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AEP
INDIANA
MICHIGAN
POWER

March 1, 2004

AEP:NRC:4691

Docket Nos: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
2003 ANNUAL OPERATING REPORT

Technical Specifications 6.9.1.4 and 6.9.1.5 of Appendix A to the Donald C. Cook Nuclear Plant Unit 1 and Unit 2 Operating Licenses require that an annual report be submitted to address personnel exposure, steam generator in-service inspection results, challenges to power-operated relief and safety valves, and information regarding any instances when the I-131 specific activity limit was exceeded. Consistent with these requirements, a copy of the 2003 annual operating report is attached.

There are no new commitments in this submittal. Should you have any questions, please contact Mr. Michael K. Scarpello, Supervisor of Nuclear Licensing, at (269) 697-5020.

Sincerely,

John A. Zwolinski
Director of Design Engineering and Regulatory Affairs

DB/rdw

Attachments:

1. 2003 Annual Operating Report
2. Figure 1 – Steam Generator Support Structure Numbering Scheme
   Figure 2 – Steam Generator Tube Bundle Arrangement

A001

c: Director, Office of Nuclear Reactor Regulation
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K. D. Curry, Ft. Wayne AEP, w/o attachments
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MDEQ – WHMD/HWRPS, w/o attachments
NRC Resident Inspector
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ATTACHMENT 1 TO AEP:NRC:4691

2003 Annual Operating Report

1.0 INTRODUCTION

Plant Description

Indiana Michigan Power Company is the licensee for Donald C. Cook Nuclear Plant. The plant is located north of Bridgman, Michigan. The plant consists of two nuclear units employing a Westinghouse pressurized water reactor nuclear steam supply system. Each reactor unit employs an ice condenser reactor containment system. The American Electric Power Service Corporation is the architect-engineer and constructor.

Unit 1 and 2 reactor licensed power levels are 3304 Mwt and 3468 Mwt, respectively. The main condenser cooling method is open cycle using Lake Michigan water as the cooling source for each unit.

2.0 PERSONNEL RADIATION EXPOSURE SUMMARY

Page 2 of this attachment provides the number of station, utility, and contractor/other personnel receiving exposures greater than 100 millirem (mrem) in 2003. This estimated dose is based on electronic dosimetry and reported in the format specified by Regulatory Guide 1.16.

The values shown in the individual categories (routine maintenance, etc.) represent the number of people who received greater than 100 mrem in that particular category. The grand total figure represents the total number of people who received 100 mrem, whether in one of the categories or multiple categories. A specific person could receive doses in two or more categories, but they would be counted only once in the grand total. Also, a specific person could receive less than 100 mrem in several categories, but have a total dose greater than 100 mrem. As a result, the sum of the individual category totals does not necessarily equal the grand total.

Reg Guide 1.16 Report
INDIANA MICHIGAN POWER / COOK NUCLEAR PLANT
Prepared for Year 2003

Number of Personnel and Person-Rem By Work and Job Function

	Number of Personnel > 100 mrem			Total Person-Rem		
	Station Employees	Utility Employees	Contractors and Others	Station Employees	Utility Employees	Contractors and Others
Reactor Operation & Surveillance						
-Maintenance	7	0	3	2.307	0.296	1.750
-Operations	1	0	0	1.759	0.000	0.297
-Health Physics	0	0	0	0.006	0.001	0.027
-Supervisory	0	0	0	0.008	0.000	0.001
-Engineering	0	0	1	0.208	0.003	0.272
Routine Maintenance						
-Maintenance	8	0	1	4.023	0.033	2.197
-Operations	0	0	0	2.349	0.000	0.161
-Health Physics	18	0	0	4.114	0.002	0.915
-Supervisory	0	0	0	0.046	0.000	0.083
-Engineering	1	0	0	0.500	0.048	0.710
Inservice Inspection						
-Maintenance	2	0	4	0.821	0.000	1.736
-Operations	0	0	0	0.115	0.000	0.163
-Health Physics	0	0	0	0.000	0.000	0.044
-Supervisory	0	0	0	0.000	0.000	0.000
-Engineering	0	0	2	0.003	0.000	1.128
Special Maintenance						
-Maintenance	2	0	86	0.795	0.000	46.777
-Operations	1	0	0	0.161	0.000	0.009
-Health Physics	0	0	0	0.009	0.000	0.034
-Supervisory	0	0	0	0.004	0.000	0.072
-Engineering	0	0	0	0.068	0.000	0.442
Waste Processing						
-Maintenance	0	0	0	0.085	0.001	0.159
-Operations	0	0	1	0.039	0.000	0.211
-Health Physics	4	0	0	1.258	0.000	0.217
-Supervisory	0	0	0	0.000	0.000	0.006
-Engineering	0	0	0	0.082	0.000	0.001
Refueling						
-Maintenance	35	0	190	10.756	0.181	69.785
-Operations	33	0	30	11.684	0.000	10.565
-Health Physics	24	0	61	9.860	0.054	22.136
-Supervisory	1	0	0	0.361	0.000	0.453
-Engineering	6	0	34	2.419	0.041	8.815
Totals						
-Maintenance	65	1	308	18.787	0.512	122.403
-Operations	41	0	31	16.107	0.000	11.406
-Health Physics	44	0	63	15.246	0.057	23.374
-Supervisory	1	0	1	0.419	0.000	0.614
-Engineering	8	0	41	3.280	0.092	11.367
Grand Totals	159	1	444	53.839	0.660	169.164

