

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-244/91-20

Docket No. 50-244

License No. DRP-18

Licensee: Rochester Gas & Electric Corporation
89 East Avenue
Rochester, New York 14649

Facility Name: R. E. Ginna Nuclear Power Plant

Inspection At: Ontario, New York

Inspection Conducted: August 26-30, 1991

Inspectors: Robert A. McBrearty
R. A. McBrearty, Reactor Engineer

Sept. 18, 1991
date

Approved by: E. H. Gray
E. H. Gray, Chief, Materials Section,
EB, DRS

9/24/91
date

Inspection Summary: Inspection on August 26-30, 1991 (Report No. 50-244/91-20)

Areas Inspected: A routine, announced inspection was conducted of the licensee's inservice inspection program, the steam generator tube eddy current examination program and associated activities, and the balance of plant erosion/corrosion program. The inspection was conducted to ascertain whether the programs conformed to applicable requirements and whether the activities were performed in a way that confirms the plant's acceptability to return to operation.

Results: The licensee's ISI program and its steam generator inspection programs are approved by the NRC and are being implemented in compliance with applicable code and regulatory requirements. Examination personnel are properly certified to the appropriate level of competence and additionally, eddy current examination personnel are required to successfully complete a site specific training and qualification program. A concern was identified regarding the tracking of open wall thickness reports documenting unacceptable conditions.

DETAILS

1. Secondary Side Erosion/Corrosion (E/C) Examination Program (92703)

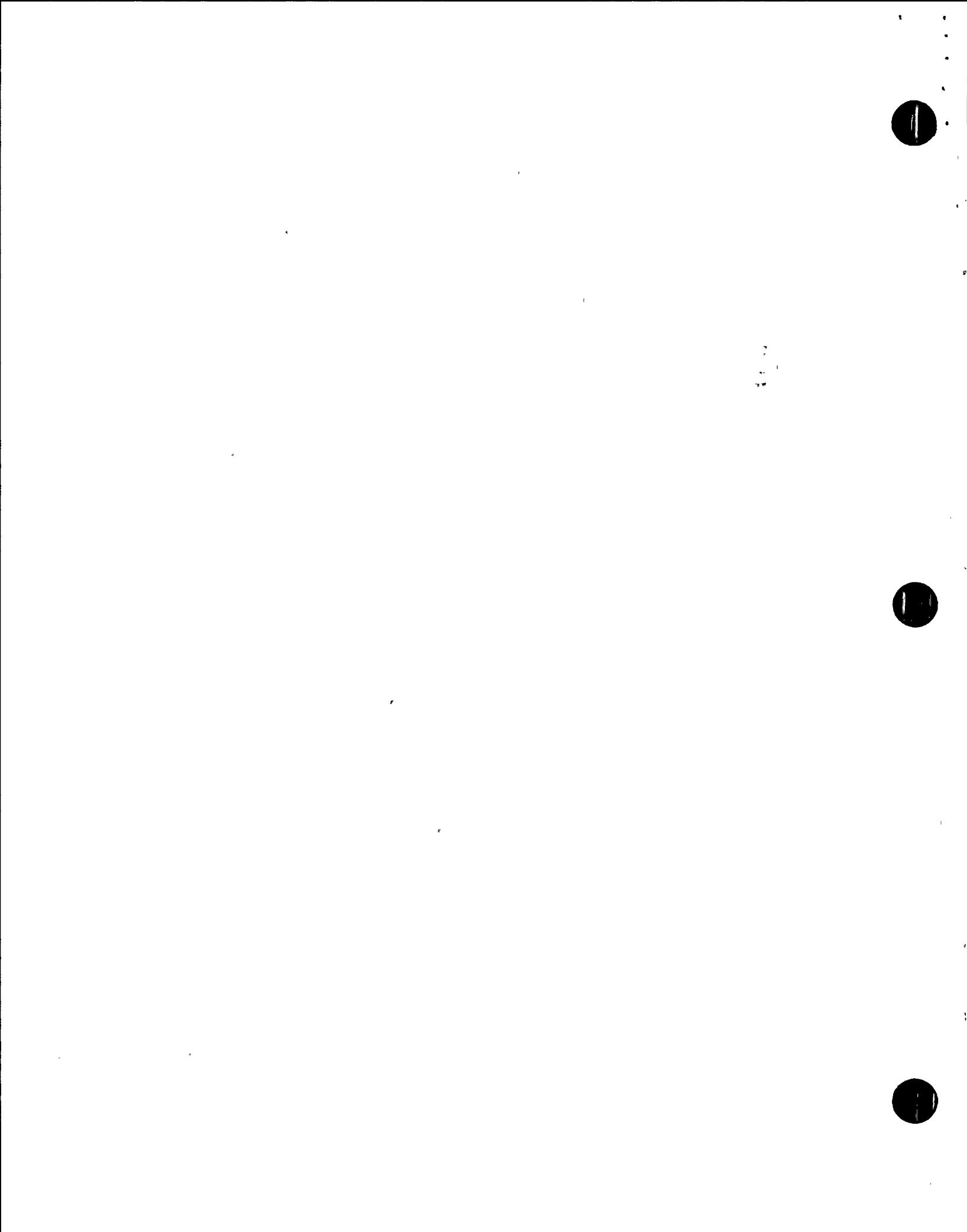
Concerns regarding erosion and corrosion in balance of plant (non-nuclear) piping systems have increased as a result of the December 9, 1986 feedwater line rupture that occurred at Surry Unit 2. This event was the subject of NRC Information Notices 86-106 (including supplements 1, 2 and 3, 87-36, 88-17, Bulletin 87-01 and Generic Letter (GL) 89-08. The GL requires that all licensees provide assurances that a program, consisting of systematic measures to ensure that E/C does not lead to a degradation of single and two phase high energy carbon steel systems has been implemented.

