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PY-CEI/NRR-1876L

U.S. Nuclear Regulatory Commission
Document Control Room
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket No. 50-440
Response to Notice of Violation

Gentlemen:

This letter provides the Perry Nuclear Power Plant response to the Notice of Violation contained within NRC Inspection Report 50-440/94011 dated September 19, 1994. The inspection report documented the results of the special announced inspection conducted July 7 through August 18, 1994. The response to the Notice of Violation is provided by Attachment 1.

If you have questions or require additional information, please contact Mr. James D. Kloosterman, Manager - Regulatory Affairs at (216) 280-5833.

Very truly yours,

for Robert A. Stratman

RAS:DAH:sc

Attachment

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III

240019

IE01

RESPONSE TO NOTICE OF VIOLATION

1. Violation 94011-01

Restatement of the Violation

Technical Specification 6.8.1.a, requires that written procedures be established, implemented, and maintained covering the activities recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2, February 1978. RG 1.33 Appendix A, Item 1.d. recommends maintenance procedures for procedure adherence.

Perry Administrative Procedure PAP-0905, Revision 12, "Work Order Process," Steps 6.3.3 and 6.3.4, requires that the Work Supervisor review the work package to ensure the work can be performed as written and that the control room Unit Supervisor review the work package to ensure the work can be performed in the existing plant condition.

Contrary to the above, on July 11, 1994, the Work Supervisor and the control room Unit Supervisor failed to adequately implement PAP-0905, Steps 6.3.3 and 6.3.4, allowing work to be performed without proper plant conditions existing.

Acceptance of Violation

Cleveland Electric Illuminating Company accepts the violation as written.

Introduction

Details of this event were reported in Licensee Event Report (LER) 94-017-00 submitted on August 10, 1994.

On July 11, 1994 at 1035, replacement of a leaking instrument isolation valve proceeded under the guidance of an Instrumentation and Controls (I&C) work order. To ensure that the newly replaced valve would not leak under operating conditions, the valve was hydrostatically tested in its normally open position which allowed the test pressure to be sensed by the associated transmitter. The transmitter (1B21-N0078D) is designed to sense reactor steam dome pressure and provide a signal output to a master and a slave trip unit. The master trip unit provides a trip output to the Reactor Protection System (RPS) "D" channel (Reactor Vessel Steam Dome Pressure High, </= 1064.7 psig). The slave trip unit provides a trip output to the RHR outboard containment isolation logic (Reactor Vessel Pressure High, RHR Cut In Permissive, </= 135 psig). The work order directed the I&C technicians to pressurize the valve and its associated transmitter to 1200 psig prior to post maintenance inspection for leakage.

On July 11, 1994, at 2154, the I&C technicians pressurized the instrumentation as prescribed by the work order. This action resulted in an RPS Channel "D" half scram, which was expected under the work order, and also

resulted in the automatic isolation of the RHR system shutdown cooling suction outboard containment isolation valve (1E12-F0008) which had not been anticipated under the work order.

The I&C work order was subsequently revised to include the installation of a temporary jumper to prevent the isolation signal. The work order was then successfully completed.

Reason for the Violation

The root cause of this event was personnel error, inattention to detail, on the part of the personnel who prepared, reviewed, and approved the I&C work order. Plant Administrative Instruction (PAP-0905), "Work Order Process" requires both the work order planner and the control room Unit Supervisor to ensure that work activities can be performed under plant conditions without adversely impacting plant operations. The work order in this event made no provision for preventing the isolation signal from the work activities from causing an actual shutdown cooling containment isolation.

A Human Performance Enhancement System (HPES) investigation was conducted to better understand the factors that resulted in this event. The HPES concluded that due to the technical complexity of the details included in the work order, the omission was not noted by the control room Unit Supervisor during the review and release of the work order package to the field for work.

Corrective Action Taken and Results Achieved

As stated in LER 94-017-00, this event has been reviewed with the I&C personnel involved with the planning of the work order package. The requirement to perform a thorough review of a package's impact on the plant was emphasized.

Actions to Avoid Further Violations

The following corrective actions will be implemented as a result of this event, as stated in LER 94-017-00.

The event is being reviewed with the Operations personnel responsible for the review/approval of the work order package. The Unit Supervisor's ultimate responsibility to determine the impact of work order packages on the plant is being emphasized.

The work order process for I&C work orders will be reviewed for improvement in the areas of technical reviews, assignment of responsibilities, and standardized method of conveying plant impact information within the work order packages (to assist Unit Supervisors with review/approval responsibilities).

All licensed plant operators will receive training on this event as part of requalification training.

Date When Full Compliance Will Be Achieved

Full compliance was achieved upon revision and successful completion of the work order as described above.

2. **Violation 94011-05**

Restatement of the Violation

10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present.

