergency Repair Team, Fire Protection, Procurement, engineering support and additional Operations personnel are based and operate from the OSC.

1.2.5 The OSC maintains full accountability for personnel dispatched from the OSC.

2.0 **DEVELOPMENTAL REFERENCES**

2.1 10CFR50.47, Emergency Plans

2.2 10CFR50, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities

2.3 EM-102, Operation of the Technical Support Center

2.4 EM-103, Enclosure 1, Dispatching of Resources During Emergency Plan Entry

2.5 EM-206, Emergency Plan Roster Notification

2.6 EM-210A, Duties of the Radiation Monitoring Team: CR-3 and Generating Complex Personnel and Area Monitoring

2.7 EM-210B, Duties of the Radiation Monitoring Team: Environmental Sampling and Plume Tracking

2.8 HPP-409, Inventory and Availability of Emergency Supplies/Equipment

2.9 Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA-400-R-92-001, Environmental Protection Agency (October, 1996)

2.10 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

2.11 Radiological Emergency Response Plan

2.12 RSP-600, ALARA Planning

### 3.0 PERSONNEL INDOCTRINATION

#### 3.1 Definitions

3.1.1 Activation - to provide notification to emergency response personnel of the need to respond to the OSC for staffing and operation.

3.1.2 Emergency Call Rosters - List of current qualified emergency team members. The Roster identifies qualified Emergency Repair Team, Sampling Team, Radiation Monitoring Team members and other qualified emergency responders.

3.1.3 Operational - OSC emergency team personnel available for dispatch.

3.1.4 Qualified - Successfully completed appropriate emergency team training and currently listed on Emergency Call Roster.

3.1.5 Re-entry - The return of personnel to an area evacuated during an emergency condition.

3.1.6 Self-Reading Dosimetry (SRD) - Personal Ion Chamber (PIC) or Electronic Alarming Dosimeter (EAD).

3.1.7 Team Leader - A qualified, emergency response member performing the lead responsibilities for a dispatched emergency team.

#### 3.2 Responsibilities

3.2.1 OSC Manager – Superintendent or Supervisor Maintenance reporting to the TSC Repairs Coordinator by managing the OSC to:

- o Perform duties as identified in Section 4.1.
- o Ensure OSC repair activities are performed in a safe and expeditious manner.
- o Coordinate with TSC staff to establish priorities for OSC activities and communicate results.
- o Maintain command and control of OSC activities.
- o Coordinate OSC dispatch efforts with appropriate OSC Coordinator as needed.

3.2.2 OSC Maintenance Coordinator – Supervisor Maintenance or qualified Emergency Repair Team (ERT) member reporting to the OSC Manager to:

- o Perform duties as identified in Section 4.2.
- o Coordinate and plan maintenance emergency repair and dispatch efforts.
- o Provide technical and administrative direction for repair activities.
- o Assist in the planning for emergency repair team activities.
- o Maintain log or tape of repair team activities.

3.2.3 OSC Health Physics Coordinator – Supervisor Radiation Control or qualified Radiation Monitoring Team (RMT) member reporting to the Radiation Controls Coordinator to:

- o Perform duties as identified in Section 4.3.
- o Coordinate and plan RMT dispatch efforts and RMT support of other emergency response teams.
- o Report radiological information to the Radiation Controls Coordinator and update the OSC Manager on relevant radiological conditions and team status.
- o Ensure habitability surveys, radiological and non-radiological, are periodically performed in the TSC/OSC.
- o Direct the issue of dosimetry and protective equipment as required and track emergency exposure.
- o Ensure emergency teams are briefed on radiological conditions and limitations.
- o Provide technical and administrative direction to HP personnel.
- o Coordinate overall radiological control of RMT activities according to EM-210A.
- o Maintain log of significant RMT activities.

3.2.4 OSC Chemistry Coordinator - Any qualified Sampling Team (ST) member reporting to the OSC Manager to:

- o Coordinate and plan Sampling Team dispatch efforts.
- o Provide Chemistry information to the Radiation Controls Coordinator and updates to OSC Manager as needed.
- o Provide technical and administrative support to Chemistry activities.
- o Provide support to obtain liquid and gas samples for core damage assessments.
- o Maintain log of ST activities.
- o Perform duties as identified in Section 4.4.

- 3.2.5 Administrative Support - as requested by OSC Manager to:
- o Maintain OSC Tracking Board and provide team status to TSC.
  - o Provide administrative assistance to OSC Manager and OSC Coordinators as necessary.
- 3.2.6 Engineer - as requested by OSC Manager to:
- o Provide engineering support to OSC functions as needed. Call in engineers as needed. A list of Engineers is in OSC file drawer. The most current listing is on the Engineer Web page.
- 3.2.7 Fire Assessment - Fire Protection Specialist reporting to the OSC Manager to:
- o Provide fire protection support relative to plant conditions and operations.
  - o Brief TSC and OSC staff on fire-related conditions.
  - o Maintain log of activities.
- 3.2.8 Operations - ERT qualified Operator reporting to the OSC Manager to:
- o Provide operator support for OSC and TSC activities.
  - o Perform duties identified in Section 4.5.
- 3.2.9 Procurement - as requested by OSC Manager to:
- o Provide on-site material access and expediting.
  - o Procure parts, tools, and support needs which are NOT available on site and which are needed to support mitigation and repairs.
  - o Procure a hydrogen recombiner when requested. (Vendor-Rockwell International; FPC Manual # 1797; stored in Memphis, TN.)
- 3.2.10 Emergency Repair Team members repair equipment and facilities necessary to return the plant to safe condition.
- 3.2.11 Team Leaders perform team leader functions as identified on Enclosure 4.
- 3.2.12 Sampling Team members perform chemical or isotopic sampling and analysis as directed.
- 3.2.13 Radiation Monitoring Team member responsibilities and functions are identified in EM-210A and EM-210B.
- 3.2.14 Accident Assessment Coordinator - Located in TSC. Responsible for maintaining contact with the Control Room and developing strategies for accident mitigation. Reports to Emergency Coordinator and determines priorities for OSC operators.
- 3.2.15 Radiation Controls Coordinator - Located in the TSC. Responsible for updating and making recommendations to the Emergency Coordinator on radiological and chemistry-related activities. Reports to the Emergency Coordinator.
- 3.2.16 Emergency Coordinator - Located in the TSC. Responsible for overall coordination and direction of emergency response, authorizing exposure limits in excess of 5 REM TEDE. Reports to the EOF Director when EOF becomes operational.

- 3.2.17 Repairs Coordinator - Located in the TSC. Responsible for updating the Emergency Coordinator on repair team activities. Reports to the Emergency Coordinator.
- 3.2.18 Radiation Protection Sub-Unit maintains inventory of emergency kits as identified in Section 3.4.1.
- 3.2.19 Document Services maintains manuals, procedures, and drawings in the TSC/OSC.

**3.3 Limits & Precautions**

- 3.3.1 OSC personnel follow the guidelines for exposure of emergency workers during re-entry activities as identified below or as stated on Emergency Team Authorization Form: [NOCS 3015]

Dose Limit Rem TEDE	Activity	Condition
5	All	
10	Prevent serious injury, protect valuable property, prevent catastrophic incident	
25	Life saving, protect large populations	
>25	Life saving, protect large populations	Voluntary > 45 years old, trained, and understand radiological health risks involved

- a. Health Physics personnel provide recommended courses of action to minimize exposure.
  - b. Any exposure in excess of 25 REM TEDE should be on a voluntary basis. To perform activities NOT addressed in the above Table, personnel exposure in excess of 5 REM TEDE may be authorized by the Emergency Coordinator with guidance from the Radiation Controls Coordinator.
  - c. During declared emergencies, emergency workers are allowed to receive up to 5 REM TEDE for duration of emergency regardless of normal exposure to date for the year.
- 3.3.2 There will be NO re-entry into any emergency evacuated areas unless authorized by the EC or designee.
  - 3.3.3 As a group, the team is knowledgeable in Radiation Protection procedures and has capabilities in operation and maintenance.
  - 3.3.4 Maintain efforts to minimize exposure by ALARA practices.

- 3.3.5 For safety reasons, an emergency team dispatched from the OSC consists of at least two persons, one being a Radiation Monitoring Team member. The OSC Health Physics Coordinator may waive the RMT member requirement when radiological conditions warrant.
- 3.3.6 RMT members may be independently dispatched from the OSC to perform surveys.
- 3.3.7 Emergency team members must be qualified - listed on current Emergency Call Rosters.
- 3.3.8 Personnel shall NOT enter evacuated areas without portable survey instruments and personnel monitoring devices. Personnel accompanied by an RMT member are NOT required to carry portable survey equipment.
- 3.3.9 Emergency Operating Procedure (EOP) actions before the TSC is operational are NOT applicable under the guidance of EM-104.
- 3.3.10 The TSC/OSC ventilation system, when in the emergency recirculation mode, includes a minimum breathing air requirement to support 50 people. Monitoring of O<sub>2</sub> and CO<sub>2</sub> must take place when the TSC/OSC is in the emergency recirculation mode and occupancy exceeds 50.
- 3.3.11 IF an exposure of greater than 25 REM to the thyroid is expected, THEN consider the administration of KI as directed by the TSC.
- 3.3.12 The TSC/OSC habitability boundary doors must be tightly closed when TSC/OSC is put into emergency recirculation mode.
- 3.3.13 Each emergency team member is to report to Dosimetry before re-entry to verify dose margin and upon completion of re-entry to update individual doses records.

### **3.4 TSC/OSC Equipment And Supplies**

#### **3.4.1 Emergency Kits [NOCS 1126]**

**NOTE**

HPP-409 identifies the supplies contained in the following emergency kits.

- a. TSC/OSC Emergency Supplies
- b. Decontamination Supplies
- d. Environmental Survey Supplies (located in Survey Vehicle and Nuclear Security Operations Center)

#### **3.4.2 Drawing/Procedure/Supply Files**

Selected plant drawings, Plant Procedures and administrative supplies are contained in file cabinets located in the OSC Briefing Area. Other plant drawings are available on aperture cards in the Dosimetry Room.

### 3.4.3 Equipment

- a. Commercial Telephone
- b. Microwave System
- c. Public Address Exchange System (PAX)
- d. Portable Transceivers (plant radios)
- e. Sandpiper Pump (electric and manual)
- f. Portable Continuous Air Monitor
- g. Tape recorder

### 4.0 INSTRUCTIONS

The steps under this section are NOT required to be performed in sequence.

Check the listing below for OSC position and refer to the designated section for instructions. Positions NOT listed perform job functions as needed to support OSC activities and as identified under responsibility section.

IF YOUR OSC POSITION IS:	REFER TO SECTION:
OSC Manager	4.1
OSC Maintenance Coordinator	4.2
OSC Health Physics Coordinator	4.3
OSC Chemistry Coordinator	4.4
OSC Operations Personnel	4.5
Emergency Team Members	4.6
Emergency Team Leader	Enclosure 4

## 4.1 OSC Manager

### 4.1.1 Activation

- 4.1.1.1 OBTAIN plant radios from Standards Cal. Lab for emergency use (several radios have been set aside in Cal Lab).
- 4.1.1.2 REPORT to the OSC upon the declaration of an Alert, Site Area or General Emergency.
- 4.1.1.3 BADGE-IN at TSC/OSC Card reader.
- 4.1.1.4 NOTIFY TSC Repairs Coordinator of your arrival.
- 4.1.1.5 OBTAIN procedures as needed from Procedure file.
- 4.1.1.6 VERIFY operability of communication links to the TSC Repairs Coordinator.
- 4.1.1.7 REPORT equipment problems/readiness to the TSC Repairs Coordinator.
- 4.1.1.8 The OSC is operational as soon as it is staffed with emergency team personnel available to support the TSC.

### 4.1.2 Operation

- 4.1.2.1 DETERMINE status of repair activities already in progress and NOTIFY TSC Repairs Coordinator of repair teams in the field.
- 4.1.2.2 PROVIDE advice to TSC Repairs Coordinator on plant repairs and corrective actions as appropriate, determining prioritization of repair activities with the TSC Repairs Coordinator.
- 4.1.2.3 COORDINATE repair activities already in progress with OSC Maintenance Coordinator and ensure RMT coverage is provided as needed.
- 4.1.2.4 COORDINATE Sampling Team (ST) activities already in progress with OSC Chemistry Coordinator and ENSURE RMT coverage is provided as needed.
- 4.1.2.5 ENSURE an Emergency Team Authorization (ETA) form is written for emergency response teams in the field and teams dispatched from the OSC.
- 4.1.2.6 APPROVE appropriate ETAs <5 REM before team dispatch. Consider having team members dressed out and dosimetry issued before need for dispatch.
- 4.1.2.7 INITIATE log of activities to document times and results of significant OSC activities. As a minimum include time of specific TSC requests, and time of results provided back to TSC.

- 4.1.2.8 ENSURE OSC staff is augmented as needed (reference Enclosure 2), and appropriate team members dispatched to Control Complex when available, as the Control Complex Repair Team. This team remains in the Control Complex taking direction from the OSC Manager as prioritized by the TSC.
- 4.1.2.9 CONDUCT briefings, as needed, with OSC personnel to ensure awareness of plant conditions. UPDATE Control Complex Repair Team as needed.
- 4.1.2.10 Upon request from the TSC for team dispatch, COORDINATE with appropriate OSC Coordinator and ENSURE the requested activity is planned consistent with directions from the TSC.
- 4.1.2.11 WHEN the activity is planned and the appropriate Team Leader identified, THEN ENSURE pre-job briefings are held with Health Physics according to Enclosure 4.
- 4.1.2.12 COORDINATE OSC Operator dispatch with the Repairs Coordinator in the TSC to ensure the TSC Accident Assessment Coordinator is aware of dispatch.
- 4.1.2.12.1 IF Operations personnel are dispatched from the Control Room, instead of from the OSC, THEN ENSURE a Health Physics Technician is dispatched with them as needed, AND they are informed of the pre-job briefing discussion.
- 4.1.2.13 ENSURE teams hold post-job briefings with respective coordinators as appropriate upon return to the OSC and the results are documented in logs or on tape.
- 4.1.2.14 UPDATE the TSC Repairs Coordinator of OSC activities (Team dispatch, problems and activity results as appropriate)
- 4.1.2.15 COORDINATE a shift relief rotation for OSC personnel as appropriate.
- 4.1.2.16 ENSURE shift turnover is provided to the on-coming shift.
- 4.1.2.17 INITIATE OSC relocation according to Enclosure 5 if requested by Emergency Coordinator or designee. [NOCS 24130]
- 4.1.2.18 ENSURE OSC Team Status Board is updated and information is provided to TSC.
- 4.1.3 Deactivation**
- 4.1.3.1 DEACTIVATE the OSC, when directed by the Emergency Coordinator or designee.
- 4.1.3.2 RETURN equipment and supplies to storage.
- 4.1.3.3 ASSEMBLE logbooks and any other documentation generated during the emergency for collection by Emergency Preparedness personnel.

## 4.2 OSC Maintenance Coordinator

### 4.2.1 Activation

- 4.2.1.1 REPORT to the OSC with plant radio (radios are to be brought from the Standards Cal Lab) upon the declaration of an Alert, Site Area or General Emergency
- 4.2.1.2 BADGE-IN at TSC/OSC Card reader.
- 4.2.1.3 NOTIFY OSC Manager of your arrival.
- 4.2.1.4 OBTAIN tape recorders, valve locator books, system one line switching diagram, plant layout floor maps from file drawer as needed.
- 4.2.1.5 IF emergency occurs during off hours,  
THEN ENSURE adequate number of qualified ERT members are notified and report to OSC. REFER TO Enclosure 2 for staffing level and Emergency Team Roster, located in file drawer, for qualified members.
- 4.2.1.6 UNLOCK tool boxes in OSC Team Room and the electric sandpiper pump located in decon shower. The key is located in file drawer.

