



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

July 27, 2011

Mr. Regis T. Repko
Vice President
Duke Energy Carolinas, LLC
McGuire Nuclear Station
MG01VP/12700 Hagers Ferry Road
Huntersville, NC 28078

**SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2011003 AND 05000370/2011003**

Dear Mr. Repko:

On June 30, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your McGuire Nuclear Station Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on July 11, 2011, with you and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents two NRC-identified Severity Level (SL)-IV violations of NRC requirements. Additionally a licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and low severity level and because they were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a written response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at McGuire.

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-369, 50-370
License Nos.: NPF-9, NPF-17

Enclosure: NRC Integrated Inspection Report 05000369/2011003 and 05000370/2011003
w/Attachment - Supplemental Information

cc w/encl: (See page 3)

DEC

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Letter to Regis T. Repko from Jonathan H. Bartley dated July 27, 2011

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2011003 AND 05000370/2011003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-369, 50-370

License Nos: NPF-9, NPF-17

Report Nos: 05000369/2011003, 05000370/2011003

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station, Units 1 and 2

Location: Huntersville, NC 28078

Dates: April 1, 2011, through June 30, 2011

Inspectors: J. Brady, Senior Resident Inspector
J. Heath, Resident Inspector
E. Stamm, Project Engineer

Approved by: Jonathan Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR05000369/2011-003, IR05000370/2011-003; 4/1/2011 – 6/30/2011; McGuire Nuclear Station; Follow-up of Events and Notices of Enforcement Discretion

The report covered a three month period of inspection by two resident inspectors and one project engineer. Two NRC-identified Severity Level (SL) IV violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects are determined using IMC 0310, "Components Within The Cross-Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Other

- SL-IV. An NRC-identified non-cited violation of 10 CFR 50.72 was identified when the licensee did not notify the NRC that they had reported a non-routine event related to the health and safety of the public to another government agency. The licensee notified the Federal Energy Regulatory Commission (FERC) of leakage in a FERC-licensed intake dike and did not notify NRC within four hours of notifying FERC. The licensee entered this condition into their correction action program (CAP) as Problem Investigation Program (PIP) M-11-3600.

The failure to notify the NRC as required by 10 CFR 50.72 about a notification to FERC of a significant condition related to public health and safety was a performance deficiency (PD). This PD was considered as traditional enforcement because the failure to notify the NRC had the potential for impacting the NRC's ability to perform its regulatory function. This PD was determined to be a SL-IV violation using Section 6.9 of the NRC Enforcement Policy. Cross-cutting aspects are not assigned to traditional enforcement violations. (Section 40A3.1)

- SL-IV. An NRC-identified non-cited violation of 10 CFR 50.73, Licensee Event Report (LER) System, was identified for the licensee's failure to submit an LER within 60 days for a valid reactor protection system (RPS) actuation. The reactor was manually tripped when control rod L-13 did not respond as expected during rod control movement testing. The licensee entered this condition into their CAP as PIP M-11-2694.

The inspectors determined that the licensee's failure to submit an LER in accordance with 10 CFR 50.73(a)(2)(iv)(A) was a PD. This PD was dispositioned as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. This violation was determined to be a SL-IV violation using Section 6.9 of the NRC Enforcement Policy. Cross-cutting aspects are not assigned for traditional enforcement violations.

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REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent rated thermal power (RTP) and remained there for the rest of the inspection period.

Unit 2 began the inspection period in a refueling outage. The unit was restarted April 4 and reached 100 percent RTP on April 8, where it remained for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Severe Weather Condition: The inspector reviewed the licensee's preparations for adverse weather due to a tornado watch issued on April 16. The inspector reviewed the licensee's compliance with procedure RP/0/A/5700/006, Natural Disasters, and independently walked down the external portions of the site to determine whether any loose equipment existed that could become tornado missiles.

Summer Readiness of Offsite & Alternate AC Power Systems: The inspectors evaluated plant features, procedures for operation, and continued availability of offsite and alternate AC power systems to determine whether they were appropriate for the circumstances. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator and the plant to determine whether the appropriate information was exchanged when issues arise that could impact the offsite power system. The inspectors discussed with system engineers any outstanding corrective work orders or corrective action documents with the offsite power and alternate AC power systems. The inspectors walked down the alternate AC system (standby shutdown facility) to determine system readiness for summer conditions. The inspectors walked down the offsite power system with the operations switchyard representative to review system deficiencies and their impact on the ability of the system to perform its intended function.

Flood Protection Measures – External: The inspectors conducted a detailed review of the licensee's vulnerability to flooding and associated protective measures for the outside yard area in response to condenser circulating water pipe leak originally identified on April 16 for Unit 1 and 2 involving northern earthen dike extension of the Cowans Ford Dam. The inspectors walked down the outside portions of the plant, which are susceptible to flooding from external sources, to determine whether the area configuration, features, and equipment functions were consistent with the descriptions and assumptions used in Updated Final Safety Analysis Report (UFSAR) Section 2.4.10, Flood Protection Requirements, and in the supporting basis documents listed in the

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Attachment. In addition, the inspectors determined whether emergency flooding procedures will achieve the desired actions and evaluated the implementation of preparation procedures. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdown: The inspectors performed a partial walkdown of the 1A residual heat pump while 1B residual heat pump was out of service for planned maintenance to assess the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors focused on discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control systems components, and determined whether selected breakers, valves, and support equipment were in the correct position to support system operation.

