

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT NO. 50-244/94-04
LICENSE NO. DPR-18
LICENSEE: Rochester Gas and Electric Corporation
89 East Avenue
Rochester, New York 14649
FACILITY NAME: R. E. Ginna Station
INSPECTION AT: Ontario, New York
INSPECTION CONDUCTED: February 7 - 11, 1994 and March 21 - 25, 1994

NRC PERSONNEL:

P. Patnaik
P. Patnaik, Reactor Engineer
Materials Section, EB, DRS

4-7-94

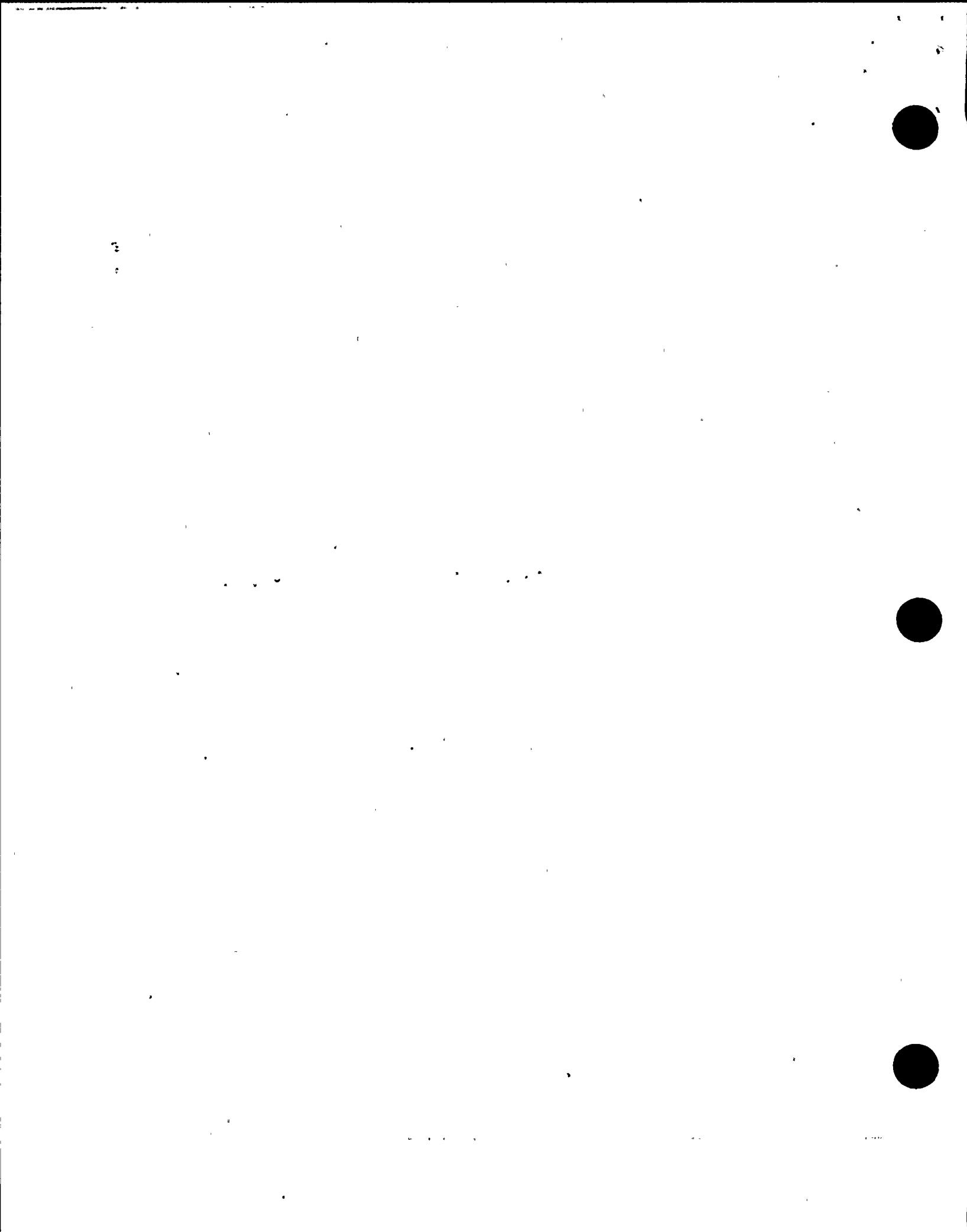
Date

APPROVED BY:

