



INDIANA & MICHIGAN ELECTRIC COMPANY

Donald C. Cook Nuclear Plant
P.O. Box 458, Bridgman, Michigan 49106

November 27, 1985

Donald C. Cook Nuclear Plant
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
ADDITIONAL INFORMATION CONCERNING
NRC INSPECTION REPORTS 85027, 85028, and 85029

Mr. James G. Keppler
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear Mr. Keppler:

As Mr. P. A. Barrett of our Safety and Licensing Staff discussed with Mr. C. E. Norelius of your staff on November 15, 1985 and with Mr. C. W. Hehl of your staff on November 22, 1985, we are providing additional information related to the subject reports. The information is intended to describe the scope of issues addressed in the reports, as well as actions taken or to be taken to resolve associated problems.

Attachment 1 addresses the Containment Integrated Leak Rate Test (CILRT), which was discussed in Inspection Report 85027. Attachment 2 addresses the perceived inadequacies in implementing certain technical specification surveillance requirements, which were discussed in Inspection Report 85028. Attachment 3 addresses the improper setting of the control room ventilation damper actuation arm, which was discussed in Inspection Report 85029. Attachment 4 addresses programs and activities that are intended to eliminate personnel errors.

We and our consultant are reviewing our past practices concerning sensor calibration and surveillance frequencies. Indications at this time are that our past practices were appropriate for certain issues addressed in Inspection Report 85028. Upon completion of the review, we will notify you if we conclude that the information appears to significantly affect the issues addressed in Inspection Report 85028. Until our review is completed, we will maintain the actions indicated in the respective parts of Attachment 2 to this letter.

We will gladly discuss any questions you may have concerning this information.

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Sincerely,

W. G. Smith
W. G. Smith, Jr., Manager
D. C. Cook Plant

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cc: M. P. Alexich
P. A. Barrett
AEP:NRC:0948B
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No response 1/2/86
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ATTACHMENT 1

CONTAINMENT INTEGRATED LEAK RATE TEST

As discussed in Inspection Report 85027, certain containment penetrations were not vented and certain valves were not maintained in the positions specified by the test procedure. Based on our evaluation of that test and the concerns addressed in the Inspection Report we have concluded that there were two major contributors to problems experienced during the test.

The first major contributor was that our procedure did not establish with sufficient clarity how certain vents were to be completely established. Specifically, the procedure did not specify removal of plugs, gauges, etc., along with valve manipulation when establishing a vent. To prevent this from recurring the ILRT procedure will be revised before its next use to specify separate actions for valve manipulations and plug removal, etc.

The second major contributor was lack of positive administrative controls (e.g., tagging) to identify the test boundary (i.e., components involved in the test) and to prohibit the uncoordinated manipulation of test boundary components. To prevent this from recurring, formal administrative interface controls will be established prior to the next CILRT. The controls will include such things as tagging components as a CILRT component, and indoctrinating appropriate plant staff about the nature of the controls and their responsibilities related to the controls.

The second major contributor was also indication that additional awareness may be needed by the Plant staff to identify when potential interface problems may occur in other relatively complex activities (such as a CILRT). Therefore, we are going to issue in the near future a directive to remind supervisors that they should be alert to potential interface problems prior to implementing complex activities. Our practice has been to consider interface problems for complex evolutions (e.g. blackout, testing physics testing, etc.).

The NRC inspection report indicated that personnel error appeared to have contributed to certain problems with the CILRT. We do not believe personnel error in administering the established procedure was a major contributor to the identified problems. However, we are very active in minimizing the contributors to personnel errors throughout our activities. Attachment 4 identifies many human factors activities that have been established or are being established to minimize personnel errors.

