REVISION 0

June 1, 1997

THIRD TEN-YEAR INTERVAL INSERVICE INSPECTION PLAN FOR ARKANSAS NUCLEAR ONE UNIT 1

ENTERGY OPERATIONS, INC.

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SECTION 1.0
INTRODUCTION AND PLAN DESCRIPTION

1.1 Overview

1.1.1 This Inservice Inspection Plan outlines the requirements for the inspection of Class 1, 2, and 3 pressure retaining components and their supports at Arkansas Nuclear One, Unit 1 (ANO-1).

1.1.2 This Inservice Inspection Plan will be effective from June 1, 1997, through and including May 31, 2007, which represents the third ten-year interval for ANO-1.

1.1.3 The key features of this Plan are the Introduction and Plan Description, List of Applicable Drawings, Piping Line List, Summary Tables, and Requests for Alternatives. The details of the Inservice Inspection Program referenced in this Inservice Inspection Plan are contained in documents that are available at ANO. These documents include, but are not limited to, piping and instrument diagrams, piping isometric drawings, a database listing of each weld, valve, support, etc. in the Inservice Inspection Program and documents supporting implementation of the Inservice Inspection Program.

1.2 Basis of Inservice Inspection Plan

1.2.1 This Inservice Inspection Plan was developed in accordance with the requirements delineated in the August 8, 1996, issue of 10CFR50.55a. As such, Entergy operations will implement the augmented reactor pressure vessel examination requirements of 10CFR50.55a(g)(6)(ii)(A).

1.2.2 This Inservice Inspection Plan was developed in accordance with the 1992 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Subsections IWA, IWB, IWC, IWD, and IWF, for Inspection Program B. In addition, the following portions of the ASME Section XI 1993 Addenda has been adopted in lieu of the corresponding portions of the 1992 Edition.

1.2.2.1 General pressure test requirements of IWA-5000 consisting of Table IWA-5210-1, paragraph IWA-5250(a)(2) and paragraph IWA-5265(b).

1.2.2.2 Class 1 pressure test requirements consisting of Table IWB-2500-1, Examination Categories B-E and B-P, and Article IWB-5000 in its entirety.

1.2.2.3 Class 2 pressure test requirements consisting of Table IWC-2500-1, Examination Category C-H, and Article IWC-5000 in its entirety.

1.2.2.4 Class 3 pressure test requirements consisting of Article IWD-5000 in its entirety.

Accordingly, this Inservice Inspection Plan provides the details necessary for performing the inservice inspection of the ANO-1 Class 1, 2, and 3 pressure retaining components and supports.

1.2.3 Use of the 1992 Edition of ASME Section XI with the portions of the 1993 Addenda referenced in 1.2.2 was authorized by the Nuclear Regulatory Commission in a letter dated December 12, 1996 (0CNA129613), entitled:

"Evaluation of Entergy Operations, Inc., Request for Authorization to Update Inservice Inspection Programs to the 1992 and Portions of the 1993 ASME Boiler and Pressure Vessel Code, Section XI for Arkansas Nuclear One, Units 1 and 2, Grand Gulf Nuclear Station, River Bend Station, and Waterford Steam Electric Station, Unit 3 (TAC Nos. M94472, M94471, M94454, M94473, and M94488)."

This letter also approved the extension of the second interval at ANO-1 and addressed the implementation of ASME Section XI Subsections IWE and IWL. In addition, the letter stated that the Nuclear Regulatory Commission had not completed their review of Entergy Operations' request to implement alternative criteria to ASME Section XI, Appendix VIII. Until such time that the review is completed, Entergy Operations will continue to use the current examination criteria including Appendix VII of ASME Section XI, 1992 Edition, and Regulatory Guide 1.150 at ANO-1.

1.2.4 The following ASME Section XI, 1992 Edition Subsections, Articles, or Paragraphs are not included or addressed in this Inservice Inspection Plan.

1.2.4.1 The containment liner and concrete inspection and testing requirements of Subsections IWE and IWL are not included in this Inservice Inspection Plan. The rules of Subsections IWE and IWL as invoked by 10CFR50 will be implemented in a separate submittal to the NRC.

1.2.4.2 The pump and valve testing requirements of Subsections IWP and IWV are not included in this Inservice Inspection Plan. The rules of IWP and IWV will be addressed in a separate submittal to the NRC after completion of the current inservice testing interval on December 15, 1997.

1.2.4.3 The snubber inservice inspection requirements of Article IWF-5000 are not addressed in this Inservice Inspection Plan. The extent, frequency, and acceptance standards for snubber assembly testing and inspection will be in accordance with ANO-1 Technical Specification 4.16.

1.2.4.4 The steam generator tubing examination requirements of Table IWB-2500-1, Examination Category B-Q are not addressed in this Inservice Inspection Plan. As allowed by ASME Section XI, IWB-2413, the extent, frequency, and acceptance standards for steam generator tubing inspection and testing will be in accordance with ANO-1 Technical Specification 4.18.

1.2.5 Alternative requirements to ASME Section XI are set forth in Section 5.0 of this Inservice Inspection Plan. Alternative requirements are in accordance with 10CFR50.55a and ASME Section XI.

1.2.6 With the exception of examinations that may be deferred until the end of the inspection interval as specified in Table IWB-2500-1, inservice inspections shall be performed in accordance with Inspection Program B as outlined in IWA-2432, IWB-2412, IWC-2412 and IWD-2412 of ASME Section XI. The inspection schedule for the third interval is divided into three periods such that approximately one third of the inspections will be completed every period. Successive inspections shall be in accordance with IWB-2420, IWC-2420, IWD-2420 and IWF-2420. Deviations to inspection schedules may occur provided compliance with Code requirements is maintained.

1.2.7 The commercial operating license date for ANO-1 was December 19, 1974. The second inspection interval was extended from December 19, 1994 to December 1, 1996, as allowed by a Nuclear Regulatory Commission letter dated August 2, 1994 (1CNA089402), entitled, "Interim Extension of 120-Month Interval for Inservice Inspection and Inservice Testing (ISI/ IST) Programs for Arkansas Nuclear One, Unit 1 (TAC No. M89337)." The second interval was further extended to June 1, 1997, by the Nuclear Regulatory Commission letter referenced in paragraph 1.2.3 of this Inservice Inspection Plan.

1.3 System Classifications

1.3.1 At the time ANO-1 was constructed, the ASME Boiler and Pressure Vessel Code only addressed nuclear vessels and associated piping up to and including the first isolation valve. Therefore, the piping codes of record were USAS B31.7, February 1968 Draft with June 1968 Errata for nuclear piping, and USAS B31.1.0 - 1967 Edition for non-nuclear piping. Consequently, ANO-1 piping is not designated by ASME Section III Code Class 1, 2 and 3 systems.

1.3.2 The quality group classification system for water, steam, and radioactive waste containing components important to the safety of water-cooled nuclear power plants is established by NRC Regulatory Guide 1.26, Revision 3, in conjunction with 10CFR50.55a. Regulatory Guide 1.26, "Quality Group Classification and Standards," defines the Quality Group Classification System consisting of four Quality Groups, A through D. The definition of Quality Group A is provided by

10CFR50.2 under "Reactor Coolant Pressure Boundary." The definitions of Groups B, C, and D (Class 2, Class 3 and ISI non-classed, respectively) are provided by Regulatory Guide 1.26.

1.3.3 Piping and components subject to inservice inspection are shown on the Piping and Instrumentation Diagrams listed in Section 2.2 of this Inservice Inspection Plan. Specific piping lines subject to inservice inspection are documented in the Piping Line List contained in Section 3.0 of this Inservice Inspection Plan. Pursuant to 10CFR50.55a, the inservice inspection requirements of ASME Section XI have been assigned to these piping lines and components within the constraints of existing plant design. Applicable piping, components and supports have been classified as exempt from examination requirements as defined in ASME Section XI, paragraphs IWB-1220, IWC-1220, IWD-1220 and IWF-1230.

1.4 Augmented Inservice Inspection Requirements

Augmented inservice inspection requirements are those examinations that are specified by documents other than the ASME Section XI Code. Frequently, these augmented examinations are at the request of the Nuclear Regulatory Commission through such mechanisms as Bulletins, Notices, and Regulatory Guides. However, the Inservice Inspection Program also addresses several plant specific, internal commitments. In some instances, these augmented examinations may include piping and components outside the inservice inspection boundaries. The augmented examinations addressed by the ANO-1 Inservice Inspection Program are as follows:

1.4.1 Ultrasonic examinations on the reactor pressure vessel shall be conducted in accordance with U.S. Nuclear Regulatory Commission Regulatory Guide 1.150, Rev. 1, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations."

1.4.2 High Energy Line Break (HELB) and Moderate Energy Line Break (MELB) examinations shall be performed in accordance with Upper Level Document ULD-0-TOP-07, "HELB/ MELB Topical ULD," Calculation 86D-1005-29, Appendix B, and ANO-1 Technical Specification 4.15.

1.4.3 Visual inspections shall be performed on High Pressure Injection (HPI) support MU-167 and associated piping in accordance with ANO Condition Report CR-1-96-0502.

1.4.4 The examination of stagnant, borated water systems (i.e., Nuclear Regulatory Commission IE Bulletin 79-17) is addressed in Request Number 97-003.

1.4.5 Enhanced ultrasonic examinations shall be performed on 17 HPI welds and visual inspection shall be performed on two segments of HPI piping in accordance with Entergy Operations' January 31, 1991, response to Nuclear Regulatory Commission IE Bulletin 88-08 (0CAN019102).

1.4.6 Surface and volumetric examinations of reactor coolant pump flywheels shall be conducted in accordance with ANO-1 Technical Specification 4.2.6.

1.4.7 Ultrasonic examinations on one pressurizer upper level tap shall be conducted in accordance with ANO Calculation 86E-0074-103, memorandum ANO-92-00507, and the NRC submittal dated August 5, 1993 (1CAN089302).

1.4.8 Ultrasonic examinations shall be performed on reactor coolant pump shafts and surface examinations shall be performed on reactor coolant pump shaft covers each time a pump is disassembled in accordance with Plant Impact Evaluation (PIE) 87-0082B and Byron Jackson Technical Service Bulletin 8710-80-009.

1.4.9 Surface examinations and visual inspections shall be performed on emergency feedwater riser welds in accordance with Babcock & Wilcox letter No. APL-85-349, "Water Hammer Concern in Auxiliary Feedwater Headers."

1.4.10 Visual VT-2 inspections shall be performed on pressurizer level taps in accordance with ANO Condition Report CR-1-90-0853-07 and memorandum No. ANO-92-02496.

1.4.11 Surface examinations and VT-3 visual inspections shall be performed on special lifting devices in accordance with Entergy Operations' June 8, 1984, response to NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." (0CAN068402)

1.4.12 Ultrasonic examinations shall be performed on HPI nozzle knuckles and radiography shall be performed on HPI nozzle thermal sleeves in accordance with ANO Condition Reports CR-1-89-0335 and CR-1-89-0508 and Entergy Operations' submittal to the NRC dated April 22, 1985 (1CAN048501).

1.4.13 Ultrasonic examinations and thickness measurements shall be performed on four main steam moisture and reheater piping welds in accordance with ANO Condition Report CR-1-89-0621.

1.4.14 Visual inspections shall be performed on VSC-24 dry spent fuel storage casks per 1.3.2 and 1.3.3 of the storage cask's "Certificate of Compliance" which was issued in accordance with 10CFR72.

1.4.15 Visual inspections shall be performed on reactor coolant pump seal injection piping and supports in accordance with ANO Condition Report CR-1-90-0514-11.

1.4.16 Ultrasonic examinations shall be performed on pressurizer relief valve piping in accordance with ANO Condition Reports CR-1-92-0244 and CR-1-91-0131, Item 8.