M. Modes, Chief
Materials Section, EB, DRS

4/7/94

Date



Areas Inspected: A review was conducted of the inservice inspection (ISI) program, scope of ISI work, eddy current examination program for steam generator tubes, and steam generator primary-to-secondary leakage monitoring program.

Results: The ISI program, during the March 1994 outage, complied with the ASME Code, Section XI, 1986 Edition, and the regulatory requirements. The eddy current examination of steam generator tubes exceeded the requirements of the technical specifications. The evaluation of eddy current examination data was conservative. A review of the steam generator primary-to-secondary leakage monitoring program was found to be satisfactory.

DETAILS

1.0 INSERVICE INSPECTION (ISI) (73753)

1.1 Scope

The conduct of inservice inspection using ultrasonic, magnetic particle, and liquid penetrant examination ensures integrity of the pressure boundary. During this inspection, reviews of the ten-year ISI plan, the scope of work for the outage, a sampling of inservice inspection data, steam generator tube examination, performance qualification for steam generator tube plugs, steam generator leakage monitoring program, and observation of work activities in the non-destructive examination area, were performed.

1.2 Findings

Rochester Gas and Electric Company (RG&E), the licensee for Ginna Station, conducted an inservice inspection during the 1994 refueling outage of the unit, in accordance with the American Society of Mechanical Engineers (ASME) Code, Section XI, 1986 Edition. The unit is in the second inspection period of the third inspection interval, and the ongoing outage is the second outage of the inspection period. The inspector reviewed selected portions of the ten-year ISI plan for Class 1, 2, and 3 components and the relief requests to the NRC pertaining to the inservice inspection. The inspector found that the licensee's basis for the relief requests was justified. Within the scope of the review limits of the ten-year plan, the inspector did not find any discrepancy.

The scope of inservice inspection work for the outage was reviewed. The components listed in the work scope were identifiable from the ten-year plan. The examination requirement for each component complied with that of the applicable ASME Code, Section XI requirements. The percentage of welds examined by the end of the second period also met the specified percentage of the 1986 ASME Code, Section XI. The inspector performed surveillance of the storage area for the ultrasonic calibration blocks. The storage facility appeared to be adequate. The general condition of the calibration blocks, with regard to corrosion, is good. The inspector observed the following activities related to non-destructive examination:

- Calibration of ultrasonic equipment for examination of reactor vessel-flange-to-shell weld conducted in accordance with ultrasonic examination procedure NDE-UT-600-33, Revision 0.
- Ultrasonic examination and data evaluation of reactor vessel studs performed in accordance with procedure NDE-UT-600-28, Revision 1.
- Review of radiographs on the following main steam, feedwater, component cooling, and service water piping welds.