The inspector reviewed the licensee's actions with regard to the detection of erosion/corrosion in plant components. The inspection was performed to ascertain the scope of the licensee's program and the results of the latest examinations at the plant.

The licensee has been performing pipe wall inspections and collecting wall thinning data for more than 10 years. A formalized program was established as a result of the NRC Bulletin and Generic Letter, and is based on historical plant component inspection data, industry experience, general guidelines of the NUMARC Working Group on Piping Erosion/Corrosion Summary Report as recommended in NUREG-1344, and Electric Power Research Institute (EPRI) recommendations. A computer data base system (MINWALL) has been in place for approximately 5 years for the organization, tracking, reporting and storage of component test data results. The Erosion/Corrosion Management Project Team was established to ensure program implementation.

The plant inspection data, industry experience and engineering judgement, in addition to the EPRI developed computer programs CHEC and CHECMATE were used to determine component selection, trending, scheduling and analytical evaluation. The following systems are included in the E/C program:

- Condensate
- Feedwater
- Main Steam
- Moisture Separation Reheater Piping
- Extraction Steam
- Gland Seal/Pump Seal
- Steam Generator Blowdown
- Turbine Crossunder



A total of 202 components were examined during the 1991 refueling outage. The inspections resulted in the replacement of 2 components and the repair of 5 components.

Erosion/Corrosion inspection results are documented on Erosion/Corrosion Wall Thickness Report forms which are used as the closeout mechanism for each component. Materials Engineering & Inspection Services personnel perform the inspections and document the results. The Mechanical Engineering group provide a wall thickness "threshold" value which, if violated, requires evaluation and disposition by the Mechanical Engineering group. The threshold value is the minimum wall thickness at which the component will remain acceptable until the next scheduled outage based on the calculated rate of E/C for the particular component. The thickness reports are tracked until closeout, but a listing of open reports is not published. The inspector identified no instances where a defective component was not returned to an acceptable condition prior to plant startup as a result of not tracking open thickness reports, but discussed with the licensee that possibility. At the exit meeting the inspector suggested that the list of open wall thickness reports documenting unacceptable conditions be published periodically during outages and provided to the proper level of management to preclude the inadvertent startup of the plant with defective components in place. The licensee acknowledged the inspector's concern and agreed to review the report process.