1.4.17 Ultrasonic examinations shall be performed on the pressurizer surge line elbow as discussed in Nuclear Regulatory Commission letter No. 1CNA029402 (TAC No. M72108) dated February 24, 1994.

SECTION 2.0
INSERVICE INSPECTION PROGRAM DRAWINGS

This section provides a listing of the various drawings applicable to the ANO-1 Inservice Inspection Program.

2.1 Drawing Nomenclature

2.1.1 Zone Designators

Table 2.1 below lists the System Zone Designations used for the piping systems and components subject to inservice inspection at ANO-1.

TABLE 2.1
SYSTEM ZONE DESIGNATORS

ZONE DESIGNATOR	SYSTEM
001	REACTOR PRESSURE VESSEL
002	REACTOR PRESSURE VESSEL HEAD AND CONTROL ROD DRIVES
003	STEAM GENERATOR E24A
004	STEAM GENERATOR E24B
005	PRESSURIZER
006	STEAM GENERATOR "A" TO PUMP 1A1 (RCP-C)
007	RCP-C TO REACTOR VESSEL
008	STEAM GENERATOR "A" TO PUMP 1A2 (RCP-D)
009	RCP-D TO REACTOR VESSEL
010	STEAM GENERATOR "B" TO PUMP 1B1 (RCP-A)
011	RCP-A TO REACTOR VESSEL
012	STEAM GENERATOR "B" TO PUMP 1B2 (RCP-B)
013	RCP-B TO REACTOR VESSEL

TABLE 2.1
SYSTEM ZONE DESIGNATORS (con't)

ZONE DESIGNATOR	SYSTEM
014	REACTOR COOLANT SYSTEM - HOT LEG FROM REACTOR VESSEL TO STEAM GENERATOR "A"
015	REACTOR COOLANT SYSTEM - HOT LEG FROM REACTOR VESSEL TO STEAM GENERATOR "B"
016	PRESSURIZER SURGE
017	DECAY HEAT REMOVAL
018	PRESSURIZER AUXILIARY SPRAY
019	CORE FLOOD
020	HIGH PRESSURE INJECTION TO A1 LOOP (P32C)
021	HIGH PRESSURE INJECTION TO A2 LOOP (P32D)
022	HIGH PRESSURE INJECTION TO B1 LOOP (P32A)
023	HIGH PRESSURE INJECTION TO B2 LOOP (P32B)
024	LETDOWN COOLER AND DRAIN
025	REACTOR COOLANT SYSTEM DRAINS
026	MAIN FEEDWATER
027	MAIN FEEDWATER
028	MAIN STEAM
029	MAIN STEAM
030	MAIN STEAM
031	MAIN STEAM
032	MAKE-UP PUMP SUCTION
033	DECAY HEAT REMOVAL TO PUMPS
034	LOW PRESSURE INJECTION - PUMP "A" DISCHARGE TO PENETRATION

TABLE 2.1
SYSTEM ZONE DESIGNATORS (con't)

ZONE DESIGNATOR	SYSTEM
035	LOW PRESSURE INJECTION - PUMP "B" DISCHARGE TO PENETRATION
036	LOW PRESSURE INJECTION PENETRATIONS TO CORE FLOOD
037	LETDOWN COOLER E29A
038	LETDOWN COOLER E29B
039	EMERGENCY FEEDWATER
040	EMERGENCY FEEDWATER
041	DECAY HEAT REMOVAL COOLER E35A
042	DECAY HEAT REMOVAL COOLER E35B
043	REACTOR COOLANT PUMP "A" AND MOTOR FLYWHEEL 1A2
044	REACTOR COOLANT PUMP "B" AND MOTOR FLYWHEEL 1B2
045	REACTOR COOLANT PUMP "C" AND MOTOR FLYWHEEL 1B1
046	REACTOR COOLANT PUMP "D" AND MOTOR FLYWHEEL 1A1
047	PRESSURIZER RELIEF
048	PRESSURIZER RELIEF
049	SERVICE WATER AND EMERGENCY FEEDWATER
050	SERVICE WATER
051	SERVICE WATER
052	SERVICE WATER
053	SERVICE WATER
054	SERVICE WATER
055	BUILDING SPRAY "A"
056	BUILDING SPRAY "B"

TABLE 2.1
SYSTEM ZONE DESIGNATORS (con't)

ZONE DESIGNATOR	SYSTEM
057	EMERGENCY FEEDWATER
063	BUILDING SPRAY "A" AND "B" INSIDE REACTOR BUILDING
070	PRESSURIZER SAFETY VALVE DISCHARGE
071	BORATED WATER STORAGE TANK ATTACHED PIPING
100	AUGMENTED INSPECTIONS

2.1.2 Piping Classifications

2.1.2.1 Piping classifications are designated by a three-letter code. Listed below are the appropriate letter designations for piping at ANO-1. The first letter indicates the Standard Rating Class; the second letter the type of material; and the third letter the Code to which the piping is designed.

2.1.2.2 First Letter - Pressure Rating Class

B - Class 2500
C - Class 1500
D - Class 900
E - Class 600
F - Class 400
G - Class 300
H - Class 150
J - For general use as designated on piping class sheets
K - For general use as designated on piping class sheets
L - For general use as designated on piping class sheets
M - For general use as designated on piping class sheets
V - Vendor supplied; installed by Bechtel

Second Letter - Material

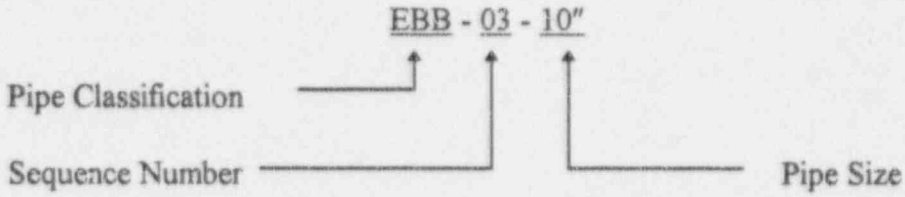
B - Carbon Steel
C - Stainless Steel
D - Copper
E - For general use as designated on piping class sheets
F - For general use as designated on piping class sheets
G - For general use as designated on piping class sheets

Third Letter - Design Codes

A - Nuclear Power Piping, ANSI B31.7, Class I
B - Nuclear Power Piping, ANSI B31.7, Class II
C - Nuclear Power Piping, ANSI B31.7, Class III
D - Code for Pressure Piping, ANSI B31.1.0

2.1.3 Line Identification Numbers

The line numbers identified on the drawings listed herein provide useful information about the piping. The lines are identified using the following convention:



Each line, or portion of line, is assigned a pipe classification, line sequence number, and pipe size. The line identification numbers can be cross referenced to the Piping Line List provided in Section 3.0 of this ISI Plan to determine the line description, system, Piping and Instrumentation Diagram (P&ID), and normal operating temperature and pressure. The pipe classification can be cross referenced to ANO Specification ANO-M-555 to determine the pipe schedule and material specification.

2.2 Piping and Instrumentation Diagrams

Table 2.2 provides a listing of the P&IDs that depict the piping subject to inservice inspection at ANO-1.

TABLE 2.2
PIPING AND INSTRUMENTATION DIAGRAMS

DRAWING NUMBER	SHEET NUMBER	TITLE
M-200	1	INSTRUMENTATION AND COMPONENT SYMBOLS
M-200	2	INSTRUMENTATION AND COMPONENT SYMBOLS
M-200	3	INSTRUMENTATION AND COMPONENT SYMBOLS
M-201	1	INSTRUMENTATION SYMBOLS
M-204	3	EMERGENCY FEEDWATER
M-204	5	EMERGENCY FEEDWATER STORAGE
M-204	6	EMERGENCY FEEDWATER PUMP TURBINE
M-206	1	STEAM GENERATOR SECONDARY SYSTEM
M-206	2	MSIV OPERATOR CONTROLS
M-209	1	CIRCULATING WATER, SERVICE WATER & FIRE WATER INTAKE STRUCTURE EQUIPMENT
M-209	2	CONDENSER VACUUM, CIRCULATING WATER & DISCHARGE STRUCTURE EQUIPMENT
M-210	1	SERVICE WATER
M-212	2	DEMIN. WATER DISTRIBUTION
M-213	1	DIRTY RADIOACTIVE WASTE DRAINAGE & FILTRATION
M-213	2	LAUNDRY WASTE AND CONTAINMENT & AUXILIARY BUILDING SUMP DRAINAGE
M-214	1	CLEAN LIQUID RADIOACTIVE WASTE
M-214	2	CLEAN LIQUID RADIOACTIVE WASTE
M-214	3	CLEAN LIQUID RADIOACTIVE WASTE
M-215	1	GASEOUS RADIOACTIVE WASTE
M-219	1	FIRE WATER
M-221	2	EMERGENCY CHILLED WATER SYSTEM AUXILIARY BUILDING ELECTRICAL ROOMS
M-222	1	CHILLED WATER SYSTEM REACTOR AND AUXILIARY BUILDINGS
M-230	1	REACTOR COOLANT SYSTEM

TABLE 2.2
PIPING AND INSTRUMENTATION DIAGRAMS (con't)

DRAWING NUMBER	SHEET NUMBER	TITLE
M-230	2	REACTOR COOLANT SYSTEM
M-231	1	MAKEUP & PURIFICATION SYSTEM
M-231	2	MAKEUP & PURIFICATION SYSTEM
M-231	3	MAKEUP & PURIFICATION SYSTEM
M-232	1	DECAY HEAT REMOVAL SYSTEM
M-233	1	CHEMICAL ADDITION SYSTEM
M-234	1	INTERMEDIATE COOLING SYSTEM
M-234	2	INTERMEDIATE COOLING SYSTEM
M-235	1	SPENT FUEL COOLING SYSTEM
M-236	1	REACTOR BUILDING SPRAY & CORE FLOODING SYSTEMS
M-237	1	SAMPLING SYSTEM
M-237	4	POST ACCIDENT CONTAINMENT ATMOSPHERE SAMPLING SYSTEM
M-238	1	CONTROL ROD DRIVES & MISCELLANEOUS REACTOR COOLANT PUMP CONNECTIONS
M-238	2	REACTOR COOLANT PUMP P-32B AND MISCELLANEOUS CONNECTIONS
M-261	1	REACTOR BUILDING HVAC
M-264	1	VENTILATION SYSTEM AIR FLOW CONTAINMENT PENETRATION ROOM

2.3 Piping Isometric Drawings

Table 2.3 provides a listing of the Piping Isometric Drawings for systems subject to inservice inspection. These drawings identify piping welds, flanges, valves, pumps, and piping supports that are within the non-exempt piping boundaries. In addition, system identifications, pipe classifications, pipe sizes, containment penetrations, and piping configurations are identified. Piping and components that are exempt from nondestructive and visual examination in accordance with ASME Section XI, paragraphs IWB-1220, IWC-1220, and IWD-1220 may also be depicted on these drawings.

