



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA ST., N.W., SUITE 3100
 ATLANTA, GEORGIA 30303

Report Nos. 50-280/81-28 and 50-281/81-28

Licensee: Virginia Electric and Power Company
 P. O. Box 26666
 Richmond, VA 23262

Facility Name: Surry Units 1 and 2

Docket Nos. 50-280 and 50-281

License Nos. DPR-32 and DPR-37

Inspection at Surry Nuclear Site near Surry, Virginia

Inspector: *D. L. Andrews* 11/25/81
 D. L. Andrews Date Signed

Accompanying Personnel: R. K. Roemmich, R. R. Marston, K. M. Clark, E. E. Hickey,
 L. F. Garcia, J. Hickman, A. D. Tillman, M. Copic

Approved by: *G. R. Jenkins* 11/25/81
 G. R. Jenkins, Section Chief Date Signed

SUMMARY

Inspection on October 30-31, 1981

Areas Inspected

This routine, announced inspection involved 192 inspector-hours on site in the area of a full scale radiological emergency exercise.

Results

In the area inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. Leasburg, Vice President of Nuclear Operations
- *A. Baum, Executive Manager, Quality Assurance
- *P. G. Edwards, Vice President of Public Affairs
- *J. D. Kellams, Director Operations/Management Support
- *P. R. Beament, Coordinator, Special Projects
- *F. M. Alligood, Jr., Manager, Nuclear Technology Services
- *W. W. Cameron, Director, Chemistry and Health Physics
- *J. W. Ogren, Supervisor, Operations and Management Support
- *J. L. Wilson, Station Manager
- *R. F. Saunders, Assistant Station Manager
- *G. E. Kane, Superintendent of Operations
- *R. L. Baldwin, Director Administrative Services
- *S. Sarver, Supervisor, Health Physics
- *T. Swindell, Supervisor, Chemistry
 - L. J. Curfman, Supervisor, Engineering
 - L. L. Edmonds, Supervisor, Nuclear Training
- *W. R. Runner, Jr., Supervisor, Administrative Services
- *H. O. Van Dyke, Supervisor, Security Operations
 - F. L. Rentz, Resident Quality Control Engineer
- *F. M. Cox, Coordinator, Emergency Plan
- *D. A. Christian, Superintendent of Technical Services
- *H. W. Kibler, Superintendent of Maintenance
- *E. S. Grecheck, Staff Engineer
 - M. Tower, Staff Engineer
- *B. A. Garber, Health Physics

Other licensee employees contacted included 10 technicians, 8 operators, 4 security force members, and six office personnel.

Other Organizations

- T. Hardy, Federal Emergency Management Agency
- D. Langford, Federal Emergency Management Agency
- J. Comes, Department of Energy

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 31, 1981 with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Exercise Scenario

The scenario for the Radiological Emergency Exercise was reviewed in advance of the scheduled exercise date to verify that the requirements of 10CFR-50.47(b)(14), 10CFR50, Appendix E, paragraph IV.F, and specific criteria of NUREG 0654, Section N.3 were met.

The scenario provided for a sequence of simulated events which required activation of the licensee's emergency response organization beginning with an Unusual Event and progressing through sequentially escalating classes to a General Emergency. The sequence of simulated events was coordinated in advance with State representatives to provide an opportunity for exercising the State and local emergency response organizations.

6. Assignment of Responsibility

This area was observed to determine that primary responsibilities for emergency response by the licensee have been specifically established and that adequate staff is available to respond to an emergency as required by 10CFR50.47(b)(1), 10CFR50, Appendix E, paragraph IV.E, and specific criteria in NUREG 0654, Section II.A.

The inspector verified that specific assignments had been made for the licensee's onsite and offsite emergency organization groups as described in Section 5 of the Surry Power Station Emergency Plan and Implementing Procedure EPIP-1. Adequate staff was available to fulfill the emergency functions required by the Plan for the operations of the Technical Support Center (TSC), Operational Support Center (OSC), Interim Emergency Operation Facility (IEOF) and Control Room. Communication links for notifying, alerting and mobilizing emergency personnel appeared to function adequately. The interfaces between onsite response activities and offsite support activities appeared to be well established.