3.0 STEAM GENERATOR INSPECTIONS

Acronym Listing

CL	Cold Leg
DNG	Ding
FSH	Free Span History
FSI	Free Span Indication
I-Code	Indication code referring to distorted or non-quantifiable indications
MBH	Manufacturing Burnish Mark History
MBI	Manufacturing Burnish Mark Indication
NDF	No Degradation Found
PLP	Possible Loose Part
Rxx/Cyy	Tube location coordinate corresponding to Row xx and Column yy
SG	Steam Generator
TT	Thermally Treated
TW	Thru-Wall

Figures 1 and 2 in Attachment 2 are included to aid in understanding the support structure numbering scheme and tube bundle configuration of the Unit 1 SGs.

3.1. 2003 SG In-Service Inspection

During October/November of 2003, a SG in-service inspection was conducted on the Unit 1 SGs as detailed below. This inspection constituted the second in-service inspection of the replacement SGs with the initial inspection having been performed in May 2002.

The Unit 2 SGs were last inspected in January/February of 2002 as detailed in submittal AEP:NRC:3691-01, dated February 28, 2003. These SGs remain under the provisions of Technical Specification 4.4.5.3a which allow an inspection interval of 40 calendar months once two consecutive inspections have yielded degradation category C-1 results. As such, the next Unit 2 SG inspections will be in the Fall of 2004.

3.2 Unit 1 SG Description (See Attachment 2, Figures 1 and 2)

The four replacement Babcock & Wilcox Model 51R SGs were initially placed in service in December of 2000.

Each replacement SG contains 3496 TT alloy 690 tubes with an outside diameter of 0.875 inches and a nominal wall thickness of 0.049 inches. The tubes are arranged in a triangular pitch pattern of 107 rows and 85 columns. The U-bend of all tubes having up to a 12 inch centerline bend radius (Rows 1-13) are stress relieved.

The tube support structure consists of eight stainless steel (SA-240-410S-modified) lattice grid assemblies and four sets of flat bar (also called fan bar) restraints. Each lattice grid consists of interlocking high and low bars that form a lattice pattern to provide lateral restraint in the straight portion of the tubes. The flat bar restraints are made of the same stainless steel material and offer support in the U-bend area.

The tubesheet is a nominal 21.25 inches thick and is made of SA-508 Class 3a low alloy steel forging material with Inconel cladding on the primary side. All tubes are hydraulically expanded into the tubesheet holes and flush seal welded at the primary face. The expansion includes the entire depth of the tubesheet for both the hot and cold leg sides.

3.3 Inspection Scope

SG eddy current inspections were performed during October/November 2003. The inspection scope consisted of a 20 percent full-length bobbin coil examination of the tubes in SG 14. In addition, special examinations were performed in areas of interest using rotating probes to better characterize select bobbin coil signals.

SG 14 was selected for examination to support continued monitoring of a fan bar wear indication detected during the initial (2002) inspection. The remaining SGs did not have any indications of this type and, as permitted by Technical Specification Table 4.4.1, were not included in the examination scope.