TABLE 2.3
PIPING ISOMETRIC DRAWINGS

DRAWING NUMBER	TITLE
1-MS-1	LARGE PIPE ISOMETRIC MAIN STEAM FROM STEAM GENERATOR E-24A
1-MS-2	LARGE PIPE ISOMETRIC MAIN STEAM FROM STEAM GENERATOR E-24A
1-MS-3	LARGE PIPE ISOMETRIC MAIN STEAM FROM STEAM GENERATOR E-24B
1-MS-4	LARGE PIPE ISOMETRIC STEAM GENERATOR E-24B SECONDARY LINE FROM CONTAINMENT TO CV-2692
1-MS-5 (Sheet 1)	LARGE PIPE ISOMETRIC MAIN STEAM TO ISOLATION VALVES UPSTREAM OF EMERGENCY FEEDWATER PUMP TURBINE K-3
1-MS-5 (Sheet 2)	LARGE PIPE ISOMETRIC MAIN STEAM LINE ATMOSPHERIC DUMP (CV-2668)
1-MS-101	LARGE PIPE ISOMETRIC MAIN STEAM HEADER
1-MS-103	LARGE PIPE ISOMETRIC MAIN STEAM HEADER
1-MS-118 (Sheet 1)	LARGE PIPE ISOMETRIC STEAM ADMISSION SYSTEM TO EMERGENCY FEEDWATER TURBINE (K-3)
1-MS-118 (Sheet 2)	LARGE PIPE ISOMETRIC STEAM ADMISSION TO EMERGENCY FEEDWATER TURBINE (K-3)
2-MFW-1	LARGE PIPE ISOMETRIC MAIN FEEDWATER TO STEAM GENERATOR E-24B

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
2-MFW-2	LARGE PIPE ISOMETRIC MAIN FEEDWATER
2-MFW-110	LARGE PIPE ISOMETRIC MAIN FEEDWATER
3-EFW-107	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER
3-EFW-108 (Sheets 1 and 2)	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
3-EFW-109	LARGE PIPE ISOMETRIC EMERGENCY DISCHARGE FEEDWATER PUMP P-7A TO ISOLATION VALVE
3-EFW-110 (Sheet 1)	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
3-EFW-110 (Sheet 2)	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER FROM P-7B TO CV-2626
3-EFW-111	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER FROM P-7B TO CV-2670
3-EFW-112	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
3-EFW-113 (Sheets 1 and 2)	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER PUMP P-7A & P-7B INLET PIPING
3-EFW-114 (Sheets 1, 2 and 3)	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER PUMP INLET HEADER PIPING
3-EFW-115 (Sheet 1)	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER PUMP P-7B PIPING TO CV-2670
3-EFW-115 (Sheet 2)	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
3-EFW-116 (Sheets 1, 2 and 3)	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
3-EFW-117	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
3-EFW-118	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
3-EFW-119	EMERGENCY FEEDWATER SYSTEM PIPING ISOMETRIC
5-BS-1	LARGE PIPE ISOMETRIC REACTOR BUILDING SPRAY

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
5-BS-2	LARGE PIPE ISOMETRIC SPRAY PUMP DISCHARGE
5-BS-3	LARGE PIPE ISOMETRIC SPRAY PUMP DISCHARGE TO BORATED WATER STORAGE TANK
5-BS-4	LARGE PIPE ISOMETRIC P-35A DISCHARGE TO CONTAINMENT AND RETURN TO BWST
5-BS-5	LARGE PIPE ISOMETRIC REACTOR BUILDING SPRAY
5-BS-6	LARGE PIPE ISOMETRIC SPRAY PUMP SUCTION
5-BS-7	LARGE PIPE ISOMETRIC SPRAY PUMP SUCTION
5-BS-101	LARGE PIPE ISOMETRIC REACTOR BUILDING SPRAY SYSTEM
5-BS-102	LARGE PIPE ISOMETRIC REACTOR BUILDING SPRAY SYSTEM
5-BS-103	LARGE PIPE ISOMETRIC REACTOR BUILDING SPRAY
5-BS-109	LARGE PIPE ISOMETRIC REACTOR BUILDING SPRAY
6-CF-1	LARGE PIPE ISOMETRIC CORE FLOODING TO REACTOR
6-CF-2	LARGE PIPE ISOMETRIC CORE FLOODING TO REACTOR
7-DH-1	LARGE PIPE ISOMETRIC DECAY HEAT REMOVAL TO REACTOR
7-DH-2	LARGE PIPE ISOMETRIC DECAY HEAT PUMP DISCHARGE TO REACTOR
7-DH-3	LARGE PIPE ISOMETRIC DECAY HEAT REMOVAL FROM REACTOR
7-DH-4	LARGE PIPE ISOMETRIC DECAY HEAT REMOVAL FROM REACTOR
7-DH-5	LARGE PIPE ISOMETRIC DECAY HEAT PUMP DISCHARGE
7-DH-6	LARGE PIPE ISOMETRIC DECAY HEAT PUMP DISCHARGE

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
7-DH-8	LARGE PIPE ISOMETRIC DECAY HEAT PUMP DISCHARGE
7-DH-9	LARGE PIPE ISOMETRIC DECAY HEAT REMOVAL
7-DH-10	LARGE PIPE ISOMETRIC DECAY HEAT PUMP DISCHARGE
7-DH-11	LARGE PIPE ISOMETRIC DECAY HEAT PUMP DISCHARGE
7-DH-12 (Sheets 1 and 2)	LARGE PIPE ISOMETRIC ENGINEERED SAFEGUARDS PUMP SUCTION HEADER
7-DH-13	LARGE PIPE ISOMETRIC DECAY HEAT PUMP SUCTION HEADER
7-DH-14	LARGE PIPE ISOMETRIC PRIMARY MAKE UP PUMP SUCTION HEADER
7-DH-15	LARGE PIPE ISOMETRIC MAKE-UP PUMP SUCTION
7-DH-16	LARGE PIPE ISOMETRIC DECAY HEAT PUMP SUCTION FROM REACTOR BUILDING SUMP
7-DH-17	LARGE PIPE ISOMETRIC DECAY HEAT PUMP SUCTION FROM REACTOR BUILDING SUMP
7-DH-22	LARGE PIPE ISOMETRIC BORATED WATER STORAGE TANK PURIFICATION
7-DH-22A	LARGE PIPE ISOMETRIC DECAY HEAT REMOVAL TO REACTOR
7-DH-23	LARGE PIPE ISOMETRIC DECAY HEAT REMOVAL TO REACTOR
7-DH-102	LARGE PIPE ISOMETRIC BORATED WATER STORAGE TANK PIPING
7-DH-103	LARGE PIPE ISOMETRIC BORATED WATER STORAGE TANK PIPING
12-CON-141	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER FROM T-41B TO EFW PUMPS P-7A AND P-7B
12-CON-142	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER FROM T-41B TO EFW PUMPS P-7A AND P-7B

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
12-CON-143	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER FROM T-41B TO EFW PUMPS P-7A AND P-7B
12-CON-144	LARGE PIPE ISOMETRIC EMERGENCY FEEDWATER PIPING FROM T-41B TO EFW PUMPS P-7A AND P-7B
12-CON-147	EMERGENCY FEEDWATER RECIRCULATION TO T41B
13-SW-1	LARGE PIPE ISOMETRIC SERVICE WATER PENETRATION PIPING TO VCC 2C & 2D
13-SW-2	SERVICE WATER FROM VCC 2C & 2D
13-SW-3	LARGE PIPE ISOMETRIC SERVICE WATER PENETRATION PIPING
13-SW-4	LARGE PIPE ISOMETRIC SERVICE WATER PENETRATION PIPING
13-SW-101	LARGE PIPE ISOMETRIC SERVICE WATER (ESSENTIAL)
13-SW-102	LARGE PIPE ISOMETRIC SERVICE WATER (ESSENTIAL)
13-SW-103	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY TO VCC 2A & VCC 2B
13-SW-104	LARGE PIPE ISOMETRIC SERVICE WATER ESSENTIAL RETURN
13-SW-105	LARGE PIPE ISOMETRIC SERVICE WATER VCC 2A & 2B RETURN
13-SW-106	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY LOOP I
13-SW-108	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY TO COOLER E-35A
13-SW-110	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY
13-SW-111	LARGE PIPE ISOMETRIC SERVICE WATER RETURN FROM EMERGENCY DIESEL GENERATOR JACKET COOLERS
13-SW-112	LARGE PIPING ISOMETRIC SERVICE WATER RETURN
13-SW-113	LARGE PIPE ISOMETRIC E-35A RETURN

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
13-SW-114	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY TO EMERGENCY POND
13-SW-115	LARGE PIPE ISOMETRIC SERVICE WATER RETURN
13-SW-116	LARGE PIPE ISOMETRIC SERVICE WATER RETURN FROM DECAY HEAT EXCHANGER E-35B
13-SW-118	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY TO DECAY HEAT EXCHANGER E-35B
13-SW-119	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY
13-SW-120	LARGE PIPE ISOMETRIC SERVICE WATER RETURN
13-SW-122	LARGE PIPE ISOMETRIC SERVICE WATER TO EMERGENCY FEEDWATER SUCTION
13-SW-126	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY ESSENTIAL
13-SW-128	SERVICE WATER FROM VCC 2C & D
13-SW-129	SERVICE WATER FROM VCC 2A & B
13-SW-130	SERVICE WATER SUPPLY TO VCC 2A & B
13-SW-131	SERVICE WATER SUPPLY TO VCC 2C & D
13-SW-132	SERVICE WATER SUPPLY
13-SW-133	LARGE PIPE ISOMETRIC SERVICE WATER PUMP TO DISCHARGE
13-SW-134	LARGE PIPE ISOMETRIC SERVICE WATER ESSENTIAL
13-SW-135	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY TO VCC 2D
13-SW-136	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY TO VCC 2A
13-SW-137	LARGE PIPE ISOMETRIC SERVICE WATER RETURN FROM VCC 2D
13-SW-138	SERVICE WATER RETURN FROM VCC 2A
13-SW-141	LARGE PIPE ISOMETRIC SERVICE WATER RETURN

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
13-SW-142	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY ESSENTIAL
13-SW-143 (Sheets 1 and 2)	LARGE PIPE ISOMETRIC SERVICE WATER RETURN FROM E20B1 AND E20B2 FOR K4B
13-SW-149	LARGE PIPE ISOMETRIC CONTAINMENT COOLING COIL VCC 2D SUPPLY AND RETURN PIPING
13-SW-150	LARGE PIPE ISOMETRIC CONTAINMENT COOLING COIL VCC 2B SUPPLY AND RETURN PIPING
13-SW-151	SERVICE WATER CONNECTIONS FOR VCC 2C
13-SW-152	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY AND RETURN FOR REACTOR BUILDING COOLING COIL VCC 2A
13-SW-154	LARGE PIPE ISOMETRIC SERVICE WATER RETURN
13-SW-156	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY
13-SW-162	LARGE PIPE ISOMETRIC SERVICE WATER SUPPLY ESSENTIAL
16-RC-4	LARGE PIPE ISOMETRIC PRESSURIZER RELIEF PIPING FROM PSV-1001 TO QUENCH TANK T-42
16-RC-6	LARGE PIPE ISOMETRIC PRESSURIZER RELIEF DOWNSTREAM OF RELIEF VALVE PSV-1000
16-RC-8	LARGE PIPE ISOMETRIC PRESSURIZER RELIEF PIPING FROM PSV-1002 TO QUENCH TANK T-42
16-RC-9	PRESSURIZER MAIN SPRAY LINE CCA-4
17-MU-1	LARGE PIPE ISOMETRIC SYSTEM #17 MAKE UP & PURIFICATION
17-MU-2 (Sheet 1)	LARGE PIPE ISOMETRIC MAKE UP & PURIFICATION
17-MU-2 (Sheet 2)	LARGE PIPE ISOMETRIC MAKE UP & PURIFICATION FROM LETDOWN COOLERS TO DECAY TANK