Conclusions

Rochester Gas & Electric Corporation has an effective program for erosion/corrosion examinations of plant components which is based on more than 10 years of plant historical data, and NRC and industry recommendations. An apparent weakness involving the tracking and publishing of open wall thickness reports will be reviewed by the licensee.

2. Inservice Inspection (ISI) Program (73753)

An inservice inspection is essential to protect public health and safety in that it assures leak tightness of the reactor coolant system pressure boundary.

The facility is presently in its third ten-year inspection interval which is scheduled to continue until December 31, 1999. The applicable code for the interval is the 1986 Edition of the ASME Boiler and Pressure Vessel Code Section XI, with no Addenda.

By letters dated July 21, 1989 and January 16, 1990, the licensee submitted to the NRC its third 10-Year Inspection Interval ISI Program Plan including requests for relief from certain code requirements. The August 6, 1990 Safety Evaluation Report (SER) from the NRC stated that the staff determined that the program is in compliance with 10 CFR 50.55a

and is therefore acceptable. The SER, additionally, granted certain of the relief requests including request No. 3 which involved the use of an authorized inspection agency to provide inspection services. The licensee stated that the Ginna Quality Assurance Program provides equivalent control and requested that the QA Program be used in lieu of Code administrative functions. The licensee further stated that personnel of the Hartford Steam Boiler Inspection and Insurance Company will perform the functions of the Authorized Nuclear Inservice Inspector during the annual outages at Ginna. The licensee has excluded the use of NIS forms as required by IWA-7520(a)(8) of ASME Section XI, but includes in its 90 day report pertinent information from the NIS-1 and NIS-2 forms and a statement of certification similar to that included on the forms. Additionally, the Hartford Steam Boiler ANII signs the 90 day report to document his review of the document.

The facility completed the second refueling outage of the interval in May 1991 and upon completion, 21% of the examinations required for the third interval were completed. The Inservice Inspection Report for the second outage 1991 includes the Certificate of Inservice Inspection signed by the ANII dated August 6, 1991.

3. Steam Generator Tube Eddy Current Examination (73753)

The steam generator tubing examination plan for the third 10-year inspection interval is divided into two 5 year plans. The purpose is to provide a systematic examination plan which will assure that each tube of the Ginna steam generator is examined for its full length at least once every five years. The plan incorporates the requirements of the current revision of Appendix B, "Ginna Station Inservice Inspection Program for the 1990-1999 Interval"; of the Ginna Quality Assurance Manual, as required by the facility Technical Specification 4.2.1. Additionally, provisions of NRC Regulatory Guide 1.83, Revision 1 and recommendations of the Electric Power Research Institute PWR Steam Generator Inspection Guidelines, Revision 2 are included in the plan.

The Appendix B program identifies the minimum examination sample, acceptance criteria and the schedule of eddy current examinations required to be performed during the ten year interval.

The inspector reviewed the program requirements and the Summary Examination Report for the 1991 Steam Generator Eddy Current Inspection at R. E. Ginna Nuclear Power Station, Revision 0, dated April 25, 1991, to ascertain that the requirements regarding the minimum examination sample were complied with and that the examination results were clearly documented. Additionally, the examination personnel qualification/certification records were inspected to ascertain that each individual was properly certified to the appropriate level of expertise commensurate with his assigned duties.