### 4.2.2 Operation

NOTE

Evacuated maintenance personnel at the Main Assembly may be reached by contacting the Main Assembly Area Supervisor.

- 4.2.2.1 IDENTIFY Emergency Repair Team (ERT) members working on emergency activities in the plant in support of the emergency to the OSC Manager, and ENSURE they are listed on a Emergency Team Authorization form (Enclosure 3).
- 4.2.2.2 VERIFY each ERT member is currently ERT qualified. (listed on ERT Emergency Call Roster)
- 4.2.2.3 WHEN an additional electrician, an I/C technician, and HVAC mechanic are available,  
THEN ASSIGN them to the Control Room. This Control Complex Repair Team takes direction from the OSC Manager for repairs within the Control Complex.
- 4.2.2.4 COORDINATE equipment repair priorities with OSC Manager.
- 4.2.2.5 IF it is necessary to become a Team Leader for a repair activity,  
THEN NOTIFY the OSC Manager of OSC Maintenance Coordinator replacement,  
OR APPOINT the OSC Manager to act on your behalf.

- 4.2.2.6 Upon request from the OSC Manager, IDENTIFY a Team Leader for the repair team activity and PLAN the repair.
- 4.2.2.7 ASSEMBLE appropriate team personnel and ENSURE a pre-job briefing is performed according to Enclosure 4. The Team Leader may plan the repair and perform the pre-job briefing.
- 4.2.2.8 ENSURE emergency repair teams have proper procedures, tools, and protective equipment prior to entry into the plant.
- 4.2.2.9 MAINTAIN contact with and DIRECT ERT repair teams outside the Control Complex.
- 4.2.2.10 IF it is determined that the TSC/OSC is to be put into emergency recirculation mode, THEN ENSURE steps are taken in Enclosure 6.
- 4.2.2.11 ENSURE the Shower Holding Tank sump connections are established for processing of contaminated water, as needed. (REFER TO Enclosure 7 for guidance.)
- 4.2.2.12 IDENTIFY parts, tools, and support needs NOT available on-site to the Procurement Representative in the OSC.
- 4.2.2.13 CONSIDER heat stress and crew rotation needs to supplement manpower requirements.
- 4.2.2.14 ENSURE a post-job briefing is held.
- 4.2.2.15 DIRECT the Team Leader to document the results of the repair on tape, or in a log book, for each emergency repair upon return to the OSC. ENSURE sufficient information is recorded to be able to write Work Requests after the emergency.

### 4.3 OSC Health Physics Coordinator

#### 4.3.1 Activation

- 4.3.1.1 REPORT to the OSC upon the declaration of an Alert, Site Area or General Emergency
- 4.3.1.2 BADGE-IN at TSC/OSC Card reader.
- 4.3.1.3 NOTIFY OSC Manager and Radiation Controls Coordinator of your arrival.
- 4.3.1.4 OBTAIN procedures as needed.
- 4.3.1.5 IF emergency occurs during off hours, THEN ensure an adequate number of qualified RMT members are notified and available to report to OSC. REFER TO Enclosure 2 for staffing level and the Emergency Team Roster, located in file drawer, for qualified members.
- 4.3.1.6 VERIFY operability of communication links to the TSC Radiation Controls Coordinator.

#### 4.3.2 Operation

**NOTE**

Evacuated Health Physics personnel at the Main Assembly Area may be reached by contacting the Main Assembly Area Supervisor.

- 4.3.2.1 COORDINATE the initiation of an Emergency Radiation Work Permit (ERWP) with the Radiation Controls Coordinator and according to Enclosure 8.
- 4.3.2.2 OBTAIN EC or designee approval for ERWP.
- 4.3.2.3 LIST RMT members performing surveys and monitoring activities up to 5 REM on a separate, approved ETA form and POST until conditions warrant EC approval for > 5 REM (TEDE).
- 4.3.2.4 COORDINATE RMT members needed by other teams in the plant with OSC Manager. These may include EOP actions, depending on the length of the EOP action.
- 4.3.2.5 VERIFY each RMT member is currently RMT qualified.
- 4.3.2.6 ENSURE periodic CO<sub>2</sub>/O<sub>2</sub> sampling is initiated according to EM-210A, Section 4.2 when the TSC/OSC is in the emergency recirculation mode and occupancy exceeds 50.
- 4.3.2.7 ESTABLISH controlled access into radiation areas as required by procedures.

- 4.3.2.8 ASSIGN, when available, an HP Technician to the Control Complex Repair team to take direction from the OSC HP Coordinator for dispatch as needed.
- 4.3.2.9 UPDATE the large OSC survey maps as needed.
- 4.3.2.10 ENSURE items listed on Enclosure 1 of EM-210A, Radiation Monitoring Team Checklist, have been completed.
- 4.3.2.11 ENSURE TLDs are provided for all team members that report to the OSC and for teams already dispatched.
- 4.3.2.12 PROVIDE OSC Manager with periodic updates on radiological conditions.
- 4.3.2.13 Upon request from the TSC, IDENTIFY a Team Leader and plan identified monitoring or survey activity.
- 4.3.2.14 ASSEMBLE RMT personnel and ensure an appropriate pre-job briefing is held.
- 4.3.2.15 ENSURE an Emergency Team Authorization (ETA) form (Enclosure 3) is written for emergency response teams in the field and teams dispatched from the OSC.

**NOTE**

EM-103, Enclosure 1, provides Operator dispatch guidance.

- 4.3.2.15.1 IF Operators are NOT assigned to the TSC/OSC, THEN Operators dispatched from the Control Room, AND re-entry teams in need of an operator MUST coordinate meeting place for briefing of the operator.
- 4.3.2.16 ASSIGN an RMT member for each re-entry, when conditions warrant, to assist in preparation and job coverage.
- 4.3.2.17 INFORM responding emergency team of current or changing radiological conditions affecting the team.
- 4.3.2.18 MAINTAIN awareness of OSC personnel radiation exposure status and INFORM Radiation Controls Coordinator of personnel approaching 5 REM (TEDE) exposure limits.
- 4.3.2.19 INFORM the Radiation Controls Coordinator if radiological conditions are such that Security personnel should prepare for suspension of safeguards in areas affected by radiological releases.
- 4.3.2.20 INFORM the Radiation Controls Coordinator if any team member's thyroid dose of 5 REM is reached. Update as needed until the magnitude of projected thyroid dose reaches 25 REM.
- 4.3.2.21 ISSUE KI, located in TSC cabinet, to OSC personnel when authorized.
- 4.3.2.22 Routinely UPDATE the Radiation Controls Coordinator of RMT activities and dose rate survey results. DOCUMENT times of significant dose rate results.

#### 4.4 OSC Chemistry Coordinator

##### 4.4.1 Activation

- 4.4.1.1 REPORT to the OSC and take a plant radio, if possible, upon the declaration of an Alert, Site Area or General Emergency
- 4.4.1.2 BADGE-IN at TSC/OSC Card reader.
- 4.4.1.3 NOTIFY OSC Manager and Radiation Controls Coordinator of your arrival.
- 4.4.1.4 OBTAIN procedures as needed.
- 4.4.1.5 IF emergency occurs during off hours, THEN ensure adequate number of qualified Sampling Team (ST) members are notified and report to OSC. REFER to Enclosure 2 for staffing level and the Emergency Team Roster, located in file drawer, for qualified members.

##### 4.4.2 Operation

**NOTE**

Evacuated Chemistry personnel at the Main Assembly Area may be reached by contacting the Main Assembly Area Supervisor.

- 4.4.2.1 IDENTIFY ST members in the plant supporting the emergency, to the OSC Manager and ensure they are listed on an Emergency Team Authorization (ETA) form (Enclosure 3).
- 4.4.2.2 VERIFY each ST member is currently ST qualified (listed on ST Emergency Call Roster).
- 4.4.2.3 COORDINATE dispatch of ST with OSC Manager.
- 4.4.2.4 ESTABLISH log of activities documenting time TSC requests chemistry samples, time sample pulled and time results given to TSC.
- 4.4.2.5 IF it is necessary to become Team Leader for Sampling Team, THEN notify the OSC Manager of OSC Chemistry Coordinator replacement, OR appoint the OSC Manager to act as coordinator.
- 4.4.2.6 Upon request for Sampling Team, IDENTIFY a Team Leader and plan the activity.
- 4.4.2.7 ASSEMBLE appropriate team personnel and ensure a pre-job briefing is performed according to Enclosure 4.
- 4.4.2.8 PROVIDE technical and administrative support to Chemistry activities.

- 4.4.2.9 ENSURE the ST continues to perform chemical or radiological liquid and gas samples for core damage assessments as requested.
- 4.4.2.10 MAINTAIN communication with the Radiation Controls Coordinator, providing updates on ST activities as appropriate.
- 4.4.2.11 MAINTAIN contact with dispatched ST.
- 4.4.2.12 PROVIDE sample results to the TSC Radiation Controls Coordinator for core damage estimation and dose projection.
- 4.4.2.13 ENSURE a post-job briefing is held and sample results documented.

## 4.5 Operations Personnel

### 4.5.1 Activation/Operation

**NOTE**

ERT qualified operators respond to the OSC during an Alert, Site Area Emergency and General Emergency as soon as available to support OSC re-entry and Control Room/Accident Assessment activities.

**NOTE**

Operators assigned to the OSC are under the direction of the OSC Manager. The OSC Manager coordinates Operator actions through the TSC Repairs Coordinator to ensure the TSC Accident Assessment Coordinator is aware of and agrees to the dispatch.

- 4.5.1.1 NOTIFY the OSC Manager and Accident Assessment Coordinator of your arrival.
- 4.5.1.2 COORDINATE activities with OSC Manager and ENSURE before dispatch from the OSC you are briefed according to Enclosure 4 and FOLLOW instruction for Emergency Teams.
- 4.5.1.3 When possible, MONITOR Accident Assessment Ring Down and provide updates of plant conditions to OSC Manager.
- 4.5.1.4 REFER to EM-103, Enclosure 1, for operator dispatch guidance, as necessary.

## 4.6 Emergency Team Members

### 4.6.1 Activation

**NOTE**

Emergency team responders, unless pre-identified to report to an Emergency Facility, must report to appropriate Local Assembly Area during an Alert declaration.

- 4.6.1.1 REPORT to the OSC upon assignment to respond as an emergency team member.
- 4.6.1.2 REPORT directly to the OSC for assignment as an emergency team member upon the declaration of a Site Area or General Emergency.
- 4.6.1.3 BADGE-IN at TSC/OSC Card reader.
- 4.6.1.4 NOTIFY appropriate OSC Coordinator of your arrival.
- 4.6.1.5 REMAIN in OSC Team room until requested for emergency response.
- 4.6.1.6 FOLLOW instructions of respective OSC Coordinator or OSC Manager.

### 4.6.2 Operation

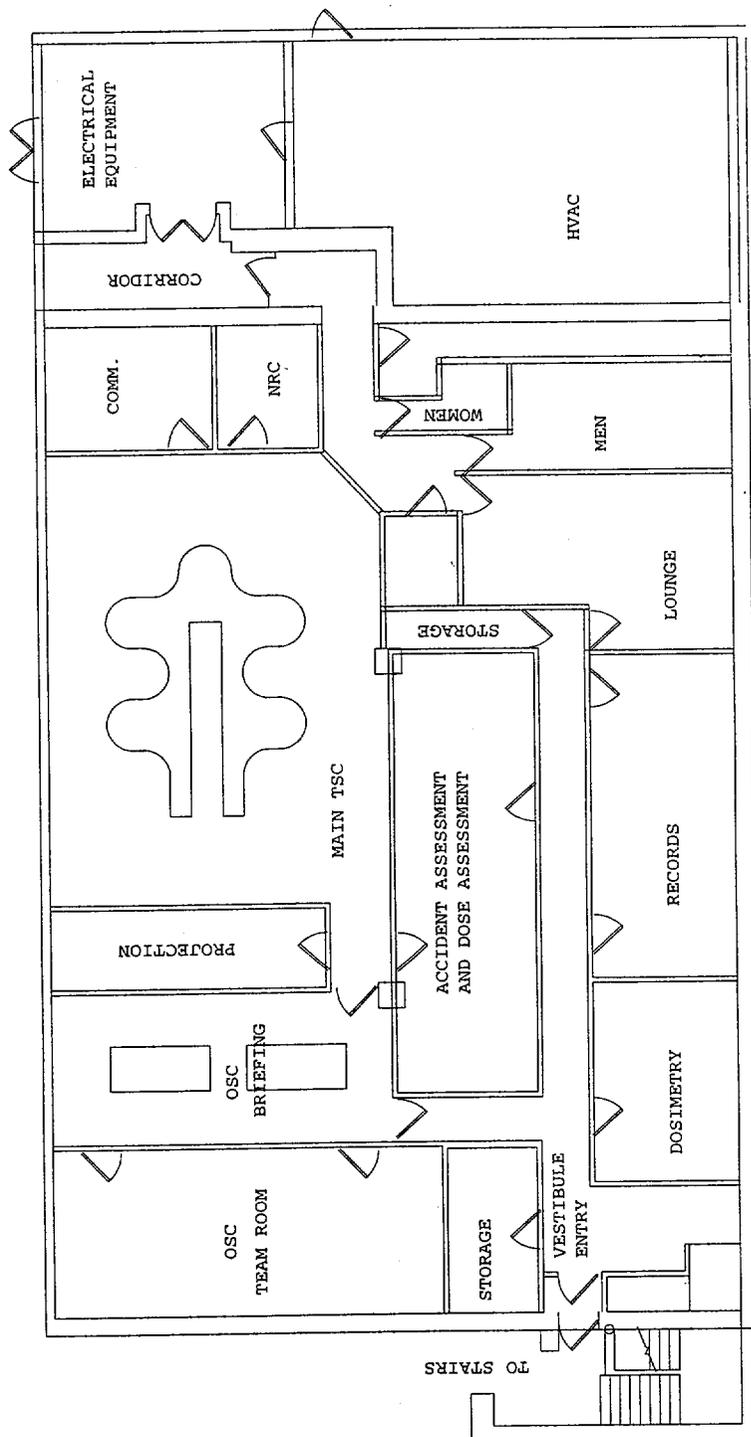
Upon formation of an emergency team, the following occurs:

- 4.6.2.1 The Radiation Monitoring Team members will:
  - o COMPLETE the Emergency Team Authorization form (Enclosure 3) according to the requirements of the Emergency RWP (Enclosure 7) and any instructions stated on the pre-job briefing.
  - o ENSURE team members follow the instructions stated on the ERWP and ETA.
  - o REPORT any problem or hazard encountered along the route traveled or during the mission of that team.
  - o ABORT the re-entry if physical or radiological conditions deteriorate or exceed the limits set, or if communications are lost between the Team Leader and the OSC.
  - o ENSURE team member dose records are updated.
  - o PERFORM radiological duties, as required, according to EM-210A.

4.6.2.2 The responding emergency team will:

- o ATTEND pre-job briefing in accordance with Enclosure 4.
- o OBTAIN respiratory devices, dosimetry, protective clothing, and portable survey instruments required by the Emergency Team Authorization.
- o RE-ZERO dosimetry as needed.
- o PROCEED to designated area following the pre-determined route, observing all written and/or verbal precautions.
- o PERFORM designated work per written procedures or as discussed in pre-job briefing.
- o Routinely EVALUATE exposures during the re-entry.
- o NOT deviate from the planned route unless required by unanticipated conditions, for a rescue, or to perform an activity which would minimize the emergency condition.
- o OBTAIN as much information as possible along the route, such as physical plant conditions, equipment damage or radiological data.
- o RETURN to point of departure via the same predetermined route taken above unless given other instructions.
- o RETURN to the OSC after completion of assigned tasks and follow the directions of the RMT member at the control point.

