


# USERS COPY

2 of 2  
2-132A

GEORGIA POWER  
POWER GENERATION DEPARTMENT  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING LESSON PLAN

TITLE:	EPIP OVERVIEW	NUMBER:	LO-LP-40101-11-C
PROGRAM:	LICENSED OPERATOR TRAINING	REVISION:	11
SME:	L. RAY	DATE:	10/20/89
APPROVED:		DATE:	12/1/89

### INSTRUCTOR GUIDELINES:

- I. LESSON FORMAT
  - A. Lecture with Visual Aids
- II. MATERIALS NEEDED
  - A. White Board with Markers
  - B. Overhead Projector
  - C. Transparencies
- III. EVALUATION
  - A. Written or Oral Exam in conjunction with other Lesson Plans
- IV. REMARKS
  - A. Training in Emergency Plan is a requirement per IEN 84.042 and Procedure 60602-C. Responsibilities and core damage assessment for SRO's is required per 60601-C. Sec 4.1.3.3.o(2) Rev 2
  - B. Performance-based instructional units (IUs) are attached to the lesson plan as student handouts. After the lecture on EPIPs, the student should be given adequate self-study time for the IUs. The instructor should direct self-study activities and be available to answer questions that may arise concerning the IU material. After self-study, the student will perform, simulate, observe, or discuss (as identified on the cluster signoff criteria list) the task covered in the instructional unit in the presence of an evaluator.

Licensed Operator Objectives for this lesson plan can be found in the Licensed Operator System Master Plan Section 2.3 (Qualification Signoff Criteria)

Rev 4 Cluster 40 SRO EMERGENCIES

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## REFERENCES:

## 1. PLANT VOGTLE PROCEDURES:

- 91001-C, EMERGENCY CLASSIFICATION AND IMPLEMENTING INSTRUCTIONS
- 91002-C, EMERGENCY NOTIFICATIONS
- 91101-C, EMERGENCY RESPONSE ORGANIZATION
- 91102-C, DUTIES OF THE EMERGENCY DIRECTOR
- 91201-C, ACTIVATION AND OPERATION OF THE TECHNICAL SUPPORT CENTER
- 91202-C, ACTIVATION AND OPERATION OF THE OPERATIONS SUPPORT CENTER
- 91203-C, ACTIVATION AND OPERATION OF THE EMERGENCY OPERATION FACILITY
- 91204-C, EMERGENCY RESPONSE COMMUNICATIONS
- 91301-C, EMERGENCY EXPOSURE GUIDELINES
- 91304-C, COMPUTERIZED AND MANUAL BACKUP METHODS FOR RELEASE RATE AND DOSE CALCULATIONS
- 91305-C, PROTECTIVE ACTION GUIDELINES
- 91401-C, ASSEMBLY AND ACCOUNTABILITY
- 91402-C, SEARCH AND RESCUE
- 91403-C, SITE EVACUATION
- 91501-C, RECOVERY
- 91502-C, CORE DAMAGE ASSESSMENT
- 91503-C, CONTROL ROOM INSTRUMENTATION OUTPUT FOR ASSESSMENT OF CORE DAMAGE

## 2. COMMITMENTS AND OTHER REQUIREMENTS:

- LEN 84.042
- FF 89.007 FEEDBACK FROM E DRILL
- FF 89.008 FEEDBACK FROM E DRILL

## 3. STUDENT HANDOUTS

- LO-HO-40101-001

## 4. TRANSPARENCIES:

- LO-TP-40101-001 FOUR EMERGENCY CLASSES
- LO-TP-40101-002 NOTIFICATION OF UNUSUAL EVENT
- LO-TP-40101-003 ALERT
- LO-TP-40101-004 SITE AREA EMERGENCY
- LO-TP-40101-005 GENERAL EMERGENCY
- LO-TP-40101-006 EMERGENCY RESPONSE ORGANIZATION
- LO-TP-40101-007 ON-SHIFT EMERGENCY RESPONSE ORGANIZATION
- LO-TP-40101-008 ACTIVATION OF EMERGENCY RESPONSE ORGANIZATION
- LO-TP-40101-009 TSC MANAGER
- LO-TP-40101-010 OSC MANAGER
- LO-TP-40101-011 EOF MANAGER
- LO-TP-40101-012 ALERT SITE BOUNDARY RADIATION LEVELS
- LO-TP-40101-013 SITE AREA BOUNDARY RADIATION LEVELS
- LO-TP-40101-014 GENERAL EMERGENCY SITE BOUNDARY RADIATION LEVELS



## REFERENCES:

LO-TP-40101-015 CSF'S MONITORED TO DETERMINE FISSION PRODUCT BARRIER BREACH  
LO-TP-40101-016 CSF'S MONITORED TO DETERMINE FISSION PRODUCT BARRIER STATUS  
LO-TP-40101-017 EMERGENCY EXPOSURE LIMITS  
LO-TP-40101-018 ON-SITE PROTECTIVE ACTIONS  
LO-TP-40101-019 OFFSITE PROTECTIVE ACTIONS  
LO-TP-40101-020 RECOVERY ORGANIZATION  
LO-TP-40101-021 FUEL DAMAGE VERSUS ELEVATED FUEL ROD TEMPERATURES  
LO-TP-40101-022 EMERGENCY CLASS DETERMINATION SCENARIO #1  
LO-TP-40101-023 EMERGENCY CLASS DETERMINATION SCENARIO #2  
LO-TP-40101-024 EMERGENCY CLASS DETERMINATION SCENARIO #3  
LO-TP-40101-025 EMERGENCY CLASS DETERMINATION SCENARIO #4

## 5. INSTRUCTIONAL UNITS

LO-IU-40101-001 MAKE EMERGENCY CLASSIFICATION  
LO-IU-40101-002 MAKE EMERGENCY NOTIFICATION  
LO-IU-40101-003 PERFORM MANUAL OFFSITE DOSE CALCULATIONS  
LO-IU-40101-004 IMPLEMENT EMERGENCY PROTECTIVE ACTIONS AND RECOMMENDATIONS  
LO-IU-40101-005 IMPLEMENT SITE EVACUATIONS  
LO-IU-40101-006 IMPLEMENT RECOVERY ACTIONS  
LO-IU-40101-007 ASSEMBLE AND DISPATCH FIRE BRIGADE

## III. LESSON OUTLINE:

NOTES

## I. INTRODUCTION

A. This lesson will provide the student with an indoctrination into EPIP's, with particular emphasis on EPIP's that the licensed operator is responsible for or directly interfaces with in the event of an emergency.

B. Present Lesson Objectives

## II. PRESENTATION

## A. Overview

Start: IEN 84.042

1. These are four classifications of emergencies in order of severity (least to worst) they are:

Objective 2

a. Notification of Unusual Event (NUE)

LO-TP-40101-001

b. Alert

c. Site Area Emergency

d. General Emergency

2. Summary of Classes

a. Notification of Unusual Event

Handout #1 Page 2

Events which indicate a potential degradation of the level of safety of the plant.

LO-TP-40101-002

b. Alert

Events which involve an actual or potential substantial degradation of the level of safety of the plant.

LO-TP-40101-003

c. Site Area Emergency

Events which involve actual or likely major failures of plant functions needed for protection of the public

LO-TP-40101-004

d. General Emergency

Events which involve actual or imminent substantial core degradation or melting with the potential for loss of

LO-TP-40101-005

## III. LESSON OUTLINE:

## NOTES

- Containment integrity. An evacuation of off-site personnel is implemented for this emergency.
3. The Emergency Plan Implementing Procedure (EPIP's) are a group of procedures that implement each aspect of the emergency from initiation to recovery from the emergency
  4. The Emergency Plan is an agreement between GPC, state, local, and federal officials and specifies the actions of each in the event of an emergency. The EPIP's implement GPC's responsibility with respect to the Emergency Plan.
  5. The Emergency Director (ED) has the overall authority and responsibility for the implementation of the EPIP's.
    - a. When using EPIP's, cross through or cross out steps in checklist as they are completed
  6. The Key EPIP's are:
    - a. Duties of the Emergency Director (91102-C) - provides instructions to the ED in fulfilling his responsibility for overall coordination and direction of the Emergency Response Organization
    - b. Emergency Classification (91001-C) - provides instructions for the classification of off-normal events into one of four emergency classification levels. It also provides initial implementing instructions to the ED
    - c. Emergency Notification (91002-C) - provides instructions to complete initial and follow up notification to GPC on-site and off-site emergency response personnel and to Georgia, South Carolina, local counties, and NRC officials.
    - d. Site Evacuation (91403-C) - provides instructions for the early dismissal or evacuation of non-essential

Objective 1  
The OSOS initially fills the position of ED if the General Manager is not on-site

FD-89.007

Objective 3

Handout #1 Pages 3 and 4

ED responsibility

ED makes Emerg. Notification

ED determines need for evacuation and orders evacuation.