Complete System Walkdown: The inspectors conducted a detailed review of the Unit 2 auxiliary feed water system. To determine the correct system alignment, the inspectors reviewed the procedures, drawings, and the UFSAR. Items reviewed during the inspection included: (1) valves are correctly positioned, do not exhibit leakage, and are locked as required; (2) electrical power is available, (3) system components are correctly labeled, cooled lubricated, ventilated, etc.; (4) hanger and supports are correctly installed and functional; (5) essential system support systems are functional; (6) system performance is not hindered by debris; and (7) tagging clearances are appropriate. To determine the effect of outstanding design issues on the operability of the systems the inspectors reviewed the operator workaround list, the temporary modification list, system health reports, and other outstanding items tracked by the engineering department. In addition, the inspectors reviewed outstanding maintenance work requests/work orders and deficiencies that could affect the ability of the system to perform its function. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Protection Walkdowns: The inspectors walked down accessible portions of the following four plant areas to determine if they were consistent with the UFSAR and the fire protection program for defense in depth features. The features assessed included the licensee's control of transient combustible material and ignition sources, fire

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detection and suppression capabilities, fire fighting equipment, and passive fire features such as fire barriers. The inspectors also reviewed the licensee's compensatory measures for fire deficiencies to determine if they were commensurate with the significance of the deficiency. The inspectors reviewed the fire plans for the areas selected to determine if it was consistent with the fire protection program and presented an adequate fire fighting strategy. Documents reviewed are listed in the Attachment.

- Unit 1 spent fuel pool area (fire area 26)
- Unit 1 turbine-driven auxiliary feedwater pump room (fire area 2A)
- Unit 2 turbine-driven auxiliary feedwater pump room (fire area 3A)
- Main control room (fire area 24)

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed the UFSAR and the licensee's flooding analysis to determine which plant areas were subject to internal flooding and contained safety-related equipment. The inspectors selected the two areas listed below and walked down these areas to determine whether the area configuration, features, and equipment functions were consistent with the descriptions and assumptions used in UFSAR sections and in the supporting basis documents. The inspectors reviewed the operator actions credited in the flooding analysis, and contained in the licensee's flood mitigation procedure(s), to determine whether the desired results could be achieved by the times credited in the flooding analysis. Documents reviewed are listed in the Attachment.

- Unit 1 auxiliary feedwater pump room AB-716-10
- Unit 2 auxiliary feedwater pump room AB-716-29

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program

a. Inspection Scope

Operating Experience Smart Sample (OpESS) FY 2010-02 "Sample Selections for Reviewing Licensed Operator Examinations and Training Conducted on the Plant-Referenced Simulator": On May 10, 2011, the inspectors observed operators in the plant's simulator during licensed operator requalification training for a loss of component cooling, medium loss of coolant accident, failure of the main turbine to automatically trip following a reactor trip, and failure of automatic Phase A containment isolation, to

determine the effectiveness of licensed operator requalification training required by 10 CFR 55.59 and the adequacy of operator performance. The inspectors focused on high risk operator actions, clarity and formality of communication, use of procedures, alarm response, control board manipulations, group dynamics and supervisory oversight. The inspectors observed the post-exercise critique to determine whether the licensee identified deficiencies and discrepancies that occurred during the simulator training. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the four activities listed below for items such as: (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) scoping in accordance with 10 CFR 50.65(b) of the Maintenance Rule; (4) characterizing reliability issues for performance; (5) charging unavailability for performance; (6) balancing reliability and unavailability; (7) trending key parameters for condition monitoring; (8) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and (9) appropriateness of performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). For each item selected, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. Documents reviewed are listed in the Attachment.

- 1B feed water pump trip on high discharge pressure resulting in loss of all feedwater pump flow
- Containment isolation valve 2WL-64A failing to close from the control room resulting in unplanned Technical Specification (TS) entry
- Control room area chilled water system B chiller refrigerant leak on the hot gas bypass piping resulting in TS limiting condition for operation (LCO) 3.0.3 entry for both units
- Unit 1 standby shutdown facility (SSF) unavailability hours exceeding 50% of performance criteria limit for fuel cycle.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's risk assessments and the risk management actions used to manage risk for the plant configurations associated with the eight activities listed below. The inspectors assessed whether the licensee performed adequate risk assessments, and implemented appropriate risk management actions when required by 10 CFR 50.65(a)(4). For emergent work, the inspectors verified that any increase in risk was promptly assessed, that appropriate risk management actions were promptly implemented, and that work activities did not place the plant in unacceptable configurations. Documents reviewed are listed in the Attachment.

