

U. S. NUCLEAR REGULATORY COMMISSION
REGION III

Reports No. 50-315/91018(DRS); No. 50-316/91018(DRS)

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; No. DPR-74

Licensee: Indiana Michigan Power Company
1 Riverside Plaza
Columbus, OH 43216

Facility Name: Donald C. Cook Nuclear Plant, Units 1 and 2

Inspection At: Bridgman, MI 49106

Inspection Conducted: August 12-21, 1991

Inspectors:

S. D. Burgess
S. D. Burgess

9-6-91

Date

N. C. Choules
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Date

S. D. Burgess for
G. A. Gainty

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Date

H. A. Walker
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Date

Approved By:

F. J. Jablonski
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Maintenance and Outages Section

9-6-91

Date

Inspection Summary

Inspection on August 12-21, 1991 (Reports No. 50-315/91018(DRS); No. 50-316/91018(DRS)).

Areas Inspected: Routine, announced inspection of maintenance activities using selected portions of NRC Inspection Procedure 62703 to ascertain whether maintenance was effectively accomplished and assessed by the licensee.

Results: Based on the items inspected, overall performance in maintenance at the Donald C. Cook Nuclear Plant has improved. The Maintenance Improvement Plan had made significant progress compared to that noted in previous maintenance inspections and implementation of the new programs has begun in earnest. Management is committed to and supportive of continuing efforts at improving maintenance over the long term. A synopsis of the conclusions reached is described in Paragraph 4.0.

DETAILS

1.0 Principal Persons Contacted

Indiana and Michigan Electric Company

- * E. Fitzpatrick, Vice President, Nuclear Operations
- * T. Augustyn, General Supervisor, Maintenance
- * K. Baker, Assistant Plant Manager, Production
- * T. Beilman, Maintenance Superintendent
- * A. Blind, Plant Manager
- * M. Horvath, QA Superintendent
- * D. Krause, Maintenance Program Analyst
- * C. Miles, General Supervisor, Instrumentation and Electrical
- * J. Rutkowski, Assistant Plant Manager, Technical
- * G. Weber, Plant Engineering Superintendent

U. S. Nuclear Regulatory Commission

- * J. Harold, Reactor Inspector
- * J. Isom, Senior Resident Inspector, D. C. Cook Nuclear Plant
- * D. Passehl, Resident Inspector, D. C. Cook Nuclear Plant

* Denotes those present at the exit meeting on August 21, 1991.

Other persons were contacted as a matter of course during the inspection.

2.0 Licensee Action on Previous Inspection Findings

(Closed) Violation (315/86031-01C; 316/86031-01C) - Suppliers qualified with no qualifying information. The inspector reviewed licensee actions taken to correct this problem including those described in the response letter dated October 10, 1986. Procedures GP 7.1, "Supplier Evaluation, Qualification and Control," Revision 3 and QAP 7.1, "Supplier Review," Revision 3 with change sheets 1, 2, 3, and 4, were reviewed and determined to describe acceptable methods for supplier evaluation. Qualification review packages were reviewed for three suppliers and were determined to be acceptable. This item is closed.

(Closed) Violation (315/87022-01B; 316/87022-01B) - A supplier was added to the qualified supplier list without a quality program or acceptable supplier evaluation. The inspector reviewed licensee actions taken to correct this problem including those described in response letters dated November 20, 1987 and June 10, 1988. Procedures GP 7.1, "Supplier Evaluation, Qualification and Control," Revision 3 and QAP 7.1, "Supplier Review," Revision 3 with change sheets 1, 2, 3, and 4 were reviewed and determined to describe acceptable methods for qualification of suppliers. Annual review packages for the questioned supplier, National Underground Storage, were reviewed and determined to be acceptable. This item is closed.

