QUALITY ASSURANCE MANUAL GINNA STATION	---	REV. 7	PAGE 1 OF 22
ROCHESTER GAS & ELECTRIC CORPORATION	EFFECTIVE DATE: January 1, 1984		
TITLE: APPENDIX B Ginna Station Inservice Inspection Program For the 1980-1989 Interval		SIGNATURE	DATE
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INTRODUCTION

Appendix B of this Quality Assurance Manual describes Ginna's Inservice Inspection Program for the 120 month inspection interval commencing January 1, 1980 and ending December 31, 1989. Included in this program are the following portions of systems and/or components:

- Quality Group A Components
- Quality Group B Components
- Quality Group C Components
- High Energy Piping Outside of Containment
- Steam Generator Tubing
- Reactor Coolant Pump Flywheels

Following the guidance of Reference 1, Section XI of the Code, Ginna's Inservice Inspection Program adheres to the requirements of Section 50.55a of the Code of Federal Regulations, Reference 2. This program, however, excludes the controls of the Authorized Nuclear Inspector, Enforcement Authority, Reporting Systems, and N-Stamp Symbol.

The Inservice Inspection Program for Quality Groups A, B and C components, as defined in Regulatory Guide 1.26, Reference 3, is controlled by Ginna's Quality Assurance Program for Station Operation. This same program which is also in compliance with the referenced Section XI, provides the most acceptable guidelines and latest techniques currently being utilized in the performance of an inservice inspection.

Repairs to Quality Groups A, B and C components shall be performed in accordance with the Owner's Design Specification and Construction Code of the component or system. Later editions of the Construction Code or ASME Section III, either in its entirety or portions thereof, can also be used. If repair welding can not be performed in accordance with these requirements, then Article 4000 of Reference 11 will be used.

As indicated in Rochester Gas and Electric's report, Reference 4, and Augmented Inservice Inspection Program for high energy piping outside of containment has been established. The inspection program provides for volumetric examination on all circumferential butt welds situated at design break locations or at discontinuity locations where probable failure could occur. Surveillance of these welds

can detect material changes in advance of a potential failure, thereby assuring that the design basis or consequential main steam or feedwater break will not occur.

The Inservice Inspection Program for steam generator tubes was developed to meet the guidance of Reference 5. At regular intervals, tubes within each leg of the steam generator are examined and evaluated for acceptable tube wall thickness.

The Inservice Inspection Program for reactor coolant pump flywheels was developed to meet the guidance of Reference 12. At the intervals suggested, the reactor coolant pump flywheel will be examined by either the volumetric or surface examination method, and evaluated to the specified acceptance criteria.

Identification is given in Section 9.0 of Ginna's Inservice Inspection Program for those areas which deviate from the requirements of Reference 1. Where applicable, currently approved edition and addendas of Section XI will be utilized for clarification and guidance. It is the intent of Rochester Gas and Electric Corporation to continually apply appropriate changes in the Code which improves the overall quality of Ginna's total Inservice Inspection Program.

PROGRAM

ISI 1.0 Scope and Responsibility

1.1 Components of Quality Groups A and B are listed in Tables ISI-1.1 and 1.2, respectively. Quality Group C components are identified in Appendix A of Ginna's Quality Assurance Manual. The specific components to be examined for each Quality Group shall be defined in the Examination Plans by title and/or number.

1.2 The Inservice Inspection Program for high energy piping outside of containment consists of main steam and feedwater piping welds is detailed in the Examination Plan for High Energy Piping.

1.3 The Inservice Inspection Program for steam generator tubes, which is outlined in this program, was developed to the guidance provided in Reference 5, is detailed in Ginna's station procedures.

1.4 The Inservice Inspection Program for reactor coolant pump flywheels, which is outlined in this program, was developed to the guidance provided in Reference 12, is detailed in Ginna's station procedures.

ISI 2.0 Inspection Intervals

2.1 The inservice inspection (ISI) intervals for Quality Group A components shall be ten year intervals of service commencing January 1, 1970. This program defines the ISI requirements for the second interval for Quality Group A components. The ten year examination plan shall describe the distribution of examinations within the inspection interval in accordance with IWB-2400 of Reference 1.

