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

Report Nos.: 50-280/89-34 and 50-281/89-34

Licensee: Virginia Electric and Power Company
5000 Dominion Boulevard
Glen Allen, VA 23060

Docket Nos.: 50-280 and 50-281 License Nos.: DPR-32 and DPR-37

Facility Name: Surry Units 1 and 2

Inspection Conducted: October 29 - November 25, 1989

Inspectors: S M. Shaffer FOR 12/21/89
W. E. Holland, Senior Resident Inspector Date Signed

S M Shaffer FOR 12/21/89
J. W. York, Resident Inspector Date Signed

S M Shaffer FOR 12/21/89
L. E. Nicholson, Resident Inspector Date Signed

Approved by: M W Sinkule 12/22/89
P. E. Fredrickson, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine resident inspection was conducted on site in the areas of plant operations, plant maintenance, cold weather preparations, plant surveillance, licensee event report review, and action on previous inspection findings.

Certain tours were conducted on backshifts or weekends. Backshift or weekend tours were conducted on November 5, 12, 15, 19, and 21.

Results: During this inspection period, three violations, one strength, and two weakness were identified. The violations identified were:

- Failure to provide adequate procedures and/or instructions with three examples resulting in: (1) inoperability of the reactor coolant system accumulators (paragraph 3.b); (2) personnel contamination of three licensee employees during preparation for resin transfer evolutions (paragraph 3.b); and (3) inoperability of the recirculation spray system (paragraph 4.a.).

- Failure to implement adequate control measures to prevent the use of incorrect materials or parts (paragraph 4.b). This resulted in incorrect gaskets being installed in several safety related components.

- Failure to sample the service water effluent of the component cooling water heat exchanger as required by TS (paragraph 7).

In addition, two non-cited violations were identified during closeout of Licensee Event Reports (paragraph 7). These violations involved failure to follow and/or inadequate procedure.

A strength was identified with regards to the licensee's approach and interim resolution of the Unit 2 pressurizer safety valve simmering issue (paragraph 3.a).

Weaknesses were identified regarding a lack of adequate work control to prevent adverse impact on the station fire protection program (paragraph 3.d) and a lack of aggressive identification and evaluation of anomalies that occur during surveillance testing (paragraph 6.c).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*W. Benthall, Supervisor, Licensing
*R. Bilyeu, Licensing Engineer
D. Christian, Assistant Station Manager
*D. Erickson, Superintendent of Health Physics
E. Grecheck, Assistant Station Manager
*M. Kansler, Station Manager
T. Kendzia, Supervisor, Safety Engineering
*J. McCarthy, Superintendent of Operations
*J. Ogren, Superintendent of Maintenance
*T. Sowers, Superintendent of Engineering
*E. Smith, Site Quality Assurance Manager

*Attended exit interview.

Other licensee employees contacted included control room operators, shift technical advisors, shift supervisors and other plant personnel.

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Plant Status

Unit 1 began the reporting period at power. The unit operated at power for the duration of the inspection period.

Unit 2 began the reporting period in cold shutdown. After repairs were completed on safety-related check valves and pressurizer safety valves, the unit commenced heatup on November 6. The unit returned to cold shutdown on November 7 following the lifting of a pressurizer safety valve while in a hot shutdown condition. The safety valves were removed and reset using a steam medium. The unit recommenced heatup on November 20; however, a pressurizer safety valve began to simmer during increase in pressure above NOP (2235 psig) and the unit was depressurized to approximately 1600 psig to allow for reestablishment of water loop seals on the pressurizer safety valve loops. This evolution is further discussed in paragraph 3.a. After temperature stabilization, the unit was repressurized to test conditions. After satisfactorily completing testing, the unit was taken critical on November 24 and began power operations later the same day. The unit operated at power for the remainder of the inspection period.

3. Operational Safety Verification (71707 & 42700)

a. Daily Inspections

The inspectors conducted daily inspections in the following areas: control room staffing, access, and operator behavior; operator adherence to approved procedures, TS, and LCOs; examination of panels containing instrumentation and other reactor protection system elements to determine that required channels are operable; and review of control room operator logs, operating orders, plant deviation reports, tagout logs, jumper logs, and tags on components to verify compliance with approved procedures.

During this inspection period, the inspectors closely monitored licensee actions with regards to the Unit 2 pressurizer safety valve problems. The problems were first noted during the last inspection period and were discussed in inspection report 280, 281/89-31. On November 6, during Unit 2 heatup, the "C" pressurizer safety valve lifted at approximately 2335 psig and reseated at approximately 2255 psig. The licensee concluded that the lifting may have been due to a loss of the loop water seal in conjunction with reduced setpoints. The licensee declared the "C" safety valve inoperable and placed the unit in a cold shutdown condition during the next 24 hours. Licensee action at this time was to pull all three pressurizer code safety valves and send them offsite to be reset at a lift pressure of 2485 psig +/- 1% using a steam medium. In addition, the licensee received a TS change to allow for operation with a setpoint of 2485 psig + 1% - 5% during cycle 10 operation on both units.

