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US Nuclear Regulatory Commission
Region III
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PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

This letter is in response to your letter of October 24, 1985, which transmitted Inspection Reports 50-282/85016 and 50-306/85013. This letter also restates the responses given in our letter of September 30, 1985, and includes minor revisions to those responses to answer comments by the Senior Resident Inspector. New and changed material is sidelined.

Violation

Technical Specification 6.5.A.3 required, in part, that detailed written procedures shall be prepared and followed covering actions to be taken to correct specific and foreseen potential or actual malfunction of systems or components including responses to alarms.

Contrary to the above, a complete alarm response procedure for annunciator location 47501-501 was not available in the control room from August 23, 1984 to June 24, 1985.

This is a Severity Level V violation (Supplement 1).

Response

The alarm response procedure in question pertains to the new intake screenhouse. When the new screenhouse was turned over to the operations department in early 1984, temporary operating instructions were issued. The alarm response procedure was part of Temporary Memo (TM) 84-10. The "permanent" alarm response procedure C47.26 issued in June 1984 made reference to TM 84-10. On August 23, 1984 the temporary operating instructions were reissued as TM 84-42 and TM 84-10 was cancelled; however, the

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C47.26 procedure still referenced TM 84-10. On January 25, 1985, the temporary operating instructions were again reissued, this time as TM 85-04. TM 84-42 was cancelled, but the old reference to TM 84-10 remained in C47.26. It now appeared that no procedure was available, since TM 84-10 had been cancelled, when in fact the procedure was in effect under another TM number.

In June 1985 the C47.26 procedure was corrected to provide a proper reference. Full compliance had been achieved. There is a program now under way to upgrade the alarm response procedures.

Items of Safety Concern

The five concerns listed below all relate to modifications to the facility. Specific corrective actions are listed for each concern noted. Corrective action for the broader area of modifications includes the following management actions:

- 1) More detailed review of modification work packages by members of plant staff knowledgeable in integrated plant operations and engineering criteria.
- 2) Use of the "team" concept in the modification process to identify interfaces and interferences early.
- 3) Strengthening the ties between the plant and construction QC organizations to ensure timely resolution of problems.
- 4) Strengthening NSP supervision of construction crafts to ensure that craft supervision is aware of the special concerns required for work in an operating facility.

It is believed that these actions support the specific corrective actions listed below and address the broader concern of physical control of plant modification.

a. Concern

NSP Corporate QA Audit No. AG 85-16-Outage resulted in a Finding (No. FG-85-5) that Commonwealth Electric Co., a contractor to NSP at Prairie Island, had conducted work activities which were ineffective in complying with NSP QA program requirements as delineated in Corporate Administrative Work Instruction NIAWI 5.1.15, Revision 0. This instruction specifies in Sections 6.5.2 and 6.5.3, among other things, that an Engineering Change Request (ECR) is to be released for implementation only after resolution of the ECR. Specifically, the Corporate QA Auditor found that conduit support hangers and other electrical components were installed without prior engineering approval and not in accordance with existing design documents.

In-plant corrective actions have included review of the existing installations of conduit support hangers. To date, two safety related electrical cable supports have been found which will require special seismic analysis. This analysis is to be completed by August 30, 1985.

Corrective actions by the construction forces have included management review of the Finding, review and updating of construction standards, personnel additions to the NSP Nuclear Engineering and Construction field staff, and personnel changes in Commonwealth Electric Company.

