

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/86014(DRS); 50-316/86014(DRS)

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; DPR-74

Licensee: American Electric Power Service
Corporation
Indiana and Michigan Electric
Company
1 Riverside Plaza
Columbus, OH 43216

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

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

Inspection Conducted: March 17-20, April 10-11, and May 14-16, 1986

Inspectors: *D. E. Jones*
D. E. Jones

6/4/86
Date

K. D. Ward
K. D. Ward
(April 10-11, 1986)

6/4/86
Date

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

6/4/86
Date

Inspection Summary

Inspection on March 17-20, April 10-11, and May 14-16, 1986 (Reports
No. 50-315/86014(DRS); 50-316/86014(DRS))

Areas Inspected: Routine, unannounced inspection of inservice inspection
(ISI) procedures, work activities, nondestructive examination (NDE) personnel
certifications and ISI data; of a chemical and volume control system (CVCS)
modification (Unit 2); and to followup on an LER.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

Indiana and Michigan Electric Company (I&M)

*W. Smith, Jr., Plant Manager
*A. Blind, Assistant Plant Manager, Maintenance
*B. Svensson, Assistant Plant Manager, Operations
*J. Stietzel, Quality Control (QC) Superintendent
*R. Otte, ISI Supervisor
*J. Rutkowski, Staff Assistant
E. Morse, Training Coordinator
M. Ferguson, Design Change Coordinator

American Electric Power Service Corporation (AEPSC)

S. Deluca, Service Engineer

Southwest Research Institute (SwRI)

R. Fine, Team Leader
D. York, Inspection Engineer

Magnaflux (MX)

J. White, Site Leadman

Catalytic Industrial Maintenance Company (CIMCO)

B. Howeth, Mechanical Superintendent/Welding Engineer

Factory Mutual Engineering

D. Young, Authorized Nuclear Inservice Inspector

U. S. Nuclear Regulatory Commission (NRC)

*B. Jorgenson, Senior Resident Inspector
J. Heller, Resident Inspector
C. Wolfsen, Resident Inspector

The inspector also contacted and interviewed other licensee and contractor employees.

*Denotes those present at the final exit interview on May 16, 1986.

2. License Event Report (LER) Followup

(Closed) LER 315/85-45, Revision 1, Steam Generator/Pressurizer Enclosure - Form Plate Evaluation. The inspector verified that reporting requirements had been met, causes had been identified, corrective action appeared appropriate, generic applicability had been considered, and the LER forms were complete.

This LER identified attachments that were made to the steel form plates which form an integral part of the inner surface of the pressurizer and steam generator concrete enclosures in both Units 1 and 2. The form plates were not intended to be utilized for attachments. An evaluation was performed of the adequacy of attachments made to the form plates, adequacy of attachment of the form plates to the concrete enclosure, and material certifications. The evaluations revealed that the anchorage for the form plates were capable of carrying their own weight plus the attached equipment without loss of structural integrity. However, it was decided to enhance the attachment of these form plates by adding additional anchors.

3. Inservice Inspection, Unit 2

a. General Information

This is the seventh outage of the first ten-year interval. Indiana and Michigan Power Company (I&M) contracted with Westinghouse (W) to perform the steam generator eddy current (ET) inspection and with Southwest Research Institute (SwRI) to perform the ultrasonic examinations. The balance of the ISI was performed by I&M.