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The steam generator tube eddy current examination at Ginna was performed to assess any corrosion or mechanical damage that may have occurred during the cycle since the 1990 examination. The examination was performed by licensee personnel and personnel from Allen Nuclear Associates, Inc. (ANA), the licensee's contractor. All data acquisition personnel, in addition to the certification required by the ASME Code, were trained and qualified to the site specific procedures. All data analysts were trained and qualified to the site specific "Steam Generator Data Analysis Guidelines - RG&E Ginna Station". The analysis guidelines were prepared in accordance with Revision 2 of the Electric Power Research Institute "PWR Steam Generator Inspection Guidelines".

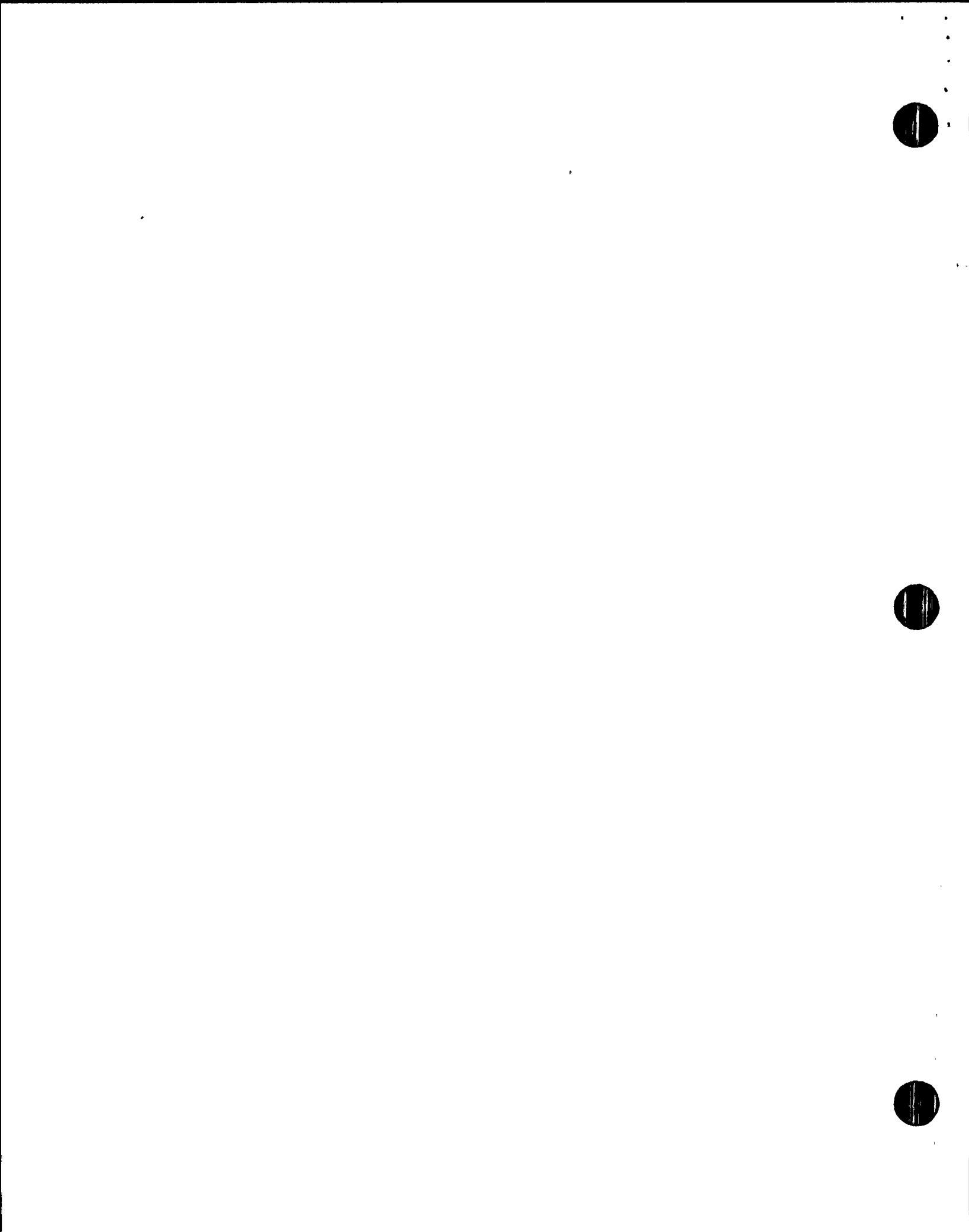
Data analysis was performed by two independent teams using the Zetec Digital Data Analysis System, and the results were compared for discrepancies using the ISIS-TUBE computerized data management system. Discrepancies were resolved by the Level III resolution team. In addition to discrepancies, all tubes requiring repair, whether reported by one or both teams, were reviewed by the resolution team (usually consisting of two Level III individuals). In all cases, the removal of a repairable indication from the data base required the concurrence of two Level III individuals.