Response

Corrective actions outlined in the above concern have been effective in resolving this problem. The special seismic analysis of eight supports for two safety-related conduits has been completed. Some minor upgrades are necessary; materials for those upgrades have been ordered. Capability to do such analyses in-house is also being developed. A school on support analysis was held 10-31-85. The program on structures analysis has been ordered.

b. Concern

NSP Corporate QA Audit No. AG 85-17-Outage resulted in Findings that the Prairie Island plant staff, the Nuclear Technical Services staff, and the Nuclear Engineering and Construction staff all failed to properly implement the NSP uniform modification processes described in Corporate Nuclear Administrative Work Instruction NIAWI 5.0, Modification and Maintenance, Revision 1, which contains an overall description and general instructions for the use of the process. The Corporate QA Auditor found in his report for the period January 14 - March 18, 1985 that the Prairie Island plant staff, the Nuclear Technical Services staff, and the Nuclear Engineering and Construction staff all failed to properly implement the uniform modification process. These failures were in the areas of planning and coordination, design, logging/tracking, document control, project control, and turnover.

Corrective actions implemented by the licensee have included retraining of the users of the modification process. In addition, further audits of the use of the process are to be conducted by Corporate QA during the Unit 2 10-year outage scheduled to begin in September 1985. The resident inspector will review the results of these audits.

Response

A follow-up audit was completed just before the refueling outage. Conclusions of that audit were that:

1. Training was conducted as required for correction of the previous audit findings.
2. There was general improvement in modification processing.

Another follow-up audit was conducted during the outage. Conclusions of that audit were that there were some minor administrative problems, but that the program is being effectively implemented.

c. Concern

During the conduct of and in the location of Appendix R work in the Auxiliary Building on May 8, 1985, the two-inch instrument air supply line for Unit 1 failed. One result of this failure was a trip of Unit 1. (See Inspection Report 50-282/85010(DRP); 50-306/85008(DRP)). Possible causes of the break include accidental bumping of the line and relocation of the line to accommodate Appendix R work.

Corrective actions have included inspection of the line and reinforcement of leaking solder joints. The licensee's final Investigative Report will be reviewed by the Resident inspector.

Response

This event was reported as Unit 1 LER 85-009.

On May 8, 1985, Unit 1 was at 100% power. At about 1323, a 2-inch copper instrument air line separated at a soldered elbow joint. As a result, the Unit 1 side of the instrument air system depressurized enough to cause the feedwater regulating valve to No. 12 steam generator to close. At 1326, Unit 1 tripped on low steam generator level plus feedwater flow/steam flow mismatch.

Cable tray wrapping for Appendix R compliance was in progress in the vicinity of the break, and the air line was moved somewhat to accomplish the wrap. This could have placed enough stress on the elbow to cause it to separate.

The unit was maintained in hot shutdown while repairs were made. While repairs were in progress, another leak was discovered nearby in a 2-inch soldered coupling. The leakage had been patched before; clamps were added to tie the coupling together. A walkdown inspection of the instrument air system was performed in areas of the plant where cable tray wrapping had taken place or was in progress; no additional problem areas were identified. The unit was returned to service at 1847 on May 9.

Plans are being made to upgrade the compressed air piping systems over the next few years with higher strength materials.

As noted earlier, steps are being taken to strengthen supervision of construction craft personnel which will reduce the probability of future incidents of this nature.

d. Concern

On July 26, 1985, a temporary cable splice in the power supply to MCC 1TA1 failed by shorting to ground. This fault disabled many of the D-1 diesel generator auxiliaries. The fault occurred in a location where Appendix R work had been done and might be related to that activity.

An investigation by the licensee is underway.

Response

On July 26th, Unit 1 was increasing power following a routine load follow operation, and Unit 2 was at 90% power coasting down to refueling.

At 0800, an operator making rounds discovered that the auxiliaries to D1 Diesel Generator were not in operation. Investigation revealed the supply breaker to MCC 1TA1 (which powers the auxiliaries for D1 Diesel Generator) was tripped. A fault had occurred in a splice in a temporary power supply to MCC 1TA1 from MCC 1K1. The temporary power supply had been made 18 months earlier as part of a plant modification. Completion of the modification was delayed due to conflicts with other modifications and Tech Spec operability requirements.

Powering of MCC 1TA1 from a permanent source had been planned for the following week, so instead of repairing the temporary feed the permanent installation was completed that day.

