



UNITED STATES
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REGION II
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Report Nos.: 50-369/94-04 and 50-370/94-04

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

Docket Nos.: 50-369 and 50-370

License Nos.: NPF-9 and NPF-17

Facility Name: McGuire 1 and 2

Inspection Conducted: January 10-14, 1994

Inspector: [Signature]
F. N. Wright, Senior Radiation Specialist

2/11/94
Date Signed

Approved by: [Signature]
K. P. Barr, Chief
Emergency Preparedness Section
Radiological Protection and Emergency Preparedness Branch
Division of Radiation Safety and Safeguards

2/11/94
Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted to assess selected areas of the licensee's emergency preparedness program and response capability as follows: (1) response to site events in 1993, and (2) training. A review of Emergency Planning audits and corrective actions for Emergency Planning activities was also made. The inspection included a review of Emergency Planning issues previously identified during two AIT team inspections in September and December 1993.

Results:

In the areas inspected, one unresolved item (URI) was identified concerning inadequate Emergency Notifications to the NRC in accordance with NRC and licensee requirements. Four Inspector Follow-up Items (IFIs) were identified to:

1. Review licensee Emergency Response Organization (ERO) activation procedures for controls and guidance to ensure proper activation procedures are implemented and adequate ERO personnel and backups are available to respond to plant emergencies (Paragraph 2).

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2. Review licensee procedures to ensure adequate documentation of Emergency Preparedness (EP) Training lessons are adequately described and maintained (Paragraph 3).
3. Review licensee assessments and corrective actions for EP training deficiencies identified in Operator Examination Report 93-300 issued in August 12, 1993 (Paragraph 3).
4. Review training for individuals having the responsibility to make offsite emergency notifications (Paragraph 3).

Use of the licensee's Problem Investigation Process for corrective action tracking, determination of corrective actions, and verification of corrective actions did not appear to cause effective and timely corrective actions for EP issues identified by the NRC inspector.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *A. Beaver, Shift Operations Manager
- C. Bell, Technical Specialist, Nuclear Service Audits
- W. Byrum, Manager, Radiation Protection
- M. Cloninger, Emergency Planning
- K. Crane, Compliance
- *R. Cross, Technical Specialist, Compliance
- *R. Dean, SR Group
- *G. Gilbert, Manager, Safety Assurance
- *B. Hasty, Manager, Emergency Planning
- S. Helms, Nuclear Station Instructor
- *J. Jenkins, Operations Coordinator
- G. Johnson, Scientist, Radiation Protection
- *E. Kuhr, Nuclear Emergency Planning Consultant
- *L. Kunka, Engineer, regulatory Compliance
- *T. McGinnis, Director, Site Operations Training
- *T. McMeekin, Site Vice President
- *M. Nazar, Maintenance
- *J. Reavis, Emergency Planning
- *R. Sharp, Manager, Regulatory Compliance

Other licensee employees contacted during this inspection included engineers, operators, mechanics, security force members, technicians, and administrative personnel.

Nuclear Regulatory Commission

- *G. Harris, Resident Inspector
- G. Maxwell, Senior Resident Inspector
- *W. Miller, Ocone Project Engineer

*Attended exit interview

Abbreviations used throughout this report are defined in the last paragraph.

2. Response to Actual Site Events; Emergency Detection and Classification (82201) and Notifications and Communications (82203)

The program area of Emergency Detection and Classification was inspected to determine whether the licensee used and understood a standard EAL classification scheme. Requirements applicable to this area are found in 10 CFR 50.47(b)(4), Sections IV.B and IV.C of Appendix E to 10 CFR Part 50, and the licensee's Emergency Plan. The edition of the Emergency Plan in effect at the time of the current inspection was Revision 94-1, effective January 1, 1994.

The program area of Notifications and Communications was inspected to determine whether the licensee was maintaining a capability for notifying and communicating with plant personnel, offsite support agencies and authorities, and the population within the 10-mile EPZ. Requirements applicable to this area are contained in 10 CFR 50.47(b)(5) and (6), Section IV,D of Appendix E to 10 CFR Part 50, and the Emergency Plan.

The inspector reviewed licensee procedure documentation and records, interviewed licensee staff, tapes of communications made to the HOO in the NRC Operations Center, and reviewed NRC and licensee investigations into an events involving Unit 2 on August 31, 1993; September 27, 1993; and December 27, 1993.

a. Onsite Follow-up of August 31, 1993 Event

(1) Event Summary

On Tuesday, August 31, 1993, Unit 2 was in mode 3 progressing toward power operation following a refueling outage. At about 12:38 a.m., operations personnel received "Ice Condenser Lower Inlet Doors Open" alarm and a report from a radiation protection technician from inside containment that there was a steam leak in the area near "A" steam generator. A pipe cap had blown off a drain line downstream of "A" steam generator drain valve 2CF-130 while workers were attempting to repair the leaking pipe cap. One worker in containment was burned by the escaping steam and water mixture and was transported to University Hospital. The injured worker was treated and released that day and had not been contaminated with radioactive material.

The steam leak caused containment temperature and pressure to increase. Containment pressure reached 0.45 psig and Containment Average Temperature reached 133 degrees F. The increases in containment pressure caused some of the Ice Condenser doors to open. The operations staff ordered a containment evacuation and all personnel working in containment were accounted for.

TS LCO 3.6.1.4 required: "Primary containment internal pressure shall be maintained between -0.3 and +0.3 psig." The action statement for the LCO was: "With the containment internal pressure outside of the limits above, restore the internal pressure to within the limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours."

At about 1:15 a.m. on August 31, 1993, the licensee commenced RCS cooldown and depressurization pursuant to TS 3.6.1.4. The licensee notified the NRC Headquarters Operations Officer of a one inch steam leak in the containment of the Unit 2 reactor at approximately 1:44 a.m. in accordance with the NRC reporting requirements

10 CFR 50.72(b)(2) "Four-hour reports...", ii "Any event or condition that results a manual or automatic actuation of any engineered safety feature..." The resident inspector was also notified of the event and responded to the site.

During the steam leak, a temperature monitor for the Ice Bed reached a temperature of 32 degrees F on point number 4 of the Ice Condenser system recorder in the Control Room. TS LCO 3.6.5.1 required: "The ice bed shall be OPERABLE with: c. A maximum ice bed temperature of less than or equal to 27 degrees F." The action statement for the LCO was: "With the ice bed inoperable, restore the ice bed to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours."