After the safety valves had been reinstalled, the unit recommenced heatup above cold shutdown on November 20. During heatup, after RCS pressure had been raised to approximately 2300 psig, operators received alarms indicating leakage on one of the pressurizer safety valves. No visual decrease in RCS pressure was observed on control room indicators. Operators responding to the local alarm panel determined that the "B" pressurizer safety valve was simmering with indicated leakage of the valve. Thermocouples which had also been installed at each of the safety valve inlet flanges confirmed the leakage to be from the "B" pressurizer safety valve. Operators lowered plant pressure to approximately 2000 psig; however, an intermittent simmering was still being observed. RCS pressure was further reduced to approximately 1580 psig and the simmering condition was terminated. Technical discussions between the licensee and the valve vendor concluded that the valve had not lifted. However, distortion between the valve seat and the valve disc had probably occurred due to temperature differences caused by the rapid heat up of the RCS. Over the next 24 hours, the licensee gradually raised pressure, allowing time for temperature to stabilize between each increment of pressure increase. In addition, the licensee

redirected the ventilation discharge ducting in the pressurizer cubicle to provide for a more direct flow towards the top of the cubicle in the vicinity of the pressurizer safety valves. Pressure was increased to 2335 psig (100 psig above NOP) with no indication of safety valve leakage or simmering. After evaluation of these results, the licensee recommenced the Unit 2 startup sequence.

The inspectors have closely monitored the above occurrences and the licensee's immediate actions. The inspectors have also been involved in several discussions with station management on their conclusions and courses of action throughout this period. The inspectors consider that licensee actions concerning this problem have been conservative. They also consider the licensee's approaches to interim resolution of the pressurizer safety valve simmering issue as a strength.

b. Weekly Inspections

The inspectors conducted weekly inspections in the following areas: verification of operability of selected ESF systems by valve alignment, breaker positions, condition of equipment or component, and operability of instrumentation and support items essential to system actuation or performance. Plant tours were conducted which included observation of general plant/equipment conditions, fire protection and preventative measures, control of activities in progress, radiation protection controls, physical security controls, plant housekeeping conditions/cleanliness, and missile hazards. The inspectors routinely monitored the temperature of the AFW pump discharge piping to ensure increases in temperature were being properly monitored and evaluated by the licensee.

On November 21, 1989, during heatup in preparation for restart, operators allowed RCS pressure to increase above 1000 psig at a time when the three discharge isolation valves for the accumulators were closed. This condition is contrary to TS 3.3.A.10. After discovery of this error, the operators immediately took actions to reopen and de-energize the valves. At the same time they began decreasing RCS pressure and entered TS 3.0.1 which requires the unit be placed in cold shutdown within 30 hours. TS 3.0.1 was exited approximately 17 minutes later after plant pressure had been reduced to less that 1000 psig.

The inspector noted the above problem during a review of operators logs and discussed the occurrence with operations supervision and station management. Based on these discussions and a review of the controlling procedure 2-OP-1.3, Unit Startup Operation (350/450 to HSD), the inspector reached the following conclusion: The operating procedure did caution against not allowing RCS pressure to exceed 1000 psig prior to operability testing of the isolation valves.

However, the location of the caution in the procedure did not promote continuity of operations between shifts. Subsequent shift turnover at a step in the procedure after the caution, but prior to operability testing of the isolation valves contributed to the error. Failure to provide adequate procedures and/or instructions which resulted in noncompliance with TS 3.3.A.10 is a violation (281/89-34-01).

The inspectors reviewed an event which occurred during the morning of November 13, 1989. The event resulted in contamination of three employees. During preparations for a primary resin transfer, two operators and a health physics technician were contaminated when a camlock-type blank fitting was removed from resin waste transfer piping. The workers assumed that the three-inch pipe was depressurized and made provisions to collect a small amount of water when the camlock blank was removed. The pipe was, in fact, pressurized to approximately 100 psig which blew the cap off the pipe when the fitting was loosened. The pressurized condition resulted in spraying of the three workers with contaminated water. After the event, all three employees required decontamination. One operator was internally contaminated to 3.84% of maximum permissible organ burden due to Cobalt 60.

A review of the event was presented to station management by the plant staff the afternoon of the same day. During that review several items were identified which contributed to the cause of the event. They were:

- Lack of proper control of system condition. The system was pressurized during an earlier pressure test and pressure had not been vented off nor were the contaminated operators aware that the system was still pressurized.

- Lack of appropriate procedural control. The evolution was being accomplished without use of adequate procedures and/or instructions.

The inspectors reviewed the preceding contamination event with station supervision and management. During these reviews it became apparent that evolutions of this nature were not being performed in accordance with appropriate procedure and/or instruction. Failure to provide adequate procedures and/or instructions for resin transfer evolutions is identified as an additional example of violation 281/89-34-01.

c. Biweekly Inspections

The inspectors conducted biweekly inspections in the following areas: verification review and walkdown of safety-related tagouts in effect; review of sampling program (e.g., primary and secondary coolant samples, boric acid tank samples, plant liquid and gaseous samples);

observation of control room shift turnover; review of implementation of the plant problem identification system; verification of selected portions of containment isolation lineups; and verification that notices to workers are posted as required by 10 CFR 19.

d. Other Inspection Activities

Inspections included areas in the Units 1 and 2 cable vaults, vital battery rooms, steam safeguards areas, emergency switchgear rooms, diesel generator rooms, control room, auxiliary building, cable penetration areas, independent spent fuel storage facility, low level intake structure, and the safeguards valve pit and pump pit areas. RCS leak rates were reviewed to ensure that detected or suspected leakage from the system was recorded, investigated, and evaluated; and that appropriate actions were taken, if required.

