

UNITED STATES
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REGION II
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Report Nos.: 50-280/95-10 and 50-281/95-10

Licensee: Virginia Electric and Power Company

Docket Nos.: 50-280, 50-281

License Nos.: DPR-32, DPR-37

Inspection Conducted: June 12-16, 1995

Inspector:

W. M. Sartor, Jr.
W. M. Sartor, Jr.

7/21/95
Date Signed

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7/25/95
Date Signed

Emergency Preparedness Section
Radiological Protection and Emergency Preparedness Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, announced inspection involved the observation and evaluation of the annual emergency preparedness exercise. This NRC/FEMA evaluated exercise was conducted from 0900 hours to 1420 hours on June 14, 1995. The scope of the onsite inspection focused on the adequacy of the licensee's emergency response program, the implementation of the Emergency Plan and procedures in response to the simulated emergency conditions, and the effectiveness of the emergency response training program as reflected by the players' performance during the exercise.

Results:

In the areas inspected, violations or deviations were not identified. The performance of the emergency response organization was considered fully satisfactory with the exception of the untimely response of the damage control team responding to the failed safety valve (exercise weakness, Paragraph 10). Exercise strengths included accident recognition and classification, and the exercise critique process.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *W. Benthall, Supervisor, Licensing
- *D. Christian, Station Manager
- *J. Costello, Staff Emergency Planner
- *B. Fisher, Vice President, Radiation Protection
- *S. Harrison, Staff Emergency Planner
- *M. Kansler, Vice President, Nuclear Services
- *R. Kulp, Coordinator, Emergency Planning
- *B. McBride, North Anna Station Coordinator, Emergency Planning
- *J. McCarthy, Assistant Station Manager
- *W. Madison, Staff Emergency Planner
- *M. Olin, Supervisor, Health Physics Technical Services
- *T. Philips, Staff Emergency Planner
- *J. Price, Assistant Station Manager
- *S. Wood, Staff Emergency Planner

Other licensee employees contacted during this inspection included craftsmen, engineers, operators, mechanics, security force members, technicians, and administrative personnel.

Other Organizations

- *G. Casto, INPO, Corporate Support Division
- *C. Grant, INPO, Corporate Support Division
- *Y. Huang, Taiwan Power Company, Shift Engineer
- *W. Yu, TPC, Taiwan Power Company, Executive Secretary Emergency Preparedness

Nuclear Regulatory Commission

- *M. Branch, Resident Inspector

- *Attended exit interview

Abbreviations used throughout this report are identified in the last paragraph.

2. Exercise Scenario (82301)

The scenario for the emergency exercise was reviewed to determine whether provisions had been made to test the integrated capability and a major portion of the basic elements existing within the licensee, State, and local emergency plans and organization as required by 10 CFR 50.47(b)(14), 10 CFR Part 50, Appendix E, Paragraph IV.F, and specific criteria in NUREG-0654, Section II.N.

The scenario was reviewed in advance of the exercise and was discussed with licensee representatives. The scenario developed for this exercise was challenging and fully exercised the onsite and offsite emergency organizations of the licensee and provided sufficient information to the State and local government agencies for their full participation in the exercise.

No violations or deviations were identified.

3. Assignment of Responsibility (82301)

This area was observed to determine that primary responsibilities for emergency response by the licensee had been specifically established and that adequate staff was available to respond to an emergency as required by 10 CFR 50.47(b)(1) and 10 CFR 50, Appendix E, Paragraph IV.A.

The inspectors observed that specific emergency assignments had been made for the licensee's emergency response organization and there were adequate staff available to respond to the simulated emergency. The initial response organization was augmented by designated licensee representatives and the capability for long term or continuous staffing of the emergency response organization was discussed and planning for relief was initiated.

No violations or deviations were identified.

4. Onsite Emergency Organization (82301)

The licensee's onsite emergency organization was observed to determine that the responsibilities for emergency response were defined, that adequate staffing was provided to insure initial facility accident response in key functional areas at all times, and that the interfaces were specified as required by 10 CFR 50.47(b)(2) and 10 CFR 50, Appendix E, Paragraph IV.A.

The inspectors determined that the licensee's onsite emergency organization was well defined and was effective in dealing with the simulated emergency. Adequate staffing of the emergency response facilities was provided for the initial accident response and the interfaces between the onsite organization and offsite support agencies were adequate to ensure prompt notification and support from offsite agencies as required.

No violations or deviations were identified.

5. Emergency Response Support and Resources (82301)

This area was observed to determine whether arrangements for requesting and effectively using assistance resources were made, whether arrangements to accommodate State and local personnel in the LEOF were adequate, and whether other organizations capable of augmenting the planned response were identified as required by 10 CFR 50.47(b)(2) and 10 CFR 50, Appendix E, Paragraph IV.A.

The licensee's EP provided information for additional support and resources that may be called upon to assist in an emergency. Representatives of the Commonwealth of Virginia's Department of Emergency Services and Department of Health were accommodated in the LEOF.