(Closed) Violation (315/87022-01C; 316/87022-01C) - A non-safety related purchase order was issued for repair of two emergency diesel crankshafts. The inspector reviewed licensee actions taken to correct this problem including those described in response letters dated November 20, 1987 and June 10, 1988. Licensee personnel stated that the crankshaft repair purchase order was purposely placed as non-safety with the intention of dedicating the components for safety related use although no dedication procedure existed at the time. The inspector reviewed procedures GP 3.5, "Dedication of Commercial Grade Items for Use in Nuclear Safety Related Applications in the Donald C. Cook Nuclear Plant," Revision 1 and QAP 4.2, "AEPSC QA Review of Dedication Plans," Revision 2 with change sheets 1 and 2. These procedures required that dedication plans be prepared and approved and that this be done prior to issuing the purchase orders if possible. In addition to the procedures, the inspector reviewed two dedication plans; both the procedures and the dedication plans were acceptable. The dedication plans for the diesel crankshafts had been previously reviewed. Dedication of commercial grade parts for safety related use appeared to be adequately controlled. This item is closed.

(Closed) Violation (315/87022-02A; 316/87022-02A) - The qualified supplier list product code index was too general. The inspector reviewed licensee actions taken to correct this problem including those described in response letters dated November 20, 1987 and June 10, 1988. The product code index had been deleted and was not used at the time of the inspection. Procedures GP 4.0, "Procurement Document Control," Revision 6 and QAP 4.3, "Review of Purchase Requisitions and Procurement Documents," Revision 4 with change sheets 1, 2, 3, and 4 were reviewed and were determined to describe acceptable methods for ensuring that material was ordered from supplier locations qualified to produce the specific part or component. A review of the qualified supplier list indicated that suppliers were appropriately qualified by both product and location. This item is closed.

(Closed) Violation (315/87022-02B; 316/87022-02B) - Corrective action was not effective for proper supplier evaluation. The inspector reviewed licensee actions taken to correct this problem including those described in response letters dated November 20, 1987 and June 10, 1988. Procedures GP 7.1, "Supplier Evaluation, Qualification and Control," Revision 3 and QAP 7.1, "Supplier Review," Revision 3 with change sheets 1, 2, 3, and 4, were reviewed and determined to describe acceptable methods for supplier evaluation. Qualification review packages were reviewed for three suppliers and were determined to be acceptable. This item is closed.

(Closed) Violation (315/88016-01) - Inadequate corrective action regarding a dc system ground. The inspector reviewed licensee actions taken to correct this problem including those described in the response letter dated September 3, 1988. The licensee had prepared a technical evaluation on August 4, 1988, which justified operations with the ground. Procedure OHP 4021.082.012, "Location of 250 Vdc Grounds," was revised to require each shift to log ground voltage indications when a ground existed, and required the writing of a condition report if the ground existed for more than 48 hours. The inspector verified by the review of completed battery logs that voltages were logged and a condition report was generated when required. This

item is closed.

(Closed) Violation (315/89020-01A) - Failure to work within the scope of a job order as required by procedure. Review of job order 761729 indicated additional work beyond the scope of the job order was performed. The inspector reviewed the items discussed in the licensee's response letter dated September 8, 1989. The licensee indicated that the additional work listed on the above job order was actually performed by job orders A010531 and A005765. The inspector verified by review of these job orders that the work was performed as indicated in the licensee's response. During this inspection, the inspectors noted no work that was performed outside the scope of the job orders. This item is closed.

(Closed) Violation (315/89020-01B) - Failure to obtain shift supervisor's approval prior to starting work. The inspector reviewed the items discussed in the licensee's response letter dated September 8, 1989. The licensee indicated in the response that the importance of shift supervisor approval had been reiterated to the appropriate personnel. The inspector reviewed completed job orders and verified that shift supervisor's approval was documented. This item is closed.