7. Onsite Emergency Organization

The licensee's onsite emergency organization was observed to determine that the responsibilities for emergency response are unambiguously defined, that adequate staffing is provided to insure initial facility accident response in key functional areas at all times, and that the interfaces among various onsite response activities and offsite support activities are specified as required by 10CFR50.47(b)(2), 10CFR50, Appendix E, paragraph IV.A, and specific criteria in NUREG 0654, Section II.B.

The inspectors observed that the initial and augmented onsite emergency organization was well defined with adequate staff available to fill key functional positions as described by Section 5.2 of the Surry Power Station Emergency Plan and Emergency Plan Implementing Procedure EPIP-1.

8. Emergency Response Support and Resources

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 Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified as required by 10CFR50.47(b)(3), 10CFR50, Appendix E, paragraph IV.A, and specific criteria in NUREG 0654, Section II.C.

The inspector verified that arrangements had been made for requesting and effectively using assistance resources in accordance with Section 5.4 of the Surry Power Station Emergency Plan. Arrangements to accommodate State and local staff were made at the IEOF which was established at the station's simulator building as stated in Section 7.1 of the Licensee's Emergency Plan.

9. Emergency Classification System

This area was observed to determine that a standard emergency classification and action level scheme is in use by the nuclear facility licensee as required by 10CFR50.47(b)(4), 10CFR50, Appendix E, paragraph IV.C, and specific criteria in NUREG 0654, Section II.D.

The inspector observed that the emergency classification system was in effect as stated in Section 4.1 of the Licensee's Radiological Emergency Plan and Implementing Procedure EPIP-1. It was noted that at the beginning of the scenario there was some confusion among the control room operations staff concerning whether or not to declare an Unusual Event or initiate plant shutdown. The potential for rapidly escalating consequences due to operator indecision and hesitancy were recognized by the licensee and corrective actions will be initiated. After the initial confusion generated by the operator indecision had been resolved, the system appeared to be adequate for the classification of the simulated accident and the emergency procedures provided initial and continuing mitigating actions to be taken during the simulated emergency.

10. Notification Methods and Procedures

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 followup messages to response organizations has been established as required by 10CFR50.47(b)(5), 10CFR50, Appendix E, paragraph IV.D, and specific criteria in NUREG 0654, Section II.E.

The inspector observed that notification methods and procedures have been established and were used to provide information concerning the simulated emergency conditions to Federal, State and local response organizations and to alert the licensee's augmented emergency response organization. The inspector had no further questions in this area.

11. Emergency communications

This area was observed to determine that provisions exist for prompt communications among principal response organizations and emergency personnel as required by 10CFR50.47(b)(6), 10CFR50, Appendix E, paragraph IV.E, and specific criteria in NUREG 0654, Section II.F.

The inspectors found that primary and alternate means for communications among the various response organizations were provided; however, communication related problems were noted in the following areas;

- a. Communication between the ambulance and the Medical College of Virginia was not possible even though both units were equipped with radios. The problem resulted because each unit operated on a different frequency. Pertinent information concerning the simulated contaminated injury could not be relayed to the medical center prior to ambulance arrival.
- b. The control room noted that the audible speakers on the telephones in the control room often created noise problems that impeded the effectiveness of control room communications.

These items were identified by the licensee during the exercise critique.

12. Public Education and Information

This area was observed to determine that information concerning the simulated emergency was made available for dissemination to the public as required by 10CFR50.47(B)(7), 10CFR50, Appendix E, paragraph IV.D, and specific criteria in NUREG 0654, Section II.G.

An inspector observed the following during the emergency exercise.

- a. Initial press releases issued by the licensee were prepared in advance of the simulated occurrence and were based upon the scenario. Real time press releases were produced following a discussion between NRC and licensee representatives.
- b. The licensee spokesman located at the News Center did not receive timely technical information from the EOF resulting in a significant time lag in pertinent data being released to the news media.
- c. The location of the News Center was within the 10 mile EPZ as well as being in the pathway of the simulated gaseous release; however, no announcement of a potential hazard or recommendation for sheltering was

made at the News Center during the exercise. (50-280/81-28-01; 50-281/81-28-01)

Items a. and b. were identified by the licensee during the exercise critique.

13. Emergency Facilities and Equipment

This area was observed to determine that adequate emergency facilities and equipment to support an emergency response are provided and maintained as required by 10CFR50.47(b)(8), 10CFR50, Appendix E, paragraph IV.E, and specific criteria in NUREG 0654, Section II.H.