The NRC inspection report indicated that the following may have been insufficient and therefore contributed to the unsuccessful test:

- * pre-lineup briefs
- * formal training on valve lineups
- * access control to containment

- * Quality Control participation
- * proper implementation of our Independent Verification Program

Our investigation concluded that briefings covering test preparations (valve lineups) and the scope of the test were performed and that experienced personnel performed the lineups. Also, had we complied literally with our Independent Verification Program, no additional quality assurance should have been necessary. Therefore we believe the impact of the indicated insufficiencies, listed above, was minor when compared to the two major contributors. To assure the impact is further minimized the following actions have been or will be taken:

- * Specific instructions for the conduct of valve lineups and checking of valve positions will be implemented by November 30, 1985. These instructions will also be incorporated into the operator training program.
- * A memorandum has been issued to each operator stressing the importance of independent verification and proper signoffs.
- * Meetings were conducted with the supervisors of each operating shift to verbally emphasize independent verifications.
- * The two individuals involved with the CILRT problems were counseled by the Operation's Superintendent in the presence of their Shift Supervisor. This session emphasized the importance of their actions in valve positioning and independent verification as well as their personal accountability for licensed duties. Additionally, a special 60 day observation period was conducted to review their performance in light of the CILRT events. The observation period was concluded with satisfactory results on November 6, 1985.

ATTACHMENT 2

TECHNICAL SPECIFICATION INSTRUMENTATION TESTING

- A. Inspection Report 85028 indicated that certain instrumentation surveillances were not being adequately performed. The surveillance schedule was identified to be incorrectly specifying surveillance intervals of every other month instead of every month as required by technical specifications. Fourteen Reactor Protection System or Engineered Safety Features Actuation System instruments were affected by this Nuclear Test Scheduler (NTS) error. The NTS has been revised to specify monthly surveillance intervals. Surveillances of the affected instruments have now been performed which are consistent with a monthly test interval. We believe these actions to be interim, conservative measures taken to insure exact compliance with technical specifications. A thorough review of the technical specification table entries, definitions, and bases including FSAR and Westinghouse reference technical specifications is being conducted. We believe the results of this review will provide a basis for validating our past practice in this area. Additional actions which have been taken with regard to this issue are discussed in Paragraph E of this Attachment.
- B. Report 85028 indicated that the surveillance frequency for the reactor trip breakers could have been exceeded. This was concluded because our surveillance program did not identify which of two specific trains was to be tested on an alternating basis (every other month). No technical specification violation occurred. We have, however, modified our computerized surveillance schedule (Nuclear Test Scheduler) to identify the specific train to be tested.
- C. Report 85028 indicated that a procedure was not established to check the time delay on the 4KV Loss of Voltage Start Channel for the Motor Driven Auxiliary Feedwater Pumps. We believe that this omission was an oversight of one item addressed by a technical specification line item that required more than one surveillance action. Procedural changes have been made to assure the time delay is checked. The time delay was successfully demonstrated when this oversight was identified.

Based on our review of all technical specification instrumentation surveillances (discussed in Paragraph E of this Attachment), we have confirmed one additional oversight of this type (i.e. more than one action required by one Technical Specification item). The additional oversight involved the requirement to test reactor trip system instrumentation within seven days prior to startup. We had adequately established the periodic trip system surveillance requirement, but not the associated seven day requirement.

We have modified our surveillance program to address the seven day requirement, and assured ourselves that we are now in compliance with the requirement.

- D. Report 85028 indicated that the following instrument channel calibration tests did not include the sensors:

- o Δ T/T_{AVG} Protection Set Channels
[Resistance Temperature Devices (RTDs) not calibrated]
- o Hydrogen Recombiner
[Thermocouples not calibrated]
- o Containment Humidity Monitor
[Humidity Detector not calibrated]

Based on discussions with NRR, Region III, and Westinghouse Electric Co., we have developed a test and successfully performed cross-calibrations which demonstrate satisfactory calibration accuracy of the RTDs. The plant practices have been modified to assure RTDs are included in future calibrations.

The manufacturer's instructions for the hydrogen recombiner thermocouples state the criterion for determining if the test thermocouples are not working is comparison of the temperatures. The instruction also provides the criteria for making the temperature comparison. Based on a discussion with Messrs. L. Reyes and B. Guldemon, NRC Region III and Mr. P. A. Barrett and other AEPSC staff members on October 2, 1985, the manufacturer's instructions were concluded to be an acceptable method of testing the thermocouples. Since this has been the method of testing the thermocouples, no violation of technical specification occurred.

The containment humidity monitors have now been physically removed and recalibrated by the manufacturer. They had previously been subject to a recalibration by the manufacturer every three years. Calibration per the manufacturer's technical manual instructions, which excludes the temperature sensor, had previously been performed every 18 months. We believe our past practice to have been adequate and conservative with respect to surveillance requirements. As an interim, conservative measure, removal and recalibration has been established on an 18 month basis.