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
17-MU-17	LARGE PIPE ISOMETRIC MAKE-UP PUMP SUCTION
17-MU-18	LARGE PIPE ISOMETRIC MAKE-UP PUMP SUCTION
17-MU-19	LARGE PIPE ISOMETRIC MAKE-UP PUMP SUCTION
17-MU-20	LARGE PIPE ISOMETRIC MAKE-UP PUMP DISCHARGE
17-MU-21	LARGE PIPE ISOMETRIC SEAL FLOW TO REACTOR COOLANT PUMPS
17-MU-22	LARGE PIPE ISOMETRIC MAKE UP TO REACTOR COOLANT SYSTEM
17-MU-23	LARGE PIPE ISOMETRIC RCP P-32D HP INJECTION AND CROSS CONNECTION
17-MU-24	LARGE PIPE ISOMETRIC HP INJECTION TO RCS
17-MU-25	LARGE PIPE ISOMETRIC HIGH PRESSURE INJECTION TO REACTOR COOLANT SYSTEM
17-MU-26	LARGE PIPE ISOMETRIC HP INJECTION TO REACTOR COOLANT PUMP P-32A
17-MU-27	LARGE PIPE ISOMETRIC HP INJECTION TO REACTOR COOLANT PUMP P-32B
17-MU-28	LARGE PIPE ISOMETRIC HIGH PRESSURE INJECTION TO REACTOR COOLANT SYSTEM
17-MU-29	LARGE PIPE ISOMETRIC HIGH PRESSURE INJECTION TO REACTOR COOLANT PUMP P-32C (LOOP C)
17-MU-30	LARGE PIPE ISOMETRIC P-32C HP INJECTION
17-MU-31	LARGE PIPE ISOMETRIC HIGH PRESSURE INJECTION TO REACTOR COOLANT PUMP P-32D
17-MU-37	LARGE PIPE ISOMETRIC REDUNDANT HPI INJECTION TO REACTOR COOLANT SYSTEM OUTSIDE CONTAINMENT : LOOPS "A" & "B"

TABLE 2.3
PIPING ISOMETRIC DRAWINGS (con't)

DRAWING NUMBER	TITLE
1?-MU-38	LARGE PIPE ISOMETRIC REDUNDANT HPI INJECTION TO REACTOR COOLANT SYSTEM OUTSIDE CONTAINMENT : LOOPS "C" & "D"
LWA-200	SMALL PIPE ISOMETRIC REACTOR COOLANT PUMP P-32A & B DRAINS TO REACTOR BUILDING DRAIN HEADER
LWA-201	SMALL PIPE ISOMETRIC REACTOR COOLANT SYSTEM VENTS, DRAINS AND MISCELLANEOUS PIPING
MS-210	SMALL PIPE ISOMETRIC STEAM TRAP 5 PIPING
MU-200	SMALL PIPE ISOMETRIC MAKE-UP PUMP DISCHARGE 2P-36A, B & C DISCHARGE TO 2E-26A & B
MU-201	SMALL PIPE ISOMETRIC PRIMARY MAKE-UP PUMP P-36A, B & C DISCHARGE TO SEAL RETURN COOLERS E-26A & B
MU-204	SMALL PIPE ISOMETRIC SEAL FLOW TO REACTOR COOLANT PUMPS
MU-206	SMALL PIPE ISOMETRIC P-32D CONTROLLED BLEED OFF
MU-210	SMALL PIPE ISOMETRIC P-32D SEAL INJECTION
MU-219	SMALL PIPE ISOMETRIC REACTOR COOLANT PUMP, P-32A CONTROLLED BLEED OFF
MU-220	SMALL PIPE ISOMETRIC REACTOR COOLANT PUMP, P-32C SEAL INJECTION
MU-221	SMALL PIPE ISOMETRIC P-32A SEAL INJECTION
MU-223	SMALL PIPE ISOMETRIC REACTOR COOLANT PUMP, P-32B SEAL INJECTION
MU-224	SMALL PIPE ISOMETRIC REACTOR COOLANT PUMP P-32B CONTROLLED BLEED OFF PIPING
MU-225	SMALL PIPE ISOMETRIC REACTOR COOLANT PUMP P-32C CONTROLLED BLEED OFF PIPING
RC-203	PRESSURIZER AUX. SPRAY LINE CCA-9 & CCB-9

SECTION 3.0
INSERVICE INSPECTION PIPING LINE LIST

The Inservice Inspection Piping Line List is a tabulation of the ASME Code Class 1, 2 and 3 lines at ANO-1. Also included are those lines that are "treated as ISI Class 2 (T2)" and "treated as ISI Class 3 (T3)". [Certain sections of piping designated as design Class 3 or non-classed have been upgraded to Class T2, while other sections of non-classed piping were upgraded to Class T3 for inspection and testing purposes. This was done to provide consistency between the ANO-1 and Arkansas Nuclear One, Unit Two (ANO-2), ISI Plans.] The table includes pertinent information on the piping lines within the inservice inspection boundaries.

Under the heading of "Safety Function," the following safety function abbreviations have been assigned to Class 2, 3, T2 and T3 lines. If a particular line serves more than one safety function, each one will be listed.

"R" - Reactor Residual Heat Removal (RHR)
"E" - Emergency Core Cooling (ECC)
"C" - Containment Heat Removal (CHR)
"A" - Atmosphere Cleanup

The following assumptions were used as the basis for the line list:

1) All vent and drain lines are not assigned a safety function.
2) Lines to safety valves which are passive in design basis accidents and only provide for system overpressure protection are not assigned a safety function.
3) Sodium hydroxide tank outlets are assigned an "A" safety function.
4) Service Water lines are assigned the same function as the component(s) they serve.
5) Reactor Building sump recirculation lines are not assigned an "R" safety function. They are listed as an "E" since they serve an ECC function.
6) Class 1, 2, and 3 tubing is typically not assigned a specific line number.
7) The Emergency Feedwater (EFW) pump recirculation lines are included since they are not isolated on EFW actuation.
8) Low Pressure Injection recirculation lines are included since they are unisolable.
9) High Pressure Injection pump recirculation lines beyond the applicable isolation valves are excluded since they are isolated on ECC actuation.
10) Test loops and system interconnections that are provided for operational convenience are not assigned a safety function.

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
CCA-01	28	M-230-1	RCS	1		
CCA-01	36	M-230-1	RCS	1		
CCA-01	1	M-230-1	RCS	1		IWB-1220(b)(1)
CCA-02	10	M-230-1	RCS	1		
CCA-03	0.5	M-231-2	RCS	1		IWB-1220(b)(1)
CCA-03	1	M-230-1	RCS	1		IWB-1220(b)(1)
CCA-03	2.5	M-230-1	RCS	1		
CCA-04	0.5	M-230-1	RCS	1		IWB-1220(b)(1)
CCA-04	2.5	M-230-1	RCS	1		
CCA-04	4	M-230-1	RCS	1		
CCA-05	2.5	M-230-1	RCS	1		
CCA-05	3	M-230-1	RCS	1		
CCA-05	4	M-230-1	RCS	1		
CCA-06	8	M-230-1	RCS	1		
CCA-06	12	M-230-1	RCS	1		
CCA-06	1	M-230-1	RCS	1		IWB-1220(b)(1)
CCA-06	14	M-230-1	RCS	1		
CCA-07	3	M-230-1	RCS	1		
CCA-08	12	M-230-1	RCS	1		

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
CCA-09	1.5	M-230-1	RCS	1		
CCA-13	0.75	M-230-1	RCS	1		IWB-1220(b)(1)
CCA-13	1	M-230-1	RCS	1		IWB-1220(b)(1)
CCA-13	1.5	M-230-1	RCS	1		
CCA-14	0.5	M-235-1	RCS	1		IWB-1220(b)(1)
CCA-15	1	M-230-2	RCS	1		IWB-1220(b)(1)
CCB-01	1.5	M-232-1	DHR	2	R	IWC-1221(a)(1)
CCB-01	2	M-232-1	DHR	2	R	IWC-1221(a)(1)
CCB-01	8	M-230-1	DHR	2	E,R	
CCB-01	12	M-230-1	DHR	2	E,R	
CCB-02	0.75	M-231-2	MU	2		IWC-1222(a)
CCB-02	2.5	M-231-2	MU	2		IWC-1222(a)
CCB-03	0.5	M-231-2	MU	2		IWC-1222(a)
CCB-03	1.5	M-231-2	MU	2		IWC-1222(a)
CCB-03	2.5	M-231-2	MU	2		IWC-1222(a)
CCB-04	0.75	M-231-1	MU	2		IWC-1222(a)
CCB-04	1.5	M-231-1	MU	2		IWC-1222(a)
CCB-04	2	M-231-1	MU	2		IWC-1222(a)
CCB-04	4	M-231-1	MU	2	E	

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
CCB-05	2.5	M-231-3	MU	2	E	
CCB-05	3	M-231-3	MU	2	E	
CCB-05	4	M-231-1	MU	2	E	
CCB-06	14	M-236-1	CF	2	E	IWC-1221(c)
CCB-07	3	M-231-1	MU	2	E	
CCB-07	4	M-231-1	MU	2	E	
CCB-07	1	M-231-1	MU	2	E	IWC-1221(b)(1)
CCB-07	2	M-231-1	MU	2		IWC-1222(a)
CCB-08	1	M-231-1	MU	2	E	IWC-1221(b)(1)
CCB-08	2.5	M-231-1	MU	2		IWC-1222(a)
CCB-09	0.5	M-232-1	DH	2		IWC-1222(a)
CCB-09	1.5	M-232-1	DH	2		IWC-1222(a)
CCB-09	2.5	M-231-1	MU	2	E	IWC-1221(a)(1)
CCB-10	1	M-231-1	MU	2		IWC-1222(a)
CCB-10	2.5	M-231-1	MU	2		IWC-1222(a)
CCB-11	0.75	M-237-1	SMP	2		IWC-1222(a)
CCB-11	0.5	M-237-1	SMP	2		IWC-1222(a)
CCB-12	0.5	M-237-1	SMP	2		IWC-1222(a)
CCB-12	0.75	M-237-1	SMP	2		IWC-1222(a)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
CCB-12	1	M-237-1	SMP	2		IWC-1222(a)
CCB-12	1.5	M-237-1	SMP	2		IWC-1222(a)
CCB-13	1	M-230-2	RCS	2		IWC-1222(a)
CCB-15	0.75	M-238	RCP	2		IWC-1222(a)
CCB-16	1	M-231-2	MU	2		IWC-1222(a)
CCB-17	1	M-230-2	RCS	2		IWC-1222(a)
CCB-18	1	M-230-2	RCS	2		IWC-1222(a)
CCB-19	1	M-230-2	RCS	2		IWC-1222(a)
CCB-20	1	M-230-1	RCS	2		IWC-1220(a)
CCB-21	1.25	M-231-1	MU	2		IWC-1222(a)
CCC-01	1.5	M-238	RCP	3		IWD-1220(a)(1)
CCC-02	0.75	M-238	RCP	3		IWD-1220(a)(1)
CCC-03	0.75	M-238	RCP	3		IWD-1220(a)(1)
CCC-04	1.5	M-238	RCP	3		IWD-1220(a)(1)
CCC-05	0.75	M-231-2	MU	3		IWD-1220(a)(1)
CCC-05	1	M-231-2	MU	3		IWD-1220(a)(1)
CCC-06	1	M-230-1	RBS	3		IWD-1220(a)(1)
DBD-01	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
DBD-01	6	M-204-3	EFW	T3	R	

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
DBD-01	1	M-204-3	EFW	T3		IWD-1220(b)(1)
DBD-01	4	M-204-3	EFW	T3	R	
DBD-02	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
DBD-02	1	M-204-3	EFW	T3		IWD-1220(b)(1)
DBD-02	4	M-204-3	EFW	T3	R	
DBD-02	6	M-204-3	EFW	T3	R	
DBD-03	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
DBD-03	1	M-204-3	EFW	T3		IWD-1220(b)(1)
DBD-03	4	M-204-3	EFW	T3	R	
DBD-03	6	M-204-3	EFW	T3	R	
DBD-04	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
DBD-04	4	M-204-3	EFW	T3	R	
DBD-05	4	M-204-3	EFW	T3	R	
DBD-05	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
EBB-01	18	M-206-1	FW	2		
EBB-01	14	M-206-1	FW	2		
EBB-02	1	M-204-3	EFW	2		IWC-1221(a)(1)
EBB-02	4	M-204-3	EFW	2	R	IWC-1221(a)(1)
EBB-02	6	M-206-1	EFW	2	R	