At about 1:40 a.m. on August 31, 1993, operations personnel declared the Ice Bed inoperable in TS Action Item Log. The Ice Bed was declared inoperable due to temperature in the Ice Bed exceeding the 27 degree F limit in TS 3.6.5.1.c.

(2) Event Classification

NRC AIT Inspection Report 50-360. 370/93-20, Paragraph II.F.1, Notification: discussed possible considerations for implementing the Emergency Plan and the declaration of an Unusual Event due to the licensee's steam leak and resulting declaration of the Ice Bed inoperable. The inspector reviewed the licensee's classification requirements and actions.

Licensee requirements for declaring emergency classifications were defined in:

- "McGuire Nuclear Station Emergency Plan," Section D, "Emergency Classification System/EAL Basis Document"
- EPIP RP/0/A/5700/00, "Classification of Emergency," Enclosure 4.1, "Emergency Event List for Emergency Classifications"

As documented in the AIT report there were two EALs in Enclosure 4.1 of RP/0/A/5700/00 that might have required the licensee to classify the event as a Unusual Event (NOUE). Both EALs were identified under Event 4.1.10, "Other Abnormal Plant Condition," Initiating Condition 4, "Loss of ESF or Fire Protection System Function." The two EALs considered were:

- "Both trains of any ESF function found inoperable (if caused by fire see event number 4.1.7 - Fires and Security Actions, Site Area Emergency Classification).
AND
Load reduction or plant cooldown initiated in accordance with Tech Specs."
- "Less than minimum channels of ESF function operable.
AND
Load reduction or plant cooldown initiated in accordance with Tech Specs."

The definition of an Unusual Event in the licensee's Emergency Plan was: "Events are in progress or have occurred which indicate a potential degradation of the level of the safety of the plant."

The AIT inspection report noted that, during the event, the single Ice Condenser system was declared inoperable and a plant cooldown was initiated in accordance with the TS. The AIT concluded the event appeared to meet the intent of the EALs as a NOUE. However, the AIT Inspection Report also concluded the Ice Condenser system had functioned as expected and designed by reducing containment pressure and temperature.

The SRO that declared the Ice Bed inoperable reported that he was aware that the Ice Condenser still had the capacity to perform its designed function when the Ice Beds were declared inoperable. Following the event the licensee determined that only a small percentage of ice had melted during the event (approximately 2400 of the required 2,099,790 pounds) and the system was still capable of performing its designed function.

The NRC Resident Inspector reported that he had observed the licensee reviewing the emergency classification procedure during the event and licensee personnel made the determination that existing conditions had not met any of the EAL conditions for declaring an emergency classification.

Based on subsequent review, the inspector concluded the Ice Beds had properly functioned and that no emergency declaration was warranted in this specific case. The inspector also concluded that the safety significance of the event was minimal.

No violations or deviations identified.

b. Onsite Follow-up of September 27, 1993 Unusual Event

(1) Event Summary

On Monday September 27, 1993, the operations staff determined, through RCS leakage calculations utilizing procedure AP/2/A/4150/01B, "Reactor Coolant Leakage Calculation," that the RCS had an unidentified leakage rate of about 1.34 gpm at 9:14 a.m.

Licensee TS LCO 3.4.6.2 required: "Reactor Coolant System leakage shall be limited to: "b. 1 gpm UNIDENTIFIED LEAKAGE." The action statement for the LCO required: "... reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours."

Operations personnel attempted to find the source of the leakage using procedure AP/2/5500/10, "NC System Leakage Within the Capacity of Both Charging Pumps." The licensee made a second leak rate calculation at 10:22 a.m. which resulted in a 1.03 gpm unidentified leak rate. The licensee continued to search for the source of the leak but was unsuccessful in locating it.

(2) Event Classification

EPIP RP/0/A/5700/00, "Classification of Emergency," list classifications by event, initiating conditions, and EALs in Enclosure 4.1, "Emergency Event List for Emergency Classifications."

Event Category 4.1.1, "Primary Coolant Leak," Initiating Condition 1 "Any NC system leakage greater than Tech Spec limits in Modes 1-4" was considered for declaring a NOUE. The associated EAL was:

- "Greater than 1 gpm unidentified NC system leakage in modes 1-4
AND
 Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.6.2"

The licensee declared a NOUE at 4:40 p.m. in accordance with the Emergency Plan requirements above and commenced load decrease to mode 3 in accordance with TS 3.4.6.2. The licensee entered mode 3 at 7:13 p.m.

The licensee terminated the NOUE on Wednesday September 29, 1993, at 4:01 a.m. and made termination notifications to the State and local agencies at 4:05 a.m.

The inspector determined that the event was properly classified.

(3) Event Notifications

Following the classification of an event in accordance with procedure RP/O/A/5700/00, the Emergency Coordinator was required to enter one of the four emergency classification procedures. After determining the event met the conditions for determining an Notification of Unusual Event, the Emergency Coordinator entered RP/O/A/5700/01, "Notification of Unusual Event." Each of the four emergency classification procedures required the Emergency Coordinator complete the "Emergency Notification" form, included a copy of it, and referred the reader to procedure RP/O/A/5700/15 for instructions on completing the form. RP/O/A/5700/15, "Notifications to State and Counties" provided detailed information on completion of the "Emergency Notification" form and described the process for making emergency notifications to the State and local agencies. RP/O/A/5700/01 and also included a copy of the "Emergency Notification" form used to make the State and local agency emergency notifications.

The licensee was required by 10 CFR 50, Section IV.D of Appendix E to 10 CFR Part 50, the Emergency Plan, and RP/O/A/5700/01 to make the initial State and local agency notification within 15 minutes of the declaration of the emergency. The licensee was required by 10 CFR 50.72 to make notifications to the NRC within 1 hour after declaring one of the Emergency Classifications.

Each of the classification procedures referred the Emergency Coordinator to procedure RP/O/A/5700/10, "NRC Immediate Notification Requirements" for NRC notification. RP/O/A/5700/10 required the SS/Emergency Coordinator assure notification requirements were determined and notifications made utilizing Enclosure 4.2, "Checklist For Significant Event Notifications." The licensee was required by 10 CFR 50.72 (a)(1)(2) and (3) to notify the NRC not later than one hour after the time the licensee declares one of the emergency classes.

