UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-369/94-20 and 50-370/94-20

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242-1007

Docket Nos.: 50-369 and 50-370

License Nos.: NPF-9 and NPF-17

Facility Name: McGuire Nuclear Station 1 and 2

Inspection Conducted: August 21, 1994 - September 24, 1994

Inspectors: for George F. Maxwell, Sr. Resident Inspector — October 12, 1994 (Date Signed)

Garry A. Harris, Resident Inspector
Marvin D. Sykes, Resident Inspector
Rani L. Watkins, Project Engineer
Milton B. Shymlock, Section Chief, DRS

Approved by: Marvin V. Sinkule — 10/12/94 (Date Signed)
Marvin V. Sinkule, Chief, Branch 3
Division of Reactor Projects

SUMMARY

Scope: This routine resident inspection was conducted in the areas of plant operations, maintenance, engineering, plant support and followup on previous inspection findings. Some of the inspections were conducted during backshift hours.

Results: In the area of operations, control of plant conditions during Unit 1 reduced inventory/midloop were comprehensive and appropriate (paragraph 3.a). During Unit 1 fuel unload and reload, communications, coordination and safety focus were adequate (paragraph 3.b).

ENCLOSURE

In the area of maintenance, safety focus, management involvement and problem identification associated with repairs to the 1A DG Voltage Regulator were thorough and professional (paragraph 4.a).

In the area of engineering, modifications were made to improve reliability of Unit 1 main feedwater regulating valve (paragraph 5.a). Also, a modification to the DG starting air system was initiated to improve system reliability (paragraph 5.b). However, a weakness continues to exist in the performance of surveillance testing; an inspector follow-up item was documented (paragraph 5.b).

In the area of plant support, concerning the Emergency Planning Zone study meeting was held between local and state officials and the licensee. The inspectors concluded that the meeting was well organized and conducted in a professional manner, and the licensee's assessment of the EPZ population increase appeared to have been thorough (paragraph 6.).

REPORT DETAILS

1. **PERSONS CONTACTED**

Licensee Employees

D. Baxter, Support Operations Manager
*A. Beaver, Operations Manager
J. Boyle, Work Control Manager
*D. Bumgardner, Work Control Manager
B. Caldwell, Training Manager
*R. Cross, Compliance Specialist
*T. Curtis, System Engineering Manager
*R. Deese, Safety Review Group
*T. Dimmery, Quality Director
E. Estep, INPO Coordinator
*E. Geddie, Station Manager
G. Gilbert, Safety Assurance Manager
*P. Herran, Engineering Manager
*A. Hinson, Engineering Supervisor
*D. Jamil, Electrical Engineer
*R. Jones, Superintendent of Operations
*B. Matthews, Engineering Supervisor
D. McGinnis, Work Process Manager
*T. McMeekin, Site Vice President
M. Nazar, Instr. & Elect. Maintenance Superintendent
*K. Reece, Instr. & Elect. Group
*J. Snyder, Regulatory Compliance Manager
*B. Taylor, ESSD Customer Support
*B. Travis, Component Engineering Manager
*R. White, Mechanical Maintenance Superintendent

Other licensee employees contacted included craftsmen, technicians, operators, mechanics, security force members, and office personnel.

NRC Resident Inspectors

*G. Maxwell, SRI
*G. Harris, RI
*M. Sykes, RI

*Attended exit interview

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

2. PLANT STATUS

a. Unit 1 Status

Unit 1 was in Cycle 9 refueling outage throughout this report period. Major activities completed or underway included: steam generator eddy current testing and repair, overhaul of the "C" reactor coolant pump motor, emergency diesel generator inspection and maintenance, reactor core offload and reload, steam generator sludge lancing, fuel assembly ultrasonic testing and reconstitution, and valve repair and replacement in the NI and ND systems.

b. Unit 2 Status

Unit 2 operated essentially at 100 percent power during the report period. At the close of this report period the unit had remained on-line for 260 continuous days. Calculated steam generator tube leakage had increased to approximately 6 gpd.

c. Inspections and Items of Interest:

During the week of August 29, inspectors were on site to perform an ISI Program inspection and to perform follow-up on a previously identified In-Service Testing item. These inspections will be documented in NRC inspection reports 50-369,370/94-19 and 50-369,370/94-18, respectively. Inspectors were also on site the week of September 12 to conduct a core Radiological Effluents and Chemistry inspection, which will be documented in NRC Inspection Report 50-369,370/94-21.

