Progress Energy

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United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

REPLY TO A NOTICE OF VIOLATION; EA-10-257

Ladies and Gentlemen:

On January 31, 2011, the NRC issued letter EA-10-257, to H. B. Robinson Steam Electric Plant, Unit No. 2. This letter documents two notices of violation. The violations involved: (1) the failure to adequately implement requirements of multiple procedures required by Technical Specification 5.4.1, during a cooldown of the Reactor Coolant System and subsequent safety injection after a reactor trip on March 28, 2010; and (2) the failure to adequately design and implement operator training based on learning objectives as required by 10 CFR 55.59(c), in that training lesson material failed to identify the basis of a procedural action involving reactor coolant pump seal cooling in licensee procedure PATH-1, as required by the definition of systems approach to training, Element 3 in 10 CFR 55.4.

Letter EA-10-257 requires a written reply within 30 days of the date of that letter (i.e., by March 2, 2011). A due date extension to March 24, 2011, was requested on February 24, 2011. The extension was granted by the NRC on March 1, 2011. In accordance with 10 CFR 2.201, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc., is providing the required reply in the enclosure to this letter.

This submittal contains no personal privacy, proprietary, or safeguards information. Additionally, regulatory commitments are provided in a table in the enclosure to this letter.

Progress Energy Carolinas, Inc.
Robinson Nuclear Plant
3581 West Entrance Road
Hartsville, SC 29550

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RGNII

If you have any questions concerning this matter, please contact Mr. Christos Kamilaris, Manager – Support Services – Nuclear, at (843) 857-1253.

Sincerely,

Robert J. Duncan, II
Vice President
H. B. Robinson Steam Electric Plant, Unit No. 2

AHV/ahv

Enclosure

c: Mr. V. M. McCree, NRC, Region II
Ms. B. Mozafari, NRC, NRR
NRC Resident Inspector, HBRSEP
Chair – South Carolina Public Service Commission

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

REPLY TO A NOTICE OF VIOLATION; EA-10-257

Reply to Notices of Violation Described in Letter EA-10-257

In accordance with 10 CFR 2.201, the following response by Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc. (PEC), to notices of violation described in letter EA-10-257 is provided for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

Restatement of Violation 1

Technical Specification 5.4.1, "Procedures," requires, in part, that procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide (RG) 1.33, Rev. 2, Quality Assurance Program Requirements, Appendix A.

A. RG 1.33, Appendix A, Item 1.b, Authorities and Responsibilities for Safe Operation and Shutdown, is implemented by OPS-NGGC-1000, "Fleet Conduct of Operations."

OPS-NGGC-1000 contains responsibility requirements for the Shift Manager (SM), Control Room Supervisor (CRS), Shift Technical Advisor (STA), and Reactor Operator (RO) to provide monitoring and oversight for plant operations. Specifically:

Section 4.3, Shift Manager, requires the Shift Manager to be responsible for:

- Ensuring the command and control protocols/functions are maintained in the control room. (Section 4.3.4.f)
- Not becoming so involved with a single operation to an extent that the ability to oversee the safety of the plant is lost. (Section 4.3.4.g)
- Ensuring plant operations are conducted in accordance with the requirements of the plant operating license, Technical Specifications, and plant procedures. (Section 4.3.4.p)
- Maintaining a broad perspective of operational conditions affecting plant safety. (Section 4.3.4.s)
- Maintaining an overview of plant conditions during the initial phases of any emergency, including oversight of the actions being taken by the CRS and operating crew in resolving the casualty. (Section 4.3.4.u)

Section 4.4, Control Room Supervisor, requires the Control Room Supervisor to:

- Supervise, direct and oversee all unit activities during the shift. (Section 4.4.1)
- Maintain a broad perspective of operational conditions affecting the safety of the plant at all times when on control room duty, such that his involvement in any single operation does not distract from required overall operation of the control room during plant transients or an emergency. (Section 4.4.3)

- Directly supervise control room watchstanders in the manipulation of reactor and plant controls. (Section 4.4.10)
- Ensure that the plant is rigorously monitored and operating activities are conducted in accordance with applicable procedures. (Section 4.4.12)
- Monitor plant instrumentation and make sound, logical decisions involving the safe, efficient and dependable operation of power plant equipment. (Section 4.4.30)

Section 4.5, Shift Technical Advisor, requires the Shift Technical Advisor to:

- Provide a primary function of independent assessment of plant and crew response, and provide engineering based technical information and recommendations to assist the crew in safe operation of the plant. (Section 4.5.1)
- Act as an advisor to the SM and CRS by assessing plant conditions and response during normal and off-normal plant operating conditions and make recommendations on mitigating actions to ensure the protection of the reactor core. (Section 4.5.2)
- Provide the following crew support during event procedures:
    - Prioritize focus and support on activities that ensure reactor core protection and accident mitigation strategies. (Section 4.5.13.a)
    - Provide the operating crew with real time evaluation of plant status, direction, and recommended actions. (Section 4.5.13.b)
    - Report to the operating crew any abnormalities or plant parameters that may represent a challenge to the critical safety functions or that could result in a degradation of the safety level and assist in formulating a plan for appropriate corrective action. (Section 4.5.13.c)
    - Assess the effectiveness of mitigating actions. (Section 4.5.13.f)
    - Provide an independent backup diagnosis of the event. (Section 4.5.13.g)

Section 4.6, Reactor Operator, requires the Reactor Operator to:

- Believe and respond conservatively to instrument indications, and use multiple indications to verify them to be incorrect in order to ensure public, plant and personnel safety. (Section 4.6.2.b)
- Monitor and manipulate the control board. (Section 4.6.4.a)
- Monitor operation of the reactor and associated controls for proper response and expected behavior when standing in the Operator at the Controls (OATC) position. (Section 4.6.1.1.a)
- Remain alert for changing critical parameters, alarms, and trends when standing in the OATC position. (Section 4.6.1.1.g)

Contrary to the above, on March 28, 2010, the licensee/operators failed to adequately implement the monitoring and oversight responsibility requirements listed in OPS-NGGC-1000, Sections 4.3, 4.4, 4.5, and 4.6 when:

- Operators failed to monitor and respond to the closure of flow control valve (FCV) FCV-626 and to the failure of the charging pump automatic swap over to the Refueling Water Storage Tank (RWST). This resulted in a condition where Component Cooling Water (CCW) flow was lost to the thermal barrier heat exchanger coincident with inadequate seal injection flow. (Section 4.6)
- The CRS and reactor operators did not effectively monitor control board indications, including RCS temperature, for the excess steam demand and also failed to maintain a broad perspective for degrading conditions that resulted in a safety injection. (Section 4.4 and 4.6)
- The control room staff failed to implement their position responsibilities for addressing annunciator procedure APP-009-B6, "AUX TRANSF FAULT TRP," prior to performing GP-004, "Post Trip Stabilization," Step 8.26. Specifically, the 86P relay was reset with an auxiliary transformer fault present, even though APP-009-B6 required that the Load Dispatcher be contacted to repair the fault. Resetting the 86P relay caused a fast transfer of 4 kV bus 4 from the unit auxiliary transformer to the startup transformer and caused a fault at breaker 52/24. The associated arc damaged surrounding equipment. Subsequently, alarms in the control room indicated grounds on both safety-related 125 volt DC battery buses, which required an Alert emergency declaration. (Sections 4.3, 4.4, 4.5, and 4.6)
- The control room staff failed to implement their position responsibilities for implementing procedure OP-601, "DC Supply System," in a timely manner which resulted in the "B" battery charger remaining de-energized for 38 minutes. (Sections 4.3, 4.4, 4.5, and 4.6)

B. RG 1.33, Appendix A, Item 5, Procedures for Abnormal, Offnormal, or Alarm Conditions, is implemented by procedure APP-003-E3, "VCT HI/LO LEVEL," Step 5 of procedure APP-003-E3, states, "If VCT level reaches 12.4 inches, then verify LCV-115B, EMERG MU TO CHG SUCT, opens and LCV-115C, VCT OUTLET, closes."

Contrary to the above, on March 28, 2010, the licensee/operators failed to adequately implement the required actions of procedure APP-003-E3 because they failed to ensure the charging pump suction was re-aligned to the RWST at the time when the automatic swap over feature had failed.

C. RG 1.33, Appendix A, Item 6.u, Reactor Trip, is implemented by procedure EPP-4, "Reactor Trip Response." Procedure EPP-4, Step 8, requires the operators to control RCS temperature and stop dumping steam if RCS temperature is less than 547°F.

Contrary to the above, on March 28, 2010, the licensee/operators failed to adequately implement the required actions of procedure EPP-4, Step 8.b, "Stop Dumping Steam," when RCS temperature was below 547°F and the operators did not close the main steam isolation valves. This failure resulted in an automatic safety injection on low pressurizer pressure.

D. RG 1.33, Appendix A, Item 5, Procedures for Abnormal, Off-normal, or Alarm Conditions, is implemented by procedure APP-009-B6, "AUX TRANSF FAULT TRIP." Procedure APP-009-B6, Action Step 3, required the crew to contact the Load Dispatcher to repair the condition causing the fault on the auxiliary transformer.

Contrary to the above, on March 28, 2010, the licensee/operators failed to adequately implement Action Step 3 of procedure APP-009-B6 because they did not contact the Load Dispatcher to repair the conditions causing the fault on the auxiliary transformer before the relay was reset, which resulted in a second electrical transient and associated arc that damaged the surrounding equipment.