No violations or deviations were identified.

6. Emergency Classification System (82301)

This area was observed to verify that a standard emergency classification and action level scheme was in use by the licensee as required by 10 CFR 50.47(b)(4) and Paragraph IV.C of Appendix E to 10 CFR Part 50.

The inspector observed that the emergency classification system was in effect as stated in Section 4.2 and Appendix 10.8 of the Surry Power Station EP. The system was effectively used to classify the emergency and escalate to more severe emergency classes as the simulated emergency progressed. This was an exercise strength.

No violations or deviations were identified.

7. Notification Methods and Procedures (82301)

This area was observed to determine whether procedures had been established for notification by the licensee of State and local response organizations and emergency personnel; that the content of initial and followup messages to response organizations had been established; and that means to provide early notification to the populace within the plume exposure pathway EPZ had been established as required by 10 CFR 50.47(b)(5), 10 CFR Part 50, Appendix E, Paragraph IV.D.

An inspector observed that notification methods and procedures had been established and were used to provide information concerning the simulated emergency conditions to Federal, State, and local response organizations. Communications for the notifications of the initial emergency classifications were initiated at 0927 hours for the Alert declared at 0919 hours, at 1137 hours for the SAE declared at 1131 hours, and at 1223 hours for the GE declared at 1216 hours.

Section 7.6 of the Surry Power Station Emergency Plan stated that "prompt alerting and notification of the population within the 10-mile EPZ would be accomplished using the EWS." The EWS consisted of sirens installed and maintained by the licensee, route alerting utilizing State and local emergency vehicles, institutional alerting initiated by State and local governments, the EBS, and personal notifications. The primary EWS consisting of 61 sirens was activated at 1525 hours by Surry County. An earlier attempt to activate the sirens at 1326 hours was

unsuccessful from both the primary (Surry County) and alternate (James City County and State EOC) activation points. The exact cause for the failure was not known but has resulted in surveillance modifications and planned physical modifications that should lead to improved system reliability.

No violations or deviations were identified.

8. Emergency Communications (82301)

This area was observed to determine whether provisions existed for prompt communications among principal response organizations and emergency personnel as required by 10 CFR 50.47(b)(6); 10 CFR Part 50, Appendix E, Paragraph IV.E, and specific criteria in NUREG-0654, Section II.F.

Communications between the licensee's ERO and offsite authorities were good throughout the exercise. Likewise, the communications among the licensee's ERFs were good. No communications related problems of any significance were identified during the exercise.

No violations or deviations were identified.

9. Public Education and Information (82301)

This area was observed to determine whether information concerning the simulated emergency was made available for dissemination to the public as required by 10 CFR Part 50, Appendix E, Paragraph IV.D, and specific criteria in NUREG-0654, Section II. G.

A news release was made available to the public prior to the exercise informing them of the approximate time of the exercise and the extent of offsite actions/field demonstrations that might be observed. During the exercise, the licensee established its JPIC in the company's Innsbrook Technical Center located in Glen Allen, VA. The company also had a LMC established in the Nuclear Information Center approaching the entrance to Surry. A total of four News Releases were provided from the JPIC during the exercise.

No violations or deviations were identified.

10. Emergency Facilities and Equipment (82301)

This area was observed to determine whether adequate emergency facilities and equipment to support an emergency response were provided and maintained as required by 10 CFR 50.47(b)(8), 10 CFR Part 50, Appendix E, Paragraph IV.E, and specific criteria in NUREG-0654, Section II.H.

The inspector observed the activation, staffing, and operation of selected ERFs and evaluated equipment provided for emergency use during the exercise.

- a. CRS - An inspector observed that CRS personnel acted promptly to initiate emergency response to the simulated emergency. The Shift Supervisor declared himself as interim Station Emergency Manager and directed the site's response to the simulated emergency until turning over the responsibility to the SEM in the TSC after a thorough briefing. Emergency procedures were readily available and used effectively.
- b. TSC - The TSC was activated and staffed promptly upon notification by the SEM of the simulated emergency condition leading to the Alert emergency classification. The TSC appeared to have adequate equipment for the support of the assigned staff.
- c. OSC - The OSC was staffed expeditiously following the order to activate. Although necessary emergency equipment was available to support OSC damage control team activities, all teams were not dispatched in a timely manner to accomplish designated tasks. Observations made by the inspector to support the above findings include:
 - A damage assessment team to investigate any damage caused by a suspected bomb was authorized at 1003 hours. Team members were briefed in the OSC that non-radiological respirators would be required to perform the task. After obtaining the respirators from the tool room they proceeded to HP to be briefed on radiological requirements and were then informed that SCBA would be required. Additionally, at 1055 hours the partially assembled team was still waiting for an operator to join them. Because the team was not needed for bomb damage assessment, it was later assigned the task to do walkdowns in accordance with procedure AP-37 following the simulated earthquake. Although this was designated as a priority #1 mission at 1152 hours, the team was not ready for dispatch until 1235 hours.
 - At 1236 hours the SEM authorized as priority #1 a team to gag shut the stuck open safety relief valve. The initial team assigned the task and dispatched to the RCA entrance after OSC and HP briefings had to be cancelled and reconstructed because 3 of the 4 team members were not respirator qualified which was required for the mission. As a result, a respiratory qualified team was not ready until 1 hour and eleven minutes after the task assignment which was considered priority #1 because it would terminate the release. Additionally, the street clothes directed as protective clothing on the HP briefing sheets were questionable for the assigned task of gagging a stuck open steam safety valve.