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
EBB-03	0.75	M-206-1	MS	2		IWC-1222(a)
EBB-03	4	M-204-6	MS	2	R	IWC-1222(a)
EBB-03	8	M-206-1	MS	2	R	
EBB-03	10	M-206-1	MS	2	R	
EBB-03	24	M-206-1	MS	2	R	
EBB-03	26	M-206-1	MS	2	R	
EBB-03	36	M-206-1	MS	2	R	
EBB-03	36	M-206-1	MS	2	R	
EBB-04	4	M-206-1	MS	2		IWC-1222(a)
EBB-05	0.75	M-206-1	MS	2		IWC-1222(a)
EBB-05	1.5	M-206-1	MS	2		IWC-1222(a)
EBB-06	0.75	M-206-1	MS	2		IWC-1222(a)
EBB-06	1.5	M-206-1	MS	2		IWC-1222(a)
EBD-01	36	M-206-2	MS	None		
EBD-03	8	M-206-1	MS	T2	R	
EBD-03	10	M-206-1	MS	T2	R	
EBD-06	3	M-204-6	MS	T3	R	IWD-1220(a)(1)
EBD-06	4	M-204-6	MS	T3	R	IWD-1220(a)(1)
EBD-06	0.75	M-204-6	MS	T3	R	IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
EBD-06	6	M-204-6	MS	T3	R	
EBD-10	18	M-206-1	FW	None		
EBD-11	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
EBD-11	1	M-204-3	EFW	T3		IWD-1220(b)(1)
EBD-11	2	M-204-3	EFW	T3	R	
EBD-11	4	M-204-3	EFW	T3	R	
EBD-18	0.75	M-204-6	MS	T3	R	IWD-1220(a)(1)
EBD-27	4	M-204-6	MS	T3	R	IWD-1220(a)(1)
EBD-28	0.75	M-204-6	MS	T3	R	IWD-1220(a)(1)
ECB-01	0.75	M-206-1	MS	2		IWC-1222(a)
ECB-02	0.75	M-206-1	MS	2		IWC-1222(a)
FCB-01	1	M-236-1	CF	2	E	IWC-1221(a)(1)
FCB-02	0.5	M-230-1	CZ	None		R.G. 1.26
FCB-02	0.75	M-230-1	CZ	None		R.G. 1.26
FCB-02	1	M-230-1	CZ	None		R.G. 1.26
FCB-02	3	M-230-1	CZ	None		R.G. 1.26
FCB-02	6	M-230-1	CZ	None		R.G. 1.26
FCB-02	10	M-230-2	CZ	None		R.G. 1.26
FCB-03	1	M-236-1	CF	2	E	IWC-1221(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
FCB-03	14	M-236-1	CF	2	E	IWC-1221(c)
GCB-01	1.5	M-232-1	DHR	2		IWC-1222(a)
GCB-01	10	M-232-1	DHR	2	E,R	
GCB-01	8	M-232-1	DHR	2		
GCB-01	6	M-232-1	DHR	2	E,R	
GCB-01	2	M-232-1	DHR	2	E,R	IWC-1221(a)(1)
GCB-01	1	M-232-1	DHR	2		IWC-1222(a)
GCB-01	0.75	M-232-1	DHR	2		IWC-1222(a)
GCB-01	2.5	M-232-1	DHR	2	E,R	IWC-1221(a)(1)
GCB-02	6	M-231-1	MU	2	E	
GCB-02	4	M-231-1	MU	2	E	IWC-1221(a)(1)
GCB-02	0.75	M-231-1	MU	2	E	IWC-1221(a)(1)
GCB-02	2	M-231-1	MU	2	E	IWC-1221(a)(1)
GCB-03	3	M-232-1	DHR	2	R,E	IWC-1221(a)(1)
GCB-03	4	M-231-1	MU	2	R,E	IWC-1221(a)(1)
GCB-04	0.75	M-232-1	DHR	2		IWC-1222(a)
GCB-04	2	M-232-1	DHR	2	E,R	IWC-1222(a)
GCB-04	2.5	M-232-1	DHR	2		IWC-1222(a)
GCB-04	3	M-232-1	DHR	2		IWC-1222(a)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
GCB-04	12	M-232-1	DHR	2	E,R	
GCB-04	14	M-232-1	DHR	2	E,R	
GCB-06	1	M-231-1	MU	2	E	IWC-1221(a)(1)
GCB-06	6	M-231-1	MU	2	E	
GCB-10	8	M-232-1	DHR	2		
GCB-12	8	M-236	BS	2	C	
GCB-12	2	M-236	BS	2		IWC-1222(a)
GCB-12	6	M-236	BS	2		
GCB-15	0.75	M-232-1	DHR	2		IWC-1222(a)
GCB-15	2	M-231-1	GRW	2		IWC-1222(a)
GCB-16	1	M-232-1	DHR	2		IWC-1222(a)
GCC-01	0.75	M-232	DHR	3		IWD-1220(a)(1)
GCC-01	2.5	M-232-1	DHR	3		IWD-1220(a)(1)
HBB-01	1	M-218	SA	2		IWC-1222(a)
HBB-02	8	M-234-1	ICW	2		IWC-1222(d)
HBB-03	0.75	M-210	SW	2		IWC-1222(a)
HBB-03	10	M-210	SW	2	C	
HBB-04	2	M-215	GRW	2		IWC-1220(a)
HBB-05	6	M-222	AC	2		IWC-1222(c)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HBB-07	3	M-220	AC	2		IWC-1222(a)
HBB-08	1	M-233	N2	2		R.G. 1.26
HBB-08	10	M-233	N2	2		R.G. 1.26
HBB-09	3	M-219-1	FP	2		IWC-1222(a)
HBB-10	3	M-236	ILRT	2		IWC-1220(a)
HBB-13	2	M-261-3	CAF	2		IWC-1220(a)
HBB-14	0.5	M-261-3	CAF	2		IWC-1220(a)
HBB-14	0.75	M-261-3	CAF	2		IWC-1220(a)
HBB-14	2	M-261-3	CAF	2		IWC-1220(a)
HBB-15	0.75	M-261-3	CAF	2		IWC-1220(a)
HBB-15	1	M-261-3	CAF	2		IWC-1220(a)
HBB-15	2	M-261-3	CAF	2		IWC-1220(a)
HBB-16	0.75	M-261-1	RBHV	2		IWC-1220(a)
HBB-16	54	M-261-1	RBHV	2		IWC-1220(c)
HBB-17	0.75	M-261-1	RBHV	2		IWC-1220(a)
HBB-17	54	M-261-1	RBHV	2		IWC-1220(c)
HBC-01	0.75	M-237-4	SMP	3		IWD-1220(a)(1)
HBC-01	1	M-261-3	CAF	3		IWD-1220(a)(1)
HBC-01	2	M-261-3	CAF	3	A	IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HBC-01	0.25	M-261-3	CAF	3		IWD-1220(a)(1)
HBC-02	1.25	M-261-3	CAF	3	A	IWD-1220(a)(1)
HBC-02	2	M-261-3	CAF	3	A	IWD-1220(a)(1)
HBC-02	1	M-261-3	CAF	3		IWD-1220(a)(1)
HBC-02	0.75	M-237-4	SMP	3		IWD-1220(a)(1)
HBC-02	0.25	M-261-3	CAF	3	A	IWD-1220(a)(1)
HBC-02	3	M-261-3	CAF	3	A	IWD-1220(a)(1)
HBD-02	0.75	M-209-1	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-02	18	M-209-1	SW	T3	C,R,E	
HBD-04	1	M-204-3	EFW	T3		IWD-1220(b)(1)
HBD-04	6	M-204-3	SW	T3	R	
HBD-04	4	M-204-3	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-04	8	M-204-3	EFW	T3	R	
HBD-04	0.75	M-204-3	SW	T3		IWD-1220(a)(1)
HBD-13	3	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-13	18	M-210	SW	T3	C,R,E	
HBD-14	14	M-210	SW	T3	C,R,E	
HBD-14	18	M-210-1	SW	T3	C,R,E	
HBD-14	12	M-210	SW	T3	C,R,E	

