

March 7, 2000

Template RGN-002

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

Use one  
AND.

SUBJECT: NRC INSPECTION REPORT 50-315/99035(DRS)

Dear Mr. Powers:

On February 9, 2000, the NRC completed a portion of an ongoing inspection of the steam generator replacement at your D. C. Cook reactor facility. The purpose of the inspection was to inspect the preparation, removal, and installation efforts for the Unit 1 steam generator replacement project. The enclosed report presents the results of this inspection.

Areas examined are identified in the report. Within those areas, the inspection consisted of a selective examination of procedures and representative records, and interviews with personnel. The objective of the inspection effort was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements.

For the areas inspected, NRC and ASME Code requirements were met and no violations or deviations were identified. Implementation of the portions of the steam generator replacement project inspected appeared to be effective.

At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report. In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Original /s/ John A. Grobe

John A. Grobe, Director  
Division of Reactor Safety

Docket No. 50-315  
License No. DPR-58

Enclosure: Inspection Report 50-315/99035(DRS)

See Attached Distribution

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R. Powers

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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  
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MI Department of State Police  
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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION III**

**Docket No:** 50-315  
**License No:** DPR-58

**Report No:** 50-315/99035(DRS); 50-316/99035(DRS)

**Licensee:** American Electric Power Company

**Facility:** Donald C. Cook Nuclear Generating Plant

**Location:** 1 Cook Place  
Bridgman, MI

**Dates:** January 5-6, 12-13 and 27-28 and February 2-4, and 7-9,  
2000

**Inspector:** Donald Jones, Reactor Inspector

**Approved by:** John M. Jacobson, Chief, Mechanical Engineering Branch  
Division of Reactor Safety

## **EXECUTIVE SUMMARY**

### **D. C. Cook, Unit 1 NRC Inspection Report 50-315/99034(DRS)**

This ongoing inspection covered the conduct of a portion of the D. C. Cook Unit 1 steam generator replacement project. This was an announced inspection conducted by one regional inspector.

#### **Maintenance**

- The licensee and prime contractor effectively planned and coordinated preparation activities including storage, testing, and welder training and qualification (Section M1.1).
- The licensee and prime contractor provided effective oversight of the removal and installation of the steam generators. The machine welding activities were well controlled (Section M1.2).
- Overall the prime contractor's quality controls were considered effective by the inspector as evidenced by the number and types of issues identified and corrected in the nonconformance reports (Section M7.2).

## Report Details

### **M1 Conduct of Maintenance**

#### **M1.1 Observations of Replacement Steam Generator (RSG) Preparation Activities**

##### **a. Inspection Scope (50001)**

The inspector reviewed the storage and preparation activities associated with the RSGs. Observations of facilities and in-process work activities included:

- Storage facilities for the RSG lower assemblies, steam separator modules, steam flow restrictor assemblies, feedwater headers, and other components.
- Ultrasonic examination of the tubesheet to shell weld (W65) on RSG 13.
- Review of the base line eddy current examination data for the RSG tubes.
- Welder and welding operator qualifications.
- Welder training including training on mock-ups of reactor coolant system (RCS) piping to RSG nozzle weld.

##### **b. Observations and Findings**

The inspector observed the storage facilities for the RSG lower assemblies (RSGLA's), steam separator modules, steam flow restrictor assemblies, feedwater headers, and other components. The RSGLA's were stored in temporary buildings where the shipping covers were removed and weld prep work was performed. The steam separator modules, feedwater headers, steam flow restrictor assemblies and components were stored on the Unit 1 turbine floor. The inspector also verified the maintenance of proper storage by review of the following in-storage inspection reports:

- weekly RSGLA inspection;
- weekly steam separator module inspection; and
- monthly feedwater header assembly inspection.

The inspector observed and verified the certifications of personnel and equipment during the automated ultrasonic examination of the tubesheet to shell weld (W65) on RSG 13. The inspector also reviewed the base line eddy current examination data for the RSG tubes. Full length bobbin examination was performed on all tubes with motorized rotating pancake coil examination of special interest areas requiring characterization within the tube bundle. No tubes required plugging.

Mock-ups of the RSG nozzle to RCS piping using reduced angle groove weld joint geometry were made to provide training for the welding operators. The inspector observed mock-up training using procedures, equipment, and personnel to be utilized for the machine gas tungsten arc welding process. The inspector verified the adequacy

of the process and welding operator's performance by observations of the mock-up welding.

c. Conclusions

The licensee and prime contractor effectively planned and coordinated preparation activities including storage, testing, and welder training and qualification.

