March 12, 2001

Mr. R. P. Powers
Senior Vice President
Nuclear Generation Group
American Electric Power Company
500 Circle Drive
Buchanan, MI 49107-1395

SUBJECT: D. C. COOK NUCLEAR POWER PLANT - NRC INSPECTION REPORT 50-315/01-06(DRS); 50-316/01-06(DRS)

Dear Mr. Powers:

On February 16, 2001, the NRC completed a routine inspection at your D. C. Cook, Units 1 and 2 reactor facilities. The enclosed report documents the inspection findings which were discussed on February 16, 2001, with Mr. Bakken and other members of your staff.

The inspection examined activities conducted under your license as they relate to radiation safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspector reviewed selected procedures and records, performed facility walkdowns, and interviewed personnel. Specifically, the inspection reviewed aspects of your occupational radiation safety program and focused on the As-Low-As-Is-Reasonably-Achievable (ALARA) program.

Based on the results of this inspection, we identified an issue for which no risk significance or color was assigned. The no color finding involved your problem identification and resolution program related to the occupational radiation safety cornerstone. Specifically, we found that you failed to timely evaluate and correct programmatic deficiencies with your ALARA program, which your staff initially identified in 1999 but did not fully assess and resolve for over one year.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Gary L. Shear, Chief
Plant Support Branch
Division of Reactor Safety

Docket Nos. 50-315; 50-316
License Nos. DPR-58; DPR-74

Enclosure: Inspection Report 50-315/01-06(DRS);
50-316/01-06(DRS)

cc w/encl: A. C. Bakken III, Site Vice President
J. Pollock, Plant Manager
M. Rencheck, Vice President, Nuclear Engineering
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Emergency Management Division
MI Department of State Police
D. Lochbaum, Union of Concerned Scientists

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-315; 50-316
License Nos:	DPR-58; DPR-74
Report No:	50-315/01-06(DRS); 50-316/01-06(DRS)
Licensee:	American Electric Power Company
Facility:	Donald C. Cook Nuclear Generating Plant
Location:	1 Cook Place Bridgman, MI 49106
Dates:	February 12 - 16, 2001
Inspector:	W. Slawinski, Senior Radiation Specialist
Approved by:	Gary L. Shear, Chief Plant Support Branch Division of Reactor Safety

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas) reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

SUMMARY OF FINDINGS

IR 05000315-01-06(DRS), IR 05000316-01-06(DRS), on 02/12-02/16/2001, American Electric Power Company, D. C. Cook Nuclear Generating Plant, Units 1 and 2. Occupational Radiation Safety and ALARA Planning.

The inspection was conducted by a regional senior radiation specialist. The inspection identified a problem identification and resolution cross-cutting issue with no color. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using the Inspection Manual Chapter 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

Cornerstone: Occupational Radiation Safety

No findings of significance were identified.

Cross Cutting Issues: Problem Identification and Resolution

No Color. Programmatic deficiencies with the As-Low-As-Is-Reasonably-Achievable (ALARA) program, disclosed through a licensee root cause investigation, were not timely evaluated and corrected (Section 2OS2).

These deficiencies affected the quality of ALARA planning and could have some adverse dose impact. However, any impact could not be quantified, and the actual risk significance was undetermined.

Report Details

Summary of Plant Status: Both units operated at full power for most of the five day inspection period.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control For Radiologically Significant Areas

.1 Plant Walkdown and Radiological Boundary Verification

a. Inspection Scope

The inspector conducted a walkdown of the radiologically controlled area (RCA) to verify the adequacy of radiological boundaries, area access controls and postings, and container labeling. Specifically, the inspector walked down selected radiologically significant area boundaries (high and locked high radiation areas) in the auxiliary building and verified that these areas and that selected radiation areas were posted and controlled in accordance with 10 CFR Part 20 and the licensee's procedures.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls

.1 Radiation Dose Goals and Trends

a. Inspection Scope

The inspector reviewed the station's collective exposure history for 1997 through 2000, compared it with the national pressurized water reactor industry data, and reviewed current exposure trends and non-outage dose estimates for 2001 to assess ALARA performance and current exposure challenges. The inspector also selectively reviewed individual worker doses for 1999 and 2000 and verified that no worker received an exposure that approached 10 CFR Part 20 regulatory limits or the licensee's administrative dose limits. The inspector confirmed that no jobs conducted in 1999 to the date of the inspection accrued greater than 5 rem collective exposure and exceeded respective dose estimates by more than 50 percent.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspector selected the following jobs that expended doses of approximately 5 rem or greater and assessed the adequacy of the radiological controls, work planning, and Station ALARA Committee involvement:

- RWP No. 001023, Unit 1 Containment Design Change Procedure Modifications;
- RWP No. 001052, Containment Radiation Protection Activities;
- RWP No. 001074, Unit 2, Sodium Tetraborate Containment Cleaning;
- RWP No. 001131, Unit 2, Reactor Nozzle/Vessel Support Repairs & Cleaning; and
- RWP No. 991111, Reactor Coolant Pump Motor Repairs.