The above observations were summarized as an exercise weakness as follows: Exercise Weakness 50-280, 281/95-10-01: Damage control teams were not expeditiously managed to perform prioritized tasks designated for accident mitigation.

- d. LEOF - An inspector observed that the LEOF was staffed and promptly activated following the Alert declaration. The inspector observed the operation of the HVAC system for providing a filtered atmosphere under positive pressure, the security program in place for access control, and the radiation protection program for personnel in the facility. The LEOF appeared to have adequate equipment for the support of the assigned staff.

One Exercise Weakness but no violations or deviations were identified.

11. Accident Assessment (82301)

This area was observed to determine whether adequate methods, systems, and equipment of assessing and monitoring actual or potential offsite consequences of a radiological emergency condition were in use as required by 10 CFR 50.47(b)(9), 10 CFR Part 50, Appendix E, Paragraph IV.B, and specific criteria in NUREG-0654, Section II.I.

The accident assessment program included an engineering assessment of plant status and an assessment of radiological hazards to both onsite and offsite personnel resulting from the accident. The radiological dose assessment projections for offsite personnel were done in the LEOF under the direction of the Radiological Assessment Director. Dose assessment personnel in the TSC performed confirmatory calculations to backup the primary dose assessment functions provided in the LEOF. The results of the dose assessments were compared to reports from the field teams and differences were promptly analyzed. In the TSC, the Technical Support team provided engineering assessments to the SEM and his staff concerning mitigating actions to reduce damage to prevent release of radioactive materials and to terminate the emergency condition.

No violations or deviations were identified.

12. Protective Responses (82301)

This area was observed to determine whether guidelines for protective actions during the emergency, consistent with Federal guidance, were developed and in place, and protective actions for emergency workers, including evacuation of nonessential personnel, were implemented promptly as required by 10 CFR 50.47(b)(10), and specific criteria in NUREG-0654, Section II.J.

An inspector verified that the licensee had emergency procedures for formulating PARs for the offsite populace within the 10-mile EPZ. The proper PARs were provided by the licensee to the State with the General Emergency notification message. Earlier, site personnel were promptly accounted for and non-essential personnel were evacuated from the site.

No violations or deviations were identified.

13. Radiological Exposure Control (82301)

This area was observed to determine whether means for controlling radiological exposures during an emergency were established and implemented for emergency workers, and that these means included exposure guidelines consistent with EPA recommendations as required by 10 CFR 50.47(b)(11), and specific criteria in NUREG-0654, Section II.K.

An inspector noted that radiological exposures were controlled throughout the exercise by issuing supplemental dosimeters to emergency workers and by periodic surveys in the ERFs. Exposure guidelines were in place for various categories of emergency actions.

No violations or deviations were identified.

14. Exercise Critique (82301)

The licensee's critique of the emergency was observed to determine whether deficiencies identified as a result of the exercise and weaknesses noted in the licensee's emergency response organization were formally presented to licensee management for corrective actions as required by 10 CFR 50.47(b)(14), 10 CFR Part 50, Appendix E, Paragraph IV.E, and specific criteria in NUREG-0654, Section II.N.

The licensee conducted player critiques following the exercise termination. A formal licensee critique of the emergency exercise was held on June 16, 1995, with exercise controllers, licensee management, and NRC personnel attending. The licensee reviewed the exercise objectives and objectively evaluated the performance of the emergency organization in meeting the objectives. The critique was thorough and was an exercise strength.

No violations or deviations were identified.

15. Exit Interview

The inspection scope and results were summarized on June 16, 1995, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the exercise weakness listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
50-280, 281/95-10-01	Open	EW - Damage control teams were not timely dispatched (Paragraph 10).

16. Federal Evaluation Team Report

The report by the Federal Evaluation Team (Regional Assistance Committee and Federal Emergency Management Agency, Region III staff) concerning the activities of offsite agencies during the exercise will be forwarded by separate correspondence.

