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January 11, 1996
NRC-95-0113

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington D. C. 20555

- References: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
- 2) NRC Inspection Report No. 50-341/95012,
dated December 12, 1995

Subject: Reply to a Notice of Violations [Inspection Report
No. 50-341/95012 (DRP)]

Enclosed is Detroit Edison's reply to the Notice of Violations contained in Reference 2. Immediate and short term corrective actions have been completed or are underway as discussed in this response and at the December 19, 1995 Management Meeting held at the NRC Region III office. Work on the broader issues is in progress.

The lessons learned from this event are important enough that they have been shared with site personnel by the Plant Manager during mandatory site meetings. Topics covered include discussion about:

- Procedure Adherence
- Teamwork
- Communication
- Sensitivity to safety-related equipment

At these meetings, accountability for procedural adherence was clearly established.

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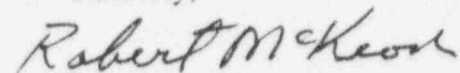
The following commitments are being made in this letter:

1. Procedure 35.309.001 has been revised to include a sufficient level of detail to specify the appropriate manner to perform the test on the battery charger.
2. The remaining battery charger procedure 35.310.001 will also be reviewed and revised, as necessary, to include the appropriate level of detail for the testing. This will be completed by January 26, 1996.
3. A case study about the battery charger event will be developed for operations, operations work control, maintenance supervisors, and work control planners. This case study will be presented during the first quarter of 1996 training.
4. Lessons learned training on the battery charger event and related work control issues will be presented to maintenance. This training will be completed by June 30, 1996.
5. The procedure revision process is being revised to require a technical review of a procedure should significant changes be required as a result of the validation process. This revision will be completed by January 31, 1996.
6. MOP05 has been revised to prohibit the use of the Control Room logbook to control LCO's for non-operations activities other than surveillances.
7. The quarterly, 18 month and five year battery checking surveillance procedures for the 130/260 VDC batteries to provide guidance on electrolyte spills and battery system inspections will be revised. These actions are expected to be completed by February 29, 1996. Procedure 47.310.03 has already been revised for the 24/48 VDC batteries to incorporate the same considerations.
8. Training will be provided to the electricians to increase their awareness about battery rack deterioration. The training will also include information on prevention of electrolyte spillage and the steps to take if any does get spilled. This will be performed during the 1996 second quarter continuing maintenance training.
9. The cleanup, painting, and replacement, as necessary, of the battery rack lower fasteners and inspection and replacement, as necessary, of tie rods will be completed by January 31, 1996.
10. Training will be conducted for nuclear warehousemen, Fermi warehouse supervisors, and operations personnel on compressed gas identification, storage, and handling. In addition, the training will include the lesson learned from the event and the importance of self-checking. This training will be completed by April 15, 1996.
11. The 12-pack bottles containing nitrogen will be better marked to indicate the gas contained. This action will be completed by January 31, 1996.

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If there are any questions, please contact Mari J. Jaworsky, Compliance Engineer
at (313) 586-1427.

Sincerely,

A handwritten signature in cursive script that reads "Robert McKeon".

Enclosure

cc: T. G. Colburn
M. J. Jordan
H. J. Miller
T. Vogel
Region III

STATEMENT OF VIOLATION [4]

10 CFR 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented instruction, procedures, or drawings, of a type of appropriate to the circumstances and shall be accomplished in accordance with these instruction, procedures, or drawings.

Contrary to the above, as of October 3, 1995, Maintenance Procedure 35.309.001, Revision 29, 130/260 Volt Battery Charger Testing, Calibration and General Maintenance, approved April 3, 1995, an activity affecting quality, was not appropriate to the circumstances. Specifically, the procedure was not sufficient to prevent the installation of a test resistor bank on the Division 1 130/260 Volt Battery, which rendered the battery inoperable and did not notify the operating crew of the condition.

REASON FOR THE VIOLATION

The primary reason for this violation is an inadequate procedure. Procedure 35.309.001 did not provide the level of detail necessary to ensure testing would not affect on-line equipment. This resulted in an over-reliance on skill of the craft for this work. Procedure 35.309.001, Revision 25 had more specific detail on the overcurrent test; however, after the validation for revision 26 that detail had been removed. The revisions made during the validation process were not adequately reviewed or evaluated prior to approval. Subsequent revisions carried this weakness forward.