E. RG 1.33, Appendix A, Item 6, Procedures for Combating Emergencies and Other Significant Events, is implemented by emergency operating procedure PATH-1. Emergency operating procedure PATH-1, states, "RESTART BATTERY CHARGERS WITHIN 30 MIN OF POWER LOSS USING OP-601."

Contrary to the above, on March 28, 2010, the licensee/operators failed to adequately implement the required actions of Emergency Operating Procedure PATH-1 because the crew re-energized the "B" battery charger 38 minutes after power was lost to the battery charger.

This violation is associated with a White Significance Determination Process finding.

Reply to Violation 1

1. Reason for Violation 1

The failure to adequately implement requirements of multiple procedures required by Technical Specification 5.4.1, during a cooldown of the Reactor Coolant System and subsequent safety injection after a reactor trip on March 28, 2010, was documented in Nuclear Condition Report (NCR) 438394. The Root Cause Evaluation for NCR 438394 identified the cause of this violation as ineffective Operations leadership and ownership of performance as shown by:

- Shift Managers (SM) and the Control Room Supervisors (CRS) were disengaged and not demonstrating ownership through monitoring and improving crew performance.
- The Manager of Operations was not regularly observing operating crews and was resistant to feedback from other organizations.
- The Manager – Shift Operations (MSO) had an inadequate picture of compliance to minimum standards of operation.

In addition, Root Cause Evaluation 390095 identified and provided corrective actions for the failure of HBRSEP, Unit No. 2, to correct previously identified behaviors and weaknesses in crew performance.

2. Corrective Steps Taken and Results Achieved for Violation 1

The following actions identified in the Root Cause Evaluations for NCRs 438394 and 390095 have been taken by Progress Energy:

- The control room staff involved in the March 28, 2010, event were disqualified.
- Operating crews were trained on proper procedure use during Emergency Operating Procedure and Abnormal Operating Procedure execution.

3. Corrective Steps That Will Be Taken for Violation 1

The following actions identified in the Root Cause Evaluation for NCR 438394 will be taken by Progress Energy:

- Revise and implement OPS-NGGC-1313, "Standards for Operations Shift/Training Crew Performance Improvement," to require that Simulator Crew Evaluation Summaries and Individual Evaluation Competency Grading forms are reviewed during the Shift Management Review Meetings.
- Initiate organizational effectiveness review committees in accordance with ADM-NGGC-0113, "Performance Planning and Monitoring."
- Add the following requirements to OMM-001-5, Training and Qualification:
  - The Manager – Shift Operations (MSO) shall review INPO Performance Objectives and Criteria for OP.1 and participate with INPO on a Crew Performance Observation (CPO) (preferred) or participate in an as-found simulator evaluation at an off Progress Energy system nuclear plant that is recognized as a leader by INPO in the conduct of operations, either prior to or within 6 months of being promoted to MSO.
  - On an annual basis, conduct a paired observation with the Operations Functional Area Manager (FAM).

4. Date Full Compliance Will Be Achieved for Violation 1

Full compliance will be achieved by May 12, 2011.

Restatement of Violation 2

10 CFR 55.59(c), Requalification program requirements, states that a facility licensee shall have a requalification program reviewed and approved by the Commission and shall, upon request consistent with the Commission's inspection program needs, submit to the Commission a copy of its comprehensive requalification written examinations or annual operating tests. The requalification program must meet the requirements of paragraphs (c) (1) through (7) of this section. In lieu of paragraphs (c) (2), (3), and (4) of this section, the Commission may approve a program developed by using a systems approach to training.

On March 20, 1985, the Commission endorsed the Institute of Nuclear Power Operations (INPO)-managed Training Accreditation Program. Final Safety Analysis Report (FSAR) section 13.2.1, Accredited Training Programs, states that H.B. Robinson's continuing training program (requalification program) for licensed personnel was developed in accordance with the systems approach to training and is accredited by the National Academy for Nuclear Training.

10 CFR 55.4 defines a systems approach to training as a training program that includes the following five elements: (1) Systematic analysis of the jobs to be performed; (2) Learning objectives derived from the analysis which describe desired performance after training; (3) Training design and implementation based on the learning objectives; (4) Evaluation of trainee mastery of the objectives during training; and (5) Evaluation and revision of the training based on the performance of trained personnel in the job setting.