## III. LESSON OUTLINE:

## NOTES

- personnel from the plant site in the event of an emergency
- e. Assembly and Accountability (91401-C) - provides instructions for the assembly of non-essential personnel to their designated assembly area and the accounting of personnel to identify those who may be missing
- 1) Ops personnel should badge into control room or call control room on alert or higher classification
- 2) Personnel receiving call-in should ask for badge number (not ACAD)
- f. Protective Action Guidelines (91305-C) - provides instructions for the on-site and off-site protective actions alternatives to ensure plant and off-site personnel safety in the event of an emergency
- g. Recovery (91501-C) - provides instructions for determining when the emergency condition will be terminated and the recovery phase initiated. It also describes the process used to notify and activate the recovery organization for immediate and long term recovery operations.
- h. Core Damage Assessment (91502-C) - provides a method to classify and estimate the extent of core damage through core fission product release measurements, reactor vessel level indications, and core exit thermocouple temperatures along with other auxiliary readings
7. Emergency Response Organization (ERO)
- a. The Emergency Response Organization is activated by the ED.

ED orders assembly and accountability

Assembly area is the Admin. Bldg. for VEGP personnel

FF 89.008

ED implements on-site Prot. Actions and ~~RECOMMENDS~~ off-site Prot. Act. Prot. Actions On-site Early Dismissal Site Evacuation

Off-site Seek Shelter Evacuation

ED determines recovery criteria and mobilizes the Recovery Organization

Chemistry is responsible for assessment. Operation in part, provides data to Chemistry per 91503-C, "Control Instrumentation Data Record for Core Damage Assessment".

## III. LESSON OUTLINE:

## NOTES

- b. The Emergency Response Organization is made up of 4 groups.
- c. Each group has defined (by the EPIP's) responsibilities
- d. The 4 groups are: LO-TP-40101-006
- 1) The Technical Support Center (TSC) Group
  - 2) The Emergency Off-site Facility (EOF) Group
  - 3) The Operations Support Center (OSC) Group
  - 4) The Control Room
- e. On back shifts and for the time frame that it takes to activate the ERO the On Shift Emergency Response Organization (OSERO) is activated (members shown data) LO-TP-40101-007
- f. The Activation of the ERO's for emergency classes is: LO-TP-40101-008
- 1) Notification of Unusual Event - OSERO
  - 2) Alert - initially OSERO; then TSC, OSC, Control Room
  - 3) Site area and General Emergency - initially OSERO; then TSC, EOF, OSC, Control Room EOF is activated for Site and General Emergencies
- g. For both the ERO and the OSERO, the ED has functional authority over all the groups
- h. The ED when the OSERO is in effect is the OSOS
- i. The ED for the ERO is the Senior VP Nuclear Operations or the General Manager
- j. Each ERO group is headed by a Manager
8. Technical Support Center Group
- a. The ED activates the TSC Objective 49



## III. LESSON OUTLINE:

## NOTES

- |  |   |
|--|---|
| <p>b. The TSC Manager heads the TSC group</p> <ol style="list-style-type: none"> <li>1) Primary - Plant Manager</li> <li>2) Alternates - General Manager, Manager Operations, Operations Superintendents</li> </ol> <p>c. The TSC is located adjacent to the control room and is equipped with instrumentation that allows monitoring of many plant parameters</p> <p>d. The TSC group is made up of plant supervisors and plant staff</p> <p>e. The functions of the TSC group are:</p> <ol style="list-style-type: none"> <li>1) Provide in plant radiological assessment and protective actions recommendations</li> <li>2) Engineering and technical analysis for control room support</li> <li>3) Liaison between TSC and CR</li> <li>4) Coordination of emergency maintenance</li> <li>5) Direction of post accident and plant chemistry sampling and analysis, evaluation of chemistry data, core damage assessment</li> <li>6) Planning and implementation of logistical support</li> <li>7) Assess control and accountability in TSC</li> <li>8) The TSC upper limit of habitability is             <ol style="list-style-type: none"> <li>a) Whole body dose 100 mr/h in TSC</li> <li>b) Iodine activity <math>2.7 \times 10^{-7}</math> uCi/cc in TSC</li> </ol> </li> <li>9) The TSC Manager relocates to the backup location of the Control room</li> </ol> <p>9. Operations Support Center</p> | <p>LO-TP-40101-009</p> <p>Handout #1 Page 5<br/>Objective 4<br/>HF Supervisor</p> <p>Engineering Supv.</p> <p>Operations Supv.</p> <p>Maintenance Supv.</p> <p>Chemistry Supv.</p> <p>TSC Support Coord.<br/>(Document Control)<br/>Supv.<br/>TSC Security Coord<br/>(Nuclear Shift<br/>Supv)</p> <p>Objective 50</p> |
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## III. LESSON OUTLINE:

## NOTES

- |  |   |
|--|---|
| a. The ED orders activation of the OSC   | Objective 49  |
| b. The OSC is located on the second floor of the Maintenance Building  |   |
| c. The OSC Manager is the Maint. Manager. The alternates are the Maint. Supervisor(2), Superintendent(s)                               | LO-TP-40101-010   |
| d. The OSC serves mainly as a staging area for the deployment of Radiological Emergency Teams (RET's)                                  |   |
| e. The functions of the OSC are:   | Objective 4<br>Handout #1, Page 6                           |
| 1) Serve as the assembly and staging area for personnel pooled for emergency response  |   |
| 2) Respond to request from the ED and the TSC concerning deployment of RET's   |   |
| 3) Management of emergency equipment and supplies  |   |
| 4) Coordination of movement of personnel on-site   |   |
| f. Function of RET's   | Objective 5<br>Handout #1, Page 7                           |
| 1) Search and Rescue Team - performs emergency search and rescue of individuals that are unaccounted for or disabled                   | Per 91402,<br>"Search and Rescue"                           |
| 2) First Aid Team - performs first aid for radiological and non-radiological injuries and personnel decontamination as required        | Per 91306<br>"Contaminated Injury"                          |
| 3) Damage Assessment/Control Team - a selected group of personnel who perform damage assessment and control activities as needed       | Per 91306<br>"Contamination Monitoring and Decontamination" |
| 4) Repair and Modification Team - a selected group of personnel who perform repair work and modify systems, equipment, etc., as needed | Per 91306<br>"Contamination Monitoring and Decontamination" |
| 5) In Plant Monitoring Team - performs   | Per 91302-C   |

## III. LESSON OUTLINE:

## NOTES

- in plant sampling and surveys. The HP Supv. uses this information when Protective Action recommendations to the ED
- 6) Back-Up Fire Brigade - Back up support to the normal shift fire brigade
- g. The OSC upper limit of habitability is:
- 1) Whole Body dose rate of 100 mr/hr in OSC
  - 2) Iodine activity of  $2.7 \text{ E-07 } \mu\text{Ci/cc}$  in OSC
- h. The OSC Manager then makes the decision to relocate to the backup location of the TSC
10. Emergency Operations facility Group
- a. The ED orders activation of the EOF
  - b. The primary EOF is located at the VEGP Training Center
  - c. The EOF Manager is the Outage and Planning Manager with Plant Training and Emergency Preparedness Manager, Health Physics Superintendent backups
  - d. The EOF serves mainly as the liaison and coordinator between GPC and off-site authorities
  - e. The functions of the EOF group are:
    - 1) Direction and control of GPC off-site emergency response
    - 2) Assistance to the ED and supervision of EOF
    - 3) Communication of radiological information to state and local emergency response agencies
    - 4) Support of initial activities associated with planning for re-entry or recovery operation

"In Plant Sampling and Surveys"

Objective 50

Objective 49

LO-TP-40101-011  
CITY Activated on a Site and General Emerg.Objective 4  
Handout #1, Page 8  
Per "Duties of EOF Manager"

EOF Manager

EOF Manager

EOF Manager

## III. LESSON OUTLINE:

## NOTES

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| 5) Access control for EOF   |  |
| 6) Processing of personnel who require authorization to enter site  | EOF Security Coordination                      |
| 7) Requesting assistance from local law authorities   | Security Coordinator                           |
| 8) Performance of off-site dose calculation   | Dose Assessment Manager                        |
| 9) Direction of Field Monitoring Teams  | Dose Ass. Manager<br>Via Mon. Team Coordinator |
| 10) Coordination with state and Federal Groups-performing radiological assessment   | Dose Ass. Manager                              |
| 11) Development of protective action recommendations  | Dose Ass. Manager                              |
| 12) Assumption of logistics support functions from the TSC  | EOF Support Coordinator                        |
| 13) Providing press releases when authorized by the ED  | Public Information Manager                     |
| f. The EOF upper limit of habitability is:  | Objective 50                                   |
| 1) 100 mr/hr whole body   |  |
| 2) Iodine activity $2.7 \text{ E-07 } \mu\text{Ci/cc}$  |  |
| g. When inhabitable, the EOF manager will relocate the EOF to the back up location at the GPC district office in Waynesboro |  |
| 11. Recovery Organization   | Objective 4                                    |
| a. Recovery organization staff shall be responsible for:  |  |
| 1) Assuming assigned positions and ensuring that support staff are available and properly briefed                           |  |
| 2) Ensuring that relief personnel are fully briefed prior to relinquishing their responsibilities                           |  |
| 12. Health Physics Group  | Objective 4                                    |