- Emergent Orange risk on April 16 due to tornado watch.
- Emergent work associated with a condenser circulating water pipe leak at the foot of the Lake Norman dike on April 21-23. The excavation associated with the dike could have caused escalation to an elevated (Orange or Red) risk category if dike integrity was not maintained. The dike is used as a flood mitigation barrier for loss of upstream dam and for seismic induced interactions (seiches).
- Inspectors reviewed control room response mitigation strategy on April 25 for trip risk due to excessive leakage of Unit 1 condenser circulating water piping.
- Planned Orange risk condition for 1B nuclear service water (RN) system out of service for activities associated with 1B RN strainer tie-in modification on May 16.
- First time evolution on May 25 to perform acoustic inspection of RN "A" train SWSWP suction where the evolution was scheduled to exceed greater than 50% of the LCO time.
- Unplanned Yellow risk condition on June 1 for Unit 1 when the licensee entered AP-5 due to low Megawatt reserves.
- Planned Orange risk for both units on June 24-26 to transport the old 2A RN strainer from the Unit 1 auxiliary feedwater pump room storage location to the turbine building.
- Planned Orange risk condition for 2A RN out of service on June 29 and June 30 for planned activities associated with RN Strainer Phase II medications and various maintenance activities

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors evaluated the technical adequacy of the five operability evaluations or functionality assessments listed below to determine if TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors reviewed any compensatory

measures taken for degraded SSCs to determine whether the measures were in-place and adequately compensated for the degradation. For the degraded SSCs, or those credited as part of compensatory measures, the inspectors reviewed the UFSAR to determine whether the measures resulted in changes to the licensing basis functions, as described in the UFSAR, and whether a license amendment was required per 10 CFR 50.59. Documents reviewed are listed in the Attachment.

- M-11-3149, 1B safety injection reset button had to be pushed 3 times to get a reset signal
- M-11-3173, Potential underground pipe leak at foot of Lake Norman dike
- M-11-3467, Cracks in battery cell post nut seals
- M-11-3634, New fire detection testing affecting SSF diesel generator operability
- M-11-4439, Foreign material in Unit 1 refueling cavity deep end

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

Permanent Modification: The inspectors reviewed the Unit 2 Ovation digital control system upgrade modification and the associated 10 CFR 50.59 review to determine whether the modifications satisfied the requirements of 10 CFR 50, Appendix B, and compared each against the UFSAR and TS to determine whether the operability or availability of SSCs were affected by completion of the modification. The inspectors reviewed the modification to ensure that it was installed in accordance with the modification documents and reviewed post-installation to verify that the actual impact on permanent systems was adequately verified by the tests. In addition, the inspectors determined whether the appropriate procedures, design documents, and licensing documents were updated to reflect the installation of the modification. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the five maintenance tests listed below, the inspectors identified the safety functions described in the UFSAR and TS that were affected by the maintenance activity. The inspectors witnessed the post-maintenance tests listed and/or reviewed the test data to determine whether the test results adequately demonstrated restoration of the affected safety function(s). Documents reviewed are listed in the Attachment.

- PT/2/A/4350/002A, Diesel Generator 2A Operability Test, jacket water/intercooler pump motor high vibration
- PT/1/A/4200/028B B Slave Relay Testing, after 1B safety injection reset pushbutton troubleshooting
- PT/1/A/4350/002B, Diesel Generator 1B Operability Test, after several planned maintenance activities were completed on May 16 and May 17
- PT/2/A/4600/003D, Monthly Surveillance Items, Enclosure 13.3, NC Pumps Seal Injection Flow Checklist, to verify Unit 2 NV seal injection throttle valve positions.
- PT/1/A/4350/002A, Diesel Generator 1A Operability Test, Diesel Generator 1A after planned maintenance activities on June 28 and June 29.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

Unit 2 began a refueling outage on February 26. Prior to the refueling outage, the inspectors reviewed the licensee's outage risk control plan to determine if the licensee had adequately considered risk in developing the outage schedule. The inspectors reviewed the licensee procedures listed in the Attachment to determine if they contained mitigation/response strategies for losses of decay heat removal, inventory control, power availability, and containment. During the outage, the inspectors observed portions of the following activities when Unit 2 entered the refueling outage. Documents reviewed are listed in the Attachment.

- Reviewed selected system lineups and/or control board indications to determine if TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant configurations.
- Conducted a containment walk-down prior to reactor startup to determine if containment cleanliness supported emergency core cooling system sump operability,
- Observed reactor coolant system heat-up and reviewed mode change check lists to determine if TS requirements were being met, observed reactor criticality to determine if procedural requirements were followed and if the estimated critical position was consistent with actual, and reviewed reactor physics testing to determine if core operating parameters were consistent with core design.
- Reviewed the items that had been entered into the licensee's corrective action program, to determine if the licensee had identified problems related to outage activities at an appropriate threshold and had entered them into the corrective action program. For the significant problems, the inspectors reviewed the results of the licensee's investigations, to determine whether the licensee had determined the root cause and implemented appropriate corrective actions.

b. Findings

No findings were identified.

1R22 Surveillance Testinga. Inspection Scope

For the five surveillance tests identified below, the inspectors witnessed testing and/or reviewed the test data, to determine if the SSCs involved in these tests satisfied the requirements described in the TSs, the UFSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

Surveillance Tests

- PT/1/A/4250/004A, Turbine Valve Movement Test
- PT/0/A/4200/047, Train "A" SNSWP Supply and Return Header Flush

In-Service Tests

- PT/2/A/4252/002B, CA Valve Stroke Timing – Quarterly 2B Motor Driven Pump Flowpath

Containment Isolation Valve Testing

- PT/2/A/4255/003 C, SM Valve Timing Test at Full Temperature and Pressure.