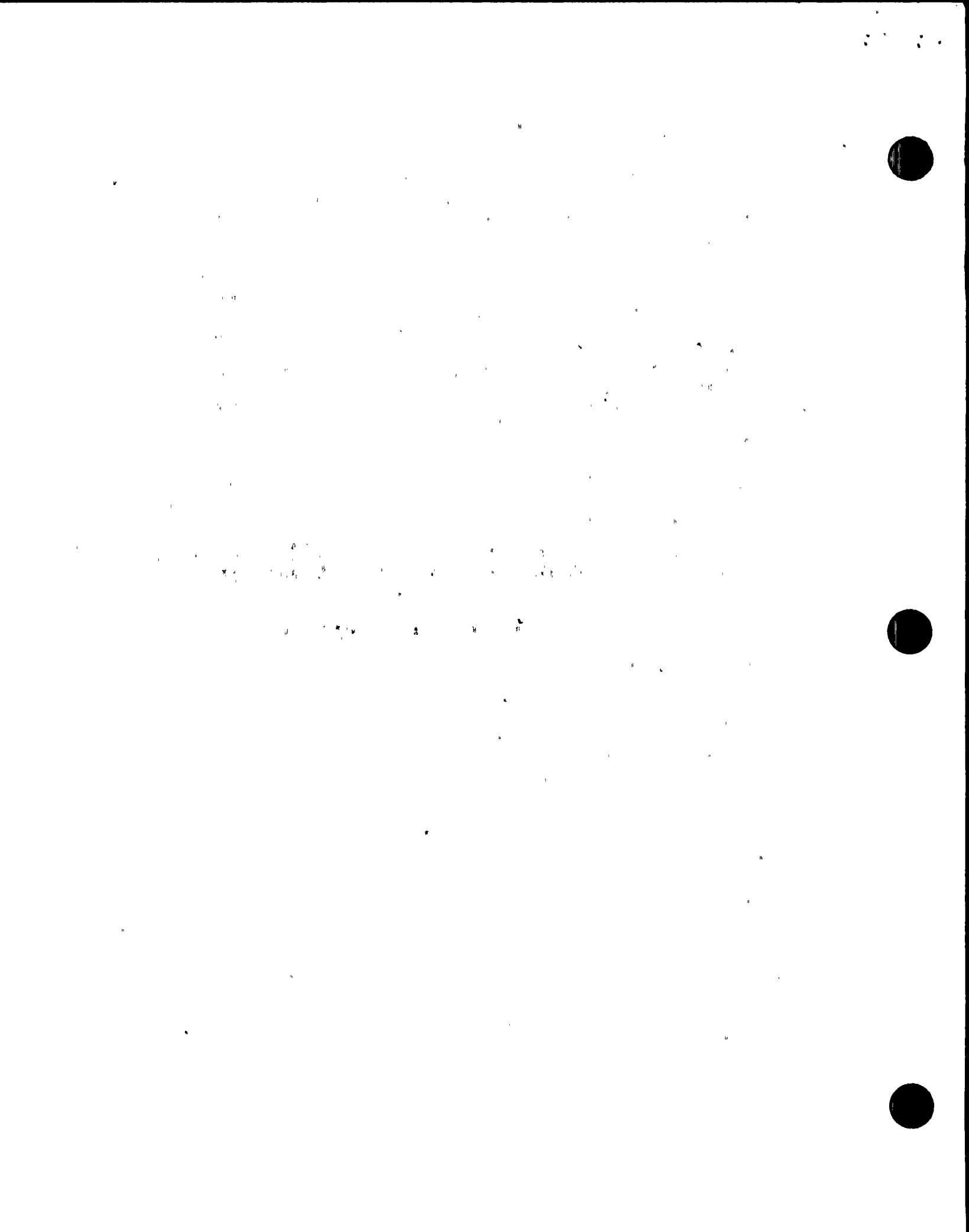
The ISI was performed in accordance with ASME Section XI, 1974 Edition, Winter 1975 Addenda, with the exception of the ET inspection which was performed in accordance with ASME Section XI, 1980 Edition, Winter 1981 Addenda.

Westinghouse performed the eddy current examinations, Zetec performed the data evaluation, and Conam performed the third party evaluation. I&M had no specific relief requests to the NRC in the program.

