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SUBJECT: Responds to violations noted in insp 50-315/95-14 & addl items involving operability/reportability & maint activities

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Indiana Michigan
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P.O. Box 16631
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AEP
INDIANA
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February 26, 1996

AEP:NRC:1224F
10 CFR 2.201

Docket Nos.: 50-315

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

Gentlemen:

Donald C. Cook Nuclear Plant Unit 1
NRC INSPECTION REPORT NO. 50-315/95014 (DRP)

This letter is in response to a letter from W. L. Axelson dated January 25, 1996, that forwarded a notice of apparent violations to Indiana Michigan Power Company. These apparent violations were identified during a special safety inspection conducted by Messrs. Bartlett, Hartland, and Orsini from December 20, 1995, through January 16, 1996. The apparent violations are associated with the circumstances surrounding the inoperability of the unit 1 west centrifugal charging pump due to miscalibration of an overcurrent relay.

Our reply to the notice of apparent violations is provided in Attachment 1 to this letter. Attachments 2 and 3 contain our responses to additional items involving reportability and training.

Sincerely,

for W. J. Smith
E. E. Fitzpatrick
Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 26th DAY OF February 1996

Rita L. Hill
Notary Public

My Commission Expires: 6-28-99

plt

010029

IE01

Attachments

cc: A. A. Blind
G. Charnoff
H. J. Miller
NFEM Section Chief
NRC Resident Inspector - Bridgman
J. R. Padgett

ATTACHMENT 1 TO AEP:NRC:1224F

REPLY TO NOTICE OF VIOLATION: NRC
INSPECTION REPORT NO. 50-315/95014 (DRP)

During a special NRC inspection conducted December 20, 1995, through January 16, 1996, three apparent violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions," (60 FR 34381, June 30, 1995) the apparent violations and the Donald C. Cook Nuclear Plant response are provided below:

Apparent Violations

"1. Technical Specification 3.5.2 requires, in part, "Two independent ECCS subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE centrifugal charging pump,...."

The applicability of this TS is Modes 1, 2, and 3.

Action a. States, "With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE within 72 hours or be in HOT SHUTDOWN within the next 12 hours."

Contrary to the above, from 4:31 a.m. on March 15, 1995, until 11:17 a.m. on July 30, 1995, the Unit 1 West (Train B) centrifugal charging pump was inoperable due to a miscalibrated overcurrent relay and the unit was not placed in hot shutdown.

2. Technical Specification 3.0.3 requires, in part, "When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in a MODE in which the Specification does not apply by placing it, as applicable, in:

1. At least HOT STANDBY within the next 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours."

Contrary to the above, both centrifugal charging pumps were inoperable which is a condition not covered by TS 3.5.2 and the unit was not placed in hot shutdown:

- On July 10, 1995, from 1:00 a.m. until 2:50 a.m. on July 12, the Emergency Diesel Generator Train "A," the emergency power source for the east centrifugal charging pump, was out of service while in Mode 1.

- On July 19, 1995, for 17 hours and 35 minutes the east centrifugal charging pump was removed from service while in Mode 3.

3. 10 CFR 50, Appendix B, Criterion V, states that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances.

Contrary to the above, calibration procedure, 12IHP6030.IMP.014, was not appropriate for calibrating a GE model 66 type IAC (Induction Disc Current Sensing) relay. This procedure was originally written for technicians that specialized in the calibration of relays and had not been changed since the mid-1970s. The licensee's practice for calibrating relays changed to allow less specialized I&C technicians to calibrate relays. However, the procedure was not revised to contain sufficient detail for this reduction in technician proficiency to ensure proper calibration of the GE model 66 type IAC relay."

Response to Apparent Violations

The first two apparent violations, involving technical specification violations, are a consequence of the pump being inoperable for an extended period due to the relay being out of calibration. The following single response addresses all three apparent violations.

1. Admission or Denial of the Apparent Violations

Indiana Michigan Power Company admits to the apparent violations.

2. Reasons for the Apparent Violation

Qualified but inexperienced personnel used an improper technique to measure and set the pickup current. During the calibration, a continuity light is connected across the trip contacts. The proper technique is to record the pickup current value at the point at which the continuity light is "just flickering." Instead, the technicians recorded the value at the point the light was "full on." This would cause the technician to assume the relay had a higher pickup current value than it actually did, thereby reducing the actual relay setting.

