

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-280, 50-281  
License Nos: DPR-32, DPR-37

Report No: 50-280/97-02, 50-281/97-02

Licensee: Virginia Electric and Power Company (VEPCO)

Facility: Surry Power Station, Units 1 & 2

Location: 5850 Hog Island Road  
Surry, VA 23883

Dates: January 26 - March 8, 1997

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ENCLOSURE 2

## EXECUTIVE SUMMARY

### Surry Power Station, Units 1 & 2 NRC Inspection Report 50-280/97-02, 50-281/97-02

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a 6-week period of resident inspection; in addition, it includes the results of announced inspections by two regional specialists.

#### Operations

- Technical Specification (TS) requirements were satisfied during the replacement of the Unit 1 source range detectors. Startup activities observed were conducted in accordance with approved procedures and the unit restart was carefully controlled (Section 01.2).
- Safety system and operator response to the Unit 2 reactor trip was acceptable. Licensee reviews prior to restart were appropriate, and the unit restart was carefully controlled. Crew performance during the main turbine startup and main generator synchronization were excellent (Section 01.3).
- The operations shift response to the loss of Unit 1 pressurizer heaters was appropriate. Prior to initiating a reactor trip, operations personnel methodically determined their course of action and carried out these plans (Section 01.4).
- Unit 2 Auxiliary Feedwater (AFW) initiated as designed following a loss of the operating main feedwater pump. The Engineered Safeguards Feature actuation was reported as required by 10 CFR 50.72 (Section 01.5).
- The Number 1 Emergency Diesel Generator (EDG) was properly aligned in accordance with the system alignment procedure. Material condition and housekeeping were good. The diesel battery throwover switch was not referenced in the system alignment procedure and the labeling on breaker 1E1 on Motor Control Center (MCC) MCC-1H1-1A did not match the description contained on the system alignment sheet. These two items were expeditiously resolved after discussions with operations management (Section 02.2).
- Operator simulator training in preparation for an upcoming Refueling Outage (RFO) was well performed and was conducted at an appropriate time just prior to the beginning of the RFO (Section 05.1).

#### Maintenance

- A Non-cited Violation (NCV) was identified for failure to maintain two trains of the Auxiliary Ventilation System operable as required by TS (Section M1.1).
- A violation was identified for failure to include operability guidance in an operating procedure and to proceduralize material restrictions (Section M1.1).

- Number 3 EDG maintenance activities exceeded the Plant Specific Analysis (PSA) outage time established prior to removing the diesel from service. The TS allowed Limiting Condition for Operations (LCO) time was not exceeded. Once licensee management became aware the PSA value had been exceeded; increased upper management attention was evident (Section M1.2).
- Testing performed on the Unit 1 B Low Head Safety Injection (LHSI) pump was accomplished in accordance with procedure requirements and the test data obtained met acceptance criteria (Section M1.3).
- A violation for failure to meet the requirements of 10 CFR 50.9(a) for accuracy of information in an LER was identified (Section M8.1).

### Engineering

- For ventilation engineering, informal communications appears to be the common mode of operation. However, Maintenance and Operations allowed this mode to perpetuate by not insisting on formal means of communicating decisions. In addition, engineering conditions and limitations were not always proceduralized (Section E1.1).
- A review of licensee Oversight reports indicated that many of the current issues had been previously identified. Discussions with the licensee indicated that several of the Equipment Deficiency Resolution Plan (ERDP) items will be completed during the current Unit 1 RFO. Implementation of corrective actions has been inconsistent. However, the number of Deficiency Reports (DRs) written has increased indicating that problems are being identified (Section E7.1).

### Plant Support

- An NCV was identified for failure to obtain a grab sample within 12 hours as required by the Offsite Dose Calculation Manual (ODCM) (Section R1.1).
- The licensee was properly monitoring and controlling personnel radiation exposure in accordance with station administrative procedures and 10 CFR Part 20. The maximum individual radiation exposures for 1995 and 1996 were well within the licensee's administrative limits and the regulatory limits specified in 10 CFR 20.1201(a) for occupational dose (Section R1.2).
- The licensee was closely monitoring collective dose in order to meet As Low As Reasonably Achievable (ALARA) goals and was properly posting area radiological conditions (Section R1.3).
- One violation was identified with multiple examples of failure to follow radiation protection procedures (Section R8.1).

- The emergency preparedness program was being maintained in a manner that supported good emergency response in the event of an accident (Section P1.1).

## Report Details

### Summary of Plant Status

Unit 1 began the inspection period at hot shutdown with both source range detectors inoperable. The source range detectors were replaced and the unit returned to service on February 2. On February 19, the unit was manually tripped from 53 percent power due to the loss of primary plant pressure control resulting from the failure of pressurizer heaters. The unit was returned to service on February 22. On March 7, the unit was shutdown for a scheduled RFO. At the end of the inspection period the unit was in cold shutdown.

Unit 2 began the inspection period at or near full power. On February 18, the unit was manually tripped due to a failure in the Electro-Hydraulic Control (EHC) system that resulted in the main turbine control valves drifting shut. The unit was returned to service on February 21. The unit operated at power the remainder of the reporting period.

### I. Operations

#### **01 Conduct of Operations**

##### **01.1 General Comments (71707, 40500)**

The inspectors conducted frequent control room tours to verify proper staffing, operator attentiveness, and adherence to approved procedures. The inspectors attended daily plant status meetings to maintain awareness of overall facility operations and reviewed operator logs to verify operational safety and compliance with TSs. Instrumentation and safety system lineups were periodically reviewed from control room indications to assess operability. The inspectors observed control room shift turnovers during the inspection period. Frequent plant tours were conducted to observe equipment status and housekeeping. DRs were reviewed to assure that potential safety concerns were properly reported and resolved. The inspectors found that daily operations were generally conducted in accordance with regulatory requirements and plant procedures.

The inspectors verified portions of tagout 1-97-CH-0022, Charging pump 1B, and verified that the tagout was properly prepared and authorized and that the components were in the required position.

The inspectors reviewed the status of containment penetrations 2-PN-PEN-101 and 2-PN-PEN-51 and verified that they were configured appropriately.

##### **01.2 Unit 1 Source Range Replacement and Startup**

###### **a. Inspection Scope (71707)**

The inspectors monitored licensee actions to replace both Unit 1 source range detectors and observed preparations and operations associated with unit restart.

b. Observations and Findings

During the previous inspection period, Unit 1 was shutdown to repair a steam leak in the main steam valve house. During the unit shutdown, both source range detectors failed following energization. The unit began this inspection period in hot shutdown with both source range detectors inoperable.

With no source range detectors operable, TSs require that shutdown margin be verified within one hour and every 12 hours thereafter. TSs also require that at least one intermediate range detector be operable at hot shutdown conditions. The source range and intermediate range detectors are contained in a common housing assembly and to replace the source range detector requires that the corresponding intermediate range detector be removed from service. The licensee initially decided to replace the entire assembly for ease of installation.

