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

Report Nos.: 50-280/89-38 and 50-281/89-38

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 1 and 2

Inspection Conducted: November 26 - December 31, 1989

Inspectors: S M. Stanley for 1-24-90
W. E. Holland, Senior Resident Inspector Date Signed

S M. Stanley for 1-24-90
J. W. York, Resident Inspector Date Signed

S M. Stanley for 1-24-90
L. E. Nicholson, Resident Inspector Date Signed

Approved by: M V. Shiraki 1-26-90
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, plant surveillance, licensee event report review, and followup on inspector identified items.

Certain tours were conducted on backshifts or weekends. Backshift or weekend tours were conducted on November 26, December 3, 10, 22, and 23.

Results:

During this inspection period, no violations or deviations were identified. A limited review of implementation of Revision 1A of the Emergency Operating Procedures was conducted. This review concluded that implementation of the revision was being accomplished in an adequate manner. However, a number of deficiencies regarding proper identification and/or labeling of plant components were noted. The licensee was aware of a general labeling degradation in the plant and is taking corrective actions in this area (paragraph 3.h). Several programmatic areas associated with heat trace circuitry and cleanliness control were reviewed during closeout of past enforcement issues. Progress towards implementation of corrective actions for these problems was determined to be satisfactory (paragraph 7). Also, during

closeout of enforcement actions relating to operators either not following procedures or operators not having adequate procedure to perform required evolutions, the inspectors noted increased attention to detail and personal accountability of operators for their actions (paragraph 7).

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 until December 21, when a manual trip was initiated due to a loss of the 'A' reserve station service transformer. The transformer was repaired and the unit returned to power operation on December 23, 1989. The unit operated at power for the remainder of the inspection period.

Unit 2 began the reporting period at power. The unit operated at power for the duration 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.

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 noted the temperature of the AFW pump discharge piping to ensure increases in temperature were being properly monitored and evaluated by the licensee.

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 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.

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 December 15, 1989, the licensee made a report in accordance with 10 CFR 50.72 concerning instrument loop accuracy uncertainty associated with low pressurizer pressure safety injection setpoint. The calculated instrument inaccuracy was determined to be outside of the TS limit for a SI initiation during a small steam line break accident inside containment. This finding was initially determined to be reportable due to identification of a potentially unanalyzed condition that could significantly compromise plant safety. A safety evaluation was completed by the corporate nuclear analysis and fuel division on December 20, 1989, and forwarded to the station. This evaluation concluded that an unreviewed safety question existed; however, additional information was provided to the inspector by the station manager on December 29, 1989. That information was that the specific type of accident identified as the original problem (small steam line break inside containment) was not considered as an accident requiring response of the safety injection system. Therefore, for all accidents requiring a safety injection initiation based on low pressurizer pressure initiation, the pressurizer pressure instrumentation was operable in its present condition. The inspector reviewed safety committee approved documentation confirming the above information that was provided. The licensee intends to change the FSAR, Chapter 14 to clarify this condition.

(2) On December 22, 1989 the licensee made a report in accordance with 10 CFR 50.72 concerning a Unit 1 manual reactor trip from full power. The trip was initiated following a fault on one of the three reserve station service transformers. This transformer was providing offsite power to one of the two Unit 1 safety busses. The fault was believed to have occurred when unusually high winds blew a piece of turbine building insulation onto the transformer wiring. This event is further discussed in paragraph 3.g of this report.

(3) On December 25, 1989, the licensee made a report in accordance with 10 CFR 50.72 concerning an inadvertent ESF actuation of the Unit 2 containment instrument air compressor suction trip valves. The actuation was caused by an operator trainee (who was under direct supervision of a licensed operator) inadvertently turning the radiation monitor for the Unit 2 containment manipulator off while performing a source check of the monitor. When the monitor was turned back on, a voltage spike was received which caused the ESF actuation. After verifying that no actual alarm condition existed, operators reset the alarm and reopened the isolation valves. This event will be reviewed by the residents during the LER closeout.

g. Followup on Events

The inspector responded to the site and followed events involving the Unit 1 trip that occurred on December 21 as discussed in paragraph 3.f.2 above. The unit was stable in hot shutdown when the inspector arrived. The review consisted of interviews with the operators involved and a walkdown of all control room indication and strip charts. The inspector concluded that operator response during the transient was appropriate. The inspectors also participated in the granting of discretionary enforcement on December 22 to allow Unit 1 restart without performing the reactor protection interlock tests required by TS 4.1.A.2.