Eddy current examination was performed on steam generators 21, 22, 23, and 24, and the following tubes were plugged:

Steam Generator No. 21

Row 12, Column 3	Row 25, Column 16	Row 23, Column 31
Row 13, Column 3	Row 13, Column 19	Row 19, Column 34
Row 14, Column 5	Row 3, Column 22	Row 12, Column 35
Row 17, Column 13	Row 16, Column 23	Row 29, Column 42
Row 11, Column 14	Row 6, Column 24	Row 13, Column 60
Row 23, Column 14	Row 11, Column 24	Row 5, Column 74
Row 29, Column 14	Row 17, Column 30	Row 4, Column 77



Steam Generator No. 22

Row 12, Column 4
Row 17, Column 4
Row 24, Column 12
Row 5, Column 17
Row 6, Column 17
Row 5, Column 21
Row 6, Column 21
Row 5, Column 24
Row 13, Column 26
Row 27, Column 53
Row 2, Column 55
Row 27, Column 55
Row 12, Column 56
Row 13, Column 56

Row 25, Column 56
Row 28, Column 56
Row 9, Column 57
Row 22, Column 57
Row 2, Column 28
Row 21, Column 28
Row 11, Column 33
Row 44, Column 35
Row 20, Column 37
Row 3, Column 38
Row 40, Column 39
Row 25, Column 41
Row 21, Column 43
Row 16, Column 45

Row 12, Column 48
Row 20, Column 53
Row 12, Column 60
Row 12, Column 63
Row 18, Column 63
Row 7, Column 64
Row 23, Column 65
Row 7, Column 66
Row 10, Column 66
Row 15, Column 66
Row 7, Column 68
Row 3, Column 78
Row 17, Column 85
Row 15, Column 86

Steam Generator No. 23

Row 3, Column 1
Row 3, Column 19
Row 40, Column 26
Row 23, Column 27
Row 6, Column 28
Row 15, Column 28
Row 24, Column 28
Row 2, Column 29
Row 8, Column 29
Row 26, Column 29
Row 15, Column 30
Row 41, Column 30
Row 7, Column 33
Row 27, Column 34
Row 7, Column 36
Row 10, Column 36
Row 15, Column 36
Row 8, Column 38
Row 10, Column 38
Row 7, Column 40
Row 11, Column 41

Row 34, Column 41
Row 5, Column 42
Row 11, Column 44
Row 4, Column 46
Row 14, Column 46
Row 10, Column 47
Row 14, Column 47
Row 12, Column 48
Row 4, Column 51
Row 11, Column 51
Row 4, Column 52
Row 21, Column 52
Row 16, Column 55
Row 17, Column 57
Row 16, Column 59
Row 23, Column 60
Row 3, Column 61
Row 11, Column 61
Row 11, Column 61
Row 17, Column 62
Row 12, Column 63