## III. LESSON OUTLINE:

## NOTES

- a. The HP Group provides the following key functions during an emergency:
- 1) Performs off-site dose calculations
  - 2) Discusses on-site and in plant radiological conditions
  - 3) Provides on-site and off-site radiation protection measures
13. Chemistry Group Objective 4
- a. The Chemistry Group provides the following key function during an emergency
- 1) Assess core damage from accident Operations provides data to Chemistry for damage assessment
  - 2) Evaluates in plant chemistry analysis
  - 3) Operates PASS
- B. Duties of the Emergency Director (91102-C)
1. The ED position is normally filled by the Vice President, Nuclear or the General Manager, Nuclear Plant. The first alternate is the Assistant General Manager Plant Operations. The second alternate is the Assistant General Manager Plant Support. The third alternate is the Manager, Operations Objective 7
  2. The OSOS will initially fill the position if neither of the primaries are on-site Objective 6
  3. The Emergency Director has the following responsibilities which cannot be delegated Objective 8  
Handout #1, Page 9
    - a. Classifying and declaring the emergency, including upgrading, downgrading, or termination EPIP "Emergency Classification and Implementing Instructions" 91305-C
    - b. Recommending protective actions to off-site authorities and content of messages "Protective Action Guidelines" 91305-C
    - c. Deciding to evacuate non-essential personnel from the site at the Alert "Site Evacuation" 91403-C



## III. LESSON OUTLINE:

## NOTES

classification level	
d. Authorizing personnel radiation exposures in excess of 10CFR20 limits, if necessary	"Emergency Exposure"
e. Deciding to request assistance from federal support groups	
f. Deciding to notify off-site authorities responsible for emergency measures	"Emergency Notifications" 91002-C
4. Other ED responsibilities are:	
a. Maintaining communications with off-site authorities regarding all aspects of emergency response	"Emergency Response Communications" 91204-C
b. Provide overall direction for management of procurement of site-needed materials, equipment, and supplies, documentation, accountability, and security function	
c. Direct the notification and activation of the emergency organization; including emergency response facility activation	Activation of TSC, EOF, OSC 91201, 202, 203-C
d. Coordinating and directing VEGP emergency operations	
e. Modifying EPIP's and adjusting Emergency Response Organization staffing, as needed. The ED is the only individual authorized to approve modifications to EPIPs	Objective 9
f. Coordinating NRC activities to reduce duplication of effort and reduce the impact on plant staff during the emergency situation	
g. The OSOS when acting as the ED shall either be in the control room or the TSC	The primary ED is normally in the TSC (Alert) or EOF (Site or General)
h. For any emergency classification of, alert or higher, the OSOS must be relieved by the primary ED as soon as possible	
C. Emergency Classification (91001-C)	

## III. LESSON OUTLINE:

## NOTES

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. The OSOS is responsible for the initial classification of an emergency and filling the position of ED until relieved           <ol style="list-style-type: none"> <li>a. Mark through or cross out steps in checklists as they are completed</li> </ol> </li> <li>2. When classifying an emergency, the following categories are considered as the criteria for classification           <ol style="list-style-type: none"> <li>a. Plant Power</li> <li>b. Technical Specifications</li> <li>c. Radioactivity</li> <li>d. Plant Systems Status</li> <li>e. Natural Phenomenon</li> <li>f. Man-Made Hazards</li> <li>g. Security</li> <li>h. Fission Product Barriers</li> <li>i. Shutdown Systems</li> <li>j. Other - a category or emergency not specifically in which a condition threaten the safety of the plant or public</li> </ol> </li> <li>3. Emergency Classification           <ol style="list-style-type: none"> <li>a. Notification of Unusual Event Classifications               <ol style="list-style-type: none"> <li>1) Plant Power                   <ol style="list-style-type: none"> <li>a) Loss of on-site or off-site A.C. power</li> </ol> </li> <li>2) Technical Specifications                   <ol style="list-style-type: none"> <li>a) Loss of ESF, PERMS monitor or Effluent Air Flow Inst. requiring Plant Shutdown per Tech Specs</li> <li>b) Exceeding RCS leak rates per</li> </ol> </li> </ol> </li> </ol> </li> </ol> | <p>FF 89.007</p> <p>Objective 12<br/>Handout #1,<br/>Page 10</p> <p>Damage to Spent Fuel in containment or spent fuel area</p> <p>Objective 12<br/>Handout #1,<br/>Page 11</p> |
|---|--|

## III. LESSON OUTLINE:

NOTES

- Tech Specs
- c) Exceeding RCS activity per Technical Specifications
  - d) Any Tech Spec. safety limit violation
- 3) Radioactivity
- a) Transportation off-site of a contaminated injured victim
  - b) Gross failed fuel monitor exceeds  $2E+4$  cpm above normal or confirmed > Tech Spec by lab analysis
  - c) Radioactive effluent exceeds Tech Specs
- Liquid and gaseous limits as specified in the Off-site Dose Calculation Manual (ODCM)
- 4) Plant Systems
- a) Rapid depressurization of the secondary system
  - b) Turbine rotating component failure causing rapid plant shutdown
  - c) ECCS discharge to reactor vessel
  - d) Reactor protection actuation without subcriticality
  - e) Failure of a safety or relief valve to reclose in a safety related system
- Any SI
- 5) Natural Phenomenon
- a) Any earthquake felt or detected on-site
  - b) Tornado or hurricane on-site
  - c) Fire in the plant lasting longer than 10 minutes
- 6) Man-made Hazards

## III. LESSON OUTLINE:

NOTES

- a) Aircraft crash on-site
- b) Train derailment on-site
- c) On-site explosion
- d) On-site toxic gas release
- 7) Security
  - a) Unusual aircraft activity overhead
  - b) Security threat or attempted sabotage
- 8) Fission Product Barrier
  - a) Not considered for this classification
- 9) Shutdown Systems
  - a) Not considered for this classification
- 10) Other
  - a) Loss of all meteorological data
  - b) Loss of both site telephone and ENN switches
- b. Alert
  - 1) Plant Power
    - a) Loss of all off-site and on-site A.C. power
    - b) Loss of all vital D.C. power
  - 2) Technical Specifications
    - a) Not considered for this classification
  - 3) Radioactivity
    - a) Site boundary dose rate greater than .5 mrem/hr whole body or 1.5 mrem/h thyroid

LO-TP-40101-012

## III. LESSON OUTLINE:

## NOTES

- b) Radiation level or airborne contamination which indicates degradation in the control of radioactive material
- An increase of 1000 times normal
- 4) Plant Systems
- a) Turbine failure causing casing penetration and damage to safety systems
- b) Evacuation of control room anticipated or required with control of shutdown system established from shutdown panels
- 5) Natural Phenomenon
- a) Earthquake greater than .12 g.
- b) Sustained hurricane winds sustained greater than 90 mph
- c) Tornado striking plant structure or the protected area
- 6) Man-Made Hazards
- a) Aircraft crash or missile impact inside the protected area
- b) Explosion damage affecting safety system
- c) Uncontrolled toxic or flammable gases entering the protected area
- 7) Security
- a) Ongoing security compromise which results in intruders within the Protected Area
- 8) Fission Product Barrier
- a) Breach or challenge of 1 of 3 fission product barriers
- Example: clad damage as determined from CFMS
- 9) Shutdown Systems
- Example: Loss of all RHR



## III. LESSON OUTLINE:

## NOTES

- a) Complete loss of any function which results in inability to maintain cold shutdown
- 10) Other
  - a) Precautionary activation of the TSC
- c. Site Area Emergency
  - 1) Plant Power
    - a) Loss of all off-site and all on-site AC power for more than 15 minutes
    - b) Loss of all vital DC power for more than 15 minutes
  - 2) Technical Specifications
    - a) None considered for this classification
  - 3) Radioactivity
    - a) Site boundary dose rates projected or measured greater than 90 mrem/h whole body
    - b) Greater than 250 mrem/h thyroid
  - 4) Plant Systems
    - a) Evacuation of the control room and control of shutdown systems not established from shutdown panels in 15 minutes
  - 5) Natural Phenomenon
    - a) Plant not in cold shutdown and earthquake greater than .2g or sustained winds greater than 100 mph.
    - b) Fire resulting in the loss or excessive degradation of any safety-related function
  - 6) Man-Made Hazards

