

UNITED STATES NUCLEAR REGULATORY COMMISSION REGION II 101 MARIETTA STREET, N.W. ATLANTA, GEORGIA 30323

JAN 1 4 1991

Report Nos.: 50-280/90-31 and 50-281/90-31

Licensee: Virginia Electric and Power Company Glen Allen, VA 23060

Docket Nos.: 50-280 and 50-281

License Nos.: DPR-32 and DPR-37

Facility Name: Surry 1 and 2

Approved by:UN

Inspection Conducted: December 11-14, 1990

Accompanying Personnel: *R*. Guilfoil (Battelle)

Inspectors: ^C

W. H. Rankin, Chief Emergency Preparedness Section Radiological Protection and Emergency Preparedness Branch Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, announced inspection was the observation and evaluation of the annual emergency exercise. Team observers evaluated the licensee's response and performance in the Simulator Control Room, Technical Support Center (TSC), Operational Support Center (OSC), Local Emergency Operations Facility (LEOF), and Local Media Center (LMC). This was a full participation exercise which progressed to a General Emergency. The exercise began at 8:00 a.m. and ended at 2:15 p.m.

Results:

In the areas inspected, violations or deviations were not identified.

The licensee was successful in meeting the exercise objectives. Exercise strengths included exercise control, use of the Simulator Control Room, activation of the emergency response facilities (ERFs), recovery/reentry planning, and the licensee's critique process. One exercise weakness was identified for failure to direct damage control teams in accordance with procedures resulting in delayed entry into the radiation controlled area (RCA) and the TSC staff not being aware of the damage control team status.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. Bilyeu, Engineer, Licensing
- *M. Bowling, Manager, Licensing and Programs
- *D. Christian, Assistant Station Manager, Operations and Maintenance
- *E. Collins, Manager, Emergency Planning
- *W. Cook, Operations Superintendent
- *J. Costello, Station Coordinator, Emergency Planning
- *D. Erickson, Superintendent, Radiation Protection
- *W. Harrell, Vice President, Nuclear Operations *M. Kansler, Station Manager
- *R. Kulp, Assistant Station Coordinator, Emergency Planning
- *J. Lusher, North Anna Station Coordinator, Emergency Planning
- *J. Maciejewski, Manager, Quality Assurance
- *J. O'Hanlon, Vice President, Nuclear Services
- *J. Price, Assistant Station Manager, Nuclear Safety and Licensing
- *E. Smith, Jr., Manager, Surry Quality Assurance

Other licensee employees contacted during this inspection included technicians, security, and office personnel.

Nuclear Regulatory Commission

*W. Holland, Senior Resident Inspector

*Attended exit interview

2. Exercise Scenario (82302)

The scenario for the emergency exercise was reviewed to determine that provisions had been made to test an integrated emergency response capability as well as 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 50, Appendix E, Paragraph IV.F and specific criteria in NUREG-0654, Section II.N.

The scenario developed for this exercise was reviewed in advance of the scheduled exercise date and was determined to be adequate for the scope and objectives of this exercise. The exercise was originally scheduled for November 14, 1990, but was rescheduled for December 12, 1990, as a result of plant events occurring on November 13,1990. One exception to the rescheduling was the licensee's participation in a first aid emergency drill which included transport of a simulated contaminated injured individual to an offsite medical facility. This drill was conducted on November 14, 1990, and was evaluated by the Federal Emergency Management Agency (FEMA).

The simulated emergency progressed from a Notification of Unusual Event (NOUE) declaration for unit shutdown due to reactor coolant system (RCS) leakage, to an Alert declaration for high reactor coolant activity, to a Site Area Emergency based on the high RCS leak rate and high activity with degrading containment conditions, to a General Emergency based on the loss of 2 of 3 fission product barriers with the potential loss of the 3rd barrier. The exercise controllers used the simulator and message inputs and data to maintain the timeline which permitted demonstration of exercise objectives.

No violations or deviations were identified.

3. Onsite Emergency Organization (82301)

The licensee's onsite emergency organization was observed to assure that the following requirements were implemented pursuant to 10 CFR 50.47(b)(2), Paragraph IV.A of Appendix E to 10 CFR 50, and specific guidance promulgated in Section II.B of NUREG-0654: (1) unambiguous definition of responsibilities for emergency response; (2) provision of adequate staffing to assure initial facility accident response in key functional areas at all times; and (3) specification of onsite and offsite support organization interactions.

