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SUBJECT: Provides response to NRC 950717 ltr re violations noted in
insp rept 261/95-19.Corrective actions:Valve SI-883R was
restored to open position. R

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
 DOCKET NO. 50-261/LICENSE NO. DPR-23
 NRC INSPECTION REPORT NO. 50-261/95-19
REPLY TO A NOTICE OF VIOLATION

Gentlemen:

This provides the Carolina Power & Light (CP&L) Company reply to the Notice of Violation identified in NRC Inspection Report No. 50-261/95-19 for the H. B. Robinson Steam Electric Plant, Unit No. 2, which was transmitted by letter dated July 17, 1995. Violation A involves multiple examples of configuration control deficiencies. Violation B involves an inadvertent Residual Heat Removal pump start during maintenance. As requested in the letter transmitting the Notice of Violation, the enclosure restates each violation, followed by our reply. As additionally requested in the cover letter transmitting the Notice of Violation, the reply to Violation A includes our broader based corrective actions to address the programmatic concern. As documented in our letter dated August 17, 1995, this response is being submitted seven days later than the requested due date.

Should you have any questions regarding this matter, please contact Mr. R. M. Krich at (803) 857-1802.

Very truly yours,

C. S. Hinnant
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REPLY TO A NOTICE OF VIOLATION

Violation A

Technical Specification 6.5.1.1.1, Procedures, Tests, and Experiments, requires that written procedures be established, implemented, and maintained covering the activities recommended in Appendix A of Regulatory Guide 1.33, Rev. 2, February 1978, including procedures for equipment control, operating the main steam generating system ...

Operations Management Procedure OMM-005, Clearance And Test Request, requires that during a clearance cancellation, the clearance form be initialed by the restorer and verifier as components are restored, and that a licensed operator verify that all clearance tags are accounted for prior to signing that the clearance has been removed.

Local Clearance and Test Request 95-F0476 prepared in accordance with Operations Management Procedure OMM-005, Clearance And Test Request, specified a clearance information tag be affixed to the Containment Fan Cooler Number 2 (HVVH-2) control switch on the Reactor and Turbine Generator Board (RTGB) to warn the operators of the equipment status.

Operating Procedure OP-406, Steam Generator Blowdown/Wet Layup System, provides instructions for draining the steam generators. This procedure requires that the steam generator low and low-low level signals to the motor driven auxiliary feedwater pump auto start logic be blocked by positioning 4 key switches to the "defeat" position prior to draining steam generators.

General Operating Procedure GP-002, Cold Shutdown To Hot Subcritical At No Load TAVG, requires in Initial Condition 5.1.4 that valve RHR-743 be opened.

Operations Procedures OP-201, Residual Heat Removal System, provides instructions for filling, venting and placing the Residual Heat Removal (RHR) pumps in service.

Operations Management Procedure OMM-005, requires, in part, that when a clearance is placed, that all valves necessary to protect personnel and equipment are properly closed or open as necessary.

Contrary to the above:

1. On May 2, 1995, OMM-005 was not followed in that an auxiliary operator and independent verifier initialed local clearance and test request number 95-F0013 to indicate that tag number 20 on valve SI-883R had been removed and the valve opened. A licensed senior reactor operator also signed the clearance to indicate his verification that all tags removed from this clearance has been accounted for. On May 26, 1995, valve SI-883R was found shut with the clearance tag still attached.
2. On May 26, 1995, it was determined that Local Clearance And Test Request 95-F0476 was not properly implemented in that the required clearance information tag was not affixed to the RTGB. As a result, HVH-2 was operated with its air flowpath isolated.
3. On June 14, 1995, the motor driven auxiliary feedwater pump auto start logic block key switches were not positioned to the "defeat" position prior to draining steam generators. As a result, both motor drive auxiliary feedwater pumps started and the steam generator blowdown isolation valves shut when the level in steam generator B reached the low-low level setpoint.
4. On June 3, 1995, control room operators performed procedure step 5.4.5.6 of procedure GP-002 to depressurize and cooldown the "A" train of the Residual Heat Removal (RHR) System with valve RHR-743 closed. The procedure requires in Initial Condition 5.1.4 that valve RHR-743 be opened. This resulted in the A RHR pump being operated for 66 minutes with no appreciable flow, and ultimately lead to the pump being declared inoperable.
5. On June 9, 1995, Operating Procedure OP-201 was inadequate in that it did not align the system to facilitate a flow path for the A RHR pump before having the operator start it. This resulted in the operator starting the pump with no flow path.
6. On April 17, 1995, clearance LCTR 95-00748 was inadequate in that it did not specify a position for valve MS-20. This alignment did not protect personnel or equipment in that it resulted in an inadvertent operation of the steam driven auxiliary feedwater pump.