Contrary to the above, prior to March 28, 2010, the licensee failed to adequately implement Element 3 of the systems approach to training in accordance with 10 CFR 55.59(c), Requalification program requirements. The licensee derived a learning objective from the task analysis for emergency operating procedure PATH-1 (Path-1-005), that required the operators to be able to explain the basis of steps, cautions, and notes of the PATH-1 procedure. However, the licensee's training was not adequately designed and implemented based on the learning objective for procedure PATH-1 (Element 3 of the systems approach to training). Specifically, the associated lesson material failed to identify the basis of a procedural action involving reactor coolant pump (RCP) seal cooling in PATH-1. As a result, following a reactor trip on March 28, 2010, licensed operators and other main control room staff failed to recognize the loss of adequate RCP seal cooling, and inappropriately re-established seal cooling via thermal barrier heat exchanger flow, thereby increasing the risk of an RCP seal failure.

This violation is associated with a White Significance Determination Process finding.

Reply to Violation 2

1. Reason for Violation 2

   The failure to design and implement operator training based on learning objectives as required by 10 CFR 55.59(c), in that training lesson material failed to identify the basis of a

procedural action involving reactor coolant pump seal cooling in licensee procedure PATH-1, as required by the definition of systems approach to training, Element 3 in 10 CFR 55.4., was documented in Nuclear Condition Report (NCR) 438396. The Root Cause Evaluation for NCR 438396 identified the cause of this violation as: Line, Training, Senior Site Managers, and Training Advisory Board (TAB) members did not provide the leadership necessary to ensure the integrity of training infrastructure was maintained and monitored. In addition, the Root Cause Evaluation for NCR 438396 identified the following contributing cause: Training and Operations Management did not provide the oversight required to ensure that corrective action reviews were being conducted with the necessary rigor to ensure quality investigations and that sustainable corrective actions were completed concerning processes pertinent to the application of a systems approach to training.

2. Corrective Steps Taken and Results Achieved for Violation 2

The following actions identified in the Root Cause Evaluation for NCR 438396 have been taken by Progress Energy:

- Complete Management and Supervisory position changes as determined from HBRSEP, Unit No. 2, Leadership Assessments.
- Present the lesson learned from the NCR 438396 investigation to all TAB members and place them on the TAB agenda as an annual refresher discussion topic for qualified TAB members, including a discussion of the role of the TAB in preventing similar events.

3. Corrective Steps That Will Be Taken for Violation 2

The following actions identified in the Root Cause Evaluation for NCR 438396 will be taken by Progress Energy:

- Implement procedure ADM-NGGC-0113, "Performance Planning and Monitoring." This procedure includes specific requirements for management review meetings and organizational effectiveness reviews.
- Complete Management and Supervisory Leadership Assessments through panel process for Management and Supervisory individuals new to positions since August 2010.
- Provide additional rigor in the execution of the Corrective Action Program reviews for training investigations of Quick Cause Evaluation level and above; through requiring additional mandatory reviews by the Quality Review Board (QRB). These additional review requirements will remain in effect for an initial period of 9 months. At the conclusion of the 9-month period a quality assessment of product improvement will be performed and this requirement extended, if needed, based on performance trend (3 consecutive months of zero rejections by QRB is the established metric).

4. Date Full Compliance Will Be Achieved for Violation 2

Full compliance will be achieved by May 12, 2011.

Commitment Table

	Regulatory Commitment	Committed Date
1	Revise and implement OPS-NGGC-1313, "Standards for Operations Shift/Training Crew Performance Improvement," to require that Simulator Crew Evaluation Summaries and Individual Evaluation Competency Grading forms are reviewed during the Shift Management Review Meetings.	5/12/2011
2	Initiate organizational effectiveness review committees in accordance with ADM-NGGC-0113, "Performance Planning and Monitoring."	5/12/2011
3	Add the following requirements to OMM-001-5, Training and Qualification: • The Manager – Shift Operations (MSO) shall review INPO Performance Objectives and Criteria for OP.1 and participate with INPO on a Crew Performance Observation (CPO) (preferred) or participate in an as-found simulator evaluation at an off Progress Energy system nuclear plant that is recognized as a leader by INPO in the conduct of operations, either prior to or within 6 months of being promoted to MSO. • On an annual basis, conduct a paired observation with the Operations Functional Area Manager (FAM).	5/12/2011
4	Implement procedure ADM-NGGC-0113, "Performance Planning and Monitoring." This procedure includes specific requirements for management review meetings and organizational effectiveness reviews.	5/12/2011
5	Provide additional rigor in the execution of the Corrective Action Program reviews for training investigations of Quick Cause Evaluation level and above; through requiring additional mandatory reviews by the Quality Review Board (QRB). These additional review requirements will remain in place for an initial period of 9 months. At the conclusion of the 9-month period a quality assessment of product improvement will be performed and this requirement extended, if needed, based on performance trend (3 consecutive months of zero rejections by QRB is the established metric).	5/12/2011
6	Complete Management and Supervisory Leadership Assessments through panel process for Management and Supervisory individuals new to positions since August 2010.	5/12/2011