- E. Considering the issues discussed in paragraphs A, C, and D of this Attachment, reviews were performed to assure (1) all instrumentation surveillances were being performed at the correct intervals, (2) that no omissions of instrumentation surveillance requirements existed and (3) calibration and response time testing appropriately included sensors. The reviews revealed the following:

- o Testing of the reactor trip system instrumentation seven days prior to startup was not established in our surveillance program. [Reference Attachment 2, paragraph C above]
We have modified our surveillance program to address the seven day requirement.
- o Requirements to perform surveillances on the following four instrumentation channels are not explicitly stated in technical

specifications. We have now established surveillance frequencies for this instrumentation which are consistent with associated instrumentation that is clearly addressed by the technical specifications.

- oo Reactor Coolant Pump Position Trip
- oo Auxiliary Building Unit Vent Radiation Monitoring Sample Flow
- oo Post Accident Containment Pressure Monitor
- oo Reactor Coolant System Leakage Detection (Ice Condenser Drain-Pot Level)
- o Four instrumentation surveillances were determined to not include the sensors. As a conservative measure, calibration practices have been revised to assure that the sensors related to this instrumentation are included in the surveillances.
 - oo Meteorological
 - oo Containment Sump Level
 - oo Gland Seal Exhaust System Flow Rate
 - oo Subcooling Margin Monitor -- Wide Range Resistance Temperature Devices

Our previous calibration of meteorological instruments was in accordance with manufacturer's recommendations. Sensor calibration of the meteorological instruments is not specified in the manufacturer's technical manual. When the instruments were returned to the manufacturer for recalibration they were surprised. This was not a common practice with the nuclear facilities they serve. We believe continued removal of these instruments on a semiannual basis is neither practical nor beneficial to the overall reliability of the system. Removal of the sensors also exposes plant personnel to the unnecessary risk of climbing the tower on which they are mounted.

For the remaining instrumentation, the plant practices have been modified to assure that the sensors, related to this instrumentation, are included in the surveillances.

- o Testing of the Steam Jet Air Ejector Flow Rate monitor was not established in our surveillance program. We have modified our surveillance program to address this monitor.

F. Report 85028 indicated that channel calibrations of the four power range instrument channels were performed on January 21, 1985. Channel Functional Tests (CFTs) for the power range instruments were not performed until February 12, 1985. The plant had operated in Mode 1 between January 21, and February 12 without the required CFTs being performed.

A thorough review of the power range calibration procedure has been conducted. We have concluded that the calibration procedure 1THP6030IMP.131 provides the necessary channel functional testing to verify operability of the power range channels. Therefore the additional performance of the channel functional test procedure (1THP4030STP027) in conjunction with the January 21, 1985 channel calibration was not required.

- G. Report 85028 stated that the master surveillance test requirements matrix (PMI-4030) was incomplete and in some instances did not list the proper surveillance procedures. Our review of this concern revealed that on September 28, 1984, Revision 8 to PMI-4030 was issued. Revision 8 was an attempt to improve PMI-4030 by listing the procedure(s) that correspond to individual Technical Specifications. This improvement was intended to provide an additional management tool which could be used to monitor, by assignment, Technical Specification surveillance responsibilities. Prior to this improvement, only by a review of the test procedures could compliance with a surveillance requirement be monitored. The current revision (Revision 9 effective August 29, 1985) and its associated change sheets represent a continuing effort to improve the usefulness of this PMI. Presently all technical specification surveillance requirements have the correct implementing procedures referenced in PMI-4030. PMI-4030 is not intended to fulfill a commitment or requirement to assure compliance with Technical Specification surveillance requirements.
- H. Report 85028 indicated that Procedure 12THP6030IMP062 "Protection System Bistable Adjustment/Replacement Procedure" was not followed. Specifically, seven bistables were adjusted but associated records were not completed. The adjustments, that were made, were consistent with Technical Specification requirements. However, an earlier practice of logging bistables, that were out of adjustment, was still being used. The earlier practice involved logging on a chart posted in the C&I shop. The new procedure (practice) should have been used. The individuals involved have been reinstructed that the new procedures are to be followed. In addition, the Plant Manager issued a letter on September 16, 1985, to all plant supervisors emphatically directing that total procedure compliance is a must.
- I. Report 85028 stated that changes to eleven surveillance procedures were made without proper approvals. The unapproved changes were made to Control & Instrument (C&I) procedures. Report 85028 stated that based on interviews with C&I technicians, making unapproved changes to procedures was a common practice. In addition, C&I supervisors failed to initiate corrective action to revise the unapproved changes.