TSC/OSC Floor Plan  
(NOCS 10520, 20470)

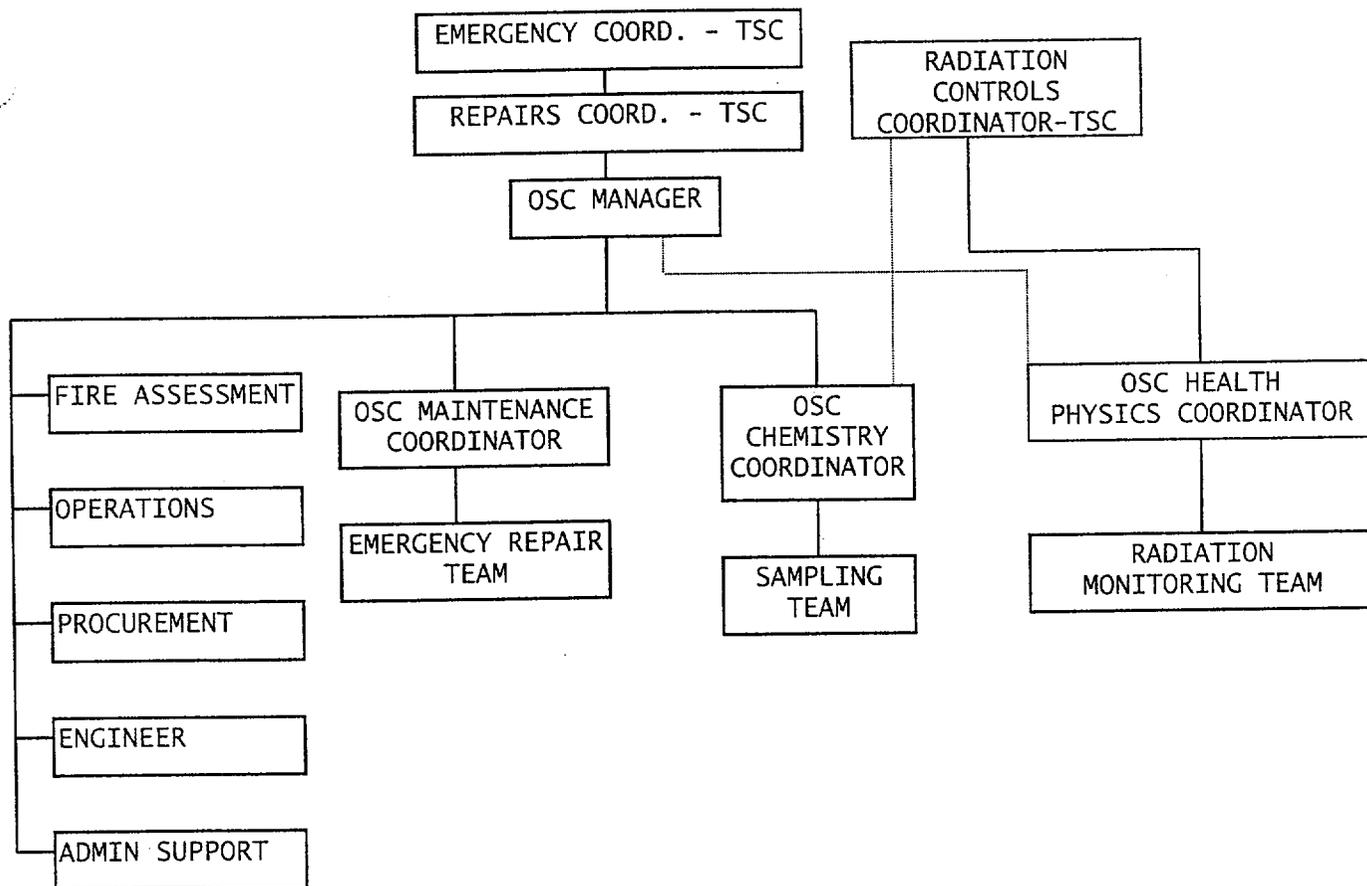


OPERATIONAL SUPPORT CENTER RECOMMENDED STAFFING LEVELS  
 (Phone numbers listed in Emergency Phone Directories and on Emergency Team Rosters.  
 Engineering contacts in OSC file drawer "E")

OSC Manager	1
OSC Health Physics Coordinator	1
OSC Chemistry Coordinator	1
OSC Maintenance Coordinator	1
Fire Assessment	1
Engineering Support (as needed)	1
Administrative Support	1
Procurement	1
Radiation Monitoring Team Members	12 (4 ESV)
Sampling Team	3
Emergency Repair Team (Elec, I/C, Mech)	7 (2 Elec, 2 I/C, 3 Mech)
EMT	1
Operators (When available)	2
Fire Brigade (Main Assembly Area as needed)	10

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Below dotted line represents the function coordinates activities prior to dispatch.



**EMERGENCY TEAM AUTHORIZATION**

TYPE OF EMERGENCY TEAM DISPATCHED and NUMBER	DATE	TIME
--	------	------

REASON FOR ENTRY

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---

RADIOLOGICAL CONDITIONS

---



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INSTRUCTIONS FROM PRE-JOB BRIEFING

- 1) Team Leader must carry radio.      2) OSC Phone #      3)
- 
- 

EQUIPMENT USED		
<b>PROTECTIVE CLOTHING/EQUIPMENT</b> <input type="checkbox"/> None <input type="checkbox"/> Standard PC's <input type="checkbox"/> Double PC's <input type="checkbox"/> Plastics <input type="checkbox"/> Cloth/Paper	<b>RESPIRATORY</b> <input type="checkbox"/> None <input type="checkbox"/> SCBA <input type="checkbox"/> Negative Pressure Respirator <input type="checkbox"/> Particulate <input type="checkbox"/> Sorbent	<b>DOSIMETRY</b> <input type="checkbox"/> EAD: Setpoints: ____/____ <input type="checkbox"/> Low Range Dosimeter <input type="checkbox"/> High Range Dosimeter <input type="checkbox"/> TLD <input type="checkbox"/> Multi-Badge <input type="checkbox"/> Extremity

DOSE LIMIT FOR ENTRY	mREM *	OSC HP COORDINATOR APPROVAL (up to 5 REM)
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EMERGENCY TEAM PERSONNEL	TLD or SSN#	TIME	
		IN	OUT
TEAM LEADER			
TEAM MEMBERS			

RE-ENTRY APPROVED/ EMERGENCY COORDINATOR OR DESIGNEE >5 REM (TEDE) OSC MANAGER up to 5 REM (TEDE)	DATE	TIME
--	------	------

\* EMERGENCY DOSE LIMITS:

5 REM (TEDE) -	Allowable margin for each worker
10 REM (TEDE) -	Prevent injury, protect valuable property
25 REM (TEDE) -	Life saving, protect large populations
VOLUNTEER >25 REM (TEDE) -	Life saving, should be trained volunteer > 45 years of age

IF NO core melt, THEN TEDE = SRD Dose  
 IF core melt, THEN TEDE = SRD Dose times 5

## EMERGENCY TEAM AUTHORIZATION (ETA) GUIDANCE

### A. Purpose

To authorize the dispatch of a designated team of personnel from the OSC for the performance of specific emergency related tasks, even if the Protected Area is NOT yet evacuated.

### B. Contents

1. Type of team being authorized - Include type and number (ERT-2, ST-1, RMT-1)
2. Reason for entry - A brief description of why the designated team is dispatched.
3. Radiological Conditions - The anticipated conditions the team may encounter during the re-entry.
4. Instructions from Pre-Job Briefing - Include a brief description of the task the team is to perform.
5. Equipment used - Identify protective equipment to be used by personnel assigned to the team involved in the re-entry.
6. Dose limit for entry and approval - The OSC HP Coordinator approves the dose limit applicable to each of the team members up to and including 5 REM. If greater than 5 Rem, this step can be NA as approval is from the Emergency Coordinator (Step 9). Because of the health risks associated with the dose limit, lifesaving missions should be undertaken by volunteers (healthy and above the age of 45) who have an understanding of the health risks and preferably by those whose normal duties have trained them for such missions.
7. Emergency Worker Exposure Calculation: IF NO core melt, THEN TEDE = SRD Dose; IF core melt, THEN TEDE = SRD Dose times five.
8. Emergency Team Personnel - List team members assigned to re-entry and time re-entry starts (IN) and time of termination (OUT).
9. Re-entry Approval - Signed by the EC or Radiation Controls Coordinator if > 5 REM (TEDE) and delegated to the OSC Manager for up to and including 5 REM (TEDE), designating that the re-entry for the team is authorized.

### C. Development and Approval

1. After selecting team members, prepare for dispatch by addressing such items as tools needed, scope of task, review of procedures applicable to task and assigning specific tasks that may increase the effectiveness and speed of the task completion (see Enclosure 4).
2. Meet with the RMT member assigned to re-entry. After filling out the ETA form up to and including the Equipment Used, the RMT member takes the ETA to the OSC HP Coordinator for Dose Limit approval up to and including 5 REM.
3. Take form to the OSC Manager for entries NOT exceeding 5 REM (TEDE) or to the EC or his designee if > 5 REM (TEDE), who reviews and approves the re-entry to be conducted.
4. The ETA is updated to reflect time of team dispatch and posted for tracking. The copy should go in field with Team.
5. When the re-entry is completed, dose records are updated with the dose accumulated for the team members. The ETA is updated to reflect the time the team exited the re-entry.
6. Subsequent team entries are made on separate ETAs, except as noted on ERWP.

## TEAM BRIEFING/RE-ENTRY CHECKLIST

Re-entry is made for one of the following purposes:

- o Search for unaccounted personnel.
- o Perform monitoring, sampling, operations or repairs to minimize or eliminate the source of the emergency.
- o Perform the surveys needed to assess the radiological conditions and establish exclusion area boundaries.
- o Perform rescue operations.
- o Save property.

### PRIOR TO DISPATCH

- \_\_\_ DETERMINE scope of tasks, pre-plan work activities as needed.
- \_\_\_ ENSURE Team members have protective clothing, dosimetry, respiratory devices, and/or other protective equipment as specified by the Emergency Team Authorization (ETA) form.
- \_\_\_ VERIFY operability of survey instruments, radios and any other equipment needed before departure from OSC.
- \_\_\_ ENSURE Self-Reading Dosimetry is re-zeroed as needed. Extremity TLDs are available in the TSC/OSC Emergency Kit.
- \_\_\_ NOTIFY the OSC Manager the team is ready to depart.

### PRE-JOB BRIEFING

The appropriate OSC Coordinator or designated Team Leader, in conjunction with OSC Health Physics Coordinator, briefs the emergency team on the following:

- \_\_\_ The nature of the emergency and any other known hazards.
- \_\_\_ The purpose of the dispatch and the expected result.
- \_\_\_ Route the team will take back into the evacuated area.
- \_\_\_ Area dose rates (if known), amount of dose each team member may expect to receive based on hazards enroute and at emergency site
- \_\_\_ What actions should be taken if unanticipated conditions are encountered.

EMERGENCY TEAM LEADER FUNCTIONS:

- \_\_\_\_\_ UNDERSTAND the purpose of the re-entry and perform pre-job briefings as requested.
- \_\_\_\_\_ IF suspension of safeguards has been invoked,  
AND a key is necessary for entry into a locked area of the plant,  
THEN obtain key from Control Room or TSC Security Coordinator.
- \_\_\_\_\_ REPORT any condition or event, within the scope of the team's individual training or experience, which could minimize the effects of the emergency.
- \_\_\_\_\_ ENSURE the completion of the task for which the team was dispatched.
- \_\_\_\_\_ RELAY relevant plant conditions and significant actions taken by the team to the appropriate OSC Coordinator for logging.
- \_\_\_\_\_ COORDINATE returning equipment to service (opening or closing of valves, energizing components, etc.) directly with the Control Room.
- \_\_\_\_\_ INFORM Control Room of job completion when it affects plant equipment.
- \_\_\_\_\_ ENSURE all team members report to Dosimetry upon return to OSC to update individual dose records.
- \_\_\_\_\_ PERFORM post-job briefing with appropriate OSC Coordinator or OSC Manager upon return.
- \_\_\_\_\_ DOCUMENT repair actions taken during re-entry to provide enough information for Work Request that is re-created after the emergency. Documentation may be made in OSC Log or on tape.

CONTINGENCY PLAN FOR SECURING OSC AND ESTABLISHING  
AN ALTERNATE OSC  
[NOCS 24130]

**BEFORE GOING TO ALTERNATE LOCATION**

- a. IDENTIFY minimum OSC staff necessary based on plant conditions. \_\_\_\_\_
- b. CONSIDER taking items identified below. \_\_\_\_\_
  - OSC Tool Boxes
  - Radios
  - Emergency Kits or contents as needed
  - Other items as determined by OSC Coordinators

**STEPS TO SECURE OSC IF STORM SURGE IS EXPECTED**

- a. PLACE high value items on tables: \_\_\_\_\_
  - Computers and peripherals \_\_\_\_\_
  - Communication equipment \_\_\_\_\_
  - Anything else that can be placed on tables \_\_\_\_\_
- b. VERIFY flood protection has been placed around TSC/OSC (EM-220). \_\_\_\_\_
- c. ENSURE appropriate TSC equipment has been de-energized (EM-220, Enclosure 2). \_\_\_\_\_
- d. DISABLE auto start on diesel by selecting the "Auto/Test" switch to the center "Off" position on the generator Kohler Controller. \_\_\_\_\_

**RELOCATE TO 124' ELEVATION OF THE CONTROL COMPLEX**

ACTIVITY - Team Staging Area

PERSONNEL - Fire Brigade, Sampling Team, Emergency Repair Team, Radiation Monitoring Team, Security, OSC Manager, OSC Coordinators (as needed).

SETUP – Some emergency supplies are located in labeled cabinets in area. Additional supplies such as chairs, plant radios, tables and equipment from TSC/OSC emergency may need to be re-located to this area.

OPERATION - The OSC Manager remains on 124' elevation with emergency teams. He assigns someone to the PAX phone to remain in communication with the Alternate TSC located outside the Control Room. Once a team is identified, a briefing occurs and then dispatched. OSC Coordinators are on the 124' elevation with teams.

**PLACING TCS/OSC INTO EMERGENCY RECIRCULATION MODE**  
[NOCS 63008]

**CAUTION**

Activation of the emergency mode requires entry into potential Radiation Controlled Areas. Ensure a Radiation Monitoring Team member accompanies personnel performing this action.