Reply

Carolina Power & Light (CP&L) agrees that the violation occurred as described. Collectively, these examples represent a serious management concern relative to equipment configuration control. Broad-based corrective actions have recently been implemented to improve the performance of Operations personnel as described in response to the Notice of Violation issued in NRC Inspection Report No. 50-261/95-06. These corrective actions were identified in our reply of May 17, 1995. However, based on the six examples cited in NRC Inspection Report No. 50-261/95-19, these corrective actions either have not been fully effective, or have not been implemented for a sufficient period of time to be effective. The additional corrective actions provided in this response are intended to build upon the actions previously taken, and to improve the performance of Operations personnel by minimizing human errors that result in configuration control deficiencies.

1. The Reason for the Violation

The six examples cited in this violation demonstrate a performance deficiency by certain Operations personnel to plan and manage changes in system and component configurations. Although procedure content and adequacy contributed in some instances, the overriding barrier which failed to preclude these deficiencies from occurring was the fact that certain plant operators did not fully understand, anticipate, and properly execute the task at hand. The symptoms of the inadequate change management were manifested by mis-operation of equipment by Operations personnel during evolutions that should be considered routine equipment operation. An additional concern identified was the failure of Operations personnel to self-identify any of the six examples. Each example was revealed by either improper or unexpected system response, or by an individual outside of the Operations Unit. This is a symptom of inadequate self-assessment practices within the Operations Unit.

Causes for each of the examples identified in the Notice of Violation are listed below. The human error caused failures that are associated with these occurrences include inadequate work practices and decision-making, and inattention to detail.

- 1) An Auxiliary Operator (AO) and an independent verifier failed to provide sufficient attention to detail, resulting in the failure to follow procedure. Specifically, these Operations personnel failed to "call-in" the Local Clearance and Test Request (LCTR) tag accountability for valve SI-883R to the Work Control Center (WCC) as directed by procedure Operations Management Manual (OMM)-005, "Clearance and Test Request." Contaminated equipment tags are required to be called in for accountability at the time of disposal. The valve tag had been considered as potentially contaminated material, and was not returnable to the WCC.

A causal factor was inadequate guidance in procedure OMM-005 for accountability and documentation of potentially contaminated equipment clearance tags.

- 2) Misjudgement, wrong assumptions, and an inadequate LCTR resulted in the failure to properly place an equipment clearance tag on the Reactor Turbine Generator Board (RTGB) control switch for containment Air Recirculation fan unit No. 2 (i.e., HVH-2). The licensed Senior Reactor Operator (SRO) who prepared the LCTR made two errors. First, he was not aware that the HVH-2 butterfly valve was supplied from a Instrument Air header that is separate from the header supplying HVH-2 which, if properly cleared, would have prevented this event. Second, the SRO did require an equipment clearance information tag to be placed on the RTGB switch to alert the control room operators that the normal damper was cleared shut. However, this tag was never placed on the RTGB switch. As a result, the control room operators were unaware of the clearance on the dampers, and the fan was started with the air dampers closed.

As a contributing cause, our evaluation found that operating procedures do not readily indicate that an independent Instrument Air header supplied the HVH-2 butterfly valve.

- 3) Failure to follow procedure and inattention to detail resulted in the inadvertent start of both Auxiliary Feedwater (AFW) pumps and the subsequent closure of the Steam Generator (SG) blowdown isolation valves when the water level in the "B" SG reached the low-low level setpoint. The SRO failed to observe the four key switches in the back of the RTGB to verify that each individual AFW auto initiation signal switch was defeated, prior to the SG being drained. Instead, the SRO assumed all key switches were in the defeat position because the RTGB lights for "AFW Auto Initiation Defeated," were illuminated. The "AFW Auto Initiation Defeated" lights are illuminated on the RTGB if any one of the AFW automatic starts is blocked.