Notifications to State and local governments and the NRC were made at 4:42 p.m. and 5:05 p.m. respectively and in accordance with applicable requirements, according to information recorded in the licensee's completed procedures for the events.

Emergency Plan procedures were completed as required. Emergency notification messages to State and local agencies accurately reflected plant conditions and were made in accordance with the EPIP requirements.

c. Onsite Follow-up of December 27, 1993 Unusual Event

(1) Event Summary

On December 27, 1993, Unit 2 reactor and systems experienced a sequence of events beginning at 10:06 p.m. A partial list of the events included; a loss of offsite power (2B Offsite Power Bus), failed turbine generator runback, turbine overspeed, reactor power increased to 103 percent rated power, reactor trip, turbine trip. Both Emergency Diesel Generators started promptly and began black-out load sequencing. At about 10:14 p.m., there was a safety injection on pressurizer low pressure (1845 psig) due to excessive primary and secondary depressurization and cooldown. Low main steam line pressure (below 775 psig) caused a MSIV closure signal, but "B" MSIV did not close fully causing uncontrolled depressurization of the "B" steam generator which eventually boiled dry. Safety Injection was terminated at about 10:40 p.m. Offsite power bus 2A was restored at about 11:42 a.m., December 27, 1993, and the emergency buses were realigned to offsite power at about 12:32 a.m., December 28, 1993.

(2) Event Classification

The inspector reviewed the licensee's classification of the event considering the following EALs and interviews with the operating staff:

- Event Category 4.1.6, "Loss of Power," Initiating Condition 1, "Loss of offsite power in modes 1-6" which would lead to declaration of a NOUE. The associated EAL was:

"Both unit related main bus lines de-energized in modes 1-6."

The conditions for declaring a NOUE were met at 10:07 p.m. and the licensee declared a "NOUE due to loss of all offsite power" at 10:22 p.m.

- Event Category 4.1.10, "Other Abnormal Plant Condition," Initiating Condition 1, "ECCS initiated" which would lead to declaration of a NOUE. The associated EAL was:

"Valid S/I signal verified by redundant indication."

AND Discharge into the vessel."

The licensee met the conditions for this EAL after the declaration of a NOUE for loss of offsite power. A SI and Phase A Isolation occurred at 10:14 p.m. when pressurizer pressure fell to 1845 psig. The licensee reported the SI on Emergency Notification message 2 issued to the State and local agencies. The SI was terminated at about 10:40 p.m.

Event Category 4.1.3, "Steam System Failure," Initiating Condition 1, "Secondary (main steam or feedwater) line break with failure of ECCS or Main Steam Isolation," which would lead to declaration of an Alert. An associated EAL was:

"Secondary (main steam or feedwater) line break depressurization which results in Main Steam Isolation signal. AND Failure of two or more Main Steam Isolation Valves to close."

The licensee did not meet the conditions for this EAL since only the "B" MSIV (2-SM-5) failed to fully close. Had another MSIV valve remained opened the declaration of an Alert would have been required.

Following the MSIV closure signal, "A" MSIV indicated closed at the control board. Several days following the event the AIT team determined that "A" MSIV (2-SM-7) may not have fully closed. Steam flows reviewed following closure of the MSIVs showed the "A" steam flow rates continued on scale. Operability test of the valve following the event indicated some binding which could have prevented full valve closure. However, the Control Room staff, based on available information and MSIV closure signals, classified the event properly.

The NOUE was terminated at 12:55 p.m. The inspector determined that the licensee had properly classified the events.

(3) Event Notifications

An initial notification reporting the event to State and local agencies was made at 10:30 p.m., eight minutes after the NOUE declaration. The event description was "NOUE due to loss of all offsite power." However, the licensee failed to make the initial notification to the NRC in accordance with the requirements and the licensee's Emergency Plan.

10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," required licensees, in part, notify the NRC Operations Center via the Emergency Notification System of: "The declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan." Paragraph 3 of that part requires: "The licensee shall notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes."

10 CFR 50.72, Paragraph(b)(1)(iv) requires that a licensee notify the NRC as soon as practical and in all cases within one hour of any event that results in Emergency Core Cooling System discharge into the reactor coolant system as a result of a valid signal.

Licensee EPIP RP/0/A/5700/10, "NRC Immediate Notification Requirements," described the licensee's procedures for making immediate NRC notifications in accordance with 10 CFR 50.72. The procedure required, in part, the following:

- Step 3.1 required: "The Shift Supervisor shall assure the Notification requirements of this procedure are met for the reportable events provided in Enclosure 4.1."
- Enclosure 4.1, "Events Requiring NRC Notification," described the reporting requirements for various reportable events. Item 4.1.1.1, of the enclosure, described the reporting requirements for "The declaration of any of the Emergency Classes specified in the McGuire Emergency Plan." The corresponding reporting requirements for an emergency declaration were: "Immediately after notification to state(s) and local government (Counties) and not later than one hour after the time the Emergency Class was declared. Immediately report any change from one Emergency Class to another or a termination of the Emergency Class. (Utilize Enclosure 4.2)" Enclosure 4.2, "Significant Event Notification Checklist" was the licensee's form utilized to report emergency classifications to the NRC.

Following the declaration of the NOUE, the Operations Support Clerk began preparing the Emergency Notification "Green Form" used to provide emergency information to the State and local agencies in accordance with the licensee's procedures. The SS/Emergency Coordinator approved the message at about 10:30 p.m. During the event, the fax machine in the Control Room would not work due to the loss

of electrical power so the clerk took the message to the TSC and faxed it to State and local agencies at about 10:55 p.m. The fax machine in the TSC also automatically faxed the information to the NRC Headquarters Operation Officer. The HOO received the copy of the State and local notification form at about 11:00 p.m.

The HOO contacted the McGuire Control Room at about 11:02 p.m. to inquire about the event. The HOO stated that the faxed copy of the Emergency Notification form could not be considered the "official notification" and that the licensee would be required to make the notification by telephone. The HOO informed the individual receiving the call that additional information regarding the plant status was needed and that the licensee could make the official notification at this call from the HOO or call the NRC Operations Center later. The HOO pointed out that the licensee still had a few more minutes to make the notification within the one hour time limit. The licensee representative reported that the licensee would call the HOO back in a few minutes.