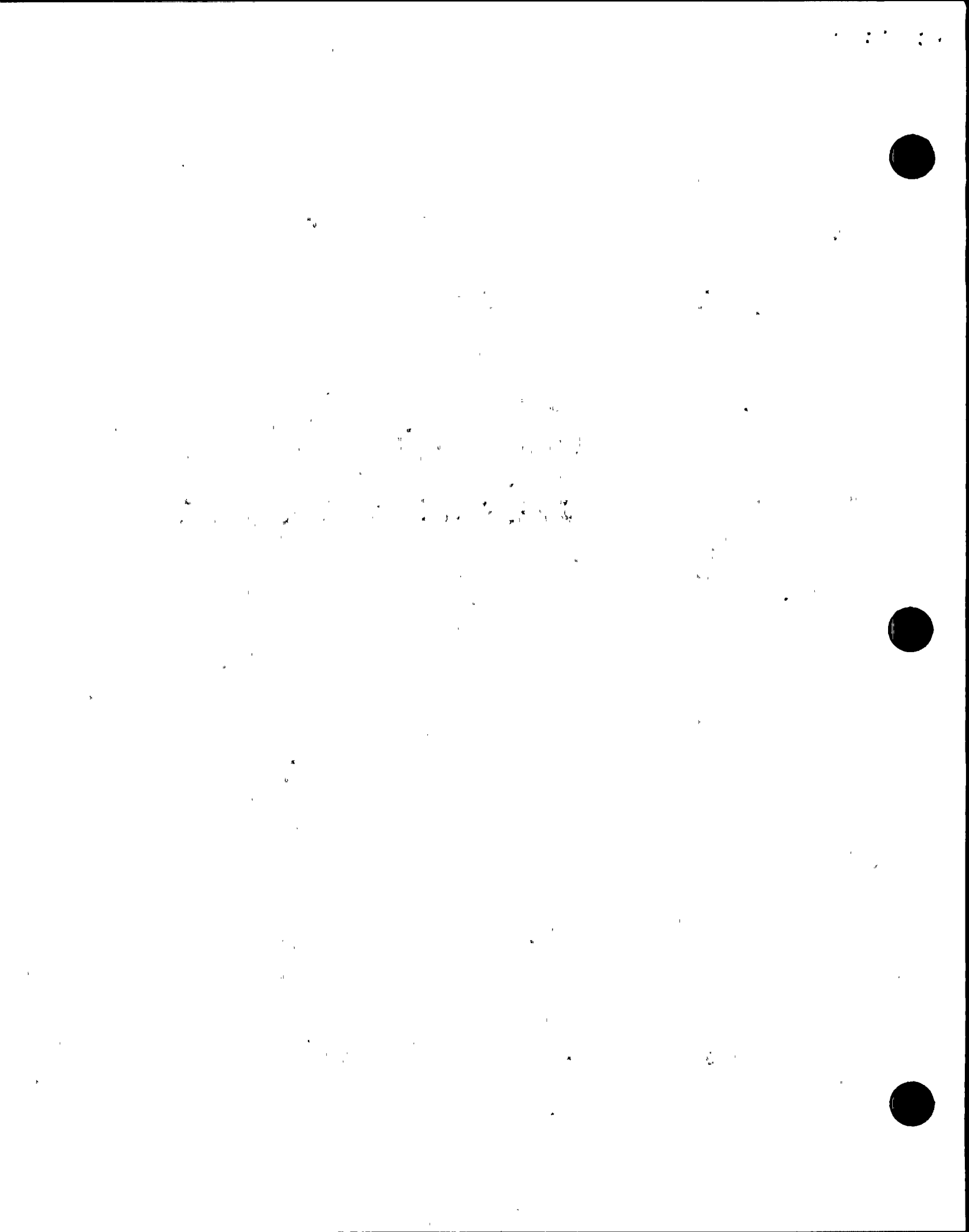
Row 17, Column 63
Row 19, Column 63
Row 20, Column 63
Row 14, Column 64
Row 22, Column 64
Row 15, Column 65
Row 17, Column 65
Row 13, Column 66
Row 17, Column 67
Row 14, Column 68
Row 18, Column 68
Row 16, Column 69
Row 2, Column 71
Row 15, Column 71
Row 10, Column 73
Row 12, Column 73
Row 13, Column 73
Row 5, Column 76
Row 9, Column 76
Row 13, Column 79
Row 31, Column 80

Steam Generator No. 24

Row 6, Column 18
Row 22, Column 33
Row 24, Column 34
Row 29, Column 37
Row 16, Column 39
Row 20, Column 54
Row 19, Column 57
Row 23, Column 57
Row 6, Column 59

Row 15, Column 59
Row 22, Column 61
Row 9, Column 62
Row 15, Column 63
Row 22, Column 63
Row 14, Column 64
Row 16, Column 64
Row 20, Column 64

Row 13, Column 66
Row 20, Column 68
Row 9, Column 69
Row 24, Column 69
Row 21, Column 73
Row 23, Column 73
Row 21, Column 75
Row 14, Column 91



b. Program/Procedure Review

The inspector reviewed the following ISI procedures:

- SWRI, 1986 Inservice Examination Plan for selected components of the Donald C. Cook Nuclear Plant, Unit 2.
- SWRI, Recording Indications from Ligaments, Bolting, Piping and Vessel Weld Examinations, IX-FE-117-4, Revision 4, CS-1
- SWRI, Measuring and Recording Search Unit Data during Ultrasonic Exams of Pressure Vessel Welds, IX-FE-119-0, Revision 0
- SWRI, Onsite NDE Records Control, X-FE-101-3, Revision 3
- SWRI, Control of Nuclear Inspection Equipment and Materials, XIII-AG-101-2, Revision 2
- SWRI, Data Storage and Retrieval, XVII-AG-101-1, Revision 1, CS-2
- SWRI, Manual Ultrasonic Examination of Pressure Piping Welds, SWRI-NDT-600-3, Revision 62
- SWRI, Manual Ultrasonic Examination of Nuclear Reactor Pressure Vessel Flange Ligaments, SWRI-NDT-600-5, Revision 35, Deviation 12
- SWRI, Manual Ultrasonic Examination of Reactor Coolant Pump Flywheels, SWRI-NDT-600-6, Revision 23
- SWRI, Manual Ultrasonic Examination of Vessel-to-Nozzle Inner Radius Sections, SWRI-NDT-600-11, Revision 40, Deviation 7
- SWRI, Manual Ultrasonic Examination of Pressure Vessel Welds, SWRI-NDT-600-15, Revision 57, Deviation 12
- SWRI, Manual Ultrasonic Examination of Pressure Vessel Welds, SWRI-NDT-600-15, Revision 63
- SWRI, Manual Ultrasonic Examination of Pressure Retaining Studs and Bolts 2" or Greater in Diameter Containing Access Holes, SWRI-NDT-600-18, Revision 37
- SWRI, Manual Ultrasonic Examination of Pressure Retaining Round Nuts Two Inches or Greater in Diameter, SWRI-NDT-600-19, Revision 31
- SWRI, Manual Ultrasonic Examination of Thin Wall Vessel Welds, SWRI-NDT-600-26, Revision 5

- SWRI, Manual Ultrasonic Examination of Pressure Retaining Welds in Heat Exchangers, SWRI-NDT-600-30, Revision 17
- SWRI, Manual Ultrasonic Examination of Pressure Vessel Welds Greater Than 0.4 Inches and Less Than 2.5 Inches in Thickness, SWRI-NDT-600-33, Revision 7, Deviation 6
- SWRI, Manual Ultrasonic Examination of Small Diameter Piping Welds, SWRI-NDT-600-39, Revision 5
- SWRI, Special Procedure for Manual Ultrasonics Examination of Austenitic Components with High Acoustic Attenuation Properties, SWRI-NDT-800-17, Revision 27, Deviation 5
- SWRI, Manual Ultrasonic Examination of Thin Wall Piping Welds, SWRI-NDT-800-36, Revision 31
- W, Hands-On Lower Hard Roll Tool, AEA-327(81), Revision 4
- W, Control of Field Service Activities, OPR-610-3, Revision 3
- W, Post-Activity Sign-Off for Area Cleanliness, MRS 2.2.2 Gen-6, Revision 7
- W, Steam Generator Tube Sheet Marking, MRS 2.2.2 Gen-12, Revision 2
- W, Mechanical Plugging of Steam Generator Tubing and Tube Holes, MRS 2.3.2 Gen-13, Revision 8
- W, Digital Multi-Frequency Eddy Current Inspection of Preservice and Inservice Heat Exchanger Tubing, MRS 2.4.2 Gen-28, Revision 1
- W, SM-10W Operating Procedure, MRS 2.4.2 Gen-30, Revision 0
- I&M, Liquid Penetrant Examination for Nuclear and Non-Nuclear Welds and Components, 12 QHP 50.50 NDE.001, Revision 6
- I&M, QC Visual Weld Examination, 12 QHP 7091 NDE.001, Revision 0
- I&M, Visual Examination VT-1, VT-3, and VT-4, 12 QHP 7091 NDE.003, Revision 0
- I&M, Magnetic Particle Examination Procedure for Nuclear, Non-Nuclear and Structural Materials Using Prods, Longitudinal, Circular and Yoke Methods, 12 QHP 5050 NDE.002, Revision 4
- I&M, Magnaflux Quality Services Test and Inspection Procedure 20.A.1 - Summer 1982 - Radiographic Examination of Welds, 12 QHP 5050.SP.002, Revision 0

