Niagara Mohawk

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June 26, 1998
NMP1L 1335

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Subject: *Reply to Notice of Violation as Contained in NRC Inspection Report 50-220/98-02 and 50-410/98-02*

Gentlemen:

Niagara Mohawk Power Corporation's reply to the subject Notice of Violation is enclosed in the Attachment to this letter. We do not dispute these violations.

Very truly yours,

John H. Mueller
Chief Nuclear Officer

JHM/GJG/kap
Attachment

xc: Mr. H. J. Miller, Regional Administrator, Region I
Mr. S. S. Bajwa, Director, Project Directorate I-1, NRR
Mr. B. S. Norris, Senior Resident Inspector
Mr. D. S. Hood, Senior Project Manager, NRR
Records Management

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ATTACHMENT

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT UNIT 1
DOCKET NO. 50-220
DPR-63

"REPLY TO NOTICE OF VIOLATION," AS CONTAINED IN INSPECTION REPORT 50-220/98-02 AND 50-410/98-02

A. *VIOLATION 50-220/98-02-05*

Unit 1 Technical Specifications, Section 6.8.1, requires written procedures and administrative policies to be implemented. NMPC Procedure GAP-PSH-01, "Work Control," Revision 17, Section 3.7.13, regarding work order preparation and planning, states that the plant impact of the work activity is identified and recorded.

Contrary to the above, on February 11, 1998, Work Order 98-00883-01, regarding troubleshooting of the temperature control valve for the Unit 1 control room emergency ventilation system, failed to identify that the work activity would impact the position of the control room ventilation dampers. The performance of the work resulted in an unanticipated repositioning of the dampers, and caused the control room emergency ventilation system to become inoperable.

I. *THE REASON FOR THE VIOLATION*

During the performance of a troubleshooting work order, electrical leads were removed on Control Room Chilled Water Temperature Controller TC-210-90 for Temperature Control Valve 210.1-56. The removal of two neutral leads from terminal L2 of the Controller caused a power loss to the power transformer for the control room ventilation outside air and return air damper motors resulting in the dampers failing open. These dampers are required to be throttled to maintain the Control Room Emergency Ventilation System (CREVS) operable.

The equipment impact of lifting the two neutral leads was not addressed in the work order. The Work Control Evaluator (planner) responsible to develop this work package failed to identify the existence of the two neutral leads and the affect they would have on the damper motor power supply. The work order directed the "lifting of leads" and did not specifically reference the number of leads, lead designation or termination points.

The evaluator who developed the work package relied upon the Elementary Wiring Diagram to develop the work plan. This diagram did not provide the detail necessary to support the lifting of the temperature controller electrical leads. The evaluator did not realize that he should have used the Interconnection Wiring Diagram which provided the necessary detail for the work activity. The more detailed Interconnection Wiring Diagram shows the specific number of

leads, termination points and as-built configuration of the equipment. If this diagram had been used, the evaluator would have identified the equipment impact of disconnecting these leads on the damper control circuit. An accurate equipment impact determination would have resulted in a correct plant impact determination, which is required by procedure GAP-PSH-01, "Work Control." The Work Package Preparation Guide (i.e., guidance document used by work planners to develop work packages) requires addressing the impact of work scope on the affected equipment, but does not specifically require the use of Interconnection Wiring Diagrams when manipulating electrical leads.

The evaluator who staged the work package has approximately 10 years experience as a field technician. He has been trained on electrical print reading and is familiar with both Elementary Wiring Diagrams and Interconnection Wiring Diagrams. This familiarity was gained through work activities in the field. He has been assigned to the job of developing work packages for nine months.

The cause for this event was that inadequate training was provided to the maintenance evaluator on what station drawings are to be used in the planning of work packages requiring the lifting of leads. The maintenance planning evaluator qualification card addresses basic knowledge with prints and drawings but does not specifically address drawing usage for work planning purposes.

II. CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED

1. Leads were relanded to the temperature controller which restored power to the ventilation damper. With the damper restored to its as-found condition, the damper was repositioned and the unplanned Limiting Condition for Operation (LCO) was exited.

2. This event has been reviewed with maintenance planning and operations planning personnel to emphasize the need and how to thoroughly evaluate the impact of lifting leads or placement of jumpers. The review emphasized that the evaluation must include all appropriate documents, including Elementary and Interconnection Wiring Diagrams.

III. ACTIONS THAT WILL BE TAKEN TO PREVENT RECURRENCE

The following preventive actions have or will be taken:

1. The Nine Mile Point Unit 1 (NMP1) and Nine Mile Point Unit 2 (NMP2) Work Control Departments have strengthened the Site Administrative Guide for Work Order Preparation by adding direction on how to assess the impact of lifting leads and placement of jumpers on plant equipment.