The inspectors continued an overview of the unit restart by observing control room activity and monitoring the disposition of selected problems that occurred during the return to power. The reactor was declared critical at 2243 hours on December 22, and placed on line at 0151 hours on December 23. Startup activities were accomplished in a satisfactory manner.

h. Emergency Operations Procedures

During this inspection period, the licensee was in the final steps of upgrading the emergency operating procedures to revision 1A of the Westinghouse owners group EOPs. This process consisted of three stages. The validation stage consisted of writing the procedures and justifying any deviation from the owners guidelines. The next stage, verification, consisted of having two different operations teams evaluate the procedures on the simulator. Also during this stage, the procedures are walked down to verify that each of the steps can be effectively accomplished, that the labeling on the equipment and in the procedures is the same, etc. The third stage considers the findings from these evaluations in writing the final procedures.

The inspector walked down EOP 1-E-1, Loss of Reactor or Secondary Coolant, with QA and operations personnel. This procedure was completed through the validation stage and was in the verification stage. The inspectors noted three breakers that were not labeled the same as designated in the EOP, however, the operator was able to locate the breakers. Also noted, was one operation in the procedure that did not identify two valves by number nor the key required to unlock the valves. This condition resulted in some operator confusion.

These discrepancies were also noted by the licensee and identified as open items. The licensee compiles an open items list for each of the EOPs which have discrepancies identified during the verification process. This list was submitted with the final revision of the procedure to the SNSOC for final disposition and approval.

The inspector considers that the EOP revision process was being accomplished in an adequate manner. However, the number of deficiencies regarding improper identification and/or labeling of

plant components was noted. The licensee was aware of a general labeling degradation in the plant and is taking corrective actions in this area. This area will be further evaluated during an NRC team inspection at a later date.

Within the areas inspected, no violations were 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. Main Control Room Chiller Service Water Pump.

The inspector witnessed the repair of the service water pump motor 1-VSS-PMO-1C that provides coolant to a main control room chiller unit. The flexible power cable that connects to the motor junction box failed when a welder connected a ground cable to an adjacent flange and the motor power cable took the current. The flexible cable was replaced under work order 3800088469 in accordance with maintenance procedure EMP-C-EPL-12. The inspector witnessed the cable replacement and associated installation of cable splices. No discrepancies were identified.

b. Component Cooling Water Heat Exchanger

On December 13, 1989, the inspector witnessed the cleaning of component cooling water heat exchanger 1-CC-E-1C under work order 3800089102. The appropriate procedure, MMP-C-HX-277, Tube Sheet and Channel Cleaning For Bearing and Component Cooling Heat Exchangers, was reviewed and the initialling of various steps was witnessed. The inspectors reviewed tagging, torquing, radiation work permit, materials accountability, and the final cleanliness inspection. No discrepancies were identified.

c. Modifications to Service Water Piping to MER3.

During this inspection period, the inspectors continued to monitor the implementation of the subject modification. Past inspection effort in this area was discussed in NRC Inspection Reports 280, 281/89-31 and 280, 281/89-34. Progress during this month included installation of the Unit 2 SW line from supply valve 2-SW-474 to the new SW manifold that has been installed in MER4. In addition, the last entry into the TS LCO which authorized use of the temporary SW supply line was accomplished on December 19, 1989. The inspectors continued to monitor work at the jobsite in the turbine building and MER3. After completion of all work associated with TS LCO requirements, the inspector walked down the new piping to verify installation in accordance with operational requirements. No discrepancies were noted.

Within the areas inspected, no violations were identified.

5. 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 Diesel Generator No. 2

On November 30, 1989, the inspector witnessed the monthly operability test of the Unit 2 EDG performed in accordance with periodic test 2-PT-22.3B. This test verified that the appropriate fuel transfer pumps and lines were operable as required by TS 4.6A-1C. In addition, the test verified operability of the air start system. The EDG was run for over six hours with parameters recorded during that period. The inspector witnessed the EDG start and recording of data. No discrepancies were identified.

b. Hydrogen Analyzers

On December 21, 1989, the inspectors observed the surveillance test being performed on the hydrogen analyzers. This test was being conducted using periodic test procedure 1-PT-2.43, Hydrogen Analyzer (H2-GW-104), dated July 27, 1989. This test is conducted on a frequency of 31 days as specified in TS Table 4.1-2A. The purposes of the test are to ensure that the containment hydrogen monitor is functional and to ensure the actuation of the annunciators. The inspectors reviewed portions of the procedure and observed the actuation of the annunciator in the control room annex. Also, various instruments and charts concerning this test were observed in the control room. No discrepancies were identified.