17. Index of Abbreviations Used in This Report

CFR	Code of Federal Regulations
CRS	Control Room Simulator
DES	Department of Emergency Services
EAL	Emergency Action Level
EBS	Emergency Broadcast System
EOC	Emergency Operations Center
EP	Emergency Plan
EPA	Environmental Protection Agency
EPIP	Emergency Plan Implementing Procedures
EPZ	Emergency Planning Zone
ERF	Emergency Response Facility
ERO	Emergency Response Organization
EW	Exercise Weakness
EWS	Early Warning System
FEMA	Federal Emergency Management Agency
GE	General Emergency
HP	Health Physics
JPIC	Joint Public Information Center
LEOF	Local Emergency Operations Facility
LMC	Local Media Center
NRC	Nuclear Regulatory Commission
OSC	Operational Support Center
PAR	Protective Action Recommendation
SCBA	Self-Contained Breathing Apparatus
SAE	Site Area Emergency
SEM	Station Emergency Manager
TSC	Technical Support Center

Attachments:

Exercise Scope and Objectives
and Scenario Narrative

VIRGINIA POWER
SURRY POWER STATION
JUNE 1995 EMERGENCY EXERCISE

EXERCISE SCOPE

The purpose of this exercise is to activate and evaluate major portions of the Surry Emergency Plan, associated implementing procedures, and selected portions of the Corporate Emergency Response Plan in accordance with 10CFR50.47(b)(14), and to support the implementation of state and local governments emergency response plans.

This plume exposure pathway exercise will be held in conjunction with emergency response demonstrations by the Commonwealth of Virginia and several local governments. The exercise will demonstrate that the individuals and agencies assigned responsibilities in a radiological emergency are capable of coordinating and assessing necessary protective measures to ensure the health and safety of the public in the event of an accident at Surry Power Station.

The exercise will demonstrate responses to the emergency classes, commensurate with the stated exercise objectives, established by NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants. Free play is encouraged and controllers will be allowed to interface with the participants to provide information. The controllers will only alter the participants' responses if the exercise lags behind schedule, if emergency response personnel take inappropriate actions to carry them to the next event, or if action is taken that would correct the expected simulated response earlier than scheduled by the scenario.

The focus items of this exercise are:

- Use of MIDAS and associated procedures
- Use of revised EALs

The exercise will fulfill the following drill requirements:

- Semi-annual Radiation Monitoring Drill
- Annual Medical Emergency Drill
- Annual Communications Drill

At no time will the exercise be permitted to interfere with the safe operation of the station. Station management may, at their discretion, suspend the exercise for any period of time necessary to ensure this goal.

Exercise participants will not have prior knowledge of the simulated incident.

VIRGINIA POWER
SURRY POWER STATION
JUNE 1995 EMERGENCY EXERCISE

OBJECTIVES

The purpose of this exercise is to demonstrate the adequacy of the Surry Power Station Emergency Plan, the Corporate Emergency Response Plan, and associated implementing procedures.

The objectives of this exercise are to demonstrate by actual performance a number of key emergency preparedness functions as they relate to the Surry Power Station Emergency Plan. The simulated accident will involve: emergency classification, notifications of company and off-site organizations, simulated actions to correct the emergency condition, and initiation of accident assessment and protective actions as necessary to cope with the event. The event will include a simulated off-site radiological release to support a plume exposure pathway exercise.

As applicable to the events developed by the exercise scenario, the Surry Power Station and Corporate Emergency Response Facilities (ERFs) will be activated. Each ERF staff will demonstrate functions described in the implementing procedures. Emergency response functions which are impractical to demonstrate will be simulated.

The attached objectives, as numbered in the Virginia Power Nuclear Emergency Preparedness Six Year Plan, will be demonstrated as applicable to the schedule provisions of this plan. A matrix, identifying the objectives and the Virginia Power Emergency Response Facilities/Groups where they will be demonstrated, is provided. The Control Room Simulator will be used in lieu of the actual Station Control Room.

The following is a list of corporate and station emergency response facilities and groups with their associated acronyms:

- (1) Control Room Simulator (CRS)
- (2) Technical Support Center (TSC)
- (3) Operational Support Center (OSC)
- (4) Local Emergency Operations Facility (LEOF)
- (5) Corporate Emergency Response Center (CERC)
- (6) Joint Public Information Center (JPIC)
- (7) Local Media Center (LMC)
- (8) Health Physics (HP)
- (9) Security (SEC)
- (10) Chemistry (CHEM)
- (11) Central Emergency Operations Facility (CEOF)

VIRGINIA POWER
SURRY POWER STATION
JUNE 1995 EMERGENCY EXERCISE

OBJECTIVES

The following objectives establish the scope, the extent of play and extent of evaluation for this exercise. Also these objectives ensure that required events are included in the exercise scenario.

1. Demonstrate the ability to analyze station conditions, assess Emergency Action Level (EAL) parameters, and correctly classify the emergency.

Extent of Play

The CRS and TSC Emergency Response Organizations (ERO) will demonstrate this objective by use of EPIP-1.01 and appropriate operational procedures.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

2. Demonstrate the ability to notify, mobilize, and sustain the Surry Power Station and Corporate Emergency Response Organizations.