Pursuant to 10 CFR 20.1003, survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. Radiation area means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 mSv) in 1 hour at 30 centimeters from the radiation source or any surface it penetrates.

Contrary to the above, the licensee did not make surveys to assure compliance with 10 CFR 20.1902(a), which requires that each licensee post each radiation area with a conspicuous sign bearing the radiation symbol and the words "CAUTION, RADIATION AREA." Specifically, on or about August 15, 1994, when a sealed bag labeled as diving equipment with radiation levels of approximately 0.025 rem (0.25 mSv) per hour at 30 centimeters from its surface was placed against a wall of a radioactive material storage area, the licensee did not perform surveys in the corridor adjacent to the wall to determine if a radiation area was inadvertently created there. Further, general area radiation surveys performed on August 16 and 17, 1994, showed that the radiation level in the center of the above mentioned corridor had increased significantly from normal background levels to 0.001 rem (0.01 mSv) per hour, but additional surveys to determine if radiation levels nearer the wall were high enough to require posting as a radiation area were not performed.

Acceptance of Violation

Cleveland Electric Illuminating Company accepts the violation with the following clarification of dates. The date the sealed bag was placed in the radioactive material storage area was on or about July 25, 1994 with general radiation surveys performed after this date showing an increase in corridor radiation levels.

Reason for the Violation

The root cause of this event was personnel error - failure to follow procedures and inattention to detail. Documentation that a survey was performed following placement of the sealed bag of diving equipment in the radioactive material storage area could not be located. Additionally,

actions were not initiated to investigate the increase in radiation level in the corridor adjacent to the radioactive material storage area following the daily surveys.

Plant Administrative Procedure (PAP) 0515, "Control of Radioactive Material," requires the performance of surveys in accordance with HPI-D1 to ensure that area postings remain valid as radioactive material is added to, or removed from, radioactive materials storage area. Health Physics Instruction (HPI) D1, "Radiation and Contamination Survey Techniques," requires surveys to be documented. Additionally, HPI-D1 requires a review of appropriate previously documented surveys before entering an area to understand both the physical and radiological characteristics of the area and to gain an understanding of where additional survey data may be required.

Corrective Action Taken and Results Achieved

Following identification by the NRC inspector on July 27, 1994 of the increased radiation levels in the corridor, the area was surveyed by a Senior Health Physics (HP) Technician. Radiation levels in the corridor were verified to be less that the requirements for posting the area as a radiation area. However, in order to minimize the radiation levels in the corridor, the sealed bag containing the diving equipment was rearranged at that time. Later that day, the bag containing the diving equipment was moved to a different radioactive material storage area to reduce the radiation level in the corridor to background.

Coaching and counseling would normally be provided for personnel error, but the individual involved was a contractor who is no longer onsite. Instead, training on this event was provided to HP personnel as part of HP Safety/Continuing Training. The Hot Machine Shop is an approved radioactive material storage area and has been re-posted as a Radiation Area due to the amount of radioactive material which is constantly moved in and out of this area. Additionally, a Rad Awareness Bulletin was issued to alert all site personnel to notify HP when adding or rearranging items in radiation material storage areas, discuss the issues relative to these incidents, and stress management expectations to prevent recurrence.

Actions to Avoid Further Violations

No further corrective actions are required for this event.

Date When Full Compliance Will Be Achieved

Full compliance has been achieved.

3. **Violation 94011-03**

Restatement of the Violation

10 CFR 50.59 requires, in part, that records of changes to the facility include a written safety evaluation which provides the bases for the determination that the change did not involve an unreviewed safety question.

Contrary to the above:

a) Safety Evaluation No. 93-0096, written to support the change to the facility for DCP (design change package) 91-0060, did not address all applicable failure modes of a new regulating transformer, and therefore did not provide sufficient bases to determine if the change may have involved an unreviewed safety question (USQ).

b) The initial safety evaluation written to support the change to the facility for DCP 87-0785A did not address the different failure rates or failure modes of the protective relays and associated control circuits, and therefore did not provide sufficient bases to determine if the change may have involved a USQ.

c) The initial safety evaluation written to support the change to the facility for DCP 93-0017 did not address all failure modes of the fire hose coupling, and therefore did not provide sufficient bases to determine if the change involved a USQ.

Acceptance of Violation

Cleveland Electric Illuminating Company accepts the violation as written. The response to this violation is combined with the response to Violation 94-011-04 below.

4. **Violation 94011-04**

Restatement of the Violation

10 CFR 50, Appendix B, Criterion III, requires in part that design control measures provide for verifying the adequacy of the design.