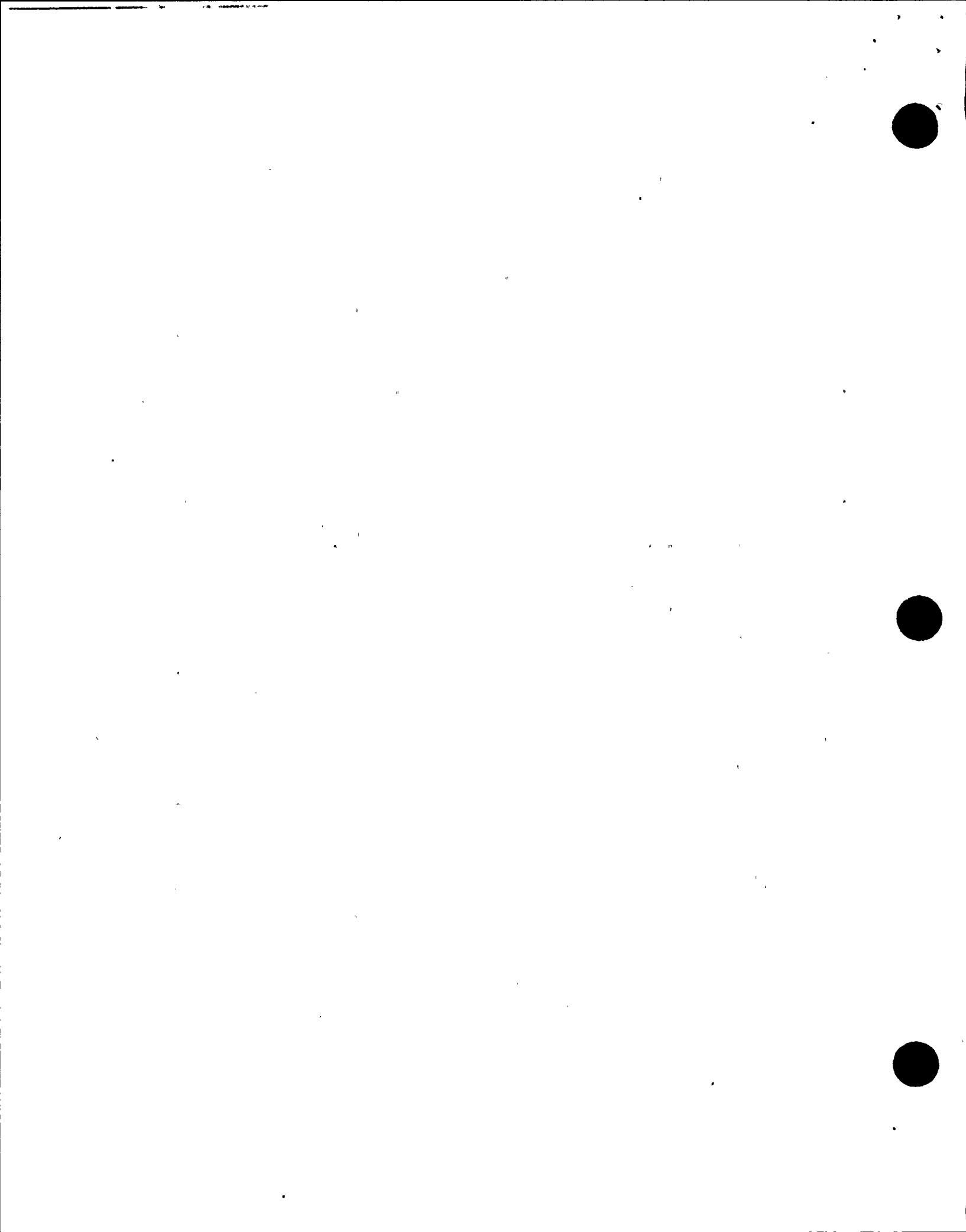
SYSTEM AND COMPONENT	IDENTIFICATION OF WELD
Main steam piping	30A-MS-600-1A-F1 and 30B-MS-600-1B-J1
Feedwater piping	14B-FW-900-1B-N1
Component cooling water system valves	V-723A, weld #1 and V-723B, weld #5
Service water system valves	V4601, weld #2, V4602, weld #4 V4734, weld #2, and V4735, weld #2

The radiographs were of good quality and the licensee's interpretation of the radiographs was satisfactory.

- Review of a video tape on internal visual examination of service water piping by use of a "crawler" inside the pipe. The resolution of indications was excellent. The examination did not identify any deleterious condition of the cement lining inside the piping system.
- Witnessed ultrasonic thickness measurement of a main steam pipe spool at a counterbore. The thickness of the pipe exceeded the minimum wall thickness required by the design.

