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SUBJECT: Responds to violations noted in Insp Rept 50-244/89-16.

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February 23, 1990

Mr. William T. Russell
Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Subject: Response to Inspection Report 50-244/89-16
Notice of Violation
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Russell:

The enclosed response to the Notice of Violation contains our response to Violation 89-16-01 from the inspection at the R. E. Ginna Nuclear Power Plant from November 7 through December 11, 1989. The attached response includes Human Performance Evaluation System (HPES) investigation information and our corrective actions. Our long-term corrective actions have been determined to address the repetitive nature of these concerns, and the need for increased management attention.

Very truly yours,

Robert C. Mecredy
Division Manager
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RESPONSE TO NRC INSPECTION REPORT 50-244/89-16

Routine Inspection Report 50-244/89-16, Appendix A, stated in part:

" During an inspection at the R.E. Ginna Nuclear Power Plant from November 7 through December 11, 1989, the following violation was identified in accordance with the NRC Enforcement Policy (10 CFR 2, Appendix C).

Technical Specification 6.8.1 requires in part that written procedures shall be established, implemented, and maintained covering activities referenced in Appendix A of Regulatory Guide 1.33, November 1972. Activities referenced in Appendix A include maintenance and equipment control.

Calibration Procedure (CP)-410A, Calibration and/or Maintenance of Saturation Temperature Monitor System "B" Loop, requires restoration of the test switch to the original position. In addition, Administrative Procedure (A)-1408, Independent Verification, and Procedure A-52.4, Control of Limiting Conditions For Operating Equipment, require independent verification, by observation of proper indication or response, following alignment and restoration of equipment required by technical specifications.

Contrary to the above, on November 17, 1989, following maintenance on the 'B' loop saturation temperature monitor required by TS 3.5.3 using CP-410A, the test switch was not restored to the original position and did not receive independent verification of instrument response or switch position."

Rochester Gas and Electric concurs with the above violation as described.



1. Reason for Violation

A Human Performance Evaluation System (HPES) investigation was conducted on this event. A Causal Factors Chart has been prepared and is attached. The concept of barriers and defense in depth to ensure safe operation and maintenance of the plant was challenged by this event. The HPES investigation identified numerous Specific Barriers that were meant to ensure correct performance of CP-410A, but in varying degrees were ineffective in preventing this event.

Our analysis of this and other similar events points to three Primary Root Causes.

- * Inadequate procedural direction
- * Ineffective statement of station policies, communication, and follow-up of these policies
- * Lapse in the "good work practices" of some individuals

2. Corrective Actions Taken and Results Achieved

- A. While performing Main Control Room channel checks, the operators discovered the 1B subcooling monitor indicator pegged high. Instrument and Control Technicians were called in for troubleshooting and found the test switch not in the required position. The test switch was repositioned, the monitor's restoration and indication was verified and the monitor was returned to service.
- B. Operations and Maintenance personnel have received "A" procedure training that highlights A-1408, "Independent Verification" requirements and A-503, "Procedure Adherence".
- C. Meetings were held with each operating shift, selected discipline and Administrative groups. The HPES investigation was discussed with each group in detail, using the Causal Factor Chart as a presentation aid. These discussions focused on:
 - * Barriers and defense in depth
 - * Work group interfaces
 - * Management communication of policies, and follow-up for effective implementation
 - * Importance of the independent verification Process in daily plant operation
 - * Corrective Action Plan and specific roles for each work group



- D. Management conducted a group meeting with the three Operators and the three I&C Technicians that were involved in this event. This meeting addressed What, Why, and Under What Conditions events occurred from the perspective of each participant. The focus was on understanding the event and establishing a basis for Corrective Action to prevent recurrence.
- E. A memo to all Maintenance personnel, dated February 06, 1990, provides instructions to ensure that the latest revision of the implementing procedure is in the work package and that the procedure has been marked up for independent verification of restoration steps as applicable. A read and acknowledgement sheet was included with the memo, to ensure the memo was understood.
- F. Good work practices have been re-emphasized in Section, Foreman, planning, and Shift Supervisor meetings. Also, as noted in the RG&E response to Inspection Report 89-15, directions have been provided to Operations personnel concerning improved on-shift attention to detail, improved in-depth communications and acknowledgment of responsibilities for return of equipment to service.
- G. CP-410A and CP-409A have been deleted to prevent use of these deficient procedures. The new Procedure Upgrade Program (PUP) procedures for calibration of the Saturation Temperature Monitor System are in draft form, ready for review, and will be available prior to next scheduled use. This upgrade corrects multiple action steps, lack of independent verification, inadequate technical content, lack of proper warnings, cautions, and notes and improves on overall procedure format and performance.
- H. Label requests were initiated and completed for test switches TS-410A-1 and TS-409A-1. Also, a Drawing Change Request was initiated to revise Foxboro's drawings CD-11 and CD-21 to clearly identify the test switches. Other protective system rack drawings were reviewed for test switch installations similar to TS-409A-1 and TS-410A-1 and none were found.