- 4) This event was caused by misjudgement and incorrect assumptions in that the pump should have been secured as soon as the unexpected conditions were recognized. A contributing cause was the man-machine interface associated with the reach rod for valve RHR-743. At least two times during the outage, operators had verified valve RHR-743 in the open position as part of an operational procedure lineup. In addition, a pre-job briefing was performed prior to the General Procedure (GP)-002, "Cold Shutdown to Hot Subcritical at No Load Tavg," evolution to secure the Residual Heat Removal (RHR) system from the Reactor Coolant System (RCS). When the event occurred, cooldown of the RHR loop was considerably less than expected, but the operators did not secure the pump in a timely manner. The initial investigation into the slower than expected RHR loop cooldown was directed toward assuring adequate Component Cooling Water (CCW) flow to the RHR heat exchangers instead of securing the RHR pump first. Subsequently, a non-licensed AO and an independent verifier were sent to verify that valve RHR-743 was open. The operators experienced binding on the valve reach rod and the independent verifier observed no flow on the local flow indicator. Moments later, valve RHR-743 was successfully opened. Our evaluation determined that binding of the reach rod led operators to conclude that the valve was already open during prior attempts to verify valve position.
- 5) Due to inadequate awareness of the system lineup at the time of the occurrence, Operations personnel did not recognize the absence of a flow path for the "A" RHR pump prior to the performance of the procedures steps to secure the "B" RHR pump and start the "A" RHR pump. During venting of the "A" RHR pump in accordance with Operating Procedure (OP)-201, "Residual Heat Removal System," RHR pump discharge piping for the "A" and "B" trains are isolated from one another utilizing RHR loop cross connecting valves. In the process of venting the "A" RHR pump, the "A" RHR pump was started, the "B" RHR pump was stopped, and the Reactor Operator (RO) observed decreasing RHR flow on Flow Indicator (FI)-605 due to valve HCV-758 being closed. In this condition, with HCV-758 closed, the pump will operate due to a flow rate of approximately 1000 gpm due to leakage through HCV-758. The RO recognized the problem, immediately restarted the "B" RHR pump and secured the "A" RHR pump.

A contributing causal factor is that procedure steps in procedure OP-201 for RHR pump venting lacked instructions to verify that the HCV-758 valve is open or that the RHR loops cross connect valve, RHR-757C, is open to provide a flowpath for the RHR pump being vented prior to securing the operating RHR pump.

- 6) Personnel initiating the equipment clearance for maintenance on valve V1-8A were unfamiliar with the task at hand and exercised misjudgement by not specifying the alignment position for valve MS-20. The LCTR developed to perform a lubrication preventative maintenance activity for the Steam Driven Auxiliary Feedwater (SDAFW) pump underestimated the steam flow capability of the SDAFW pump warm up lines.

2. The Corrective Steps That Have Been Taken and the Results Achieved

The following corrective actions were taken for each of the examples cited, respectively.

- 1) Valve SI-883R was restored to the open position. On May 10, 1995, a Stand Down meeting was held to discuss events involving the Operations personnel that had occurred, to date, during Refueling Outage 16. This meeting included a description of this example. Additionally, the circumstances surrounding this event were reviewed with Operations personnel during the recent Cycle 12 of Licensed Operator Requalification (LOR) training as an example of failure to follow procedure.

A method to verify accountability of potentially contaminated and non-returnable equipment clearance tags has been developed, and procedure OMM-005 has been revised accordingly.

- 2) An equipment clearance cap was added to the LCTR and to the RTGB control switch for HVH-2 to ensure that the system would not be operated with its air flow path isolated. The SRO who prepared the LCTR has been counseled in the need to properly assess component configurations and to apply the provisions of procedure OMM-005 which requires the use of all available information during the LCTR preparation process.
- 3) The draining evolution was immediately secured, the low-low SG level AFW auto-start was defeated, and the motor-driven AFW pumps secured. Appropriate disciplinary action was taken with the Operator involved, and the operating crews have been counseled regarding procedure use and adherence. In addition, during the recent Cycle 12 of LOR training, Operations management further reinforced Procedure OMM-001, "Operations - Conduct of Operations," requirements that the individual who signs for a procedure step is both responsible and accountable for the completion of the step.

- 4) Valve RHR-743 was opened to allow cooldown of the RHR system.

The personnel makeup of the shift crew involved in this occurrence was changed to strengthen leadership and work management capabilities.

Additionally, an Operations Night Order was initiated on an interim basis to address the additional instructions necessary for positioning valve RHR-743 until the reach rod could be removed. The reach rod on valve RHR-743 was removed on June 14, 1995. This Night Order was subsequently superseded by a revision to procedure OMM-001, providing additional instructions on how to verify the position of manual valves that have reach rods.