On September 21, Mr. H. Berkow, NRR Project Director, Mr. V. Nerses, McGuire Project Manager, NRR, and Mr. R. Martin, Catawba Project Manager, NRR, met with licensee senior management and participated in a plant tour.

3. OPERATIONS (NRC Inspection Procedures 71707, 60710 and 40500)

Throughout the inspection period, inspectors conducted facility tours to observe operations and maintenance activities in progress. The tours included entries into the protected area and radiologically controlled areas of the plant. During these inspections, discussions were held with operators, radiation protection technicians, instrument and electrical technicians, mechanics, security personnel, engineers, supervisors, and plant management. Some operations and maintenance activity observations were conducted during backshifts. Licensee meetings were attended by the inspectors to observe planning and management activities. The inspections confirmed Duke Power's compliance with 10 CFR, Technical Specifications (TS), License Conditions, and Administrative Procedures.

a. Unit 1 Reduced Inventory/Midloop Operations

On August 25, Unit 1 entered reduced reactor coolant system inventory conditions to place steam generator nozzle dams and removal of access manway covers. Unit 1 also entered reduced inventory on September 23 to facilitate plugging one tube in the 1D steam generator. The second draindown did not require the use of nozzle dams. Prior to these operations and during reduced inventory conditions, the inspectors reviewed the following specific items:

- The inspectors monitored licensee meetings and reviewed the schedule for entering reduced inventory conditions. The inspectors reviewed the planned work scheduled for the period of reduced/midloop conditions to identify any activity that might cause NCS level disturbances. The inspectors discussed controls and procedures in the control room during these conditions with Work Managers, Shift Supervisors, and Control Room operators.

- The inspectors attended operations shift briefings conducted before the refueling cavity was drained below the vessel flange level. These briefings were conducted by the operations staff manager to discuss procedural changes, management expectations and concerns with the operating shifts during reduced inventory/midloop operations. The inspectors concluded that these briefings adequately prepared the shift for the changing configurations.

- The inspectors verified that the "Defense in Depth" sheets, which assess plant status based on reactivity, decay heat removal capability, containment integrity, inventory, power availability, and spent fuel cooling, were completed during each shift by the Shift Work Manager. This information was reviewed by the licensee on a daily basis at the outage and morning meetings. The inspectors verified that these sheets accurately reflected the current plant systems' availability.

- The inspectors verified that the licensee would have two offsite power sources available and at least one emergency diesel generator available.

- The inspectors reviewed the licensee's controls for containment integrity and closure. Unit 1 was assigned a continuous containment closure coordinator to monitor the status of all closure exceptions and ensure that they could be promptly closed, if required.

- Two thermocouples were installed and operable to provide continuous indications of reactor coolant system temperature.

- The inspectors verified that at least two independent indications of reactor coolant system level were in place. In addition, the inspectors verified that ultra-sonic narrow range level instrumentation, with separate transmitters, was available in addition to the required instrumentation.

- The inspectors verified that two independent makeup paths for water were available. These included the ND system, gravity paths from refueling water storage tank, one safety injection pump, and one charging pump.

- The inspectors verified that controls were in place for an adequate reactor coolant system vent path prior to and during reduced inventory/midloop conditions. These controls were provided in Operating Procedure OP/1/A/6100/02, Enclosure 4.3, Step 3.5.

- The inspectors verified that contingency plans to re-power vital busses from alternate sources if primary sources were lost were adequate. To ensure that this operation could be successfully carried out, the licensee drafted a procedure titled "Crisis Contingency Guidance to Crosstie a Unit 1 Essential Bus From a Unit 2 Emergency Diesel Generator." This procedure was written specifically to accommodate the loss of the 1A DG prior to reduced inventory/midloop operations, which began on August 25. The inspectors verified that this contingency guidance could be implemented by operations personnel if required. The verification included interviewing operators and "walking down" the steps of the procedure to make sure that it could be successfully implemented.