If the ED activates the TSC as a precaution, Emer. classification must be an Alert

LO-TP-40101-013

III. LESSON OUTLINE:

Page 1

- a) Plant not in cold shutdown and:
  - (1) Aircraft crash affecting vital structures by impact or fire
  - (2) Severe damage to safe shutdown equipment from missiles or explosion
  - (3) Uncontrolled flammable gases entering the vital areas
  - (4) Uncontrolled toxic gases in the vital area restricting access causing a safety problem

7) Security

- a) Ongoing security compromise which results in intruders in the vital area

8) Fission Product barrier

- a) Breach or challenge of 2 of 3 fission product barriers
- b) Known LOCA greater than makeup capacity

Clad and RCS piping

10) Shutdown Systems

- a) Complete loss of any function which results in inability to maintain hot shutdown

11) Other

- a) Major damage to spent fuel in the containment or fuel handling building

d. General Emergency

1.) Plant Power

- a) None considered for this classification

2) Technical Specifications

- a) None considered for this

## III. LESSON OUTLINE:

NOTES

## classification

- 3) Radioactivity LO-TP-40101-014
- a) Site boundary protected or actual dose rate greater than 1 rem/h whole body or 5 rem/h thyroid
- 4) Plant Systems
- a) Loss of physical control of the plant
- 5) Natural Phenomenon
- a) None considered for this classification
- 6) Man-Made Hazards
- a) None considered for this classification
- 7) Security
- a) Loss of physical control of plant
- 8) Fission Product barrier Clad, RCS and Ctmr.
- a) Breach or challenge of 3 of 3 fission product barriers
- 9) Shutdown Systems
- a) None considered for this classification
- 10) Other
- a) None considered for this classification

## D. Use of Figures and Data Sheets in EPIP 91001-C

1. Data Sheet 1 is used to document classification determination
2. Fission product barrier status is first determined by the operators

Objective 11

The barriers are:

## III. LESSON OUTLINE:

## NOTES

- a. Fuel pellet matrix and cladding
  - b. RCS pressure boundary
  - c. Containment system
3. One way the operator can determine breach or challenge to the barriers is by monitoring the plants Critical Safety Functions (CSF's) via the SPDS/ERF computer or 19200-C. The CSF's are:
- a. Reactivity (subcriticality)
  - b. Core Cooling
  - c. Heat Sink
  - d. RCS Integrity
  - e. Containment Integrity
4. To determine fission product barrier status:
- a. Fuel/cladding Integrity - a red or orange terminus from reactivity, or core cooling indicates a breach. A red terminus from heat sink indicates a breach
  - b. RCS - a red or orange terminus from core cooling or RCS integrity indicates a breach
  - c. Containment integrity - a red or orange terminus from containment integrity indicates a breach
5. After the fission product barrier status is determined, Figure 4 from 91001-C is used to determine the emergency classification and if other factors should be considered in the classification
6. A checklist for each classification exist in 91001-C that guides the ED in his initial actions and notifications
7. An emergency is downgraded as follows:
- a. The ED determines that conditions are favorable for downgrading an emergency

LO-TP-40101-015  
Objective 11LO-TP-40101-016  
Objective 10/11

Objective 14



## III. LESSON OUTLINE:

## NOTES

- b. Notification will be made to state, local and federal officials notifying them that the emergency has been downgraded
  - c. Complete all actions that are necessary for that emergency classification
- E. Emergency Notifications (91002)
1. This procedure provides instructions to complete on-site and off-site emergency notifications
  2. The following is a list of responsibilities and actions:
    - a. The Emergency Director is responsible for approving initial and follow-up messages to the federal, state and local off-site authorities as well as designating Communicator/Recorders to transmit these messages. (91002-C)
    - b. The Emergency Director is responsible for the decision to notify federal, state, and local off-site authorities that an emergency has been declared and to recommend any protective actions. (91002-C) Objective 15
    - c. A communicator shall start immediately to inform both on-site and off-site personnel with required limits ED designates communicator
    - d. Initial notification of Georgia, Burke County, SRS, South Carolina, Aiken County, Barnwell County, and Allendale County off-site authorities shall be accomplished within 15 minutes of the declaration of an emergency or an upgrade to a more severe emergency classification level (91002) Objective 16  
Objective 17b
- 1) The primary means for accomplishing these notifications is the Emergency Notification Network (ENN). (91002-C) Objective 20
  - 2) If the ENN is not working, commercial telephones should be used to make the notifications for Georgia. A backup ENN phone is used as backup for South Carolina Objective 22



## III. LESSON OUTLINE:

## NOTES

- 3) If the commercial telephones are not working, radios should be used
- 4) Once a working line of communication is established, the notifications must be accomplished in accordance WITH the checklists found in EPIP 91002-C
- e. The NRC must be notified as soon as possible within 60 minutes of the declaration of the emergency or whenever an emergency is upgraded to a more severe emergency classification (91002-C sec. 4.2)
- 1) The primary means for accomplishing this notification is the Emergency Notification System (ENS). (91002-C)
- 2) If the ENS is not working, commercial telephones should be used to make the notification (91002-C)
- 3) Once a working line of communication is established, the notification must be accomplished in accordance with the checklist (91002-C)
- e. Follow-up messages must be completed and transmitted to the state and local off-site authorities whenever there is a significant change in plant conditions or at least every 30 minutes (91002-C)
- f. Follow-up messages to the NRC should be accomplished whenever there is any further degradation, any change in one class to another, or termination of the emergency.
- g. Emergency Communications
1. Emergency Notification Network (ENN)
- a. Black phone
- b. Used to notify Georgia and south Carolina state, country and SRP authorities
- c. The phone is located in the control room, TSC, BOP, and the county and state emergency centers

Objective 16  
Objective 17a

Red phone in  
control room and  
TSC  
Objective 21

Objective 23

Objective 18

Objective 19

Objective 20

## III. LESSON OUTLINE:

NOTES

- d. The ENN network is energized by lifting the receiver. All speakers are energized
  - e. To speak the button on the hand set must be depressed
  - f. A dedicated two digit phone is the backup ENN for South Carolina. Also, commercial telephones and SRP radio in TSC are backups Objective 22
  - g. The commercial phone system is the backup for Georgia. Another backup is the Burke County radio located in the TSC Objective 22
2. Emergency Notification System (ENS) Objective 21
- a. Black phone with red dial face in control room, TSC, EOF, and NRC Resident Inspectors Office
  - b. Used for notification to the NRC Region II in Atlanta
  - c. The phone is activated by lifting the receiver. The phone at the NRC office will ring
  - d. The backup to the ENS is the Commercial phone system Objective 23
3. Radios
- a. Radio base stations are placed strategically within the plant for security and maintenance
  - b. Various other radios in the TSC, control room and other locations are used for communication with on-site Radiological Emergency Teams and off-site authorities
- H. Site Evacuation
- 1. The site evacuation procedure provides instructions for the early dismissal or evacuation of non-essential personnel including visitors at VEGP in the event of an emergency.
  - 2. The Emergency Director is responsible for determining the need for evacuation and

## III. LESSON OUTLINE:

## NOTES

- selecting evacuation routes
3. The Security Coordinator is responsible for conducting the evacuation and directing the security force to assist in various stages of the evacuation Objective 25
  4. A site evacuation is required to protect on-site non-essential personnel from radiation exposure or physical harm Objective 24
  5. The Emergency Director shall determine the need for evacuation given existing or anticipated conditions, after consulting with:
    - a. H.P. Supervisor
    - b. Dose Assessment Manager
    - c. TSC Manager
    - d. EOF Manager
  6. The ED has two options:
    - a. Early dismissal at which time all non-essential personnel are sent home early
    - b. Evacuation of personnel to an assemble site VEGP Recreation Area primary assembly point; Plant Wilson Secondary
  7. Evacuation or early dismissal shall be ordered (if feasible) for an emergency classification of Site Area or General
  8. An early dismissal of non-essential personnel is normally conducted for an Alert
- I. Assembly and Accountability
1. Assembly and accountability is ordered by the ED for any emergency classification of Alert or higher Objective 27
  2. The primary assembly point for non-essential personnel is the VEGP recreation facility Objective 26
  3. The backup location is Plant Wilson and would be used if radiological conditions e.g., if wind conditions were