ACTIVATION (See schematic on next page)

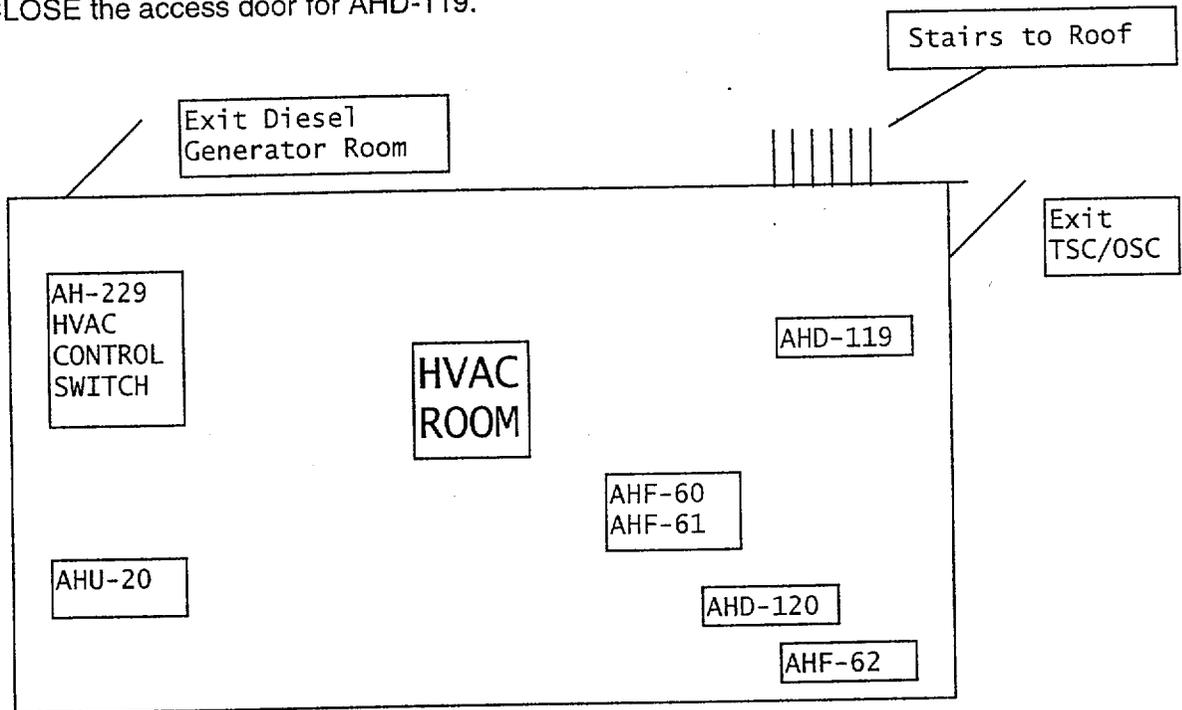
Perform the following actions from the HVAC room to activate the emergency recirculation mode for the TSC/OSC:

- \_\_\_\_\_ OPEN the access door for AHD-119.
- \_\_\_\_\_ At AH-229, ROTATE the switch from the "NORMAL(1)" to the "EMERGENCY(2)" position on the emergency mode control panel.
- \_\_\_\_\_ VERIFY the emergency recirculation mode by the following:
  - AHD-120 damper is in the emergency mode position. AHD-120 is located at waist level at the south side of the room.
  - AHF-62 fan is operational as indicated by a red light at the motor/starter panel on the southeast wall.
  - AHU-20 is operational as indicated by a red light at the motor/starter panel on the west wall.
  - AHF-60 fan is operational as indicated by a red light at the motor/starter panel in the middle of the room.
  - AHF-61 fan is operational as indicated by a red light at the motor/starter panel in the middle of the room.
- \_\_\_\_\_ IF the fans and dampers are NOT operational or in proper position, THEN NOTIFY the Maintenance Coordinator.
- \_\_\_\_\_ OBTAIN pliers and TAKE pliers to roof.
- \_\_\_\_\_ EXIT TSC/OSC and proceed to roof over HVAC room.
- \_\_\_\_\_ CLOSE and LATCH the goose neck for AHD-115, located on east side.
- \_\_\_\_\_ Duct tape around the access door seals and latches on AHD-115 to provide an additional protective barrier in order to prevent air in-leakage.
- \_\_\_\_\_ CLOSE and LATCH the goose neck for AHD-116, located on east side.
- \_\_\_\_\_ Duct tape around the access door seals and latches on AHD-116 to provide an additional protective barrier in order to prevent air in-leakage.
- \_\_\_\_\_ RETURN to the TSC/OSC.

RESTORATION

Perform the following actions to restore the emergency recirculation mode for the TSC/OSC:

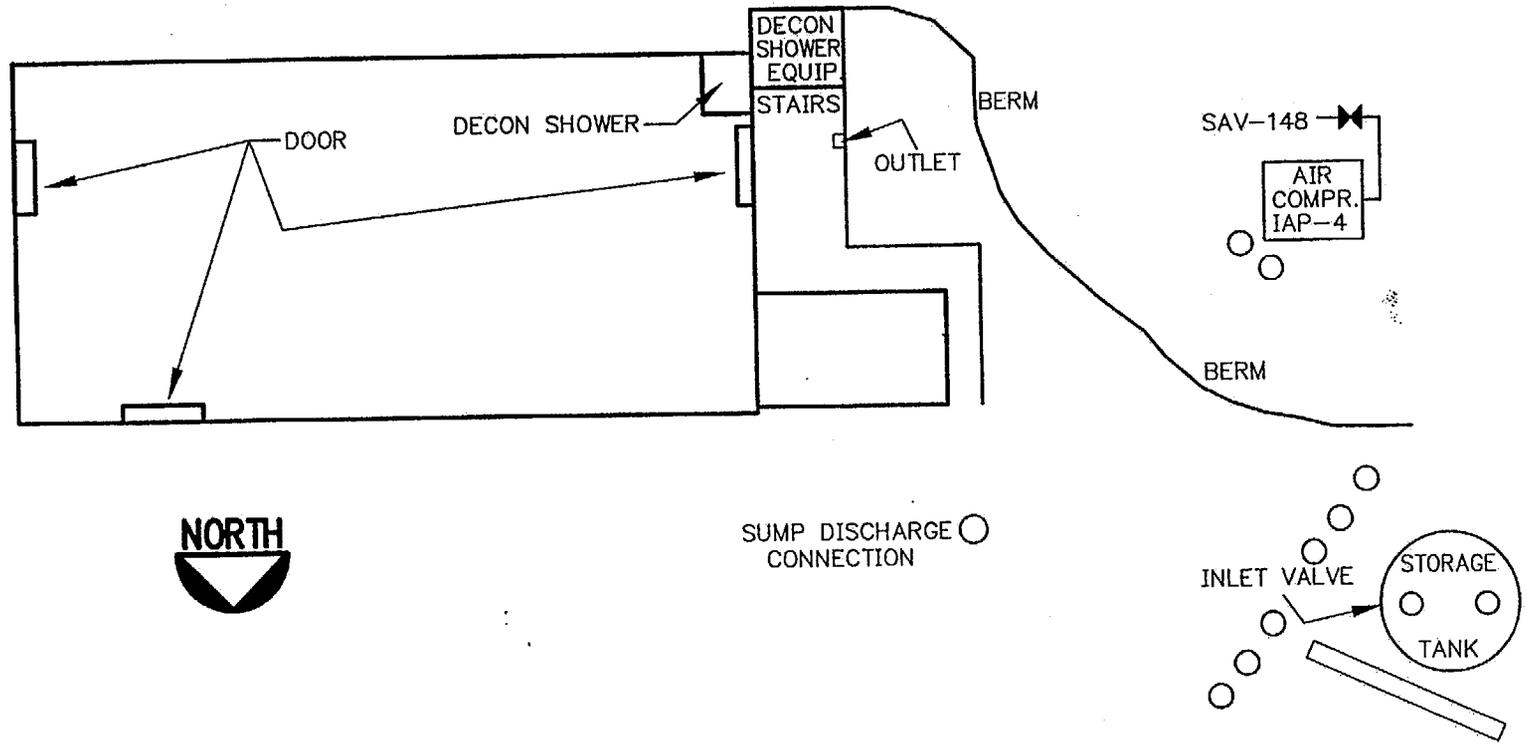
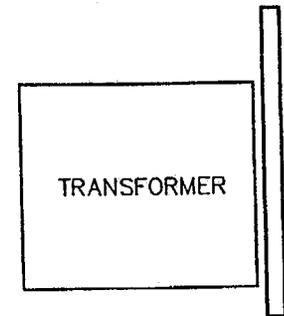
- \_\_\_ REMOVE the duct tape from the access door seals and latches on AHD-116 and AHD-115.
- \_\_\_ UNLATCH and OPEN the goose necks for AHD-116 and AHD-115.
- \_\_\_ RETURN to HVAC room and rotate the switch from the "EMERGENCY(2)" to the "NORMAL(1)" position on the emergency mode control panel (AH-229).
- \_\_\_ VERIFY AHD-120 is in the "CLOSED" position.
- \_\_\_ CLOSE the access door for AHD-119.



## GUIDANCE FOR PUMPING INTO SHOWER TANK

(EQUIPMENT LOCATED UNDER STAIRS AT WEST EXIT. BACKUP ELECTRICAL PUMP LOCATED IN DECON SHOWER)

1. RUN AIR LINE UP THE BERM TO AIR COMPRESSOR.
2. CONNECT ONE END OF AIR LINE TO SAND PIPER PUMP.
3. SHUT ON/OFF VALVE AT SAND PIPER PUMP.
4. CONNECT THE AIR LINE TO SAV-148.
5. OPEN SAV-148.
6. CONNECT THE 1½ INCH STAINLESS STEEL, RED SUCTION LINE WITH CAMLOCK FITTINGS TO THE RED SUCTION SIDE OF THE SAND PIPER PUMP.
7. CONNECT THE OTHER END OF THE SUCTION LINE TO THE SUMP DISCHARGE CONNECTION.
8. CONNECT THE DISCHARGE OF THE SAND PIPER PUMP TO THE INLET VALVE OF THE STORAGE TANK.



FILE: SHOWER.DWG



### EMERGENCY RADIATION WORK PERMIT

#### EMERGENCY STATUS

Unusual Event	Date	Time	Site Area Emergency	Date	Time
Alert	Date	Time	General Emergency	Date	Time

#### PLANT STATUS OR CONDITION CAUSING EMERGENCY

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#### RADIOLOGICAL STATUS

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#### INSTRUCTIONS

1. NO entry into controlled access areas unless a member of an emergency team. (Security remain at posts until relieved.)
2. Only personnel who are qualified emergency responders can be authorized for this ERWP.
3. Report any unusual dose rates, equipment damage, etc., to the Operational Support Center.
4. Specific radiological requirements are outlined on Emergency Team Authorization Form.
5. RMT member requirement to be on re-entry team can be waived by Health Physics Coordinator for stable or NO radiological hazards.
6. OSC Health Physics Coordinator is authorized to fill out one ETA for RMT survey and monitoring activities up to and including 5 REM TEDE with attached list of RMT Members. This does NOT include EST members.
7. Perform activity as discussed in Pre-job Briefing.

SUBMITTED BY OSC HEALTH PHYSICS COORDINATOR

APPROVED BY/EMERGENCY COORDINATOR OR DESIGNEE

## EMERGENCY RADIATION WORK PERMIT (ERWP) GUIDANCE

### A. Purpose

To establish a blanket ERWP for use under emergency conditions. An ERWP is used in conjunction with the Emergency Team Authorization form.

### B. Contents

1. Emergency Status - denotes current emergency classification level, updated as escalation in levels occur.
2. Plant Status or Condition Causing Emergency - the actual status of the plant including information on systems or equipment directly related to, or impacting radiological conditions.
3. Radiological Status - radiological status of CR-3 at the time of escalation of emergency.
4. Instructions - generic instructions for anyone involved with the emergency. Specific instructions are given on the ETA form.

### C. Development and Approval

1. The OSC Health Physics Coordinator or designee completes this form and submits for review to the Radiation Controls Coordinator.
2. The Radiation Controls Coordinator reviews the permit and includes any additional information pertinent to the emergency.
3. The Emergency Coordinator or designee approves the ERWP.
  - a. This action authorizes the permit, AND
  - b. Automatically sets the exposure limit for personnel assigned to the ERWP to Emergency Dose Limit of 5 REM Total Effective Dose Equivalent.

# PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0104

New Rev: 6

PRR#: 20925

Title: OPERATION OF THE OPERATIONAL SUPPORT CENTER

## MINOR CHANGES

If Minor Changes are included, check the applicable box(es) and provide a list of affected steps. The following corrections are incorporated throughout:

- |   |   |
|---|---|
| <input type="checkbox"/> Sentence Structure   | <input type="checkbox"/> Redundant words or phrases                 |
| <input type="checkbox"/> Punctuation  | <input type="checkbox"/> Abbreviations                              |
| <input type="checkbox"/> Capitalization   | <input type="checkbox"/> Obviously incorrect units of measure       |
| <input type="checkbox"/> Spelling   | <input type="checkbox"/> Inadvertently omitted symbols (#, %, etc.) |
| <input type="checkbox"/> Organizational Changes: position titles,<br>department names, or telephone numbers | <input type="checkbox"/> Obvious step numbering discrepancies       |
|   | <input type="checkbox"/> Format                                     |

The following corrections are incorporated in the step(s) indicated: "Throughout" is used in lieu of Step# if a specific change affects a large number of steps.

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Changing information that is obviously incorrect and referenced correctly elsewhere

---

Misplaced decimals that are neither setpoint values nor tolerances

---

Reference to a procedure when an approved procedure has taken the place of another procedure

---

Fixing branching points when it is clear the branching steps were originally intended but were overlooked or incorrectly stated due to step number changes

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Adding clarifying information such as NOTES and CAUTIONS

---

Adding words to clarify steps, NOTES, or CAUTIONS which clearly do not change the methodology or intent of the steps

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# PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0104

New Rev: 6

PRR#: 20925

Title: OPERATION OF THE OPERATIONAL SUPPORT CENTER

## NON-INTENT CHANGES

Changes are incorporated for the reasons provided. "Throughout" is used in lieu of Step # if a specific change affects a large number of steps. For new or cancelled procedures the reason is provided.

Throughout	Reformatted to Writer's Guide Changed title from Dose Assessment Coordinator to Radiation Controls Coordinator Changed other organizational position and department titles Changed "prior to" to before Changed "in accordance with" to "according to" gramatical clarification
1.2.6	Deleted 50.59 exemption. Emergency Plan Implementing procedures are no longer exempt from process.
3.2.2; 4.2.1.4; 4.2.2.15	Clarified a tape recording can be made instead of log entries for Maintenance repair work (NUPOST 97722)
3.4.3	Clarified Portable Transceivers are plant radios
4.1.1.1	Deleted statement to have OSC Manager provide the Accident Assessment Team with plant radio. The AAT has a radio assigned to them.
4.1.2.12; 4.3.2.8; 4.5.1.4	Made Clarifying statement that EM-103, Enclosure 1, provided operator dispatch guidance. (NUPOST 91716)
4.1.3.3	Changed Radiological Emergency Planning to Emergency Preparedness - organization title change
4.2.1.5; 4.3.1.5; 4.4.1.5	Clarified reference to Enclosure 2 for staffing level and Team Roster for list of qualified members.
4.3.2.15	Clarified to complete an ETA form for each dispatched re-entry team.
Enclosure 2	Revised Enclosure 2 to match EM-102 staffing levels and reference phone directories. (NUPOST 98067)
Enclosure 3	Added statement at bottom of form that TEDE for Self Reading Dosimeter was Dose times 5 for core melt. (NUPOST 91706, 96379) Added TLD# or SSN# to allow for compliance with Total Exposure
Enclosure 5	Added information for Setup on the 124' elevation to include emergency cabinets located in that area and to clarify other items needed may need to be re-located.
3.3.13; 3.4.3; 4.6.2.1; Encl 3; Encl. 4	Delete reference to RDMS or replace RDMS with update of dose records. This prevents an incorrect reference when new change of program to Total Exposure becomes effective Feb. 2001.

## PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0104

New Rev: 6

PRR#: 20925

Title: OPERATION OF THE OPERATIONAL SUPPORT CENTER

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2.0	Changed Alara Program to Alara Planning Added EM-103, Enclosure 1
3.4.1	Deleted Radiation Monitoring Kit. This has become an additional TSC/OSC Emergency kit containing emergency supplies.
4.1.2.8	Clarified the Control Complex Repair Team takes direction from the OSC Manager as prioritized by the TSC.
4.3.2.8	Removed reference to EM-103 Enclosure 1 and make a NOTE of it prior to Section 4.3.2.15.1 where Operator dispatch is discussed. (NUPOST 88970)
Enclosure 2	Clarified dotted line functions coordinate activities.
4.1.2.5 and 4.3.2.15	Clarified teams dispatched from the OSC have ETA forms filled out.
4.3.2.6	Clarified CO2 and O2 monitoring takes place when TSC in recirculation mode with more than 50 people.
4.3.2.8	Removed the word "additional" HP Techs assigned to the Control Complex. It implies more than one HP tech is assigned to the CR and that is not necessary.

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FLORIDA POWER  
CRYSTAL RIVER UNIT 3  
PLANT OPERATING MANUAL

EMERGENCY PLAN IMPLEMENTING PROCEDURE

**EM-210A**

**DUTIES OF THE RADIATION MONITORING TEAM:  
CR-3 AND GENERATING COMPLEX PERSONNEL AND AREA MONITORING**

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**1.0 PURPOSE**

1.1 Provides instructions for the Radiation Monitoring Team (RMT), performing personnel and area monitoring for the energy complex, in the event of a radiological emergency.

**2.0 REFERENCES**

**2.1 Developmental References**

- 2.1.1 10CFR20, Appendix B
- 2.1.2 10CFR50.47, Emergency Plans
- 2.1.3 10CFR50, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities
- 2.1.4 American Conference of Governmental Industrial Hygienists Handbook, Threshold Limit Value
- 2.1.5 EM-104, Operation of the Operational Support Center
- 2.1.6 EM-210B, Duties of the Radiation Monitoring Team: Environmental Sampling and Plume Tracking
- 2.1.7 HPP-409, Inventory and Availability of Emergency Supplies/Equipment
- 2.1.8 Manual of Protective Action Guides and Protection Actions for Nuclear Incidents, EPA-400-R-92-001, Environmental Protection Agency (October, 1991)
- 2.1.9 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.1.10 Radiological Emergency Response Plan
- 2.1.11 Radiological Protection Standard
- 2.1.12 Response Technical Manual, "RTM-96," Vol. 1 Rev. 4, Section J
- 2.1.13 RSP-101, Basic Radiological Safety Information and Instructions for "Radiation Workers"
- 2.1.14 RSP-600, ALARA Planning

### 3.0 PERSONNEL INDOCTRINATION

#### 3.1 Definitions

- 3.1.1 Qualified - Successfully completed appropriate Radiation Monitoring Team training and currently listed on Emergency Call Roster.
- 3.1.2 Radiations Controls Coordinator - Lead TSC Chemistry or Radiation Protection designee directing Chemistry and Radiological assessment personnel and advising the Emergency Coordinator on these issues.
- 3.1.3 TLV/TWA - Threshold Limit Value/Time-Weighted Average (TLV/TWA) - The time-weighted average concentration for a normal 8-hour workday and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

#### 3.2 Responsibilities

- 3.2.1 The Emergency Coordinator (EC) or designee:
- o Determines where the RMT is to be dispatched.
  - o Authorizes exposure limits in excess of administrative limits.
  - o Ensures ALARA considerations are stressed.
  - o Seeks guidance from the Radiations Controls Coordinator, as required, on radiological matters.
  - o Approves Emergency RWP and Emergency Team Authorization forms in accordance with EM-104.
- 3.2.2 The Radiations Controls Coordinator or designee:
- o Determines areas to be surveyed.
  - o Updates the OSC Health Physics Coordinator of current or changing plant conditions.
  - o Assesses survey results and keeps the EC informed of inplant radiological conditions.
- 3.2.3 The OSC Health Physics Coordinator directs activities of all RMT members except those performing environmental sampling and plume tracking. RMT members performing environmental sampling and plume tracking are directed by the Environmental Survey Team Dispatcher in accordance with EM-210B.
- 3.2.4 The RMT members dispatched from the OSC provide monitoring for the Generating Complex personnel as required and ensure implementation of this procedure.

### **3.3 Limits And Precautions**

- 3.3.1 The RMT complies with the re-entry requirements of and follows the guidelines for exposure of emergency workers during re-entry activities according to EM-104.
- 3.3.2 Personnel shall not enter evacuated areas without portable survey instruments and personnel monitoring devices. Personnel accompanied by a member of the RMT are not required to carry a portable survey instrument.
- 3.3.3 RMT members must be qualified - listed on current Emergency Roster.
- 3.3.4 OSC Health Physics Coordinator must be notified if thyroid dose reaches 5 REM or is projected to reach 25 REM.

### **4.0 INSTRUCTIONS**

#### **4.1 OSC Health Physics Coordinator Functions**

The OSC Health Physics Coordinator and RMT leader functions are described in EM-104, Operation of the Operational Support Center. REFER TO Enclosure 1 for RMT checklist.

#### **4.2 RMT Functions**

#### **NOTE**

The RMT receives verbal or written instructions from the OSC Health Physics Coordinator. Additional written instructions for the RMT are inside monitoring kits.

- 4.2.1 ASSEMBLE at Health Physics area (95' Control Complex) during an Alert Classification for assignment to the OSC or Control Room.
- 4.2.2 REPORT directly to the OSC for assignment to RMT during a Site Area or General Emergency declaration.
- 4.2.3 OBTAIN instruments, dosimetry, portable transceiver(s), clothing, and supplies from the Health Physics area or from the Emergency Kits if in the TSC/OSC.
- 4.2.4 ESTABLISH Radiation Controlled Areas and appropriate access and work precautions where elevated levels of radiation, contamination, and/or airborne radioactivity may exist.
- 4.2.5 PREVENT personnel from crossing lines of controlled access and request unauthorized individuals to evacuate from the controlled area.
- 4.2.6 SUPERVISE the release of personnel who evacuate on-site assembly areas and DECONTAMINATE as necessary.
- 4.2.7 ISSUE respiratory protection equipment and personnel monitoring devices as required.
- 4.2.8 SUPPORT the Emergency Medical Technicians and Fire Brigade to include contamination control, as required.

- 4.2.9 FILL out Emergency Team Authorization (ETA) form according to EM-104.
- 4.2.10 REVIEW any survey data available for the area(s) to be traversed.
- 4.2.11 OBTAIN dose limit for entry.
- 4.2.12 ATTEND pre-job briefing and review re-entry checklist prior to dispatch according to EM-104.
- 4.2.13 PERFORM radiological surveys as directed by the OSC Health Physics Coordinator.

**NOTE**

An ion chamber is the preferred instrument, however, other instruments may be used as appropriate.

- 4.2.14 MONITOR areas traversed en route to designated areas using ion chamber survey meter and note any area where unusual dose rates exist. RECORD results on appropriate survey sheets (available in Emergency Kits) or on a form with equivalent information.

**NOTE**

- 1) Air samples must be at least 12 cubic feet.
- 2) The maximum flow rate for collecting a gross iodine sample is 5 cfm if using silver zeolite or 10 cfm if using charcoal.
- 3) The use of charcoal cartridges should be avoided if possible because of noble gas interference.

- 4.2.15 Upon arrival at the designated area, CONDUCT a dose rate, contamination, and airborne survey, as needed. RECORD results on appropriate survey sheets.[NOCS 1030]
- 4.2.16 REPORT dose rate survey results to OSC by portable transceiver or plant communications, as requested.
- 4.2.17 IF dose rates exceed predetermined values,  
OR survey is complete,  
OR if there are any type of stress related problems (i.e., physiological, psychological).  
THEN RETURN to the OSC.
- 4.2.18 REPORT any of the following to the OSC Health Physics Coordinator:
- o Personnel over exposures or suspected over exposures.
  - o Contamination or airborne problems in the TSC/OSC.
  - o Changing conditions in the field.
  - o Shortage of equipment or materials due to failure or contamination, especially dose rate instruments and breathing air cylinders.

- 4.2.19 COLLECT and REPLACE TLDs at stations as appropriate.
- 4.2.20 ENSURE ETA is updated upon return.
- 4.2.21 IF the TSC/OSC or Alternate TSC/OSC CO<sub>2</sub> level reaches 5000 ppm or O<sub>2</sub> levels reach 19.5%,  
THEN CONSIDER ventilating, reducing staff, or evacuating the area,  
AND CALCULATE the 8 hour Time Weighted Average (TWA) for CO<sub>2</sub>
- 4.2.22 IF the 8 hour TLV/TWA for CO<sub>2</sub> is exceeded,  
THEN ensure the TSC Radiation Controls Coordinator is notified of possible overexposure.
- 4.2.23 IF the TSC/OSC or Alternate TSC/OSC CO<sub>2</sub> level reaches 20,000 ppm or O<sub>2</sub> levels drop to <19.5%,  
THEN VENTILATE or EVACUATE the building within two hours.
- 4.2.24 IF the TSC/OSC or Alternate TSC/OSC CO<sub>2</sub> level reaches 30,000 ppm,  
THEN VENTILATE,  
OR EVACUATE the building within the next 15 minutes.
- 4.2.25 IF the TSC/OSC is evacuated to Control Complex,  
THEN TAKE the CO<sub>2</sub>/O<sub>2</sub> instrument to Control Room for monitoring.

### 4.3 Sample Analysis

- 4.3.1 TAKE samples to an appropriate counting station.

#### NOTE

Enclosure 2, "Formulas and Instrumentation Data Sheet" lists the proper formulas and appropriate efficiencies and conversion factors.

- 4.3.2 Using normal counting techniques, ANALYZE samples collected, using whatever counting system is available. Refer to a, b, c below when using TSC/OSC counting station.
- a. Particulate filter from air sample  
\*MS-2/RM-14/E-120 with SH-4 sample holder.
  - b. Iodine (Silver Zeolite) cartridge  
MS-2/\*RM -14/E-120 with SH-4 sample holder/SAM-II.
  - c. Smears  
\*MS-2/RM-14/E-120 with SH-4 sample holder.
- (\*) Indicates preferred counting instrument.
- 4.3.3 RETAIN selected used filters in envelopes (available in the emergency kits) for precise laboratory analysis. LABEL samples with as much information as possible (e.g., time, location, weather conditions, etc.).
- 4.3.4 REPORT results of survey data to the OSC Health Physics Coordinator.
- 4.3.5 REPORT results of any radioiodine sample analysis taken in occupied area (Control Room, TSC/OSC, etc) in which the results are in excess of  $8.0 \times 10^{-7}$   $\mu\text{Ci/cc}$  I-131 for consideration of use of potassium iodide (KI) blocking.

- 4.3.6 USE the formula in Enclosure 2 to estimate thyroid dose from air sample results.
- 4.3.7 IDENTIFY radiation instruments to be used and ENSURE calibration due dates are documented on Enclosure 1.

#### 4.4 **Rapid Thyroid Dose Estimate By Direct Measurement Using Sam-II/RD22**

- 4.4.1 ESTABLISH a low background counting area for SAM -II/RD 22.
- 4.4.2 ENSURE SAM II/RD 22 background counts are between 0-10 cpm.
- 4.4.3 RECORD the demographic data on Enclosure 3 for each individual being assessed for thyroid dose.
- 4.4.4 MEASURE the thyroid count rate by holding the RD 22 probe horizontal next to the thyroid (throat area) using a minimum count time of 1 minute.
- 4.4.5 RECORD the thyroid count rate in cpm on Enclosure 3.
- 4.4.6 ESTIMATE the thyroid dose by:

Thyroid dose in REM = (thyroid count rate from step 4.4.4 divided by 54,970 cpm per  $\mu$ Ci) x (6.5 REM per  $\mu$ Ci adult)

- 4.4.7 RECORD the estimated thyroid dose on Enclosure 3.
- 4.4.8 IF the thyroid dose estimate is greater than 5 REM (cladding failure or core melt conditions),  
THEN NOTIFY the Health Physics Coordinator for consideration of the use of KI blocking, as directed by the TSC Radiation Controls Coordinator.

## 4.5 Vehicle Decontamination

### 4.5.1 Personal Vehicles

#### NOTE

The following should take place prior to dismissing personnel to the parking lot for evacuation.

- 4.5.1.1 IF a radiological release has occurred or is in progress, THEN PERFORM a quick beta-gamma survey of a representative sample on the exterior of vehicles in the parking lot.
- 4.5.1.2 IF the results of this survey indicates no contamination, THEN NOTIFY the OSC Health Physics Coordinator that personnel are cleared for unrestricted egress.
- 4.5.1.3 IF results of this survey indicates contamination, THEN CONTACT the OSC Health Physics Coordinator, AND REPORT personal vehicle contamination levels.
- 4.5.1.4 CONSIDER one of the following for implementation:
- On-site decontamination and monitoring
  - DIRECT employees to take cars to Citrus or Levy County washdown stations for decontamination and monitoring.  
IF this method is chosen, THEN REQUEST OSC Health Physics Coordinator to have the Radiations Controls Coordinator coordinate with the EOF.
  - IF personnel vehicles are unavailable for use, THEN REQUEST coordination with the EOF for transportation off-site.

## 4.6 Documentation

- 4.6.1 FORWARD documentation and surveys created as a result of this procedure to the OSC Health Physics Coordinator. Care must be taken to ensure the documents are free from contamination prior to transmittal. Contaminated documents must be bagged, copied, and the originals discarded as radioactive waste. The copies must then be marked "ORIGINALS CONTAMINATED."
- 4.6.2 TRANSMIT documentation and surveys to Records Management under EM-210A.

**RADIATION MONITORING TEAM CHECKLIST**

OSC Manned Date: \_\_\_\_\_ Time: \_\_\_\_\_

OSC Health Physics Coordinator: \_\_\_\_\_

CHECK (when completed)	TASK
<input type="checkbox"/>	Technician assigned to Main Assembly Area (personnel frisking/decontamination) [NOCS 24200]
<input type="checkbox"/>	ENSURE sufficient EAD's obtained form 95' Control Complex
<input type="checkbox"/>	Control Point established in TSC/OSC
<input type="checkbox"/>	Counting Station set up
<input type="checkbox"/>	CO <sub>2</sub> /O <sub>2</sub> Monitor set up (Refer to Enclosure 4 for symptoms)
<input type="checkbox"/>	Ensure sufficient equipment & supplies are available
<input type="checkbox"/>	Computer Data Base with Dose Records Operable (If "NO", see Note 1)
<input type="checkbox"/>	SPDS Data Base Computer Operable (If "NO", see Note 1)
<input type="checkbox"/>	Technician Call-out complete (if required) & Work Schedules established.
<input type="checkbox"/>	Technician Doses reviewed
<input type="checkbox"/>	Emergency RWP written/approved
<input type="checkbox"/>	Sufficient number of SCBA's available (If "NO", see Note 2)
<input type="checkbox"/>	Sufficient number of spare SCBA bottles (If "NO", see Note 3)
<input type="checkbox"/>	Sufficient number of Dose Rate Instruments (If "NO", see Note 2)
<input type="checkbox"/>	<input type="checkbox"/> Master Key at HP office <input type="checkbox"/> Master Key at OSC

**NOTES:**

- 1) Notify the Radiations Controls Coordinator that Dose Margins/Power Block Radiation Levels are unknown.  
Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initials: \_\_\_\_\_
- 2) Notify the Radiations Controls Coordinator that a Re-entry should be made to obtain additional equipment.  
Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initials: \_\_\_\_\_
- 3) Notify the Radiations Controls Coordinator that arrangements must be made to have SCBA bottles refilled. Refer to HPP-515.  
Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initials: \_\_\_\_\_

DOCUMENT calibration due dates below of radiation instruments used.