The inspector observed that the licensee's on-shift organization for the exercise responded to the simulated abnormal conditions that initiated the exercise. The Shift Supervisor promptly classified the NOUE and promptly assumed the responsibilities as the Station Emergency Manager (SEM). Responsibilities were clearly defined and sufficient staff was available for the initial emergency response.

The TSC was activated 36 minutes after the Alert declaration. The functional responsibilities shifted from the Simulator Control Room to the SEM and his staff in the TSC after its activation. An inspector observed that some tasks assigned to the damage control teams were not accomplished in accordance with Procedure EPIP-5.08, Damage Control Guideline. As a result, the status of damage control teams was not known to the TSC staff and some teams were delayed because task requirements for Health Physics support had not been coordinated. Additionally, the damage control task guide sheets were frequently missing information or unavailable as they were for teams 4 and 5. The failure to dispatch and control teams in accordance with procedures was identified as an exercise weakness (EW) (50-280, 281/90-31-01). The licensee also identified this as a problem area in their critique.

No violations or deviations were identified.

4. Emergency Response Support and Resources (82301)

This area was observed to determine that arrangements for requesting and effectively using assistance resources had been made, that arrangements to accommodate State and local staff at the licensee's near-site EOF had been

made, and that other organizations capable of augmenting the planned response had been identified as required by 10 CFR 50.47(b)(3), 10 CFR 50, Appendix E, Paragraph IV.A, and specific criteria in NUREG-0654, Section II.C.

Section 5.0, "Organizational Control of Emergency," of the Surry Power Station Emergency Plan discussed the augmentation of the onsite emergency organization and the coordination with participating government agencies. An inspector observed that the licensee's LEOF accommodated the State On-Scene Coordinator and members of the Commonwealth of Virginia's Department of Emergency Service and Bureau of Rad Health. Space was also available in the LEOF for members of the Federal government. The effective use of offsite assistance resources was also demonstrated with the medical drill on November 14, 1990.

No violations or deviations were identified.

5. Emergency Classification System (82301)

This area was observed to assure that a standard emergency classification and action level scheme was in use by the nuclear facility licensee pursuant to 10 CFR 50.47(b)(4), Paragraph IV.C of Appendix E to 10 CFR 50, specific guidance promulgated in Section II.D of NUREG-0654, and guidance recommended in NRC Information Notice (IN) 83-28.

The licensee's emergency classification system was described in Section 4 of the Emergency Plan. Initiating Conditions are listed for emergency classifications. The tables were used effectively by the emergency response organization in classifying the simulated events.

No violations or deviations were identified.

6. Notification Methods and Procedures (82301)

This area was observed to determine that procedures had been established for notification by the licensee of State and local response organizations and emergency personnel, and that the content of initial and follow-up messages to response organizations had been established and means to provide early notification to the populace within the plume exposure pathway had been established as required by 10 CFR 50.47(b)(5), 10 CFR 50, Appendix E, Paragraph IV.D, and specific criteria in NUREG-0654, Section II.E.

The Emergency Plan Implementing Procedure EPIP-2.01, Notification of State and Local governments, contained the required forms and instructions for both initial and followup messages to State and local governments. During this exercise, the licensee effectively used the procedure in making 12 notifications to the State and local governments from the Simulator Control Room, TSC, or LEOF as appropriate. The licensee also made timely notifications to the NRC. Early notification to the populace within the plume exposure pathway was provided by the Surry Early Warning Siren System (EWSS). The system was activated by a dispatcher from either James City County or Surry County in conjunction with the EOC of Virginia Department of Emergency Services in Richmond. A quarterly test of the EWSS was conducted on December 12, 1990; however, the test was not part of the exercise.

No violations or deviations were identified.

7. Emergency Communications (82301)

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

The inspector observed communications within and between the licensee's emergency facilities, and the offsite environmental monitoring teams, and the LEOF. The inspector also observed information flow among the various groups within the licensee's emergency organization. Communications of information appeared to be adequate throughout the exercise with the exception of the information flow for damage control teams discussed in Paragraph 3.

No violations or deviations were identified.

8. Public Education and Information (82301)

This area was observed to determine that information concerning the simulated emergency was made available for dissemination to the public as required by 10 CFR 50.47(b)(7), 10 CFR 50, Appendix E, Paragraph IV.D and specific criteria in NUREG-0654, Section II.G.