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HBD-14	10	M-210	SW	T3	C,R,E	
HBD-14	8	M-210	SW	T3	C	
HBD-14	4	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-14	1.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-14	1	M-209-1	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-14	0.75	M-209-1	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-14	0.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-14	2	M-209-1	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-19	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
HBD-19	4	M-204-3	EFW	T3	R	
HBD-20	12	M-210	SW	T3	C,R,E	
HBD-20	14	M-210	SW	T3	C,R,E	
HBD-20	2	M-209-1	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-20	18	M-209-1	SW	T3	C,R,E	
HBD-21	0.75	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-21	1	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-21	2	M-210	SW	T3	E	IWD-1220(a)(1)
HBD-21	3	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-21	4	M-210	SW	T3	C,R,E	IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HBD-21	8	M-210	SW	T3	C	
HBD-21	10	M-210	SW	T3	C	
HBD-21	12	M-210	SW	T3	C,R,E	
HBD-21	18	M-210	SW	T3	C,R,E	
HBD-24	8	M-204-3	EFW	T3	R	
HBD-24	0.75	M-204-3	EFW	T3		IWD-1220(b)(1)
HBD-42	0.75	M-210	SW	T3		IWD-1220(a)(1)
HBD-43	0.75	M-204-6	MS	T3	R	IWD-1220(b)(1)
HBD-43	1	M-204-6	MS	T3	R	IWD-1220(b)(1)
HBD-45	10	M-210	SW	T3	C	
HBD-45	0.75	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-45	1	M-210	SW	T3	C	IWD-1220(a)(1)
HBD-46	1.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HBD-46	10	M-210	SW	T3	C	
HBD-46	0.75	M-210	SW	T3		IWD-1220(a)(1)
HBD-56	0.5	M-210	SW	T3		)-1220(a)(1)
HCB-01	1.5	M-236	BS	2		IWC-1222(a)
HCB-01	8	M-236	BS	2	C	
HCB-02	1	M-232-1	DHR	2		IWC-1222(a)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCB-02	20	M-232-1	BWST	2	C,R,E	
HCB-02	14	M-232-1	BWST	2	C,R,E	
HCB-02	6	M-232-1	BWST	2	E	
HCB-02	1.5	M-232-1	DHR	2	C,R,E	IWC-1221(a)(1)
HCB-02	0.75	M-232-1	DHR	2		IWC-1222(a)
HCB-02	4	M-232-1	BWST	2	C,R,E	IWC-1221(a)(1)
HCB-03	10	M-235-1	SF	2		IWC-1222(c)
HCB-03	3	M-235-1	SF	2		IWC-1222(a)
HCB-03	8	M-235-1	SF	2		IWC-1222(c)
HCB-05	3	M-230-2	CZ	2		IWC-1222(a)
HCB-05	4	M-213-2	RW	2		IWC-1222(a)
HCB-06	0.75	M-236	BS	2	C	IWC-1221(a)(1)
HCB-06	1	M-236	BWST	2		IWC-1222(a)
HCB-06	4	M-236	BWST	2	C	IWC-1221(a)(1)
HCB-06	8	M-236	BWST	2	C	
HCB-06	10	M-232-1	BWST	2	C	
HCB-07	3	M-234-1	CRD	2		IWC-1222(a)
HCB-09	1	M-237-1	SMP	2		IWC-1220(a)
HCB-09	0.75	M-237-1	SMP	2		IWC-1220(a)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCB-11	0.5	M-235-1	SF	2		IWC-1222(a)
HCB-11	2	M-235-1	SF	2		IWC-1222(a)
HCC-01	3	M-231-2	MU	3		IWD-1220(a)(1)
HCC-01	4	M-232	MU	3		IWD-1220(a)(1)
HCC-01	1	M-231-1	MU	3		IWD-1220(a)(1)
HCC-01	2	M-231	MU	3		IWD-1220(a)(1)
HCC-01	2.5	M-231-1	MU	3		IWD-1220(a)(1)
HCC-02	0.5	M-230	MU	3		IWD-1220(a)(1)
HCC-03	0.5	M-230	MU	3		IWD-1220(a)(1)
HCC-04	1.5	M-231-2	MU	3		IWD-1220(a)(1)
HCC-04	2.5	M-231-2	MU	3		IWD-1220(a)(1)
HCC-05	1	M-231-2	MU	3		IWD-1220(a)(1)
HCC-05	2	M-231-2	MU	3		IWD-1220(a)(1)
HCC-05	3	M-231-1	MU	3		IWD-1220(a)(1)
HCC-08	2.5	M-231-1	MU	3		IWD-1220(a)(1)
HCC-08	4	M-231	MU	3		IWD-1220(a)(1)
HCC-09	6	M-235-1	SF	3		IWD-1220(c)
HCC-09	10	M-235-1	SF	3		IWD-1220(c)
HCC-09	1	M-235-1	SF	3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCC-10	1	M-235-1	SF	3		IWD-1220(a)(1)
HCC-10	3	M-235-1	SF	3		IWD-1220(a)(1)
HCC-10	8	M-235-1	SF	3		IWD-1220(c)
HCC-11	3	M-235-1	SF	3		IWD-1220(a)(1)
HCC-12	3	M-235-1	SF	3		IWD-1220(a)(1)
HCC-12	4	M-235-1	SF	3		IWD-1220(a)(1)
HCC-12	0.5	M-214-1	LRW	3		IWD-1220(a)(1)
HCC-12	6	M-235-1	SF	3		IWD-1220(c)
HCC-13	3	M-235-1	SF	3		IWD-1220(a)(1)
HCC-14	2	M-235-1	SF	3		IWD-1220(a)(1)
HCC-14	4	M-235-1	SF	3		IWD-1220(a)(1)
HCC-14	10	M-235-1	SF	3		IWD-1220(c)
HCC-15	3	M-235-1	SF	3		IWD-1220(a)(1)
HCC-15	0.75	M-235-1	SF	3		IWD-1220(a)(1)
HCC-15	6	M-235-1	SF	3		IWD-1220(c)
HCC-15	1	M-235-1	SF	3		IWD-1220(a)(1)
HCC-15	2	M-235-1	SF	3		IWD-1220(a)(1)
HCC-16	4	M-235-1	SF	3		IWD-1220(a)(1)
HCC-17	0.25	M-231-1	MU	3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCC-17	0.38	M-237-4	SMP	3		IWD-1220(a)(1)
HCC-17	0.75	M-231-1	MU	3		IWD-1220(a)(1)
HCC-17	1.5	M-231-1	MU	3		IWD-1220(a)(1)
HCC-17	3	M-231-1	MU	3		IWD-1220(a)(1)
HCC-17	4	M-231-1	MU	3		IWD-1220(a)(1)
HCC-18	0.75	M-231-2	MU	3		IWD-1220(a)(1)
HCC-18	1	M-231-1	MU	3		IWD-1220(a)(1)
HCC-19	0.75	M-235-1	SF	3		IWD-1220(a)(1)
HCC-21	3	M-231-1	MU	3		IWD-1220(a)(1)
HCC-23	0.75	M-204-3	CST	3		IWD-1220(a)(1)
HCC-23	1	M-204-3	CST	3		IWD-1220(a)(1)
HCC-23	3	M-204-5	CST	3		IWD-1220(a)(1)
HCC-23	8	M-204-3	CST	3	R	
HCC-23	12	M-204-5	CST	3	R	
HCC-24	4	M-204-5	CST	3		IWD-1220(a)(1)
HCC-25	4	M-204-5	CST	3		IWD-1220(a)(1)
HCC-26	4	M-204-5	CST	3		IWD-1220(a)(1)
HCC-27	4	M-204-5	CST	3		IWD-1220(a)(1)
HCC-28	1	M-204-5	CST	3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCC-29	4	M-204-5	CST	3		IWD-1220(a)(1)
HCC-30	6	M-204-5	CST	3	R	
HCC-31	3	M-232-1	BW	T2		IWC-1222(a)
HCC-32	3	M-232-1	BW	T2		IWC-1222(a)
HCD-03	8	M-232-1	BW	T2	C,R,E	
HCD-03	4	M-232-1	BW	T2	C,R,E	IWC-1221(a)(1)
HCD-03	3	M-232-1	BW	T2	C,R,E	IWC-1221(a)(1)
HCD-03	1	M-232-1	BW	T2		IWC-1221(a)(1)
HCD-06	1	M-233	BS	T3	A	IWD-1220(a)(1)
HCD-06	2	M-233	BS	T3	A	IWD-1220(a)(1)
HCD-06	3	M-233	BS	T3	A	IWD-1220(a)(1)
HCD-06	4	M-233	BS	T3	A	IWD-1220(a)(1)
HCD-06	6	M-233	BS	T3	A	IWD-1220(c)
HCD-08	8	M-236	BS	T2	C	IWC-1222(d)
HCD-111	6	M-210	SW	T3	C,R,E	
HCD-111	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-111	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-111	4	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-112	6	M-210	SW	T3	C,R,E	

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCD-112	4	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-112	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-112	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-113	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-113	1.5	M-210	SW	T3		IWD-1220(a)(1)
HCD-113	3	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-113	4	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-113	6	M-210	SW	T3	C,R,E	
HCD-113	8	M-210	SW	T3	C,R,E	
HCD-114	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-114	3	M-210	SW	T3	E	IWD-1220(a)(1)
HCD-114	4	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-115	4	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-115	3	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-115	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-116	4	M-210	SW	T3	R,E	IWD-1220(a)(1)
HCD-116	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-116	3	M-210	SW	T3	R,E	IWD-1220(a)(1)
HCD-117	0.75	M-210	SW	T3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCD-117	3	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-118	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-118	3	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-118	6	M-210	SW	T3	C,R,E	
HCD-123	1	M-209-1	SW	T3		IWD-1220(a)(1)
HCD-123	2	M-209-1	SW	T3	R	IWD-1220(a)(1)
HCD-124	8	M-210	SW	T3	C	
HCD-125	8	M-210	SW	T3	C	
HCD-15	4	M-232-1	BW	T2	C,R,E	
HCD-15	20	M-232-1	BW	T2	C,R,E	
HCD-24	2	M-235	SF	T3		IWD-1220(a)(1)
HCD-28	0.5	M-210	SW	T3		IWD-1220(a)(1)
HCD-29	0.5	M-210	SW	T3		IWD-1220(a)(1)
HCD-34	1.5	M-210	SW	T3		IWD-1220(a)(1)
HCD-34	0.75	M-210	SW	3	C,R,E	IWD-1220(a)(1)
HCD-34	1.25	M-210	SW	3		IWD-1220(a)(1)
HCD-34	1.5	M-210	SW	3		IWD-1220(a)(1)
HCD-36	2	M-210	SW	T3	R,E	IWD-1220(a)(1)
HCD-37	1.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCD-37	2	M-210	SW	T3	R,E	IWD-1220(a)(1)
HCD-37	0.75	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-38	2	M-210	SW	T3	R,E	IWD-1220(a)(1)
HCD-39	1	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-39	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-40	1	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-40	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-41	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-42	1	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-42	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-43	1	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-44	1	M-210	SW	T3	E	IWD-1220(a)(1)
HCD-45	1	M-210	SW	T3	E	IWD-1220(a)(1)
HCD-46	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-46	1	M-210	SW	T3	E	IWD-1220(a)(1)
HCD-47	1.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-48	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-48	1.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-49	1.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCD-49	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-50	0.75	M-210	SW	T3		IWD-1220(a)(1)
HCD-50	1.5	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-54	1.25	M-210	SW	T3		IWD-1220(a)(1)
HCD-54	1.5	M-210	SW	T3		IWD-1220(a)(1)
HCD-55	1	M-210	SW	T3		IWD-1220(a)(1)
HCD-56	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-56	1.5	M-210	SW	T3		IWD-1220(a)(1)
HCD-56	1.25	M-210	SW	T3		IWD-1220(a)(1)
HCD-57	1	M-210	SW	T3		IWD-1220(a)(1)
HCD-58	2	M-210	SW	T3		IWD-1220(a)(1)
HCD-59	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-60	2	M-210	SW	T3	E	IWD-1220(a)(1)
HCD-61	1	M-210	SW	T3		IWD-1220(a)(1)
HCD-61	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-62	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-62	1	M-210	SW	T3		IWD-1220(a)(1)
HCD-63	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-64	1	M-210	SW	T3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HCD-64	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-65	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-65	0.75	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-66	0.75	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-66	2	M-210	SW	T3	C,R,E	IWD-1220(a)(1)
HCD-97	6	M-204-5	CST	T3	R	
HDB-08	3	M-230	CS	2		IWC-1222(a)
HRC-01	2	M-214-1	LRW	3		IWD-1220(a)(1)
HRC-02	1	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-02	2	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-03	0.75	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-03	3	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-03	2.5	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-03	1	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-03	0.5	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-03	2	M-215-1	GRW	3		IWD-1220(a)(1)
HRC-04	0.5	M-215-1	GRW	3		IWD-1220(a)(1)
HSC-01	3	M-214-1	LRW	3		IWD-1220(a)(1)
HSC-01	1.5	M-214-1	LRW	3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HSC-01	4	M-214-1	LRW	3		IWD-1220(a)(1)
HSC-01	2	M-214-3	LRW	3		IWD-1220(a)(1)
HSC-01	0.75	M-213-1	RW	3		IWD-1220(a)(1)
HSC-01	2.5	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-02	1	M-214-3	LRW	3		IWD-1220(a)(1)
HSC-02	1.5	M-214-3	LRW	3		IWD-1220(a)(1)
HSC-02	2	M-231-2	MU	3		IWD-1220(a)(1)
HSC-02	2.5	M-231-2	MU	3		IWD-1220(a)(1)
HSC-02	3	M-231-2	MU	3		IWD-1220(a)(1)
HSC-03	3	M-230-2	CZ	3		IWD-1220(a)(1)
HSC-04	3	M-230-2	CZ	3		IWD-1220(a)(1)
HSC-05	1	M-230-2	CS	3		IWD-1220(a)(1)
HSC-05	1.5	M-230-2	CS	3		IWD-1220(a)(1)
HSC-05	3	M-230-2	CS	3		IWD-1220(a)(1)
HSC-06	3	M-213-1	RW	3		IWD-1220(a)(1)
HSC-06	2	M-213-2	RW	3		IWD-1220(a)(1)
HSC-06	0.75	M-213-2	RW	3		IWD-1220(a)(1)
HSC-06	4	M-213-1	RW	3		IWD-1220(a)(1)
HSC-07	1.5	M-213-1	RW	3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HSC-07	2	M-213-1	RW	3		IWD-1220(a)(1)
HSC-07	3	M-213-1	RW	3		IWD-1220(a)(1)
HSC-10	0.75	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-10	1	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-10	0.5	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-10	0.25	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-10	3	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-11	0.75	M-230-2	SS	3		IWD-1220(a)(1)
HSC-11	1	M-230-2	SS	3		IWD-1220(a)(1)
HSC-12	1	M-215	GRW	3		IWD-1220(a)(1)
HSC-15	2	M-215	GRW	3		IWD-1220(a)(1)
HSC-16	0.75	M-230-2	RBV	3		IWD-1220(a)(1)
HSC-16	2	M-230-2	RBV	3		IWD-1220(a)(1)
HSC-16	1	M-230-2	RBV	3		IWD-1220(a)(1)
HSC-16	1.5	M-230-2	RBV	3		IWD-1220(a)(1)
HSC-17	1	M-236	CF	3		IWD-1220(a)(1)
HSC-18	0.75	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-18	1	M-214-2	LRW	3		IWD-1220(a)(1)
HSC-19	2	M-215-1	GRW	3		IWD-1220(a)(1)