During replacement of the detectors, the inspectors verified that the TS requirement for an operable intermediate range detector and required shutdown margin were maintained. During the installation process, one of the new intermediate range detectors and both source range detectors did not operate and had to be replaced again. During this evolution, the assembly was removed from the neutron shield and the individual detector was replaced in the assembly housing. During these evolutions, an intermediate range detector was always operable. All four detectors were replaced and declared operable on February 1.

Unit 1 was returned to service on February 2 at 2:10 p.m., and obtained 100 percent power on February 3. The inspectors monitored activities in the control room during plant restart. Startup activities observed were conducted in accordance with approved procedures and the unit restart was carefully controlled. The operations brief prior to the approach to criticality was excellent.

c. Conclusions

TS requirements were satisfied during the replacement of the Unit 1 source range detectors. Startup activities observed were conducted in accordance with approved procedures and the unit restart was carefully controlled.

01.3 Unit 2 Reactor Trip and Restart

a. Inspection Scope (71707)

The inspectors reviewed the circumstances surrounding the February 18 Unit 2 reactor trip. On February 21, the inspectors observed preparations and operations associated with unit restart.

b. Observations and Findings

At approximately 2:50 p.m. on February 18, Unit 2 was manually tripped from the control room. The control room operator observed turbine load decreasing, the turbine governor valves drifting closed, numerous computer alarms and high Tave and Tave/Tref deviation alarms prior to manually tripping the unit. The control rods inserted and all three AFW pumps started on low low steam generator level as designed. All rod bottom lights illuminated; however, three control rods indicated between 10 and 15 steps following the trip. The Reactor Coolant System (RCS) was borated an additional 1110 gallons as required by the controlling procedures.

The unit was stabilized at hot shutdown with Tave being maintained at 547 degrees Fahrenheit. When the low low steam generator water level signals cleared on the C and A steam generators, the Turbine Driven Auxiliary Feedwater (TDAFW) steam supply valves automatically closed as designed. Subsequent to the valve closure, level in the A steam generator decreased below the low low level trip and a second automatic start of the TDAFW pump was initiated. The low low level signal immediately cleared and the steam supply valves closed prior to fully opening. The outside operator subsequently found the TDAFW pump trip throttle valve tripped.

Review of the TDAFW pump trip determined that the pump tripped due to receiving a second start signal prior to the governor low speed stop resetting. The governor has an inherent time period (approximately 16 seconds) during which a turbine restart will result in an overspeed condition of the turbine. The TDAFW pump had received a restart signal almost immediately after the steam supply valves had automatically closed. At the time of the TDAFW pump trip, both motor driven pumps were operating and the TDAFW pump was not needed. The licensee revised the emergency operating procedures to require that the steam supply valves to the TDAFW pump be placed in the open position when the pump is operating to give the operator direct control of the steam supply valves. The procedures were also revised to verify level in all three steam generators greater than 21 percent prior to securing the pump. The inspectors verified that the procedure changes were incorporated. The licensee is reviewing the system operation to determine if enhancements are possible to the control circuitry. Followup on the licensee's actions with respect to future modifications associated with the TDAFW pump control circuitry is identified as Inspection Followup Item (IFI) 50-280, 281/97002-01. The inspectors determined that the short term actions initiated by the licensee should prevent an immediate restart of the TDAFW pump and recurrence of this problem.

The inspectors reviewed the reactor trip report and associated plant response data to independently verify that safety system and operator performance was as expected throughout the event. Primary plant response was normal and all safety systems performed as designed with

the exception of the TDAFW pump. Items identified following the reactor trip were resolved prior to returning the unit to service.

The turbine governor valves drifted closed due to a loss of both +15 Volts-Direct Current (VDC) power supplies in the turbine EHC panel. Extensive troubleshooting by the licensee could not determine the exact cause of the loss of both +15 VDC power supplies, but did identify that the relay card that should have tripped the turbine following a loss of both +15 VDC power supplies was defective and would not function. The power supplies and the defective relay card were replaced.

On February 21, the inspectors observed unit restart activities. Crew performance during the main turbine startup and main generator synchronization were excellent.

c. Conclusions

The inspectors determined that safety system and operator response to the Unit 2 reactor trip was acceptable. Licensee reviews prior to restart were appropriate, and the unit restart was carefully controlled. Crew performance during the main turbine startup and main generator synchronization were excellent.

01.4 Unit 1 Manual Reactor Trip Due to Loss of Pressurizer Heaters

a. Inspection Scope (71707)

The inspectors observed and reviewed the results of the February 19 Unit 1 manual reactor trip due to a loss of the pressurizer heaters.

b. Observations and Findings

On February 19, at 8:40 p.m., a low pressurizer pressure alarm was received in the Unit 1 control room. This alarm actuates when pressure is less than 2205 psig (normal RCS pressure is 2235 psig). In accordance with TS 3.12.F, pressure must be restored to greater than 2205 psig within two hours or the unit must be less than 5 percent power in the next four hours. The Operations Shift investigated the matter and determined that the proportional pressurizer heater bank was not functioning properly. More specifically, the unit which controls the cycling of this heater bank (Robicon Controller Unit) was not allowing current to flow to the heaters which resulted in the RCS pressure decrease.

The inspectors were informed of the situation at approximately 9:15 p.m., and responded to the site. The Operations Shift had begun reducing power at 8:52 p.m. The inspectors arrived in the control room at approximately 10:00 p.m. At this point, RCS pressure was approximately 2025 psig and decreasing slowly. Troubleshooting efforts on the Robicon Controller Unit were ineffective. At 10:30 p.m., with RCS pressure continuing to decrease, it was apparent that the unit would have to be shut down. The licensee was concerned that following the



trip, a Safety Injection (SI) signal would be generated on low pressure. Prior to initiating the trip, operations personnel methodically determined their course of action to help prevent an unwarranted SI from occurring. Specifically, the operators determined that they would trip the C Reactor Coolant Pump (RCP) following the reactor trip to help control plant cooldown. (The C loop feeds the 1455B spray valve which was tagged out but leaking by). In addition, specific assignments were made to each operator prior to the unit trip.

At 10:59 p.m., Unit 1 was manually tripped from approximately 53 percent power. Following the trip, the A RCP unexpectedly tripped when transferring from the station service transformer to the reserve station service transformer. All rod bottom lights lit and all Individual Rod Position Indicators (IRPIs) indicated less than 10 steps. The C RCP was manually tripped as discussed and in accordance with the Emergency Operating Procedures. This appeared to stop the decreasing trend in plant cooldown. Minimum RCS pressure observed following the trip was approximately 1790 psig, about 15 psig above the SI initiation setpoint. Both motor driven AFW pumps and the TDAFW pump started and injected. Unit 1 source range Nuclear Instruments (NIs) came on scale as designed. A short lived loss of detector voltage alarm on N32 came in for approximately two minutes, however a loss of detector voltage was not seen. This matter was attributed to a drifting bistable which was subsequently recalibrated. The decision to trip the unit was appropriate and the plant was stabilized in hot shutdown.