The inspectors routinely and independently calculated RCS leak rates using the NRC Independent Measurements Leak Rate Program (RCSLK9). On a regular basis, RWPs were reviewed and specific work activities were monitored to assure they were being conducted per the RWPs. Selected radiation protection instruments were periodically checked, and equipment operability and calibration frequency were verified.

On November 6, the inspectors performed a detailed walkdown of the Unit 2 safeguards and valve pit areas in preparation for the unit restart. Specific attention was placed on general equipment conditions and overall area housekeeping. The inspector concluded that although the plant housekeeping has improved, specific problem areas were identified as follows:

- A conduit junction box located over an MOV (MOV-RH-200) was open and a contaminated leakoff collection drain was installed under the box to direct water that leaks through the electrical conduit away from the MOV. The inspector verified that a work order and task was in-place to repair the water leakage and remove the collection drain.

- Protective clothing (Anti-C overalls) was being used to seal between and around two safety related cable trays as they entered the safeguards area basement. The inspector was told that the clothing was installed to prevent water and contamination ingress due to overspray from the decontamination effort ongoing in the adjacent valve pit area. The installation of this flammable material was not prescribed by any procedure nor were administrative controls in place to insure proper monitoring and removal. The overalls were removed after identification by the inspector. The inspectors consider this lack of control as a weakness regarding the work activities that may adversely impact the station fire protection program.

e. Physical Security Program Inspections

In the course of monthly activities, the inspectors included a review of the licensee's physical security program. The performance of various shifts of the security force was observed in the conduct of daily activities to include: protected and vital areas access controls; searching of personnel, packages and vehicles; badge issuance and retrieval; escorting of visitors; and patrols and compensatory posts.

f. Licensee 10 CFR 50.72 Reports

(1) On October 29, 1989 the licensee made a report in accordance with 10 CFR 50.72 concerning an inadvertent actuation of an ESF component. During routine observation of the control board, the control room operator observed that the inside containment isolation valve for the primary drains transfer tank, TV-VG-109A, had closed. Attempts to reopen the valve were unsuccessful. The valve is a failed closed valve and automatically closes on actuation of an SI signal. There was no SI or other ESF signal present. The licensee determined that a loose electrical connection on the valve close pushbutton caused the failure. The connections were tightened and the valve was tested and returned to service.

(2) On October 30, 1989 the licensee made a report in accordance with 10 CFR 50.72 concerning an inadvertent actuation of ESF components while feeding a steam generator to place it in a wet layup condition. The unit was in cold shutdown at the time. The reactor operator failed to push the feedwater reset button before the second steam generator high level trip came in and caused an automatic feedwater isolation. All components actuated as required.

(3) On November 7, 1989 the licensee made a report in accordance with 10 CFR 50.72 concerning the entry into their emergency plan for a TS required cooldown of Unit 2 from hot shutdown (547 degrees F.) to a cold shutdown (200 degrees F.) condition. The cooldown was required when the C pressurizer safety valve was declared inoperable due to lifting outside of the TS required setting. The unit exited the emergency plan after reaching cold shutdown on November 7, at 2230 hours.

(4) On November 13, 1989 the licensee made a report in accordance with 10 CFR 50.72 concerning the contamination of three workers while removing a pipe cap in preparation for a resin discharge. Although all three employees were successfully decontaminated externally, one operator did receive an internal contamination of 3.84 percent of maximum permissible organ burden due to Cobalt 60. The licensee informed the state due to a commitment for notification whenever a single event results in more than

two personnel contaminations. The NRC notification was made as a result of the state notification. The resident inspector efforts to review this event are discussed in paragraph 3.b of this report.

(5) On November 22, 1989 the licensee made a report in accordance with 10 CFR 50.72 concerning the Unit 2 flood control dikes which protect against flooding of the service water supply MOVs to the RSHXs. These dikes were found to have been removed in order to perform a modification to the service water piping supplying MER3 equipment. Immediate actions by operators included declaring the valves inoperable and entering TS 3.0.1 which required that the unit be in cold shutdown within the next 30 hours. Unit 2 was in hot shutdown at the time. Additional corrective action included the reinstallation of the flood dikes within the next eight hours. The licensee then exited TS 3.0.1. This issue is further discussed in paragraph 4.a of this report.

Within the areas inspected, one violation was identified.

4. Maintenance Inspections (62703 & 42700)

During the reporting period, the inspectors reviewed maintenance activities to assure compliance with the appropriate procedures. Inspection areas included the following:

a. Modification to Service Water Piping to MER3

During this inspection period, the inspectors continued to review the ongoing modification of the SW piping to MER3. This area was also discussed in NRC Inspection Report 280, 281/89-31. Progress during this month included installation of the Unit 2 SW line from existing supply valve 2-SW-11 to the new SW manifold that has been installed in MER4. The inspector conducted visits to the work area in the Unit 2 turbine building basement and noted that work was being accomplished in accordance with approved procedures.