Contrary to the above:

a) Initial design verification activities for DCP 92-0097 did not identify that system interactions were not considered, that system pressure re-distribution was not evaluated, and that allowance for system flow degradation was not considered, and therefore, did not verify the adequacy of the design.

b) Initial design verification activities for DCP 94-0079 did not consider the impact of the change to the service water system on the emergency service water system keep-fill function, and therefore, did not verify the adequacy of the design for all modes of operation.

Acceptance of Violation

Cleveland Electric Illuminating Company accepts the violation as written. The response to this violation also includes the response to Violation 94011-03.

Reason for the Violation

The cause of these violations has been attributed to deficiencies in the design control program including the implementation of the safety evaluation process. Several concerns on the adequacy of design changes (and their associated safety evaluations) implemented during the fourth refueling outage (RF04) were identified.

Corrective Action Taken and Results Achieved

As the result of concerns with the design control process, several corrective actions were initiated. Immediate corrective actions were focused on verifying the acceptability of plant design modifications that were installed during the refueling outage. Additionally, corrective actions were initiated to effect improvements in the design modification process. On June 17, 1994, a meeting was held with the NRC to discuss the actions that were being taken to address these concerns. These actions were detailed in a letter submitted to the NRC on July 1, 1994 (PY-CEI/NRR-1819L).

To assure the adequacy of design modifications that were installed during RF04, a program for re-evaluation of RF04 plant design modifications was developed. Plant procedures PAP-0308, "Program for Design Re-evaluation of RF04 Modifications," and NEI-0367, "Design Re-evaluation of RF04 Modifications," were established to control the process for performing and documenting the re-evaluation of the design modifications. The program also included a prioritization process to determine which DCPs required re-evaluation prior to plant startup. The plant design modifications involved with the cited violations (DCPs 91-0060, 87-0785A, 93-0017, 92-0097, & 94-0079) were included in the group to be reviewed prior to plant startup from the refueling outage.

The re-evaluation of RF04 plant design modifications required prior to plant startup was completed primarily by senior engineering personnel. Results of each re-evaluation were reviewed in depth by a committee of senior personnel from the nuclear industry.

The purpose of the re-evaluation was to:

- identify any hardware changes required prior to restart from the refueling outage,
- confirm that no unreviewed safety questions (USQ) existed due to the modifications, and
- resolve any configuration management concerns.

The results of this initial effort (those modifications requiring re-evaluation prior to plant restart from RF04) were documented in design review reports (DRRs) that were included with each design change package (DCP). If additional investigation or documentation was deemed necessary, engineering action items were initiated and included in the DRRs. In some cases actions included revision to the safety evaluation and/or DCP. Based on these actions, it was concluded that the final DCPs did not introduce any USQs, did not require further hardware modifications, and did not create configuration control discrepancies.

The re-evaluation of the RF04 design modifications determined to need re-review has been completed. The results of this effort were also consistent with the prior to restart reviews in that there were no USQs and no hardware or software problems uncovered.

In addition to the plant design modification re-evaluations, Perry management directed the establishment of a Safety Evaluation Review Team to review safety evaluations. This review team conducted a review of a sample of recent safety evaluations to determine the potential for USQs. The review team also evaluated the adequacy of the safety evaluation program, the compliance with the safety evaluation program requirements, the adequacy of documentation of findings and bases in safety evaluations, and the adequacy of failure analysis considerations. No USQs were identified as a result of this effort. However, a need to improve the level of quality and consistency with PAP-0305 was identified. Therefore, several corrective actions have been taken.

Perry Nuclear Engineering Department (PNED) Policy NEDP-14, "Safety Evaluations," has been issued to reinforce the commitment to consistently produce quality safety evaluations which meet or exceed the intent of PAP-0305, "Safety Evaluations." All Engineering personnel qualified to perform safety evaluations have received training on the PNED Policies on safety evaluations and engineering judgment, and on the observations made by the Safety Evaluation Review Team. Additionally, the Director PNED has provided documentation to the Plant Operations Review Committee (PORC) and Nuclear Safety Review Committee (NSRC) supporting the actions that have been taken to place accountability for safety evaluations on the preparers, reviewers, and approvers.

Actions to Avoid Further Violations

To address the overall adequacy of the design control program, a Design Process Review Committee has been chartered to identify actions necessary to improve the design change process to emphasize technical quality, simplicity (to minimize errors from confusion), process efficiency and ease of installation/operation/maintenance. This team is dedicated to identifying process improvements based upon inputs from internal surveys, the RF04 design review process lessons learned, INPO, and a review of processes from other industry plants. This effort is being lead by a Perry Engineering Department Manager and will be implemented by a team reflecting both engineering and the entire Perry organization. Based on the recommendations of this team, design program changes will be implemented by February 1995.

Date When Full Compliance Will Be Achieved

Full compliance has been achieved by the re-evaluation process for the plant design modifications implemented during RF04 as described above.