Because Unit 2 was in hot shutdown at the time of this trip, automatic load shedding was enabled which resulted in certain loads being shed from the reserve station service transformers. This included the running feed pump on Unit 2 (2A), and because the other Unit 2 feed pump was secured for maintenance, AFW (motor driven pumps) initiated. This was expected and discussed with the Unit 2 operators prior to the manual trip of Unit 1. A one-hour report to the NRC was made in accordance with 10 CFR 50.72.

The failure of the Robicon controller module was determined to be age related failures of various electronic components in a controller circuit card. The controller was rebuilt by the manufacturer. The licensee plans to place the Robicon controller in its preventive maintenance program and will evaluate replacement of the Unit 2 module during the next RFO. The A RCP trip was caused by failure of the motor's speed sensing relays. The relay was replaced and the licensee plans to evaluate further corrective actions in accordance with their corrective action program.

The unit was returned to service on February 22 and reached 100 percent power on February 23.

c. Conclusions

The operations shift response to the loss of Unit 1 pressurizer heaters was appropriate. Prior to initiating a reactor trip, operations

personnel methodically determined their course of action and carried out these plans.

#### 01.5 Unit 2 AFW Actuation

##### a. Inspection Scope (71707)

The inspectors reviewed the circumstances surrounding a Unit 2 AFW actuation on February 19 while the unit was being maintained at hot shutdown following a reactor trip.

##### b. Observations and Findings

On February 19, with Unit 2 at hot shutdown, both motor driven AFW pumps automatically started due to the loss of the A main feedwater pump. At the time of the actuation, the B feedwater pump was removed from service for maintenance and the A feedwater pump was operating to maintain steam generator water level. The A feedwater pump tripped on a load shed condition caused by a Unit 1 reactor trip. The loss of both feedwater pumps initiated AFW. Both motor driven AFW pumps started as designed to supply feedwater to the steam generators.

The Engineered Safeguards Feature (ESF) actuation was reported as required in accordance with 10 CFR 50.72 as a non-emergency 4-hour report. The licensee plans to issue an Licensee Event Report (LER) describing the event within 30 days. The inspectors will review this item further during review of the LER.

##### c. Conclusions

AFW initiated as designed following a loss of the operating main feedwater pump. The ESF actuation was reported as required by 10 CFR 50.72.

### 02 Operational Status of Facilities and Equipment

#### 02.1 Unit 2 Auxiliary Feedwater System Walkdown (71707)

On March 6, 1997, the inspectors walked down the Unit 2 AFW system and verified that the valve lineup for those valves outside containment was in accordance with Attachment 2 of Operating Procedure, 2-OP-FW-001A, Auxiliary Feedwater System Valve Alignment, Revision 1. Chapter 10.3.5 of the Updated Final Safety Analysis Report (UFSAR) was reviewed and no discrepancies were identified during the walkdown. Housekeeping in the general area was acceptable.

#### 02.2 EDG Number 1 Walkdown

##### a. Inspection Scope (71707)

The inspectors performed a walkdown of the Number 1 EDG to verify equipment operability, material condition, and housekeeping.

b. Observations and Findings

The inspectors determined that the Number 1 EDG was properly aligned in accordance with operating procedures. Material condition and housekeeping were good. The inspectors identified that the system alignment procedure did not verify that the EDG battery throwover switch was in the proper position. The throwover switch was in the proper position when inspected. The throwover switch allows the Number 3 EDG battery to be aligned to the Number 1 EDG and would only be operated under accident conditions. The inspectors also identified that the labeling for breaker 1E1 on MCC-1H1-1A did not match the description contained on the system alignment sheet. These items were brought to the attention of operations management for resolution. The system alignment procedures for the Number 1 and Number 2 EDGs were revised to include the respective battery throwover switch and a new label was installed on the MCC breaker. Both these items were accomplished expeditiously following identification by the inspectors.

c. Conclusions

The Number 1 EDG was properly aligned in accordance with the system alignment procedure. Material condition and housekeeping were good. The inspectors identified that the EDG battery throwover switch was not referenced in the system alignment procedure and that the labeling on breaker 1E1 on MCC-1H1-1A did not match the description contained on the system alignment sheet. These two items were expeditiously resolved after discussions with operations management.

**05 Operator Training and Qualification**

**05.1 Operator Simulator Training**

a. Inspection Scope (71707)

On February 28, the inspectors observed operator simulator training in preparation for the upcoming Unit 1 RFO.

b. Observations and Findings

The inspectors observed portions of operator simulator training on February 28. The training consisted of shutdown operations in preparation for the upcoming RFO. More specifically, the inspectors observed evolutions/scenarios involving loss of the Residual Heat Removal system and the manipulation of RCS water level. The inspectors observed the operators following procedures appropriate to the tasks at hand. The interface between the instructors and the operators was carried out at the relevant point in the various scenarios. The instructors were not reticent in pointing out details which could aid the operators during the actual performance of the various evolutions.

c. Conclusions

The inspectors determined that operator simulator training in preparation for an upcoming RFO was well performed and was conducted at an appropriate time just prior to the beginning of the RFO.

## II. Maintenance

### **M1 Conduct of Maintenance**

#### **M1.1 Auxiliary Ventilation System**

##### **a. Inspection Scope (62707)**

The licensee continues to have problems with the Auxiliary Ventilation System. These were previously discussed in Inspection Report Nos. 50-280, 281/96-13. The inspectors followed the continuing issues and the licensee's corrective actions.

##### **b. Observations and Findings**

On January 9, 1997, at 5:08 a.m., the licensee entered a 7-day LCO as required by TS 3.22 to perform maintenance on the Auxiliary Ventilation System Filter Exhaust Fan, 01-VS-F-58B. Issues related to this maintenance outage are described in detail in Inspection Report Nos. 50-280, 281/96-13. During this maintenance outage, the actuator for the Motor Operated Damper (MOD)-58B, was replaced and its linkage was adjusted. On January 13, the licensee observed that the 58B fan was rotating in the reverse direction at 13 rpm. The reverse rotation stopped after aligning the dampers for the fuel building suction path. Engineering was contacted and stated that the 58B fan could be started as long as reverse rotation was less than 125 rpm. The LCO was exited at 7:52 a.m. on January 15, after completion of Post Maintenance Testing (PMT).