c. Turbine Inlet Valve Stroke Testing

On December 26, 1989, the inspector witnessed selected portions of the subject test. The test was being performed on Unit 2 using periodic test procedure 2-PT-29.1, Turbine Inlet Valve Stroke and Oil Pump Auto Start Tests dated July 19, 1989. The test is conducted

monthly and requires that the unit power level be reduced to less than that required to fully close one governor valve. The inspector verified that the test procedure was being followed as required and witnessed the testing of the reheat and intercept valves. During the test a problem was encountered with the testing circuitry for one of the governor valves (GV-1). The inspector monitored discussions between the system engineer and operations personnel on how to resolve the problem and noted that the procedure was properly changed to conduct the required evolutions to satisfactorily complete the testing of this governor valve.

On December 27, 1989 the inspector reviewed the completed test procedure 2-PT-29.1 and noted that all documentation was completed as required and that the periodic test results were satisfactory. No discrepancies were noted.

Within the areas inspected, no violations were identified.

6. 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.

(Closed) LER 281/89-07, Manual Reactor Trip Initiated to Reset Control Rods After Improper Bank Overlap Noted During Reactor Startup. The issue involved operators noting an improper bank overlap between the A and B control rod banks during reactor startup. Immediate actions included a manual reactor trip to insert all control rods into the core and resetting of the rod step counters to 0. The reactor remained subcritical during the event. Troubleshooting was conducted on the rod control system to include the bank overlap controller. No problems were noted. The reactor startup was resumed and no problems were encountered with the control rod bank overlap during the subsequent startup. Resident inspectors were in the control room during the event and monitored all licensee actions to include troubleshooting and subsequent startup. No discrepancies were noted. This LER is closed.

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

a. (Closed) TI2515/104, Fitness-For-Duty: Inspection of Initial Training Programs. On December 14, 1989, one resident inspector attended a licensee FFD training session for general employees. The session covered policy awareness training for all non-supervisory employees who were badged to enter the protected area. The training also included FFD escort training. On December 15, 1989, another resident inspector attended one licensee FFD training session for supervisors.

During the training periods, the inspectors monitored the class attention and participation in the sessions. They also completed the required checklist for each type of training to assure that the scope of training was as required by 10 CFR 26, the FFD rule, and that the FFD requirements were delineated in the procedure. The inspectors consider that these training sessions were accomplished in a satisfactory manner. This item is closed.

b. (Closed) URI 280, 281/87-09-01, Clarification of Requirements for Flushing Sensitized Stainless Steel Pipe. The issue involved the adequacy of flushes performed by surveillance test procedures to comply with TS 4.1.E. The inspector concluded that certain portions of the sensitized piping in the safety injection system were not being flushed due to dead leg configurations. The licensee performed an engineering study (Technical Report ME-0009) which concluded that although the current flush procedures do not cover all sensitized piping, adequate flushing is being performed if credit is taken for the normal testing of various pumps. These pumps draw water from the refueling water storage tank, which is sampled for chlorides and fluorides.

As a result of increased industry concerns regarding problems with stainless steel piping, the licensee performed an independent review (NES NO. NP-1370B, dated December 15, 1989) of the adequacy and need for the sensitized stainless steel flushing requirements identified by TS 4.1. This study included a recommendation to increase the scope of the Inservice Inspection Program to envelope the piping in question. The licensee reviewed this program and concluded that the subject piping is currently monitored under this program, and a review of the repair histories indicated that no prior significant repair work has been required.

The inspector reviewed the reports mentioned above and discussed the conclusions with appropriate licensee staff and management. The licensee has established an internal goal to submit a TS revision that reflects the above findings in March, 1990. The TS requirements as they are currently written are vague as to the extent and effectiveness of the flushes. The inspector concluded that the actions taken by the licensee are adequate until a TS clarification can be processed. This item is closed.

c. (Closed) VIO 280, 281/88-04-01, Failure to Maintain and Verify Operability of Heat Trace Circuitry for Boric Acid Flowpaths as Required by TS. NRC Inspection Report 280, 281/88-04 identified violations pertaining to the operability and testing of the CVCS heat trace circuits. Section 3.2 of the TS requires in part that two channels of heat tracing be maintained operable or repaired within 24 hours. The inspectors identified numerous examples of inoperable channels exceeding the 24 hour time period. In addition, TS section 4.1.A requires a monthly verification of operability on the appropriate heat trace circuits. The inspectors found that the test

used to satisfy this requirement was inadequate and did not enable verification of operability. The licensee was informed of this violation via letter, dated June 13, 1988, and responded with their corrective actions in a letter dated July 13, 1988.