INSTRUMENT	CALIBRATION DUE DATE

FORMULAS AND INSTRUMENTATION DATA SHEET**FORMULAS:**

$$\mu\text{C} = \frac{\text{Gross CPM} - \text{Background CPM}}{\text{Volume (cc)} \times \text{Detector Eff.} \times \text{FCE} \times 2.22 \text{ E6 (DPM}/\mu\text{Ci)} \times \text{Y.F.}}$$

$$\text{dpm} = \frac{(\text{Net cpm})}{(\text{Eff.})}$$

Net cpm = Gross cpm - Background cpm

Volume cc = Volume ft<sup>3</sup> x 2.832 E4 cc/ft<sup>3</sup>

Y.F. = 1.19 for SAM - II use only  
(Accounts for difference in yields Ba<sup>133</sup>/I<sup>131</sup>)

**FILTER COLLECTION EFFICIENCY (FCE)**

FLOW RATE (CFM) *	SILVER ZEOLITE	CHARCOAL	PART FILTER
1	.90	.90	.95
2	.90	.90	.95
3	.85	.80	.95
4	.80	.70	.95
5	.75	.60	.95

\*Should use calibrated flow rates when possible

**EFFICIENCIES:**

PART	MS-2	RM-14/E-120	SAM-II
IODINE	.20 .0015	.10 .0015	.03

$$\text{MDC}_{(\text{TSC})} = 1.96 \sqrt{\frac{C_B}{T_S} + \frac{C_B}{T_B}}$$

$$\text{MDC}_{(\text{ESV})} = 3\sqrt{C_B}$$

C<sub>B</sub> = Background count rate cpm

T<sub>S</sub> = Sample count time min

T<sub>B</sub> = Background count time min

**THYROID DOSE FROM AIR SAMPLE RESULTS:**

(based on 24 hour exposure)

REM Thyroid = (I-131 μCi/cc) (2.88E+7 cc  
breathed/24 hrs) (1 REM/μCi)

**THUMB RULES:** Dose rate can be estimated as follows: 20 mR/min for each R/HR.

**INSTRUMENT START-UPS:[NOCS 24170]****MS-2**

- o Power unit up - switch in back
- o Verify dial settings per calibration sticker
- o Ensure proper HP-210 probe used with SH-4 sample holder
  - IF TSC: Run background (5 min. minimum) and calculate MDC.
  - IF ESV: Run 1 minute background at each sample counting location and calculate MDC per simplified formula.
- o Response check detector

**SAM-II**

- o Ensure high voltage dial is set at zero prior to connecting detector and powering up unit
- o Power unit up - switch in back
- o Set switch and dial settings for CH-1 and CH-2 per cal sticker and label.
- o Increase H.V. gradually until original setting is reached or set per cal sticker
- o Ensure BKG subtract produces BKG reading between 0 and 10 cpm. Adjust using CH-2 window dial
- o Response check detector by placing CH-2 switch to (+). Return to (-) after indication of increasing counts.

**RM-14/E-120**

- o Check battery response
- o Response check detector
- o If used for air sample counting, use SH-4 sample holder for proper geometry

**RM-16**

- o Power up - switch in front
- o Check battery, connect to A.C. if available
- o Ensure PHA/Gross switch in gross mode
- o Response check detector
- o Set alarm needles with knobs in front

**AMS-2/3**

- o Power up - switch in front
- o Inspect/change filter and response check detector.
- o Hook up and start RAS pump
- o Set/Verify flow to indicated value on flow meter
- o Start chart recorder (if desired)

**RO-20**

- o Check Batteries
- o Response check with source

THYROID DOSE ESTIMATE, DIRECT MEASUREMENT SAM-II/RD22

Name: \_\_\_\_\_ SSN: \_\_\_\_\_ TLD: \_\_\_\_\_

Time and date of measurement: \_\_\_\_\_

**Counting Information:**

SAM-II Serial Number: \_\_\_\_\_ RD22 Serial Number: \_\_\_\_\_

Calibration Date: \_\_\_\_\_ Background: Sat [ ]    Unsat [ ]  
(0-10 cpm)

Observed thyroid counts: \_\_\_\_\_ Counting time in min: \_\_\_\_\_

Observed thyroid count rate: \_\_\_\_\_ cpm

**Calculate thyroid dose by:**

(Thyroid cpm \_\_\_\_\_  $\div$  54,970 cpm/ $\mu$ Ci)  $\times$  (6.5 rem/ $\mu$ Ci) = \_\_\_\_\_ rem

Estimated time since start of intake: \_\_\_\_\_ hours

(If estimated time since start of intake < 5 hours, the calculated dose is non-conservative.)

**Comments:**

Completed by: \_\_\_\_\_ Date: \_\_\_\_\_

Verified by: \_\_\_\_\_ Date: \_\_\_\_\_

EFFECTS AND SYMPTOMS OF (CO<sub>2</sub>)% CO<sub>2</sub>

0.04%	Normal air (0.04% = 400 ppm)
2.0%	Deeper Breathing (20,000 ppm) <sup>1</sup>
4.0%	Deeper breathing, considerable discomfort
5.0%	Very labored breathing, nausea
7.0-9.0%	Absolutely the limit of tolerance
10.0-11.0%	Lose coordination, may lose consciousness
15.0-20.0%	Brain damage can occur within minutes
25.0-30.0%	Death within a minute

EFFECTS AND SYMPTOMS OF OXYGEN DEFICIENCYOxygen  
by Volume

15-19%	Decreased ability to work strenuously. May impair coordination and may induce early symptoms in workers with coronary, pulmonary, or circulatory problems. <sup>2</sup>
12-14%	Respiration increases with exertion, pulse increases, impaired coordination, perception, and judgment.
10-12%	Respiration further increases in rate and depth, poor judgment, lips turn blue.
8-10%	Mental failure, fainting, unconsciousness, ashen face, blueness of lips, nausea and vomiting.
6-8%	8 minutes 100% fatal; 6 minutes 50% fatal; 4-5 minutes recovery with treatment.
4-6%	Coma in 40 seconds, convulsions, respiration ceases, death.

---

1) 2.0% (20,000 ppm) CO<sub>2</sub> is an action level per step 4.2.23.

2) <19.5% is an action level per step 4.2.23.

# PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0210A

New Rev: 5

PRR#: 20862

Title: DUTIES OF THE RADIATION MONITORING TEAM:  
CR-3 AND GENERATING COMPLEX PERSONNEL AND AREA MONITORING

## MINOR CHANGES

If Minor Changes are included, check the applicable box(es) and provide a list of affected steps.  
The following corrections are incorporated throughout:

- |   |   |
|---|---|
| <input type="checkbox"/> Sentence Structure   | <input type="checkbox"/> Redundant words or phrases                 |
| <input type="checkbox"/> Punctuation  | <input type="checkbox"/> Abbreviations                              |
| <input type="checkbox"/> Capitalization   | <input type="checkbox"/> Obviously incorrect units of measure       |
| <input type="checkbox"/> Spelling   | <input type="checkbox"/> Inadvertently omitted symbols (#, %, etc.) |
| <input type="checkbox"/> Organizational Changes: position titles,<br>department names, or telephone numbers | <input type="checkbox"/> Obvious step numbering discrepancies       |
|   | <input type="checkbox"/> Format                                     |

The following corrections are incorporated in the step(s) indicated: "Throughout" is used in lieu of Step# if a specific change affects a large number of steps.

---

Changing information that is obviously incorrect and referenced correctly elsewhere

---

Misplaced decimals that are neither setpoint values nor tolerances

---

Reference to a procedure when an approved procedure has taken the place of another procedure

---

Fixing branching points when it is clear the branching steps were originally intended but were overlooked or incorrectly stated due to step number changes

---

Adding clarifying information such as NOTES and CAUTIONS

---

Adding words to clarify steps, NOTES, or CAUTIONS which clearly do not change the methodology or intent of the steps

---

# PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0210A

New Rev: 5

PRR#: 20862

Title: DUTIES OF THE RADIATION MONITORING TEAM:  
CR-3 AND GENERATING COMPLEX PERSONNEL AND AREA MONITORING

## NON-INTENT CHANGES

Changes are incorporated for the reasons provided. "Throughout" is used in lieu of Step # if a specific change affects a large number of steps. For new or cancelled procedures the reason is provided.

Throughout	Revised to new Writer's Guide Format Changed the title of Dose Assessment Coordinator to Radiation Controls Coordinator Change reference to Medical Rep. To Radiation Controls Coordinator
3.1 NOTE	Deleted note indicating procedure is outside scope of 10CFR50.59. RERP implementing procedures are no longer exempt from new NGG process.
Enclosure 1	Made separate checkoffs for computers. Changed RDMS to Dose Records data base and RMG to SPDS Data Base computers being operable. (NUPOST 77353) Added reminder for Master Key Added calibration due date on Enclosure.
Enclosure 2	Made changes to instrument startups for clarification and added RO-20 instrument (NUPOST 91711) Changed formula for unidentified airborne activity. Changed Collection Efficiency Factors to Filter Collection Efficiency. Revised table to reflect correct flows.
3.2.3, 3.2.4	Clarified use of RMT members.
4.1	Added reference to Enclosure 1 - Writer's Guide
Enclosures 3 and 4	Changed order of Enclosures to meet Writer's Guide. Changed references throughout procedure. Added Completed By and Verified By signoff on Enclosure 3.
2.1.13	Changed RSP-600 procedure title to ALARA Planning. Added Radiological Protection Standard as Reference Document. Renumbered accordingly.
Table of Contents	Removed non-quality records designation from Enclosure 1.
4.2.14	Add NOTE that the preferred instrument to use is ion chamber.
4.5.1.3	Clarify Citrus and Levy are Counties.

FLORIDA POWER  
CRYSTAL RIVER UNIT 3  
PLANT OPERATING MANUAL

EMERGENCY PLAN IMPLEMENTING PROCEDURE

**EM-210B**

**DUTIES OF THE RADIATION MONITORING TEAM:  
ENVIRONMENTAL SAMPLING AND PLUME TRACKING**

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## 1.0 PURPOSE

- 1.1 Provides instructions for the Radiation Monitoring Team (RMT) performing environmental sampling and plume tracking in the event of a radiological emergency.

## 2.0 REFERENCES

### 2.1 Developmental References

- 2.1.1 10CFR50.47, Emergency Plans
- 2.1.2 10CFR50, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities
- 2.1.3 EM-104, Operation of the Operational Support Center
- 2.1.4 EM-210A, Duties of the Radiation Monitoring Team: CR-3 and Generating Complex Personnel and Area Monitoring
- 2.1.5 EM-219, Duties of the Dose Assessment Team
- 2.1.6 NUREG 0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
- 2.1.7 Radiological Emergency Response Plan
- 2.1.8 Radiological Protection Standard
- 2.1.9 RSP-101, Basic Radiological Safety Information and Instructions for "Radiation Workers"

## 3.0 PERSONNEL INDOCTRINATION

### 3.1 Definitions

- 3.1.1 **Environmental Survey Team (EST) Dispatcher** - Health Physics Supervisor or qualified Radiation Monitoring Team designee coordinating activities for the EST. The term "Dispatcher" is also used for this position.
- 3.1.2 **EST/RMT** - The portion of the RMT that tracks the plume and performs environmental sampling within the Crystal River Energy Complex and within the 10-mile Emergency Planning Zone (EPZ). RMT and EST will be used interchangeably throughout the procedure.
- 3.1.3 **ESV** - Environmental Survey Vehicle
- 3.1.4 **Plume Tracking** - Locating, tracking, and monitoring of radiological characteristics (e.g., dose rates and radioactivity levels) of airborne radioactive material.
- 3.1.5 **Qualified** - Successfully completed appropriate emergency team training and currently listed on Emergency Call Roster.

3.1.6 **Radiation Controls Coordinator** - Lead Technical Support Center (TSC) Chemistry or Radiation Protection designee directing Chemistry and Radiological assessment personnel and advising the Emergency Coordinator on these issues.

3.1.7 **Team Leader** - A qualified, Radiation Monitoring Team member performing the lead responsibilities for the Environmental Survey Team.

### 3.2 **Responsibilities**

3.2.1 The Emergency Coordinator (EC) or his designee:

- o Authorizes exposure limits in excess of administrative limits.
- o Ensures ALARA considerations are stressed.
- o Seeks guidance from the Radiation Controls Coordinator, as required, on radiological matters.
- o Approves Emergency Radiation Work Permit (RWP) and Emergency Team Authorization (ETA) forms in accordance with EM-104.
- o Authorizes on-site and off-site plume monitoring.
- o Directs EST to support State of Florida sampling team(s), if requested.

3.2.2 The Radiation Controls Coordinator or designee:

- o Determines the need and makes recommendations to the EC about the feasibility of dispatching the (ESTs), based upon available radiological data and physical plant conditions.
- o Provides the Dispatcher with any special instructions prior to the Team's departure.
- o Keeps the Dispatcher appraised of current or changing conditions affecting the members of the EST.
- o Relays the information provided by the Dispatcher to the EC.

3.2.3 The Dispatcher directs activities of the EST performing environmental sampling and plume tracking, either from the TSC or from the Emergency Operations Facility (EOF), in accordance with Section 4.1. The Dispatcher should be Dose Assessment Team qualified.

3.2.4 The EST Leader and EST members perform environmental sampling and plume tracking and ensure implementation of this procedure.

3.2.5 The EST Members collect, analyze and package samples obtained in the field, notifying the EST Leader or Dispatcher about any condition that could hamper the team's effort to track the plume (e.g., inadequate supplies, instrument malfunctions, etc.).

### **3.3 Limits And Precautions**

- 3.3.1 Drive safely and comply with traffic laws at all times.
- 3.3.2 The EST complies with the requirements of and follows the guidelines for exposure of emergency workers during re-entry activities as contained in EM-104.
- 3.3.3 EST members must be qualified - listed on current emergency roster.
- 3.3.4 An EST shall consist of at least two (2) persons.
- 3.3.5 Assessment of location and radiological characteristics of a plume or radioactive material is one factor for determination of emergency classification, determination of what (if any) protective action guides (PAGs) are being approached or exceeded, and to verify and supplement CR-3's other dose assessment capabilities. [NOCS 1592]
- 3.3.6 Wind shift caused by the sea breeze effect is one occurrence that can seriously affect the ability of the team to track the plume. This phenomenon usually occurs in the daylight hours during the months of March through October. A buildup of a line of heavy clouds or thunderstorms normally takes place at the point of the wind shift caused by the sea breeze.
- 3.3.7 A westerly wind could indicate a sea breeze. Visual aids (e.g., smoke, low cloud movement, etc.) may provide a means of detecting when and where this wind shift is occurring.
- 3.3.8 The team should consider exposure when trying to determine a plume's highest dose rate. Considerable exposure could be received looking for the "highest" gamma dose rate.
- 3.3.9 The RMT has no authority to evacuate personnel outside of the Owner-Controlled Area, except through specific instructions from the EC.

### **3.4 Equipment**

- 3.4.1 Available Equipment:
  - o EST supplies as identified in HPP-409.
  - o Vehicle (ESV or backup). [NOCS 7450]
  - o Transceiver (plant radio) and batteries.
  - o Cellular phone in ESV.
  - o UHF, VHF radios.

## 4.0 INSTRUCTIONS

### 4.1 EST Dispatcher

#### 4.1.1 Activation

4.1.1.1 REPORT to the TSC upon the declaration of an Alert, Site Area or General Emergency.

4.1.1.2 BADGE in at TSC/OSC Card reader.

4.1.1.3 NOTIFY Radiation Controls Coordinator of your arrival.

4.1.1.4 OBTAIN procedures as needed. (EM-104, EM-219)

4.1.1.5 VERIFY operability of communication.

4.1.1.6 OBTAIN Tampa Weather data as needed.

#### 4.1.2 Operation

4.1.2.1 Upon direction from the Radiation Controls Coordinator, DETERMINE manpower needs and select qualified personnel to form the EST.