There were three contributing factors to this event:

- Lack of procedural adherence - Procedure 35.309.001 provided two alternative methods to perform the testing and the electrician failed to obtain direction on the appropriate testing method from the electrical supervisor as was specified by this procedure.
- Inappropriate work control - 1) The work package was not adequately reviewed by the electrical supervisor and as a result the electrical supervisor erroneously assumed that the 2A1 charger would be tested with a dummy load rather than the on-line battery. 2) The electrician failed to appropriately characterize the status of the remaining work to operations personnel when the tags were removed and as a result operations erroneously assumed that all work was completed.
- Communication breakdown - There was a lack of dialogue between electricians, the electrical supervisor, and operations about the specifics of the work required to complete this preventive maintenance (PM).

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CORRECTIVE STEPS TAKEN AND THE RESULTS ACHIEVED

Procedure 35.309.001 has been revised to include a sufficient level of detail to specify the appropriate manner to perform the test on the battery charger. Additionally, the Plant Manager held site meetings to discuss this and other site events regarding procedural adherence, teamwork, communication, and sensitivity to safety-related equipment. At these meetings, accountability for procedural adherence was clearly established.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

The remaining battery charger procedure 35.310.001, 24V Battery Charger Calibration, will also be reviewed and revised, as necessary, to include the appropriate level of detail for the testing. This will be completed by January 26, 1996. Due to earlier problems with electrical preventive maintenance jobs, a review of other electrical procedures had already been initiated prior to this event to determine whether the level of detail is appropriate.

Prior to this event, a decision was made to assign an electrician to the maintenance procedures group to enhance and provide consistency to the electrical procedures. An assignment such as this has worked well for Instrumentation and Control procedures.

A case study about the battery charger event will be developed for operations, operations work control, maintenance supervisors, and work control planners. This case study will be presented during the first quarter of 1996 training.

Lessons learned training on the battery charger event and related work control issues will be presented to maintenance. This training will be completed by June 30, 1996.

Additionally, the procedure revision process is being revised to require a technical review of a procedure should significant changes be required as a result of the validation process. This revision will be completed by January 31, 1996.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Procedure 35.309.001 has been revised. Procedure 35.310.001 is currently being reviewed and will be revised, as necessary, by January 26, 1996.

STATEMENT OF VIOLATION [4]

Operations Conduct Manual, MOP05, Control of Equipment, Section 2.3.5, states in part, "Restoring a system and/or component to operable condition shall be accomplished by successful completion of maintenance, operations procedure requirements, and surveillance as required by the NSS/NASS." This is an activity affecting quality.

Contrary to the above, on October 3, 1995, the 2A-1 Battery Charger was placed in service without completing maintenance activities pursuant to the NSS/NASS.

REASON FOR THE VIOLATION

There were four causal factors for this event:

- Lack of procedural adherence - Operations failed to review the work package in accordance with procedure prior to declaring the system operable.
- Inappropriate work control - Operations failed to understand the scope of this maintenance activity. They also failed to monitor the on-going status of the field work and to validate the charger configuration during the test. Maintenance failed to properly characterize the status of the remaining work when tags were removed.
- Inappropriate Limiting Condition of Operation (LCO) management - Operations failed to recognize multiple LCO entries and to ensure that all work was completed prior to declaring the battery charger operable. The Control Room logbook was being used to control work activities instead of a written formal LCO sheet as required.
- Communication breakdown - Lack of dialogue between operations and electricians regarding the work activity prior to and during the work.

CORRECTIVE STEPS TAKEN AND THE RESULTS ACHIEVED

MOP05, Control of Equipment, has been revised to prohibit the use of the Control Room logbook to control LCO's for non-operations activities other than surveillances. Work packages that render equipment inoperable require a formal LCO sheet unless specific conditions are met per MOP05.

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The need for maintenance pre-job briefings to establish test setups and sequence of work has been re-enforced. Once maintenance is completed, walkdowns by a licensed operator are required per MOP05 before a job specific LCO can be cleared. Finally, completed (signed) work packages are to be in hand prior to clearing an LCO. These requirements were also re-enforced.

Additionally, the Plant Manager has held site meetings to discuss this and other site events regarding procedural adherence, teamwork, communication, and sensitivity to safety-related equipment. At these meetings, accountability for procedural adherence was clearly established.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

In addition to the above corrective actions, a case study about the battery charger event will be developed for operations, operations work control, maintenance supervisors, and work control planners. This case study will be provided during the first quarter of 1996 training.

Lessons learned training on the battery charger event and related work control issues will be presented to maintenance. This training will be complete by June 30, 1996.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Detroit Edison is currently in full compliance. Actions described above will achieve continued compliance.