The following tables provide a breakdown of the inspections performed.

Base Examination	SG 11 Tubes Examined	SG 12 Tubes Examined	SG 13 Tubes Examined	SG 14 Tubes Examined
Bobbin - Full Length	--	--	--	701

Special Interest – Rotating Coil	SG 14 Locations Examined
Diagnostics:	
I- Codes	0 of 0
Percent TW	1 of 1
Expansion around new DNG	3 of 3
Sample Inspections:	
DNG	4 of 4
FSH	1 of 1
MBH	13 of 19*

*Note: Remaining 6 MBH indications were not accessible from CL.

3.4 Inspection Results

The following table and associated discussion summarize all reported indications:

Indication	Test	SG 14
DNG	Bobbin	4
FSH	Bobbin	1
MBH	Bobbin	19
< 20 percent TW Wear	Bobbin	1

DNG:

Four DNG signals were reported using a 2-volt criterion during the bobbin coil examination. The details of the indications are discussed below:

Tube	Location * (Figure 1)	Voltage
R49/C57	FB2 + 12.63"	2.51
R56/C38	FB5 + 14.50"	3.23
R61/C33	2C + 19.43"	2.29
R85/C57	TSC + 1.71"	4.88

*Note: The convention used to locate indications is to reference from the center of the tube supports, top-of-tubesheet or tube end as appropriate. All indication locations are measured in a positive direction from the closest lower structure (including tube end), except as follows:

- Indications located within 2.0 inches of the top of tubesheet or the center of a support shall be reported from the centerline in a positive or negative direction, as applicable.
- A tubesheet minus measurement (i.e. tubesheet hot – 5.50") may be reported in cases where no tube end was recorded.

Each location was examined with a rotating coil with no degradation detected. With the exception of the indication at R85/C57, all other ding indications were present on the baseline examination. As a result of the new ding indication on tube R85/C57, three surrounding tubes were examined in the area of interest by a rotating coil. No additional indications of this type or evidence of tube damage was found during the expanded examination or the remaining examinations that was conducted as part of the base bobbin coil inspection.

During the operational baseline inspection performed in May 2002, a DNG indication was identified in the U-bend region of tube R34/26. Upon re-inspection in 2003, the indication was not found. Indiana Michigan Power Company concludes that the May 2002 finding was a false indication.

FSI, FSH, MBI, MBH:

Freespan bobbin coil indications are indications on the interior/exterior surface of a tube that are not associated with the tubesheet sludge pile region or any support structure. The production analyst reports all free span indications initially detected by the bobbin coil as FSI. The final disposition of the reported FSI indications is then made by a resolution analyst according to the results of a required indication history review. All indications that indicate insignificant change as compared to the original baseline data are subsequently reported as FSH or MBH. Those FSI indications that indicate significant change are reported as non-quantifiable indications or MBI and undergo additional diagnostic testing using a rotating coil.

All of the reported indications were found to have insignificant change since the baseline examination and therefore were coded FSH or MBH as directed by the Data Analysis Guidelines. A sample of the accessible indications (i.e. no manipulator moves were made in order to gain access to the hot leg indications) were examined with a rotating coil. The one FSH indication was inspected with no degradation found. Thirteen of the nineteen MBH indications were examined, the remaining six MBH indications were not accessible from CL. No degradation was detected during this examination.

Tube	Indication	Location	Voltage	Comments
R2/C8	FSH	4C + 29.73"	0.19	No degradation on rotating coil.
R2/C58	MBH	3H + 46.36"	0.38	Not accessible from CL
R2/C84	MBH	2H + 5.21"	0.42	Not accessible from CL
R8/C54	MBH	FB5 + 2.78"	1.66	No degradation on rotating coil.
R17/C19	MBH	FB8 + 7.00"	0.51	No degradation on rotating coil.
R29/C103	MBH	7C + 27.17"	0.51	No degradation on rotating coil.
R29/C103	MBH	6C + 19.64"	0.61	No degradation on rotating coil.
R29/C103	MBH	6C + 6.53"	0.75	No degradation on rotating coil.
R29/C103	MBH	5C + 34.55"	0.58	No degradation on rotating coil.
R29/C103	MBH	4C + 33.90"	0.60	No degradation on rotating coil.
R29/C103	MBH	4C + 4.90"	0.59	No degradation on rotating coil.
R34/C82	MBH	2C + 19.04"	0.37	No degradation on rotating coil.
R46/C10	MBH	3H + 3.50"	0.49	Not accessible from CL
R56/C40	MBH	5C + 26.51"	0.42	No degradation on rotating coil.
R58/C16	MBH	5H + 21.20"	0.65	Not accessible from CL
R58/C16	MBH	5H + 12.51"	0.35	Not accessible from CL
R65/C47	MBH	1H +18.99"	0.42	Not accessible from CL
R67/C23	MBH	FB2 + 3.01"	0.51	No degradation on rotating coil.
R83/C41	MBH	FB6 + 9.82'	0.43	No degradation on rotating coil.
R85/C47	MBH	FB4 + 3.10"	0.50	No degradation on rotating coil.

