

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-316/84-07(DE)

Docket No. 50-316

License No. DPR-74

Licensee: American Electric Power Service Corporation
Indiana & Michigan Power Company
2 Broadway
New York, NY 10004

Facility Name: D. C. Cook Nuclear Power Plant, Unit 2

Inspection At: D. C. Cook Site, Bridgman, MI

Inspection Conducted: March 27-30, April 25-27, 1984

Inspector: *W. J. Key*
W. J. Key

5/11/84
Date

Approved By: *J. H. Danielson*
J. H. Danielson, Chief
Materials and Processes Section

5/11/84
Date

Inspection Summary

Inspection on March 27-30, April 25-27, 1984 (Report No. 50-316/84-07(DE))

Areas Inspected: Review of the program examination procedures, personnel and equipment certifications, observation of examinations, and review of data collected and documentation for the current inservice inspection activities. This inspection involved a total of 43 inspector-hours onsite by one NRC inspector.

Results: No items of noncompliance were identified during this inspection.

DETAILS

1. Personnel Contacted

Indiana & Michigan Electric Company (I&M)

- *W. G. Smith, Plant Manager
- *B. Svensson, Assistant Plant Manager
- E. Morse, Training Coordinator
- *J. Stietzel, QC Supervisor
- R. Otte, ISI Supervisor

*Denotes those attending the entrance and exit meetings.

2. Functional or Program Areas Examined

a. ISI Program Review

During this Unit 2 refueling outage components listed below are scheduled for examination in accordance with the rules of the ASME Code, Section XI, 1974 Edition with Addenda through Summer 1975.

- . Eddy current testing of tubes in steam generators 2-1, 2-2, 2-3, and 2-4. 100% of the tubes will be examined.
- . Tube sheet cleaning of all four steam generators.
- . J-tube examination in the feedwater ring on the secondary side for wall thinning of all four steam generators.
- . Surface examination of manway bolting on all four steam generators.
- . Visual examination of all reactor coolant pump studs.
- . Examination of all reactor coolant pump flywheels.
- . PAR examination of the reactor pressure vessel nozzles.
- . Examination of reactor vessel nozzle to safe-end welds and vessel supports.
- . Examination of (1) elbow to pipe weld on RHR system piping.
- . Examination of feedwater elbow on steam generator No. 2-1.
- . ISI safety valves, set point test.
- . Mainsteam safety valves, set point test.
- . Pressurizer safety valves, set point test.

- . Reactor Coolant system piping.
- . Safety Injection system piping.
- . Chemical and Volume Control system piping.
- . Residual Heat Removal system piping.
- . Pipe supports and hangers.
- . Valve pressure retaining bolting.
- . Valves (disassembled) internal pressure boundary surfaces.
 - . Crosby safety valves
 - . Velan swing check valves
 - . Darling swing check valves
 - . Walworth motor-operated gate valves
 - . Conval hand-operated globe valves
 - . Rockwell hand-operated globe valves
 - . Copes Vulcan motor-operated gate valves
- . Feedwater system piping.
- . Mainsteam system piping.

b. Examination Procedure Review

The examination procedures listed below were reviewed for revisions and conformance to the acceptance requirements of the ASME Code.

Westinghouse Electric Corporation (W)

- . MRS-2.2.2 Gen. 9, Rev. 7; Tube Sheet Cleaning Full Recirculation System.
- . MRS-2.2.2 Gen. 2, Rev. 6; Installation & Removal of Temporary Nozzle Covers.
- . MRS-2.2.2 Gen. 12, Rev. 1; Steam Generator Tubesheet Marking.
- . MRS-2.4.2. Gen. 19, Rev. 2; Installation & Removal of Eddy Current Positioning Device.
- . MRS-2.4.2 Gen. 23, Rev. 5; Multi-Frequency Eddy Current Inspection of Heat Exchanger Tubing, Preservice and Inservice.

. MRS-2.4.2, Gen. 26, Rev. 3; Installation and Removal of Tube ID Template.
Indiana & Michigan Power Company (I&M)

- . QHI-5070, Rev. 0; Inservice Inspection.
- . 12QHP-5070, ISI-006, Rev. 0; Control and Maintenance of Calibration Standards Designed to Validate Inservice Inspection Results.
- . 12QHP-5070, ISI-007, Rev. 2; Inspection of Reactor Vessel and Reactor Vessel Internals for D. C. Cook Plant.
- . 12QHP-5070, ISI-009, Rev. 0; Visual Examination of ASME Class 2 & 3 Components.
- . 12QHP-5070, ISI-011, Rev. 0; Visual Examination of ASME Class 1 Components.