The technician assigned to the work realized the pickup current method being used by the senior technician was contrary to his training but failed to question the method. This was because the technician did not understand the significance of the "just flickering" technique. The technicians had the skills to perform the work, but lacked

the experience to recognize the effect of the improper calibration technique.

Additionally, the personnel involved did not recognize the as-found data they had recorded as being suspect, nor did the supervisor who reviewed the data sheets. At the time of the calibration the as-found data for this kind of relay was believed to be of little value, as it was thought that the calibration of the relay was affected when the cover was removed.

A contributing factor to the event was that the relay calibration procedure contained a level of detail sufficient for technicians that specialized in relay calibrations. However, a change in relay calibration scheduling practices resulted in less experienced technicians performing the calibrations. The level of detail in the procedure was not increased in order to accommodate this scheduling change.

3. Corrective Actions Taken and Results Achieved

The relay was recalibrated on September 12, 1995. Additionally, the relay was rechecked on November 1, 1995. This recheck was performed as part of our investigation into this event to check the calibration, check repeatability, and check the response of the relay to different calibration techniques. The relay was found to be in specification during this recheck.

Fourteen relays, all monitoring motors for pumps that did not receive a full flow test following relay calibration were tested to recheck their calibration and prove their reliability. These calibrations were completed by December 14, 1995. One relay, associated with the unit 1 west containment spray pump, was found to have a low pickup setting. This relay had been calibrated by one of the technicians involved with the unit 1 west centrifugal charging pump event. Although the setting for the containment spray relay was found to be low, an evaluation determined that this did not result in the pump being inoperable. A review of completed relay calibrations identified seven additional relays calibrated by the involved technician - three relays on T11D1, the emergency feed breaker to the unit 1 "D" bus, and four on T11D12, the normal feed breaker to the unit 1 "D" bus. Because these relays are monitoring an energized bus, detailed planning is required to establish the plant conditions required to check the calibrations. Once the planning is complete and the conditions met, the calibrations will be checked. This will occur on a schedule to be determined and communicated to the NRC.

4. Corrective Actions Taken to Avoid Further Violations

The preventive actions are broken down into the areas of training, procedures, and work practice.

Training

The training qualification cards for the technicians involved have been pulled and they will not perform relay calibrations until requalification has been completed.

The training program has been enhanced such that during crew training sessions, relay calibrations, including the IAC relay, are covered. This crew training began February 15, 1996, and will be completed prior to the start of the unit 2 refueling outage in March 1996.

The lesson plan for relay calibration has been revised to explain why the "just flickering" technique is used. The lesson plan includes a discussion of the relationship of the pickup current and time setting.

Procedures

The relay calibration procedure was enhanced on January 5, 1996, with regard to the level of detail for calibration of the IAC relay. The changes include defining the pickup point and the "just flickering" method. The level of detail is now sufficient to support successful calibration of IAC relays. Consultation with the relay manufacturer and other utilities has confirmed that as-found data for IAC relays is reliable. The procedure has been revised to require collection and review of as-found data.

Calibration evolutions for other types of relays are being reviewed for possible technique issues. This review will be completed by February 29, 1996.

Work Practice

Until all technicians have undergone crew training on relay calibrations, only those technicians who have demonstrated proficiency under supervision are performing calibrations on safety related protective relays, e.g., time overcurrent relays. As previously discussed, relay calibration is covered in crew training, which will occur during the period just prior to refueling outages. The I&C crew training will be the mechanism used to ensure all technicians maintain relay calibration proficiency.

The concept of the two person work team and the responsibilities of the team members are being reinforced with the I&C technicians and the first line supervisors. This will be done during crew training, which started February 15, 1996. Furthermore, the crew training modules now contain additional discussion and emphasis on the expectations of the second person on the job to monitor and challenge the work in progress. Similarly the role of the work reviewer has been reemphasized.

5. Date when Full Compliance will be Achieved

Full compliance was achieved on September 12, 1995, when the charging pump relay was recalibrated.

ATTACHMENT 2 TO AEP:NRC:1224F

RESPONSE TO REQUEST FOR INFORMATION
RELATED TO DELAY IN OPERABILITY/
REPORTABILITY DETERMINATION

The inspection report requested that we address the factors contributing to the delay in determining operability and reportability of the unit 1 west charging pump following the event. Our response is provided below.