(Closed) Unresolved Item (315/89020-02) - Failure to assure inspection requirements were met during work performed on the main bearing of the diesel generator. The inspector reviewed licensee actions taken to address this item including those described in the response letter dated October 13, 1989. Investigation of the instance revealed that the main bearing clearance measurement was within the acceptance criteria but was incorrectly recorded in the work procedure. Based on the work observed during this inspection, the licensee had adequate controls in place to assure that equipment was not operated until all hardware acceptance criteria had been satisfied. This item is closed.

(Closed) Violation (315/89031-01A; 316/89031-01A) - Failure to remove tags after equipment is returned to service. The inspector reviewed licensee actions taken to correct this item including those described in the response letter dated April 11, 1990. Plant management issued a memo on procedural compliance to ensure personnel were fully aware of the need for compliance with procedures. During inspector walkdowns, a sample of JO tags was checked to see that an outstanding JO existed for each one. There was one instance where a JO tag was in the plant where the JO had been canceled, otherwise, no other tags were noted that should have been removed. This item is closed.

(Closed) Violation (315/89031-01B; 316/89031-01B) - Incorrect installation of thermal overloads. The inspector reviewed licensee actions taken to correct this item including those described in the response letters dated April 11, 1990, and July 12, 1990. The licensee inspected a total of 203 thermal overloads. Thermal overloads that were below the sizing criteria were increased to meet equipment nameplate ratings. The thermal overloads were associated with equipment that was normally in operation, or was part of a surveillance which was used to demonstrate operability of the specific equipment or the equipment it supported. Therefore, the inspectors determined that there was no adverse effect on equipment operability. Engineering Guide

PS&HF-001, "Thermal Overload Sizing Design Basis," was reviewed and determined to adequately document the methodology and design basis for sizing thermal overloads. This item is closed.

(Closed) Violation (315/89031-01C; 316/89031-01C) - Drawings issued for field verification were not the latest as-built drawings. The inspector reviewed licensee actions taken to correct this item including those described in the response letter dated April 11, 1990. Procedure PMI-2030, "Document Control," was revised and described acceptable methods that ensured that personnel making copies of drawings verified the document was the latest revision. The inspectors witnessed 10 maintenance activities and noted that, when appropriate, the latest as-built drawings were used. This item is closed.

(Closed) Violation (315/89031-01E; 316/89031-01E) - Failure to follow procedure for cleaning of relays. The inspector reviewed licensee actions taken to correct this item including those described in the response letter dated April 11, 1990. Contrary to procedure 12THP 6030IMP.014, "Protective Relay Calibration," Revision 8, which specified to use black electrical tape when cleaning relays, a technician had used an unused calibration sticker. The licensee determined that satisfactory results were obtained by cleaning with the calibration sticker and no re-cleaning was necessary. The procedure was revised to delete the reference to black electrical tape and the plant manager issued a memo on procedural compliance to ensure personnel were fully aware of the need for compliance with procedures. The inspectors witnessed 10 maintenance activities and noted that, when appropriate, procedures were followed. This item is closed.

(Closed) Violation (315/89031-01F; 316/89031-01F) - Failure of operator to have "in hand" procedure. The inspector reviewed licensee actions to correct this problem including those described in the response letter dated April 11, 1990. The inspector verified that a memo had been issued to operations personnel to remind them of the "in hand" requirement for the reactor trip breaker procedure. The inspector also verified that the procedures indicated in the licensee's response had been revised regarding the requirement to have procedures "in hand". The inspector also noted during observation of work activities that procedures were "in hand" when required. This item is closed.

(Closed) Violation (315/89031-02; 316/89031-02) - Traceability was not provided for cable extensions and aluminum sleeves. The inspector reviewed licensee actions taken to correct this problem including those described in the response letter dated April 11, 1990. The licensee had taken no specific action to determine part traceability of these items since traceability had been lost and could not be recovered. The cable extensions and aluminum sleeves had been installed for more than ten years without a problem, which indicated that no hardware problem existed. Discussions with licensee personnel indicated that existing procedures ensured that hardware traceability would be maintained when required. This item is closed.