2. Niagara Mohawk Power Corporation (NMPC) will benchmark other facilities and will modify its training and qualification process, including the qualification card, for maintenance evaluators by September 30, 1998.

3. The Training Department will incorporate this violation in appropriate lesson plans for review with applicable personnel in the next continuing training cycle.

IV. DATE OF FULL COMPLIANCE

Full compliance was achieved on February 11, 1998, when power to the dampers was restored.

B. *VIOLATION 50-220/98-02-08, 98-02-09, and 98-02-10*

10CFR50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," Criterion III, "Design Control," requires measures to be established to assure that applicable regulatory requirements and the design basis for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions.

10CFR50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," Criterion XI, "Test Control," requires that a test program be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.

Unit 1 Updated Final Safety Analysis Report (UFSAR), Section III.B.2.2, "Heating, Ventilation, and Air Conditioning System," states that: (1) a positive differential pressure of 0.0625 inches water gage is maintained between the control room and adjacent spaces; (2) the control room ventilation outside air mix damper is set at the 100 percent (%) open position; (3) the total system flow is approximately 16,300 cubic feet per minute (cfm) and the recirculation damper is to be set at 12,750 cfm minimum; and (4) air from the control room emergency ventilation fans passes through a heated activated charcoal filter unit.

Contrary to the above, from the late 1980's until February 17, 1998, the Unit 1 control room emergency ventilation system (CREVS) was not maintained or tested in accordance with the design basis in the UFSAR. Specifically, (1) the pressure switch for the control room annunciator for low control room-to-turbine building differential pressure was not calibrated or tested; (2) Operations Procedure N1-OP-49, "Control Room Ventilation System," allowed the adjustment of the outside air mix damper to maintain control room ambient air temperature, vice maintain the damper at the 100% open position; (3) Surveillance Test Procedure N1-ST-C9, "Control Room Emergency Ventilation Operability Test," failed to ensure that the outside air mix damper was set at the 100% open position and that the total system flowrate and recirculation flowrate were as specified; and (4) the heaters for the activated charcoal filter unit had never been energized.

BACKGROUND

During outages in 1984 and 1986, the CREVS went through major upgrade modifications in response to TMI III.D.3.4 of NUREG-0737. The modifications included:

1. Addition of redundant emergency intake dampers.

2. Addition of redundant normal intake isolation dampers.

3. Addition of redundant cooling coils.

4. Addition of redundant radiation monitors.

5. Replacement of the CREVS filter housing, including four 575 watt heaters.

With regard to the damper position and flow rate deviations, prior to 1985, NMPC only surveilled High Efficiency Particulate Air (HEPA) and charcoal filter differential pressures, and emergency fan flow. In 1985, Technical Specification (TS) Amendment No. 73 was issued which revised the Limiting Condition for Operations (LCOs) and Surveillance Requirements for the Control Room Air Treatment System, updated testing requirements for the CREVS filters, and changed the surveillance intervals. The NRC Safety Evaluation for TS Amendment No. 73 had the following commitment "...test with a quantitative provision for positive pressure relative to outside air with the fans operating within +/- 10% of design flow." This resulted in a modification in 1986 and TS Amendment No. 91, which added the requirement to test for 0.0625 inches water gauge (wg) positive pressure in the control room once per operating cycle. In addition, the surveillance procedure was changed to verify the recirculation damper set to a minimum position.

With the implementation of the modifications and associated TS amendments, the CREVS, formerly a manually initiated system, became an automatically initiated system.

The original (1960's) design of the system identified that 16,300 cfm control room total flow, was required to remove the design heat load. On June 9, 1969, system flow rate was measured, and acceptable results were obtained. NMPC now believes that those results were inaccurate, since recent analysis and testing have determined that the system (e.g., motor horsepower) was not properly designed to achieve the specified flow. After the initial test, system flow rate was not monitored or surveilled since 16,300 cfm was viewed as a nominal value. Post TMI modifications focused on achieving sufficient positive pressure. In 1991, a Design Calculation was performed evaluating control room chiller operability which utilized 16,300 cfm control room total design flow. This total flow assumption was not validated against actual plant data or heat removal requirements.

In 1989, a Problem Report (PR) was generated on the Control Room Ventilation System (CREVS) as a result of a positive pressure test failure. This led to Safety Evaluation 89-050, which redefined the emergency ventilation design flow rate for the fans, and changed the FSAR to show the inlet damper position set to 100% open.