A news release provided information to the media and public in advance of the exercise. The information included details on the extent of participation as well as referencing the quarterly siren test not associated with the exercise. A separate news release for the siren test was issued which contained details on how the public would be notified to include a listing of the radio and television stations that would be Emergency Broadcast Stations (EBS) in the event of a real emergency.

The licensee established a LMC at the Surry Nuclear Information Center and a Joint Public Information Center in the company's Innsbrook Technical Center. The licensee issued four news releases during the exercise.

No violations or deviations were identified.

9. Emergency Facilities and Equipment (82301)

This area was observed to determine that 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 50, Appendix E, Paragraph IV.E and specific criteria in NUREG-0654, Section II.H.

The inspector observed the activation and staffing of key emergency response facilities and evaluated equipment used by the emergency responders during the exercise. No equipment problems were identified.

- a. Simulator Control Room An inspector observed that the Simulator Control Room personnel acted promptly to initiate emergency response to the simulated emergency. Emergency procedures were readily available.
- b. Technical Support Center The TSC was located adjacent to the Control Room. Drawings and supporting information were readily available to the TSC emergency responders.
- c. Operational Support Center The OSC was located in the Maintenance Building. The Damage Control Teams were based in this area and were under the direction of the OSC Director.
- d. Local Emergency Operations Facility The LEOF was located adjacent to the Training Complex Simulator Building.

No violations or deviations were identified.

10. Protective Response (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 whether 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 Section II.J of NUREG-0654.

An inspector verified that the licensee used emergency procedures to formulate protective action recommendations (PARs) for offsite populations within the 10-mile emergency planning zone (EPZ). The licensee recommended PARs and the State implemented PARs were posted in the LEOF.

The protective response for onsite personnel was initiated at the Alert with the accountability of all personnel in the protected areas. The onsite personnel were not evacuated during this drill.

No violations or deviations were identified.

11. Recovery and Reentry Planning (82301)

This area was observed to determine that general plans were made for recovery and reentry as required by 10 CFR 50.47(b)(13); 10 CFR 50, Appendix E, Paragraph IV.H; and specific criteria in NUREG-0654, Section II.M.

The licensee developed general plans and procedures for reentry and recovery which addressed both existing and potential conditions. The plan contained the position/title, authority and responsibilities of each key individual in the recovery organization. The plan was coordinated with all appropriate agencies.

No violations or deviations were identified.

12. Exercise Critique (82301)

The licensee's critique of the emergency exercise was observed to determine that 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 50, Appendix E, Paragraph IV.E and specific criteria in NUREG-0654, Section II.N.

The licensee's exercise controllers/observers conducted ERF critiques with the players following the exercise termination. A formal critique was provided to licensee management on December 14, 1990. The critique reviewed performance against the objectives and identified areas requiring corrective action.

No violations or deviations were identified.

13. Action on Previous Inspection Findings (92701)

(Closed) Inspector Followup Item (IFI) 50-280, 281/90-02-01: Review documentation of differences between MIDAS dose assessment model and the current State model.

The inspector reviewed the evaluation conducted by Corporate Health Physics in which the MIDAS and the RASCAL were compared and test cases documented; thereby closing this previous open item.

14. Exit Interview

The inspection scope and results were summarized on December 14, 1990, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

Item Number

Description/Reference

50-280, 281/90-31-01

EW - Failure to direct damage control teams in accordance with procedures (Paragraph 3).

Attachment: Objectives, Scenario Narrative and Timeline

VIRGINIA POWER SURRY POWER STATION NOVEMBER 14, 1990 EMERGENCY EXERCISE

OBJECTIVES SUMMARY

The objectives of this Emergency 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 pathway exercise.

The purpose of this exercise is to demonstrate the ability to activate the Surry Power Station and Corporate Emergency Response Plans and appropriate implementing procedures.

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

The following Surry Power Station and Corporate facilities will be staffed by the Emergency Response Organization (ERO) for this exercise:

- (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)

Other ERO Groups participating in this exercise, but not responding to the above facilities, include Chemistry, Health Physics, Operations, and Security.

VIRGINIA POWER SURRY POWER STATION NOVEMBER 14, 1990 EMERGENCY EXERCISE

OBJECTIVES

The following objectives were developed to establish the scope of the November 14, 1990 Surry Emergency Exercise. The objectives ensure that required events are included in the exercise scenario and establish evaluation criteria used by the controllers and observers.

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

The CRS and TSC ERO will demonstrate this objective by initiation and use of EPIP-1.01 and appropriate operational procedures.