The Summary Examination Report confirmed that program requirements were complied with. The inspection results follow.

Steam Generator Status Prior to the 1991 Outage

Steam Generator

	<u>A</u>	<u>B</u>
Total Tubes	3260	3260
Plugged Tubes (Out of Service)	172	316
Sleeved Tubes	223	832
Unsleeved Tubes - In Service	2865	2112

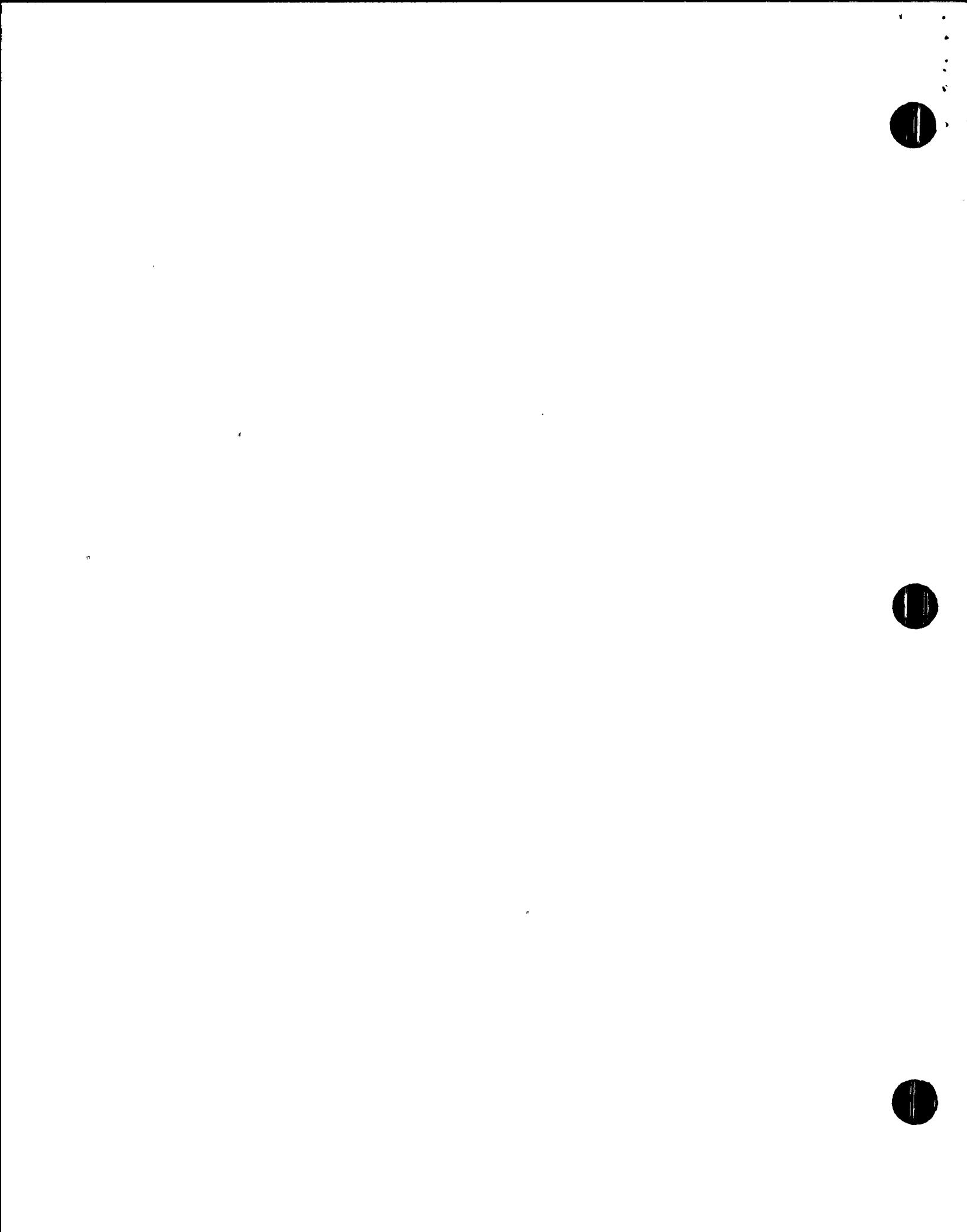


Scope of Inspection - 1991 Outage

<u>Inspect. Item</u>	<u>Required Minimum</u>		<u>Number Scheduled</u>		<u>Number Inspected</u>		<u>% of Min Inspected</u>	
	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>
Hot Leg to 1st Support Plate	1852	1267	1852	1267	1852	1267	100%	100%
Full Length - 20% Random Sample	573	423	986	825	986	825	172%	195%
Tubes With Previous Indications (> 20%)	27	20	27	20	27	20	100%	100%
Sleeved Tubes	45	167	56	231	56	230	124%	137.7%
Deplugged Tubes (F/L)	24	16	24	16	24	16	100%	100%

Results of 1991 Eddy Current Tube InspectionSteam Generator

	<u>A</u>	<u>B</u>
Tubes Plugged	14	9
Tubes Sleeved	80	93
Deplugged-Returned to Service With Sleeve	22	15
Sleeves Plugged	1	2