However, on November 22, 1989 the licensee identified in a deviation report a condition concerning the Unit 2 flood control dikes which protect against flooding of the SW supply MOVs to the RSHXs. These dikes were found to have been removed in order to perform the modification to the SW piping supplying MER3 equipment. Immediate actions by operators included declaring the MOVs inoperable and entering TS 3.0.1 which required that the unit be in cold shutdown within the next 30 hours. Unit 2 was in hot shutdown at the time. Additional corrective action included the reinstallation of the flood dikes within the next eight hours. The licensee then exited TS 3.0.1. Initial reviews by the licensee indicated that the valve pit flood control dikes had been removed in order to install underground piping for the subject modification on approximately October 25, 1989. At that time Unit 2 was in cold shutdown which did

not require that the SW MOVs be operable. However, on November 6, Unit 2 had recommenced a startup sequence which resulted with the unit in a condition (350 degrees) requiring that the recirculation spray system and the subject MOVs be operable. Initial licensee reviews indicate that the modification controlling procedure did not include administrative controls for removal of the flood control dikes nor did the operations startup procedures provide for verification that the flood control dikes were installed. Although the licensee promptly replaced the flood control dikes after the problem was identified, the three day time frame to determine how long the dikes had been removed was excessive. Failure to provide adequate procedures and/or instructions for assurance of operability of systems and/or components as required by TS is an additional example of violation 281/89-34-01.

b. Safety Injection Check Valve Repair

The inspectors followed the problem of installing incorrect gaskets in SI check valves as discussed in NRC Inspection Report 280, 281/89-31. The licensee originally discovered the problem after excessive seat leakage was detected from a SI check valve (2-SI-79). Following determination that an undersized bonnet gasket was installed in check valve 2-SI-79, the licensee elected to open two additional valves and inspect the gaskets. The results of this effort revealed a correct gasket installed in valve 2-SI-241 and an undersized gasket installed in valve 2-SI-91. This incorrect gasket exhibited the same results as were found in 2-SI-79 in that the inside diameter of the gasket was sheared when the valve cap was lowered onto the valve body. The gasket material could become lodged between the valve seat and disc or eventually be carried into the primary system. The inspector reviewed the licensee analysis, that was added as revision B to EWR 89-684, regarding the effects of the sheared gasket in the RCS.

The interim corrective action performed by the licensee, aside from replacing the incorrect gaskets, involved requiring that maintenance engineering verify each replacement part as acceptable for the proposed application. This policy was implemented via a memorandum from the Supervisor of Maintenance Engineering, dated November 1, 1989. The inspector discussed this policy with the station staff and noted that although the adherence to this new policy should prevent reoccurrence of this problem, it was not followed and resulted, on November 14, 1989, in the installation of a 900 pound versus a 1500 pound pressure rated spiral wound gasket on the inlet flange of a Unit 2 pressurizer safety valve. The valve was subsequently removed and the correct gasket installed. Following this event, the licensee identified that there was a potential that the wrong gaskets were also installed on the Unit 1 pressurizer safety valves. This was identified by deviation report S1-89-2292 and determined not to be an immediate operability concern.

A review of the specific details surrounding the above events indicate that a weakness exists in the program that verifies and assures that each replacement part is correct and provided for each specific application. The licensee currently uses a computerized model work order system to plan and stage a repair activity. This system produces a work order and parts list for accomplishing specific jobs. An initial review of various parts lists identified numerous errors which indicate that this system is unreliable. The licensee's program does not have an established method to validate and update the model work order parts list whenever components are modified or replaced. This has contributed to a general lack of confidence in the parts supply system as evidenced by mechanics drawing several gaskets from the supply system when only one is needed. The above problems are collectively identified as a violation for inadequate controls to prevent the use of incorrect materials and parts (280, 281/89-34-02).

c. Steam Driven Auxiliary Feedwater Pump

The inspectors observed various portions of the work associated with the repair of the turbine driven AFW pump 1-FW-P-2. This work was authorized by work order 3800087665 and performed per mechanical maintenance procedure MMP-C-FW-092. The problem was identified during performance of the monthly operability test when an excessive amount of oil was slung from the pump outboard bearing. The bearing was disassembled, cleaned and replaced with new bearings and thrust shoes.

In addition to witnessing work at the jobsite, the inspector reviewed applicable work procedures, material requisitions, tagouts and turnover reports. No discrepancies were identified.

Within the areas inspected, two violations were identified.

5. Cold Weather Preparations (71714)

During this inspection period, the inspectors reviewed the licensee's program for implementation of protective measures for extreme cold weather. This program is implemented by performance monthly (November through March) of PT-52, Cold Weather Protection, dated September 27, 1989, which was detailed in the licensee response to IE Bulletin 79-24, Frozen Lines. The inspector reviewed the licensee response to this Bulletin, the PT, and a self assessment audit which was performed on the subject by a QA engineer. Two performances of the PT have been accomplished recently (October and November). The QA engineer walked down areas of the PT that had been recently performed and a small number of discrepancies were identified that had not been identified during performance of the PT by operations personnel. Items identified by QA were missing piping insulation, a louver found open, etc. Generally, most of the items had been previously identified and a work request written. It was noted that most of the QA recommendations from a 1988 audit had been incorporated into the PT.