As documented in the AIT report, a licensee SRO that had entered the Control Room only a few minutes earlier, was given a copy of the State and local Emergency notification form by the Operations Support Clerk. The clerk told the SRO that the NRC wanted someone to read the form to them over the phone and answer some HOO questions. The SRO was the "D" Operation Shift's Shift Supervisor (DSS), that had been on leave when the event began and had not been fully briefed on the sequence of events at the station. The DSS called the HOO at about 11:09 p.m. The DSS asked the HOO if he had his copy of the notification form, and upon confirmation, read the contents of the State and local Emergency Notification message to the HOO which stated the message was the initial notification message. In that process the HOO requested additional emergency information that was not required on the State and local Emergency Notification form. Had the DSS had a completed Enclosure 4.2, "Significant Event Notification Checklist" (licensee's NRC emergency notification form) at the time of this call to the HOO, most of the information requested by the HOO would have been on the form. However, since the DSS had not received a good turnover of operating events, the DSS reported information that was his understanding of events. The DSS incorrectly reported that all systems had functioned as expected and that plant conditions were stable. Actually, the "B" MSIV had not fully closed upon receiving a close signal and steam pressure was continuing

to decrease. The inspector concluded that the DSS thought the official notification to the NRC had been made prior to his communication and the HOO believed the DSS was making the official telephone notification required by 10 CFR 50.72.

At 11:43 p.m., the HOO called the McGuire Control Room again to determine the maximum pressure during the event. The DSS took the call and reported the maximum pressure was 2300 to 2400 pounds. The DSS again incorrectly reported that all safety systems had performed as expected. The DSS also reported site power restored at about 11:45 p.m.

At about 1:00 a.m., December 28, 1993, the TSC's NRC communicator determined that the official notification to the NRC had not been made in accordance with the EPIPs when a copy of the NRC notification procedure and form could be located. The NRC Communicator called the HOO to provide a plant status update at about 1:32 a.m. The communicator reported that he believed that the initial call had been made already and that he was calling from the TSC and opening the chain of communications. The communicator reported the information using an NRC notification form from the EPIP. That notification was the first in which the licensee's NRC notification procedure RP/O/A/5700/10 was used. During the update, the communicator reported there had been a SI due to low pressurizer pressure, failure of "B" MSIV to fully close and that the "B" steam generator had boiled dry. The communicator reported that the offsite power had been restored around 12:40 a.m.

As stated above, the licensee's procedure "Notification of Unusual Event" required the Emergency Coordinator notify State and local agencies and the NRC. The procedure referred the reader to RP/O/A/5700 "NRC Immediate Notification Requirements" procedure. The procedure required the SS to ensure notification requirements were determined and made. On December 27, 1993, the licensee's SS failed to promptly notify the NRC duty officer in accordance with licensee procedures, in that, a NOUE was declared at about 10:22 p.m. on December 27, 1993, safety inspection occurred at about 10:14 p.m. and the NRC notification procedure was not utilized to notify the NRC until about 1:32 a.m. on December 28, 1993.

Although licensee communications had been initiated with the transmission of the State and local Emergency Notification form to NRC via facsimile within one hour, the licensee had failed to perform the following during that one hour period:

- Make the initial notification in accordance with the licensee's EPIPs

- Make the initial notification via the Emergency Notification System as required by 10 CFR 50.72(a) (1)(i)
- Include all of the information required by 10 CFR 50.72(a)(5), in that, the Emergency Notification form faxed to the NRC Operations Center at 10:30 a.m. did not identify the report as a "One Hour Report" or a "Four Hour Report"
- Accurately report plant status

This item is unresolved pending additional review by NRC.

URI 50-369, 370/94-04-01: Additional review of notification to NRC in accordance with NRC requirements.

Licensee procedures required that the SS assure completion of the notification procedure. However, the SS did not know whether the procedure had been completed. Discussions with the licensee's staff revealed that although the SS was responsible for assuring NRC notification, there was no clear policy as to who is assigned to actually make the notification, nor did the SS clearly delegate someone to do so.

The HOO was able to obtain information required for completing the NRC Form 361, "Event Notification Worksheet," Revision March 1990. Failure of the licensee to utilize the NRC Form 361 or a similar form such as the licensee's "Significant Event Notification Checklist" delayed the reporting process, took additional licensee resources during the event, and resulted in incomplete or inaccurate information reported to the NRC. The inspector concluded that most of the incorrect information provided to the NRC would have been correctly reported had an NRC notification form been completed, reviewed and approved by the SS.

(4) Prior Opportunity To Identify Operator Weaknesses for Completing NRC Notification Messages

NRC Examination Report 50-369, 370/93-300, issued August 12, 1993, described the results of operator licensing requalification examinations and associated inspection activities during the periods June 28 - July 2 and July 12 - 16, 1993. In Appendix B, Knowledge Strengths and Weaknesses, of that report, the inspector stated "All SROs interviewed were not able to accurately and rapidly complete enclosure 4.2 of RP-10, "Checklist For Significant Event Notifications," which is used to provide information for the NRC HOO. Most SROs indicated that they were not familiar with the information required on the form and had not been

trained on its use." The report also documented the following: "One SRO used the State form for NRC notification in place of the NRC immediate notification form contrary to RP-10 Subsequent Action 3.4." The State notification form does not contain the required event information to support NRC Incident Response Center Teams. This NRC inspection report provided the licensee an opportunity to understand the extent of the problem and take corrective actions to correct NRC Notification Message training deficiencies prior to the December 27, 1993 event.