In summary, the inspectors reviewed the licensee's administrative controls for entering the reduced inventory/midloop condition as well as the preparations for and draining of the reactor coolant system. As a result of the reviews, the inspectors considered the licensee's controls of plant conditions to be comprehensive and appropriately implemented. The inspectors noted that the licensee maintained adequate shutdown risk awareness and sensitivity.

b. Core Unload/Reload - Unit 1

Core unloading activities in the control room, reactor building, and fuel handling building were witnessed, and procedures governing these activities were reviewed. Operations and engineering personnel coordinated activities conducted in the fuel handling building and reactor building. During core unloading, continuous communication was sustained among the control room, fuel handling building, and reactor building crews. Core unloading and reloading operations were conducted in accordance with the applicable procedures, PT/0/A/4150/37 and PT/0/A/4150/33, respectively. Delays, caused by spiking of the source range

detector N31, that were encountered during fuel unload were not experienced during core reload (see paragraph 4.b).

Because there were indications of a leaking fuel rod, the licensee conducted ultrasonic testing of each assembly during and after core unload according to PT/0/A/4550/030, Ultrasonic Testing of Fuel Assemblies. One leaking rod was identified. The twice-burned assembly containing the leaking fuel rod was reconstituted and subsequently reloaded into the core. A determination was made by the licensee that the failure mechanism was debris-induced fretting. Over 200 pieces of copper weld material were removed during the last outage, 1EOC8, and fewer than 15 pieces of the material were removed during 1EOC9. The inspectors determined that the material, measuring approximately 1.5 inches in length and 0.03 inches in diameter, should not continue to jeopardize the integrity of the installed fuel.

Interviews were conducted with members of the fuel handling crew and reactor head crew. These individuals were aware of the safety significance of their duties as well as other plant activities that could have an impact on the core loading and unloading process. In summary, the inspectors determined the licensee's communication, coordination, procedural adherence, equipment performance, and safety focus to be adequate.

4. **MAINTENANCE** (NRC Inspection Procedures 62703, 61726 & 92902)

Selected surveillance tests were witnessed to verify that approved procedures were available and in use, test equipment in use was calibrated, test prerequisites were met, system restoration was completed, and acceptance criteria were met. In addition, resident inspectors reviewed and/or witnessed routine maintenance activities to verify, where acceptable, that approved procedures were available and in use, prerequisites were met, equipment restoration was completed, and maintenance results were adequate.

The following activities were reviewed and/or witnessed in detail:

a. Emergency Diesel Generator (DG) 1A

On August 21, DG 1A was run using Routine Surveillance Test Procedure PT/1/A/4350/01A, Diesel Generator 1A 24 Hour Operability Test. During the first 22 hours of the 24 hour surveillance run all systems were normal. The plant was in Mode 5 and being prepared for initial drain down of the Reactor Coolant System (NCS). At 8:29 a.m., the DG output voltage indicated HIGH. Attempts to lower the voltage from the control room and the local DG control panel were unsuccessful. Subsequently, the diesel was tripped, constituting a valid test failure.

During troubleshooting efforts, maintenance personnel examined the DG voltage regulator potential transformers and fuses, installed

new fuses in the isolation transformer, checked for grounds, and replaced the voltage regulator circuit board. The DG was then restarted to complete the test procedure. The voltage immediately indicated HIGH and the DG was immediately shut down. After additional inspection and troubleshooting, the DG was restarted. The DG's output voltage overshot and then returned to rated voltage. Shortly thereafter, the voltage began to rise and smoke was observed at the voltage regulator cabinet. Before the DG could be shut down, loud noises were heard and a "fire ball" was observed coming from the voltage regulator cabinet. The DG was stopped.

Because of extensive damage to the voltage regulator, it was removed and returned, along with replacement parts from the licensee's warehouse, to the manufacturer for examination and repair. After examining the components, the manufacturer concluded that the damage was caused by a failure of the regulator's isolation transformer, which resulted in phase to phase and phase to ground arcing at the voltage regulator cabinet. During the rework of the voltage regulator, it's isolation transformer was replaced with an improved model. Subsequently, the licensee examined the similar transformer on the 1B diesel and decided to replace it also with a newer model transformer. The inspectors noted that the original isolation transformers in the voltage regulators were both encapsulated type transformers. The replacement transformers were not encapsulated and thereby offered more heat dissipating capability. The inspectors concluded that the service life of the replacement transformers should therefore exceed that of the former model transformer.

The repaired 1A DG voltage regulator was returned to the site, re-installed, and tested. The inspectors witnessed reinstallation of the voltage regulator, which was conducted under Work Order #94063501. The inspectors also witnessed portions of the continuity tests and the 24 hour surveillance tests. The inspectors noted that maintenance and operations personnel conducted these tests in accordance with the approved test procedures.