Status forms detailing radiological monitor and operational data may be issued at periodic intervals. The ability to acquire data using the Emergency Response Facility Computer System (ERFCS) or by back-up methods will be demonstrated in appropriate facilities.

2. Demonstrate the ability to assemble, dispatch, and control onsite emergency teams to perform response activities.

As appropriate, the CRS, TSC, and OSC staffs will demonstrate this objective by dispatching and controlling teams in response to scenario events within the Station Protected Area. Also, the ability to brief emergency teams and establish appropriate protective measures and communications will be demonstrated.

Prior to Emergency Response Facility activation, 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.

3. Demonstrate the ability to notify and mobilize the Surry Power Station and Corporate Emergency Response Organization.

The CRS staff, Station Security, and Corporate Security will demonstrate this objective. Station ERO notification will be conducted in accordance with EPIP-3.01 and EPIP-5.09. Corporate Security will initiate ECP-5 for corporate ERO notification.

4. Demonstrate the ability to notify the state and local governments and the NRC within established time constraints.

The CRS, TSC, and LEOF ERO will demonstrate this objective by providing up-to-date information to federal, state, and local governments within required time limits.

a. State and Local Government Notification

Information for these notifications will be identified and recorded by an Emergency Communicator (EC) on EPIP-2.01, Attachment 1 (Report of Emergency to State and Local Governments), and Attachment 2 (Report of Radiological Conditions to the State). Upon approval by the Station Emergency Manager (SEM) or the Recovery Manager (RM), the EC will transmit the information to the state and/or local governments.

The start time for completing the 15-minute initial notification will commence when the SEM declares the emergency classification. Follow-up communications will be maintained using EPIP-2.01, Attachment 1, and will occur at about 30 minute intervals or as conditions change.

As conditions warrant, the ability to transmit Protective Action Recommendations (PARs) to the State will be demonstrated in accordance with EPIP-1.05 and appropriate notification procedures.

The EC will transmit the initial Report of Radiological Conditions to the State (EPIP-2.01, Attachment 2) following data assimilation, recording, and approval. Follow-up notifications on radiological conditions will occur at about 30 minute intervals or as conditions change.

The SEM retains responsibility for state and local government notifications until the LEOF is activated. Following LEOF activation, responsibility for notification is transferred to the Recovery Manager (RM).

b. NRC Notification

Information for these notifications will be identified and recorded by the EC on EPIP-2.02, Attachment 1 (NRC Event Notification Worksheet), Attachment 2 (NRC Emergency Communicator Log), and EPIP-4.03, Attachment 3 (HPN Communications). Upon approval by the SEM, the ECs will transmit the information to the NRC.

The start time for completing the 1-hour initial notification commences when the SEM declares the emergency classification. The initial notification will be performed from the CRS. Following initial notification and unless directed otherwise, the EC will maintain continuous communications with NRC Operations to transmit plant condition changes. Communication dialogue highlights will be documented.

Responsibility for NRC Notifications in accordance with EPIP-2.02 will remain with the TSC ERO. Responsibility for Health Physics Network (HPN) communications will be transferred to the LEOF following activation of that facility.

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

The CRS staff and Security 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.

6. 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.

As appropriate, this objective will be demonstrated by the SEM from the CRS or TSC or by the RM in the LEOF. The CRS and TSC organizations will monitor plant conditions and perform offsite dose projections to support formulation of PARs. The PARs will be determined in accordance with EPIP-1.05 and EPIP-4.07. Responsibility for PAR development is transferred to the LEOF following activation of that facility.

Radiological parameter data generated during the development of this scenario may be artificially elevated and may not represent the degree of fuel failure and radiological release commensurate with the plant dynamic events. This may be necessary to demonstrate this exercise objective.

7. 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 authorization of potassium iodide (KI) administration.

This objective will be demonstrated through an interface among the CRS, TSC, 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 site 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 will demonstrate the process for requesting and authorizing exposure extensions, to include emergency exposure authorization in accordance with EPIP-4.01, EPIP-4.04, EPIP-5.06 and EPIP-5.08. 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 process for evacuating non-essential personnel in accordance with EPIP-4.07 and EPIP-5.05.

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

As appropriate, this objective will be demonstrated by CRS, 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.

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.

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.