TABLE 3.1
INSERVICE INSPECTION PIPING LINE LIST (con't)

LINE NO.	SIZE (IN)	P&ID	SYS.	ISI CLASS	SAFETY FUNCTION	EXEMPTION BASIS
HSC-21	1	M-215-1	GRW	3		IWD-1220(a)(1)
HSC-21	2	M-215-1	GRW	3		IWD-1220(a)(1)
HSC-22	0.5	M-215-1	GRW	3		IWD-1220(a)(1)
HSD-21	0.5	M-232-1	SW	T3	R,E	IWD-1220(a)(1)
HSD-21	1.5	M-232-1	SW	T3	R,E	IWD-1220(a)(1)
TCD-1	0.5	M-204-3	EFW	T3	R	IWD-1220(a)(1)

LEGEND:

AC	Reactor Building Chilled Water	ILRT	Integrated Leak Rate Testing
BS	Building Spray	LRW	Liquid Radioactive Waste
BW	Borated Water Storage Tank	MS	Main Steam
BWST	Borated Water Storage Tank	MU	Make Up
CAF	Reactor Building HVAC	N_2	Nitrogen
CF	Core Flood	RBHV	Reactor Building HVAC
CRD	Control Rod Drive	RBV	Letdown Cooler Vent
CST	Condensate Storage Tank	RCP	Reactor Coolant Pump
CZ	Pressurizer Relief Discharge	RCS	Reactor Coolant System
DHR	Decay Heat Removal	RW	Radioactive Waste
EFW	Emergency Feed Water	SA	Service Air
FP	Fire Protection	SF	Spent Fuel
FW	Feed Water	SMP	Sampling
GRW	Gaseous Rad Waste	SS	Quench Tank Transfer Pump
ICW	Intermediate Cooling Water	SW	Service Water

SECTION 4.0
INSERVICE INSPECTION SUMMARY TABLES

This section provides a summary listing of all items subject to inservice inspection during the third inspection interval at ANO-1.

4.1 ASME Section XI Inservice Inspections

The ASME Section XI Inservice Inspection Summary Table 4.1 provides the following information:

4.1.1 Examination Category

This column lists the examination category as identified in ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1. Only those examination categories applicable to ANO-1 are identified.

4.1.2 Item Number and Description of Components Examined

These columns list the item number and description as defined in ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1. Only those item numbers applicable to ANO-1 are identified.

4.1.3 Number of Components

This column lists the population of components potentially subject to examination. The number of components actually examined during the inspection interval will be based upon the Code requirements for the subject item number (e.g., 7.5% of Examination Category C-F-1, Item Number C5.11 components will be examined during the inspection interval).

4.1.4 Examination Method

The column lists the examination method(s) required by ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1.

4.1.5 Request Number

This column provides a listing of applicable Requests for Alternatives or Relief Requests. If a request number is identified, see the corresponding Request for Alternative or Relief Request in Section 5.4. This column also lists Requests for Alternatives submitted for all Entergy stations in letter Nos. GNRO-96/00069, 70, 71, and 72 as described in Section 5.1.2 of this ISI Plan.

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
B-A Pressure Retaining Welds in Reactor Vessel	B1.11	Circumferential Shell Welds	4	Volumetric	
	B1.12	Longitudinal Shell Welds	4	Volumetric	
	B1.21	Circumferential Head Welds	1	Volumetric	
	B1.30	Shell-to-Flange Weld	1	Volumetric	
	B1.40	Head-to-Flange Weld	1	Volumetric & Surface	
	B1.50	Repair Welds	1	Volumetric	
B-B Pressure Retaining Welds in Vessels Other Than Reactor Vessels	B2.11	Pressurizer Circumferential Shell-to-Head Welds	2	Volumetric	
	B2.12	Pressurizer Longitudinal Shell-to-Head Welds	3	Volumetric	
	B2.40	Steam Generator Tube Sheet-to-Head Weld	4	Volumetric	
B-D Full Penetration Welded Nozzles in Vessels	B3.90	Reactor Vessel Nozzle-to-Vessel Welds	8	Volumetric	97-004
	B3.100	Reactor Vessel Nozzle Inside Radius Section	8	Volumetric	97-004
	B3.110	Pressurizer Nozzle-to-Vessel Welds	5	Volumetric	
	B3.120	Pressurizer Nozzle Inside Radius Section	5	Volumetric	
	B3.130	Steam Generator (Primary Side) Nozzle-to-Vessel Welds	6	Volumetric	
	B3.140	Steam Generator (Primary Side) Inside Radius Section	6	Volumetric	

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE (cont.)

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
B-F Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles	B5.10	Reactor Vessel Dissimilar Metal Nozzle-to-Safe End Butt Welds NPS 4 or Larger	2	Volumetric & Surface	96-003[1] 97-004
	B5.40	Pressurizer Dissimilar Metal Nozzle-to-Safe End Butt Welds NPS 4 or Larger	2	Volumetric & Surface	
	B5.50	Pressurizer Dissimilar Metal Nozzle-to-Safe End Butt Welds Less than NPS 4	3	Surface	
B-G-1 Pressure Retaining Bolting Greater Than 2 in. in Diameter	B6.10	Reactor Vessel Closure Head Nuts	60	Visual, VT-1	
	B6.20	Reactor Vessel Closure Studs, in Place	60	Volumetric	
	B6.30	Reactor Vessel Closure Studs, when Removed	60	Volumetric & Surface	
	B6.40	Threads in Reactor Vessel Flange	60	Volumetric	
	B6.50	Reactor Vessel Closure Washers, Bushings	60	Visual, VT-1	
	B6.60	Pressurizer Bolts and Studs	1	Volumetric	
	B6.70	Pressurizer Flange Surfaces, When Connection Disassembled	1	Visual VT-1	
	B6.80	Pressurizer Nuts, Bushings, and Washers	1	Visual VT-1	
	B6.180	Pump Bolts & Studs	4	Volumetric	
	B6.190	Pump Flange Surfaces, When Connection Disassembled	4	Visual, VT-1	
	B6.200	Pump Nuts, Bushings, and Washers	4	Visual, VT-1	

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE (cont.)

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
B-G-2 Pressure Retaining Bolting, 2 in. & Less in Diameter	B7.20	Bolts, Studs, & Nuts in the Pressurizer	1	Visual, VT-1	
	B7.30	Bolts, Studs, & Nuts in Steam Generators	8	Visual, VT-1	
	B7.50	Bolts, Studs, & Nuts in Piping	3	Visual, VT-1	
	B7.70	Bolts, Studs, & Nuts in Valves	23	Visual, VT-1	
	B7.80	Bolts, Studs, & Nuts in CRD Housings	69	Visual, VT-1	
B-J Pressure Retaining Welds in Piping	B9.11	Circumferential Welds in Piping NPS 4 or Larger	142	Volumetric & Surface	96-003[1]
	B9.12	Longitudinal Welds in Piping NPS 4 or Larger	52	Volumetric & Surface	GNRO-96/00072
	B9.21	Circumferential Welds in Piping Less than NPS 4	205	Surface	
	B9.31	Branch Pipe Connection Welds NPS 4 or Larger	2	Volumetric & Surface	
	B9.32	Branch Pipe Connection Welds Less than NPS 4	14	Surface	
	B9.40	Socket Welds	29	Surface	
B-K[2] Integral Attachments for Class 1 Vessels, Piping, Pumps & Valves	B10.10[2]	Integrally Welded Attachments to Vessels	21	Surface	GNRO-96/00070
	B10.20[2]	Integrally Welded Attachments to Piping	1	Surface	GNRO-96/00070

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE (cont.)

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
B-L-1 Pump Casing Welds	B12.10	Pump Casing Welds	12	Volumetric	
B-L-2 Pump Casings	B12.20	Pump Casings	4	Visual, VT-3	
B-M-1 Valve Body Welds	B12.40	Valve Body Welds in Valves NPS 4 or Larger	4	Volumetric	
B-M-2 Valve Bodies	B12.50	Valve Bodies, Exceeding NPS 4	10	Visual, VT-3	
B-N-1 Interior of Reactor Vessel	B13.10	Vessel Interior	1	Visual, VT-3	
B-N-2 Integrally Welded Core Support Structures & Interior Attachments to Reactor Vessels	B13.50	Interior Attachments within Beltline Region in Reactor Vessel	1	Visual VT-1	
	B13.60	Interior Attachments beyond Beltline Region in Reactor Vessel	1	Visual, VT-3	

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE (cont.)

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
B-N-3 Removable Core Support Structures	B13.70	Core Support Structure in Reactor Vessel	1	Visual, VT-3	
B-O Pressure Retaining Welds in Control Rod Housings	B14.10	Welds in CRD Housing	69 Total (24 Peripheral)	Volumetric or Surface	
B-P All Pressure Retaining Components (Class 1)	B15.10	RPV - System Leakage Test	1	Visual, VT-2	97-005
	B15.20	Pressurizer - System Leakage Test	1	Visual, VT-2	97-005
	B15.30	Steam Generator - System Leakage Test	2	Visual, VT-2	97-005
	B15.50	Piping - System Leakage Test	See Note 3	Visual, VT-2	97-005
	B15.60	Pumps - System Leakage Test	See Note 3	Visual, VT-2	97-005
	B15.70	Valves - System Leakage Test	See Note 3	Visual, VT-2	97-005
B-Q Steam Generator Tubing	B16.10	Steam Generator Tubing in Straight Tube Design	2	Volumetric[4]	

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE (cont.)

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
C-A Pressure Retaining Welds in Pressure Vessels	C1.10	Shell Circumferential Welds	8	Volumetric	
	C1.20	Head Circumferential Welds	2	Volumetric	
	C1.30	Tubesheet-to-Shell Welds	6	Volumetric	
C-B Pressure Retaining Nozzle Welds in Vessels	C2.11	Nozzle-to-Shell (or Head) Weld in Vessels < 1/2" Nominal Thickness	6	Surface	
	C2.21	Nozzle-to-Shell (or Head) Weld without Reinforcing Plate in Vessels > 1/2" Nominal Thickness	4	Volumetric & Surface	
	C2.22	Nozzle Inside Radius Section	4	Volumetric	
C-C[2] Integral Attachments for Class 2 Vessels, Piping, Pumps and Valves	C3.10[2]	Integrally Welded Attachments to Pressure Vessels	20	Surface	GNRO-96/00070
	C3.20[2]	Integrally Welded Attachments to Piping	102	Surface	GNRO-96/00070

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE (cont.)

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
C-F-1 Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping	C5.11	Circumferential Welds in Austenitic Stainless Steel or High Alloy Piping ≥ 3/8" Nominal Wall Thickness for Piping > NPS 4	467[5]	Volumetric & Surface	97-003
	C5.12	Longitudinal Welds in Austenitic Stainless Steel or High Allow Piping ≥ 3/8" Nominal Wall Thickness for Piping > NPS 4	35[5]	Volumetric & Surface	97-003, GNRO-96/00072
	C5.21	Circumferential Welds in Austenitic Stainless Steel or High Alloy Piping ≥ 1/5" in. Nominal Wall Thickness for Piping ≥ NPS 2 and ≤ NPS 4	665	Volumetric & Surface	97-003
C-F-2 Pressure Retaining Welds in Carbon or Low Alloy Steel Piping	C5.51	Circumferential Welds in Carbon or Low Alloy Steel Piping ≥ 3/8" Nominal Wall Thickness for Piping > NPS 4	193[5]	Volumetric & Surface	
	C5.81	Circumferential Welds in Carbon or Low Alloy Steel Pipe Branch Connections of Branch Piping ≥ NPS 2	18	Surface	
C-H All Pressure Retaining Components (Class 2)	C7.10	Pressure Vessels - System Pressure Test	See Note 3	Visual, VT-2	97-005
	C7.30	Piping - System Pressure Test	See Note 3	Visual, VT-2	97-005
	C7.50	Pumps - System Pressure Test	See Note 3	Visual, VT-2	97-005
	C7.70	Valves - System Pressure Test	See Note 3	Visual, VT-2	97-005

TABLE 4.1
ASME SECTION XI
INSERVICE INSPECTION SUMMARY TABLE (cont.)