2.0 EDDY CURRENT EXAMINATION OF STEAM GENERATOR (SG) TUBES

The licensee conducted eddy current examination of steam generators A and B, in accordance with the following program:

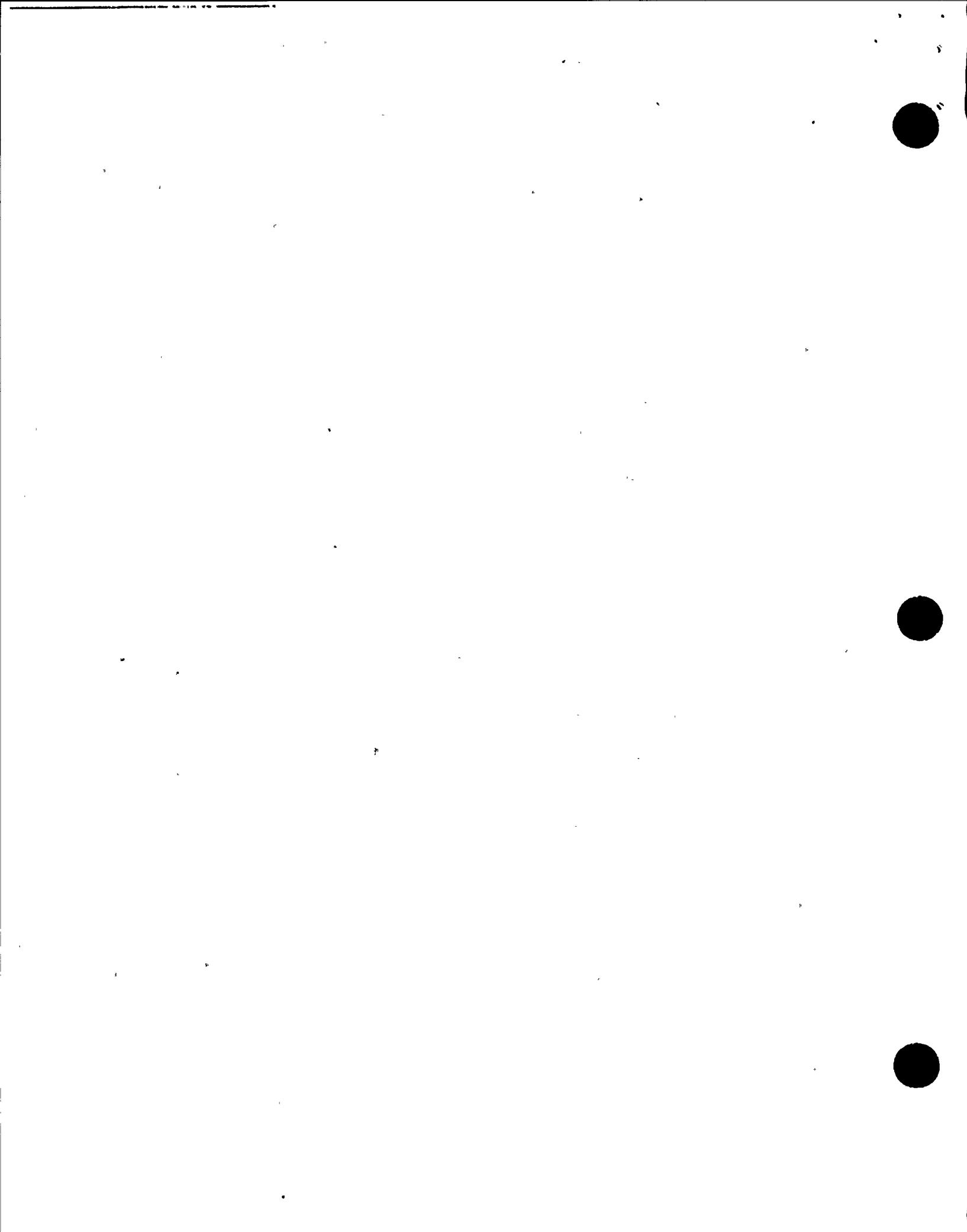


INSPECTION PROGRAM	NUMBER OF TUBES EXAMINED IN "A" S/G	NUMBER OF TUBES EXAMINED IN "B" S/G
Hot leg examination using bobbin coil	2398	1691
Hot leg plugs and sleeves using bobbin coil and rotating pancake coil (RPC)	164	290
Hot leg roll transition using RPC	2398	1691
Dented and non-dented intersections using RPC	35	38
Cold leg examination using bobbin coil	646	627
Cold leg plugs and dented intersection at sixth support using RPC	37	37
Rows 1 and 2 U-bends using RPC	161	139

As a result of the examination, 47 tubes were plugged, 117 tubes were sleeved in "A" steam generator, and 31 tubes were plugged. 103 tubes were sleeved in "B" steam generator.