On January 16, 1997, at 1:00 a.m., the 58B fan was again observed rotating in the reverse direction at 23 rpm. The fan was declared inoperable approximately six hours later and a 7-day LCO was again entered. Investigation determined that the reverse rotation was due to leakage through damper MOD-58B. The damper actuator linkage was adjusted to fully close the damper and fan reverse rotation ceased. The 58B fan was declared operable at 12:57 p.m. on January 16 and the LCO was again exited. The licensee determined that they improperly exited the LCO before full damper closure was verified. This resulted in the 7-day LCO being exceeded by 7 hours and 49 minutes and the units were not placed in Hot Shutdown within 6 hours as required by TS 3.22. The licensee reported this to the NRC by LER 50-280, 281/97002-00. The failure of the licensee to place both units in Hot Shutdown within 6 hours after failing to have both Auxiliary Ventilation System exhaust trains operable within 7 days is a violation of TS 3.22. The Auxiliary

Ventilation System was capable of performing its intended safety function with the 58A fan and associated filter train during the reported time frame. The licensee identified the matter, promptly reported it, and took corrective action to prevent recurrence. The violation could not have been reasonably prevented by corrective actions from a previous violation and the matter was not willful. This licensee-identified and corrected violation is being treated as a Non-cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. This item is identified as NCV 50-280, 281/97002-02.

The need to readjust the linkage for the replacement damper, MOD-58B, raises the question of the adequacy of the post maintenance testing and/or installation verification. This matter was discussed with the licensee. They concurred with this conclusion and stated that the PMT adequacy would be reviewed.

Licensee engineering determined that the size of the opening which existed with damper MOD-58B not fully closed would have caused the 58B fan to rotate at speeds in excess of 125 rpm in the reverse direction when the 58A fan was started. The inspectors questioned the licensee as to the technical basis for the 125 rpm backward rotation and were given a Maintenance Engineering Information Transmittal (MEIT) Record, dated October 29, 1996, which states that the blower and motor vendors indicate that it is a good practice not to allow these components to exceed 120 rpm backward rotation. This information was not contained in operating procedures. The inspectors asked how the operators knew of this information and were informed that a copy of the memo was in the control room. The inspectors requested the memo from the control room. The operators were unable to locate the October 29, 1996, memo but located an MEIT Record, dated December 16, 1993, which discusses backward rotation of the Unit 1 and 2 fans. It states that backward rotation of less than 120 rpm for the 40A and 40B fans is not a problem. It further states that 58A and 58B fans are not allowed to rotate backwards.

The inspectors reviewed procedures 0-MOP-VS-004, Return to Service of Auxiliary Ventilation Exhaust Train A, Revision 2-P.1, 0-MOP-VS-005, Return to Service of Auxiliary Ventilation Exhaust Train B, Revision 2-P.1, and 0-OPT-VS-002, Auxiliary Ventilation Train Test, Revision 4. These procedures provided no limitations relating to reverse rotation of the 58A and 58B fans.

The licensee has a continuing problem with inleakage around the access doors to safety related charcoal filters (1-VS-FL-3A/B) due to broken door latches and deteriorated door gaskets. The gaskets were original installed equipment and the licensee determined that the gaskets were not in a Preventive Maintenance (PM) program. The inspectors reviewed DRs 96-1468 and 97-0182 which documented the door discrepancies. Work Order (WO) 346246-01 was written to repair/replace the filter 3A door latches. The mechanics were unable to seal the doors and installed Duxseal around the doors in accordance with verbal instructions from a Maintenance foreman. Operation's personnel observed the Duxseal during

their pre-operability walkdown and requested that Engineering approve the use of Duxseal. Engineering rejected the use of Duxseal and DR 97-0504 was issued to track the deficiency. WO 346246-02 was issued to remove the Duxseal and replace it with RTV which is an approved sealant. The inspectors reviewed the above documents.

The inspectors interviewed the Maintenance foreman and learned that he did not have instructions for an approved sealant material. He stated that he remembered that engineering had previously recommended Duxseal for this application and other foreman supported his recollections. He then authorized its use to seal the leaks around the 3A charcoal filter access doors. The inspectors also interviewed the system engineer and learned that engineering had withdrawn Duxseal as an approved material for ventilation systems in 1988. The inspectors asked where this information was documented and learned that this information was not documented but had been verbally transmitted to Maintenance. The system engineer informed the inspectors that Engineering had recommended RTV as a sealant as they had data to support its acceptability. This recommendation was also verbally transmitted to Maintenance. The inspectors discussed this issue with Maintenance supervision and learned that there are no procedures which specify material acceptability. The material tags only list gross limitations.

The failure to include the October 29, 1996, operating limitation in an operating procedure and to proceduralize material restrictions are identified as violation 50-280, 281/97002-03.

c. Conclusions

An NCV was identified for failure to maintain two trains of the Auxiliary Ventilation System operable as required by TS. A violation was identified for failure to include operability guidance in an operating procedure and to proceduralize material restrictions.

M1.2 EDG Number 3 Maintenance Outage

a. Inspection Scope (62707)

The inspectors monitored maintenance activities conducted on the Number 3 EDG.

b. Observations and Findings

On February 3, the Number 3 EDG was removed from service for major PM activities. TS allows the EDG to be inoperable for a 7-day period. Prior to removing the EDG from service, the licensee performed a PSA evaluation and determined that a maintenance outage time of less than 93 hours was appropriate. The scheduled maintenance was planned to be accomplished in 84 hours per the schedule.

The inspectors reviewed the status of the maintenance activity on a daily bases to determine return to service progress. During return to

service testing several major problems were encountered. These problems resulted in the outage time exceeding the 93 hour PSA value. The diesel was returned to service on February 9 at 11:00 a.m. resulting in a total out of service time of 149 hours. The 7-day LCO time frame was not exceeded.

c. Conclusions

Number 3 EDG maintenance activities exceeded the PSA outage time value established prior to removing the diesel from service. The TS allowed LCO time was not exceeded. Once licensee management became aware the PSA value had been exceeded, increased upper management attention was evident.

M1.3 Unit 1 Low Head Safety Injection (LHSI) Pump Test

a. Inspection Scope (61726)

The inspectors observed a LHSI pump B test conducted on March 5.

b. Observations and Findings

The inspectors observed the performance of procedure 1-OPT-SI-005, LHSI Pump Test, Revision 8, conducted on March 5. The testing was accomplished in accordance with the procedure and the inspectors verified that the procedure's acceptance criteria were met. The test results were satisfactory.

c. Conclusions

Testing performed on the LHSI pump B was accomplished in accordance with procedure requirements and the test data met the acceptance criteria.

M8 Miscellaneous Maintenance Issues (92700, 92902)

M8.1 (Open) Licensee Event Report (LER) 50-280, 281/97002-00: one train of auxiliary ventilation system inoperable outside of technical specifications. On January 15, 1997, the licensee exceeded a 7-day LCO for TS 3.22 by 7 hours and 49 minutes for Auxiliary Ventilation System Filter Exhaust Fan, 01-VS-F-58B. The licensee determined on February 7, that they had exceeded the LCO and issued the LER on February 14. This event is described in more detail in Section M1.1.