(Closed) Violation (315/89031-04B; 316/89031-04B) - Inadequate corrective action regarding self assessment findings in the area of maintenance. The inspector reviewed licensee actions taken to correct this problem including those described in the response letter dated April 11, 1990. Based on the

results of this inspection and a review of the Maintenance Improvement Plan, significant progress had been made in the development of a Reliability Centered Maintenance (RCM) program, development of the system engineer program, and acquisition of a Nuclear Plant Maintenance (NPM) computer system. This item is closed.

3.0 Evaluation and Assessment of Maintenance

The purpose of this inspection was to evaluate and assess the accomplishment and effectiveness of maintenance activities at Donald C. Cook Nuclear Plant. The inspection was performed during a forced outage for Unit 2. The evaluation and assessment were accomplished by: review of the maintenance program, which included corrective, preventive, and predictive maintenance; observations of material condition and maintenance activities; review of completed corrective and preventive maintenance; and evaluation of maintenance backlogs.

The inspectors also assessed the quality verification process related to maintenance, which was accomplished by: review of audit and surveillance reports for implementation of corrective action, and review of documents such as discrepancy records and Licensee Event Reports (LERs) to verify that corrective action was implemented. Results of the inspection are documented in the following sections.

3.1 Review of Maintenance Program

The inspectors reviewed the status of the licensee's Maintenance Improvement Program (MIP). The MIP was initially established in March 1990 and provided a single integrated approach to establish goals and identify areas for improvement. The MIP considered the concerns of all groups involved in assessments of maintenance both within and outside the D.C. Cook organization. Review of completed and open items showed that the licensee had placed 19 items from the NRC Maintenance Team Inspection (MTI) on the MIP of which 16 had been closed. This represented significant progress compared to that noted in the previous maintenance inspection. Previously delayed implementation of new programs had begun in earnest, which indicated management's commitment and support of improving the maintenance process. Three items remained open in the areas of procedure upgrade, management monitoring of maintenance, and a formal rework program. Corrective actions were scheduled to be completed for these three items by the end of 1991.

The inspectors reviewed the status of the computerized Nuclear Plant Maintenance (NPM) system, which was implemented July 15, 1991. The system was designed to process action requests and initiate and track resulting corrective maintenance job orders (JOs). Completed JO data will be entered into the computer and will provide a maintenance history. On September 30, 1991, the licensee planned to initiate the repetitive task portion of NPM that will control the preventive maintenance (PM) schedule. Eventually, all PM tasks will be entered into the computer and provide a single data base. Because the system was recently implemented, the inspectors were unable to assess the effectiveness.

The inspectors reviewed specific equipment and systems to determine if electrical, mechanical, and instrument and control (I&C) maintenance was accomplished as required. This review included:

The extent that adequate maintenance procedures had been developed and were used.

The extent that engineering organizations supported the maintenance process.

The extent that Reliability Centered Maintenance (RCM) was factored into the maintenance process; PM was performed, and the extent that predictive maintenance was used to detect equipment problems prior to failure.

The extent that outside source information, maintenance histories, LERs, and results of diagnostic examinations were analyzed for trends and root causes for modification of the preventive maintenance program to preclude recurrence of equipment or component failures.

3.1.1 Maintenance Procedures

The inspectors reviewed and evaluated portions of seven maintenance and maintenance related procedures for completeness, adequacy or work instructions, acceptance criteria, quality control hold points, ease of use, necessary approvals, and generic conformance to NUREG/CR-1369.