As required, radiological monitoring, sampling, and analysis for in-plant and/or on-site activities will be initiated in accordance with EPIP-4.02. If required, post accident sampling activities will be simulated in accordance with EPIP-4.22 and EPIP-4.23. The field monitoring teams will perform radiological monitoring activities in accordance with EPIP-4.15 and EPIP-4.16.

Obtaining reactor coolant and/or containment samples utilizing the High Radiation Sampling System (HRSS) will be simulated. Radiological data necessary to test response and monitoring capabilities will be provided by the controller during the simulated sample collection. Isotopic analysis data will be provided following simulation of proper sample preparation and upon expiration of spectrum collection and analysis times. 10. Demonstrate the ability to effectively activate the emergency response facilities and associated emergency response processes.

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

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

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

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

In addition, Security, Health Physics and Chemistry facilities will demonstrate this objective.

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

The CRS, TSC, OSC, LEOF, CERC, JPIC, LMC staffs, and Field Teams will demonstrate this objective.

In addition, Security, Health Physics and Chemistry facilities will demonstrate this objective.

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

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

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 SEM will ensure personnel within the Protected Area are informed of emergency event status by the use of emergency alarms and the plant paging system (Gai-tronics). Remaining site personnel will be notified by other verbal communication methods. All 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) Providing 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) Transmitting PARs to the state.
- 14. Demonstrate the ability to coordinate preparation, review, and release of timely and accurate information to the public.

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

Press releases will be prepared and edited at the CERC and 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.

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

Public Affairs will demonstrate this objective by establishing an emergency hotline in accordance with CPIP-2.1 and CPIP-2.3. Questions will be called into the Public Information Room requiring response.

16. Demonstrate the ability to provide continuous emergency response capability.

The TSC, LEOF, CERC and JPIC will demonstrate this objective by formulating shift relief rosters.

As appropriate, the ability to provide logistical support for Emergency Response personnel may be demonstrated.

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

As appropriate, this objective will be demonstrated by the First Aid Team implementing procedures appropriate for the victim's level of injury and by Radiological Protection employing the necessary radiological controls to remove the contaminated victim from the accident scene.

As necessary, Station Security will summons off-site support. An off-site rescue unit will demonstrate the ability to respond to the Station. The contaminated injured person will be transported to an offsite medical facility in accordance with EPIP-5.01 and EPIP-4.20.

The off-site medical facility will demonstrate the ability to provide appropriate treatment.

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

This objective will be demonstrated by the SEM and RM by implementing EPIP-6.01 and CPIP-6.5 to develop both a Recovery Organization and Plan to return the Plant to a normal status.

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

The CRS, TSC, OSC, LEOF, CERC, JPIC, LMC, Security, Chemistry, Radiological Protection, Operations, and Field Monitoring Teams will conduct a self-critique to identify weaknesses and improvement items.



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VIRGINIA POWER SURRY POWER STATION NOVEMBER 14, 1990 EMERGENCY EXERCISE

SCENARIO NARRATIVE

A full scale exercise will be conducted at Surry Power Station on November 14, 1990. For the purposes of this exercise, Unit 1 is designated as the affected unit.

Unit 1 is operating at 100% full power equilibrium near beginning of life (BOL). Containment Spray Pump 1-CS-P-1A is out of service for motor replacement and Charging Pump 1-CH-P-1C is out of service for rotating element replacement. 1-RC-SV-1551A has seat leakage of approximately 0.1 GPM.

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

The exercise starts at 0830. At 0857 the leak thru 1-RC-SV-1551A increases to greater than 10 GPM but less than 25 GPM. This leak will be significant enough to require shutdown of the unit. The Unit shutdown due to Reactor Coolant System leakage requires declaring a NOTIFICATION OF UNUSUAL EVENT.

At 0920 the Reactor Coolant System Loose Parts alarm occurs. Then at 0932 Unit 1 will experience a Reactor Coolant Letdown Monitor Hi Alarm. High Reactor Coolant activity necessitates the declaration of an ALERT.

Shortly after the announcement for all personnel to report for accountability is made, a first aid emergency occurs. A mechanic working on 1-CH-P-1C will fall, becoming contaminated and suffering injuries. Transport of the mechanic to an off-site medical facility will be required.

At 1030 leakage from atmosphere into the containment will cause the internal air pressure to increase. Due to this leakage coupled with previous events the Station Emergency Manager may declare a SITE AREA EMERGENCY OR A GENERAL EMERGENCY based on his judgement of existing conditions and/or the loss of two fission product barriers with the impending loss of the third.