3. Corrective Steps Which Will Be Taken To Avoid Future Violations

- A. The Procedure Upgrade Program (PUP), for calibration procedures is in progress and on schedule for a 1990 completion. The remaining maintenance procedures to be upgraded are scheduled to be completed in 1992. This upgrade program address industry recognized procedure good practices in terms of content, format, and process.
- B. A Task Force will be formed to focus on problems associated with procedure adherence, system alignments, independent verification, and their repetitive nature. The Task Force goal will be to eliminate these conditions. This task force will report to the Plant Manager.
- C. A request for a Training Effectiveness Evaluation on "A" Procedure training was generated by the Plant Superintendents. This evaluation is currently being performed by the Training Evaluation Group, and will be completed by March 02, 1990. The Request focused on the following areas:
 - 1. How effective were the Station personnel in communicating plant needs to the training groups?
 - 2. How effective is the training process as it was applied to training on "A" procedures?

This evaluation will assist the Task Force in assessing the effectiveness of Plant and Training Organization interfaces. This will provide information for potential changes in the training process and the training programs that address procedure adherence and independent verification.

- D. A Training Change Request (TCR) was submitted requesting training for I&C personnel concerning the Saturation Temperature Monitor System interrelationships.
- E. As noted in the RG&E Response to Inspection Report 89-15 "Administrative Procedure A-52.4 "Control of Limiting Conditions for Operation" has been changed to further delineate expected actions of personnel for return to service of previously inoperable equipment. Specific examples are utilized within the body of the procedure to reinforce these requirements."

This procedure change is currently awaiting PORC approval following comment resolution. This approval will be completed by March 09, 1990.



F. Utilize the Quality Performance Organization to aid management by providing a special assessment as feedback on the effectiveness of procedure adherence and independent verification procedures and activities.

4. The Date When Full Compliance Will Be Achieved

Full compliance was achieved November 17, 1989, when the test switch was repositioned, the monitor's restoration and indication was verified, and the monitor was returned to service.

RG&E recognizes the need for increased management attention, due to the repetitive nature of problems associated with procedure adherence, system alignments and independent verification. Our goals are to eliminate incorrect system alignments, and assure independent verification whenever specified. We have made progress toward achieving this goal, and are continuing to reinforce our corrective actions on an urgent basis. Any future inadequacies in procedure adherence, system alignments, or independent verifications will be dealt with on a case-by-case basis and will be thoroughly investigated. Any necessary follow up actions including procedure corrections, policy clarifications, or individual counseling will be taken.



HPES 90-01: "CP-410A Test Switch Not Returned" CAR 1990 NRC Inspection Report 50-244/89-16 Violation 01

- Training on A-303 "Plant Procedure Adherence Requirements" and work group discussion of 6/29/89 memo referring to new requirement on double signoff was not effective.
- Training on A-1408 "Independent Verification" was not effective. (Note: 12/15/80 letter to NRC committed RG&E to perform verification of correct performance.
- Management communication and follow-up on A-303 and A-1408 did not occur.
- Maintenance memo of 6/29/89 follow-up meetings with shops not held.
- Double sign-off steps should have been identified in planning, but were not.

Procedure design:

Test switch is not called out.

In step 5.6.7, three actions are required:

- Disconnect equipment
- Restore module to operation
- Restore test switch

5.6.7 is on the bottom of a page. Turn the page for 5.6.8, which may be out of sequence—or not required? The same function performed in second "and" of 5.6.7.

1. JOB START	2. Tech 1 and Tech 2 took out A-524, "Control of Limiting Conditions for Operating Equipment."	3. Tech 1 and Tech 2 had a problem understanding step 5.6. Unclear directions for step 5.6.3* of the procedure. Stopped and discussed. Reviewed logic and agreed to proceed past 5.6.3.	4. Calibration steps completed. Adjustments not required. Calibration ok.	5. Tech 1 begins step 5.6.7 (which contains three steps connected by two "ands": "Disconnect all calibration equipment and restore..." Tech 1 disconnects test equipment.	6. Tech 1 continues step 5.6.7: "...and restore module to normal operation and restore..." Reconnects leads, then independently verify tightness of all terminals. Step 5.6.8 is redundant of middle portion of step 5.6.7 (above).
Events that occurred on Friday, November 17, 1989					
09:00 hours 10:17 hours After lunch					

CP 409A and CP 410A are done only once a year.

CP 410A was originally scheduled for Techs A & B, but they were called away on another job. Tech 1 and Tech 2 took over the cart at approx. 09:00 hrs.

Neither Tech 1 nor Tech 2 had done CP-410A before. (Tech 2 had done CP-409A as part of 1989 Outage.)