It appeared that the personnel designated for duty in the Licensee's Emergency Response Facilities (ERF's) were familiar with the Surry Power Station Emergency Plan and Implementing Procedures.

a. Technical Support Center (TSC)

The TSC was an interim facility located in a room adjacent to the Control Room. Although space was limited there appeared to be sufficient work space for the licensee personnel assigned. Emergency direction and control of the onsite emergency response team was conducted effectively from the interim TSC following activation and staffing of the facility.

There appeared to be an excess of management personnel in the Control Room for initial briefing at the outset of the simulated incident following the activation of the TSC. This problem was intensified by extraneous noise and numerous telephone calls which prevented a smooth turnover of the Emergency Director position by the shift supervisor to the Plant Manager. Licensee representatives stated that the turnover procedure would be reviewed to determine a more efficient method. (50-280/81-28-02; 281/81-28-02)

b. Operations Support Center (OSC)

- (1) The Fire Brigade Response, in accordance with EPIP-19, requires the fire brigade to report outside the Control Room while the fire marshal is briefed inside the control room concerning the specifics of the fire. The Fire Brigade did not follow this procedure. Along with the Fire Marshal, the Fire Brigade reported directly to the fire. The licensee reported that EPIP-19 was currently being modified. This area will be reviewed during a subsequent inspection. (50-280/81-28-03; 50-281/81-28-03)
- (2) The OSC is not equipped with survey meters, respiratory protection, and other emergency equipment as outlined in NUREG 0654 II H.9. (50-280/81-28-04; 50-281/81-28-04)

c. Emergency Operations Facility (EOF)

The EOF is an interim facility located in the station's simulator building with the simulator room functioning as the center of EOF activity. Space appeared to be adequate with sufficient work space for licensee personnel assigned. The EOF was also the center for the receipt and analysis of all field monitoring data available from field teams. Communication equipment appeared to be adequate, however the NRC HPN and ENS communication links are scheduled to be installed in the new EOF.

d. Decisional/Visual Aids

- (1) It was observed that the Health Physics personnel appeared knowledgeable in data calculations, however, the status boards in the TSC and EOF that reflected this data require improvement to allow the information to be written larger and with more clarity. These status boards should also be able to show data trends and accident historical data. (50-280/81-28-05; 50-281/81-28-05)
- (2) Data sheets supplied to the TSC by the controller in the control room lacked the proper units; for example, data relating to the subcooling margin was often submitted in raw numbers with no units in degrees fahrenheit (°F) or psig. This caused some confusion for those required to interpret this data. This problem resulted from a scenario deficiency. (50-280/81-28-06; 50-281/81-28-06)

14. Accident Assessment

This area was observed to determine that adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use as required by 10CFR50.47(b)(9), 10CFR50, Appendix E, paragraph IV.B, and specific criteria in NUREG 0654, Section II.I.

The Accident Assessment Program includes in-plant radiological monitoring, out-of-plant radiological monitoring and offsite dose calculations as well as offsite monitoring.

a. Dose Projections

Dose calculations at the EOF and TSC went smoothly, however, large inconsistencies were noted between projected data in the EOF and calculations derived from data supplied to the field teams. Evacuation recommendations were based upon the projected data without comparing that data to the field team data. (50-280/81-28-07; 50-281/81-28-07)

b. In-plant Monitoring

Health Physics personnel involved with in-plant monitoring duties appeared to be knowledgeable in monitoring techniques, however, in

supplying health physics support to the fire brigade there was too much simulation of events. Only one air sampler was utilized and its location was up-wind of the simulated accident which would reduce its effectiveness. Self-contained breathing apparatus was simulated by the HP team. Less simulation will be used in future exercises.
(50-280/81-28-08; 50-281/81-28-08)

c. Offsite Monitoring

Offsite field monitoring teams were supplied data which included I-131 concentrations in microcuries per milliliter. This is the specific data radioed back to the EOF, which is inconsistent with the type of data that would be available to the monitoring teams if they were actually reading the presence of radioactive iodine in counts per minute (CPM). The data supplied to off-site monitoring teams by controllers should be reflective of an actual accident situation.
(50-280/81-28-09; 281/81-28-09)

15. Protective Responses

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

The inspector observed that protective response to the simulated emergency conditions were taken promptly by plant personnel. Protective actions were initiated in accordance with the licensee's implementing procedures EPIP-8 and EPIP-9. The accountability of plant personnel was initiated immediately after the emergency signal was sounded in accordance with EPIP-9. The inspector had no further questions in the above area.