4.1.2.2 ENSURE EST members are listed on an Emergency Team Authorization form.

4.1.2.3 CONDUCT a pre-job briefing prior to the team's departure according to Enclosure 4 of EM-104.

4.1.2.4 NOTIFY the Radiation Controls Coordinator of teams readiness to depart.

4.1.2.5 ESTABLISH contact with the EOF Field Team Dispatcher as needed for EST dispatch coordination.

4.1.2.6 ACT as communication liaison between the EST, the Radiation Controls Coordinator, the Dose Assessment Team and the EOF Field Team Dispatcher.

4.1.2.7 DIRECT the plume tracking activities with guidance from the Radiation Controls Coordinator and DAT in accordance with EM-219.

4.1.2.8 NOTIFY the EST Leader of current or changing conditions, especially meteorological.

4.1.2.9 ENSURE the EST Leader reports apparent conflicts with projected plume location and observed meteorological conditions.

4.1.2.10 PROVIDE information regarding the location and radiological conditions (e.g., dose rates and airborne radioactivity levels) of a plume or radioactive material to the Radiation Controls Coordinator.

4.1.2.11 ENSURE comparisons for field team measurements versus calculated dose rate estimates are completed in accordance with EM-219, Enclosure 1.

4.1.2.12 ENSURE copies of environmental survey results are maintained and transmitted to the EOF. [NOCS 24110]

4.1.2.13 ACT as communications backup if the EOF assumes direction of EST.

## **4.2 Environmental Survey Team Leader**

4.2.1 PERFORM Team Leader responsibilities according to Enclosure 4 of EM-104.

4.2.2 FILL OUT the ETA in accordance with the requirements of the ERWP and any instructions given at the pre-job briefing. (Refer to Enclosure 4 of EM-104).

4.2.3 DIRECT plume monitoring and sampling beyond the site boundary until the State of Florida arrives on the scene and assumes this responsibility. [NOCS 1136]

4.2.3.1 DIRECT plume monitoring and sampling activities within the Site boundary until authorization from the EC or EOF Director that the team is recalled.

4.2.4 ENSURE the team takes Potassium Iodine (KI) tablets with them in case there is a need to take them, as directed by the Radiation Controls Coordinator.

4.2.5 TRACK the EST's accumulative exposure.

## **4.3 EST Preparations (At TSC/OSC)**

4.3.1 REPORT to Local Assembly Area (Health Physics 95' Control Complex) during an Alert declaration. Upon assignment to respond as an emergency team member, REPORT to the TSC/OSC and badge in.

4.3.2 REPORT directly to the TSC/OSC for assignment during the declaration of a Site Area or General Emergency.

4.3.3 FORM the EST as directed by the Radiation Controls Coordinator.

4.3.4 OBTAIN keys for the ESV from the key locker in the Health Physics Office (95' Control Complex), Health Physics Calibration Lab, or the TSC/OSC Emergency Kit. A personal vehicle may be used as a back-up or second ESV. An additional Kit is maintained in Nuclear Security Operations Center. [NOCS 24290]

4.3.5 OBTAIN survey instruments from the Emergency Kit in the TSC/OSC. [NOCS 24290]

4.3.6 OBTAIN any additional supplies that may be needed that are NOT part of the supplies located in the ESV (e.g., SCBAs and spare bottles, counting system, E-120 instrument, full face respirators, etc.).

4.3.7 OBTAIN transceiver(s) and spare battery(s) from TSC/OSC emergency supplies. [NOCS 24290]

4.3.8 DETERMINE operability of radiation instruments to be used and DOCUMENT calibration due dates below:

INSTRUMENT	CALIBRATION DUE DATE

4.3.9 DETERMINE counting system efficiencies. Use efficiency values listed on Enclosure 1, if necessary.

4.3.10 OBTAIN Self-Reading dosimetry.

**NOTE**

The Emergency RWP and Emergency Team Authorization are defined in EM-104, Operation of the Operational Support Center.

4.3.11 ATTEND pre-job briefing and ensure the Emergency RWP and ETA is filled out and signed in accordance with EM-104.

4.3.12 DON protective clothing, if required, in accordance with the Emergency RWP and ETA.

4.3.13 PROCEED to ESV.

4.3.14 RETAIN thermoluminescent dosimeter (TLD) badges when leaving site. [NOCS 13150]

**4.4 Team Preparations (At ESV)**

4.4.1 PROCEED to ESV.

4.4.2 DON protective clothing in accordance with the ETA (if NOT performed earlier).

4.4.3 NOTIFY Environmental Survey Dispatcher of readiness to depart.

**4.5 Plume Tracking And Sample Collection [NOCS 1126, 7450]**

**NOTE**

An Environmental Survey Team map may be used for plume tracking and locating pre-designated monitoring points.

4.5.1 PROCEED to area specified by the Dispatcher.

**NOTE**

An E-120 or equivalent instrument as determined by Health Physics Tech, may be necessary to detect very small releases.

- 4.5.2 MONITOR beta and gamma dose rates en route to the designated area. Dose rates above background could indicate:
- o Outer fringes of the plume have been reached.
  - o Plume is overhead.
  - o Plume was in area and has deposited sufficient amounts of radioactive materials so that dose rates are elevated.
- 4.5.3 IF elevated dose rates are located in other than the designated plume area, THEN DOCUMENT on map (Enclosure 2 or Enclosure 3) or on an environmental survey map (available in ESV Kit), AND REPORT this information to the Dispatcher for evaluation. (These locations may be chosen as collection sites for environmental samples by the State of Florida.)
- 4.5.4 Upon arrival at the designated area, LOCATE the fringe of the plume by continuously monitoring dose rates with an ion chamber (open window) or E-120.
- 4.5.5 CONTACT the Dispatcher for further instructions if dose rate readings do NOT indicate that the plume is in the vicinity.
- 4.5.6 IF the encountered dose rates exceed the limits set, THEN RETURN to an area of lower radiation levels, AND EVALUATE alternatives with the Dispatcher.
- 4.5.7 LOCATE the highest dose rate after the fringe has been identified by traversing the area, as directed by the Dispatcher. Continuously monitor the dose rates, using an ion chamber (window closed).
- 4.5.8 OBTAIN a closed and open window reading using the ion chamber at the highest dose rate area identified in Step 4.5.6 and perform the following:
- o RECORD distance, sector, time and dose rates on Enclosure 4. Distances and sectors for pre-designated sample locations are listed in Enclosure 5 for pre-designated location points outside the Energy Complex and on Enclosure 6 for Energy Complex location points.
  - o SUBTRACT the closed window (gamma) reading from the open window (beta, gamma) reading.
  - o If there is no significant difference, this indicates that the plume is overhead. CONTACT the Dispatcher for further instructions.
  - o If there is a significant difference, this indicates that the plume is at ground level.

**NOTE**

Silver Zeolite cartridges must be used if available. Air sample volume should be at least 12 cubic feet.

- 4.5.9 After the highest dose rate of the plume has been identified, **PERFORM** the following:
- o **COLLECT** a small number of 100 cm<sup>2</sup> smears on horizontal surfaces. If dose rates are high, smears may be omitted.
  - o **SET UP** the air sampling equipment and obtain a particulate and iodine air sample.
- 4.5.10 **MOVE** to a low dose area until the specified air sample volume has been obtained. If possible, try to keep the flashing light in sight which indicates proper generator operation.
- 4.5.11 **RETURN** to the sample collection point and retrieve equipment. **NOTIFY** the Dispatcher if dose rates have varied.

**NOTE**

Samples are counted in the lowest available background area for statistical accuracy.

- 4.5.12 **DETERMINE** a low background counting station near the specified area.

**4.6 Sample Analysis**

- 4.6.1 Upon arrival at the designated counting station, **TAKE** any necessary precautions to ensure counting station equipment remains as contamination free as possible.

**NOTE**

Background must be less than 1000 cpm so that the minimum detectable activities (MDAs) of 1.0 x E-9 uCi/cc for gross particulates and 1.0 x E-7 uCi/cc for gross iodine can be obtained. [NOCS 7461, 24290]

- 4.6.2 **RUN** a one-minute background on the counting system. See Enclosure 1, Formulas and Instrumentation Data Sheet.
- 4.6.3 **ANALYZE** samples collected using normal counting techniques and report results to the Environmental Survey Dispatcher.
- 4.6.4 **IF** sample is >5 mRad/hr. smearable, **THEN** **CONSIDER** storage of smear in lead lined metal box located in the ESV.

4.6.5 RETAIN all used filters in envelopes (available in the emergency kits) for precise laboratory analysis. LABEL samples with as much information as possible (time, location, weather conditions, etc.).

4.6.6 LOAD counting equipment in ESV for transport.

#### 4.7 Vehicle Decontamination

##### NOTE

The EST Leader, in conjunction with the Environmental Survey Team Dispatcher, decide at what point ESV contamination levels will begin to hinder plume tracking activities or cause excessive exposure to the team, as noted in Section 4.6.

4.7.1 PERFORM a quick beta-gamma survey of the exterior of the ESV and the vehicle's air filter.

4.7.2 NOTIFY Dispatcher of vehicle contamination levels.

4.7.3 PROCEED as directed by Dispatcher to any county wash down station or return to the Crystal River Energy Complex for wash down of the ESV, if required.

#### 4.8 Team Recall

4.8.1 RETURN to the TSC/OSC or the EOF when notified by the Dispatcher.

4.8.2 IF a physical turnover is made to the State of Florida representatives, THEN PROVIDE copies of surveys or other written information, keeping originals, AND OBTAIN in a receipt from the State for anything exchanged.

4.8.3 MAKE arrangements for the ESV to be surveyed, decontaminated and restocked in case needed again.

4.8.4 NOTIFY the Dispatcher of any problems or when ESV has been readied for re-use.

4.8.5 REPORT total exposure received by the EST members to Dosimetry located in the TSC/OSC (internal and external) and UPDATE Emergency Team Authorization form.

4.8.6 INFORM the EST Dispatcher of your availability.

#### 4.9 Documentation

4.9.1 FORWARD documentation and surveys created as a result of this procedure to the OSC Health Physics Coordinator in the OSC. Care must be taken to ensure the documents are free from contamination prior to transmittal. Contaminated documents must be bagged, copied, and the originals discarded as radioactive waste. The copies must then be marked "ORIGINALS CONTAMINATED."

## FORMULAS AND INSTRUMENTATION DATA SHEET

## FORMULAS:

$$\mu\text{Ci/cc} = \frac{\text{Gross CPM} - \text{Background CPM}}{\text{Volume (cc)} \times \text{Detector Eff.} \times \text{FCE} \times 2.22 \text{ E6 (DPM}/\mu\text{Ci)} \times \text{Y.F.}}$$

$$\text{dpm} = \frac{(\text{Net cpm})}{(\text{Eff.})}$$

Net cpm = Gross cpm - Background cpm

Volume cc = Volume ft<sup>3</sup> x 2.832 E4 cc/ft<sup>3</sup>

Y.F. = 1.19 for SAM - II use only  
(Accounts for difference in yields Ba<sup>133</sup>/I<sup>131</sup>)

## FILTER COLLECTION EFFICIENCY (FCE)

FLOW RATE (CFM) *	SILVER ZEOLITE	CHARCOAL	PART. FILTER
1	.90	.90	.95
2	.90	.90	.95
3	.85	.80	.95
4	.80	.70	.95
5	.75	.60	.95

\*Should use calibrated flow rates when possible.

## EFFICIENCIES:

PART	MS-2	RM-14/E-120	SAM-II
IODINE	.0015	.0015	.03

$$\text{MDC}_{(\text{TSC})} = 1.96 \sqrt{\frac{C_B}{T_S} + \frac{C_B}{T_B}}$$

$$\text{MDC}_{(\text{ESV})} = 3\sqrt{C_B}$$

C<sub>B</sub> = Background count rate cpm

T<sub>S</sub> = Sample count time min

T<sub>B</sub> = Background count time min

## THYROID DOSE FROM AIR SAMPLE RESULTS:

(based on 24 hour exposure)

REM Thyroid = (I-131 μCi/cc) (2.88E+7 cc

breathed/24 hrs) (1 REM/μCi)

## INSTRUMENT START-UPS: [NOCS 24170]

## MS-2

- o Power unit up - switch in back
- o Verify dial settings per calibration sticker
- o Ensure proper HP-210 probe used with SH-4 sample holder
- IF TSC: Run background (5 min. minimum) and calculate MDC.
- IF ESV: Run 1 minute background at each sample counting location and calculate MDC per simplified formula.
- o Response check detector

## SAM-II

- o Ensure high voltage dial is set at zero prior to connecting detector and powering up unit.
- o Power unit up - switch in back.
- o Set switch and dial settings for CH-1 and CH-2 per cal sticker and label.
- o Increase H.V. gradually until original setting is reached or set per cal sticker.
- o Ensure BKG subtract produces BKG reading between 0 and 10 cpm. Adjust using CH-2 window dial.
- o Response check detector by placing CH-2 switch to (+). Return to (-) after indication of increasing counts.

## RM-14/E-120

- o Check battery response
- o Response check detector
- o If used for air sample counting, use SH-4 sample holder for proper geometry

## RM-16

- o Power up - switch in front
- o Check battery, connect to A.C. if available
- o Ensure PHA/Gross switch in gross mode
- o Response check detector
- o Set alarm needles with knobs in front

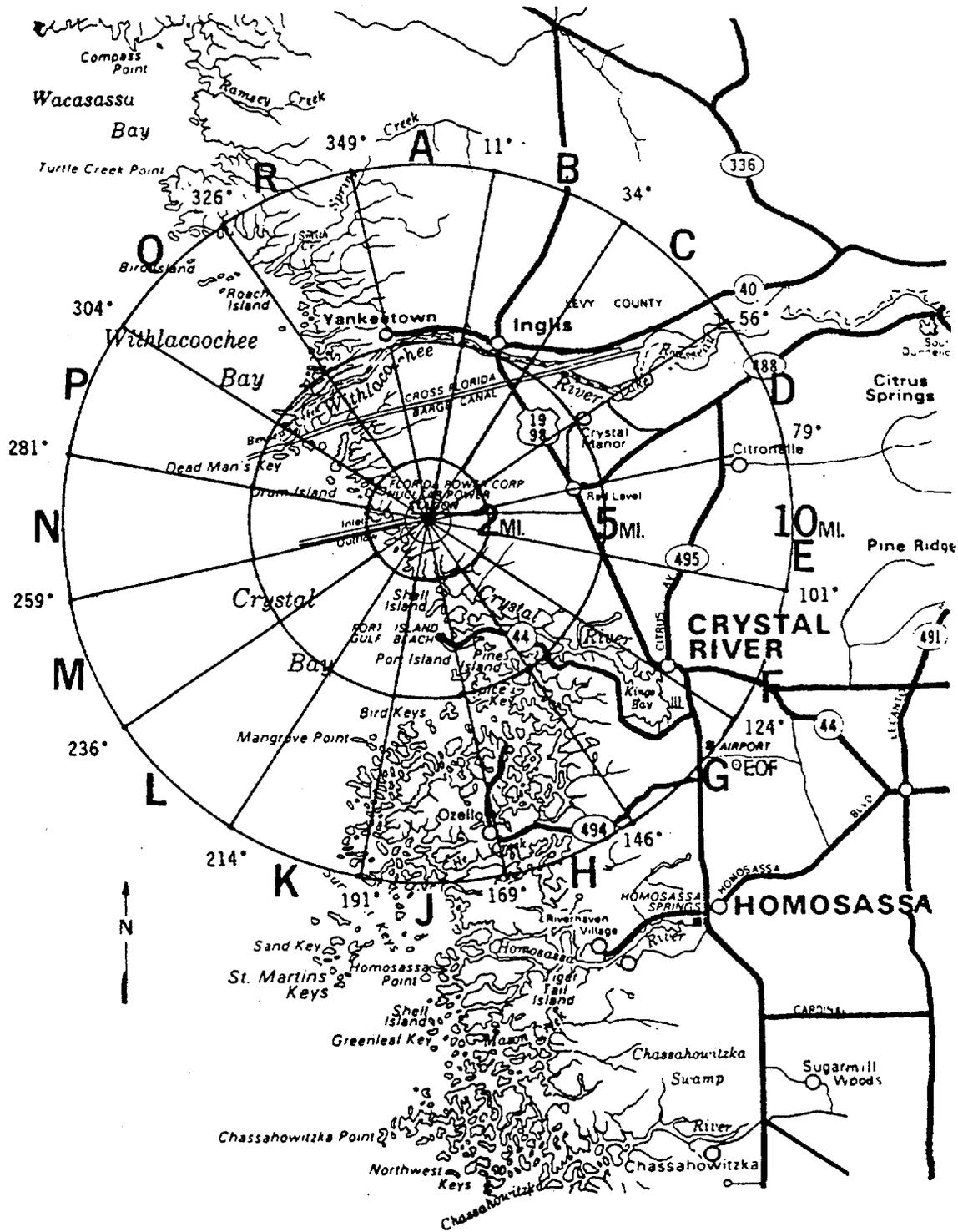
## AMS-2/3

- o Power up - switch in front..
- o Inspect/change filter and response check detector.
- o Hook up and start RAS pump
- o Set/Verify flow to indicated value on flow meter.
- o Start chart recorder (if desired)