The unit shutdown continues with no further indicated increase in Reactor Coolant System leakage until 1130. At this time, 1-RC-SV-155A, B, and C fail full open, B and C reseat but A does not. The Pressurizer Relief Tank Rupture Disk opens to containment. In addition, the Containment to Fuel Building Penetration ruptures which allows a release to the environment through the Ventilation Vent System. These conditions will require declaration of a GENERAL EMERGENCY based on the breach of the three fission product barriers. Containment spray pump 1-CS-P-1B and all Recirc Spray Pumps will fail when attempts are made to start them. These failures will require prioritizing and conducting mitigating damage control evolutions to terminate the radiological release.

The escalation through the 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.

The emergency will be terminated approximately 2 and 1/2 hours after release to permit Recovery discussions.

VIRGINIA POWER SURRY POWER STATION NOVEMBER 14, 1990 GRADED EXERCISE

TIME LINE

NOTE :	TIMES	ARE	APPROXIMAT	E
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TIME

EVENT

- 0800 Controllers and observers positioned. Selected controllers perform necessary participant briefings (ie. exemptions or message formats).
- 0830 Operations Department participants positioned in the Control Room Simulator and the Control Room Annex.
 - Simulator run started.
- 0857 Reactor Coolant System leakage through 1-RC-SV-1551A increases to greater than 10 gpm but less than 25 gpm.
- 0915 Start unit rampdown at 150 MWe per hour due to increased RCS leakage.
- 0920 Reactor Coolant System Loose Parts Alarm. Reactor Vessel Lower Monitor is locked in and will not clear.
- 0932 Reactor Coolant Letdown Radiation Monitor Hi Alarm at 4X10⁴ cpm.
- 0935 NOTIFICATION OF UNUSUAL EVENT (NOUE) (Tab B-4) declared based on RCS leak rate requiring plant shutdown IAW T.S. 3.1.C.
- 0936 Reactor Coolant Letdown Radiation Monitor is reading > 5X10⁵ cpm.
- 1011 ALERT (Tab C-2) declared based on High Range Letdown Monitor (RM-CH-118) > 5X10⁵ cpm within 30 minutes and remains for at least 15 minutes.
- NOTE The following will occur immediately following the announcement for all station personnel to report for accountability:
 - First Aid emergency occurs at the 1-CH-P-1C cubicle (contaminated individual requiring transport).
- 1030 Start increased air leakage into Containment.
- 1050 SEM may declare a SITE AREA EMERGENCY based on (Tab M-2) SEM or SS judgement or a GENERAL EMERGENCY based on (Tab B-10) Loss of 2 of 3 fission product barriers with potential loss of 3rd barrier.

TIME LINE (CONTINUED)

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Contraction (

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NOVEMBER 14, 1990

TIME	EVENT			
1130 -	1-RC-SV-1551A fails 100% open and does not cl Relief Tank Rupture Disk opens to Containment	ose. Pressurizer		
	Reactor trip and Safety Injection are initiat	ed.		
•	1-AFW-FI-100A fails low when AFW Pumps start.			
NOTE ·	When an automatic and/or manual start is attend following pumps between 1130 and 1354 it will below:	empted on the fail as listed		
	 1-RS-P-1A - Coupling breaks, no 1 discharge pressure 	load motor amps, no		
	2. 1-RS-P-1B - Trips on instantaneou grounded	is overcurrent, motor		
<u>.</u>	3. 1-RS-P-2A - Trips on instantaneou leads shorted to grou	is overcurrent, motor		
	4. 1-RS-P-2B - Trips on instantaneou	is overcurrent, shaft		
	is bound, will not ro 5. 1-CS-P-1B - Trips on motor overlo bound, will not rotat	otate oad, pump shaft is ce		
1141	Source Range Nuclear Instrumentation energize	es.		
1145	Release to atmosphere commences thru the Containment to Fuel Building Instrumentation Penetration which has failed.			
1150	General Emergency as per (Tab B-10) based on loss of 2 of 3 fission product barriers with potential loss of 3rd barrier.			
1355	1-CS-P-1A and/or 1-RS-P-2A started and containment spray is initiated.			
1400	Containment air pressure < 14.7 psia, release	e terminated.		
1415	Terminate exercise on site.	Terminate exercise on site.		
1430	Start Area Critique.	Start Area Critique.		
1530	Start Recovery meeting in LEOF.			
1600	Terminate Recovery meeting and perform critic	jue.		