Procedure GP-002 was revised to provide a step to verify that valve RHR-743 is open prior to isolating the RHR system from the RCS, and to verify that recirculation flow is available immediately after isolating the system.

- 5) The personnel makeup of the shift crew involved in this occurrence was changed to strengthen leadership and work management capabilities.

Additionally, Procedure OP-201 was revised to verify valve HCV-758, or cross connect valve RHR-757C, is open prior to starting a vented RHR pump.

- 6) Maintenance on valve V1-8A was suspended and MS-20 was added to the LCTR in accordance with Procedure OMM-005. The corrected LCTR was added as a standard to the history file in the LCTR database for valves V1-8A, B, and C.

3. The Corrective Steps That Will Be Taken to Avoid Further Violations

At the request of the Operations Unit management, Corporate Performance Evaluation Section (PES) personnel led an Outage Operations Assessment during the week of June 19 through 23, 1995. The purpose of this assessment was to evaluate the recent performance of Operations personnel during startup and recovery from Refueling Outage 16. The assessment team included a member of the PES staff, a member of the Plant Operations Unit staff, a representative from our Brunswick Steam Electric Plant, and three Shift Supervisors from other licensee nuclear plants. Based on the findings of this assessment, we have concluded that improvements in individual accountability and lowering of the threshold for conducting pre-job briefings are necessary.

Accordingly, the corrective action to address the programmatic concern is the issuance of a directive and a night order on June 30, 1995, and August 11, 1995, respectively, requiring significantly expanded use of pre-job briefings. The intent of these briefings is to improve communications and coordination, assure each person knows their role in the upcoming evolution, what indications are expected, and what actions to take if indications are not as expected. This Directive also provided a checklist which is used to assure all aspects of the briefing are addressed. The increased usage of pre-job briefing is expected to reduce equipment configuration control deficiencies by precluding misjudgements and wrong assumptions on the part of individual operators.

Procedure Plant Programs (PLP)-037, "Conduct of Infrequently Performed Tests or Evolutions," will be revised to incorporate improved guidance for the conduct of and increased emphasis on pre-job briefings for plant evolutions.

Each operating crew will routinely perform self-assessments of its shift. These self-assessments will ensure that specific actions regarding action that operators can take both individually and as a crew to reduce personnel error will be effectively carried out. Also, each operating crew will develop an action plan to reduce personnel errors of their crew.

4. The Date When Full Compliance Will Be Achieved

Full compliance will be achieved by September 29, 1995.

Violation B

10 CFR 50 Appendix B Criterion XIV Inspection, Test, and Operating Status requires, in part, that measures be established for indicating the operating status of structures, systems, and components to prevent inadvertent operation.

Contrary to the above, on May 29, 1995, the measures established to indicate the status of the B RHR pump motor breaker status were inadequate in that the pump motor was inadvertently started during corrective maintenance.

Reply

CP&L agrees that the violation occurred as described.

1. The Reason for the Violation

This event was caused by personnel error. A breakdown in communications occurred between a Maintenance supervisor and the Maintenance technicians involved in the repair effort. The pump breaker had been left in the test position to facilitate troubleshooting, and the Maintenance technicians were informed that the breaker would be left in this position until a new relay could be installed. However, when Operations personnel later determined that the breaker should be left racked in while a new relay was being obtained, and informed the Maintenance supervisor as such, the Maintenance supervisor failed to communicate this information to the technicians.

No positive controls, such as an equipment clearance, caution tag, written procedure or troubleshooting guidance on the maintenance Work Request (WR), were put in place to prevent the pump from being started inadvertently.

2. The Corrective Steps That Have Been Taken and the Results Achieved

Operations personnel immediately secured the pump, and the pump breaker was racked out. The significance of this event was discussed with the personnel involved.

3. The Corrective Steps That Will Be Taken to Avoid Further Violations

This event is being reviewed with shift operations personnel, mechanics and technicians to remind them that the possibility of inadvertently starting plant equipment requires the establishment of positive controls such as clearances, caution tags, written procedures, or trouble shooting guidance.

Procedure Maintenance Management Manual (MMM)-001, "Maintenance Administration Program," will be revised to provide the expectation that maintenance personnel will use positive controls such as clearances, caution tags, written procedures, or trouble shooting guidance when faced with the potential for inadvertent starting of plant equipment.

4. The Date When Full Compliance Will Be Achieved

Full compliance will be achieved by September 15, 1995.