Extent of Play

The CRS staff, Station Security, and Corporate Security will notify and mobilize the ERO. Station and corporate ERO notification will be conducted in accordance with the Emergency Personnel Notification List (EPNL).

The TSC, LEOF, CERC, and JPIC will demonstrate sustaining continuous response capability by formulating shift relief rosters. If required, the process for obtaining logistical and technical support for emergency response personnel may be simulated.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

3. Demonstrate the ability to notify the State and local governments and the NRC within established time constraints.

Extent of Play

As appropriate to the communications process, the CRS, TSC, and LEOF will demonstrate this objective by providing up-to-date information to the federal, state, and local governments within the required time limits.

a. State and Local Government Communications

An Emergency Communicator (EC) will perform initial and follow-up communications in accordance with EPIP-2.01.

The SEM will retain the responsibility for state and local government communications until the LEOF is activated. Following LEOF activation, responsibility for communications will be transferred to the Recovery Manager (RM).

b. NRC Communications

An EC will perform initial and follow-up communications in accordance with EPIP-2.02. The EC will transmit information to a phone cell simulating the NRC. The responsibility for NRC communications remain with the TSC ERO.

Health Physics Network (HPN) communications will be performed in accordance with EPIP-4.33. The HPN communicator will transmit information to a phone cell simulating the NRC. The responsibility for HPN communications will be with the LEOF ERO.

The Emergency Response Data System (ERDS) will be activated in the CRS only. Plant data will **not** be transmitted to the NRC.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

4. Demonstrate the ability to conduct assembly and accountability of personnel within the Protected Area.

Extent of Play

The Station Security Staff will demonstrate this objective in accordance with EPIP-5.09 and EPIP-5.03. Also, to support the overall accountability process, the Assembly Area Leaders will perform area accountability.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

5. Demonstrate the ability to assemble, dispatch, and control on-site emergency teams to perform response activities.

Extent of Play

As appropriate, the CRS, TSC, OSC, and Health Physics staffs will demonstrate this objective by briefing, dispatching, and controlling teams in response to scenario events within the Station Protected Area. The CRS staff will demonstrate this objective by initiating applicable procedures. Following facility activation, the TSC and OSC staffs will demonstrate this objective by implementing EPIP-3.02, EPIP-3.03, and EPIP-5.08.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

6. Demonstrate the ability to assess conditions and implement appropriate protective measures for emergency response personnel, including site access control, contamination control, exposure control, use of protective devices and, as appropriate, the process for authorizing the use of potassium iodide (KI).

Extent of Play

This objective will be demonstrated through an interface among the CRS, TSC, LEOF and OSC ERO in which the TSC staff will monitor and authorize protective measures for site access, contamination control, and exposure control.

The TSC organization, via the Radiation Protection Supervisor (RPS) located in the Health Physics area, will dispatch and direct monitoring teams within the bounds of the site property per EPIP-4.01 and EPIP-4.02 and associated procedures to assess radiological conditions. Protective measures, appropriate for conditions, will be developed and/or implemented for emergency response personnel.

Security will implement access control measures in accordance with EPIP-5.09 and EPIP-5.04.

The OSC Staff and other site personnel will implement any necessary actions associated with protective equipment requirements and in-plant access control.

If necessary, in response to scenario events, the CRS and/or TSC and OSC staffs may demonstrate the process for requesting and authorizing exposure extensions, to include emergency exposure authorization in accordance with EPIP-4.01 and EPIP-4.04. Also, if necessary, the TSC staff will demonstrate the KI authorization process per EPIP-4.01 and EPIP-5.07.

If necessary, in response to scenario events, the TSC will demonstrate the planning and notification processes for protective measures and simulate evacuating non-essential personnel in accordance with EPIP-4.07 and EPIP-5.05.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

7. Demonstrate the ability to develop appropriate Off-site Protective Action Recommendations (PARs) based on assessment of plant conditions and off-site dose projections and/or measurements.

Extent of Play

As appropriate, this objective will be demonstrated by the SEM from the TSC or by the RM in the LEOF by implementation of EPIP-1.06. Additional information for PAR determination may be obtained from EPIP-4.07. The TSC and LEOF organizations may monitor plant conditions and perform off-site dose projections to support formulation of PARs. Responsibility for PAR development is transferred from the TSC to the LEOF following activation of the LEOF.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

8. Demonstrate the ability to perform off-site dose assessment.

Extent of Play

As appropriate, this objective may be demonstrated by the TSC and LEOF staffs. The ability to perform initial dose assessment will be demonstrated through the implementation of EPIP-4.01 and associated dose assessment procedures. As required, the CERC will act in a back-up capacity to perform off-site dose assessment.

Field monitoring teams will be dispatched per EPIP-4.01, EPIP-4.02, and associated procedures to support the dose assessment effort. As appropriate, these teams will be directed by the RPS and/or the TSC and LEOF staffs.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

9. As appropriate, demonstrate the ability of Health Physics and Chemistry to conduct radiological monitoring activities, including exposure rate surveys, sample collection, and sample analysis.