The inspector considers that the QA self assessment walkdowns helps to improve the licensee's performance in this area. No discrepancies were noted.

Within the areas inspected, no violations or deviations were identified.

6. Surveillance Inspections (61726 & 42700)

During the reporting period, the inspectors reviewed various surveillance activities to assure compliance with the appropriate procedures as follows:

- Test prerequisites were met.
- Tests were performed in accordance with approved procedures.
- Test procedures appeared to perform their intended function.
- Adequate coordination existed among personnel involved in the test.
- Test data was properly collected and recorded.

Inspection areas included the following:

a. Emergency Boration Flowpath

On November 7, 1989, the inspector witnessed testing of the Unit 1 emergency boration flowpath in accordance with PT 1-PT-18.5. This test opens emergency boration valve MOV-1350 and verifies a flow rate to the RCS. The inspector observed that flow indication could not be achieved without switching the running boric acid pump to fast speed. The control room operators stated that a single boric acid pump in slow speed does not deliver adequate discharge pressure to overcome the head in the volume control tank. The inspector verified that the appropriate abnormal procedures recognize this condition and require placing the pump in fast speed. No discrepancies were identified.

b. Auxiliary Feedwater System

On November 9, the inspector witnessed testing of the Unit 1 turbine-driven AFW pump in accordance with PT 1-PT-15.1C. The inspector observed that the test operators identified several minor problems during conduct of the test and that the test was conducted in accordance with the PT. No discrepancies were identified.

On November 9, the inspector witnessed testing of the independent steam flow paths to the turbine driven AFW pump in accordance with PT 1-PT-15.2. Following completion of the test, the licensee isolated two out of three steam supply lines and verified that each steam generator could supply adequate steam to the turbine driven pump. The inspector noticed that the steam isolation valves are

chain operated with the actual valves located approximately 15 feet overhead. There were no labels on the chains or valves that would identify which steam generator supplies steam to each valve. The inspector expressed concern that this may hamper the isolation of steam during a steam generator tube rupture event. The licensee agreed and initiated actions to properly identify the valves. No additional discrepancies were noted.

c. Recirculation Spray Pump

The inspectors reviewed the PT of the Unit 1 outside recirculation spray pump that was conducted on November 8. The pump (1-RS-P-2A) performance was considered satisfactory per periodic test 1-PT-17.3. This was the monthly operability surveillance test as required by TS 4.5. The pump had to be secured from the initial start due to a seal head-tank low level alarm in the control room. Operators filled the seal head-tank and the pump was restarted and tested. This was not annotated on the PT critique sheet as a problem encountered during the test.

These procedural problems were identified as a weakness for failure to identify and evaluate anomalies that occur during surveillance testing. Step 5.1.15 of the above test procedure states to check the seal head-tank level before starting the pump and refill if necessary using operations procedure OP-7.3. Although a low seal head-tank level should not render the pump inoperable, it could result in a radioactive release to the pump room following a seal failure. In addition, the operations procedure (OP-7.3.4) used to fill the seal head-tank on November 8 was not completed and filed in station records as required by administrative procedure SUADM-0-10. The operators involved stated that the procedure was used but was contaminated. A clean copy was completed and submitted for review and documentation after identification by the inspector.

Within the areas inspected, no violations or deviations were identified.

7. Licensee Event Report Review (92700)

The inspectors reviewed the LER's listed below to ascertain whether NRC reporting requirements were being met and to determine appropriateness of the corrective actions. The inspector's review also included followup on implementation of corrective action and review of licensee documentation that all required corrective actions were complete.

LERs that identify violations of regulations and that meet the criteria of 10 CFR, Part 2, Appendix C, Section V shall be identified as Noncited Violations (NCV) in the following closeout paragraphs. NCVs are considered first-time occurrence violations which meet the NRC Enforcement Policy for exemption from issuance of a Notice of Violation. These items are identified to allow for proper evaluations of corrective actions in the event that similar events occur in the future.

(Closed) LER 280/89-22, Unplanned ESF actuation, Low S/G Level Trip During ST 239 Due to Personnel Error. The issue involved unplanned initiation of ESF components during preparations to commence special testing in accordance with 1-ST-239, ESF Actuation with Instantaneous UV - J Bus. This event and corrective actions were discussed in NRC Inspection Report 280, 281/89-20. The event resulted in identification of an NCV in that report. This LER is closed.

(Closed) LER 280/89-23, Main Control Room Chiller Inoperable Due to Low Refrigerant Discharge. The issue involved the tripping of the operating chiller due to an improper valve lineup of the chilled water and SW systems supplying the chiller. Corrective actions included the placement of administrative controls over required valves in these systems to assure that they remain in the proper position. The inspector verified that these administrative controls were implemented. This issue is identified as an NCV (280/89-34-04) for failure to provide for adequate control of valve position required for proper operation of control room chillers. This LER is closed.

(Closed) LER 280/89-24, CR/RR Chiller Trip Due to Inadequate SW Supply. The issue involved the tripping of the operating control room chiller due to isolation of the redundant SW supply line to the chiller. The cause of the event was due to an inadequate SW water supply from the operating header due to the inadequate capacity of one header. Initial corrective action included elimination of the option to valve out one of the two supply headers. Additional corrective action included modification of the SW supply lines to the chiller header. The inspector verified that initial corrective actions were accomplished and has also been monitoring the modification of the SW system supply to MER3. The inspector considers that the modification is appropriate corrective action for the issue. This LER is closed.