On November 15, 1985, our Quality Assurance (QA) personnel reviewed C&I's Surveillance Test Procedures (STPs) and the data sheets for the last surveillances. The review was to identify additional markings or corrections not addressed by approved change sheets. The shop master copies of the STPs and the most current STP data sheets were reviewed. Items not affecting procedure performance or understanding were not

considered in the results of the reviews. We believe the identified markings or corrections would not have resulted in adverse test results or data validity. However, the markings that were identified are being reviewed for compliance with our administrative policy for making procedure changes.

Based on the results of the QA review, we have a high level of confidence that the latest surveillances were performed with appropriately approved procedures.

Included in the Plant Manager's September 16, 1985 letter was a description of why we have procedures and the Plant Policy on their use. The use of strict controls when making changes to procedures, was explicitly addressed.

ATTACHMENT 3

CONTROL ROOM VENTILATION DAMPER ACTUATION ARM

Inspection Report 85029 addressed the improper setting of the ventilation damper actuation arm. The arm was improperly set to the makeup setting for pressurization and full-closed for cleanup. The report stated no functional check of the damper was made following the final adjustments to the actuation arm.

On August 29, 1985 the damper was corrected. The damper satisfactorily passed a functional check.

The surveillance procedure, which was being administered, revealed that adjustments to the arm were needed. The procedure did not specify a functional check following any arm adjustments.

Procedure 12THP4030STP229 "Control Room Emergency Ventilation System Charcoal & HEPA Filter Test" and procedure 17HP6040PER094 "Control Room Ventilation Balancing" now require a functional check following damper adjustments.

ATTACHMENT 4

PROGRAMS AND ACTIVITIES ADDRESSING PERSONNEL ERRORS AND HUMAN FACTORS CONSIDERATIONS

An extensive program is in place to color code the respective parts of each the two units of the plant. Along with the thousands of labels we have been attaching to components, we are also coloring coding the labels per unit.

As described in our Regulatory Performance Improvement Program (RPIP) we have established an effective Independent Verification Program. With few exceptions, we have effectively verified (confirmed) the proper manipulation of thousands of components.

Electrical design drawings are being enhanced to make them more operator-friendly. The enhancements include greater detail on actual circuitry, cross referencing one-line drawings (which just show basic powered devices) to elementary drawings (which provide detailed circuitry information).

As described in our RPIP, we have now completed the walkdowns of the safety related piping flow diagrams. These walkdowns have resulted in drawings of greater accuracies, and more detail; and have confirmed identities between components, labels and drawings.

Plant procedures are being identified by color code to distinguish between units.

Unit 2 job orders are being superimposed with a '2'.

As described in our RPIP, our established practice requires our procedures to be revised with full page inserts instead of (1) pen and ink markings, or (2) just change sheets at the front of the procedure.

Complex procedures are being reduced to more distinct and individual procedures.

Formal evaluations of personnel errors are conducted to identify contributing factors (e.g., improper human factors considerations) to adverse findings documented on condition reports.

Operations department shift workers are limited to working in one plant unit, except under prescribed conditions (i.e., certain tours and independent verification activities).

Individual procedures for Unit One and Unit Two are being issued instead of a common procedure for both units.

A very extensive effort is under way to computerize a listing of plant components (Facility data base), their safety classification, and related information.

A computerized program has been established (Nuclear Test Scheduler), though still being enhanced, to manage operability surveillances specified by the Technical Specifications.

A site specific operations simulator is scheduled for completion in a few years.

A computerized Clearance Permit Program has been developed. Clearance boundaries are being standardized for repeat type jobs. A future enhancement to this program will be to divide systems into standard "maintenance areas", for which there are standard computerized clearances.

A master clearance practice has been developed to identify all work being done within a clearance boundary, rather than processing and hanging multiple clearance tags for individual work items.