The inspector determined that the problem with operations personnel ability to complete NRC notification message forms in a timely manner was identified from this report by the compliance staff and a PIP, O-M93-0775, initiated August 18, 1993. The Training Department was assigned the issue for resolution. The PIP also documented other problems with operator knowledge of TS and equipment operations. The training departments proposed corrective action for the NRC notification message form problems identified was: "NRC Notification form (Green Form) needs to be revised by (Emergency Preparedness Manager) to make more user friendly and cover in Segment 2, 1994 Operator Requalification." The Emergency Planning Manager was assigned the responsibility to revise the NRC notification form. The Emergency Preparedness Manager replied within the PIP process to the proposed corrective action "The NRC Notification form is not the "green form. The NRC Notification form was issued by the NRC in an Information Notice and is used throughout the industry. We cannot change this form. The use of this form will be covered in Segment 2, 1994 Operator Requalification Training." The PIP documented a lack of knowledge of the personnel in the training department concerning the difference between the "green form" used to notify State and local agencies and the NRC notification message form. The "green form" did not contain all of the information required by 10 CFR 50.72 in making notifications to the NRC.

This correspondence between the Training Department and the EP Manager shows knowledge of the issue but that no immediate corrective actions were taken to alert the operating staff of the need to become familiar with the NRC notification procedure.

The failure to adequately report the NOUE Emergency Classification of December 27, 1993, to the NRC HOO was not a result of the Control Room staff not knowing how to fill out the NRC Emergency notification form (Significant Event Notification Checklist). The inadequate report resulted from the SS/Emergency Coordinator's failure to ensure the appropriate communications occurred. However, prompt

awareness and corrective actions by the training department and the emergency preparedness staffs in response to the Examination Report findings would have contributed to improving the operators knowledge of the NRC notification process prior to the event.

(5) Contributing Factors

Based on interviews with operating staff, possible contributing factors to the SS's failure to make the appropriate NRC notification could have been the SS's involvement in emergency operating procedures. As documented in the AIT report, the specific duties for the control room operations staff were not clearly defined in licensee procedures.

The McGuire Control Room is shared between the units and is staffed with two licensed ROs per unit and one CRSRO. Although not required to be in the control room, additional staffing includes the SS, the Shift Manager (who performs the function of the Shift Technical Advisor) and a Unit SRO for each unit. Additional ROs and non-licensed operators are also assigned.

When this event occurred, the SS was serving in a dual assignment as the SS and the CRSRO. In accordance with the Emergency Plan implementing procedures, the SS had the responsibility to become the Emergency Coordinator when events required the implementation of the Emergency Plan. According to the licensee, the CRSRO had the responsibility to be the EOP reader during an emergency. Therefore, when the event began the SS had both the Emergency Coordinator and EOP reader responsibilities. The Unit 2 SRO was not in the Control Room when the event began. The Unit 2 SRO entered the Control Room immediately but subsequently departed the Control Room twice to obtain a flashlight and to locally bleed air from an actuator on the "B" MSIV which was indicated in an intermediate position. Approximately 15 minutes after the event began, the Unit 2 SRO re-entered the Control Room and reported to the SS. Following a suggestion from another SRO, the SS assigned the EOP reading responsibilities to the Unit 2 SRO. The SS declared a NOUE approximately 15 minutes after the event began. The SS could have been more attentive to the notification activities if the SS had not had the EOP reading responsibilities during the initial minutes of the event.

The Unit 2 operators on duty were interviewed by the inspector. All operators on duty believed the command and control demonstrated by the SS was good or better. As documented in the AIT report the interviews with the operating crew revealed that assigned responsibility for the

tasks was not clearly defined. As documented in the AIT report, a review of the licensee's administrative procedures revealed that a specific description of the duties of the SROs did not exist. For example, the procedures did not specify which crew position was assigned to relieve the SS as procedure reader during an event or the position assigned to make NRC notifications. The roles of both Unit SROs were not formally or clearly defined. The lack of clear procedural guidance of emergency responsibilities required the SS to make these assignments and provide additional oversight during an emergency. The licensee noted that a similar deficiency had been identified during an INPO audit in 1993, and that completion of such descriptions was expected by the end of January 1994.

(6) Corrective Actions

Following the event the licensee took the following actions:

- The licensee issued Required Reading Package 94-01-S, dated January 4, 1994. The reading package briefly described the events associated with the licensee's failure to make accurate and timely Immediate Notification to the NRC for the declaration of the NOUE on December 27, 1993.

The package attributed the failure to the SS's failure to ensure the notification message was made and that no single person assumed the responsibility for ensuring the RP/10 notification was completed.

The reading package required the SRO to be responsible for initial and follow-up notifications of offsite agencies until relieved of the duties by TSC personnel.

OMP procedure 2-2 was changed to require five distinct individuals be named to fill the following positions for each shift SS, C/R SRO, STA, Fire Brigade Leader, and Notification SRO. The revision to OMP 2-2 stated that the offsite communicator must be an SRO who is not serving as the Shift Supervisor, Shift Technical Advisor, Senior Reactor Operator (other than the Shift Supervisor), or Fire Brigade Leader.

The NRC notification form in RP/10 now required approval by the Shift Operations Manager on duty (or Emergency Coordinator if the Emergency Plan has been implemented). This is consistent with the required approval of the Green Form.

The package included Management Expectations which stated ... "the person charged with conveying operational data to the NRC must provide only factual information and no speculative material.

(7) Staff Augmentation

The inspector reviewed the licensee's management strategy for ensuring compliance with the Emergency Plan requirements addressing the planning standard of 10 CFR 50.47(b)(2), which specifies that "timely augmentation of response capabilities is available." The applicable requirements were contained in Section B of the Emergency Plan. Figure B-1, "Minimum Staffing Requirements For Emergencies" of the site's Emergency Plan list the minimum staffing by position functions. The figure included the minimum on-shift personnel and additional emergency response personnel to augmented the on-shift staff within 45 and 75 minutes. The Emergency Plan also referenced EP Group Manual Section procedure 1.1, "McGuire Nuclear Station Emergency Planning Emergency Organization." EP Group Manual procedure 1.1 described the functions of the Emergency Organization and its augmentation of operating shift resources in response to emergency conditions at the station. The procedure required the TSC and OSC be operational within 75 minutes.

Following the declaration of an Unusual Event at 10:22 p.m., the Emergency Coordinator requested activation of the TSC and OSC at about 12:10 p.m. During the activation of the ERO, personnel assigned duty of the OSC Operations SRO/RO failed to respond. The position was filled by a qualified person (Shift Operations Manager) not normally assigned to that specific ERO staff position. The OSC was declared operational at about 1:28 a.m. and 78 minutes after the Emergency Coordinator requested the facility activated. The licensee reported to the inspector that the failure of the personnel to respond to the event delayed the activation of the OSC by approximately 30 minutes.