## III. LESSON OUTLINE:

## NOTES

- did not allow the primary recreation area to be used toward the recreation area
4. Accountability is required to possibly identify any endangered personnel in the protected area that are unable to leave "Search and Rescue" used to rescue unaccounted for personnel
  5. The Security Coordinator is responsible for the accounting of personnel Objective 28
  6. Accountability reports by the Security Coordinator must be made to the ED within 30 minutes
  7. The OSOS and the TSC and OSC manager are responsible for accountability of personnel assigned to the control room, TSC, and OSC
  8. The accounting of control room, TSC, and OSC shall be made within 30 minutes of the order
- J. Search and Rescue
1. Search and Rescue procedure provides instructions for the search and rescue of individuals who may be missing or disabled in the protected area.
  2. The Emergency Director shall be responsible for implementing this procedure by directing the TSC Manager to dispatch a search and rescue team Objective 29
    - a. If the OSC has not been activated, the On-Shift H.P. Foreman shall form the team using available staff
  3. The OSC manager shall be responsible for: Objective 30
    - a. Forming
    - b. Briefing
    - c. Dispatching the search and rescue team Objective 31
  4. The Search and Rescue Team Leader shall be responsible for following:
    - a. Following instructions



## III. LESSON OUTLINE:

## NOTES

- b. Maintaining Communications with OSC Manager or H.P. Foreman
- 5. Each team must consist of at least two members. Each team member must be familiar with the plant and first aid training Objective 32
- 6. Exposures in excess of 10CFR20 limits shall be approved by the Emergency Director
- 7. The Emergency Director shall direct the TSC Manager or HP Foreman to form a search and rescue team as soon as he is made aware of a missing or disabled person
- 8. The following guidelines shall be employed during the rescue effort.
  - a. Protective clothing and respiratory protection may be worn
  - b. Use of lifelines and respiratory protection for areas that are smoke or steam filled.
  - c. Inform the control room of projected actions
- K. Emergency Exposure Guidelines
  - 1. The purpose of this procedure is to provide instructions and controls for radiation exposures in excess of 10CFR20 occupational limits during emergency conditions
  - 2. The Emergency Director has the sole authority for all radiation exposures in excess of 10CFR20 limits Objective 33
  - 3. Personnel authorized to receive exposures in excess of 10CFR20 limits should meet the following criteria:
    - a. Personnel must be familiar with the risks of exposure to higher radiation doses which are likely.
    - b. Should have current radiation exposure history and receive a briefing. For exposures greater than 25 rem personnel should be volunteers. Consider volunteers above the age of 45 first. Objective 35

## III. LESSON OUTLINE:

## NOTES

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>c. Females should not be of child bearing age and capability except for urgent lifesaving actions</li> </ul>   | Objective 35   |
| <ul style="list-style-type: none"> <li>4. The whole body emergency exposure limits are:           <ul style="list-style-type: none"> <li>a. 5 Rem for sampling</li> <li>b. 25 Rem for protective or corrective action</li> <li>c. 75 Rem to save a life</li> </ul> </li> </ul>  | Objective 34<br>LO-TP-40101-017  |
| <ul style="list-style-type: none"> <li>L. Protective Action Guidelines           <ul style="list-style-type: none"> <li>1. Protective actions for on-site and off-site personnel are planned provisions to ensure their safety in the event of an emergency</li> <li>2. The Emergency Director is responsible for implementing on-site protective action</li> <li>3. The ED is responsible for <u>recommending</u> off-site protective actions</li> <li>4. Protective action recommendations shall be made on the basis of current or projected plant condition and/or calculated or measured dose rates</li> <li>5. The HP Supervisor is responsible for evaluating on-site radiological conditions for making on-site protective action recommendations to the ED</li> <li>6. The Dose Assessment Manager is responsible for making off-site dose estimates and recommending off-site protective actions</li> <li>7. The on-site protective actions are:               <ul style="list-style-type: none"> <li>a. Non-essential personnel early dismissal or plant evacuation</li> <li>b. Distributing potassium iodine (KI) for plant workers</li> <li>c. Use of additional scameury, respiratory protection, and protective</li> </ul> </li> </ul> </li> </ul> | <p>Only the states can enforce protective actions</p> <p>LO-TP-40101-018<br/>Objective 36<br/>Per Site Evacuation EPIP - mandatory for Site Area or General Emergency<br/>KI is a iodine absorption blocker of the thyroid</p> |



## III. LESSON OUTLINE:

NOTES

clothing

## 8. Off-site Protective Actions are:

- a. Evacuation of off-site personnel of at least a 2 mile radius
- b. Further evacuation of affecting sectors
- c. Recommend personnel to seek shelter, close windows, secure ventilation systems, etc.

LO-TP-70101-019  
Objective 37  
Minimum evac. for  
General Emergency  
based on  
meteorological  
information  
An option if  
off-site  
doses do not reach  
the evacuation  
threshold

## M. Recovery

1. This procedure provides instructions for determining when the emergency condition will be terminated and the recovery phase initiated
  - a. It also describes the process used to notify and activate the recovery organization as well as its functions and responsibilities, including management of resources for long-term recovery operations
2. The Emergency Director directs the notification and activation of the recovery organization. (Consults with V.P. Nuclear Operations).
3. The Recovery Manager shall have overall responsibility for restoring the plant to a normal operating configuration. The primary for this position is the VEGP General Manager Nuclear Plant
4. Recognizing the following conditions the Emergency Director has decided to terminate the emergency condition:
  - a. Plant radiation levels are stable or decreasing with time
  - b. The affected reactor is in a stable condition and can be maintained indefinitely in a stable condition
  - c. Fire or other similar emergency

Objective 40

Objective 38  
Handout #1,  
Page 15

Objective 39

## III. LESSON OUTLINE:

## NOTES

- conditions no longer constitute a hazard to safety-related systems, equipment, or personnel.
- d. Radioactive releases to the environment have ceased or been controlled to within permissible license limits
  - e. Discussions with GPC management, VEGP Emergency Response organization, and off-site authorities do not result in identification of any valid reason for not terminating the emergency
5. When the ED has formally terminated the emergency, command is transferred to the Recovery Management and Recovery Organization
  6. The Recovery Organization is made up of individuals who manage and direct personnel who:
    - a. Perform required maintenance
    - b. Develops recovery schedule
    - c. Provides HP support during the entire recovery period
- N. Computerized and Manual Backup Method for Release Rate and Dose Calculations
1. The purpose of this procedure is to provide instructions for personnel to estimate radiological releases resulting in off-site doses which would require the implementation of protective action recommendations.
  2. The OSOS or designee shall initially be responsible for determining release rates and carrying out initial off-site dose calculations
    - a. H.P. Supervisor is responsible if the TSC is activated
    - b. Dose Assessment Manager is responsible if the EOF is activated
  3. The primary method of calculation of off-site doses is the VIBRANT computer dose calculation

LO-TP-40101-020  
Objective 4

Objective 41a

Objective 41b

## III. LESSON OUTLINE:

## NOTES

- |   |  |
|---|--|
| <p>4. The calculation uses the following input data</p> <ul style="list-style-type: none"> <li>a. Windspeed and direction (primarily from ERF computer)</li> <li>b. Plant radiological and effluent data (primarily from ERF computer)</li> <li>c. Direct measurement of effluent path with a portable inst.</li> </ul>   | <p>Objective 44<br/>Handout #1,<br/>Page 21</p>  |
| <p>5. The Output of the VIBFANT calculation is</p> <ul style="list-style-type: none"> <li>a. Plume arrival time</li> <li>b. Direction (X/Q)</li> <li>c. Whole body doses</li> <li>d. Infant thyroid doses</li> <li>e. Doses at preset downwind distances</li> </ul>   | <p>Objective 45</p> <p>Handout #1,<br/>Page 22</p>   |
| <p>6. The manual backup method is used as a backup method and is used with any of the following Post Accident Accident Monitors (PAM's):</p> <ul style="list-style-type: none"> <li>a. RE 12444C Unit 1 Plant Vent</li> <li>b. RE 12444C Unit 2 Plant Vent</li> <li>c. RE 12839C Unit 1 &amp; 2 Turbine Building</li> <li>d. RE 005/006 Containment Bldg Upper Level Area Rad-High Range</li> <li>e. RE 13119 S/G (4) Main Steam Line</li> <li>f. RE 13120 S/G (1) Main Steam Line</li> <li>g. RE 13121 S/G (2) Main Steam Line</li> <li>h. RE 13122 S/G (3) Main Steam Line</li> </ul> | <p>Objective 42<br/>The OSOS will in all probability use this method when initially determining off-site doses</p> |
| <p>7. The radiation monitor readings are then used as input data with worksheets in the procedure</p>   |  |