## RO-20

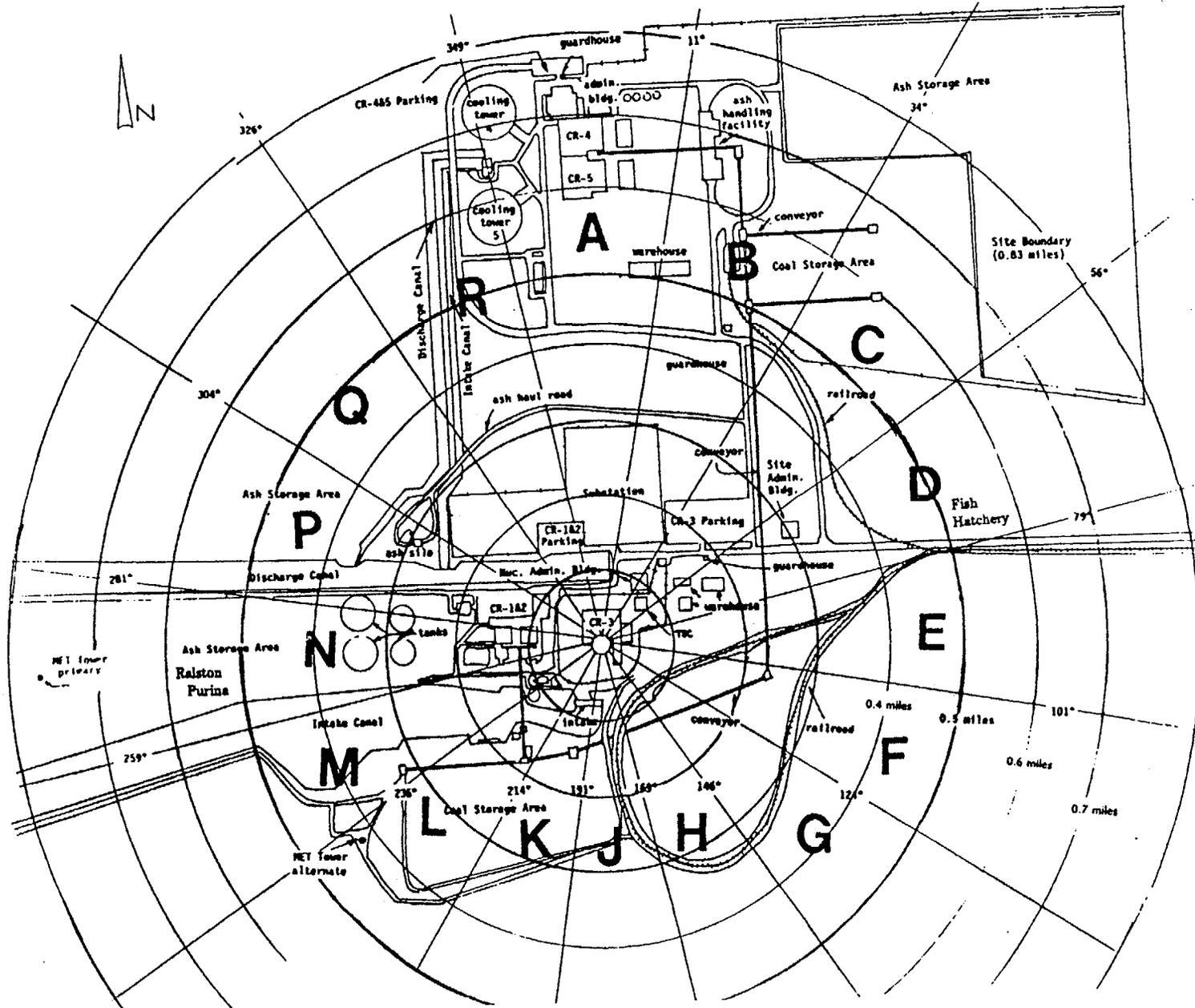
- o Check batteries
- o Response check with source

**THUMB RULES:** Dose rate can be estimated as follows: 20 mR/min for each R/HR.



If available, utilize an "Environmental Survey Team" map for plume tracking and locating predesignated monitoring points.

### OWNER CONTROLLED AREA MAP





ENVIRONMENTAL SURVEY TEAM  
PREDESIGNATED SAMPLE POINTS  
(10 MILE EPZ)

<u>*DESIGNATION</u>	<u>LOCATION</u>	<u>DISTANCE FROM CR-3 (Air Miles)</u>
<b>CITRUS COUNTY:</b>		
B-4	Intersection of U.S. 19 and Cross Florida Barge Canal.	4.5
C-6B	At Old Hydro Dam on N. Riverwood Dr. on Withlacoochee River.	6.4
D-4	On U.S. 19 Approx. 2.25 Miles North of Energy Complex Access Rd. at Entrance to Crystal Manor.	4.0
D-7	On S.R. 488 at Entrance to Holiday Heights Subdivision.	7.0
D-9	Intersection of S.R. 495 and S.R. 488.	8.8
E-4	Intersection of U.S. 19 and Energy Complex Access Rd. (Powerline St.).	4.4
E-7	On S.R. 495 at Shamrock Farm House Approx. 3 Miles North of U.S. 19.	7.4
E-8	Intersection of S.R. 495 and SCL Railroad Track.	7.6
F-5	Intersection of W. State Park St. and N. Sailboat Ave. Approx. 1.6 Miles From U.S. 19 at Southeast Corner of Hollingswood Ranch.	4.8
F-6	Intersection of U.S. 19 North and W. State Park St.	6.4
F-8	Downtown Crystal River at Intersection of U.S. 19 and S.R. 495.	7.8
F-10	Intersection of S.R. 44 East and S.R. 486.	10.0
G-5	Bridge Over Salt River on S.R. 44 West.	5.0
G-7A	End of Dixie Shores Dr. Off S.R. 44 West at The Islands Subdivision.	7.0
G-7B	Intersection of S.R. 44 West and W. Pine Bark Lane at Crystal Shores Subdivision.	7.0
G-9	Intersection of S.R. 44 West and U.S. 19.	9.0

\* Designation provides sector & approximate distance from CR-3.

**ENVIRONMENTAL SURVEY TEAM PREDESIGNATED  
SAMPLE POINTS (10 MILE EPZ) (Continued)**

<u>*DESIGNATION</u>	<u>LOCATION</u>	<u>DISTANCE FROM CR-3 (Air Miles)</u>
<b>CITRUS COUNTY: (Cont'd)</b>		
G-10A	Water Dept. Bldg. on S.R. 494 Approx. 1.5 Miles from U.S. 19.	9.8
G-10B	Intersection of U.S. 19 and W. Seven Rivers Drive at Crystal River-Homosassa Airport.	9.9
H-7	End of S.R. 494 at Ozello.	6.8
H-9	Intersection of S.R. 494 and John Brown Dr.	9.0
J-3	Fort Island Beach at End of S.R. 44 West.	3.4
<b>LEVY COUNTY:</b>		
A-5	Intersection of County Rd. 40 West and Riverside Dr.	5.0
A-7	Intersection of Butler Rd. (County 325) and Jordan Rd.	6.8
B-6	Intersection of County Rd. C-40-A and U.S. 19.	6.2
B-8	On U.S. 19 Approx. 2.5 Miles North of Inglis at Levy County Sheriff Station.	7.8
C-6A	Intersection of County Rd. 40 East and County 345.	5.5
C-10	Intersection of County Rd. 40 East and County 330 (Peaceful Acres)	9.8
Q-5	County Park at End of County Rd. 40 West.	4.8
R-4	On County Rd. 40 West Approx. 1.5 Miles From County Park.	4.8
R-5	Intersection of County Rd. 40 West and County Rd. C-40A	5.0

\* Designation provides sector & approximate distance from CR-3.

**ENVIRONMENTAL SURVEY PREDESIGNATED  
SAMPLE POINTS (ENERGY COMPLEX)**

<u>DESIGNATION</u>	<u>LOCATION</u>
SA-1 SA-2	North of Ash Haul road under transmission lines Unit 4/5 North Guardhouse
SB-1 SB-2	At gas pump CR-4/5 Culvert railing east of CR-4/5
SC-1 SC-2	Old CR-4/5 access road under power lines East of CR-4/5 coal pile at site boundary
SD-1 SD-2	Helo pad North of Mariculture Center at fence on utility pole
SE-1 SE-2	Railroad loop divergence point On Access road at RR switch
SF-1	South side of RR loop road
SG-1	South side of RR loop road (on fence post)
SH-1	South side of RR loop road (on fence post)
SJ-1	Aerial marker (concrete pad) SE corner of CR-1/2 coal pile on R loop
SK-1	South side of CR-1/2 coal pile road (in median)
SL-1	Aerial marker (concrete pad) SW 1/2 coal pile
SM-1	West of Bldg 1005 CR-1/2 coal conveyor
SN-1 SN-2	South side of oil tank warehouse Primary met tower
SP-1	East side cooling tower at gate
SQ-1 SQ-2	Under flyash conveyer near processing bldg North of mechanical cooling towers at midpoint of old ash pond road
SR-1 SR-2	Pole north of Ash Haul road in field under power lines On dolomite conveyer machine

# PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0210B

New Rev: 6

PRR#: 20733

Title: DUTIES OF THE RADIATION MONITORING TEAM: ENVIRONMENTAL SAMPLING AND PLUME TRACKING

## MINOR CHANGES

If Minor Changes are included, check the applicable box(es) and provide a list of affected steps.  
The following corrections are incorporated throughout:

- |   |   |
|---|---|
| <input type="checkbox"/> Sentence Structure   | <input type="checkbox"/> Redundant words or phrases                 |
| <input type="checkbox"/> Punctuation  | <input type="checkbox"/> Abbreviations                              |
| <input type="checkbox"/> Capitalization   | <input type="checkbox"/> Obviously incorrect units of measure       |
| <input type="checkbox"/> Spelling   | <input type="checkbox"/> Inadvertently omitted symbols (#, %, etc.) |
| <input type="checkbox"/> Organizational Changes: position titles,<br>department names, or telephone numbers | <input type="checkbox"/> Obvious step numbering discrepancies       |
|   | <input type="checkbox"/> Format                                     |

The following corrections are incorporated in the step(s) indicated: "Throughout" is used in lieu of Step# if a specific change affects a large number of steps.

Changing information that is obviously incorrect and referenced correctly elsewhere

Misplaced decimals that are neither setpoint values nor tolerances

Reference to a procedure when an approved procedure has taken the place of another procedure

Fixing branching points when it is clear the branching steps were originally intended but were overlooked or incorrectly stated due to step number changes

Adding clarifying information such as NOTES and CAUTIONS

Adding words to clarify steps, NOTES, or CAUTIONS which clearly do not change the methodology or intent of the steps

## PROCEDURE DEVELOPMENT AND REVISION RECORD

Procedure: EM0210B

New Rev: 6

PRR#: 20733

Title: DUTIES OF THE RADIATION MONITORING TEAM: ENVIRONMENTAL SAMPLING AND PLUME TRACKING

### NON-INTENT CHANGES

Changes are incorporated for the reasons provided. "Throughout" is used in lieu of Step # if a specific change affects a large number of steps. For new or cancelled procedures the reason is provided.

Throughout	Changed the title of Dose Assessment Coordinator to Radiation Controls Coordinator Changed Procedure Format to new format. Changed Generating complex to Energy Complex
3.0	Deleted note indicating procedure is outside scope of 10CFR50.59. RERP implementing procedures are no longer exempt from new NGG process.
3.2.3	Added clarification that Dispatcher instructions are in section 4.1 of procedure and that the Dispatcher should be DAT qualified.
3.3.9	Clarified RMT had no authority to evacuate personnel outside Owner-Controlled Area except through specific instructions from the EC. This is required from the RERP.
3.4.1	Clarified equipment available includes Transceivers (plant radios) NUPOST 97712
4.1.1.6	Added responsibility to obtain Tampa weather data for ESV Dispatcher. (NUPOST 65954)
4.3.8	Changed dose rate instruments to radiation instruments. Left the Instrument block blank so teams can enter the instruments used and calibration due date for the instrument. (NUPOST 80561)
Enclosure 1	Made changes to instrument startups for clarification and added RO-20 instrument (NUPOST 91711) Changed formula for unidentified airborne activity. Changed Collection Efficiency Factors to Filter Collection Efficiency. Revised table to reflect correct flows.
Enclosure 5	Added new location descriptions for Sample points and re-arranged to alphabetical order. (NUPOST 84451)
Enclosure 4	Added * to consider using cell phone time for consistency (NUPOST 84451)
4.3.4	Clarified ESV backup vehicle will be a personal vehicle and a second kit is maintained in NSOC. Since the Plant Emergency Vehicle was removed from site, no specific vehicle is maintained for a second ESV.
4.1.1.4	Added EM-219. The ESV dispatcher also follows instructions included in EM-219, Duties of the Dose Assessment Team.
3.1	Changed definitions to alphabetical order to meet Writers Guide.
4.1.2.7	Add words to include instructions from EM-219. RMT dispatcher needs to be aware of instructions for the DAT.

## PROCEDURE DEVELOPMENT AND REVISION RECORD

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Procedure: EM0210B                      New Rev: 6                      PRR#: 20733  
Title:                      DUTIES OF THE RADIATION MONITORING TEAM: ENVIRONMENTAL SAMPLING AND PLUME TRACKING

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|----------|--|
| 4.2.4    | Changed Medical Representative in TSC to Radiation Controls Coordinator. There is no longer a medical Rep. in the TSC. The Rad Controls Coordinator has taken over responsibility for KI distribution. |
| 2.1      | Changed RSP-600 to Radiological Protection Standard; Added reference to EM-219, Duties of the Dose Assessment Team   |
| 4.1.2.11 | Clarified Field Team Measurement as compared in EM-219, Enclosure 1.   |
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