2.2 The inservice inspection intervals for Quality Group B components shall be ten year intervals of service beginning on May 1, 1973, January 1, 1980, 1990 and 2000, respectively. This program defines the ISI requirements for the second interval for Quality Group B components. The ten year examination plan shall describe the distribution of examinations within the inspection interval in accordance with IWC-2400 of Reference 1.

2.3 The inservice inspection intervals for Quality Group C components shall be ten year intervals of service beginning on May 1, 1973, January 1, 1980, 1990 and 2000, respectively. This program defines the ISI requirements for the second interval Quality Group C components. The ten year examination plan shall describe the distribution of examinations within the inspection interval in accordance with IWD-2400 of Reference 1.

2.4 The inservice inspection intervals for the high energy piping outside of containment shall be ten year intervals of service beginning May 1, 1973, January 1, 1980, 1990 and 2000, respectively. The ten year examination plan shall describe the distribution of examinations within the inspection interval in accordance with the requirements of Reference 4.

2.5 The inservice inspection intervals for the examination of steam generator tubes shall not be more than 24 months. However, if over a nominal 2 year period (e.g., two normal fuel cycles) at least 2 examinations of the separate legs result in less than 10% of the tubes with detectable wall penetration (> 20%) and no significant (> 10%) further penetration of tubes with previous indications, the inspection interval of the individual legs may be extended to once every 40 months.

2.6 As permitted by IWA-2400 of Reference 1, the inservice inspection interval for Quality Groups A, B and C and high energy piping outside containment may be extended as necessary.

2.7 The inservice inspection intervals for the reactor coolant pump flywheel shall be approximately 10 year intervals of service commencing on January 1, 1970. For areas of high stress concentration at the bore and keyway, a reduced interval of approximately 3 years shall be applied. The ten year examination plan shall describe the distribution of examinations within the inspection interval in accordance with the requirements of Reference 12.

ISI 3.0 <u>Extent and Frequency</u>

3.1 Quality Group A components, as listed in Table ISI-1.1 shall be examined to the extent and frequency as required in Table IWB-2500 of Reference 1.

3.2 Quality Group B components, as listed in Table ISI-1.2, shall be examined to the extent and frequency as required in IWC-2400 and Table IWC-2500 of Reference 1.

3.3 Quality Group C components as described in the ten year examination plan shall be examined to the extent and frequency required in IWD-2400 and IWD-2600 of Reference 1.

3.4 High energy piping welds outside of containment shall be examined to the following extent and frequency:

3.4.1 During each period of the first inspection interval, all welds at design break locations and one-third of all welds at locations where a weld failure would result in unacceptable consequences, will be volumetrically examined.

3.4.2 During each period of succeeding intervals, one-third of all welds at design break locations and one-third of all welds at locations where a weld failure would result in unacceptable consequences, shall be volumetrically examined.

3.5 The extent and selection of steam generator tube examinations shall be as described in Sections C.4 and C.5 of Reference 5, with the interpretation that examination in a leg of all previously defective tubes ($\geq$ 20% detectable wall penetration) and up to a maximum of two hundred previously defect-free tubes ($<$ 20% detectable wall penetration) is deemed sufficient in meeting the requirements of Reference 5.

3.5.1 In the event a primary to secondary leak exceeds technical specification limit, a limited number of tubes shall be examined at the next refueling outage.

3.5.2 In the event of a seismic occurance greater than that for which the plant is designed to continue operation, Reference 6, a special examination of a limited number of tubes shall be conducted.

3.5.3 In the event of a major steam line or feedwater line break, or a loss-of-coolant accident (LOCA) which imposes a significant pressure transient on the steam generators and requires actuation of the engineered safe-guards, a special examination of a limited number of tubes shall be conducted.

3.6 The reactor coolant pump flywheel, listed in Table ISI-1.1, shall be examined to the extent and frequency as required in Reference 12.

ISI 4.0 Examination Methods

4.1 Quality Groups A and B components shall be examined by the required visual, surface or volumetric methods. These examinations shall include one or a combination of the following: visual, liquid penetrant, magnetic particle, ultrasonic, eddy-current or radiographic examination. These methods, shall as a minimum, be in accordance with the rules of IWA-2000 of Reference 1.

4.1.1 Ultrasonic examinations shall be performed in accordance with the following:

4.1.1.1 For ferritic vessels with wall thickness of 2-1/2 inches or greater, an ultrasonic examination shall be conducted in accordance with the rules of Appendix I of Reference 1.