STATEMENT OF VIOLATION [2a]

10 CFR 50, Appendix B, Criteria XVI, "Corrective Actions," requires in part that in the case of significant conditions adverse to quality, measures shall be established to assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, on October 3, 1995, the use of inadequate work procedures and failure to follow work process control procedures resulted in rendering the Division 1 130/260 Volt Battery inoperable, a significant condition adverse to quality. Corrective actions for previous significant events caused by similar inadequate work control practices failed to prevent this occurrence. Events caused in part by inadequate work control and failure to follow work process control procedure include the valve stem ejection event on September 17, 1993, and an unexpected change in reactor vessel level and pressure indication due to inappropriately installed monitoring equipment on February 11, 1995. (341/95012-02a)

REASON FOR THE VIOLATION

The reason for the violation was the lack of procedural adherence in that there existed an inconsistent work control implementation. An independent review of the October 3, 1995 event and past events determined the work control process is adequate, but implementation is inconsistent.

There was a lack of sensitivity to routine preventive maintenance (PM) activities and the possible associated consequences of these PM activities on certain safety-related equipment which contributed to the October 3, 1995 event.

CORRECTIVE STEPS TAKEN AND THE RESULTS ACHIEVED

The Plant Manager has held site meetings to discuss this and other site events regarding procedural adherence, teamwork, communication, and sensitivity to safety-related equipment. At these meetings, accountability for procedural adherence was clearly established.

Prior to this event during corrective action trending program reviews, Fermi personnel identified adverse trends in the areas of work control and LCO management and initiated deviation event reports (DER's) to address the causes and to establish corrective actions to address these trends. The review of adverse trend DER's is an integral part of the Fermi corrective action process to assure that adverse trends are addressed.

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CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

A case study about the battery charger event will be developed for operations, operations work control, maintenance supervisors, and work control planners. This training will be provided during the first quarter of 1996.

Lessons learned training on the battery charger event and related work control issues will be presented to maintenance. This training will be completed by June 30, 1996.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Detroit Edison is currently in full compliance. Actions described above will achieve continued compliance.

STATEMENT OF VIOLATION [2b]

10 CFR 50, Appendix B, Criterion XVI, required, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected.

Contrary to the above, from May 1994 to November 1995, the licensee failed to implement adequate corrective action to preclude continued corrosion deterioration of safety related battery racks. The deterioration identified during a surveillance in May 1994 in one location on one rack was not corrected until the NRC identified corrosion deterioration on all the racks in November 1995 (341/95012-02b).

REASON FOR THE VIOLATION

On May 24, 1994, during the performance of surveillance procedure 42.309.03, Division 1 18 month 130/260 VDC Battery Check, it was noted that corrosion was present on the battery rack. This was the first indication that the battery rack inspection was unsatisfactory. Subsequently, the battery rack inspection was considered satisfactory after repairs were performed under a work request for the grounding strap. The work request did not address corrective maintenance for corrosion on the battery rack itself. Furthermore, a Deviation Event Report (DER) was not written to address the battery rack corrosion that was identified during the surveillance.

Surveillance procedures are in place to perform quarterly inspections of the battery racks, and an 18 month battery check procedure to verify the operability of the battery. These procedures have steps to direct the work crews to perform a battery rack inspection for physical damage or acid residue, however when the work is performed, the craft do not routinely document battery rack deterioration. This is because the craft was not fully aware of what to look for or the effect of battery rack corrosion on equipment operability. Furthermore the condition of the battery racks was assumed to be normal and acceptable by the individuals performing the surveillance.

CORRECTIVE STEPS TAKEN AND THE RESULTS ACHIEVED

A joint walkdown was performed on October 6, 1995, by the System Engineer and a Seismic Qualification Plant Engineer specifically to look at the battery rack fasteners. It was determined that the corrosion on the fasteners' cross sectional area had not decreased to a point where the fasteners would not perform their intended function.

Work requests were initiated by the System Engineer to inspect, clean and/or replace battery rack fasteners, as necessary. Additionally, on October 10, 1995, the System Engineer initiated a DER to address battery system walkdown concerns, so that corrective actions would be established to maintain positive control over the battery rack fastener corrosion problem.

An annual battery system walkdown was performed on October 12, 1995 by the System Engineer and Plant Support Engineering. This walkdown also included a civil engineer to review seismic concerns. During the walkdown it was noted that in addition to the battery rack fasteners, the battery rack structural members also had corrosion and acid residue on them.

On November 16, 1995, the racks were cleaned and painted and the top tie rods were cleaned. Additional minor clean-up and painting were still required and work requests were initiated to complete this work including the fastener cleaning. Fastener cleaning was not completed at that time due to concerns over battery operability to remove the fastener. Therefore, an Engineering Functional Analysis (EFA) was written to allow this work to be done on the fastener under specific conditions and still consider the battery system operable.

Maintenance procedure 47.310.03, 24/48 VDC Weekly Battery Check, for performing work on the 24 DC batteries has been revised to include neutralizing and cleaning battery racks along with inspecting them for abnormal deterioration and documenting the results. The procedure also provides guidance that if any electrolyte is spilled, it should then be wiped clean with a dampened shop towel. These steps will assure that the 24/48 VDC battery racks will not have unaddressed deterioration.