Extent of Play

As required, radiological monitoring, sampling, and analysis for in-plant and/or on-site activities will be initiated in accordance with EPIP-4.02. Post Accident Sampling activities may be performed in accordance with EPIP-4.22 and EPIP-4.23.

Field monitoring teams will perform radiological monitoring activities in accordance with EPIP-4.15 and EPIP-4.16.

Reactor coolant and/or containment samples will not be obtained utilizing the High Radiation Sampling System (HRSS). Radiological data necessary to test response and monitoring capabilities will be provided by the controller during simulated sample collection. Isotopic analysis data will be provided following demonstration of proper sample preparation and upon expiration of spectrum collection and analysis times.

Extent of Evaluation

This objective will be fully evaluated (except actual elevated HRSS sampling), including participant self-evaluation.

10. Demonstrate the ability to effectively activate the emergency response facilities and associated emergency response processes.

Extent of Play

Activation of facilities and emergency processes by the TSC, OSC, LEOF, CERC, JPIC, and the LMC will be demonstrated in accordance with the appropriate procedures.

As appropriate, activation of emergency processes will be demonstrated by the CRS, Health Physics, Chemistry and Security.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

11. Demonstrate that facility layout and equipment support emergency response activities in each facility.

Extent of Play

This objective will be demonstrated in the CRS, TSC, OSC, LEOF, CERC, JPIC, LMC, Security, Health Physics, and Chemistry.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

12. Demonstrate the ability to establish and maintain effective communications.

Extent of Play

The CRS, TSC, OSC, LEOF, CERC, JPIC, LMC, Security, Health Physics, Chemistry, and Field Teams will demonstrate this objective.

Use of backup communications systems will only be demonstrated if primary communications fail.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

13. Demonstrate the ability to maintain command and control of the emergency response effort.

Extent of Play

The SEM will demonstrate on-site emergency response command and control from the CRS and TSC. The RM will demonstrate command and control of the emergency response effort associated with the LEOF upon activation of that facility. The Corporate Response Manager will demonstrate command and control of the emergency response effort associated with the CERC upon activation of that facility.

The SEM will ensure personnel within the Protected Area are informed of emergency event status by the use of emergency alarms, the plant paging system (Gai-tronics) and selected

personnel pagers. Remaining site personnel will be notified by other verbal communication methods. Announcements should be preceded and terminated with the phrase: "This is a drill."

The CRS, TSC, and LEOF ERO will demonstrate the ability to transfer appropriate command and control functions.

a. The CRS functions that will transfer to the TSC include:

- (1) Notifications to the state, local governments, and NRC.
- (2) Developing and transmitting PARs to the state.
- (3) Determining the emergency classification.
- (4) Authorizing emergency exposures.

b. The TSC functions that will transfer to the LEOF are:

- (1) Notifications to the state and local governments and to the NRC via the HPN.
- (2) Developing and transmitting PARs to the state.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

14. Demonstrate the ability to coordinate preparation, review and release of timely and accurate information to the public.

Extent of Play

The CERC, JPIC, LEOF, and LMC staffs will demonstrate this objective.

Press releases will be prepared and edited at the CERC and may be transmitted to the LEOF for technical review. Following approval by the RM and/or the Corporate Response Manager, the process for issuing press releases will be demonstrated.

The JPIC Director will be cognizant of all press releases and make them available to the media in the JPIC and LMC.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

15. Demonstrate the ability to establish and operate rumor control functions.

Extent of Play

Public Affairs will demonstrate this objective by establishing an emergency hotline in accordance with CPIP-2.1. Questions will be called into the Public Information Room requiring response as part of the scenario.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

16. Demonstrate the ability to provide basic life support and to package and transport a contaminated injured person to an off-site medical facility.

Extent of Play

This objective will be demonstrated by the First Aid Team implementing treatment appropriate for the victim's level of injury and by Health Physics employing the necessary radiological controls. EPIP-5.01 and HP-1061.010 will be implemented to remove the victim from the accident scene and transport to the off-site medical facility.

As required, the CERC will implement CPIP-7.0.

As necessary, the Shift Supervisor directs Station Security to summons off-site support. Station Security will prepare for station access by off-site support in accordance with EPIP-5.09.

Transport of the victim to an off-site medical facility will be demonstrated.

Off-site medical support agencies and facilities will participate.

Extent of Evaluation

This objective will be fully evaluated, including participant self-evaluation.

17. Demonstrate the ability to respond to, control and mitigate the consequences of a fire.

Extent of Play

This objective will not be demonstrated.

Extent of Evaluation

This objective will not be evaluated.

18. Demonstrate the ability to establish a Recovery Organization and to develop a Recovery Plan.

Extent of Play

This objective will not be demonstrated.

Extent of Evaluation

This objective will not be evaluated.