16. Radiological Exposure Control

This area was observed to determine that means for controlling radiological exposures, in an emergency, are established and implemented for emergency workers and that they include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides as required by 10CFR50.47(b)(11) and specific criteria in NUREG 0654, Section II.K.

The inspector observed that exposure control measures were utilized throughout the exercise. Radiation surveys were conducted in the Emergency Response facilities on a routine basis. Offsite surveys were conducted during the simulated release of radioactive materials. Radiation surveys were taken at the assembly areas during the time of the evacuation and accountability.

a. Offsite Monitoring Teams

It was observed that these teams were well-equipped and appeared knowledgeable on the techniques and the tasks to be performed as well as the required procedures. Iodine data were not provided to the offsite monitoring teams, therefore they were not able to demonstrate their familiarity with methods of field detection of iodine except as stated above in Item 14.c. The inspector had no further questions in the above area.

17. Medical and Public Health Support

This area was observed to determine that arrangements are made for medical services for contaminated injured individuals as required by 10CFR50.47(b)(12), 10CFR50, Appendix E, paragraph IV.E and specific criteria in NUREG 0654, Section II.L.

A simulated medical emergency was initiated which included an injured contaminated person and a request for offsite assistance from the Medical College of Virginia. Contact with the hospital was made from the Surry Power Station and a departure time for the ambulance was indicated; however, the ambulance did not actually depart for almost 25 minutes after the indicated time due to clearing the ambulance through security and preparing the injured person for transport. The ambulance had no communications with the hospital, as discussed in item 11.a, and the unexpected time delay resulted in having the hospital emergency team of doctors and nurses on standby for an unreasonable period of time. When this medical team received no information relating to the cause of the delay they reported back to their normal duty stations. When the ambulance finally arrived at the hospital there was no medical team to respond. Those hospital personnel that did respond gave a verbal description of what should have taken place if the situation had involved a real emergency and decontamination procedures were required. This problem will be eliminated when future communications between the ambulance and hospital personnel are established. (50-280/81-28-10; 50-281/81-28-10)

18. Recovery and Reentry Planning and Post-accident Operations

This area was observed to determine that general plans for recovery and reentry are provided to those who may be called on to assist in an emergency as required by 10CFR50.47(b)(13), 10CFR50, Appendix E, paragraph IV.H, and specific criteria in NUREG 0654, Section II.M.

The inspector reviewed with the recovery organization's staff the short term recovery plan, the preliminary list of post-incident recovery procedures and the scope of the radiation dose management program. The recovery team developed a sequence assessment of the emergency incidents, an evaluation of the incidents, and an evaluation of the measures required to stabilize the plant systems. The recovery team identified the condition of the affected equipment and plant structures and developed programs for the repairs and

for the retesting of the affected components and systems. This portion of the exercise was considered to be adequate.

19. Radiological Emergency Response Training

This area was observed to determine that radiological emergency response training is provided to those who may be called on to assist in an emergency as required by 10CFR50.47(b)(15), 10CFR50, Appendix E, paragraph IV.F, and specific criteria in NUREG 0654, Section II.0.

The inspector observed that all members of the emergency response team appeared to have a good understanding of their functional responsibilities during an emergency and seemed familiar with the Emergency Plan and Implementing Procedures. The inspector had no further questions in this area.

20. Exercise Critique

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 10CFR50.47(b)(14), 10CFR50, Appendix E, paragraph IV.F, and specific criteria in NUREG 0654, Section II.N.

A formal VEPCO critique of the emergency exercise was held on October 31, 1981 with the controllers, observers, key exercise participants, licensee management and NRC personnel attending. Deficiencies and weaknesses in the emergency preparedness program, identified as a result of this exercise were presented by licensee personnel during the critique. Followup of corrective actions for the VEPCO identified deficiencies and weaknesses will be reviewed during subsequent NRC inspections.

21. Exercise Evaluation

The inspectors concluded that the emergency exercise demonstrated the licensee's ability to respond to and manage an emergency condition at the Surry Plant.

22. Federal Evaluation Team Report

The findings noted by the Federal Evaluation Team (Regional Assistance Committee and Federal Emergency Management Agency staff) concerning the activities of offsite agencies during the exercise were not available at the time this report was completed. That report will be sent at a later date.