The procedures reviewed were:

1IHP 6030IMP.300, "Steam Generator 1 and 2 Mismatch Protection Set I Transmitter Calibration," Revision 1

1IHP 6030IMP.342, "Accumulator # 1 Level and Pressure Ch I and II Calibration Unit 1," Revision 1

12IHP 6030IMP.355, "Check of 7.5 kV ac Crid Inverter Prior to Switching to Normal Source," Revision 0

12MHP 5021.032.020, "Emergency Diesel Engine Fuel Oil Transfer Pump Disassembly, Inspection, and Reassembly," Revision 0

12MHP 5021.001.007, "Disassembly, Repair, and Reassembly of Conval Clampseal Valves," Revision 5

12MPH 5021.005.003, "Installation Procedure for Chesterton Packing," Revision 1

12MHP 5030.012.001, "Preventive Maintenance Requirements for Limitorque," Revision 0

The inspectors determined that the procedures were satisfactory in scope and content, and provided detailed instructions as appropriate for covered activities. To date, 167 mechanical and electrical procedures had been

upgraded with 100 remaining for revision. Progress noted from the last inspection was attributed to the resources the licensee had devoted to upgrade procedures. The completion of the procedure revisions was scheduled for December 1991, which appeared to be an attainable goal.

3.1.2 Preventive Maintenance Program

Preventive maintenance activities were consolidated and managed under one technical group. The inspectors determined that improvements noted in the PM program were attributed to the use of corrective maintenance (CM) trending and root cause analysis. For example, emergency lighting and flow regulating valves had received such reviews and PM tasks had been changed and expanded to consider the results of the analyses. Although the licensee has not yet completed the single data base for the PM tasks, timely performance of PMs had improved as noted in Section 3.2.3.

The licensee had made considerable progress with the RCM program. Fifteen of twenty-five systems have completed analyses and the remaining ten will be completed in March 1992. Analyses performed to date have recommended little PM changes in the safety-related systems, but substantial changes in the nonsafety-related systems.

The inspectors reviewed the program for condition monitoring and predictive maintenance. Predictive maintenance programs in place were vibration monitoring, thermography, acoustic monitoring, lubrication oil sample analysis, and motor current wave form analysis. Programs under development were ultrasonic monitoring, ferrography, and motor surge testing. Procedures had not been developed for most testing; however, the licensee planned to have formal procedures for all predictive maintenance by the middle of 1992. As a result, predictive maintenance data has been too limited to assess the effectiveness of the program.

3.2 Accomplishment of Maintenance

The accomplishment of maintenance was evaluated and assessed through the observation of maintenance activities, review of the planning and scheduling of all maintenance activities, and assessment of the maintenance backlog.

3.2.1 Observation of Maintenance Activities

The inspectors observed ongoing work in electrical, I&C, and mechanical maintenance areas. These activities were selected from the weekly planner and through discussions with individual foremen. Where possible, safety significant activities were chosen for follow up.

Maintenance activities were observed to determine if those activities were adequately performed in accordance with required administrative and technical requirements. Work activities were assessed in the following areas as necessary: work control and planning; management presence and involvement; quality control presence and involvement; procedure availability, adequacy, and use; personnel training and qualification; material availability; measuring and test equipment (M&TE) application and calibration; and post

maintenance testing adequacy including proper acceptance criteria.

The inspectors observed portions of 10 maintenance activities as described below:

B008181	Perform PM on main feed pump condenser butterfly valve
B013898	Repair strainer for steam to auxiliary feed pump turbine
B016573	Replace zinc plugs in Safety Injection (SI) pump lube oil cooler
B016767	Repack SI valve
B038112	Fabricate new spool pieces for CD diesel generator
B041602	Repair CD diesel generator starting air system
B048057	Perform monthly PM on CD diesel generator fuel injection system rack and linkage
C001033	Clean N Battery to clear ground
1THP 4030STP.410	Perform reactor trip Solid State Protection System (SSPS) logic and reactor trip breaker Train A surveillance test
12THP 4030STP.097	Perform seismic monitoring instrumentation monthly surveillance test

The inspectors concluded that the maintenance activities in the areas inspected were adequate and were accomplished by skilled maintenance personnel. Parts and materials were available and properly certified. The maintenance supervisors assured that unauthorized design changes were not performed. Valve lineups were established prior to performing maintenance, and work instructions were at the job site and were followed. There were a few minor concerns with job planning, PM evaluations, and procedure discrepancies as noted below:

- B013898 - The original scope of this JO specified to repair a leaking threaded connection on a reducer with a seal weld. This did not appear to be a proper repair. The licensee determined that the JO had been improperly planned and the JO was returned to planning and revised to specify replacement of the leaking reducer. The strainer was subsequently repaired properly and no other problems were noted. Another example of insufficient planning is noted in section 3.2.2.
- B016573 - The JO indicated that the depleted zinc plugs allowed water to leak from the cooler and replacement was necessary. The inspectors were concerned that there was no PM task to replace or inspect the zinc plugs periodically to preclude any leaks from occurring. This had been previously identified by the NRC and problem report PR 91-0782 was

written to document the condition. The licensee was looking at a modification to remove the zinc plugs and seal the threaded openings in heat exchangers in the CCW system.

- ITHP 4030STP.410 - During the performance of the surveillance test, the technician identified that the recently added procedure steps incorrectly identified logic "A" test switch position 24 as opposed to position 23. The apparent reason for the error was that the originator of the change used a drawing that did not match the actual field condition. The error also affected three other procedures. Since the step changes had been recently made, none of the procedures had been used until the inspector observed this test.

3.2.2 Work Planning and Scheduling

Planning was an area reported to be weak in previous maintenance inspections. During this inspection, two minor instances were noted where JOs had to be sent back to planning to be revised after scheduled for work. The first one was the repair for the steam strainer (JO B013898) described in Section 3.2.1 of this report. The second example was JO B016292, which provided instructions to repack an SI valve. The JO was planned and scheduled to be worked before it was determined that the instructions to plug the packing leak off line were not included in the original scope. The JO was returned to planning to add the necessary instructions.

Although minor planning problems were observed, the inspectors noted that there had been some improvements made in this area. Some of the improvements were associated with a new planning Maintenance Administrative Plan (MAP) that provided instructions for planners to assemble all needed information and resources in the JO package. The licensee had also recently begun pre-planning worker walkdowns to assist with details required for planning the JO. In general, the planning of JOs for parts and materials, work instructions, and support activities was considered satisfactory.

Scheduling, also previously noted as a weakness, showed some improvement. A priority system was in place that allowed operations to identify relative importance of corrective maintenance to the overall safety of the plant and personnel. Integrated plant scheduling was another improvement that allowed coordination among PMs, CMs, and regularly scheduled surveillances for many components. Since this program was recently implemented, the inspectors could not assess the effectiveness. There appeared to be a high backlog of JOs ready to be scheduled, but the inspectors determined that the work with the most significant impact on plant operation was accomplished when required. Also, the safety system unavailability was well below the industry average. In general, scheduling was considered to be effective in maintaining safe operation of the plant.

3.2.3 Maintenance Backlog Assessment and Evaluation

The inspectors reviewed the amount of work accomplished compared to the amount of work scheduled. The review emphasized work that could affect the operability of safety related equipment or equipment important to safety,

which included some balance of plant (BOP) components.

Overall, both CM and PM backlogs were controlled and within the capabilities of the maintenance staff. The total backlog of non-outage CM job orders, based on a report dated July 29, 1991, was 1859. Although large in number, the inspectors concluded that high priority and safety significant work was performed when required. Also, management of the work scheduled resulted in work being performed with appropriate consideration of the effect on availability and reliability of safety and standby systems.

There was a noted reduction in the number of overdue PMs from 243 to 37 items in an eight month period. This improvement was attributed to the implementation of a consolidated and controlled program coupled with a philosophy change that placed more importance on the completion of PM tasks.