Tube Wear (<20 percent):

Tube R53/C53 was identified during the original inservice inspection (May 2002) as having low level wear at the fan bar 5 + 0.61" support location. The bobbin coil TW depth measurement for this indication was 8 percent TW. As part of a continuous monitoring program, this indication was reexamined during the October/November 2003 inspection. The indication was measured at 11 percent using the qualified bobbin coil probe. The indication was also reviewed with a rotating coil that provided no additional information. As the wear depth was well below the Technical Specification repair limit of 40 percent TW, the tube was left in service. There were no additional wear indications reported.

3.5 Plugged Tubes

No defective or degraded tubes were identified during the 2003 Unit 1 SG eddy current inspection of SG 14. As a result, no tubes were plugged.

4.0 CHALLENGES TO PRESSURIZER POWER OPERATED RELIEF VALVES (PORV) AND SAFETY VALVES

There were no challenges to the pressurizer PORVs or the pressurizer safety valves on either Unit 1 or Unit 2.

5.0 REACTOR COOLANT SPECIFIC ACTIVITY

There were no instances in which the reactor coolant dose equivalent I-131 specific activity exceeded Technical Specification 3.4.8 limits of 1 μCi/g in either Unit 1 or Unit 2. Compliance was determined by routine gamma spectrometry analysis of reactor coolant.

Figure 1
Steam Generator Support Structure Numbering Scheme

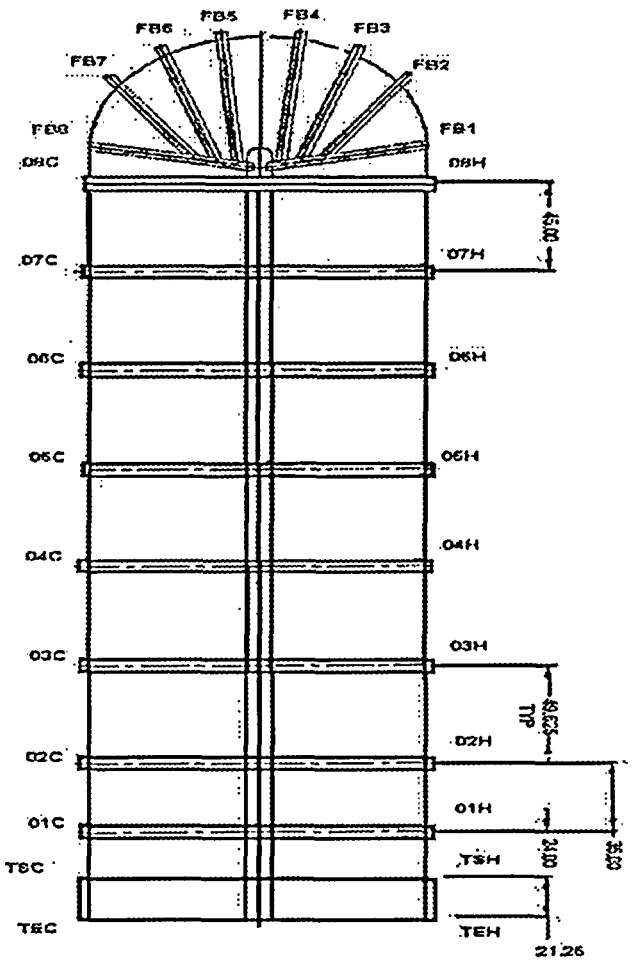

Figure 2
Steam Generator Tube Bundle Arrangement