Based on observations of the above activities, the inspectors concluded that the safety focus and management involvement was more than acceptable. Also, the problem identification was thorough and the quality of work and test activities were conducted in a professional manner.

b. Source Range Neutron Monitor N31

On September 2-7, core unloading was halted on several occasions because of frequent spikes on source range detector N31. This detector was one of two source range detectors required by TS to monitor core reactivity during refueling conditions. Because of the frequent spiking of the N31 detector, on-shift operators were

required to implement compensatory measures that included halting core unloading if the spiking indications persisted for more than three consecutive minutes. Core movement was stopped on numerous occasions because of spiking indications on this detector. Core unloading continued once the indications stabilized and the spiking was no longer present. The excessive spiking also actuated containment evacuation alarms, making it difficult for workers in the containment to distinguish between false and valid alarms. The licensee implemented a minor modification that disabled the input to the containment evacuation alarm from the N31 detector.

The inspectors concluded that, even though there were abnormal N31 indications, the licensee's compensatory measures to correct the problem were conservative in ensuring a safe core offload.

The licensee devised and implemented a plan to troubleshoot and diagnosis the problem; the plan included contacting the vendor for additional support. After extensive testing and investigation, the licensee determined that a fault existed in a section of detector cabling. The cable was replaced, and the detector was returned to service prior to core reload. The inspectors did not observe any detector spiking problems during reload operations. The licensee also has completed a safety evaluation to use previously installed wide range neutron flux instruments as a backup to the source range monitors during future core alterations.

c. Incore Thermocouple Column Funnel Inspection

To preclude similar events that occurred at another facility, the licensee performed an inspection of the incore thermocouple instrumentation column funnels during 1EOC9.

A video camera system was installed on the reactor vessel head flange in preparation for the reactor vessel head lift. The camera was designed to provide the reactor vessel head crew with a view under the head during the initial head removal and during setting of the head to prevent damage to the upper internals. The licensee attempted to use the same camera to conduct the under head inspection of the incore thermocouple funnel welds but was unable to perform an adequate inspection because of obstructions in the under head area.

Since the weld inspections could not be completed using the remote video camera, the licensee decided to perform a direct visual inspection to ensure that the funnel welds were satisfactory and that the thermocouple funnels were tight. The inspectors verified that adequate emphasis was placed on personnel exposure concerns because of the dose rates under the reactor vessel head. The inspectors noted that the engineer who was designated to conduct the direct inspection had extensive experience and was very

familiar with the reactor vessel upper head. On September 1, the engineer was outfitted with special dosimetry by Radiation Protection. Adequate lighting was provided to allow quick identification of the thermocouple funnels, and for use during inspection of the two welds on each thermocouple funnel. The direct inspection lasted for approximately 1 minute. While under the head, the engineer checked the two welds on each of the five thermocouple funnels and checked the five funnels for tightness. All ten welds were in good condition and all five thermocouple funnels were tight. Total personnel radiation exposure related to the inspection activities was 60 mRem.

Based on independent observations, evaluations, discussions, and review of the results of the licensee's inspections, the inspectors concluded that problems similar to those discussed in IN 94-40 do not exist on McGuire Unit 1. Further, the licensee's actions to address this potentially significant issue were timely and thorough.

d. Diesel Generator 24-Hour Run

The inspectors reviewed the test procedure, PT/1/A/4350/36A, and witnessed portions of the 1A DG 24 hour run. The surveillance required that the DG be started and loaded at 4400 KW for 2 hours and then at 3800 KW to 4000 KW for the next 22 hours. During the test, the inspectors noted that DG voltage, power factor, frequency and load were recorded at 30-minute intervals and were all within acceptable ranges. DG starting and loading times also met the acceptance criteria. Upon completion of the 24 hour run, the diesel was shutdown and restarted within five minutes to complete a hot restart test. The diesel was restarted and satisfactorily met the hot restart test acceptance criteria. The inspectors also witnessed portions of the 1B DG 24 hour run PT/1/A/4350/36B. No discrepancies were identified.

e. Replace 1A NI Pump Rotating Element

The licensee completed replacement of the 1A NI pump rotating element. This replacement followed the removal of the original rotating element. The original rotating element was removed from service and has been scheduled to be disassembled and examined. The licensee decided to require this examination as a result of the high number of pump starts associated with maintenance, testing and maintaining operability of the upper head injection system, and excessive charging of cold leg accumulators because of NI system check valve leakage. The high number of cycles on the NI system components was identified in Inspection Report 50-369,370/94-12 as an unresolved item.