The inspectors reviewed the LER and determined that it contained inaccurate information. Specifically, Section 5, Additional Corrective Action, states that on February 7, 1997, the Shift Orders were revised to reflect that if any reverse rotation of either 58 fan was observed that the fan should be considered inoperable and at that time the fan should be manually isolated. This information was not included in the Shift Orders. An Operations Shift Supervisor was asked where the reverse rotation inoperability policy was documented and he thought it was in the Shift Orders. The inspectors reviewed the Shift Orders

issued between January 10 and February 28, 1997, but were unable to locate the policy. The licensee was questioned about this discrepancy and subsequently informed the inspectors that the policy was added to the Auxiliary Building Turnover Sheet (Logs) and the Shift Supervisors Log, but not the Shift Orders. The inspectors reviewed the Auxiliary Building Logs for January and February 1997 and noted that on January 20, a note was added for the operators to verify that the 58A and 58B fans were not rotating backwards if they were secured. The inspectors also reviewed the Shift Orders issued between March 1 and 18, 1997, and noted that the 58 fan operability policy had been added on March 6, 1997. 10 CFR 50.9(a) requires that information, provided to the Commission by a licensee shall be complete and accurate in all material respects. Failure to meet the requirements of 10 CFR 50.9(a) is identified as violation 50-280, 281/97002-04.

The inspectors noted that Shift Order entries, including Standing Orders, were usually one time entries. This method of documentation requires considerable research to locate policy and frequently results in information being promulgated by "tribal knowledge."

In addition, the LER writeup did not specifically indicate why the fan was considered inoperable. The LER only stated that the reverse rotation caused the fan to be inoperable, even though the inspectors had been previously informed and the LER states that the 58 fans were only considered inoperable if reverse rotation exceeded 125 rpm. Additional discussions with the licensee provided the inspectors with sufficient information to comprehend the basis for the reportability of the event in that it was postulated that the 58B fan's reverse rotation speed could have exceeded the 125 rpm limit in this case. This matter was discussed with the licensee and a revision to the LER is planned to address this matter.

- M8.2 (Closed) LER 50-280/94001-00: welding on pressurizer results in hydrogen burn in pressurizer. This LER describes a hydrogen burn event in the Unit 1 pressurizer during welding activities conducted to install a drain line on the 4-inch piping that runs from the pressurizer to the power operated relief valves. The LER was submitted voluntarily due to its potential safety significance and interest to other licensees.

The inspectors reviewed the LER package and verified that the referenced procedures had been changed to heighten awareness of systems that may have the potential for explosive gas mixtures and to ensure that precautionary measures are taken (i.e., sampling) prior to performing hot work.

### III. Engineering

#### E1 Conduct of Engineering

##### E1.1 Auxiliary Ventilation System Engineering Effort



a. Inspection Scope (37551)

The inspectors observed and reviewed engineering effort in the resolution of problems with the Auxiliary Ventilation System.

b. Observations and Findings

On March 5, 1997, the Auxiliary Ventilation System Filter Exhaust Fan, 01-VS-F-58B, was observed to have a reverse rotation of 3 rpm. The operators notified Engineering of their observation and were informed that the fan was operable. However, instructions had previously been issued that with any reverse rotation the 58B fan was to be considered inoperable. Later, on March 5, the operators observed a 15 rpm reverse rotation of the 58B fan. Engineering was informed and again provided operations verbal guidance. Operations issued DR 97-0623 to document this event. A second DR (97-0624) was written by Operations to document that insufficient information had been disseminated to the operators to allow them to properly evaluate fan operability. The operators requested that documented instructions be issued.

Operations contacted Engineering for operability determinations for backward rotation of the 58A and 58B fans because they were unaware of the December 1993 MEIT record located in the control room. The MEIT stated that these fans were not allowed to rotate backwards.

There was conflicting engineering information being disseminated. The inspectors asked the licensee for the technical basis for the 125 rpm reverse rotation limitation. Currently, Engineering is stating that reverse rotation speeds in excess of 125 rpm will cause the fan to separate from its shaft when started. However, the December 16, 1993, MEIT Record states that excessive motor starting torque and current define the 120 rpm reverse rotation limitation.

On January 18, 1997, the licensee identified during testing of the 58B fan that there was inleakage around the west access door to the 3A charcoal filter. DR 97-0182 was written to document the deficiency and requested engineering assistance to provide an engineering resolution. This issue is identical to the condition described in Paragraph M1.1. Request for Engineering Assistance (REA) 97-0021 recommended the installation of a reinforcement plate along the outer edge of the interior door and a thicker gasket. It should be noted that the doors in question are located on the suction side of the fans and are mounted on the interior of the ductwork and open inward.

The inspectors concluded that the doors should be mounted on the exterior of the ductwork and open outward, thereby allowing the negative pressure to assist in sealing the door rather than resist sealing. Engineering recommended relocating the doors but determined it was too expensive based on the extensive engineering effort and craft time that would add to the cost. The inspectors discussed the REA 97-0021 recommendations with the licensee. The inspectors considered the REA

recommendation to be a temporary repair that would not solve the inleakage and maintenance issues. The licensee discussed the problem with the vendor who informed them that the design of the doors was inadequate. On February 13, Engineering recommended to the Modification Review Team (MRT) that the filter access doors be remounted to solve the inleakage problem. This modification was approved by the MRT.

c. Conclusions

The inspectors concluded that, at least for ventilation engineering, informal communications appears to be the common mode of operation. However, Maintenance and Operations allowed this mode to perpetuate by not insisting on formal means of communicating decisions. In addition, engineering conditions and limitations were not always proceduralized.

E7 Quality Assurance in Engineering Activities

E7.1 Corrective Action Program

a. Inspection Scope (40500, 92720)

The inspectors reviewed the licensee's Corrective Action Program (CAP) to determine its effectiveness. The inspectors held discussions with licensee personnel and reviewed trend reports, procedures, licensee assessments, and DRs.

b. Observations and Findings

Procedure QANS-1601, Corrective Action, is the Nuclear Business Unit (NBU) governing document for the CAP. Revision 1 of this document transfers responsibility for the program from Quality Assurance to Nuclear Oversight. Virginia Power Administrative Procedure, VPAP-1601, Corrective Action, Revision 5, is the implementing procedure for the CAP which is the responsibility of Station Nuclear Safety (SNS). In addition to the above documents, the inspectors reviewed the following procedures:

SEAP-004	Deviation Report Tracking and Trending	Revision 2
VPAP-0104	NBU Management Station Self-Assessment Program	Revision 1
VPAP-0212	Human Performance Enhancement System	Revision 4
VPAP-1501	Deviation Reports	Revision 6
VPAP-1801	Program and Management Oversight of Quality	Revision 4
VPAP-3002	Operating Experience Program	Revision 4

The inspectors reviewed Nuclear Oversight Corrective Action Audits 95-09 and 96-09 and the Nuclear Oversight quarterly report for the fourth quarter of 1996. The inspectors noted that ineffective corrective action was the most common finding. Audit S96-24 addressed the troubleshooting/repair of Waste Gas Decay Tank oxygen analyzers (1-GW-AIT-150A/B). The audit had three findings: (1) initial engineering failed to address the impact of the modification on other parts of the system; (2) a hit or miss approach to troubleshooting; and (3)

ineffective ownership of the problem resolution. The licensee concluded that the latter two issues had been corrected, but resolution of the problem was still open. The inspectors do not agree that the latter two issues had been corrected as evidenced by the licensee's efforts to troubleshoot the problems associated with the Auxiliary Ventilation System Filtered Exhaust Fan (01-VS-F-58B) as described in Section M1.1.