McGuire Emergency Plan, Section E, "Notification Methodology" stated Section E described the communication steps taken to alert or activate emergency response personnel for each emergency classification. The section stated:

- The SS shall assure notification of appropriate site personnel in accordance with approved procedures.
- The SS shall augment on-shift resources to assess and respond to the emergency situation as needed to ensure the protection of persons and property.

The method of activating the ERO; however, was not described in the Emergency Plan. The licensee did not have a single specific procedure the SS/Emergency Coordinator could utilize to mobilize the ERO. The licensee described the ERO activation procedures in each of emergency procedures entered following a emergency classification. Following the declaration of an Unusual Event the Emergency Director entered procedure RP/O/A/5700/01, Notification of Unusual Event. However, RP/O/A/5700/01 did not provide any instructions for activating the ERO like the procedures for Alert, Site Area or General Emergency did. The Emergency Coordinator contacted the Security Group and requested the activation of the ERO as described in RP/O/A/5700/02, Alert. That procedure required Security staff be contacted and request activation of the TSC, OSC and EOF pagers; the Community Alert Network (CAN); and announce, via the PA system, the emergency classification had been declared and to activate the TSC and OSC. According to the Emergency Preparedness Manager, the Security staff activated the pagers but did not activated the CAN. The CAN system automatically calls the ERO personnel phone numbers and provides a brief message of the nature of the call. The Emergency Planning manager reported that in the past the CAN had always provided the paged staff a followup message.

The licensee had several personnel assigned to each ERO position. When the event occurred, an individual responsible for reporting to the OSC as the OSC Operations SRO/RO, had previously arranged for a qualified replacement in his absence. Other qualified personnel assigned to that specific ERO position were not available to fill the position on the date of the event. The employee replacing the assigned individual received the page but not the CAN message. However, the employee did not respond because the CAN message did not follow. The OSC was waiting for the individual to report to the facility prior to declaring the facility activated. When the employee failed to respond, the Emergency Coordinator directed another qualified individual to serve as the OSC Coordinator during the emergency. The inspector determined that there were several problems associated with the ERO's response to the event. They included:

- The emergency procedures did not adequately describe the requirements for activating the ERO upon the declaration of a NOUE.
- An individual assigned ERO responsibility failed to respond to the pager as requested.
- There was not a backup person assigned to the OSC Operator SRO/RO on duty the date of the event.

- The security personnel did not activate the CAN since the requirement was not required by their implementing procedures.

The licensee identified the problem in the Significant Event Investigation Team report of the McGuire Loss of Offsite Power Event. The licensee documented the problem in PIP Item O-M94-0067 on January 11, 1994. The inspector stated that a review of the ERO activation procedures would be made in a future inspection as an IFI. The review should include the following program elements:

- Procedures and controls for ensuring adequate ERO staffing was available for ERO responsibilities at any given time.
- Licensee personnel assigned ERO responsibilities understand the ERO activation procedures and responsibilities.
- Procedures for activating the ERO are adequately described in appropriate emergency planning procedures.

IFI 50-369, 370/94-04-02: Review licensee ERO activation procedures for controls and guidance to ensure proper activation procedures are implemented and adequate ERO personnel and backups are available to respond to plant emergencies.

No violations or deviations were identified.

3. Knowledge and Performance of Duties (Training) (82206)

The program area of Knowledge and Performance of Duties (Training) was inspected to determine whether the licensee's key emergency response personnel were properly trained and understood their responsibilities. Requirements applicable to this area are contained in 10 CFR 50.47(b)(2) and (15), Section IV.E of Appendix E to 10 CFR Part 50, and Sections N and O of the McGuire Emergency Plan.

Section O, "Radiological Emergency Response Training," Paragraph O.2, "Station Organization Training," stated that the emergency response training for station emergency response personnel is conducted in accordance with Emergency Planning Section Manual, Section 1.3, "Emergency Response Training Program."

a. Emergency Response Organization Training Program Descriptions

The inspector reviewed the licensee's training objectives and associated lesson plans for several key ERO positions. The training material content appeared appropriate relative to the

need to address the duties and responsibilities of each of the selected positions. However, the inspector determined that the licensee's emergency preparedness training program for operations personnel was not clearly defined in licensee procedures Section 1.3.

The inspector discussed the training that was being provided to the operations staff with the Director of Operations Training and the Emergency Planning Manager. The inspector determined that the operators receive the following Emergency Preparedness Training:

- "Overview" Overview training provided overall emergency response training of the Emergency Plan for all ERO personnel. The initial emergency preparedness training was provided to ERO personnel in a classroom. A self study training package was provided to all ERO personnel annually for requalification. The training package included a handout addressing 15 training objectives. The package included a 25 question examination that was returned to the Emergency Planning staff upon completion.
- "Emergency Preparedness Training" Emergency preparedness training was provided to operations personnel. The training included a review of Emergency Plan implementing procedures, information on industry events, and any other training determined appropriate by the Emergency Planning Manager. The inspector determined that the licensee had some lesson plans and training objectives for the 2-3 hour training provided to operators during operator requalification training.
- "Emergency Event Classification " during some active simulator training sessions operators were required to enter the licensee's classification procedure and make a emergency classification based upon simulator conditions.

The inspector determined that the emergency preparedness training for operations personnel was not described in Emergency Planning Section Manual, Section 1.3, "Emergency Response Training Program" as discussed in Section 0.2 of the McGuire Emergency Plan. The inspector observed that the training for operations personnel did not include, in the training procedure (Section 1.3), training objectives, method of instruction, and frequency of training. The inspector informed licensee management that the emergency preparedness training descriptions for all ERO personnel, including operations personnel, would be reviewed in a future inspection as an IFI.

IFI 50-369, 370/94-04-03: Review licensee procedures to ensure ERO Training is adequately described and maintained.

No violations or deviations were identified.

b. Operator Examination Issues Concerning Emergency Notification Messages Provided to the NRC

As discussed earlier in this report, the inspector noted that there was a previous issue concerning NRC notification and reporting that was documented in an NRC Inspection Report 50-369, 370/93-300 dated August 12, 1993. The report indicated poor operator knowledge of the licensee's form utilized to make emergency notifications to the NRC.