Although primary reliance is on the routine sureillances performed by electricians to detect problems, the System Engineer now includes battery rack corrosion/deterioration inspection as part of the routine battery system walkdown. Corrosion/deterioration has been added to Battery System Walkdown Checklist.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Corrective actions also include revising the quarterly, 18 month and five year battery checking surveillance procedures for the 130/260 VDC batteries to provide guidance on electrolyte spills and battery system inspections. These actions are expected to be completed by February 29, 1996.

Training will be provided to the electricians to increase their awareness about battery rack deterioration. The training will also include information on prevention of electrolyte spillage and the steps to take if any does get spilled. This will be performed during the 1996 second quarter continuing maintenance training.

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The cleanup, painting, and replacement, as necessary, of the lower fasteners and inspection and replacement, as necessary, of tie rods will be completed by January 31, 1996.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Detroit Edison will be in full compliance on January 31, 1996 when the work on the battery racks as described above will be completed.

STATEMENT OF VIOLATION [3]

Technical Specification 6.8.1.a required that written procedures be established, implemented, and maintained for applicable activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2.

Regulatory Guide 1.33, Revision 2, Appendix A requires in part that written procedures be established for startup, operation, and shutdown of safety-related systems, including the control rod hydraulic system.

Procedure 23.106 Control Rod Drive Hydraulic System, Section 5.4.1.2 requires that nitrogen bottles with pressure greater than 1200 psig be used for recharging control rod drive hydraulic control unit (HCU) accumulators.

Contrary to the above, between August 9 and October 19, 1995, the licensee failed to implement Procedure 23.106 in that at least 9 HCU accumulators on the north HCU bank were not recharged with nitrogen, but were recharged with argon gas a total of at least 34 times (341/95012-03).

REASON FOR THE VIOLATION

This violation is the result of individuals' lack of attention to detail when a 12-pack of argon and dry-air bottles were removed from stores, delivered to operations, and argon was connected to the south HCU charging rig. These individuals believed that all green 12-pack bottles were nitrogen, and therefore, the operators and warehouse person involved did not examine the labels indicating the actual gas contained.

The warehouse person delivered two green 12-packs, one argon and one dry-air, from several green 12-packs available. All green 12-pack bottles were grouped together despite the fact that they contained different gases, i.e., argon, nitrogen, oxygen, and dry-air.

Operators failed to recognize that the wrong material was delivered despite the fact that the individuals attempted to connect the first 12-pack (dry-air) delivered, but because the 12-pack did not have the correct fittings they decided to connect the second 12-pack (argon). Operators did not realize that inert gases have 3/4" female fittings, and dry-air and oxygen have 3/4" male fittings. If the operators had stopped and effectively evaluated the problems encountered through self-checking, the wrong material should have been identified.

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From August 9 to October 19, 1995, the 12-pack of argon was connected to the south HCU charging rig; at least seven different accumulators were charged several times during that period. The procedure for charging a HCU requires the use of nitrogen. Operators performing the charging however, did not look closely at the 12-pack connected because there was no reason to doubt that the 12-pack connected was nitrogen.

CORRECTIVE STEPS TAKEN AND THE RESULTS ACHIEVED

The 12-pack of argon gas was immediately replaced with a 12-pack of nitrogen to ensure nitrogen was used on all other HCU's requiring charging.

An investigation was immediately conducted to determine the extent and impact of the argon gas with respect to the performance of the HCU's. General Electric was asked to review the impact of using argon gas on the performance of the HCU's. General Electric indicated that pure Argon is a slightly better gas, and therefore, does not present a problem with the safe performance of the HCU. The date and time the argon bottles were connected and the HCU's charged were determined.

The warehouse 12-packs were separated based on their content. In addition, a review was conducted into the required use of all other gases on site. This review determined that only nitrogen is required to be in the 12-pack configuration. All other gases in the 12-pack configuration were removed from the protected area.

Additionally, the Plant Manager held site meetings to discuss this and other site events regarding procedural adherence, teamwork, communication, and sensitivity to safety-related equipment. At these meetings, accountability for procedural adherence was clearly established.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION

Training will be conducted for nuclear warehousemen, Fermi warehouse supervisors, and operations personnel on compressed gas identification, storage, and handling. In addition, the training will include the lessons learned from the event and the importance of self-checking. This training will be completed by April 15, 1996.

The 12-pack bottles containing nitrogen will be better marked to indicate the gas contained. This action will be completed by January 31, 1996.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Detroit Edison is currently in compliance. Actions described above will help achieve continued compliance.