Ice Condenser Systems Testing

- PT/0/A/4200/032, Periodic Inspection of Ice Condenser Lower Inlet Doors

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluationa. Inspection Scope

The inspectors evaluated the conduct of the following two routine licensee emergency drills to identify any weaknesses or deficiencies in classification, notification, dose assessment and protective action recommendation development activities in accordance with 10 CFR 50, Appendix E. The inspectors also attended the licensee critique of the drill to compare any inspector-observed weakness with those identified by the licensee in order to verify whether the licensee was properly identifying failures. The inspectors reviewed the licensee's performance indicator determinations for this drill to determine whether they were in conformance with the criteria contained in NEI 99-02. Documents reviewed are listed in the Attachment.

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- Routine emergency drill conducted on May 11
- Routine emergency drill conducted on June 30

b. Findings

No findings were identified.

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported PI data for the following two indicators during the four quarters of 2010. To determine the accuracy of the PI data reported during that period, the inspectors compared the licensee's basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Rev. 4.

Mitigating Systems Cornerstone

- Safety System Functional Failures (Unit 1 and Unit 2)

The inspectors reviewed documents for the period of January 1, 2010, to December 31, 2010, to determine if the licensee had correctly reported the data for the above PIs. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

a. Inspection Scope

Routine Review: As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed screening of items entered into the licensee's corrective action program. This was accomplished by reviewing copies of condition reports, attending some daily screening meetings, and accessing the licensee's computerized database.

Selected Issue Follow-Up Inspection: The inspectors selected one item for detailed review. The inspectors reviewed PIP M-10-1026 associated with incorporation of the SSF into the licensing basis to determine whether the licensee identified the full extent of the issue, performed an appropriate evaluation, and specified and prioritized appropriate corrective actions. The inspectors evaluated the licensee documents against the requirements of the licensee's corrective action program and implementing procedures, and 10 CFR 50, Appendix B.

Semi-Annual Review to Identify Trends: The inspectors performed a trend review to determine if trends existed which were not contained in the corrective action program that could indicate the existence of a more significant safety issue. The inspector's review was focused on repetitive equipment issues, but also considered the results of daily inspector corrective action program item screening discussed above, licensee trending efforts, and licensee human performance results. The review also included issues documented outside the normal corrective action program in major equipment problem lists, plant health team vulnerability lists, focus area reports, system health reports, self-assessment reports, maintenance rule reports, and Safety Review Group Monthly Reports. The inspectors compared and contrasted their results with the results contained in the licensee's latest quarterly trend reports. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified. No new trends were identified. The inspectors had previously identified a trend associated with UFSAR accuracy and completeness due to numerous violations for failing to update the FSAR in accordance with regulations outlined in 10 CFR Part 50.71(e). During the six month period for the first half of 2011, one additional issue that dealt with UFSAR accuracy was identified by the NRC. The issue involved the licensee's failure to update the UFSAR to include the information submitted in response to Generic Letter (GL) 91-13, Essential Service Water System Failures at Multi-Unit Sites that described capabilities pertaining to the cross-connecting of nuclear service water between units (NCV 05000369,370/2011002-01).

4OA3 Follow-up of Events and Notices of Enforcement Discretion

.1 Failure to Notify the NRC of a Situation Related to Public Health and Safety

a. Scope

The inspectors reviewed the licensee's reportability analysis to determine if the conclusion to not report notification of another government agency was supported.

b. Findings

Introduction: An NRC-identified SL-IV NCV of 10 CFR 50.72 was identified when the licensee did not notify the NRC that they had reported a non-routine event related to the health and safety of the public to another government agency. The licensee notified FERC of leakage in a FERC-licensed intake dike and did not notify NRC within four hours of notifying FERC.

Description: On April 16, the licensee discovered water leaking from the base of an earthen dike connected to the Cowans Ford dam inside the protected area. The licensee suspected the leak was from the Unit 1 'B' condenser cooling water (RC) pump because the leak rate was significantly reduced when the RC pump was stopped. When the pump was subsequently restarted on April 19, the leak rate was observed to be much greater than previously identified. Following excavation, the licensee determined

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that the source of the water was from two leaks in the Unit 1 'B' RC supply piping. Temporary repairs were made to stop the leaks and shoring support was installed in the excavated portion of the dike to ensure the structural integrity of the dike until permanent repairs can be made.

The dike was included in the FERC Cowans Ford Dam license and credited in the McGuire UFSAR, Section 2.4, for providing protection of Unit 1 and Unit 2 safety-related SSCs from a loss of an upstream dam and flooding design basis event. Consequently, a potential failure of the dike would have presented a risk to the health and safety of the public and onsite personnel. On April 20, the licensee made a verbal notification of the condition to FERC. Because the source of the leak had not been determined, the functionality of the dike was in question. FERC informed the NRC that they considered this to be a verbal notification under 18 CFR 12.10(a). 18 CFR 12.3(b)(4) lists examples of conditions affecting the safety of a project or project works including new seepage or leakage or any other signs of instability of any project work. FERC considered this condition so significant that FERC personnel responded and remained on-site until the source of the leak was identified. On April 28, FERC informed the licensee that an 18 CFR 12.10(a) written report would be required. NUREG-1022, Event Reporting Guidelines, contained guidance related to licensee's notifications to other government agencies. Routine notifications do not require NRC notification. However, NRC considered the notification to FERC a non-routine notification for the following reasons: (1) the dike was credited in the UFSAR for flood mitigation and failure of the dike would have presented a risk to the health and safety of the public and onsite personnel; (2) the presence of the FERC personnel onsite during the excavation and repair; (3) FERC's determination that a written report was required; and (4) the functionality of the dike was in question. The inspectors reviewed the reporting requirements of 10 CFR 50.72 and discussed the reportability of the event with the licensee. The licensee completed a reportability evaluation (PIP M-11-3173) on May 2, and concluded that the event was not reportable. Following additional discussions with the inspectors regarding the adequacy of the reportability evaluation, a second reportability evaluation (PIP M-11-3600) was conducted and the licensee reached the same conclusion.