The inspectors reviewed the applicable procedure, MP/0/A/7150/44, Safety Injection Pump Corrective Maintenance, while witnessing portions of the rotating element replacement. Replacement of the

pump rotating element was completed in accordance with the procedure. Following the replacement, the inspectors witnessed the completion of PT/1/A/4206/15A, 1A Safety Injection Pump Performance Test. The pump's performance was satisfactory and met all test acceptance criteria.

5. **ENGINEERING** (NRC Inspection Procedure 37551)

a. Main Feedwater (CF) Regulating Valve Controls

The licensee installed additional redundant controls to regulating valves 1CF-17,20,23, and 32. The work was conducted under modification NSM MG-12422. Dual 7300 control cards and pneumatic control schemes were added for each valve such that the control room operator will be allowed to select the train of controls to be used. The additional controls were provided to facilitate swapping to an alternate control in the event the normal controls are not working properly. The function and operating characteristics of the CF regulating valves were not affected by this modification, nor did it change the safety controls established for these valves.

The modification included replacing M/A stations on the Main Control Board, and adding driver cards and blocking diode cards to the non-safety 7300 cabinets, E/P converters, solenoid valves, valve positioners, and volume boosters for the valves. Existing electrical circuit breakers were used to provide power. The components added or altered under this modification were non-safety and were reviewed for seismic concerns and Appendix R requirements.

The inspectors observed installation and testing of the equipment and, after further review, concluded that this modification should improve feedwater regulating valve reliability.

b. Diesel Generator Starting Air System Upgrade

In an effort to improve DG reliability, the licensee performed a modification to the DG starting air (VG) system. The VG system provides fast start capability by using high pressure air to roll the diesel engine until it is firing on its own. The modification to the system was conducted under NSM MG-12279.

The modification included, but was not limited to, replacing the run/shutdown fuel rack cylinders and adding a mechanical piping crosstie between common VG subtrains. (Other portions of NSM MG-12279 are scheduled to be completed prior to the next Unit 1 outage, 1EOC10.) The licensee replaced the run/shutdown cylinders to allow the fuel racks to remain in the run position upon loss of VG. Prior to the modification, the fuel racks were designed to disengage and thereby shutdown the diesel upon a loss of VG. The modification also added a mechanical piping crosstie

between the common subtrains (A1/A2 and B1/B2). This crosstie allows one compressor subtrain to supply both starting air tanks. These tanks were designed to store a sufficient volume of air to start the diesel twice without assistance.

The remaining portions of the modification yet to be completed included replacing VG aftercoolers and air dryers on each subtrain to reduce the overall moisture content of the air stored in the VG system and minimize damage to engine components. This modification will also involve replacing some piping and components in the VG system with new stainless steel components. This replacement should minimize particulate accumulation and reduce system contamination from rust.

The inspectors observed portions of this modification and concluded that the DG system should be more reliable as a result of the modification.

c. Boric Acid Tank Diaphragm Missed Prescribed Conditional Surveillance

In early August, the inspectors discovered that the licensee had not performed a quarterly conditional surveillance for over a year on the Unit 2 boric acid storage tank diaphragm. An earlier design study conducted by the licensee revealed that the diaphragm could fail and possibly become entrained in the tank's outlet nozzle, rendering the boric acid pump inoperable. As a result, a conditional surveillance was prescribed by engineering to maintain the BAT operable. The recommended surveillance required that the volume of water on top of the diaphragm be determined, based upon visual inspection, as an indication of diaphragm failure. Upon immediate notification by the inspectors, the licensee inspected the diaphragm and determined that it had not degraded since the previous conditional surveillance inspection.