The temporary power supply to MCC 1TA1 had been spliced to a temporary cable fed from MCC 1K1; the splices were located on top of the MCC. The fault occurred where the splice rested on a switchgear bolt. It is surmised that during cable tray wrapping work the splice was stepped on, causing an indentation and loss of protective insulation, eventually resulting in a fault.

The cable fault resulted in loss of D2 Diesel Generator auxiliaries. The significant auxiliaries affected were generator ventilation, room ventilation and the clean fuel oil pump; the others were minor keep-warm systems, etc. Diesel generator operability depends on none of these auxiliaries in the short term; the diesel generator would have started and loaded as required. In the long term, without operator action, generator insulation may have degraded since generator ventilation was unavailable. It is felt that reasonable operator action in restoring power to the auxiliaries would have prevented any adverse effect on D1 Diesel Generator and operability would have been maintained.

As noted earlier, steps are being taken to strengthen supervision of construction craft personnel which will reduce the probability of future incidents of this nature.

e. Concern

On August 1, 1985, breaker 228 tripped, thus disabling certain safeguards equipment momentarily. The tripping might accidentally have been caused by construction activity near the breaker. Subsequent electrical testing of the breaker showed no fault conditions in the breaker itself.

An investigation by the licensee is underway.

Response

This was reported as a Unit 1 LER 85-011.

On August 1, 1985, Unit 1 was at 100% power, and Unit 2 was at 83% power in coastdown for refueling. D1 Diesel Generator was out of service for maintenance.

At 1030, No. 22 control room chiller tripped. Investigation showed that 480 volt Bus 220 Breaker 228 had tripped, deenergizing motor control centers 1T2 (which powers the control room chiller) and 1TA2 (which powers the auxiliaries for D2 Diesel Generator). At 1056, Breaker 228 was reclosed, restoring power to MCC 1T2 and 1TA2.

Breaker 228 was apparently accidentally tripped by construction electricians working in the area. Breakers of this type usually have a manual trip blocking device installed to prevent accidental trips such as this, but in this case the device was missing. (The devices themselves are quite easily removed so that manual trip of the breakers can be accomplished quickly, if need be).

The significant auxiliaries affected were generator ventilation, room ventilation and the clean fuel oil pump; the others were minor keep-warm systems, etc. Diesel generator operability depends on none of these auxiliaries in the short term; the diesel generator would have started and loaded as required. In the long term, without operator action, generator insulation may have degraded since generator ventilation was unavailable. It is felt that reasonable operator action in restoring power to the auxiliaries would have prevented any adverse effect on D2 Diesel Generator and operability would have been maintained.

As noted earlier, steps are being taken to strengthen supervision of construction craft personnel which will reduce the probability of future incident of this nature.

Involved workmen were counseled concerning their activities. An additional physical barrier was erected in the work area to minimize the chance of recurrence. A search for a more effective manual trip blocking device is underway.

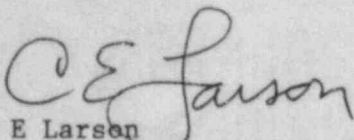
Recent Event

On October 1, 1985, the 480 volt breaker 12M, which supplies one train of Unit 1 safeguards 480V loads was accidentally tripped by a workman working in the area. This was reported as LER 1-85-14.

Corrective actions taken include the following:

1. Yellow caution ribbon was placed around breakers in all bus rooms where construction activities were taking place.
2. A more effective manual trip blocking device has been designed and built for this type of breaker. The devices have been installed on Unit 2 breakers since it was shutdown for refueling at the time of the event. The devices will be installed on Unit 1 breakers at the first opportunity.
3. Administrative controls were tightened. Involved supervisors and engineers have discussed the event in detail and the need for continued supervision presence was emphasized.

Further recommendations for prevention of similar events are being evaluated.


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cc: G Charnoff
Regional Administrator - III, NRC
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