19. Demonstrate the ability to conduct a self-critique and to identify areas for improvement.

Extent of Play

The CRS, TSC, OSC, LEOF, CERC, JPIC, LMC, Security, Chemistry, and Health Physics will conduct a self-critique to identify weaknesses and improvement items.

SURRY POWER STATION
JUNE 1995 EMERGENCY EXERCISE

OBJECTIVES DEMONSTRATION MATRIX

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
CRS	X	X	X	X	X	X				X	X	X	X			X	*		X
OSC				X	X	X				X	X	X				X	*		X
TSC	X	X	X	X	X	X	X	X		X	X	X	X			X			X
LEOF		X	X			X	X	X		X	X	X	X	X				*	X
CERC		X						X		X	X	X	X	X		X			X
JPIC		X								X	X	X		X	X				X
LMC										X	X	X		X					X
SECURITY		X		X		X				X	X	X				X	*		X
HP				X	X	X			X	X	X	X				X	*		X
CHEMISTRY				X					X	X	X	X							X

* = Denotes objective not to be demonstrated

**VIRGINIA POWER
SURRY POWER STATION
JUNE 1995 EMERGENCY EXERCISE**

SCENARIO NARRATIVE

A full scale plume exposure pathway exercise is scheduled to be conducted at the Surry Power Station. For the purpose of the exercise, Unit 1 is designated as the affected unit.

Unit 1 is operating at 100% full power equilibrium conditions near end of life.

Unit 2 is operating at 100% full power equilibrium conditions with no equipment out of service.

The exercise begins at 0900. At 0905 a Security Officer making rounds identifies a device, that looks like a bomb, attached to the discharge piping of 1-RS-P-2A. Security notifies the Operations Shift Supervisor and implements their contingency procedure. Since the device is located in an area that potentially affects safety related equipment, the declaration of an **Alert** is warranted.

A minor earthquake occurs at 1011 resulting in no damage. Reactor Coolant System activity increases slightly. At 1022 "A" Boric Acid Storage Tank level transmitter 1-CH-LT-1161 fails low and at 1037 Control Room Chiller 1-VS-E-4B trips. Charging Pump 1-CH-P-1B trips at 1043. During investigation of the Charging Pump trip, the medical emergency occurs.

At 1107 a Design Basis Earthquake occurs and causes fuel clad damage. The earthquake drives the declaration of a **Site Area Emergency (SAE)**. This event results in both units being ramped off the line. Containment Sump Pump Discharge Valve 1-TV-DA-100A fails shut at 1139. A loose part develops in the lower reactor vessel at 1157. The loose part results in additional clad damage.

At 1206 Reactor Coolant Pump 1-RC-P-1C trips and a tube rupture occurs in the "C" steam generator. At the same time a safety valve for the "C" steam generator fails in the open position allowing a radiological release to the environment. These conditions require the declaration of a **General Emergency**. Also, the steam dumps fail to open and Auxiliary Feedwater Pump 1-FW-P-2 overspeeds.

Escalation through the applicable emergency classifications will provide activities designed to exercise both on-site and off-site response organizations. Sufficient time will be permitted to allow the response organizations to perform the required assessment and appropriate response actions.

At 1430 the exercise will be terminated.

Facility critiques are scheduled to begin approximately fifteen minutes after termination of the exercise.

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TIME LINE

TIME	EVENT DESCRIPTION	ANTICIPATED RESPONSE
0745	C/O exercise day briefing.	Final preparation for exercise. Lead Controller to ensure all changes and questions are addressed.
0815	Simulator briefing.	CRS Lead Controller to brief the operations shift on the initial conditions and simulator set up.
0900	Start exercise.	Simulator to "Run."
0905	Security officer, making rounds, identifies something that looks like a bomb strapped to the discharge piping of 1-RS-P-2A (mini-scenario #1 Suspected Bomb).	Security notifies the SS and implements their contingency procedure. SS enters EPIP-1.01 and declares an Alert per Tab J-4 . Notify state & locals (EPIP-2.01) and NRC (EPIP-2.02). Security requests assistance form the Virginia State Police.
0945	Approximate time accountability should be completed.	
1000	Approximate time that facilities should be activated.	Full participation by the corporate and station emergency response organizations. Full participation by the state.
1011	Minor earthquake occurs (mini-scenario #2 Minor Earthquake), RCS activity increases slightly at 1016.	AP-37.00 entered. Enter EPIP-1.01, SEM identifies NOUE per Tab L-3 , may conduct plant walkdowns, notify state, locals (EPIP-2.01) and NRC (EPIP-2.02, control cell). I&C may perform 1-PT-39.7, "Seismic Instrumentation After A Seismic Event".