The inspector reviewed the licensee commitments contained in their response and verified compliance with the proposed action plan. The licensee has demonstrated an increased sensitivity toward problems in the heat trace system. Weekly meetings are held to assess the progress of system repair and identify additional actions required to maintain a fully operable system. The inspector reviewed the operations procedures that are used to classify whether a heat trace circuit is required by TS and assign an appropriate priority to repair and consider them adequate. In addition, the inspector reviewed the surveillance procedures used to ensure operability of the system.

An additional issue with this system was the disregard for the heat trace trouble control room annunciator that remained illuminated for an extended period of time. Progress has been made by removing the circuits from this annunciator that are not required by TS. In addition, engineering work request 89-529 is currently working to change the circuit setpoint in an effort to prevent an under temperature condition and to reduce the number of alarms received in the control room.

The inspector concluded that adequate attention is being placed on the repair and testing of the CVCS heat trace system. Although it is apparent from the number of work orders remaining that additional work is necessary, the licensee is routinely reviewing and prioritizing these work orders in a satisfactory manner. This item is closed.

d. (Closed) IFI 280, 281/88-18-03, Followup on Implementation of the Procedure Upgrade Program. This item was initially discussed in NRC Inspection Report 280, 281/88-18. In that report, the licensee was in the process of implementing of a Procedure Upgrade Program for technical procedures at the station. Since that time, the licensee has staffed the procedure writers group with the necessary personnel to upgrade the procedures, written the necessary administrative guidance to rewrite the technical procedures, and is in the process of implementing the program. The program will involve approximately 6500 technical procedures and is called the TPUP.

The inspector has held several discussions with the licensee management responsible for the program and considers that proper management attention is being given this area. A comprehensive tracking process is in place and the program is expected to be completed in approximately 5 years. This area was also addressed in NRC Inspection Report 280, 281/89-36. Additional inspections of procedure improvements will be conducted as a part of other inspection activities. This item is closed.

e. (Closed) VIO 280, 281/88-28-01, Failure to Provide Adequate Procedures, and/or to Follow Procedures for Cleanliness and Foreign Material Exclusion with Regard to Maintenance/Modifications on Safety-Related Systems. NRC Inspection Report 280, 281/88-28 identified several examples of the subject violation pertaining to cleanliness/foreign material exclusion which indicated a programmatic breakdown in this area. The inadequate procedural controls which were identified at the time of the inspections and the discovery by the licensee of foreign material in the pump suction flow paths of both the Recirculation Spray and Safety Injection Systems resulted in issuance of a Civil Penalty violation. The licensee was informed of this violation via letter, dated November 10, 1988, and responded with their corrective actions in a letter dated December 9, 1988.

The inspectors reviewed the licensee's response to the violation and noted that the licensee agreed that they had failed to implement an adequate foreign material exclusion program for plant modifications and maintenance. Immediate corrective actions taken were: 1) Cleaning of both the Unit 1 and 2 sumps; 2) repair and replacement of the sump screens; 3) inspection of the safety-related suction piping connected to the sumps; and 4) evaluation of operability of the safety-related pumps subjected to the debris. The inspectors verified that all of the above corrective actions were accomplished.

In addition, the licensee instituted generic corrective actions for the cleanliness problems to include: 1) revision of construction work procedures to include appropriate cleanliness constraints; 2) revision of the nuclear engineering standard procedure for preparation of design change packages; and 3) implementation of a station administrative procedure to provide for cleanliness requirements to the maintenance department. In addition, the licensee processed a TS change which requires inspection of the containment sumps during each major outage involving work in the containments. The inspectors have reviewed all the administrative procedures for the revisions discussed above and considers them to be adequate. The inspectors have also reviewed the TS change which was implemented as Amendment 132 in September 1989. The inspectors also reviewed several maintenance procedures in the past few months and consider that the corrective actions for this violation are being implemented. This item is closed.

f. (Closed) VIO 280, 281/88-51-01, Failure of Operations Personnel to Follow Procedures and/or Inadequate Procedures. NRC Inspection Report 280, 281/88-51 identified several examples of the subject violation with regards to operators either not following procedures or operators not having adequate procedure to perform required evolutions. The improper operations involved different safety-related components on 6 different occasions within a timeframe of approximately 10 days. The licensee was informed of this violation via letter, dated February 23, 1989, and responded with their corrective actions in a letter dated March 23, 1989.