As a follow-up to the issues identified in NRC examination report, the inspector interviewed operators concerning the emergency preparedness training they were receiving. Operators generally thought the emergency preparedness training provided by the Emergency Planning Manager was good. However, a few operators reported a need for additional Emergency Preparedness training and a desire to get into the EPIPs a few times during simulator training. The inspector determined that some of the operators had filled out the NRC notification form for an emergency classification or in operator training. However, nearly half reported that they had not completed the form. Operators reported that in the active simulator, training emergency classifications were occasionally made; however, emergency notifications were limited to an operator placing a telephone call to the simulator control booth without completion of any of the Notification Message forms.

As documented in PIP number O-M93-0775, the licensee planned to provide training addressing the NRC notification procedures to the Operation Staff during the second segment of operator training in 1994. The inspector stated a review of the training provided would be reviewed in a future inspection as an IFI.

IFI 50-369, 370/94-04-04: Review licensee assessments and corrective actions for EP training deficiencies identified in Operator Examination Report 93-300 issued in August 12, 1993.

No violations or deviations were identified.

c. Emergency Notification Training

The operations staff has the responsibility to make offsite notifications until relieved of that responsibility by the Emergency Coordinator. Attachment 6 of the Emergency Response Training Program provided specific guidance to members of the McGuire Nuclear Station Emergency Response personnel assigned to relay information to offsite agencies during an emergency. Participants listed by the procedure included Operations Shift Support Technicians and Offsite Agency Communicators. The licensee was undergoing some operator staff reorganization. The inspector was informed that each shift would have an individual assigned notification responsibilities who would have training

equivalent to that provided Offsite Agency Communicators. The inspector stated that a review of personnel on shift and their training concerning offsite notifications would be reviewed in a future inspection as an IFI.

IFI 50-369, 370/94-04-05: Review licensee training for individuals having the responsibility to make offsite emergency notifications.

No violations or deviations were identified.

d. Training Records

The licensee described the site emergency response organization training in Emergency Planning Group Manual, Section 1.3, "Emergency Response Training Program." The inspector conducted a review to determine whether individuals were being trained in accordance with Emergency Planning Group Manual, Section 1.3, "Emergency Response Training Program." Names of individuals designated for key positions in the emergency response organization were selected on the basis of recent participation in activation of the ERO and their training records were reviewed against procedure requirements. A review of the training records provided for the selected individuals revealed that personnel had received the required training and that training was current.

The inspector inquired about the licensee's system for tracking ERO training activities. The inspector determined that the licensee had received a computer program from the corporate Emergency Planning Group following its re-organization in 1991. In discussions with licensee personnel, the inspector determined that the computer program was capable of tracking emergency preparedness training activities. The data base was routinely updated by the Emergency Planning staff. The system was not tied to other site data bases that would facilitate easy update and the monitoring of certain ERO qualifications such as respirator qualification status. The Emergency Preparedness Manager discussed possible improvements in the future to have a improved ERO training and qualification capabilities.

No violations or deviations were identified.

4. Independent Review/Audits and Corrective Actions

This area was inspected to determine whether the licensee had performed an independent audit of the emergency preparedness program. Requirements applicable to this area are contained in 10 CFR 50.54(t). The inspection also included a review of the licensee's documentation, tracking and corrective actions for emergency preparedness problems and issues.

a. Audits

The frequency, and adequacy of EP audits (scope and depth of program review) were reviewed by the inspector. The inspector reviewed the most recent audit report documenting the annual audit of the emergency preparedness program (Departmental Audit NG-93-09 (ALL), Emergency Preparedness). The audit was conducted by the Nuclear Services Division Audit Section during the period October 18 - November 3, 1993. The audit documented inspection activities at the General Office, McGuire, Oconee, and Catawba sites. The audit report identified issues in several categories including findings, audit follow-up items, observations, good practices, and recommendations. The inspector noted that the findings addressed procedures and programmatic controls for the program implementation activities. The audit findings indicated good awareness of the emergency program requirements and the quality controls necessary to maintain those requirements. The identification and documentation of issues not meeting the threshold of findings requiring corrective action was good and indicated licensee aspirations to improve the program in addition to verifying compliance with applicable requirements.

The inspector discussed the scope of the audit with the Audit team leader. The audit scope and plan were detailed, inclusive, and appropriate considering emergency preparedness activities.

The inspector discussed the qualifications of the audit team members with the lead auditor and reviewed documented auditor qualifications. The inspector determined that the audit team utilized qualified auditor personnel and included consultants with emergency planning and radiological protection backgrounds. The qualifications of the team members appeared adequate and appropriate for the audit scope. The use of experienced emergency preparedness personnel on the audit team was a good management initiative. However, the consultants were only able to spend about one day onsite at each audit location.

No violations or deviations were identified.

b. Corrective Actions for EP Problems and Issues

The inspector reviewed the licensee's corrective action program to determine that deficiencies were identified; tracked and tended by a corrective action program; root causes were being identified; corrective actions were properly assigned to the appropriate organization and level; that issues were receiving an appropriate review; that corrective actions were completed in a timely manner; and corrective actions were independently reviewed for appropriateness and verified completed and adequately implemented prior to closure.

During the inspection, the inspector noted that the PIP program did not appear to be effectively utilized in tracking emergency preparedness issues needing some action or in ensuring adequate and timely corrective actions for emergency preparedness program problems. The inspector based the conclusion on the following observations:

- NRC Inspection Report 50-369, 370/93-10, the inspector noted that a training lesson plan SSA-MN-EP-01S, "EP Overview," Section 1,2, "Emergency Response Organization Member Responsibilities Include: Basic Respiratory Protection Training." The inspector determined that a significant number of ERO personnel had expired respirator qualifications. The licensee reported that they were evaluating the ERO to determine which positions actually required respirator qualification. The licensee's identification of ERO members requiring respirator qualifications was identified as IFI 50-369, 370/93-10-04. The report was issued August 19, 1993.

The inspector reviewed the PIP. The proposed resolution documented in the PIP was "A matrix is being developed to identify training needs of the individual positions in the emergency organization for tracking of training." The reported corrective action in the PIP was "The training matrix has been developed and respiratory training has been included." The PIP was closed out December 16, 1993.