## III. LESSON OUTLINE:

## NOTES

- |  |              |   |
|--|--------------|---|
| <ul style="list-style-type: none"> <li>8. The worksheet then yield the following information.           <ul style="list-style-type: none"> <li>a. Iodine dose at site boundary</li> <li>b. Emergency Classification</li> <li>c. Protective action recommendations</li> </ul> </li> </ul>   | Objective 43 |   |
| <ul style="list-style-type: none"> <li>9. Control Room Instrumentation Output for Assessment of Core Damage/Core Damage Assessment (Procedure 91502-C)           <ul style="list-style-type: none"> <li>1. Provides a method of classify and estimating the extent of core damage               <ul style="list-style-type: none"> <li>2. coordinated by chemistry personnel</li> <li>3. Chemistry makes all damage estimates using information that may be provided by other groups</li> <li>4. Operations department                   <ul style="list-style-type: none"> <li>a. Collect and record information obtained from Control Room instrumentation needed in assessment of core damage                       <ul style="list-style-type: none"> <li>b. RVLIS reading &amp; recording                           <ul style="list-style-type: none"> <li>1) Determines if core was uncovered</li> <li>2) If so, estimate length of time in minutes</li> </ul> </li> <li>c. Core exit thermocouple temperatures                           <ul style="list-style-type: none"> <li>1) All temperatures exceeding 1300<sup>o</sup>F</li> <li>2) Corresponding core location and TC ID number on Data Sheet</li> </ul> </li> <li>d. Containment high range monitor and containment hydrogen monitor readings</li> <li>e. Determine volume of all RCS additions during accident (Data Sheet 2)                           <ul style="list-style-type: none"> <li>1) RWST</li> <li>2) BAST</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul> |              | <p>91503-C</p> <p>Objective 47</p> <p>Objective 46<br/>91503-C</p> <p>Objective 48</p> <p>Section 5.1.1</p> <p>Section 5.2.2</p> <p>Section 5.3.1</p> |

## III. LESSON OUTLINE:

## NOTES

- 3) Accumulators (26,900 gallons)
5. Data sheets transmitted to Chemistry department to coordinate with core damage assessment activities
- a. If core was never uncovered and no core exit RC temperatures corresponding to saturation temp at RCS pressure were recorded, then no generalized core damage is probable
  - b. The following Tables/Data sheets from 91502 are used by Chemistry to interpret data from CR and assess damage
    - 1) TC temperature 1300<sup>o</sup>F; Table 1
    - 2) Containment HR monitor and H<sub>2</sub> Conc. (Data Sheet 1, Sheet 2)
  - c. Chemistry also requests post accident samples
- LO-TP-40101-021  
Handout #1,  
Page 19
- P. EMERGENCY CLASS DETERMINATION SCENARIO
- Objective 13
1. Scenario #1
    - a. A mechanic working inside a highly contaminated area suffers a deep laceration on his forearm that will require stitches and specialized medical attention. Surveys of the wound indicate internal contamination. The mechanic is sent to the hospital
    - b. Notification of Unusual Event
  2. Scenario #2
    - a. Radical anti-nuclear terrorist aided by disgruntled plant employees gain access to the protected area and the control room with intruders controlling the actions of the plant operators
    - b. Answer: General Emergency - loss of physical control of plant
  3. Scenario #3
- LO-TP-40101-022
- LO-TP-40101-023



## III. LESSON OUTLINE:

## NOTES

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>a. Following a secondary side steam break (outside of containment) that occurred with the RCS at 450 °F and 1950 psig, all cold leg temperatures drop to 240 °F in less than one hour</li> <li>b. Alert classification</li> </ul> | LO-TP-40101-024                        |
| 4. Scenario #4   |  |
| <ul style="list-style-type: none"> <li>a. Following a moderate LOCA, pressurizer level cannot be maintained via the normal charging flowpath, even with letdown isolated</li> <li>b. Site Area Emergency</li> </ul>  | LO-TP-40101-025<br><br>End: IEN 84.042 |

## III. SUMMARY

## F. Review the Objectives

1. NAME THE KEY INDIVIDUAL RESPONSIBLE FOR THE IMPLEMENTATION OF THE EPIPs  
 Emergency Director (ED)
2. STATE THE FOUR EMERGENCY CLASSIFICATIONS IN ORDER OF SEVERITY FROM LEAST TO WORST  
 Notification of Unusual Events (NUE)  
 Alert  
 Site Area Emergency  
 General Emergency
3. GIVEN A LIST OF KEY EPIP, DESCRIBE THE PURPOSE AND USE OF EACH
  - a. Duties of the Emergency Director (91102-C)  
 - Provides instructions to the ED in fulfilling his responsibility for overall coordination and direction of the Emergency Response Organization
  - b. Emergency Classification (91001-C)  
 - Provides instructions for the classification of off-normal events into one of four emergency classification levels. It also provides initial implementing instructions to the ED
  - c. Emergency Notification (91002-C)  
 - Provides instructions to complete initial

## III. LESSON OUTLINE:

NOTES

- and follow up notification to GPC on-site and off-site emergency response personnel and to Georgia, South Carolina, local counties, and NRC officials
- d. Site Evacuation (91403-C)
    - Provides instructions for the early dismissal or evacuation of non-essential personnel from the plant site in the event of an emergency
  - e. Assembly and Accountability (91401-C)
    - Provides instructions for the assembly of non-essential personnel to their designated assembly area and the accounting of personnel to identify those who may be missing
  - f. Protective Action Guidelines (91305-C)
    - Provides instructions for the on-site and off-site protective actions alternatives to ensure plant and off-site personnel safety in the event of an emergency
  - g. Recovery (91501-C)
    - Provides instructions for determining when the emergency condition will be terminated and the recovery phase initiated. It also describes the process used to notify and activate the recovery organization for immediate and long term recovery operations
  - h. Core Damage Assessment (91502-C)
    - Provides a method to classify and estimate the extent of core damage through core fission product release measurements, reactor vessel level indications, and core exit thermocouple temperatures along with other auxiliary readings
4. DESCRIBE THE RESPONSIBILITY OF THE TSC, OSC, EOF, RECOVERY ORGANIZATION, AND HP AND CHEMISTRY GROUPS, AND STATE WHO DEPLOYS THEM
- TSC - activated by ED
- Provides in-plant radiological assessment and protective actions recommendations
- Provides engineering analysis for Control Room support

## III. LESSON OUTLINE:

NOTES

Provides liaison between TSC and CR

Coordination of emergency maintenance

Directs post accident and plant chemistry sampling and analysis. Evaluates chemistry data and provides core damage assessment

Plans and implements logistical support

Provides access control and accountability in TSC

OSC - activated by ED

The functions of the OSC are:

- a. Serve as the assembly and staging area for personnel pooled for emergency response
- b. Respond to requests from the ED and the TSC concerning deployment of RET's
- c. Management of emergency equipment and supplies
- d. Coordination of movement of personnel on-site

EOF - activated by ED

The functions of the EOF group are:

- a. Direction and control of GPC off-site emergency response
- b. Assistance to the ED and supervision of EOF
- c. Communication of radiological information to state and local emergency response agencies
- d. Support of initial activities associated with planning for re-entry or recovery operation
- e. Access control for EOF
- f. Processing of personnel who require authorization to enter site
- g. Requesting assistance from local law

## III. LESSON OUTLINE:

NOTES

authorities

- n. Performance of off-site dose calculation
- i. Direction of Field Monitoring Teams
- j. Coordination with state and federal groups performing radiological assessment
- k. Development of protective action recommendations
- l. Assumption of logistics support functions from the TSC
- m. Providing press release when authorized by the ED

Recovery Organization - Deploy by ED

Responsible for:

- a. Assuming assigned positions and ensuring that support staff are available and properly briefed
- b. Ensuring that relief personnel are fully briefed prior to relinquishing their responsibilities

Health Physics Group - Deployed by ED

The Health Physics Group provides the following key functions during an emergency:

- a. Performs off-site dose calculations
- b. Discusses on-site and in-plant radiological conditions
- c. Provides on-site and off-site radiation protection measures

Chemistry Group - Deployed by ED

The Chemistry Group provides the following key function during an emergency

- a. Assess core damage from accident
- b. Evaluates in-plant chemistry analysis



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 III. LESSON OUTLINE:
 

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NOTES

## c. Operates PASS

5. LIST THE VARIOUS RADIOLOGICAL TEAMS, DESCRIBE THEIR FUNCTION, AND STATE WHO DEPLOYS THEM

## Function of RET's - Deployed by ED

- a. Search and Rescue Team - performs emergency search and rescue of individuals that are unaccounted for or disabled
  - b. First Aid Team - performs first aid for radiological and non-radiological injuries and personnel decontamination as required
  - c. Damage Assessment/Control Team - a selected group of personnel who perform damage assessment and control activities as needed
  - d. Repair and Modification Team - a selected group of personnel who perform repair work and modify systems, equipment, etc., as needed
  - e. In-Plant Monitoring Team - performs in-plant sampling and surveys. The Health Physics Supervisor uses this information when providing Protective Action recommendations to the ED
  - f. Back-up Fire Brigade - back-up support to the normal shift fire brigade
6. STATE WHO FILLS THE INITIAL ED POSITION WHEN THE PRIMARY IS NOT ON-SITE