(Closed) LER 280/89-25, Unplanned ESF Actuation, Auxiliary Vent Dampers Realigned During Performance of ST-260 Due to Improper Jumper Installation. The issue involved the unplanned actuation due to an inadvertent personnel error in the installation of a jumper for testing. Initial corrective action was to remove the jumper and restore the system to its required configuration. Additional corrective action was to review the jumper installation and to select a different location which would be less susceptible to inadvertent contact with other terminal points. After reinstallation at the new location, the subject test was completed satisfactorily. The inspector reviewed the event and the corrective action. This LER is closed.

(Closed) LER 280/89-26, Turbine Trip/Reactor Trip on Hi-Hi Steam Generator Level Following Turbine Runback Caused by a Blown Fuse in NI-41. The issue involved a reactor trip due to a blown fuse. The event was discussed in NRC Inspection Report 280, 281/89-21 and resulted in a violation for failure to provide adequate procedure for calibration of power range nuclear instrumentation. The licensee's immediate corrective

actions were reviewed prior to unit restart. Additional corrective actions will be reviewed as part of the violation closeout. This LER is closed.

(Closed) LER 280/89-27, Unplanned Engineered Safety Features Component Actuation, Closure of Containment Isolation Valve, Due to Containment Gaseous Radiation Monitor Alarm. The issue involved a containment isolation valve closure due to a containment gaseous radiation monitor alarm. The alarm resulted from a slight buildup in containment gaseous activity (Unit 1 had returned to power operation). No abnormal activity buildup had occurred and a new alarm setpoint was calculated. The inspector reviewed the LER, the activity conditions at the time of the alarm, and the licensee actions. This LER is closed.

(Closed) LER 280/89-28, EDG Underground Fuel Oil Tanks Access Plugs Removed With No Administrative Control Due to Inadequate Procedure. The issue involved removal of both of the EDG underground fuel oil plugs to permit sampling of the fuel oil tanks. The plugs are required for missile protection in the event of a tornado or strong winds. The plugs were reinstalled and the chemistry sampling procedure was revised to assure that administrative control was maintained when the plugs were removed. The inspector reviewed the procedure and verified that proper control of plug removal is maintained when plugs are removed for sampling. This issue is identified as an NCV (280/89-34-05) for failure to maintain administrative control of EDG plugs during sampling evolutions. This LER is closed.

(Closed) LER 280/89-29, Intake Canal Level Instrumentation Inoperable Due to Installation of Stop Logs in the Intake Structure and Channel not Placed in Trip. The issue involved installation of the subject logs and inoperability of required instrumentation when required by TS. This item was fully discussed in NRC Inspection Report 280, 281/89-21 and resulted in a violation for failure to place the inoperable instrument channel in trip as required by TS. The licensee's immediate corrective actions were reviewed which included placing the inoperable channel in trip and counseling of operators. Additional corrective actions will be reviewed as part of the violation closeout. This LER is closed.

(Closed) LER 280/89-30, Charging Pump Service Water Air Bound After Air Entered the Service Water System. The issue involved air binding of the subject pumps due to system configuration. Corrective actions have included modifications to the system to include larger supply lines and additional vents on high points. The inspector reviewed the LER and has verified that the stipulated modifications have been made. This LER is closed.

(Closed) LER 280/89-31, Charging Pump Service Water Pumps Air Bound and Control Room Chillers Trip After Air Entered the Service Water System. The issue involved air binding of several safety related pumps resulting in the subject condition. This event was fully discussed in NRC Inspection Report 280, 281/89-21. Corrective actions resulting from this

event have included modifications to the service water system to include larger supply lines, additional venting of critical high points, and additional procedural guidance to operators on venting of the lines. The inspector reviewed the LER and has verified that the stipulated modifications and procedure enhancements have been made. This LER is closed.

(Closed) LER 280/89-32, ECST Below Technical Specification Minimum Required for Auxiliary Feedwater Cross Connect Availability for Unit 1 Due to Personnel Error. The issue involved operators allowing the improper lowering of ESCT level. This item was fully discussed in NRC Inspection Report 280, 281/89-21 and resulted in a violation for failure to maintain the ECST level at or above the specified limit as required by TS. The licensee's immediate corrective actions were reviewed which included refilling the tank to the required level and counseling of operators. Additional corrective actions will be reviewed as part of the violation closeout. This LER is closed.

(Closed) LER 280/89-33, Unplanned Engineered Safety Features Component Actuation, Auxiliary Ventilation Fans Tripped Due to Low Air Pressure Created by Leaking Actuators. The issue involved an ESF actuation due to a combination of leaking actuators and operation of other ventilation dampers resulting in lowering of air pressure on the header. This pressure decrease actuated the pressure switches which resulted in the ESF actuations. Corrective actions are ongoing which include repairs to leaking components in the instrument air system and a continuing evaluation of this system by the system engineers for enhancement. The inspectors have monitored the instrument air upgrades and engineering reviews and consider that adequate progress is being made in this area. This LER is closed.