Introduction

The inspection report states the following:

> "On September 22, 1995, site personnel requested the assistance of corporate engineering in assessing the operability of the centrifugal charging pump with the relay set too low. It took corporate engineering until November 20, 1995, to respond. It appeared that corporate engineering failed to place appropriate priority on this response. In addition, once corporate engineering made the determination of inoperability, corporate licensing did not realize that a high head safety injection pump being inoperable for 6 months would be reportable to the NRC. These two factors combined, added up to an unnecessary delay in reporting of about 2 months."

We agree with the NRC that our performance in determining reportability of this event was not acceptable nor did it meet our expectations. In response to this event, we conducted a self-assessment of the reportability aspects. The self-assessment resulted in several recommendations for performance improvement that are currently being implemented. These are discussed below.

Background

The inspection report discusses an "operability" determination and a "reportability" determination. The term "operability" as it relates to this event is in need of clarification. At Cook Nuclear Plant, conditions adverse to quality are documented as condition reports in our corrective actions system. As part of the condition report process, both prompt and backup operability determinations are performed. The purpose of these evaluations is, in general, to ensure that equipment that is in service and required by technical specifications is operable. In the case of the west charging pump, the pump tripped due to the miscalibrated relay during refueling outage surveillance testing. Since the plant was in Mode 6 (refueling) at the time, the charging pump was not required to be operable. Therefore, a specific "operability" determination (as the term is used in our corrective action system) was not required. It is noted, however, that the relay miscalibration problem was corrected promptly, on the same day the pump tripped.

Condition reports are generally assigned to a specific department or section for investigation. As part of the investigation, the

assigned department or section can request engineering assistance and reportability determination assistance. The engineering evaluation might be used by the investigating group to help determine the root cause of a condition, as well as appropriate corrective and preventive actions. It also might assist in the reportability determination, specifically by determining the impact of the condition on the equipment.

It must be noted that equipment inoperability does not necessarily result in a reportable occurrence. The determination of reportability often hinges on when the equipment became inoperable. In fact, Supplement 1 to NUREG 1022 (Licensee Event Report System) specifically states that, "in general, for the purpose of evaluating the reportability of situations found during surveillance tests, it should be assumed that the situation occurred at the time of discovery, unless there is firm evidence to believe otherwise."

As discussed above, the charging pump relay was found out of calibration during a period in which the pump was not required to be operable. The relay was recalibrated and placed back into service prior to the unit entering a mode in which the pump was required to be operable. The engineering evaluation was completed on September 25, less than two weeks after the initial event. This period of time is considered to be reasonable given that the equipment had already been restored to operable status.

The engineering evaluation concluded that relay miscalibration was the most likely cause of the event. The reportability reviewer, who is also an engineer, was aware that this conclusion meant that the event was reportable to the NRC. However, the reviewer believed that additional investigation was warranted to positively rule out a problem with the relay itself, as opposed to personnel error, as the cause of the pump trip. The reviewer's doubt was due to the fact that these relays have been routinely calibrated successfully for many years at Cook Nuclear Plant without a history of problems.

As described above, NUREG 1022 Supplement 1 allows an assumption that equipment became inoperable at the time of discovery unless there is firm evidence to believe otherwise. Thus, the root cause of the out of calibration condition was significant to the reportability determination. The reportability reviewer requested, and was granted, an extension of time for investigation into the root cause.

On November 20, following further investigation, it was concluded that the event was reportable under 10 CFR 50.73 (thirty day licensee event report), as a "condition prohibited by the plant's technical specifications." Subsequently, an independent review of the reportability determination determined that the event also met the definition of a reportable event under the requirements of 10

CFR 50.72. A phone call notification was made to the NRC on that date.

Results of Self-Assessment

We were not satisfied with the promptness of our reportability determination and performed a self-assessment to determine how performance can be improved in the future. As demonstrated above, however, actions of the individuals involved with the reportability determination were taken in good faith in a sincere effort to ensure the correct root cause and reportability conclusions were reached.

The following conclusions and recommendations, relevant to the NRC's concerns, resulted from the self-assessment.

1. Timeliness

The self-assessment determined that our process for extending reportability review due dates was not consistent with the NRC's guidance as published in the draft Rev. 1 of NUREG 1022. In that NUREG, the NRC recommended that utilities use guidance similar to that provided for operability determinations in Generic Letter 91-18. Essentially, a report need not be made only so long as there is a reasonable expectation that an event will not be reportable.

The form used to grant extensions of time for reportability reviews by the corporate Condition Assessment Group has been revised to specifically require demonstration of "a reasonable expectation that the condition is NOT reportable," (or require specific approval of the Division Manager, Nuclear Safety, Licensing, and Fuel), prior to an extension being granted.