No violations or deviations were identified.

c. Material and Equipment Certification

The NRC inspector reviewed the certification documents relative to the following items:

- Ultrasonic Instruments, Calibration Blocks, Transducers and Couplant
- Liquid Penetrant Materials and Equipment
- Magnetic Particle Materials and Equipment
- Eddy Current Equipment

No violations or deviations were identified.

d. NDE Personnel Certifications and Observation of Work Activities

The NRC inspector reviewed NDE personnel certifications in accordance with SNT-TC-1A

The NRC inspector also observed the work and had discussions with personnel during the following examinations:

- Eddy Current Examinations of Steam Generators 21 and 22 in accordance with W Procedure No. MRS 2.4.2 Gen-28, Revision 1, "Digital Multi-frequency Eddy Current Inspection of Preservice and Inservice Heat Exchanger Tubing"
- Ultrasonic Calibration for the Pressurizer Nozzle-to-Lower Head Weld No. 14"-2-RC-21, in accordance with SWRI Procedure No. 600-15, Revision 57, Deviation 12, "Manual Ultrasonic Examination of Pressure Vessel Welds"
- Liquid Penetrant Examination of Field Welds 2, 7, and 20, 4" CVCS line in the West Pump Charging Room, in accordance with I&M Procedure No. 12 QHP 50.50 NDE.001, Revision 6, "Liquid Penetrant Examination for Nuclear and Non-nuclear Welds and Components"

No violations or deviations were identified.

e. Data Review

The NRC inspector reviewed report documentation relative to the following:

- Ultrasonic Examinations
- Liquid Penetrant Examinations

- Magnetic Particle Examinations
- Eddy Current Examinations
- Steam Generator No. 24 Feedwater Ring J-Tube Examination Report (UT&VT)
- Radiographic Examination

No violations or deviations were identified.

4. Chemical and Volume Control System (CVCS) Modification - Unit 2

a. General

This constitutes the final phase of the CVCS modification which was begun in Unit 1 and covered in NRC Report No. 50-315/85015. The modification to the CVCS was undertaken as a result of commitments made to the NRC, to insure reactor reactivity control and coolant makeup control in the event of fire.

The modification provides a permanent inter-unit CVCS cross-tie line at the discharge header of the centrifugal charging pumps. During a design base accident the charging pumps are used for safe shutdown. The cross-tie will provide for using the charging pumps from the unit unaffected by a hypothetical fire for alternative safe shutdown.

The cross-tie line consists of four inch piping with manually operated valves and local flow indication. A four inch branch line connects the cross-tie to the inlet of each unit's BIT tank, and a three inch cross connection is made to the RCP seal injection path.

b. Review of Procedures

The inspector reviewed the following procedures that were used to accomplish this modification:

- CIMCO, General Welding Requirements, SP-4200-500(N), Revision 4
- CIMCO, Welding Procedure Specification (WPS), SS(N)-1020 for P8-T-F6-A8, Revision 2
- MX, Radiographic Examination of Welds, General Requirements, 20.A.100, Winter 1983, Revision 1
- MX, Radiographic Examination of Welds, 20.A.131, 1983 Edition, Revision 0
- I&M, Visual Examination - VT1, VT3, and VT4, 12 QHP 7901 NDE.003, Revision 0
- I&M, Magnetic Particle Examination Procedure for Nuclear, Non-nuclear, and Structural Materials Using Prods, Longitudinal, Circular and Yoke Methods, 12 QHP 5050 NDE.002, Revision 4

- ♦ I&M, Liquid Penetrant Examination for Nuclear and Non-nuclear Welds and components, 12 QHP 5050 NDE.001, Revision 6

No violations or deviations were identified.

c. Data Review

The inspector reviewed report documentation relative to the following:

- ♦ Weld Examination and Acceptance Records

No violations or deviations were identified.

5. Exit Interview

The inspector met with site representatives (denoted in Persons Contacted paragraph) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection noted in this report. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.