Southwest Research Institute (SwRI)

- . SwRI Nuclear QA Program Manual, Rev. 2 with all applicable changes.
- . Project Plan for NDE Activities Performed at D. C. Cook Nuclear Plant Units 1 & 2, including Change 4, dated 2/19/84.
- . USNRC RReg. Guide 1.14, Reactor Coolant Pump Flywheel Integrity.
- . USNRC Reg. Guide 1.150, Rev. 1; Ultrasonic Examination of Reactor Vessel Welds During Preservice and Inservice Examination.
- . IE Bulletin No. 82-02, Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary of PWR Plants.
- . XIII-AG-101-2; Control of Nuclear Inspection Equipment and Materials.
- . SwRI-NDT-200-1/56; PT Examination, Color Contrast Method.
- . SwRI-NDT-200-2/32; Fluorescent MT Examination.
- . SwRI-NDT-600-3/16; Manual Ultrasonic Examination of Pressure Piping Welds.
- . SwRI-600-16/28; Manual Ultrasonic Examination of Vessel Support Skirt Attachment Welds.
- . SwRI-NPT-700-5/6; Mechanized Ultrasonic Examination of Vessels, Components, Vessel Welds, and Piping Welds.
- . SwRI-NDT-700-6/19; Mechanized Ultrasonic Examination of Ferritic Vessels Greater than 2" Thickness.
- . SwRI-NDT-800-17/27, Rev. 1; Special Procedure for Manual Ultrasonic Examination of Austenitic Components with High Scoustic Attenuation Properties.

- SwRI-NDT-900-1/50; Visual Examination of Nuclear Reactor Components by Direct or Remote Viewing.

c. Personnel Certifications

Certification records of the below identified inspection personnel were reviewed for conformance to ASME Code, ASNT-TC-1A 10 CFR 50 Appendix B and ANSI-N45.2.6 requirements.

I & M Power Company

<u>Name</u>	<u>Method - Level</u>					
	ET	UT	MT	PT	VT	RT
M. Wiedeway	I	I	II	II	II	
R. Derek		II	II	II	II	IIR
R. Roop	I		II	II	II	II
C. Freer			II	II	II	II

Magnaflux

R. E. Blankenship		II				
R. Metrovish			II	II		
M. J. Ocion		II	II	II	II	II
J. Ouellette			II	II	II	II
J. Sadler		II	II	II		II
S. P. Slotta			II	II		

Southwest Research Institute

	ET	UT	MT	PT	VT	RT
R. L. Turner		II	II	II	II	
S. Magaro		II	ltr.	II	II	
E. A. Clouse		I	ltr.	ltr.	I	

Westinghouse Electric Corporation

J. E. Reed	I					
E. Cisneros	II					
J. E. Mills	II					
J. M. Tepley	I					
J. M. Zevchak	II					
T.A. Pfarr	II					
D. J. Obazenu	II					
G. W. Miller	I					
D. R. Francis	II					

d. Equipment Certification & Calibration

The examination equipment identified below was examined for certification and calibration.

Westinghouse Electric Corporation - ECT Standards & Equipment

Dent/Defect Standard, S/N-1410, Heat No. 2721
Dent/Defect Standard, S/N-Z-831, Heat No. 1019
Absolute Standard, S/N-Z-1391, Heat No. 2721
Absolute Standard, S/N-Z-1394, Heat No. 2721
AVB Standard, SN-WEM-02660, Heat No. 2721
AVB Standard, SN-WEM-02661, Heat No. 2721
Groove Standard W/Dents & Support Ring
S/N Z-1783, Heat No. 2675
Force Gauge, S/N 02391-0782
Pressure Gauge, S/N 02599 (New) 02385
Distance Gauge, S/N 01458
Bush Recorder, S/N 30237/30367
Victor Analyzer, S/N 00938
MIZ-12, Plug-ins, S/N 00886/0551/0574/0575
MIZ-12, Display Module, SN 00909

Southwest Research Institute

Magnaflux Cleaner, Batch No. 83H075
Magnaflux Developer, Batch No. 82D056
Magnaflux Penetrant, Batch No. 81L026
Magnaglo, Batch No. 82J082