(Closed) LER 280/89-34, Failure to Sample Service Water From Component Cooling Heat Exchangers Within Twelve Hours Due to Personnel Error. The issue involved a failure to sample the SW from the subject heat exchangers within the timeframe required by TS. The licensee took specific corrective actions after this event which included operator requirements to log sample times and also the next time the sample is required to be taken. The inspectors have verified that this corrective action is being accomplished. However, several other past LERs were identified in the "Similar Events" section of this LER. Those LERs were also a result of failure to take required samples in accordance with TS. Causes for failure to sample within the required period were identified as sample technician personnel errors, and other equipment/personnel errors. It should also be noted that the reason sampling is required for these areas is due to the inoperability of the normal radiation monitoring equipment. Since failure to conduct required sampling in accordance with TS was identified as an NCV in NRC Inspection Report 280, 281/89-31, this repeat of a failure to sample the SW effluent of the CCW HX as required by TS is identified as a violation (280, 281/89-34-03). This LER is closed.

(Closed) LER 280/89-36, Reactor Protection Permissive Circuit P-10 Suspected of Not Being Tested Per TS Surveillance Requirements. The issue involved the licensee's failure to perform required TS surveillance. Corrective actions included performance of the surveillance within the next 24 hours. The inspector verified reperformance of the required surveillance and the revision to the applicable PT. This issue was discussed in NRC Inspection Report 280, 281/89-34. In that report, a violation was cited for failure to follow TS requirements when determining that the subject surveillance had been missed. This LER is closed.

(Closed) LER 281/89-03, "B" Charging Pump Automatically Started After Control Switch Disengaged From the Pull-to Lock Position. The issue involved an operator bumping the control switch out of the pull-to-lock position which resulted in the pump start. The pump switch was immediately placed back in the pull-to-lock position. The event was reviewed by operations supervision and the operator involved in the event. The inspector reviewed the LER and discussed actions with operations supervision. This LER is closed.

(Closed) LER 281/89-04, Unplanned ESF Component Actuation, Spurious RMT Initiation Caused by Inadvertently Energizing Relay While Placing Electrical Jumper. The issue involved inadvertent actuation of a relay while placing a jumper on an adjacent terminal in support of other work. The event was reviewed by station management and the cause was discussed. A management directed evaluation of the event concluded that an alternate method for performance of this test was appropriate. The inspector monitored the licensee's actions during evaluation of this event. This LER is closed.

Within the areas inspected, one violation and two non-cited violations were identified.

8. Action on Previous Inspection Findings (92701, 92702)

(Closed) TI2515/93, Inspection for verification of quality assurance request regarding diesel generator fuel oil (Multi-plant action item A-15). During this inspection period, the inspector reviewed documentation obtained from the licensee which addressed the subject issue. The documentation, an internal memorandum from the Technical Services Superintendent through the Station Manager to file dated April 29, 1980, stated that a new PT 38.39 had been generated to provide for oil sampling and to document the results. The PT met the intent of Regulatory Guide 1.137. The inspector also discussed the current program with the chemistry supervisor and reviewed several PTs which were recently performed with regards to sampling of fuel oil. The inspector considers that the licensee has accomplished the actions to insure that DG fuel is being procured and sampled as required by Regulatory Guide 1.137. This item is closed.

(Closed) TI2515/94. Inspection for verification of licensee changes made to comply with PWR moderator dilution requirements (Multi-plant action item B-03). During the inspection period, the inspector reviewed documentation obtained from the licensee which addressed the subject issue. The licensee, by letter dated December 1, 1977, informed the NRC that they neither considered the issue to be serious nor credible for the Surry facility. Further documentation from the licensee dated July 2, 1980 and June 1, 1981 stated that administrative procedure changes were made at Surry to increase required shutdown margin in order to provide the required operator action time when the RHR system was in service. The NRC, in a letter to the licensee dated June 8, 1981 accepted the licensee's action and concluded that no further action regarding this issue was necessary. The inspector verified that the administrative procedure changes referenced above were in effect. This review included discussions with the corporate engineers responsible for analysis of the subject area. In addition, operations procedure 1-OP-1F, Shutdown Margin Calculation, was reviewed and verified to contain the required controls to insure that shutdown margin was being maintained as required. This item is closed.

(Closed) URI 280, 281/89-31-02, Followup on Safety Injection Check Valve Gasket Failure. The inspector continued the effort regarding the installation of incorrect gaskets in check valves. This unresolved item is closed based on the violation identified in paragraph 4.b of this report.

9. Exit Interview

The inspection scope and findings were summarized on November 28, 1989 with those individuals identified by an asterisk in paragraph 1. The following new items were identified by the inspectors during this exit:

Three violations were identified. The violations were:

- Failure to provide adequate procedures and/or instructions with three examples resulting in: (1) inoperability of the RCS accumulators (paragraph 3.b); (2) personnel contamination of three licensee employees during preparation for resin transfer evolutions (paragraph 3.b); and (3) inoperability of the recirculation spray system (paragraph 4.a). (281/89-34-01)

- Failure to implement adequate control measures to prevent the use of incorrect materials or parts (paragraph 4.b). This resulted in incorrect gaskets being in several safety related components. (280, 281/89-34-02)

- Failure to sample the SW effluent of the CCW HX as required by TS (paragraph 7). (280, 281/89-34-03)