The inspector reviewed the radiation work permit (RWP) and associated ALARA documentation developed for each job, assessed the radiological engineering controls and other dose mitigation techniques specified in these documents, and confirmed that job dose history information and licensee and industry lessons learned were generally integrated into these work packages. The inspector discussed the ALARA planning for selected jobs with station radiation protection (RP) staff and verified that adequate interfaces between operations, radiation protection and maintenance groups occurred during job planning.

The inspector also discussed ALARA plan implementation with involved RP staff, reviewed selected total effective dose equivalent (TEDE) ALARA evaluations completed by the licensee, and reviewed post-job or work-in-progress reports, radiological survey data and pre-job briefing information. The inspector reviewed the programmatic deficiencies with ALARA plan development, Station ALARA Committee involvement, and with the timely completion of work in progress and post job reviews that were identified by the licensee through a root cause evaluation, and the corrective actions which were developed by the licensee (Section 2OS2.6). The inspector also verified that ALARA plans being developed during the inspection adequately considered dose reduction methods and had improved compared to those developed in 1999 and 2000.

b. Findings

No findings of significance were identified.

.3 Source Term Reduction and Control

a. Inspection Scope

The inspector reviewed aspects of the licensee's source term reduction program, focusing on initiatives which the licensee had taken such as hydrolazing, flushing, installation of temporary shielding, and stellite control through the use of low cobalt bearing materials. The inspector verified that source term control strategies were ongoing and future initiatives were being evaluated. The inspector also discussed with the licensee its plans to develop a formal source term reduction plan now that both units were operational.

b. Findings

No findings of significance were identified.

.4 Verification of Exposure Estimates

a. Inspection Scope

The inspector reviewed the methodology and assumptions used by the licensee to develop exposure estimates for jobs completed in 1999 and 2000 and compared actual exposure results with estimates for accuracy for those jobs that accrued approximately 5 rem or greater dose. The inspector verified that problems with the licensee's dose estimating process for some of the jobs listed in Section 20S2.2 were being addressed by the licensee's recently expanded ALARA organization. The licensee's exposure tracking system was also reviewed to determine if the level of exposure tracking detail and exposure report timeliness were sufficient to support the control of collective exposures.

b. Findings

No findings of significance were identified.

.5 Monitoring of Declared Pregnant Workers and Work in Non-Uniform Radiation Fields

a. Inspection Scope

The inspector reviewed the monitoring methods and procedures, monitoring controls, and the information provided to declared pregnant workers, to ensure that an appropriate program had been established to limit embryo/fetal dose. The inspector also reviewed the pregnancy declaration and exposure results for two individuals that voluntarily declared pregnancy within the 18 months preceding the inspection and verified compliance with the requirements of 10 CFR 20.2106 and 20.1208.

Additionally, the inspector reviewed station procedures and practices for the placement of personnel monitoring devices during work in non-uniform radiation fields, to verify compliance with the monitoring requirements of 10 CFR 20.1201. The inspector discussed with the licensee its plans to revise the special dosimetry use procedure, to clarify the use of multiple dosimetry and dosimetry placement in radiation fields with significant dose gradients.

b. Findings

No findings of significance were identified.

.6 Identification and Resolution of Problems

a. Inspection Scope

The inspector evaluated the effectiveness of the licensee's self-assessment process to identify, characterize, and prioritize problems and to implement timely corrective actions. Condition reports (CRs), field observation reports, and an ALARA program root cause investigation and self-assessment readiness report were reviewed by the inspector. The inspector independently evaluated the scope and magnitude of the problems associated with the ALARA program, discussed the self-assessment initiatives with involved RP staff (focusing on the root cause evaluation), and verified that the investigation adequately assessed the extent of condition.

b. Findings

A No Color finding in the cross-cutting area of problem identification and resolution was identified for the failure to timely identify and correct programmatic deficiencies with the ALARA program. Although the programmatic deficiencies did not result in an ALARA finding, if left uncorrected, the deficiencies could potentially become a more significant safety concern. Also, the failure to resolve in a timely manner the problems associated with the ALARA program provided substantive information regarding the priorities established by the licensee to address this cross-cutting area.