4.1.1.2 For ferritic piping systems, an ultrasonic examination shall be conducted in accordance with the rules of Appendix III of Reference 7.

4.1.1.3 For components other than those listed in 4.1.1.1 and 4.1.1.2, an ultrasonic examination shall be conducted in accordance with the rules of Article 5 of Reference 8.

4.1.1.4 All indications which produce a response greater than 50% of the reference level shall be recorded.

4.1.1.5 All indications which produce a response $\geq$ 100% of the reference level shall be investigated to the extent that the operator can evaluate the shape, identity, and location of all such reflectors in terms of the acceptance/rejection standards of IWA-3100 (b) of Reference 1. The length of reflectors shall be measured between points which give amplitudes equal to 100% of the reference level.

4.2 Quality Group C components shall be visually examined for leakage during a system pressure test in accordance with IWA-2200 of Reference 11. Supports and hangers shall be visually inspected in accordance wtih IWD-2600 of Reference 1.

4.3 High energy piping welds outside of containment shall be radiographically examined.

4.4 Steam generator tubes shall be examined by a volumetric method (e.g. eddy current) or alternative method which is acceptable.

4.5 Reactor coolant pump flywheels shall be examined by the required surface and volumetric methods, in accordance with the requirements of IWA-2200 of Reference 1.

ISI 5.0 Evaluation of Examination Results

5.1 The evaluation of nondestructive examination results shall be in accordance with Article IWB-3000 of Reference 1. All reportable indications shall be subject to comparison with previous data to aid in its characterization and in determining its origin.

5.2 Quality Group B Components

5.2.1 The evaluation of nondestructive examination results shall be in accordance with Article IWC-3000 of Reference 1. All reportable indications shall be subject to comparison with previous data to aid in its characterization and in determining its origin.

5.3 Quality Group C Components

5.3.1 The evaluation of the visual examination results shall be in accordance with Article IWA-5000 of Reference 1 for hangers and supports and Reference 11 for pressure tests.

5.4 High Energy Piping

5.4.1 The evaluation of nondestructive examination results shall be in accordance with Reference 9.

5.5 Indications that were recorded in previous pre-service or inservice inspections and which were not characterized as propagating flaws are acceptable for continued service.

5.6 The evaluation of any corroded area shall be performed in accordance with Article IWA-5000 of Reference 11.

5.7 Steam Generator Tubes and Tube Sleeve Combinations

5.7.1 The evaluation of nondestructive examination results shall be as follows:

5.7.1.1 Plant operation may resume when all tubes and sleeves are within acceptable wall thickness criteria and the conditions of (a) and (b) are met:

(a) When less than 10 percent of previously defect-free tubes or sleeves examined, (i.e. $\leq$ 20% of wall penetration) have developed detectable wall penetrations of greater than 20%, and

(b) When previously degraded tubes or sleeves exhibit further wall penetration of $<$ 10%.

NOTE: An acceptable tube wall thickness is one which can sustain a LOCA in combination with a seismic occurrence, for which the plant is designed to continue operation, without a loss of function to Class 1 systems, Reference 8. Sleeves may be used to provide an acceptable tube.

5.7.1.2 If no more than 3 tubes or sleeves have unacceptable wall thickness and the criteria of 5.7.1.1 are otherwise met, plant operation may resume after corrective measures have been taken. When the above criteria are not met, the situation shall be immediately reported to the Nuclear Regulatory Commission. Plant operation may resume after corrective measures are taken. All abnormal degradation of steam generator tubes shall be reported with a Licensee Event Report (LER) in accordance with Technical Specification requirements.

5.7.1.3 Steam generator tubes that have defect indications $\geq$ 40% through wall, as indicated by eddy current, shall be repaired by plugging or by sleeving.

5.7.1.4 Steam generator sleeves that have defect indications $\geq$ 30% through wall, as indicated by eddy current, shall be repaired by plugging.

ISI 6.0 Repair Requirements

6.1 Repair of Quality Groups A, B and C components shall be performed in accordance with the applicable Subsections of Reference 11.