Analysis: The failure to notify the NRC about a notification to another government agency of a significant condition related to public health and safety as required by 10 CFR 50.72 was a PD. This PD was considered as traditional enforcement because the failure to notify the NRC had the potential for impacting the NRC's ability to perform its regulatory function. This PD was determined to be a SL-IV violation using Section 6.9 of the NRC Enforcement Policy. Cross-cutting aspects are not assigned to traditional enforcement violations.

Enforcement: 10 CFR 50.72(b)(2)(xi) stated, in part, that the licensee shall notify the NRC as soon as practical and in all cases within four hours of the occurrence of any event or situation, related to the health and safety of the public or onsite personnel or protection of the environment, for which a notification to other government agencies has been or will be made. Contrary to the above, the licensee did not notify the NRC within four hours of a notification to another government agency of a situation, related to the health and safety of the public or onsite personnel. On April 20, 2011, the licensee made a verbal report to FERC regarding leakage from the intake dike and did not make

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a report to NRC within four hours. Because this violation was determined to be a SL-IV violation and is in the licensee's corrective action program as PIP M-11-3600, it is being treated as an NCV in accordance with Section 2.3.2 of the NRC Enforcement Policy and is identified as NCV 05000369,370/2011003-01, Failure to Notify the NRC of a Situation Related to Public Health and Safety.

2. Failure to Submit an LER for a Valid RPS Actuation

a. Scope

The inspectors reviewed the licensee's determination that a manual actuation of RPS during control rod movement testing was not a reportable condition.

b. Findings

Introduction: An NRC-identified SL-IV NCV of 10 CFR 50.73, Licensee Event Report (LER) System, was identified for the licensee's failure to submit an LER within 60 days for a valid RPS actuation. The reactor was manually tripped when control rod L-13 did not respond as expected during rod control movement testing.

Description: On March 30, 2011, during Unit 2 rod control movement testing, control rod L-13 failed to respond when shutdown bank (SDB) 'C' was withdrawn. With SDB 'C' fully inserted, control rod L-13 indicated 12 steps withdrawn. The reactor operators manually actuated RPS to open the reactor trip breakers in accordance with PT/2/A/46000/001, RCCA Movement Test, for the unanticipated condition. A subsequent troubleshooting plan was developed which involved further manipulation of SDB 'C' where the same condition occurred and the reactor trip breakers were again opened. The control rod malfunction was later determined to be caused by a wiring error. The wiring error was corrected and rod control testing was completed with no further issues.

The licensee made an initial eight-hour event notification report for a valid RPS actuation as required by 10 CFR 50.72. However, after further evaluation, the licensee determined that the manual RPS actuation was at their discretion as part of a pre-planned activity which did not meet the 10 CFR 50.72 reporting criteria and retracted the event notification report. The inspectors reviewed the guidance in NUREG-1022 and determined that the licensee's basis for the event notification retraction was invalid. NUREG-1022 stated that pre-planned actuations were those actuations which were expected to actually occur during the pre-planned activity. The manual actuation of RPS was not expected to occur during the rod control movement testing and therefore did not meet the NUREG-1022 standard for a pre-planned actuation. On May 18, the licensee was informed that the RPS actuation did not meet the NUREG-1022 standard for a pre-planned actuation. Furthermore, 10 CFR 50.73(a)(2)(iv)(A) required that the licensee report within 60 days after discovery of any event or condition that results in valid actuation of the RPS except when the actuation resulted from and was part of a pre-planned sequence during testing or reactor operation. As of May 30, the licensee had not submitted a LER within 60 days as required by 10 CFR 50.73.

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Analysis: The inspectors determined that the licensee's failure to submit an LER in accordance with 10 CFR 50.73(a)(2)(iv)(A) was a PD. This PD was dispositioned as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. This violation was determined to be a SL-IV violation using Section 6.9 of the NRC Enforcement Policy. Cross-cutting aspects are not assigned for traditional enforcement violations.