Prior to 1998, operators periodically adjusted the recirculation and mixing dampers for personal comfort. Adjustment of the recirculation damper varied the system differential pressure and flow which varies control room temperature. They were unaware of the position and total flow requirements because operating and surveillance procedures did not provide applicable information to ensure system configuration was maintained within design requirements.

With respect to the charcoal heater deviation in 1989, station personnel generated a PR to seek resolution on the inability to calibrate the charcoal filter pad heater temperature controllers. Engineering personnel responded to the PR stating that the heaters were not safety related and their function was not required for system operability and should be tagged out-of-service. A modification request was subsequently initiated in response to the PR. In 1994, an engineer

canceled the modification since the heaters were tagged out of service and it was determined that a Drawing Change Request (DCR) should be initiated to formally retire the heaters. The DCR however was never initiated. Operations personnel eventually cleared the controlling tags and installed a placard that stated that the heaters were retired in place.

I. THE REASON FOR VIOLATION 98-02-08 PRESSURE SWITCH NOT CALIBRATED

The NMP1 UFSAR does not specify what instrumentation or alarms are maintained to verify 0.0625 inches wg. TS 4.4.5.g requires testing at least every 24 months to ensure that "a positive pressure within the Control Room of greater than one-sixteenth of an inch (of water column)" is achievable with the CREVS. This TS requirement is satisfied via performance of surveillance procedure N1-ST-C9.

In the 1990 time frame, NMPC performed a Calibration Verification Program (CVP) to identify regulatory required instruments. If instrumentation was used to monitor a parameter which was critical for one of the following, it was included in the CVP:

- Safety-related devices (except for those that are safety-related only due to pressure boundary)
- Post-Accident Monitoring (Regulatory Guide-1.97)
- Remote Safe Shutdown
- Emergency Operating Procedures
- In Service Inspection/In Service Testing/Equipment Qualification
- Technical Specification Required
- Technical Specification - Devices used to verify operability
- Anticipated Transient Without Scram
- Devices required to support seismic monitoring
- Devices to support off-site environmental monitoring

Pressure switch DPS-210-12 was not identified as requiring calibration during the development of the CVP since it did not fall within these categories.

During the same time period, a Surveillance Verification Program (SVP) was undertaken. The SVP evaluated all instruments requiring routine calibration, channel testing or sensor checks as identified in TSs. The SVP did not identify this pressure switch since it was not required to be tested by the TSs.

Finally, the ongoing UFSAR Verification Project which involves a comprehensive review to assure compliance with UFSAR statements did not identify this pressure switch as requiring routine calibration. As noted above, the UFSAR does not include a description of this alarm function.

Based upon the preceeding, the cause of the violation is that an additional criterion should have been included in the CVP. Specifically, instruments which monitor parameters and annunciate in the control room that are indicative of the operability of safety-related equipment should be calibrated. Instruments which provide indication (e.g., meters) in the control room and are

monitored during shift checks and surveillances have previously been reviewed by Operations Management to assure they are calibrated.

II. *CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED*

The following actions have been taken:

1. The pressure switch was replaced with a new switch and calibrated.

2. As an interim action, Operations rounds procedure N1-ST-SO was changed to include the observation of Control Room/Turbine Building differential pressure instrument DPI-210-55 once per shift for the purpose of verifying control room pressure. This action has been made permanent.

3. Engineering change documents have been issued to include this pressure switch DPS-210-12 in the engineering specification which lists instrument calibrations.

4. Master calibration procedure N1-IPM-CAL-001 has been revised to include routine calibration of the pressure switch DPS-210-12 and the Preventive Maintenance/Surveillance Testing (PM/ST) database has been updated to ensure routine calibration on a four-year frequency.

III. *ACTIONS THAT WILL BE TAKEN TO PREVENT RECURRENCE*

Instruments which monitor parameters and annunciate in the control room have been reviewed to determine whether those instruments are properly calibrated. Deficiencies identified in that review have been entered into the NMPC corrective action program, and will be further evaluated for incorporation into the calibration program using the criteria described previously.

I. *THE REASON FOR VIOLATION 98-02-09 OPERATIONS PROCEDURE N1-OP-49 & N1-ST-C9*

The cause of these procedures not accurately reflecting the design basis of the CREVS is inadequate change management. After the described modifications to CREVS, the procedures were not properly upgraded to ensure that system configuration was fully maintained within the revised design requirements. This led to Operations periodically changing damper position, and not periodically measuring system flow to verify proper operation.

II. *CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED*

The following corrective actions have been taken:

1. The CREVS operating and surveillance procedures have been changed to reflect revised design and licensing basis requirements. The system pressure requirement remains at 0.0625 inches wg, but the system flow requirement has been revised based upon engineering evaluation.