6.2 Examinations associated with repairs or modifications shall meet the applicable design and inspection Code requirements as described in the following paragraphs:

6.2.1 Whenever Quality Groups A, B or C System modifications or repairs have been made which involve new strength welds on components greater than 2 inches diameter, the new welds shall receive both surface and 100 percent volumetric nondestructive examinations.

6.2.2 Whenever system modifications or repairs have been made which involve new strength welds on Quality Groups A, B or C components of 2 inches or less, a surface examination shall be performed.

6.3 Surface defects in Quality Groups A, B or C bolts, studs, nuts and ligaments may be removed by mechanical means provided the removal of that defect does not alter the basic configuration of the item. Bolts, studs and nuts that have defects that cannot be removed by mechanical means shall be replaced.

6.4 Repair of high energy piping welds outside of containment shall be performed in accordance with the applicable Code specified in Reference 11.

6.5 Repair of Steam Generator Tubes

6.5.1 Repair of steam generator tubes that have unacceptable defects shall be performed by using a tube plugging technique or by sleeving.

6.5.2 Preventative sleeving of tubes as part of a preventative maintenance program may also be accomplished.

6.6 Repair of steam generator sleeves that have unacceptable defects shall be performed by using a tube plugging technique.

6.7 Repair of reactor coolant pump flywheel that have unacceptable defects shall be performed in accordance with Reference 12.

ISI 7.0 <u>System Pressure Testing</u>

7.1 General Requirements

7.1.1 System pressure test shall be conducted in accordance with Article IWA-5000 of Reference 11.

7.1.2 Repairs of corroded areas shall be performed in accordance with Section 6.0 of this program.

7.2 Quality Group A Components

7.2.1 Whenever the reactor coolant system is closed after it has been opened, the system shall be leak tested to the requirements of Article IWB-5000 of Reference 11. Temperature and pressure requirements of Figure 3.1-1, Section 3.1 of Ginna's "Technical Specifications" shall not be exceeded.

7.2.2 At or near the end of each inspection interval, a hydrostatic pressure test shall be performed on the reactor coolant system components. This test shall be conducted in accordance with the requirements of Article IWB-5000 of Reference 11. Test pressures and temperatures shall be maintained for at least four hours prior to performing the visual examination. Section 3.1 of Ginna's "Technical Specification" shall not be exceeded.

7.3 Quality Group B Components

7.3.1 At or near the end of each inspection interval, a hydrostatic pressure test shall be performed on Quality Group B Systems and Components. This test shall be conducted in accordance with the requirements of Article IWC-5000 of Reference 11. When Quality Group A systems and components are also being pressurized, the pressure and temperature shall comply with the requirements of Paragraph 7.2.2 of this Appendix. This test temperature and pressure shall be maintained for at least 10 minutes prior to the performance of the visual examination for uninsulated pipes and 4 hours for insulated pipes. During each period, systems or portions of systems not required to operate during normal reactor operation shall be pressure tested in accordance with IWC 5221. Inservice leakage tests may also be performed on other systems and components which are normally in service once each period.

7.4 Quality Group C Components

7.4.1 Quality Group C components shall have system pressure test in accordance with Article IWD-5000 of Reference 11.

ISI 8.0 Records and Reports

8.1 Records and reports developed from those examinations performed in accordance with this Appendix shall be maintained in accordance with Article IWA-6000 of Reference 11.

ISI 9.0 Exemptions

9.1 Quality Groups A, B and C components exemptions are identified in Attachment A to this Appendix. However, Paragraphs IWB-1220 and IWC-1220 of Reference 1 exempt certain components from examinations, where certain conditions are met. These exemptions will be applied to the components listed on Tables ISI-1.1 and 1.2 with the result that only those non-exempt components are listed herein.

REFERENCES

1. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PVC) Section XI "Rules for Inservice Inspection of Nuclear Power Plant Components", 1974 Edition through Summer 1975 Addenda.

2. Code of Federal Regulations, Title 10, Part 50, dated January 1, 1978.

3. Nuclear Regulatory Commission, Regulatory Guide 1.26, Revision 1, dated February 1976 "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste-Containing Components of Nuclear Power Plants".

4. Rochester Gas and Electric Corporation Report "Effects of Postulated Pipe Breaks Outside the Containment Building", dated October 29, 1973.