Enforcement: 10 CFR 50.73 required that the licensee shall submit an LER for any event of the type described therein within 60 days after the discovery of the event. 10 CFR 50.73(a)(2)(iv)(A) stated, in part, that the licensee shall report any event or condition that resulted in manual or automatic actuation of RPS unless the actuation resulted from and was part of a pre-planned sequence during testing or reactor operation. Contrary to the above, as of May 30, 2011, the licensee failed to submit an LER within 60 days of an event that resulted in manual actuation of RPS. On March 30, 2011, and was not part of a pre-planned sequence. Because this violation was determined to be an SL-IV violation and because the licensee entered this condition into their CAP as PIP M-11-2694, this violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000369,370/2011003-02, Failure to Submit an LER for a Valid RPS Actuation

.3 (Closed) LER 05000370/2010-001-0, Loose connection in a panel serving a Solid State Protection System (SSPS) Train concurrent with redundant train maintenance could have prevented fulfillment of a safety function

On January 19, 2010, the Unit 2 control room received intermittent annunciators and bi-stables over a 31 minute period from 1907 to 1938 hours caused by load cycling of 120VAC Vital Instrumentation & Control Panel (I&C) panel board EKVA. Channel 1 of Train A of Unit 2 SSPS was affected. Based on the plant conditions and system configuration at the time, initiation of some Unit 2 Engineered Safety Features Actuation System functions may have been delayed over the course of time in which the SSPS channel was cycling. The licensee's root cause analysis determined that a loose bus bar connection in the 120VAC Vital Instrumentation & Control panel board 2EKVA caused the intermittent loss of Channel 1 Train A SSPS. The licensee recovered by moving the Channel 1 SSPS Train power to an alternate source. The licensee's corrective actions included revising maintenance procedures for the Unit 1 and Unit 2 120VAC/125VDC Vital I&C panel boards to ensure those panels are adequately inspected for loose connections. The licensee reported this issue under 10 CFR 50.73(a)(2)(v)(D) for any condition that could have prevented the fulfillment of the safety functions of systems that are needed to mitigate the consequences of an accident. The inspectors reviewed the licensee's root cause evaluation and corrective actions and identified no findings of significance and determined no violation of NRC requirements had occurred. The licensee documented the event in PIP M-10-00260.

.4 (Closed) LER 05000369/2011-002-0, Completion of Dual unit Shutdown and occurrence of Unit 1 Reactor Trip

On January 20, 2011, while shutting down Unit 1 the 1B feedwater (CF) pump tripped on high discharge pressure resulting in a loss of all CF flow followed by an automatic main

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turbine trip and a manual reactor trip. The licensee determined that the root cause of the CF pump trip was the use of equipment for a purpose it was not designed. The licensee used a gate valve, 1HM-95, to transfer steam supply to the 1B CF pump. The valve was not designed to be used as a throttle valve during transfer of steam supplies to the CF pumps. The licensee planned to use a new distributed control system to allow modulation of the high pressure and low pressure governor valves. In addition, a contributing cause was inadequate procedural guidance to perform the evolution. The guidance for transferring the steam supply in OP/1/A/6100/003, Controlling Procedure for Unit Operation, was not sufficient for users performing the task without prior operating experience. The inspectors reviewed the LER, licensee's root cause analysis, and corrective action documents to verify the accuracy of the LER and that the corrective actions were appropriate. The enforcement aspects of the event are discussed in Section 4OA7. This LER was in the licensee's CAP as PIP M-11-0389. Documents reviewed are listed in the Attachment.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings were identified.

.2 (Closed) NRC Temporary Instruction 2515/183, Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event

a. Inspection Scope

The inspectors assessed the activities and actions taken by the licensee to assess its readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. This included (1) an assessment of the licensee's capability to mitigate conditions that may result from beyond design basis events, with a particular emphasis on strategies related to the spent fuel pool, as required by NRC Security Order Section B.5.b issued February 25, 2002, as committed to in severe accident management guidelines, and as required by 10 CFR 50.54(hh); (2) an assessment of the licensee's capability to mitigate station blackout conditions, as required by 10 CFR 50.63 and station design bases; (3) an assessment of the licensee's capability to mitigate internal and external flooding events, as required by station design bases; and (4) an

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assessment of the thoroughness of the walkdowns and inspections of important equipment needed to mitigate fire and flood events, which were performed by the licensee to identify any potential loss of function of this equipment during seismic events possible for the site.

b. Findings

Inspection Report 05000369,370/2011008 (ML111330180) documented detailed results of this inspection activity. Following issuance of the report, the inspectors conducted detailed follow-up on selected issues. No findings were identified during this follow-up inspection.

.3 (Closed) NRC Temporary Instruction 2515/184, Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)

On May 27, 2011, the inspectors completed a review of the licensee's severe accident management guidelines (SAMGs), implemented as a voluntary industry initiative in the 1990's, to determine (1) whether the SAMGs were available and updated, (2) whether the licensee had procedures and processes in place to control and update its SAMGs, (3) the nature and extent of the licensee's training of personnel on the use of SAMGs, and (4) licensee personnel's familiarity with SAMG implementation.

The results of this review were provided to the NRC task force chartered by the Executive Director for Operations to conduct a near-term evaluation of the need for agency actions following the Fukushima Daiichi fuel damage event in Japan. Plant-specific results for McGuire Station were provided as an Enclosure to a memorandum to the Chief, Reactor Inspection Branch, Division of Inspection and Regional Support, dated June 02, 2011 (ML111530328).

40A6 Meetings, Including Exit

On July 11, 2010, the resident inspectors presented the inspection results to Mr. Regis T. Repko and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

40A7 Licensee-Identified Violations

The following violation of very low safety significance was identified by the licensee and is a violation of NRC requirements which met the criteria of the NRC Enforcement Policy for being dispositioned as a NCV.