Techs and planners were trained on Foxboro Spec 200 modules by the vendor.

The I&C Planner was not in that day. A backup planner handled the planning.

No "tailgate session" (discussion between planner and crew) was held.



For steps 5.6.0—5.6.6, Tech 1 was in Relay Room and Tech 2 in the Control Room?

- * 5.6.3 "Hold the voltage constant across pair terminal #1 (approx. 4.5 VDC) and increase the voltage across pair terminal #3 until the alarm actuates. The alarm is a low differential temp. alarm and actuates when the difference between the 2 voltages is ± 1.0 volt ± 1 volt."

During the course of the day's work, Tech 2 split his time between the Relay Room and the Control Room. Tech 1 spent the entire day in the Relay Room.

To "restore module" means to reconnect leads. Takes 3—4 min. Checks tightness of terminals. Moves on to step 5.6.8—top of a new page. 5.6.8 states "Connect leads to pair terminals from which they were removed. Check tightness of all terminals."

Wonders: Is 5.6.8 part of "restore module to normal operation"? It is possible to reconnect and test tightness of leads, and skip the third "and" of 5.6.7.

KEY	
	Broken barrier
	Intact barrier



Switch function not called out in training. I&C training stops at the Spec 200 level. No training to address the unique RG&E features, such as the test switch, or how these modifications affect the plant operation.

System training for I&C covering T SAT (temperature differential system) to include function of the test switch was not done.

Test switch is not directly labeled.

Switch is a unique Ginna Station feature.

Switch was installed in 1985 as part of a modification for the R&T for monthly reactor trip breaker testing.

Switch is called different names by different plant groups.

Test switch is not fail-safe.

Test switch is located near the bottom of the rack—not near the equipment being serviced.

Test switch is not considered part of the Spec 200 module for I&C purposes.

Of up to 20 modules in this rack, this is the only loop with a test switch.

There are only 3 switches of this type in the entire plant. There are approximately 200 similar modules in the plant. THIS IS AN EXCEPTION.



Work conducted here

Test switch

HPES 90-01: "CP-410A Test Switch Not Returned" CAR 1990 NRC Inspection Report 50-244/89-16 Violation 01

Procedure A-52.4 as written and as practiced may be unclear and open to interpretation.

- Issues:
- Who is responsible?
 - What is everyone responsible for?

Two techs are required to sign off the A-52.4.

7. Last part of step 5.6.7: ...and restore test switch to original position." NOT PERFORMED!	8. Continued procedure through step 5.9.5, a logical stopping point. Tech 2 leaves for doctor's appointment.	9. Tech 1: Cleans up job site. Returns to shop. Goes to Control Room to clear the A-52.4 "Control of Limiting Conditions for Operating Equipment."	10. Tech 1 calls I&C Shop. Tech 3 takes call. He goes to the Control Room and signs off the A-52.4. Tech 1 signs off the A-52.4. They leave together.	11. A-52.4 also signed off by: • Head Control Operator • Control Room Foreman • Shift Supervisor Declared operable at 15:00 hours.	12. New shift does procedure O-6.13. Loop 1B subcooling indication pegged high. A-25.1 "Ginna Station Event Report" filed. New A-52.4 issued.
14:45 hours	15:00 hours	16:10 hours			

Possible interruption—Tech 2 returns to Relay Room?

Procedure CP-410A, step 5.6.7 "...and restore test switch to original position" was not performed.

Double verification "with a double check to be performed by the person(s) performing the procedure" was not done.

Step 5.6.7 was not slashed in the planning process per memo to indicate that double sign-off is necessary.

Techs were not aware of this specific (double verification) situation for step 5.6.7.

Tech 2 had been in and out of the Control Room during the day.

Tech 1 was in the Relay Room.

Entire procedure was not completed.

Tech 2 was in the Control Room during 5.7.4? Not sure. However, he did not check instrumentation relating to steps in 5.6.

Tech 2 did not do a walk-down inspection or check the Control Room instrumentation prior to leaving for his doctor's appointment.

Good practices (instrumentation check, walk-down, noting 'as found' and 'as is' conditions) were not followed.

Tech 2 gone to doctor and unavailable to sign off the A-52.4.

A-52.4, step 3.9 for verification of operability, was not performed correctly. (Procedure states: "If operability of equipment is not demonstrated by performing a PT, an operator will verify the valve line up, switch and breaker position.")

Good work practice not followed.

I&C did not check instrumentation in the Control Room.

Good work practice not followed.

Operations did not check instrumentation in the Control Room.

Friday afternoon 3:00 p.m.

Going into a weekend.

Coming up on a shift change.

I&C Planner was contacted at home. He knew about the test switch and surmised that it was the problem.

KEY	
	Broken barrier
	Intact barrier