3.2.4 Engineering and Technical Support

The licensee had expanded the system engineering department from 10 system engineers in December 1990, to 17 in August 1991, and planned to hire 10 more. Although there were not enough system engineers for all systems, the systems with the most problems had system engineers assigned. Interviews with system engineers indicated involvement in many aspects of maintenance and a sense of system ownership. For example, the system engineers prepared a monthly report on system activities to inform corporate and plant management of system performance. Report items indicated that system engineers were effectively involved with the RCM program, the development of a program to control Zebra Mussels, and identification of problems associated with Units 1 and 2 Iso-Phase Bus Duct Cooling System.

3.3 Effectiveness of Maintenance

The inspectors determined the effectiveness of maintenance by evaluating the material condition and housekeeping of the plant.

3.3.1 Material Condition/Housekeeping

The inspectors performed general plant as well as selected system and component walkdowns to assess housekeeping, the general and specific material condition of the plant, and to verify that maintenance JOs had been initiated for identified equipment problems.

Overall plant housekeeping and material condition were considered improved compared to previous inspections. In general, the equipment problems identified by the inspectors had been identified by the licensee's JO program. None of the problems noted appeared to have safety significance or have a significant effect on the operation of the plant. The material condition appeared to maintain operability of components at a level commensurate with the components' function. Items noted are discussed below:

- ° The inspectors noted a large number of leakage containment devices located beneath valves in the Auxiliary Building. Some containment devices contained leaks and prevented contamination of the area while

others directed fluids from leaking components to drains and sumps. However, the licensee was making progress in this area and had reduced the number of system fluid leaks as compared to the numbers reported during the Maintenance Team Inspection (MTI) performed in 1989. The maintenance department had started to track the number of containment devices in the Auxiliary Building and the number of leaking valves in the Turbine and Auxiliary Buildings as part of a valve improvement program since June 30, 1991. Additionally, the licensee had been working towards a goal to repair 15 leaks each week in both the Turbine and Auxiliary Buildings. Approximately 199 valve leaks remained in the Turbine and Auxiliary Buildings and 169 containment devices were still installed as of August 14, 1991. The licensee's effort at monitoring leaks was considered to be a positive step toward improving equipment condition and housekeeping at the plant.

3.4 Licensee Assessment of Maintenance (Quality Verification)

The inspectors reviewed audit reports and corrective action documents to evaluate the licensee's quality verification process. The documents were reviewed for root cause analysis, timely corrective action, technical assessments, and justification for close out of corrective action documents.

3.4.1 Review of Audits and Surveillances

Previous maintenance inspections considered QA audits and surveillances to be a weakness. During this inspection, the inspectors noted improvements in this area and determined the licensee's assessment of maintenance to be effective. Maintenance related QA audits performed in 1991 included the areas of PM, RCM, corrective actions, and special process control. Also, 14 surveillances related to maintenance were reviewed by the inspectors. The audits and surveillances were thorough and performance oriented, and problem reports or condition reports were written to identify items that required follow-up. When responses to recommendations and deviations were required, responses were generally adequate, but were not always timely. QA followed up on any inadequate responses and scheduled another response.

4.0 Conclusions

Based on inspection activities described in this report, the inspectors concluded that improvements have been made since the previously performed maintenance inspections in the following areas:

- ° The Maintenance Improvement Plan had made significant progress compared to that noted in previous maintenance inspections and implementation of the new programs had begun.
- ° The procedure upgrade program had progressed with noted improvements in the quality of maintenance procedures.
- ° Maintenance activities were accomplished by skilled maintenance personnel with procedure and work instructions followed.

- ° System engineers were effectively involved in their assigned systems.
- ° PM program content and timely performance has improved as a result of program consolidation, performance of root cause analyses, and RCM studies.
- ° Material condition of the plant has improved as a result of the leak monitoring program.
- ° Maintenance related audits and surveillances were thorough and performance oriented.

5.0 Exit Meeting

The inspectors met at D. C. Cook Nuclear Plant with licensee representatives (denoted in Paragraph 1) on August 21, 1991, to summarize the purpose, scope, and findings of the inspection. The inspectors discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents or processes as proprietary.