The inspector determined that the qualifications of the ERO and had not been specified in the site emergency preparedness training program procedure, EP Group Manual Section 1.3, "Emergency Response Training Program. The inspector determined that the proposed corrective action identified in the PIP had not been completed or implemented. In interviews with the site EP Manager, on January 10, 1994, the EP Manager reported that she was not sure which ERO personnel would require respirator qualification but that she believed the TSC and OSC staffs would probably be required to maintain respirator qualification. Later in the week, the Emergency Preparedness Manager reported that the TSC and OSC staff had been identified to require and maintain respirator qualifications. The inspector determined that the PIP program did not verify that adequate corrective action was completed.

- The inspector planned to review any licensee actions that may have been associated with five IFIs identified during the 1993 EP Exercise documented in NRC Inspection Report 93-21 issued November 10, 1993. The inspector determined that PIPs identified for those IFIs were not initiated until

January 6, 1994, indicating the system was identifying or tracking issues but issues were entered in the system after a delay of about seven weeks.

The inspector also concluded that communication of problems within the licensee's training and EP organization was not good. The problems identified with operations personnel ability to accurately and rapidly complete NRC notification message forms, "Checklist for Significant Event Notifications" in NRC Examination Report 50-369, 370/93-300, were discussed with the Emergency Preparedness Manager. The inspector determined that the Emergency preparedness Manager had responded to the Training Departments request to have the forms changed to be more user friendly. However, the inspector determined that the Emergency Preparedness Manager had not reviewed a copy of the NRC report detailing the operator's weaknesses concerning the completion of the NRC notification form and other emergency preparedness weaknesses. Other weaknesses identified in the report included the lack of guidance in RP/O/A/5700/10, "NRC Immediate Notification Requirements" for completing the NRC notification form.

The inspector reported to licensee management, at the exit meeting, the licensee's actions or lack of actions for training problems identified in the operator examination report and the inadequacies identified in the PIP program for the few issues reviewed by the inspector identified concerns about the licensee's ability to make effective and timely corrective actions for identified problems.

No violations or deviations were identified.

5. Action on Previous Inspection Findings (92701)

(Closed) EW 50-369, 370/92-25-01: Failure to provide clear and accurate Emergency Notification messages transmitted to the State and local agencies. During the 1993 exercise, the inspector determined that the licensee had made improvements in emergency notification message contents. However, the licensee had not completed all corrective actions at that time. The licensee's response to the EW dated January 4, 1993, reported the licensee's corrective actions included a revision to the Mesorem computer program. The revision to the computer program was delayed and made with revisions implementing the EPA 400 changes. The inspector determined that the licensee had also changed the default value, for estimated duration time when an estimate of release duration was not made, to 4 hours to more closely match estimated EPZ evacuation time estimates. The inspector determined that the licensee's corrective actions for the computer program had been completed. The licensee's computer program (Mesorem), utilized for automating dose projection data, calculated the time of release duration as the time the release started to the time the offsite dose projections were computed.

(Open) IFI 50-369, 370/93-10-04: Specify which ERO positions require respirator qualification (Paragraph 4) The licensee had not initiated any documentation specifying ERO staff that would be required to be respirator qualified. The inspector reported the item would remain open pending documentation of ERO staff requiring respirator qualification and a review of procedures and controls for ensuring training and qualification requirements have been implemented.

6. Exit Interview

The inspection scope and results were summarized on January 14, 1994, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results. The inspector discussed the inspection results listed below. Propriety information was not reviewed during the inspection. During that meeting, the issue of notification of NRC during the December 27, 1993, loss of offsite power event was characterized as a potential violation. In a conversation between the inspector and the site Emergency Preparedness Manager on February 10, 1994, the licensee was informed that the issue was being identified as an Unresolved Item pending additional NRC review. Dissenting comments were not received from the licensee. Licensee management was informed that an open item (listed in Paragraph 5) was reviewed and considered closed.

<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
50-369, 370/94-04-01	Open	URI - Review notification to NRC in accordance with NRC requirements (Paragraph 2).
50-369, 370/94-04-02	Open	IFI - Review licensee ERO activation procedures for controls and guidance to ensure proper activation procedures are implemented and adequate ERO personnel and backups are available to respond to plant emergencies (Paragraph 2).
50-369, 370/94-04-03	Open	IFI - Review licensee procedures to ensure ERO training is adequately described and maintained (Paragraph 3).
50-369, 370/94-04-04	Open	IFI - Review licensee assessments and corrective actions for EP training deficiencies identified in Operator Examination Report 93-300 issued in August 12, 1993 (Paragraph 3).

50-369, 370/94-04-05	Open	IFI - Review licensee training for individuals having the responsibility to make offsite emergency notifications (Paragraph 3).
50-369, 370/93-10-05	Open	IFI - Specify which ERO positions require respirator qualification (Paragraph 5).
50-369, 370/92-25-01	Closed	EW - Failure to provide clear and accurate Emergency Notification messages transmitted to the State and local agencies (Paragraph 5).

7. Index of Abbreviations Used in this Report

AIT	Augmented Inspection Team
CFR	Code of Federal Regulations
CRSRO	Control Room Senior Reactor Operator
DSS	"D" Shift Supervisor
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
ENF	Engineered Safety Feature
EOF	Emergency Operations Facility
EOP	Emergency Operating Procedure
EP	Emergency Preparedness
EPIP	Emergency Plan Implementing Procedure
EPZ	Emergency Planning Zone
ERO	Emergency Response Organization
EW	Exercise Weakness
GPM	Gallons Per Minute
HOO	Headquarters Operations Officer
IFI	Inspector Follow-up Item
INPO	Institute Nuclear Power Operations
LCO	Limiting Condition for Operation
MSIV	Main Steam Isolation Valve
NOUE	Notification of Unusual Event
NRC	Nuclear Regulatory Commission
NV	Chemical Volume Control System
OMP	Operations Management Procedure
OSC	Operations Support Center
PA	Public Address
PSIG	Pounds per Square Inch Gauge
QA	Quality Assurance
RCS	Reactor Coolant System
RO	Reactor Operator
RP	Radiation Protection
SI	Safety Injection
SRO	Senior Reactor Operator
SS	Shift Supervisor
STA	Shift Technical Advisor

TS Technical Specifications
TSC Technical Support Center
URI Unresolved Item