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TIME LINE

TIME	EVENT DESCRIPTION	ANTICIPATED RESPONSE
After 1011	Medical emergency occurs (mini-scenario #7 Medical Emergency).	CRS informed of medical emergency. Gai-Tronics announcement for First Aid Team to respond. First Aid Team responds to scene, renders first aid, packages, and transports victim to off-site medical facility. EPIP-5.01, "Transport of Contaminated Injured," entered.
1022	"A" Boric Acid Storage Tank level transmitter 1-CH-LT-1161 fails low (mini-scenario #3 1-CH-LT-1161 Fails Low).	SS request operators to investigate status of transmitter and tank level. Anticipate TSC to prioritize as a damage control evolution.
1037	Control Room Chiller 1-VS-E-4B trips (mini-scenario #4 1-VS-E-4B Control Room Chiller Failure).	SS request operators to investigate status of chiller and requests starting another. Anticipate TSC to prioritize as a damage control evolution.
1043	Charging pump 1-CH-P-1B trips (mini-scenario #5 1-CH-P-1B Shorted Motor Winding). Letdown isolates.	SS request operators to investigate status of the charging pump. Anticipate TSC to prioritize as a damage control evolution.
1107	Earthquake greater than a DBE occurs (mini-scenario #6 Design Bases Earthquake), RCS activity increases significantly at 1111.	AP-37.00 entered. Assess plant conditions and using EPIP-1.01, SEM declares SAE per Tab L-1. Plant walkdowns will probably be performed. TSC notifies the NRC (EPIP-2.02).
1111	Letdown radiation monitor indication rapidly increases to $>1 \times 10^6$ cpm.	SEM reviews EPIP-1.01 for possible classification.

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TIME LINE

TIME	EVENT DESCRIPTION	ANTICIPATED RESPONSE
1139	Containment sump pump discharge valve 1-TV-DA-100A fails shut (mini-scenario #8, Containment Sump Pump Discharge Valve 1-TV-DA-100A Failure).	Operators/maintenance may investigate cause of valve failure. Plans may be made to enter the containment to determine the leak source and/or repair the valve.
1157	Loose parts alarm locks in (mini-scenario #9, Loose Parts). The alarm is in the lower reactor vessel area.	Operators will investigate the cause of the alarm. Fuel clad damage increases.
1206	1-RC-P-1C Reactor Coolant Pump trips on overcurrent (mini-scenario #10, "C" Reactor Coolant Pump Failure) causing reactor trip and steam driven AFW pump 1-FW-P-2 overspeeds (mini-scenario #11, Terry Turbine Overspeeds).	Operators respond to the reactor trip using 1-E-0. Anticipate TSC to prioritize as a damage control evolution. DC Teams to conduct investigation, assessment and repairs.
1207	Tube rupture occurs in "C" SG, safety valve for SG "C" fails open, (mini-scenario #12 Safety Valve Failure). Radiological release begins to the environment.	Assess plant conditions and using EPIP-1.01, SEM declares a GENERAL EMERGENCY per Tab B-8 . Develop PAR (EPIP-1.06) and notify state & locals (EPIP-2.01) and NRC (EPIP-2.02). Track plume (EPIP-4.15, 4.16), perform dose assessment (EPIP-4.03). The stability class is B. The affected sectors are NPQ. The wind direction is from the ESE (115 ⁰). The PAR should be #1. Anticipate TSC to prioritize as a damage control evolution. DC Teams to conduct investigation, assessment and repairs. As required, HP performs surveys inplant, onsite and off-site.
1213	Auxiliary Feedwater Pump 1-FW-P-3B fails (mini-scenario #13 1-FW-P-3B Auxiliary Feedwater Pump).	SS informs TSC of the pump failure. Anticipate TSC to prioritize as a damage control evolution.

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TIME LINE

TIME	EVENT DESCRIPTION	ANTICIPATED RESPONSE
1242	Service Water Pump (service water to charging pumps) 1-SW-P-10A fails (mini-scenario #14, Service Water Pump 1-SW-P-10A Failure).	SS informs TSC of the pump failure. Anticipate TSC to prioritize as a damage control evolution.
1400	Terminate emergency.	ERO put ERFs back to state of readiness, paperwork collected for the exercise and given to the Lead Controllers.
1400-1430	Controllers and Observers conduct preliminary review.	
1430	Conduct facility critiques.	Perform critique process.

Summary:

1. Suspected bomb potentially affecting safety systems drives **ALERT** and subsequent ERO activation.
2. Minor earthquake occurs.
3. DBE earthquake drives a **SAE**. RCS activity increases significantly, but decays off.
4. Medical emergency occurs. Requires off-site rescue squad response and transport of patient to an off-site medical facility.
5. A loose part develops in the reactor coolant system, resulting in additional fuel damage.
6. A reactor coolant pump trips resulting in a reactor trip. Subsequent to the reactor trip a steam generator tube rupture occurs and an associated safety valve opens, resulting in a radiological release to the environment. Results in a **General Emergency** classification.

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TIME LINE

Success Paths:

1. Implement Emergency Plan and applicable procedures. Activate ERO.
2. Establish DC process. Prioritization and use of manpower.
3. Provide first aid to victim, package and transport to off-site medical facility.
4. Establish monitoring teams and track plume.
5. Cooldown plant to terminate release.