The number of DRs issued has steadily increased since 1991, from 1949 to 2822 in 1996. The licensee attributes this to their lowering the threshold for writing DRs. The inspectors compared the number of open DRs at the end of the fourth quarter to the number of DRs issued for that year and noted that percentage of DRs which remained open at the end of the year ranged from 4.4 percent in 1992 to 12.2 percent in 1995. It should be noted that during 1996 the licensee reduced this to 6.4 percent. However, open DRs are not a good indicator of corrective action effectiveness as they can be closed out prior to all action being complete. DRs are closed out for many longstanding issues and are tracked by other systems, such as the Commitment Tracking System (CTS).

The inspectors reviewed a printout of 1995 and 1996 DRs classified as frequent. Frequent as defined in Section 4.14 of VPAP 1601, Corrective Action, Revision 5, is the same event or component problem which has occurred twice in the previous three years. This data also indicated inconsistent corrective action effectiveness as indicated by the following:

<u>Issues</u>	<u>DRs Issued</u>	
	<u>1995</u>	<u>1996</u>
Unit 1 Component Cooling Heat Exchangers	32	9
P250 Computer	9	24
Emergency Lighting Batteries	123	81
Radiation Monitors	17	7
Main Steam Governor Valve 2	12	7
Safety Injection Pumps	24	6
Unit 1 Service Water Pumps	10	8
Unit 2 Containment Spray Valve 97	3	5

It can be seen that only the Component Cooling Heat Exchangers and the SI pumps showed a significant improvement based on a full year of historical data.

The licensee recognized weaknesses in their CAP and an EDRP to address longstanding issues was implemented during March 1996. The purpose of the EDRP is to focus management attention to longstanding issues. On

March 25, 1996, 12 issues were included in the EDRP. Eight were assigned to Engineering and the balance to Maintenance.

The inspectors reviewed the EDRP and noted that over 50 percent of the completion dates have been extended since the EDRP was issued. Emergency lighting issues were identified in the mid 80's and the latest completion date is the end of 1997. Unit 1 Source Range Nuclear Instrumentation issues were identified in March 1989 and the source range cable replacement during the ongoing RFO will complete the corrective actions. The inspectors noted that none of the 12 issues from the EDRP has been closed out and the completion of the Instrument Module (Hagan racks) problems has been extended to 2002.

The Emergency Response Facility Computer System (ERFCS) issues were identified in 1990 and resolution is currently scheduled for February 1998. A review of ERFCS problems in the site DR database, which was implemented in 1990, revealed that 135 DRs have been issued and of these 91 were issued since 1995. Fourteen DRs documented events that were reportable to the NRC. The inspectors consider that for ERFCS the corrective actions were not effective.

The weld leaks in the Unit 2 letdown line piping were another example of ineffective corrective action. There were four weld leaks on the Unit 2 letdown line piping between December 13, 1995 and September 11, 1996. On January 6, 1997, a fifth weld leak was identified in the Unit 2 letdown line piping. This event is described in detail in Inspection Report Nos. 50-280, 281/96-13. Each event had the same causal factor.

#### c. Conclusions

The inspectors review of licensee Oversight reports indicated that many of the current issues had been previously identified. Discussions with the licensee indicated that several of the ERDP items will be completed during the current Unit 1 RFO. The inspectors concluded that implementation of corrective actions has been inconsistent. However, they noted that the number of DRs written has increased indicating that problems are being identified.

### IV. Plant Support

#### R1 Radiological Protection and Chemistry (RP&C) Controls

##### R1.1 Failure to Obtain Grab Sample as Required

###### a. Inspection Scope (71750)

The inspectors reviewed the circumstances surrounding a failure to obtain grab samples as required by the ODCM.

b. Observations and Findings

On January 28 at 9:08 a.m., the vent vent gaseous effluent monitor 1-VG-RM-104 was declared out of service by operations. VPAP-2103, ODCM, Attachment 14, allows releases to continue via this pathway provided grab samples are obtained at least once per 12 hours. Operations notified HP to commence sampling. At 12:00 a.m., on January 29, it was determined that the required grab sample had not been obtained. A grab sample was immediately initiated and completed at 12:32 a.m. The time period specified by the ODCM for obtaining a grab sample had been exceeded by 3 hours and 24 minutes. The sample results were satisfactory.

The cause of the missed sample was miscommunication between the count room personnel and the HP shift personnel. Corrective actions included: (1) adding an item to the count room scheduler program to review inoperable rad monitors for TS compliance (2) purchasing a status board for the count room (3) adding an item to the HP-Ops scheduler prompting a review of inoperable monitors and (4) adding a section to the count room shift log for indicating inoperable monitors. The failure to meet the requirements of VPAP 2103 is identified as a violation. This licensee-identified and corrected violation is being treated as an NCV, consistent with Section VII.B.1 of the NRC Enforcement Policy, and is identified as NCV 50-280, 281/97002-05.

c. Conclusions

A NCV was identified for failure to obtain a grab sample within 12 hours as required by the ODCM.

R1.2 Occupational Radiation Exposure Control Program

a. Inspection Scope (83750)

The inspectors reviewed implementation of selected elements of the licensee's radiation protection program pertaining to control of occupational radiation exposure. The review included examination of records and reports of individual personnel exposures and comparison of those exposures to the occupational dose limits specified in Subpart C to 10 CFR 20 and the licensee's procedurally established administrative limits for personnel exposure.

b. Observations and Findings

The licensee provided the inspectors with current records and reports from the Personnel Radiation Exposure Management System (PERMS) for the year 1996. The data presented in the table below were compiled by the inspectors from the current data provided by the licensee and from similar data contained in previous inspection reports.

Maximum Individual Radiation Doses (Rem)				
Year	TEDE	Skin	Extremity	Eye Lens
1995	2.817	3.674	3.674	2.850
1996	2.160	2.220	2.220	2.160
Regulatory and Administrative Limits				
10 CFR 20	5.000	50.000	50.000	15.000
Admin.	4.000	40.000	40.000	12.000

The above administrative annual dose limits established by the license were delineated in procedure VPAP-2101, Radiation Protection Program, Revision 11. As indicated in the table, the maximum individual radiation exposures for 1995 and 1996 were well within the licensee's administrative limits and the regulatory limits specified in 10 CFR 20.1201(a).

c. Conclusions

Based on the above reviews, the inspectors concluded that the licensee was properly monitoring and controlling personnel radiation exposure in accordance with station administrative procedures and 10 CFR Part 20. The maximum individual radiation exposures for 1996 were well within the licensee's administrative limits and the regulatory limits specified in 10 CFR 20.1201(a) for occupational dose.