5. Nuclear Regulatory Commission, Regulatory Guide 1.83, Revision 1, dated July 1975, "Inservice Inspection of Pressurized Water Reactor Steam Generator Tubes".

6. Ginna's Final Safety Analysis Report, Section 2.9.3.

7. ASME, B&PVC, Section XI, 1974 Edition through Summer 1976 Addenda.

8. ASME, B&PVC, Section V, 1974 Edition through Summer 1975 Addenda.

9. USAS B31.1.0 - 1967, "Power Piping".

10. ASME, B&PVC, Section III, 1974 Edition through Summer 1975 Addenda.

11. ASME, B&PVC Section XI, 1977 Edition through Summer 1978 Addenda.

12. Nuclear Regulatory Commission, Regulatory Guide 1.14, Revision 1, dated August 1975, "Reactor Coolant Pump Flywheel Integrity".

TABLE ISI 1.1
QUALITY GROUP A
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWB-2500	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Reactor Vessel	
B1.1	B-A	Longitudinal and circumferential shell welds in core region.	Volumetric
B1.2	B-B	Longitudinal and circumferential welds in shell (other than those of Category B-A and B-C) and meridional and circumferential beam welds in bottom head and closure head (other than those of Category B-C).	Volumetric
B1.3	B-C	Vessel-to-flange and head-to-flange circumferential welds.	Volumetric
B1.4	B-D	Primary nozzle-to-vessel welds and nozzle inside tial welds.	Volumetric
B1.5	B-E	Vessel penetrations, including control rod drive and instrumentation penetrations.	Visual (IWA-5000)
B1.6	B-F	Nozzle-to-safe-end welds.	Volumetric and Surface
B6.10	B-G-1	Closure head nuts.	Surface
B6.20	B-G-1	Closure studs, in place.	Volumetric
B6.30	B-G-1	Closure studs, when removed.	Volumetric and Surface

TABLE ISI 1.1 (Cont'd)
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWB-2500	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Reactor Vessel	
B6.40	B-G-1	Ligaments between stud holes.	Volumetric
B6.50	B-G-1	Closure Washers, bushings.	Visual
B7.10	B-G-2	Bolts, studs and nuts.	Visual
B8.10	B-H	Integrally-welded attachments.	Surface
B1.15	B-N-1	Vessel Interior.	Visual
B1.17	B-N-3	Core-support structures.	Visual
B1.18	B-O	Control rod drive housings.	Volumetric
B1.19	B-P	Exempted components.	Visual (IWA-5000)
		Pressurizer	
B2.1	B-B	Longitudinal and circumferential welds.	Volumetric
B2.2	B-D	Nozzle-to-vessel welds and nozzle-to-vessel radiused section.	Volumetric
B2.3	B-E	Heater penetrations.	Visual (IWA-5000)
B2.4	B-F	Nozzle-to-safe-end welds.	Volumetric and Surface

TABLE ISI 1.1 (Cont'd)
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWB-2500	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Pressurizer	
B6.60	B-G-1	Bolts and studs, in place.	Volumetric
B6.70	B-G-1	Bolts and studs, when removed.	Volumetric and Surface
B6.80	B-G-1	Bolting.	Visual
B8.20	B-H	Integrally-welded attachments.	Surface
B2.10	B-P	Exempted components.	Visual (IWA-5000)
B7.20	B-G-2	Bolts, studs, and nuts.	Visual
		Heat Exchangers and Steam Generators	
B3.1	B-B	Longitudinal and circumferential welds, including Tube sheet-to-head or shell welds on the primary side.	Volumetric
B3.2	B-D	Nozzle-to-head welds and nozzle inside radiused section on the primary side.	Volumetric
B3.3	B-F	Nozzle-to-safe-end welds.	Volumetric and Surface
B6.90	B-G-1	Bolts and studs, in place.	Volumetric

TABLE ISI 1.1 (Cont'd)
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWB-2500	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Heat Exchangers and Steam Generators	
B6.100	B-G-1	Bolts and studs, when removed.	Volumetric and Surface
B6.110	B-G-1	Bolting.	Visual
B8.30, B8.40	B-H	Integrally-welded attachments.	Surface
B3.9	B-P	Exempted components.	Visual (IWA-5000)
B7.30, B7.40	B-G-2	Bolts, studs, and nuts.	Visual
		Piping Pressure Boundary	
B4.1	B-F	Safe-end to piping welds and safe-end in branch piping welds.	Volumetric and Surface
B6.150	B-G-1	Bolts and studs, in place.	Volumetric
B6.160	B-G-1	Bolts and studs, when removed.	Volumetric and Surface
B6.170	B-G-1	Bolting.	Visual
B4.5	B-J	Circumferential and longitudinal pipe welds.	Volumetric