Two non-cited violations were identified during closeout of LERs in paragraph 7. These violations were:

- One NCV was identified for failure to provide for adequate control of valve position required for proper operation of control room chillers. (280/89-34-04)

- One NCV was identified for failure to maintain administrative control of EDG plugs during sampling evolutions. (280/89-34-05)

The licensee acknowledged the inspection findings with no dissenting comments. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

10. INDEX OF ACRONYMS AND INITIALISMS

AFW	-	AUXILIARY FEEDWATER
ANSI	-	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	-	ABNORMAL OPERATING PROCEDURE
CAD	-	COMPUTER AIDED DESIGN
CAL	-	CONFIRMATION OF ACTION LETTER
CC	-	COMPONENT COOLING
CCW	-	COMPONENT COOLING WATER
CFR	-	CODE OF FEDERAL REGULATIONS
CLS	-	CONSEQUENCE LIMITING SAFEGUARD
CRO	-	CONTROL ROOM OPERATOR
CW	-	CIRCULATING WATER
DPI	-	DELTA PRESSURE INDICATORS
DR	-	DEVIATION REPORT
ECST	-	EMERGENCY CONDENSATE STORAGE TANK
EDG	-	EMERGENCY DIESEL GENERATOR
EHC	-	ELECTRO-HYDRAULIC CONTROL
EMP	-	ELECTRICAL MAINTENANCE PROCEDURE
ESF	-	ENGINEERED SAFETY FEATURE
ESW	-	EMERGENCY SERVICE WATER
EWR	-	ENGINEERING WORK REQUEST
F	-	FAHRENHEIT
GDC	-	GENERAL DESIGN CRITERIA
GPM	-	GALLONS PER MINUTE

HP	-	HEALTH PHYSICS
HX	-	HEAT EXCHANGER
HPSI	-	HIGH PRESSURE SAFETY INJECTION
HSD	-	HOT SHUTDOWN
IA	-	INSTRUMENT AIR
IE	-	INSPECTION AND ENFORCEMENT
IFI	-	INSPECTOR FOLLOWUP ITEM
IRSP	-	INSIDE RECIRCULATION SPRAY PUMP
IOER	-	INDEPENDENT OFFSITE EVALUATION REVIEW
IRPI	-	INDIVIDUAL ROD POSITION INDICATION
ISI	-	INSERVICE INSPECTION
LER	-	LICENSEE EVENT REPORT
LCO	-	LIMITING CONDITIONS OF OPERATION
LHSI	-	LOW HEAD SAFETY INJECTION
LOCA	-	LOSS OF COOLANT ACCIDENT
LOOP	-	LOSS OF OFFSITE POWER
MER	-	MECHANICAL EQUIPMENT ROOM
MOV	-	MOTOR OPERATED VALVE
MCR	-	MAIN CONTROL ROOM
NCV	-	NON-CITED VIOLATION
NOP	-	NORMAL OPERATING PRESSURE
NRC	-	NUCLEAR REGULATORY COMMISSION
NRR	-	NUCLEAR REACTOR REGULATION
OP	-	OPERATING PROCEDURE
ORS	-	OUTSIDE RECIRCULATION SPRAY
PCV	-	PNEUMATIC CONTROL VALVE
PI	-	PRESSURE INDICATOR
PM	-	PREVENTATIVE MAINTENANCE
PSI	-	POUNDS PER SQUARE INCH
PSIG	-	POUNDS PER SQUARE INCH GAUGE
PT	-	PERIODIC TEST
PWR	-	PRESSURIZED WATER REACTOR
QA	-	QUALITY ASSURANCE
QC	-	QUALITY CONTROL
RAI	-	RESIDENT ACTION ITEM
RCS	-	REACTOR COOLANT SYSTEM
RHR	-	RESIDUAL HEAT REMOVAL
RG	-	REGULATORY GUIDES
RO	-	REACTOR OPERATOR
RPS	-	REACTOR PROTECTION SYSTEM
RMT	-	RECIRCULATION MODE TRANSFER
RSHX	-	RECIRCULATION SPRAY HEAT EXCHANGER
RSS	-	RECIRCULATION SPRAY SYSTEM
RWP	-	RADIATION WORK PERMIT
RWST	-	REFUELING WATER STORAGE TANK
SCFM	-	STANDARD CUBIC FEET PER MINUTE
SER	-	SAFETY EVALUATION REPORT
SI	-	SAFETY INJECTION
SNSOC	-	STATION NUCLEAR SAFETY AND OPERATING COMMITTEE
SOV	-	SOLENOID OPERATED VALVE

SPDS	-	SAFETY PARAMETER DISPLAY SYSTEM
SRO	-	SENIOR REACTOR OPERATOR
SW	-	SERVICE WATER
TAVG	-	AVERAGE TEMPERATURE OF RCS
TI	-	TEMPORARY INSTRUCTION
TS	-	TECHNICAL SPECIFICATIONS
TSC	-	TECHNICAL SUPPORT CENTER
UFSAR	-	UPDATED FINAL SAFETY ANALYSIS REPORT
URI	-	UNRESOLVED ITEM
UV	-	UNDER VOLTAGE
VS	-	VENTILATION SYSTEM