R1.3 ALARA Program

a. Inspection Scope (83750)

The inspectors reviewed licensee records and reports of annual and outage collective dose and discussed ALARA program goals with the licensee. The collective doses were compared to the licensee's established ALARA goals.

b. Observations and Findings

The licensee provided the inspectors with current records and reports of annual site collective dose and outage collective dose for the year 1996. The data presented in the table below were compiled by the inspectors from the current data provided by the licensee and from similar data contained in previous inspection reports.

Collective Dose (person-rem)							
Annual Dose				Outage Dose			
Year	Actual	Goal	3 Year Mean	Unit	Actual	Goal	Days
1994	378	642	450	U-1 <sup>1</sup>	233	312	64
				U-2 <sup>2</sup>	29	20	22
				U-1 <sup>2</sup>	29	22	28
1995	403	460	390	U-2 <sup>1</sup>	158	164	47
				U-1 <sup>3</sup>	197	191	34
1996	214	209	332	U-2 <sup>3</sup>	155	164	35

<sup>1</sup> 10 year ISI and RFO, <sup>2</sup> SG cleaning, <sup>3</sup> RFO

As indicated in the table, the licensee was generally successful in meeting established ALARA goals for both annual and outage collective dose. The 1996 ALARA goal for annual collective was slightly exceeded due to an unexpected year-end outage for repair of Unit 2 letdown piping. However, the inspectors noted, from a review of a licensee provided listing of annual collective dose for each year since the start of power operations in 1973, that the annual collective dose for 1996 was the lowest ever achieved by the licensee for a full year of plant operation. The above table also indicates generally decreasing trends in the three year moving average for annual collective dose and in the collective outage dose.

The inspectors also reviewed licensee records for Personal Contamination Events (PCEs) and contaminated floor space within the Radiologically Controlled Area (RCA). The licensee's threshold for a PCE was 100 counts per minute (cpm) above background as measured by a hand held frisker. The licensee's records indicated that there were 104 PCEs during 1996, which was approximately one half of the number of occurrences during 1994 and 1995, i.e., 199 and 198 respectively. The inspectors noted that the licensee tracks temporarily contaminated floor space on a daily basis. Areas were included in the running total if they become contaminated during work activities and deleted after reclamation. During 1996 the temporarily contaminated floor space averaged 498 square feet (sq. ft.) during non-outage periods and 2400 sq. ft. during the May outage. Those values were 0.36 percent and 1.75 percent of the total floor space within the RCA. The total floor space included the radwaste processing area but excluded the area within the containment buildings. There were some contaminated areas within the RCA which the licensee had no immediate plans to reclaim. Those areas included inaccessible locations in which radiation dose rates were high and not routinely entered, and other locations, such as the Decon Room

which remains potentially contaminated due to the type of work performed in that area. Those inaccessible and/or continually contaminated areas amounted to 4275 sq. ft., or 3.1 percent of the total RCA floor space.

During tours of the RCA the inspectors noted that general areas and individual rooms were properly posted for radiological conditions. Posted survey maps were used to indicate dose rates and contamination levels at specific locations within rooms. At the inspector's request, a licensee HP staff member performed dose rate and contamination surveys in several rooms and locations. The inspectors verified that the survey instrument readings were consistent with the dose rates and contamination levels recorded on the posted survey maps.

c. Conclusions

Based on the above reviews, the inspectors concluded that the licensee was closely monitoring collective dose in order to meet ALARA goals and was properly posting area radiological conditions.

**R8 Miscellaneous RP&C Issues (92904)**

- R8.1 (Closed) Unresolved Item (URI) 50-280, 281/96010-01: failure to follow radiation protection procedures. During the inspection conducted during September 9-13, 1996, the inspectors reviewed the details of activities associated with a Unit 2 containment entry made on August 17, 1996. The licensee had documented those details in DR 96-1771. As indicated in the DR, two workers (electricians) entered the Unit-2 containment building, accompanied by a Health Physics Shift Supervisor (HPSS), to investigate an oil level alarm on a RCP motor. The Radiation Work Permit (RWP) used for that entry, standing RWP 96-1-0012, required, in part, that the DADs be set to alarm when the accumulated dose reached 100 mrem and that all members of the entry team were to evacuate containment upon receiving any DAD alarm. Standing RWP 96-1-0012 also specified that a special RWP was required to be written for any task in which an individual is expected to exceed 100 mrem per entry. Review of past radiation surveys should have caused the Health Physics Shift Supervisor to write a special RWP. Section 6.2.4.c of Health Physics Procedure HP-1081.2, Radiation Work Permits: RWP Briefing and Controlling Work, required, in part, that if individual worker DAD dose and dose rate alarm setpoints were to be used, then the desired alarm settings were to be recorded on the RWP Briefing Attendance Roster and that the alarm settings were to be entered into the PERMS. During the containment entry, the DADs worn by the two workers audibly alarmed, due to the accumulated dose having exceeded the dose alarm setpoint of 100 mrem, but the workers were unable to hear their alarms because of the high noise level. The HPSS was aware of those alarms but, contrary to the RWP and procedural requirements, made an unauthorized decision to remain in containment and continue the work. The workers received doses of 186 and 205 mrem during the entry. Following their exit from containment, the HPSS utilized the "Revised DAD Alarm Setpoint" column of the RWP Briefing Attendance Roster to indicate that workers' DAD alarm setpoints had been set at 250 mrem when in fact they had not;



however, the HPSS subsequently informed the NRC that the work was appropriately controlled to 250 mrem/hour despite the failure to exit containment, reset the DAD, or initiate a special RWP. The discrepancy between the DAD setpoints and the actual worker doses was noted by the licensee during a subsequent RWP review. The procedural violations for this event were : (1) failure to exit containment when the workers' DADs alarmed; (2) failure to write a special RWP for expected doses in excess of 100 mrem; and (3) failure to appropriately use the RWP Briefing Roster to record DAD alarm setpoints. The licensee's corrective actions for this event included: (1) taking disciplinary action against the HPSS; (2) briefing the Health Physics Operations staff on the event; (3) a review of previous RWP non-compliance events to ensure that a programmatic problem did not exist; and (4) issue a Training Information Bulletin to all station personnel regarding "Procedural Compliance and Personal Accountability". The licensee was informed by the inspectors that this issue was characterized as an URI pending further review by NRC management. Subsequent to that inspection, NRC management determined that, although the licensee identified and took corrective actions for these procedural violation, those violations would be cited due to licensee supervision involvement.