## OSOS

7. STATE WHO THE PRIMARIES AND FIRST ALTERNATES ARE FOR THE ED POSITION

## Primaries:

Vice President, Nuclear or General Manager,  
Nuclear Plant

## First Alternate:

Assistant General Manager, Plant Operations

8. STATE FROM MEMORY ED DUTIES THAT CAN NOT BE DELEGATED (SRO ONLY)



## III. LESSON OUTLINE:

NOTES

- a. Classifying and declaring the emergency, including upgrading, downgrading, or termination
  - b. Recommending protective actions to off-site authorities and control of messages
  - c. Deciding to evacuate non-essential personnel from the site at the Alert classification level
  - d. Authorizing personnel radiation exposures in excess of 10CFR20 limits, if necessary
  - e. Deciding to request assistance from federal support groups
  - f. Deciding to notify off-site authorities responsible for emergency measures
9. STATE WHO HAS AUTHORITY TO APPLY THE MODIFICATIONS TO EPIPS DURING AN EMERGENCY SITUATION
- Emergency Director (ED)
10. LIST THE THREE FISSION PRODUCT BARRIERS THAT ARE PART OF THE CRITERIA FOR CLASSIFYING AN EMERGENCY
- Fuel/cladding  
RCS  
Containment
11. DESCRIBE HOW THE STATUS OF FISSION PRODUCT BARRIER INTEGRITY IS OBTAINED
- First determined by the operator by monitoring the CSF's using the SPDS/ERF computer or 19200-C
12. LIST AN EXAMPLE FOR THE FOLLOWING KEY FACTORS THAT ARE CONSIDERED WHEN CLASSIFYING AN EMERGENCY:
- NDE:
- a. PLANT ELECTRIC POWER
    - Loss of on-site or off-site power
  - b. TECHNICAL SPECIFICATIONS

## III. LESSON OUTLINE:

NOTES

- Loss of Engineered Safety Feature, PERMS monitor or Effluent Air Flow Inst. requiring shutdown by Technical Specifications
- Exceeding RCS leak rates per Tech Specs
- Exceeding RCS activity per Tech Specs
- Any Tech Spec safety limit violation
- c. RADIOACTIVITY
  - Transportation off-site of a contaminated injured victim
  - Gross failed fuel monitor exceeds E+4 cpm above normal
  - Radioactive effluent Tech Specs
- d. PLANT SYSTEMS
  - Rapid depressurization of the secondary system
  - Turbine rotating component failure causing rapid plant shutdown
  - ECCS discharge to reactor vessel
  - Reactor protection actuation without sub-criticality
  - Failure of a safety or relief valve to reclose in a safety related system
- e. NATURAL PHENOMENON
  - Any earthquake felt or detected on-site
  - Tornado or hurricane
  - Fire in the plant lasting longer than 10 minutes
- f. MAN-MADE HAZARDS
  - Aircraft crash on-site
  - Train derailment on-site

## III. LESSON OUTLINE:

NOTES

- On-site explosion
- On-site toxic gas release
- g. SECURITY
- Unusual aircraft activity overhead
- Security threat or attempted sabotage
- h. FISSION PRODUCT BARRIER
- Not considered for this classification
- i. SHUTDOWN SYSTEMS
- Not considered for this classification
- Alert, Site Area, and General: See 91001-C  
Page 7 of 12
13. GIVEN AN EMERGENCY SCENARIO, STATE THE EMERGENCY CLASSIFICATION
- Refer to LP Section II.U. for examples of scenarios
14. DESCRIBE THE PROCEDURE FOR DOWNGRADING AN EMERGENCY
- An emergency is downgraded as follows:
- a. The ED determines that conditions are favorable for downgrading an emergency
- b. Notification will be made to state, local and federal officials notifying them that the emergency has been downgraded
- c. Complete all actions that are necessary for that emergency classification
15. STATE THE INDIVIDUAL RESPONSIBLE FOR MAKING EMERGENCY NOTIFICATIONS
- Emergency Director (ED)
16. LIST THE STATE AND FEDERAL AUTHORITIES THAT ARE NOTIFIED IN AN EMERGENCY
- Georgia  
Burke County

## III. LESSON OUTLINE:

NOTES

Aiken County  
 Barnwell County  
 Allendale County  
 NRC  
 SRS

17. STATE THE ALLOTTED TIME TO CONTACT THE:
  - a. NRC
 

As soon as possible after notifications to state and county agencies

and

Within 60 minutes
  - b. STATE AND LOCAL AUTHORITIES
 

Within 15 minutes
18. DESCRIBE WHEN FOLLOW-UP MESSAGES ARE REQUIRED FOR STATE AND LOCAL OFFICIALS (SRO ONLY)
 

Whenever there is a significant change in plant conditions or at least every 30 minutes
19. DESCRIBE WHEN FOLLOW-UP MESSAGES ARE REQUIRED FOR THE NRC (SRO ONLY)
 

Whenever there is any further degradation, any change in one class to another, or termination of the emergency
20. DESCRIBE THE COMMUNICATION SYSTEM FOR NOTIFYING STATE AND LOCAL OFFICIALS
 

Emergency Notification Network (ENN) black phones, energized by lifting the receiver. To speak, the button on the hand set must be depressed
21. DESCRIBE THE COMMUNICATION SYSTEM FOR NOTIFYING FEDERAL (NRC) OFFICIALS
 

Emergency Notification System (ENS). Black phone with red dial face. It is activated by lifting the receiver
22. LIST THE BACKUP COMMUNICATIONS FOR NOTIFYING STATE AND LOCAL AUTHORITIES

## III. LESSON OUTLINE:

NOTES

South Carolina:

- 1) SC Backup ENN (two digit phone)
- 2) Commercial telephones
- 3) SRP Radio in TSC

Georgia:

- 1) Commercial telephone
- 2) Burke County Radio in TSC

23. LIST THE BACKUP COMMUNICATIONS FOR NOTIFYING FEDERAL OFFICIALS

The commercial phone system

24. STATE THE CIRCUMSTANCES REQUIRING SITE EVACUATION (SRG ONLY)

Whenever a Site Area or General Emergency is declared

OR

Whenever the E.D. has determined that conditions warrant it

25. STATE THE INDIVIDUAL RESPONSIBLE FOR CONDUCTING THE EVACUATION

The Security Coordinator

26. STATE THE TWO ASSEMBLY AREAS FOR VEGP NON-ESSENTIAL PERSONNEL

VEGP recreation facility - primary

Plant Wilson - backup

27. STATE THE CIRCUMSTANCES REQUIRING ASSEMBLY OF VEGP NON-ESSENTIAL PERSONNEL

Emergency Level Alert or higher

28. STATE THE GROUP RESPONSIBLE FOR PERSONNEL ACCOUNTABILITY

Security Coordinator



## III. LESSON OUTLINE:

NOTES

29. STATE THE POSITION RESPONSIBLE FOR REQUESTING  
A SEARCH AND RESCUE TEAM  
  
Emergency Director
30. STATE THE POSITION RESPONSIBLE FOR FORMING THE  
SEARCH AND RESCUE TEAM  
  
OSC Manager  
  
or  
  
If OSC is not activated the onshift Health  
Physics Foreman
31. STATE THE POSITION RESPONSIBLE FOR DISPATCHING  
THE SEARCH AND RESCUE TEAM  
  
OSC Manager or HP Foreman if OSC not activated
32. DESCRIBE THE INDIVIDUALS THAT EACH SEARCH AND  
RESCUE TEAM MUST CONSIST OF  
  
Two members familiar with the plant and first  
aid training
33. STATE THE SOLE AUTHORITY RESPONSIBLE FOR  
AUTHORIZING DOSES GREATER THAN 10CFR20  
EXPOSURE LIMITS  
  
Emergency Director
34. STATE THE EMERGENCY WHOLE BODY LIMITS FOR THE  
FOLLOWING (SRO ONLY)
  - a. SAMPLING UNDER ACCIDENT CONDITIONS  
  
5 Rem
  - b. CORRECTIVE OR PROTECTIVE ACTIONS  
  
25 Rem
  - c. LIFE SAVING ACTIONS  
  
75 Rem
35. STATE WHAT GROUP OF PEOPLE SHOULD BE FIRST  
CONSIDERED FOR EMERGENCY EXPOSURE, AND WHAT  
GROUP SHOULD NOT BE ALLOWED TO RECEIVE AN  
EMERGENCY EXPOSURE (SRO ONLY)