Steam Generator Status After 1991 Outage

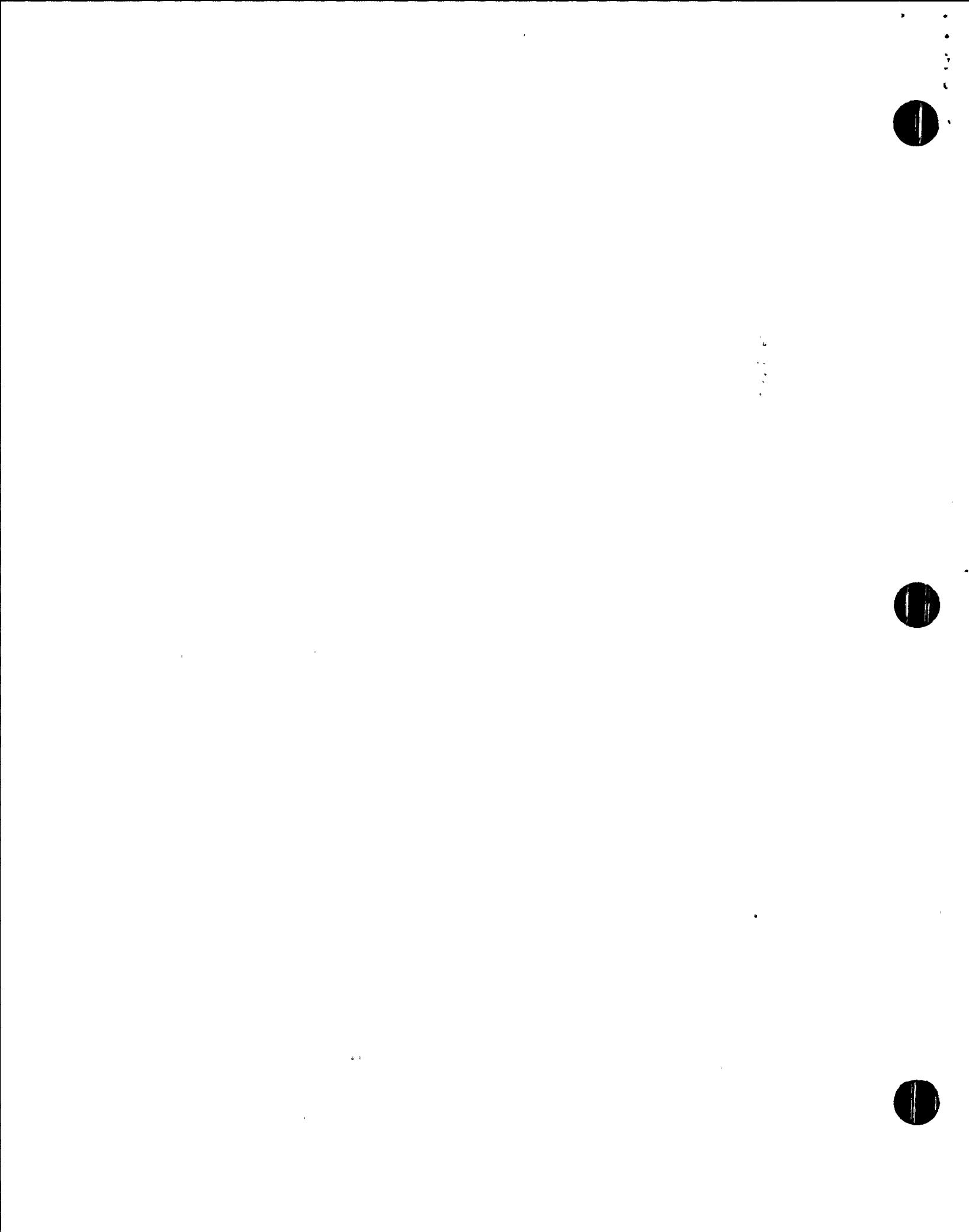
	<u>Steam Generator</u>	
	<u>A</u>	<u>B</u>
Total Tubes	3260	3260
Plugged Tubes (Out of Service)	190	326
Sleeved Tubes	324	938
Unsleeved Tubes - In Service	2746	1996

Conclusion

The steam generator tube eddy current examination program is effective for detecting defects that degrade steam generator operation. The Rochester Gas & Electric Corporation aggressively implements the program as evidenced by the 1991 inspection scope which included more than the minimum number of tubes required by the 10 year program plan. The specific training and qualification program to which examination personnel are subjected prior to acquiring or analyzing data at Ginna is further evidence of the licensee's intent to maintain the steam generators in a safe condition.

4. Exit Meeting

The inspector met with licensee representatives, (denoted in Attachment 1) at the conclusion of the inspection on August 30, 1991. The inspector summarized the scope and findings of the inspection.



ATTACHMENT 1

Persons Contacted

Rochester Gas & Electric Corporation

*S. Adams, Technical Manager
B. Carrick, Lead Mechanical Engineer
*N. L. Goodenough, Maintenance Corrective Action Analyst
P. J. Gorski, Manager, Mechanical Maintenance
*M. P. Lilley, Nuclear Assurance Manager
T. A. Marlow, Superintendent - Ginna
*W. L. McCoy, Department Manager - Quality Performance
*K. Muller, Nuclear Engineering Services
L. Smith, Manager, Materials Engineering and Inspection Services
*M. Smith, Steam Generator Maintenance
J. T. St. Martin, Corrective Action Coordinator
K. Wachter, Engineering Assistant - NDE - Materials Engineering and
Inspection Services
*J. A. Widay, Plant Manager

U.S. Nuclear Regulatory Commission

*P. Sena, Acting Senior Resident Inspector

* Denotes those present at the exit meeting.