During this inspection additional examples of procedural violations were identified. The inspectors reviewed details regarding six occurrences of individuals entering the RCA without DADs. Sections 6.8.4, 6.6.1.b, and 6.8.7.f of Virginia Power Administrative Procedure VPAP-2101, Radiation Protection Program, require, respectively, that a RWP is required for entry into or work in an RCA; workers shall wear dosimetry required by their RWP, and workers shall comply with the RWP and ALARA requirements, instructions, and precautions. DRs for entering the RCA without DADs as required by RWPs were written by the licensee for each of the six occurrences. The dates of occurrence and DR numbers were : September 6, 1996/S-96-1957; September 13, 1996/S-96-2004; October 4, 1996/S-96-2165; December 23, 1996/S-96-2773; January 10, 1997/S-97-0099; and February 3, 1997/S-97-0343. As described in those DRs the licensee's corrective actions generally consisted of disciplinary action and/or counseling the individuals involved and discussion of the event with the individuals' departmental co-workers. NRC management determined that, although the licensee identified and took corrective actions for these additional examples of procedural violation, those violations would be cited due to their frequency and repetition. The above procedural violations are identified as VIO 50-280, 50-281/97002-06, multiple examples of failure to follow radiation protection procedures.

**P1 Conduct of Emergency Preparedness (EP) Activities**

**P1.1 Operational Status of the Emergency Preparedness Program**

**a. Inspection Scope (82701)**

The inspectors reviewed day-to-day routine operations and program changes to assess the effectiveness of the licensee's implementation of

their Emergency Plan in meeting regulatory requirements of EP. The following routine areas were reviewed:

- changes to the Emergency Plan and implementing procedures
- maintenance of selected emergency facilities, equipment and supplies
- changes to the emergency organization or management control systems
- review of the independent audit report conducted since the last inspection, and
- effectiveness of licensee controls in the identification and resolution of issues identified in the area of EP

The inspectors observed a training exercise conducted during the inspection week which exercised the staffing and functioning of the Technical Support Center (TSC) and Operational Support Center (OSC) while also meeting the requirements for a semi-annual radiological monitoring drill.

b. Observations and Findings

One revision to the Emergency Plan had been submitted since the NRC had documented the previous review. The revision of the Emergency Plan currently in effect was Revision 41, effective December 17, 1996. The inspector reviewed the revision and found the changes to be primarily administrative in nature. The inspectors were informed that no emergency declarations with the concomitant implementation of the Emergency Plan had occurred since the last inspection.

The inspectors observed that the equipment and supplies that supported the TSC and OSC during the training exercise were functional and adequate for the facilities.

Organizational changes made since the last inspection focused on the centralization of EP responsibilities with the Director of Nuclear Emergency Preparedness in Innsbrook, VA. The position for Station Coordinator Emergency Preparedness now has responsibilities for both North Anna and Surry Power Stations. The inspector did not observe any degradation in the program as a result of the organizational changes.

The inspectors reviewed Nuclear Oversight Emergency Plan Audit Report 96-03 dated May 16, 1996. The audit was performed using both performance and compliance based techniques, and the inspectors found it was thorough and met regulatory requirements. The audit team spent a week at the Surry facility and an identified issue was promptly corrected.

The inspectors selected the failed December 16, 1996, off-hours call-out drill as a means to evaluate the effectiveness of licensee controls in the identification and resolution of EP issues. Licensee evaluation focused on the failure of the Emergency Response Organization Automatic Notification System (EROANS) to function as expected, and another test was run two days later and was successful. The licensee's corrective actions for the deficient system were satisfactory although the inspectors noted several items where additional follow-up could be useful. These items were: (1) the security manual call-outs for selected minimum staffing positions did not result in those positions being filled; (2) one person had been twice contacted by the Corporate EROANS but had twice failed to properly acknowledge; and (3) were sufficient personnel trained for the Field Team Radio Operator minimum staffing position?--the test resulted in one individual responding not fit for duty and the other not being at home--the position remained unfilled. The licensee acknowledged these observations and indicated additional follow-up would occur and corrective action would be taken as necessary. The inspectors also used the personnel call-out list for this drill as the random selection of names to verify the status of training for the emergency response organization. All personnel were found to be current for training requirements.

The inspectors noted that the training exercise was effective for meeting the intended goals and the licensee was proactive in identifying and recommending corrective actions for issues identified in the OSC.

c. Conclusions

The inspectors found the EP program to be maintained in a manner that supported good emergency response in the event of an accident.

**S1 Conduct of Security and Safeguards Activities (71750)**

On numerous occasions during the inspection period, the inspectors performed walkdowns of the protected area perimeter to assess security and general barrier conditions. No deficiencies were noted, and the inspectors concluded that security posts were properly manned and that the perimeter barrier's material condition was properly maintained.

**V. Management Meetings**

**X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on March 17 and April 7, 1997. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Blount, Superintendent, Maintenance  
 D. Christian, Station Manager  
 M. Crist, Superintendent, Operations  
 J. McCarthy, Assistant Station Manager, Operations & Maintenance  
 B. Shriver, Assistant Station Manager, Nuclear Safety & Licensing  
 T. Sowers, Superintendent, Engineering  
 B. Stanley, Director, Nuclear Oversight  
 J. Swientoniewski, Supervisor, Station Nuclear Safety  
 W. Thorton, Superintendent, Radiological Protection

NRC

G. Belisle, Chief, Reactor Projects Branch 5, Division of Reactor Projects, Region II

## INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering  
 IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems  
 IP 61726: Surveillance Observation  
 IP 62707: Maintenance Observation  
 IP 71707: Plant Operations  
 IP 71750: Plant Support Activities  
 IP 82701: Operational Status of the Emergency Preparedness Program  
 IP 83750: Occupational Radiation Exposure  
 IP 92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities  
 IP 92720: Corrective Action  
 IP 92902: Followup - Maintenance  
 IP 92904: Followup - Plant Support

## ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-280, 281/97002-01 IFI Long term corrective actions to resolve potential TDAFW pump overspeed trips (Section 01.3).  
 50-280, 281/97002-02 NCV Failure to maintain two trains of the Auxiliary Ventilation System operable as required by TS (Section M1.1).

- 50-280, 281/97002-03 VIO Procedures not appropriate to the circumstances (Section M1.1).
- 50-280, 281/97002-04 VIO Failure to meet the requirements of 10 CFR 50.9(a) For LER 50-280, 281/97002-00 (Section M8.1).
- 50-280, 281/97002-05 NCV Failure to obtain grab sample as required by the ODCM (Section R1.1).
- 50-280, 281/97002-06 VIO Multiple examples of failure to follow radiation protection procedures (Section R8.1).

### Closed

- 50-280, 281/97002-02 NCV Failure to maintain two trains of the Auxiliary Ventilation System operable as required by TS (Section M1.1).
- 50-280/94001-00 LER Welding on pressurizer results in hydrogen burn in pressurizer (Section M8.2).
- 50-280, 281/97002-05 NCV Failure to obtain grab sample as required by the ODCM (Section R1.1).
- 50-280, 281/96010-01 URI Failure to follow radiation protection procedures (Section R8.1).

### Discussed

- 50-280, 281/97002-00 LER One train of auxiliary ventilation system inoperable outside of technical specifications (Section M8.1).