## III. LESSON OUTLINE:

NOTES

Volunteers above the age of 45

Females of child-bearing age and capability

36. STATE THE FOUR POSSIBLE ONSITE PROTECTIVE ACTION MEASURES AVAILABLE TO THE ED

- a. Early dismissal
- b. Plant evacuation
- c. Distributing KI tablets
- d. Use of additional dosimetry, respiratory protection, and protective clothing

37. STATE THE TWO POSSIBLE OFFSITE PROTECTIVE ACTION MEASURES AVAILABLE TO THE ED

- a. Seek shelter
- b. Evacuation

38. STATE WHO IS RESPONSIBLE FOR THE TERMINATION OF AN EMERGENCY AND NOTIFICATION TO FEDERAL, STATE, AND LOCAL AUTHORITIES

Emergency Director

39. DESCRIBE THE FIVE PREREQUISITES AS LISTED IN THE PROCEDURE THAT MUST BE FACTORED INTO THE DECISION TO TERMINATE AN EMERGENCY

- a. Plant radiation levels are stable or decreasing with time
- b. The affected reactor is in stable condition and can be maintained indefinitely in a stable condition
- c. Fire or other similar emergency conditions no longer constitute a hazard to safety-related systems, equipment, or personnel
- d. Radioactive releases to the environment have ceased or been controlled to within permissible license limits
- e. Discussions with GPC management, VEGP Emergency Response Organization, and off-site authorities do not result in identification of any valid reason for not

## III. LESSON OUTLINE:

NOTES

terminating the emergency

40. STATE THE POSITION RESPONSIBLE FOR RECOVERY OPERATIONS AND THE PRIMARY FOR THAT POSITION

Recovery Manager

Primary is General Manager, Nuclear Plant

41. STATE WHO IS RESPONSIBLE FOR PERFORMING OFF-SITE DOSE CALCULATIONS

a. INITIALLY

OSOS or designee

b. AFTER THE TSC IS ACTIVATED

Health Physics Supervisor

c. AFTER EOF IS ACTIVATED

Dose Assessment Manager

42. DESCRIBE THE INPUT AND WHERE IT IS OBTAINED IN THE MANUAL BACKUP CALCULATION

Radiation monitor readings from plant vent stack U1/2, Turbine Building U1/2, Containment Building, or main steam lines

43. DESCRIBE WHAT OUTPUT IS OBTAINED FROM THE MANUAL BACKUP CALCULATION

Iodine dose at site boundary  
Emergency classification  
Protective action recommendations

44. DESCRIBE THE INPUT USED FOR COMPUTER CALCULATION OF OFFSITE DOSES

Wind speed and direction  
Plant radiological effluent data  
Direct measurement of effluent path with a portable instrument

45. DESCRIBE THE OUTPUT THAT IS OBTAINED WHEN USING THE COMPUTER TO OBTAIN OFFSITE DOSE CALCULATION

Plume arrival time  
Direction (X/Q)  
Whole body doses

- Infant thyroid doses  
Doses at preset downwind distances
46. STATE THE GROUP RESPONSIBLE FOR COLLECTION OF DATA FOR CORE DAMAGE ASSESSMENT
- Operations Department
47. STATE THE GROUP RESPONSIBLE FOR ASSESSING CORE DAMAGE
- Chemistry Department
48. DESCRIBE THE DATA AND THE INSTRUMENTATION THAT IS USED IN THE ASSESSMENT OF CORE DAMAGE
- RVLIS reading and recordings  
Core exit thermocouple temperatures  
Containment high range monitor and containment hydrogen monitor readings  
Volume of all RCS additions during accident
49. STATE WHO IS RESPONSIBLE FOR ACTIVATION OF THE TSC, OSC, AND EOF
- Emergency Director (ED)
50. STATE THE PRIMARY AND BACKUP LOCATION AND THE CRITERIA USED TO DETERMINE UPPER LIMIT OF HABITABILITY OF THE PRIMARY TSC, OSC, AND EOF
- Whole body dose 100 mr/hr in TSC, OSC, EOF  
Iodine activity  $2.7 \times 10^{-7}$   
mCi/cc in TSC, OSC, EOF
- TSC - Primary TSC  
Backup Control Room
- OSC - Primary OSC  
Backup TSC
- EOF - Primary EOF  
Backup GPC District Office  
Waynesboro, Georgia

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I PURPOSE STATEMENT

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Following completion of this lesson, the student will possess those knowledges systematically identified for the performance of the EPIP OVERVIEW tasks.

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II LIST OF OBJECTIVES

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1. Name the key individual responsible for the implementation of the EIPs.
2. State the four emergency classifications in order of severity from least to worst.
3. Given a list of key EIPs, describe the purpose and use of each.
4. Describe the responsibilities of the TSC, OSC, EOF, Recovery Organization, and HP and Chemistry groups during a declared emergency.
5. List the various radiological teams, describe their function, and state who deploys them (91102-C). (SRO only)
6. State who fills the initial ED position when the primary is not on-site.
7. State who the primaries and alternates are for the ED position.
8. State from memory ED duties that cannot be delegated.
9. State who has authority to approve modifications to EIPs during an emergency situation (91001-C).
10. List the three fission product barriers that are part of the criteria for classifying an emergency.
11. Describe how the status of fission product barrier integrity is obtained.



OBJECTIVES FOR LO-LP-60101 CONTINUED.

12. List and describe the following key factors that are considered when classifying an emergency:
  - a. Plant electric power
  - b. Technical Specifications
  - c. Radioactivity
  - d. Plant Systems
  - e. Natural Phenomena
  - f. Man-Made Hazards
  - g. Security
  - h. Fission Product Barrier
  - i. Shutdown Systems
    - 1) Loss of systems necessary to put plant in hot shutdown
    - 2) Loss of systems necessary to put plant in cold shutdown
13. Given an emergency scenario, state the emergency classification.
14. Describe the procedure for downgrading an emergency (91002-C). (SRO ONLY)
15. State the individual responsible for making emergency notifications.
16. List the state and federal authorities that are notified in an emergency.
17. State the allotted time to contact the (SRO ONLY):
  - a. NRC
  - b. State and local authorities
18. Describe when follow-up messages are required for state and local officials. (SRO ONLY)
19. Describe when follow-up messages are required for the NRC (91204-C). (SRO ONLY)
20. Describe the communication system for notifying state and local officials.
21. Describe the communication system for notifying federal (NRC) officials.
22. List the backup communications for notifying state and local authorities. (SRO ONLY)

OBJECTIVES FOR LO-LP-4010: CONTINUED.

23. List the backup communications for notifying federal officials (91403-C). (SRO ONLY)
24. State the circumstances requiring site evacuation.
25. State the individual responsible for conducting the evacuation (91401-C).
26. State the two assembly areas for VEGP non-essential personnel.
27. State the circumstances requiring assembly of VEGP non-essential personnel.
28. State the group responsible for personnel accountability (91402-C). (SRO only)
29. State the position responsible for requesting a search and rescue team.
30. State the position responsible for forming the search and rescue team.
31. State the position responsible for dispatching the search and rescue team.
32. Describe the individuals that each search and rescue team must consist of (91301-C).
33. State the sole authority responsible for authorizing doses greater than 10CFR20 exposure limits.
34. State the emergency whole body limits for the following (SRO ONLY):
  - a. Sampling under accident conditions
  - b. Corrective or protective actions
  - c. Life saving actions
35. State what group of people should be first considered for emergency exposure, and what group should not be allowed to receive an emergency exposure (91305-C). (SRO only)

OBJECTIVES FOR LO-LP-40101 CONTINUED.

36. Summarize the evaluation and implementation of Protective Action Guidelines as specified in the EPIP's.
37. State the following two possible off-site protective action measures available to the ED (91301-C): (SRO only)
  - a. Seek shelter
  - b. Evacuation
38. State who is responsible for the termination of an emergency and notification to federal, state, and local authorities.
39. Describe the five prerequisites as listed in the procedure that must be factored into the decision to terminate an emergency.
40. State the position responsible for recovery operations and the primary for that position (91304-C).
41. State who is responsible for performing off-site dose calculations
  - a. Initially
  - b. After the TSC is activated
  - c. After the EOF is activated
42. Describe the input and where it is obtained in the manual backup calculation.
43. Describe what output is obtained from the manual backup calculation.
44. Describe the input used for computer calculation of off-site doses.
45. Describe the output that is obtained when using the computer to obtain off-site dose calculation (91503-C).
46. State the group responsible for collection of data for core damage assessment.
47. State the group responsible for assessing core damage.
48. Describe the data and the instrumentation that is used in the assessment of core damage (91202-C, 91203-C). (SRO only)

OBJECTIVES FOR LO-LP-40101 CONTINUED.

49. State who is responsible for activation of the TSC, OSC, and EOF.
50. State the primary and backup location and the criteria used to determine upper limit of habitability of the primary TSC, OSC, and EOF.