In 1999, numerous CRs were generated by the licensee that documented a variety of problems with the ALARA program. The problems related to Station ALARA Committee involvement, accelerated work scheduling which negatively impacted ALARA plan development, lack of management and departmental support for the program, inadequate department dose management, and an overall station awareness problem. The licensee's corrective action process screened the problem as significant and assigned it an action Category 2 priority, which prompted a root cause evaluation. The root cause investigation was initiated by the licensee in July 1999. However, the investigation was not completed until July 2000, due to other station priorities, staff reassignments and turnover, and reclassification of the CR, which suspended the investigation for about two months. Ultimately, the root cause investigation identified a programmatic deficiency with both the development and implementation of the ALARA program, which the licensee was in the process of addressing. While the root cause investigation adequately assessed the extent of the condition and while the corrective actions taken or planned thus far appeared to address the fundamental problems with the program, the licensee's efforts to fully identify and resolve these problems were slow. The programmatic deficiencies did not represent a finding as determined by the significance determination process, because job dose projections for work that expended greater than 5 rem were not exceeded by more than 50 percent. However, these deficiencies affected the quality of ALARA planning which could have some negative dose impact.

As of the end date of the inspection, corrective actions had not been fully implemented. The inspector observed that the status of corrective actions was generally consistent with the schedule developed by the licensee and that these actions were ongoing and in various stages of implementation. The inspector, however, identified additional deficiencies with some of the revised procedures and with the ALARA group's past dose

forecasting methods, which the licensee also planned to address. As a result of the inspection, the RP organization recognized that its revised ALARA procedures needed to better define the program and how it was to be implemented to ensure consistency. Thus far, an ALARA organization was established and positions staffed; training programs were developed; procedures were or are being developed or revised; and management support for the program was improved.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

As described in section 2OS2.6 of this report, the inspector identified that the licensee failed to timely evaluate and correct programmatic deficiencies with the ALARA program, which were disclosed through a licensee root cause evaluation.

4OA6 Management Meetings

Exit Meeting Summary

The inspector presented the inspection results to Mr. Bakken and other members of licensee management and staff at the conclusion of the inspection on February 16, 2001. The licensee acknowledged the information presented. No proprietary information was identified by the licensee.

PARTIAL LIST OF PERSONS CONTACTED

C. Bakken, Site Vice President
R. Crane, Compliance Supervisor, Regulatory Assurance
L. Dean, ALARA Supervisor
R. Granberg, Dosimetry Supervisor
S. Greenlee, Director, Design Engineering and Regulatory Affairs
R. LaBurn, Radiation Protection Manager
J. Mathis, Compliance, Regulatory Affairs
T. Noonan, Director, Performance Assurance
J. Pollock, Plant Manager
M. Rencheck, Vice President, Nuclear Engineering
B. Story, General Supervisor, Work Control and ALARA
S. Watkins, General Supervisor, Radiation Protection Production
D. Wood, RadChem-Environmental Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

PARTIAL LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
CRs	Condition Reports
PARS	Publicly Available Records
RCA	Radiologically Controlled Area
RP	Radiation Protection
RWP	Radiation Work Permit
TEDE	Total Effective Dose Equivalent

PARTIAL LIST OF DOCUMENTS REVIEWED

The following is a partial list of licensee documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected portions of the documents were evaluated as part of the overall inspection effort.

Station Procedures

PMP 6010.ALA.001 (Revision 11), "ALARA Program - Review of Plant Work Activities"
PMP-6010.ALA.002 (Revision 9), "ALARA Committees"
PMP-6010.RPP.006 (Revision 7a), "Radiation Work Permit Program"
12-THP-6010.RPP.006 (Revision 17), "Radiation Work Permit Processing"
12-THP-6010.RPP.0XX (Revision 0 - DRAFT), "Radiological Controls for Risk Significant Work Activities"
12-THP-6010.RPP.121 (Revision 0), "Declaration and Undeclaration of Pregnancy, and Determination of Embryo/Fetus Dose"
12-THP-6010.RPP0104 (Revision 3), "Issue and Control of Special Dosimetry"

Radiation Work Permits and ALARA Plan Packages

RWP No. 001023, Unit 1 Containment Design Change Procedure Modifications
RWP No. 001052, Containment Radiation Protection Activities
RWP No. 001074, Unit 2, Sodium Tetraborate Containment Cleaning
RWP No. 001131, Unit 2, Reactor Nozzle/RPV Support Repairs and Cleaning
RWP No. 991111, RCP Motor Repairs

Assessments, Surveillances and Field Observation Reports

ALARA Program Root Cause Evaluation (CR No. 99-19148)
Assessment No. RST-1999-006-RPS, ALARA Program
Field Observation Report Nos. 00-F-075, 00-I-055, 00-G-053, 00-K-046, 00-I-059, and 00-G-072

Condition Reports and Related

Condition Report Nos. 99-09320, 99-10606, 99-10459, 99-11070, 99-1948, 00-07763, 99-19148, and 99-09384
Radiation Protection Related CR Database for 1999 and 2000

Other Documents

2001 Station Departmental Dose Budget
Hot Spot Tracking Log