The BAT was designed to provide a source of boric acid to the reactor coolant system to control reactivity changes. Since an alternate boric acid injection flow path existed, failure to perform the prescribed surveillance had minor safety significance. However, the inspectors concluded that a weakness continues to exist in the performance of required surveillances to maintain equipment operable. This will be identified as Inspector Followup Item 50-369,370/94-20-01: Surveillance Testing.

d. (Closed) IFI 50-369,370/91-09-01: Lack of Adequate Coordination on 125 VDC Circuit Breakers. During the EDSFI, inadequate coordination on the 125 VDC system was identified. The inspector reviewed the scope for NSM MG-52428/P1, /P2, /P3, /P4. This is the modification that will be implemented to correct the coordination problems on the 125 VDC system. The modification is to replace the battery and main circuit breakers in each channel of the 125 VDC Vital Instrumentation and Control Power system's

distribution centers with fusible and non-fusible switches to improve overcurrent coordination. The circuit breakers will be replaced with a circuit breaker that has a higher instantaneous setting available. The inspector walked down those areas where the new equipment will be installed with a licensee engineer. The approach outlined in the modification package was adequate. A review of design data including breaker characteristic curves was also performed. This modification will include some temporary alignments to allow performance of the work. This alignment method was reviewed. All items reviewed were acceptable. Based on this review this item is closed.

e. (Closed) IFI 50-369,370/91-09-02 Ventilation Flow During Normal Diesel Operation: This item involved a high ambient temperature condition for the DG rooms. This high temperature could cause a potential adverse impact on safety-related equipment located in the rooms. During the summer months the rooms' ambient temperatures were near the 115°F design limit. Modifications (MM-3679 and MM-3680) were proposed to reduce the ambient temperature and provide more margin between the existing ambient temperature and the design limit. In August 1993 the licensee lowered the setpoint for the DG "keep warm" systems from 150°F to 110°F. The "keep" warm systems were a major contributor of heat in the rooms when the DGs were not operating. Trending of DG room temperatures from July to October 1993 indicated that room temperatures had decreased, providing an increased margin between ambient temperature and the 115°F design temperature. This item is closed.

6. **PLANT SUPPORT** (NRC Inspection Procedure 71750)

On September 13, the inspectors attended a meeting between local and state government officials and the licensee to observe discussions of the results of the licensee's recently conducted 10-mile Emergency Planning Zone (EPZ) study. The study included obtaining updated population data and analyzing a variety of worst-case and peak population scenarios. Assumptions used in the study appeared to be conservative and reliable. The results of the study indicated that the EPZ population had increased since the last study, which was conducted using 1990 census information. The EPZ evacuation time estimates had also increased by approximately 120 minutes. The licensee provided the results of the study to the state and local governments for their review and use.

The inspectors concluded that the meeting was well organized and conducted in a professional manner, and the licensee's assessment of the EPZ population increase appeared to have been thorough.

7. EXIT INTERVIEW

The inspection scope and findings identified below were summarized on September 26, 1994, with those persons in paragraph 1. The following items were discussed in detail:

Item Number	Status	Description and Reference
IFI 50-369,370/94-20-01	Open	A weakness continues to exist in the performance of required surveillances to maintain equipment operable (paragraph 5.c.).
IFI 50-369,370/91-09-01	Closed	Lack of adequate coordination on 125 VDC Circuit Breakers (paragraph 5.d.).
IFI 50-369,370/91-09-02	Closed	Ventilation flow during normal diesel operation (paragraph 5.e.).

The licensee representatives present offered no dissenting comments, nor did they identify as proprietary any of the information reviewed by the inspectors during the course of their inspection. The licensee was informed by the inspectors that two items discussed in paragraph 5 were closed.

8. ACRONYMS AND ABBREVIATIONS

CF	-	Main Feedwater
DG	-	Diesel Generator
E/P	-	Electrical/Pneumatic
EPZ	-	Emergency Planning Zone
gpd	-	gallons per day
IAE	-	Instrumentation and Electrical
IFI	-	Inspector Followup Item
IN	-	Information Notice
LCO	-	Limiting Condition for Operation
LER	-	Licensee Event Report
M/A	-	Manual/Automatic
NLO	-	Non-Licensed Operator
ND	-	Residual Heat Removal
NI	-	Safety Injection
NRC	-	Nuclear Regulatory Commission
NRR	-	Office of Nuclear Reactor Regulations
NCS	-	Reactor Coolant System
OMP	-	Operations Management Procedure
OSC	-	Operations Support Center
PIP	-	Problem Investigation Process
PT	-	Performance Test
RI	-	Resident Inspector

RO	-	Reactor Operator
SRI	-	Senior Resident Inspector
SRO	-	Senior Reactor Operator
TI	-	Temporary Instruction
TS	-	Technical Specification
TSC	-	Technical Support Center
URI	-	Unresolved Item
VDC	-	Volts, Direct Current
VG	-	Starting Air System