- TS 5.4.1.a stated that written procedures shall be established, implemented, and maintained covering activities recommended in RG 1.33, Rev. 2, Appendix A, February 1978. RG 1.33, Rev. 2, Appendix A, recommended procedures for general plant operation. OP/1/A/6100/003, Controlling Procedure for Unit Operation, Section 4.2, provided instructions for throttling 1HM-95 to transfer steam supply to the 1B CF pump during unit power reduction. Contrary to the above, as of January 20, 2011, the licensee failed to maintain procedure OP/1/A/6100/003 such that the user

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performing the task could transfer steam supply to the 1B CF pump without causing a plant transient. This violation was determined not to be greater than very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available. This condition was placed in the licensee's CAP as PIP M-11-0389.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

K. Ashe, Manager, Regulatory Compliance
D. Black, Security Manager
D. Brenton, Superintendent, Plant Operations
D. Brewer, Manager, Safety Assurance
S. Capps, Station Manager
K. Crane, Regulatory Compliance
C. Curry, Engineering Manager
J. Gabbert, Chemistry Manager
J. Hicks, Superintendent, Maintenance
N. Kunkel, Superintendent, Work Control
S. Mooneyhan, Radiation Protection Manager
K. Murray, Manager, Emergency Preparedness
J. Nolin, Manager, Mechanical and Civil Engineering
R. Repko, Site Vice President, McGuire Nuclear Station
P. Schuerger, Training Manager
S. Snider, Manager, Reactor and Electrical Systems Engineering

NRC personnel

J. Thompson, Project Manager, NRR
E. Stamm, Project Engineer, RII

LIST OF REPORT ITEMS

Opened and Closed

05000369,370/2011003-01	NCV	Failure to Notify the NRC of a Situation Related to Public Health and Safety (Section 40A3.1)
05000369,370/2011003-02	NCV	Failure to Submit an LER for a Valid RPS Actuation (Section 40A3.2)

Closed

05000370/2010-001-0	LER	Loose connection in a panel serving a Solid State Protection System Train concurrent with redundant train maintenance could have prevented fulfillment of a safety function (Section 40A3.3)
05000369/2011-002-0	LER	Completion of Dual Unit Shutdown and occurrence of Unit 1 Reactor Trip (Section 40A3.4)

Attachment

2515/183	TI	Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event” (Section 4OA5.2)
2515/184	TI	Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs) (Section 4OA5.3)

DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

External Flooding

UFSAR Sections

2.4.10, Flooding Protection Requirements

3.4, Water Level (Flood) Design

Design Basis Documents

MCS-1465.00-00-0012, Design Basis Specification for Flooding From External Sources

Summer Readiness of Offsite & Alternate AC Power Systems

PIPs: M-11-2879, M-11-3732

NSD 417, Nuclear Facilities/Generation Status Communications

SOMP, Operations Roles in the Risk Management Process

Section 1R04: Equipment Alignment

Simple Equipment Walkdown

MCFD-1561-01.00, Flow Diagram of residual heat removal system (ND)

Complete System Walkdown

UFSAR Section 10.4.10, auxiliary feedwater system, Rev. 15

McGuire CA Units 1 and 2 System Health Report, 2011 Q1

WO#1885316, 2CAPG5670: Flow gage appears to be stuck

WO#1971518, 2SATR0003: Change oil sight glass to QA1 component

WO#1962755, EC102990 2CA-128: Replace TD CA pump suction relief valve

WO#1937233, 2SATR0003: Steam/oil leak from threaded connections

OP/2/A/6250/002, Enclosure 4.8, Valve and Power Supply Checklist, Rev. 81

PIP M-09-2373, Tornado or Seismic induced damage to the Class G portions of CA recirculation piping could compromise CA pump minimum flow protection, dated 5/6/2009

MCFD-2591-01.00, Flow Diagram of auxiliary feedwater system, Rev. 10

MCFD-2591-01.01, Flow Diagram of auxiliary feedwater system, Rev. 21

MCFD-2591-02.00, Flow Diagram of auxiliary feedwater system, Rev. 4

MNS OPS Work Arounds List, December 2010

Section 1R05: Fire Protection

MCS-1465.00-00-0008 Design Basis Specification for Fire Protection

fS/0/B/9000/024, Control Room Fire Strategy #24

Section 1R06: Flood Protection Measures**Design Basis Documents**

MCS-1154.00-00-004, Design Basis Specification for the Auxiliary Building Structures, section 30.2.1.3.4.1, Internal Flooding

Calculations:

MCC-1206.47-69-1001, Auxiliary Building Flooding Analysis, Sec.9.2.1
MCC-1206.47-69-1001 Auxiliary Feedwater Pump Compartment

Procedures:

AP/0/A/5500/44, Plant Flooding, Rev. 3

Section 1R11: Licensed Operator Regualification Program

ASE-14, Active Simulator Exam, Rev. 17

AP/1/A/5500/21, Loss of KC or KC System Leakage, Rev. 9

EP/1/A/5000/E-0, Reactor Trip or Safety Injection, Rev. 31

EP/1/A/5000/E-1, Loss of Reactor or Secondary Coolant, Rev. 13

EP/1/A/5000/ES-1.2, Post LOCA Cooldown and Depressurization, Rev. 14

RP/0/A/5700/000, Classification of Emergency, Rev. 17

Section 1R12: Maintenance Effectiveness

PIP M-11-0389

OP/1/A/6100/003, Controlling Procedure for Unit Operation

CF System Health Report

PIP M-11-3800, Containment Isolation valve 2WL-64A failed to close

PT/2/A/4200/028B, 2B Slave Relay

WO 01982093

WL System Health Report

PIP M-10-0185

LER 369/2010-002

PIP M-11-03263 Unit 1 SSF unavailability

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

NSD 403, Shutdown Risk Management (Mode 4,5,6, and No-Mode) per 10 CFR 50.65(a)4

NSD 213, Risk Management Process

Complex Activity Plan for U1 RC Piping Leak

WO 1978270

Critical Activity Plan for 1B RN Unavailability for EC101549

Critical Activity Plan for Control of Drain, Acoustic Inspection, and Refill of RN "A" Train

SWSWP Suction

TN/0/A/104884/001 RN Study: Control of Drain, Acoustic Inspection, and Refill of RN "A" Train

SWSWP Suction

EC104884, "Drain Upstream of 0RNVA0007A on "A" Train SNSWP RN Piping

MCFD-1574-01.00, Flow Diagram of nuclear Service Water System (RN) Rev.11

AP-5 (Generator Voltage and Electric grid Disturbances)

PIP-11-4170, unit 1 & unit 2 entered AP-5

2A RN Orange Condition Critical Activity Plan (11W26)

Installation of Temporary Mullion on Door PD-1, Movement of 2A RN Suction Strainer Out of unit 1 CA Pump Room, and Replacement of Permanent Mullion on Door PD-1

Section1R15: Operability Evaluations

NSD 203, Operability/Functionality
 EP/1/A/5000/G-1, Enclosure 23, Local Reset of SI Signal
 UFSAR sections 2.4.10 and 3.4 pertaining to flooding
 NLI letter to Duke dated 5/12/2006 concerning Cracked Post Seal Nuts and jar Covers.
 PIP M-06-1907, Cracked post seal nuts
 TT/0/B/MD501276/06E Fire Detection System (EFA) FACP9 (SFPs unit 1, unit 2 and Aux Building) Detector Loops Functional Verification Testing (Including Video Image Cameras)
 PIP M-11-4439, FME in unit 1 Refueling Cavity Deep End
 TS 3.6.15

Section1R18: Plant Modifications

TT/2/B/EC78243/003A, Ovation PCS Testing During unit 2 Startup and Power Ascension

Section 1R19: Post Maintenance Testing

WO 1978375
 PIP M-11-3149, 1B NI operability determination
 1A D/G Activities 11W26

Section1R20: Refueling and Other Outage Activities

PIP M-11-2765, Seal table leakage
 PT/0/A/4550/003C Core Verification
 OP/1/A/6100/003, Controlling Procedure for Unit Operation
 PT/0/A/4150/028, Initial Criticality and Zero Power Physics Testing
 PT/0/A/4150/021, Post Refueling Controlling Procedure for Criticality, Zero Power Physics, & Power Escalation Testing

Section1R22: Surveillance Testing

MP/0/A/7150/141, Ice Condenser Lower Inlet Doors Inspection and Corrective Maintenance
 SLLc16.7.5, Turbine Overspeed Protection
 McGuire ASME OM Code IST Program Document, March 04, Rev 3.

Section 1EP6: Drill Evaluation

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 6
 RP/0/A/5700/000, Classification of Emergency, Rev. 17
 McGuire Nuclear Site Emergency Exercise Guide, dated May 11, 2011
 PIP M-11-3756, Notification to the State and Counties was not timely, dated 5/11/2011

Section 40A1: Performance Indicator (PI) Verification

PIP M-10-0185
 McGuire Nuclear Station NRC Performance Indicator History - unit 1 - Indicator: Safety System Functional Failures
 McGuire Nuclear Station NRC Performance Indicator History - unit 2 - Indicator: Safety System Functional Failures

NUREG 1022, Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73, Rev. 2
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 6

Section 40A2: Problem Identification and Resolution

NSD 208, Problem Investigation Process (PIP)
 NSD 201, Reporting Requirements
 NSD 202, Reportability
 PIPs M-11-1444 and M-10-0655 associated with the SSS
 MCS-1465.00-00-0008 Design Basis Specification for Fire Protection
 NSD 307, Quality Standards Manual
 SSF QA Condition Change Management Plan
 NUREG 0422, McGuire SER Supplement 2

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

M-10-00260, Multiple annunciators and bistable stat-lights illuminating with no apparent cause.
 PIP M-11-0389
 OP/1/A/6100/003, Controlling Procedure for Unit Operation

LIST OF ACRONYMS

CAP	-	corrective action program
CF	-	feedwater
CFR	-	Code of Federal Regulations
FERC	-	Federal Energy Regulatory Commission
LER	-	Licensee Event Report
NCV	-	non-cited violation
PD	-	performance deficiency
PI	-	Performance Indicator
PIP	-	Problem Investigation Program
RC	-	condenser cooling water
RPS	-	reactor protection system
RTP	-	rated thermal power
SAMG	-	severe accident mitigation guidelines
SSC	-	structures, systems and components
SSF	-	standby shutdown facility
SSPS	-	solid state protection system
TS	-	Technical Specifications
UFSAR	-	Updated Final Safety Analysis Report