The sleeving of the tubes was performed within the tube sheet with kinetically (explosively) welded sleeves. The sleeves were made of thermally treated nickel Alloy 690. The inspector reviewed the analyses and testing of the kinetically welded sleeves to verify the adequacy to all relevant design, functional, and performance criteria. The inspector also reviewed the critical parameters for acceptance of kinetically welded sleeves inside the tube sheet. Following sleeving operation, profilometry was done to determine the expansion of the sleeve into the tube sheet. The profilometry data, reviewed on a sample of sleeves, were acceptable.

During the inspection, a detailed review of performance qualification of mechanical plugs used in Ginna steam generators was conducted. It was concluded from the qualification, that the plugs, properly installed, will withstand design loading and provide a leak-tight pressure boundary.



The licensee's data evaluation personnel used a site-specific data analysis guideline, which addressed various examinations and methods of evaluation of examination data. All data acquisition personnel were certified to ASNT Level I or better, and all data analysis personnel were certified to at least ASNT Level II or IIA.

3.0 STEAM GENERATOR PRIMARY-TO-SECONDARY LEAKAGE MONITORING PROGRAM

The licensee has a chemistry sampling program to detect primary-to-secondary leakage across steam generator tubes in order to facilitate an orderly plant shutdown prior to a tube rupture. The administrative limit of 0.1 gpm primary-to-secondary leakage to initiate a hot shutdown is acceptable. The alarm setpoints for condenser air ejector monitors and the response to the alarms are appropriate. The determination of primary-to-secondary leak rate and the radioactivity release rate from the secondary system is based on acceptable methodology used in the industry. The inspector checked the calibration of all radiation monitors, such as the condenser air ejector monitors (R-15, R-15A) and blowdown monitors (R-19) that are used for detection of primary-to-secondary leakage, and found these to be within the calibration due date.

4.0 CONCLUSION

The inservice inspection program, during the March 1994 outage of Ginna, was found to be in compliance with the ASME Code, Section XI, 1986 Edition, and the regulatory requirements. The eddy current examination of steam generator tubes exceeded the requirements of the technical specifications. The evaluation of eddy current examination data appeared to be conservative. The sleeving operation for tubes with indications was conducted in accordance with procedures that set critical parameters for acceptance. The licensee exercised good control over inservice inspection activities and demonstrated excellent NDE capabilities. A review of the steam generator leakage monitoring program was found to be satisfactory.

5.0 ENTRANCE AND EXIT MEETINGS

Members of the licensee's management and engineering staff were informed of the scope and the purpose of the inspection at the entrance meeting, which took place on February 7, 1994. The findings of the inspection were presented to and discussed with members of the licensee's management at the exit meeting conducted at the end of a second visit to the site on March 25, 1994. The licensee concurred with the findings of the inspection. A list of attendees of the exit meeting on March 25, 1994, is attached to this report as Attachment 1.

ATTACHMENT 1**ATTENDEES****NRC EXIT MEETING ON MARCH 25, 1994****Rochester Gas and Electric Corporation**

S. Adams	Superintendent, Support Services
M. Davison	Engineering Assistant, NDE
G. Geiken	Supervisor, Materials and Engineering
F. Klepacki	ISI Engineer
P. Lewis	Sr. Engineering Assistant, NDE
T. Newberry	Lead Mechanical Engineer
M. Saporito	Manager, Materials, Engineering and Inspection Services
F. Schaaf	Sr. ISI Engineer

U.S. Nuclear Regulatory Commission

R. Fernandes	Reactor Engineer, DRS
T. Moslak	Senior Resident Inspector
P. Patnaik	Reactor Engineer, DRS