TABLE ISI 1.1 (Cont'd)
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWB-2500	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Piping Pressure Boundary	
B4.6	B-J	Branch pipe connection welds exceeding six inch diameter.	Volumetric
B4.7	B-J	Branch pipe connection welds six inch diameter and smaller.	Surface
B4.8	B-J	Socket welds.	Surface
B10.10	B-K-1	Integrally welded attachments.	Surface
B11.10	B-K-2	Component supports.	Visual
B4.11	B-P	Exempted components.	Visual (IWA-5000)
B7.50	B-G-2	Bolts, studs and nuts.	Visual
		Pump Pressure Boundary	
B6.180	B-G-1	Bolts and studs, in place.	Volumetric
B6.190	B-G-1	Bolts and studs, when removed.	Volumetric and Surface
B6.200	B-G-1	Bolting.	Visual
B10.20	B-K-1	Integrally-welded attachments.	Surface
B11.20	B-K-2	Component supports.	Visual

TABLE ISI 1.1 (Cont'd)
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWB-2500	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Pump Pressure Boundary	
B5.6	B-L-1	Pump casing welds.	Volumetric
B5.8	B-P	Exempted components.	Visual
B7.60	B-G-2	Bolts, studs, and nuts.	Visual
—	—	Reactor Coolant Pump Flywheel.	Volumetric and Surface
		Valve Pressure Boundary	
B6.210	B-G-1	Bolts and studs, in place.	Volumetric
B6.220	B-G-1	Bolts and studs, when removed.	Volumetric and Surface
B6.230	B-G-1	Bolting.	Visual
B10.30	B-K-1	Integrally welded attachments.	Volumetric
B11.30	B-K-2	Component supports.	Visual
B6.6	B-M-1	Valve-body welds.	Volumetric
B6.8	B-P	Exempted components.	Visual (IWA-5000)
B7.70	B-G-2	Bolts, studs, and nuts.	Visual

TABLE ISI 1.2
QUALITY GROUP B
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWC-2520	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Pressure Vessels	
C1.1	C-A	Circumferential butt welds.	Volumetric
C1.2	C-B	Nozzle-to-vessle welds.	Volumetric
C3.10	C-C	Integrally-welded support attachments.	Surface
C4.10	C-D	Bolts and studs.	Volumetric
C3.20	C-E	Component supports.	Visual
C3.30	C-E	Supports mechanical and hydraulic.	Visual
		Piping	
C2.1	C-F, C-G	Circumferential butt welds.	Volumetric
C2.2	C-F, C-G	Longitudinal weld joints in fittings.	Volumetric
C2.3	C-F, C-G	Branch pipe-to-pipe weld joints.	Volumetric
C4.20	C-D	Bolts and studs.	Volumetric
C3.40	C-E-1	Integrally welded support attachments.	Surface
C3.50	C-E-2	Component supports.	Visual
C3.60	——	Supports mechanical and hyraulic.	Visual

TABLE ISI 1.2 (Cont'd)
COMPONENTS, PARTS, AND METHODS OF EXAMINATION

ITEM No.	EXAMINATION CATEGORY TABLE IWC-2520	COMPONENTS AND PARTS TO BE EXAMINED	METHOD
		Pumps	
C3.1	C-F, C-G	Pump casing welds.	Volumetric
C4.30	C-D	Bolts and studs.	Volumetric
C3.20	C-E-1	Integrally welded support attachments.	Surface
C3.80	C-E-2	Component supports.	Visual
C3.90	---	Supports mechanical and hydraulic.	Visual
		Valves	
C4.1	C-F, C-G	Valve body welds.	Volumetric
C4.40	C-D	Bolts and studs.	Volumetric
C3.100	C-E-1	Integrally welded support attachments.	Surface
C3.110	C-E-2	Component supports.	Visual
C3.120	---	Supports mechanical and hydraulic.	Visual