In their response to the violation, the licensee stated that the reason for the violation was inadequate procedures and insufficient attention to plant component status and systems configurations by operations personnel. In addition, there was an apparent misunderstanding of the importance of the danger tagging process by some station personnel and/or contractors. Corrective actions taken by the licensee included: 1) face-to-face meetings between station management and operations personnel reemphasizing the importance of high work standards, adherence to procedures, and personal responsibility for attention to detail; 2) reinstruction of station employees and contractors on the significance of danger tagging and the importance of not disturbing tagged components; 3) removal of operators from watchstanding duties if he or she has been involved in an operational error until station management accepts the operators written account of the event and agrees that recommended corrective actions are adequate; 4) minimizing the number of licensed personnel assigned to shift for recertification watches; and 5) issuance of operating standards documenting management expectations of the operations staff. In addition, an Abnormal Plant Status Log was implemented which documents off-normal system configurations.

The inspectors have closely monitored the licensee's corrective actions for this violation. This includes passive involvement in management reviews of events with operators, discussions with station personnel with regards to their understanding of the danger tagging process, frequent reviews of the Plant Status Logs in the control room, monitoring of operating shift personnel makeup, and reviewing the operating standards documenting management expectations. The inspectors consider that personal accountability for actions has improved due to these corrective actions. However, continued attention to detail is a requisite to safe operation and must continuously be stressed by all levels (management, supervision, and peers) at the station. The inspectors consider that the licensee's corrective actions were adequate and continue to be effective. This item is closed.

8. Exit Interview

The inspection scope and results were summarized on January 3, 1990, with those individuals identified by an asterisk in paragraph 1. No new items were identified by the inspectors during this exit.

The licensee acknowledged the inspection conclusions 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.

9. INDEX OF ACRONYMS AND INITIALISMS

AFW	-	AUXILIARY FEEDWATER
ANSI	-	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	-	ABNORMAL OPERATING PROCEDURE
CAD	-	COMPUTER AIDED DESIGN
CC	-	COMPONENT COOLING
CCW	-	COMPONENT COOLING WATER
CFR	-	CODE OF FEDERAL REGULATIONS
CLS	-	CONSEQUENCE LIMITING SAFEGUARD
CVCS	-	CHEMICAL AND VOLUME CONTROL SYSTEM
CW	-	CIRCULATING WATER
DPI	-	DELTA PRESSURE INDICATORS
DR	-	DEVIATION REPORT
EDG	-	EMERGENCY DIESEL GENERATOR
EHC	-	ELECTRO-HYDRAULIC CONTROL
EMP	-	ELECTRICAL MAINTENANCE PROCEDURE
ESF	-	ENGINEERED SAFETY FEATURE
ESW	-	EMERGENCY SERVICE WATER
EWR	-	ENGINEERING WORK REQUEST
EOP	-	EMERGENCY OPERATING PROCEDURES
FFD	-	FITNESS FOR DUTY
FSAR	-	FINAL SAFETY ANALYSIS REPORT
GDC	-	GENERAL DESIGN CRITERIA
GPM	-	GALLONS PER MINUTE
HP	-	HEALTH PHYSICS
HX	-	HEAT EXCHANGER
HPSI	-	HIGH PRESSURE SAFETY INJECTION
IA	-	INSTRUMENT AIR
IFI	-	INSPECTOR FOLLOWUP ITEM
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
MMP	-	MECHANICAL MAINTENANCE PROCEDURES
MER3	-	MECHANICAL EQUIPMENT ROOM 3
MER4	-	MECHANICAL EQUIPMENT ROOM 4
MOV	-	MOTOR OPERATED VALVE
MCR	-	MAIN CONTROL ROOM
NCV	-	NON-CITED VIOLATION
NES	-	NUCLEAR ENGINEERING SERVICES
NRC	-	NUCLEAR REGULATORY COMMISSION
OP	-	OPERATING PROCEDURE
ORS	-	OUTSIDE RECIRCULATION SPRAY
PCV	-	PNEUMATIC CONTROL VALVE
PI	-	PRESSURE INDICATOR

PM	-	PREVENTATIVE MAINTENANCE
PSIG	-	POUNDS PER SQUARE INCH GAUGE
PT	-	PERIODIC TEST
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
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
TPUP	-	TECHNICAL PROCEDURE UPGRADE PROGRAM
TS	-	TECHNICAL SPECIFICATIONS
TSC	-	TECHNICAL SUPPORT CENTER
UFSAR	-	UPDATED FINAL SAFETY ANALYSIS REPORT
URI	-	UNRESOLVED ITEM
UV	-	UNDER VOLTAGE
VIO	-	VIOLATION
VS	-	VENTILATION SYSTEM