UV Light Meter, S/N-20927
Pyrometer, S/N-940037/046
Pyrometer, S/N-110332/060
MT Yoke, S/N-4448
MT Test Block, S/N-B-70198-18
Thermometer, S/N-63F3159
Thermometer, S/N-64F2451

UT Calibration Block, S/N-P1-1000-SS-27-DCC
UT Instrument (SONIC), S/N-04329E
UT Instrument (SONIC), S/N-780415
Glyceirne, Batch No. TB 8303304

Transducers

<u>S/N</u>	<u>Size</u>	<u>Freq.</u>	<u>Mfg.</u>
1530	1.0"	2.25	SwRI
2426	.500"	1.0	SwRI
756	.5X1"	1.0	SwRI
1156	.5X1"	2.25	SwRI
1151	.5X1"	2.25	SwRI
FC100	1.0"	1.0	Aerotech
785	.5"	2.25	SwRI
1812	.5"	2.25	SwRI
1788	.3/8"	2.25	SwRI
014273	.250"	2.25	Aerotech

114271	.250"	2.25	Aerotech
014266	.250"	5.0	Aerotech
1847	1.0"	2.25	SwRI
2413	.5X1"	1.0	SwRI

e. Observation of ISI Activities

Steam Generators

The inspector observed the collection of eddy current tube data on generator No. 2-3 being performed by Westinghouse personnel and the evaluation of data by Zetec. Steam generator tube examination results are established and put on a computer printout.

During this outage all tubes in each of the four steam generators were 100% examined to establish a better baseline record than was established prior to operation of the unit. Some tubes were pulled and sent to Westinghouse to be examined for inner granular attack (IGA).

All row No. 1 tubes in all four generators were plugged plus a few other tubes in each generator.

f. ISI Record Review

The examination records identified below were reviewed by the inspector.

Steam generator 2-1, other than row 1 tubes. 3 other tubes were plugged and two tubes pulled. Many dents are recorded between R-3 and 24, and C-18 and 54.

Steam generator 2-2, other than row 1 tubes. 13 tubes were plugged. A number of copper deposits are recorded at or above the top of the tube sheet.

Steam generator 2-3, other than row 1 tubes. 4 tubes were plugged. Many dents are recorded between R-4 & 25 - C-20 thru 50. at the top of the tube sheet.

Steam generator 2-4, other than row 1 tubes. 16 tubes were plugged. Many dent indications are recorded between R-5 & 20, and C-44 & 75 at the top of the tube sheet.

Pressurizer lower head to support skirt
 ID-2-PRZ-20
 Weld No. 2-PRZ-16
 Record Sheet No. 008505
 Calibration Sheet No. 250010

Reactor Coolant Pump Flywheel No. 2-1
 Record Sheet No. 153500
 Calibration Sheet No. 190002

Reactor Coolant Pump 2-2 Bolts No. 7542/7507

Reactor Coolant Line No. 2-RC-20
Safe - End to Pipe
Record sheet No. 820006
Calibration Sheet No. 25000-6

Line No. 2-RC-19 Safe-End to Pipe
Record Sheet 480010
Calibration Sheet No. 190009

RHR Line No. 2-RH-33 No. 14
Record Sheet No. 150000/180004
Elbow to Pipe

Reactor Coolant System Line No. 2-RC-17
Weld No. 08N Branch Connection
Record Sheet No. 820007
Calibration Sheet No. 190014

Reactor Coolant Line No. 2-RC-20 ID-01
Record Sheet No. 019200/820005
Safe End to Pipe
Calibration Sheet No. 480007

Nozzle to Safe End Welds
Line No. 2-RPV-4-01/2-RPV-3-01

g. Radiographic Review

Radiographs of the welds identified below were reviewed by the inspector.

Line No. FW-77 S/G No. 1
Weld No. FW-2

Line No. 2-FW-70
Weld No. 01F, Pipe to Valve

Line No. 2FW-73
Weld No. 20F

Safety Valve Header, Line No. 2-MS-90
Weld No. 02F

Line No. 2-MS-193
Weld No. 01F

Safety Valve Header - Line No. 2-MS-90
Weld No. 115 - Flange to Pipe

Line No. 2-FW-78
Weld No. 045

3. Exit Interview

The inspector met with licensee representatives (denoted in Persons Contacted) at the close of the inspection on April 27, 1984. The scope and findings of the inspection were discussed.