M1.2 Steam Generator Removal and Installation

a. Inspection Scope (50001)

The inspector observed the removal of the degraded steam generators and the movement and installation of the RSGLAs. Other inspection activities included the observation of weld preparation machining, installation of foreign material exclusion covers, and machine welding activities on the RCS piping to RSG nozzle.

b. Observations and Findings

The inspector observed the machining of reactor coolant hot and cold leg piping in preparation for removal of the steam generators (SG's) (SG13 and 11). The inspector also observed the girth cut separating the SG lower assembly from the steam dome (SG 13). Rigging and lifting of the SG steam domes and lower assemblies (SG 11 and 14) for removal was performed in accordance with applicable procedures. During the observation of the removal of residual water and placement of foreign material exclusion covers ("shower caps") over SGLA 14 RCS piping, the inspector noted Bechtel quality assurance coverage both inside the containment, and outside using video monitors. A coating was applied to the SGLAs prior to removal from the containment to mitigate the spread of contamination. The inspector observed licensee oversight by a senior reactor operator during the removal of the SGLAs from the containment and auxiliary building.

The inspector observed the fit-up of the hot and cold leg RCS piping to (SGLA 12) nozzle. The inspector also verified welder qualifications (Bechtel D. C. Cook Welder Qualification List) and filler material withdrawal (Filler Material Withdrawal Authorization (Form WR-6)) during observation of SGLA (SG's 12 and 13) hot and cold leg machine welding activities.

c. Conclusions

The licensee and prime contractor provided effective oversight of the removal and installation of the steam generators. The machine welding activities were well controlled.

## **M7.2 Control of Nonconforming Conditions**

### **a. Inspection Scope (50001)**

The inspector reviewed the RSGP prime contractor's (Bechtel) nonconformance log, and selected nonconformance reports (NCRs) for further review.

### **b. Observations and Findings**

The contractor documented in NCR No. 00-028 arc strikes and weld spatter on RSGLA No. 1 resulting from the air arc removal of the shipping cover. The disposition of the weld spatter was removal by light grinding, and the arc strikes were dispositioned by light grinding with the performance of a surface examination. The inspector reviewed the subsequent magnetic particle report (January 25, 2000) and considered the actions to be appropriate.

The contractor documented in NCR No. 00-056 three surface discontinuities (scratches) inside the feedwater nozzle of SG No. 3 following the removal of the thermal sleeve. The disposition was to lightly grind the areas and perform a surface examination. The inspector reviewed subsequent magnetic particle testing (January 28, 2000) and liquid penetrant testing (January 29, 2000) reports and considered the actions to be appropriate.

The contractor documented in NCR No. 00-039 that quality control had found that the Work Plan and Inspection Record was not in the work area. The disposition was to reinstruct crew members, foremen, and supervisors on proper documentation requirements. The inspector reviewed the training attendance (January 14, 2000) sheets and considered the actions to be appropriate.

### **c. Conclusions**

Overall the prime contractor's quality controls were considered effective by the inspector as evidenced by the number and types of issues identified and corrected in the nonconformance reports.

## **V. Management Meeting**

### **X1 Exit Meeting Summary**

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on February 9, 2000. The licensee acknowledged the findings presented. The licensee did not identify any items discussed as proprietary.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Licensee

C. Bakken, Site Vice President  
R. Crane, Licensing  
S. Johnson, SGRP Welding Engineer  
J. Kobyra, SGRP Project Director  
D. Petro, SGRP Engineering Manager  
B. Sears, SGRP Performance Assurance Lead

### Bechtel

G. Klein, Welding Supervisor  
B. McKenzie, Construction Site Manager  
G. Stoll, NDE Level III  
D. Williams, Project Manager

### Conam

J. Ours, NDE Level II

## **INSPECTION PROCEDURES USED**

IP 50001: Steam Generator Replacement Inspection



## LIST OF ACRONYMS USED

<b>DRS</b>	<b>Division of Reactor Safety</b>
<b>NCR</b>	<b>Nonconformance Reports</b>
<b>NRC</b>	<b>Nuclear Regulatory Commission</b>
<b>PDR</b>	<b>Public Document Room</b>
<b>RCS</b>	<b>Reactor Coolant System</b>
<b>RSG</b>	<b>Replacement Steam Generator</b>
<b>RSGLA</b>	<b>RSG Lower Assemblies</b>
<b>SG</b>	<b>Steam Generator</b>

## PARTIAL LIST OF DOCUMENTS REVIEWED

Donald C. Cook Nuclear Plant Unit 1, Steam Generator Replacement Project Walkdown Report-September 1997

Donald C. Cook Nuclear Plant Unit 1 Steam Generator Replacement Receipt Inspection and Storage Plan, Revision 3, November 12, 1999

Bechtel Special Processes Manual For Donald C. Cook Nuclear Plant Unit 1, Revision 1

<u>Procedure</u>	<u>Revision</u>	<u>Title</u>
CP-1	1	Cook SGR Project Construction Procedure, Implementation and Control of the Construction Procedures
256974	B	Babcock and Wilcox Data Acquisition Procedure For Pre-Service Eddy Current Inspection of D. C. Cook Replacement Steam Generator Tubing
TR-1999-023	0	Babcock and Wilcox Preservice Eddy Current Inspection Report
WFMC-1	3	Bechtel Welding Specification, Welding Filler Material Control
12MMP-2070.NETS.003	0a	Receipt Inspection/Material Testing Section Training
12MMP 3120 NETS.003	1	Replacement Steam Generator Receipt Inspection
12MMP 3130 NETS.004	1	In-Storage Inspection for Replacement Steam Generator Components