2. Reporting Under 10 CFR 50.72

As discussed above, the original reportability review only addressed the criteria of 10 CFR 50.73 as a licensee event report. Subsequent review determined that the condition was also reportable to the NRC Emergency Notification System under 10 CFR 50.72.

In order to prevent recurrence of this problem, the self-assessment recommended that training on the requirements of 10 CFR 50.72 be given to Nuclear Safety, Licensing, and Fuel Division personnel. This training will be conducted by March 15, 1996. Additionally, the corporate procedure on reportability was modified on February 5, 1996, to emphasize that reportability reviews must address the requirements of 10 CFR 50.72.

ATTACHMENT 3 TO AEP:NRC:1224F

RESPONSE TO REQUEST FOR INFORMATION
REGARDING MAINTENANCE ACTIVITIES

The inspection report requested that we address the potential of other maintenance activities being conducted using technicians who have not maintained proficiency by requalification training or on the job performance of specialized procedures. Our response is provided below.

The loss of proficiency by technicians is believed to be isolated to the IAC relay calibration task. This particular relay calibration involves and relies on a certain technique for pick-up current determination. Although this technique is taught in initial training, no emphasis had been placed on the importance and reason behind the technique.

Technician training is split into two categories - initial training and continuing training, also referred to as crew training. In initial training the technicians are taught to perform specific job tasks. Crew training is conducted to refresh the technicians in selected topics. These sessions typically take place prior to refueling outages to maximize the benefit in anticipation of a period of high maintenance activity.

The subjects included in the crew training sessions are determined during a biannual consensus meeting. This consensus meeting includes maintenance supervisors, technicians, and training instructors, and provides an opportunity for selection of crew training topics. Since INPO program accreditation in 1987, relay calibration has never been selected as a refresher topic, as it was considered to be a relatively uncomplicated task.

Procedures for the maintenance department are subdivided into three disciplines - mechanical, electrical, and I&C. The mechanical and electrical maintenance procedures had been previously upgraded for human factors and quality attributes (inspection criteria/acceptance criteria). The I&C procedures used to maintain the protection and control system underwent revision during the protection and control system upgrade. These procedures were upgraded for human factors and quality attributes, including technician review prior to procedure closeout and supervisory review following procedure closeout. Although not all of the I&C procedures have been upgraded, the calibration procedure for the IAC relay has been revised to increase the level of detail to support the successful calibration of the IACs, and to require the taking of as-found data.

The procedure for relay calibration, which had remained essentially unchanged since originally written, contained a level of detail sufficient for technicians that specialized in relay calibrations. However, a change in relay calibration scheduling practices resulted in less experienced technicians performing the calibrations. The level of detail in the procedure was not increased in order to accommodate this scheduling change. The lack of refresher training, in unique combination with the change in

work practice and lack of detail in the procedure, created the situation which resulted in the miscalibration of the unit 1 west centrifugal charging pump IAC relay. It is believed that the potential for this combined effect does not exist with the other tasks which the I&C technicians are trained to perform.

To ensure that this potential does not exist with other tasks, a review of the I&C task list will be performed jointly by maintenance and training personnel. This review will evaluate the level of training and procedural detail provided for each of the tasks to verify their appropriateness. This review will be completed by March 4, 1996. Although not indicated as a problem, the mechanical and electrical procedures will be included in the scope of the review.

Maintenance Standard GEN-02, "First Line Supervisor Pre-Job Activities" is being revised to include the topics of worker proficiency and supervisory guidance, as well as the need to maintain a questioning attitude. The revision will be completed by April 1, 1996.

I&C crew training sessions are being revised to include detailed refresher training concerning the IAC relay. This will include a history of the relay at Cook Nuclear Plant with reference to the reliability of the device and actions to be taken if the as-found data appears questionable.

In addition to the specifics of the relay calibration, the revised crew training sessions include discussion of the need for all members of the crew performing a task and the personnel reviewing completed work to maintain a questioning attitude. The expectations for the second, or non-lead, technician on a job are also discussed to ensure safety, assistance, verifications, and procedure compliance responsibilities are clear. The role of the second person to monitor the work in progress and challenge task performance is being reinforced. Reviewer responsibilities are specifically discussed and the expectations for the review to include checks for accuracy, completeness, scope, and condition report applicability are made clear.