2. All operating procedures and operations surveillance test procedures have been reviewed against UFSAR requirements. Only minor deviations were found and no further operability concerns were identified.

3. Based on safety significance, and with consideration to factors including Maintenance Rule risk significance and modification history, procedures associated with five other systems have been selected for further review against design and license basis requirements. Prior to startup from the CREVS forced outage, Core Spray procedures and tests were reviewed against the Core Spray Design Basis Document; only minor deviations were found and no operability issues were identified. The remaining systems will be similarly reviewed by August 30, 1998 in accordance with the corrective actions specified in LER 98-02.

III. *ACTIONS THAT WILL BE TAKEN TO PREVENT RECURRENCE*

NMP1 Branch Managers have reviewed this event with personnel responsible for procedure changes and modifications. Specifically, they heightened sensitivity that procedures must accurately reflect the plant design, test, and operational requirements.

In addition, since the 1980's when the CREVS was modified, the modification process has been improved substantially. A significant change in the process regards accountability for procedure revision. During the implementation of a modification, notification is provided to Responsible Procedure Owners (RPOs) that the modification may affect the RPO's procedures. Each RPO is required to review their procedures for impact and make revisions prior to modification closeout. As part of the modification closeout process, RPOs are required to sign off assuring that affected procedures have been revised.

I. *THE REASON FOR VIOLATION 98-02-10 HEATER IN CHARCOAL FILTER NEVER ENERGIZED*

The cause of the heaters not being energized since 1989 is that the corrective action program at the time was ineffective in implementing a permanent resolution to this non-conformance. The PR process allowed closure prior to completion of all corrective actions. Therefore, the disposition of this non-conforming condition in a PR failed to resolve this non-conformance. The cause is similar to the cause of NRC Violations 1.B cited on April 10, 1997 and 98-01-06 cited on March 20, 1998.

II. *CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED*

The following actions have been taken:

1. The CREVS design drawings have been revised to show that the heaters are disconnected.

2. A review was conducted of a random sample of approximately 750 (34%) historical PRs, to determine the type of closure document identified. If a Modification or DCR was identified as the closure document to resolve the problem, further investigation was performed to determine if the corrective actions were completed. The results were that approximately 99% of all DCRs and modifications were incorporated/implemented or properly closed. If closure of a modification or DCR was determined to be inappropriate (i.e., a commitment was not implemented, design basis was not maintained or a DCR was not incorporated), a Deviation Event Report (DER) was generated to further investigate and correct the discrepancies. Those deviations will be evaluated and corrective actions taken in accordance with NMPC's corrective action program.

3. A review of modifications that were voided was performed to determine if any issues were left unresolved. A printout from the Plant Change Request (PCR) database was obtained that provided pertinent information on all 1,207 voided modification requests. This printout was reviewed to identify potential configuration concerns. This review resulted in a list of approximately 30 canceled modifications requiring a detailed review to determine whether implementation was required. After a thorough review, no instances of modifications that should not have been voided were identified.

4. The remaining PRs will be reviewed for appropriate closure by September 30, 1998.

III. *ACTIONS THAT WILL BE TAKEN TO PREVENT RECURRENCE*

NMPC has reviewed Nuclear Interface Procedure (NIP)-ECA-01, Revision 13, Deviation/Event Report, effective date of April 1, 1998, which is the administrative procedure for the corrective action process. As a result of that review, it has been concluded that the currently approved process provides adequate guidance for properly resolving non-conforming conditions including operability evaluation, timeliness of resolution, and implementation of 10CFR50.59 safety evaluations for changes to the facility.

IV. DATE OF FULL COMPLIANCE

Based upon the number and magnitude of the recently identified deficiencies with the CREVS, the Chief Nuclear Officer (CNO) conviened a team of senior line management, this team conducted a review of the concerns identified. Each of the concerns was assigned to a responsible individual for the development of presentations to the team covering the concern, background, causes, corrective and preventative actions. The responsible individuals presented their findings to the team at a meeting held on May 2, 1998. The team discussed and reviewed these findings, their apparent causes, and the recommended corrective and preventative actions. Based on their review, the team developed and assigned additional corrective and preventative actions. All of the actions were categorized as pre-or post-startup from the then ongoing forced outage and a Master List was developed for tracking and updating the actions through completion. These findings and actions are documented in the CREVS Investigation Report and Corrective Action Plan.

The pre-startup items were completed, verified, and presented to Site Operations Review Committee (SORC) on May 23, 1998, to assure readiness for restart. Therefore, full compliance was achieved on May 23, 1998, when the actions to assure compliance with the design and license bases were completed.