Examination Category	Item Number	Description of Components Examined	Number of Components	Examination Method(s)	Request Number(s)
D-A[2] Integral Attachments for Class 3 Vessels, Piping, Pumps & Valves	D1.20[2]	Integrally Welded Attachments to Piping	75	Visual, VT-1[2]	GNRO-96/00070
	D1.30[2]	Integrally Welded Attachments to Pumps	2	Visual, VT-1[2]	GNRO-96/00070
D-B All Pressure Retaining Components (Class 3)	D2.10	Pressure Vessels - System Leakage Test	See Note 3	Visual, VT-2	
	D2.20	Pressure Vessels - System Hydrostatic Test[6]	See Note 3	Visual, VT-2	See Note 6
	D2.30	Piping - System Leakage Test	See Note 3	Visual, VT-2	
	D2.40	Piping - System Hydrostatic Test[6]	See Note 3	Visual, VT-2	See Note 6
	D2.50	Pumps - System Leakage Test	See Note 3	Visual, VT-2	
	D2.60	Pumps - System Hydrostatic Test[6]	See Note 3	Visual, VT-2	See Note 6
	D2.70	Valves - System Leakage Test	See Note 3	Visual, VT-2	
	D2.80	Valves - System Hydrostatic Test[6]	See Note 3	Visual, VT-2	See Note 6
F-A[7] Supports	F1.10[8]	Class 1 Piping Supports	94	Visual, VT-3	
	F1.20[8]	Class 2 Piping Supports	376	Visual, VT-3	
	F1.30[8]	Class 3 Piping Supports	379	Visual, VT 3	
	F1.40[8]	Supports Other Than Piping Supports (Class 1, 2, and 3)	30	Visual, VT-3	

Notes:

1. Request for Alternative 96-003 has been transmitted to the NRC in a separate submittal (1CAN069703) and therefore is not included in this ISI Plan.
2. The Examination Categories, Item Numbers and Examination methods used for the inservice inspection of integrally welded attachments are in accordance with Code Case N-509 (request for alternative submitted in letter No. GNRO-96/00070).
3. Pressure retaining components (e.g., pressure vessels, pumps, valves, piping, etc.) that are subject to system pressure or hydrostatic tests are those components within the systems identified in the Piping and Instrumentation Drawings listed in Table 2.2 of this ISI Plan.
4. The extent, frequency and acceptance standards for the examination of Steam Generator tubing will be in accordance with ANO-1 Technical Specification 4.18.
5. The number of Class 2 piping welds identified in Table 4.1 includes those welds in piping < 3/8" nominal wall thickness in accordance with Note 2 of Table IWC-2500-1, Examination Categories C-F-1 and C-F-2.
6. The Class 3 system hydrostatic pressure tests will be performed to the alternate rules for 10-year hydrostatic pressure testing delineated in Code Case N-498-1. See Section 5.1.2 of this ISI Plan for details.
7. Snubber assemblies will be tested and inspected in accordance with ANO-1 Technical Specification 4.16.
8. Individual supports are further classified by support types which are identified by a single letter suffix to the Code Item Number.

The following suffixes are used at ANO-1:

CODE ITEM SUFFIX	SUPPORT TYPE
A	1-Way Restraint
B	Multi-Directional Restraint
C	Variable Spring
D	Constant Force Spring Hanger
E	Anchor
F	Snubber
G	Whip Restraint
H	Other - Guide
I	Other - Grout
J	Other

SECTION 5.0
ALTERNATIVE REQUIREMENTS TO ASME SECTION XI: 1992 EDITION WITH PRESSURE TESTING CRITERIA FROM THE 1993 ADDENDA

This section lists the alternative requirements to ASME Section XI, 1992 Edition with portions of the 1993 Addenda, being adopted for the third interval inservice inspection program at ANO-1. The alternative requirements presented are in accordance with ASME Section XI and 10CFR50.55a, as applicable.

5.1 Adoption of Code Cases

This section addresses the adoption of Code Cases during the third inservice inspection interval at ANO-1. Code Cases adopted for inservice inspection use during the third interval are listed in Tables 5.1 and 5.2 of this Inservice Inspection Plan. In all cases, the use and adoption of Code Cases will be in accordance with ASME Section XI, IWA-2440 and 10CFR50.55a. The methodology for adopting Code Cases is divided into the four categories clarified below.

5.1.1 Adoption of Code Cases Listed for Generic Use in Regulatory Guide 1.147

Code Cases that are listed for generic use in Regulatory Guide 1.147, Revision 11 and later, are adopted for use during the third inservice inspection interval by inclusion in Table 5.1 of this Inservice Inspection Plan. All conditions or limitations delineated in Regulatory Guide 1.147 for a particular Code Case apply.

TABLE 5.1
LIST OF ADOPTED CODE CASES

CODE CASE NUMBER	TITLE	REG. GUIDE 1.147 REVISION	DATE ADOPTED
N-435-1	Alternative Examination Requirements for Vessels with Wall Thickness 2 in. or Less	11	6/1/97
N-460	Alternative Examination Coverage for Class 1 and 2 Welds	11	6/1/97
N-461	Alternative Rules for Piping Calibration Block Thickness	11	6/1/97
N-481	Alternative Examination Requirements for Cast Austenitic Pump Casings	11	6/1/97

5.1.2 Adoption of Code Cases Not Listed for Generic Use in Regulatory Guide 1.147

Adoption of Code Cases that have been approved by the Board of Nuclear Codes and Standards, but that have not been listed for generic use in Regulatory Guide 1.147, may be submitted in the form of a Request for Alternative in accordance with 10CFR50.55a(a)(3). In addition to the requirements stated in the Code Cases, criteria may be stipulated in the Request for Alternative or may be agreed upon through subsequent correspondence with the NRC. Once approved, these Requests for Alternatives will be available for use at ANO-1 until such time that the Code Cases are adopted into Regulatory Guide 1.147. Once added into Regulatory Guide 1.147, any stipulated conditions for use will be followed, per Section 5.1.1 of this ISI Plan.

Table 5.2 lists those Code Cases which have been previously submitted to the NRC for approval to use at ANO-1. Requests for Alternatives for the Code Cases listed in the table were submitted by Entergy Operations, Inc. in letter numbers GNRO-96/00069, 70, 71, and 72, all dated June 20, 1996. Two additional Code Cases were submitted for review and approval by correspondence dated June 23, 1997 (1CAN069704). Requests to use Code Cases N-521 and N-533 are attached to this submittal. Hydrostatic testing requirements equivalent to those in Code Case N-498-1 were approved for use in the NRC letter dated December 12, 1996 (0CNA129613).

TABLE 5.2
CODE CASES SUBMITTED THROUGH REQUESTS FOR ALTERNATIVES

CODE CASE NUMBER	TITLE	LETTER NUMBER
N-416-1	Alternative Pressure Test Requirement for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2 and 3	1CAN069704
N-508-1	Rotation of Serviced Snubbers and Pressure Relief Valves for the Purposes of Testing	GNRO-96/00071
N-509	Alternative Rules for the Selection and Examination of Class 1, 2 and 3 Integrally Welded Attachments	GNRO-96/00070
N-521	Alternate Rules for the Deferral of Inspections on Nozzle-to-Vessel Welds, Inside Radius Sections and Nozzle-to-Safe End Welds of the Reactor Vessel	Attached
N-524	Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping	GNRO-96/00069
N-532	Alternative Requirements to Repair and Replacement Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000	1CAN069704
N-533	Alternate Rules for Insulation Removal During IWB-5000 and IWC-5000 Pressure Tests at Bolted Connections in Systems Borated for the Purpose of Controlling Reactivity	Attached
N-546	Alternative Requirements for Qualification of VT-2 Examination Personnel	GNRO-96/00072

5.1.3 Adoption of Code Cases Listed for Generic Use in Regulatory Guide 1.147 But Subsequently Annulled by ASME Section XI

Under certain circumstances, it may be necessary to adopt a Code Case that has been listed for generic use in Regulatory Guide 1.147, but subsequently annulled by ASME Section XI. Therefore, Entergy Operations endorses all revisions of

Regulatory Guide 1.147 from Revision 11 up to and including the most recent revision. Endorsement of these revisions of Regulatory Guide 1.147 does not commit Entergy Operations to all the Code Cases listed therein, but rather allows for selection of a previously accepted Code Case. The purpose of this endorsement is to identify all Code Cases that could potentially be incorporated into the Inservice Inspection Plan in accordance with IWA-2441.

5.1.4 Adoption of Code Cases Issued Subsequent to Filing this Inservice Inspection Plan

Code Cases issued by ASME Section XI subsequent to filing this Inservice Inspection Plan will be proposed for use in amendments to this Plan in accordance with ASME Section XI, IWA-2441(d).

Entergy Operations intends to submit a request to use the alternative criteria of ASME Code Case N-560, "Alternative Examination Requirements for Class 1, Category B-J Piping Welds." Entergy Operations is participating in a pilot study for this Code Case which is due to be completed prior to the first refueling outage in the third inservice inspection interval. Since the results of the Code Case pilot study are not available at this time, no Examination Category B-J welds will be inspected prior to the submittal of a Request for Alternative based on Code Case N-560. If this Request for Alternative is not available in time for the first refueling outage, alternative criteria will be submitted to the Nuclear Regulatory Commission which will be based on the 1992 Edition of ASME Section XI, with provisions to address the selection criteria stated in Table IWB-2500-1, Examination Category B-J, Footnote (1)(b).

5.2 Use of Subsequent Editions of ASME Section XI

In accordance with 10CFR50.55a(g)(3)(iv), components (including supports) may meet the requirements set forth in subsequent editions of Codes and Addenda, or portions thereof, which are incorporated by reference in 10CFR50.55a(b), subject to the limitations and modifications listed therein. This Section of the Inservice Inspection Plan provides for alternative requirements from approved subsequent Code editions that may be adopted during the third inservice inspection interval. This Inservice Inspection Plan will be amended periodically for adoption of subsequent Code rules.

5.3 Inservice Inspection Request for Alternative and Relief Request Index

This section provides a summary listing of all Requests for Alternatives and Relief Requests related to inservice inspections at ANO-1 other than the previously listed Code Cases.

TABLE 5.3
INSERVICE INSPECTION REQUEST FOR ALTERNATIVES AND RELIEF REQUEST INDEX

Request No.	Submittal Date	Topic
96-003	6/16/97	Examination of Class 1 Welds in Reactor Pressure Vessel Nozzles and Safe Ends
97-003	Attached	Examination of Class 2 Welds in Piping Less than 3/8 in. Nominal Wall Thickness

5.4 Inservice Inspection Requests for Alternatives and Relief Requests

5.4.1 Alternatives to Code required examinations may be authorized by the NRC, as allowed by 10CFR50.55a(a)(3), provided that design, fabrication, installation, testing and inspection performed in compliance with Codes and Section XI requirements would result in hardship without a compensating increase in the level of quality and safety, or provided that the proposed alternative examination will assure an acceptable level of quality and safety. Specific exceptions shall be documented in the form of a Request for Alternative and included in this Section, as applicable.

5.4.2 This Section shall include Relief Requests written in accordance with 10CFR50.55a(g)(5) when specific ASME Section XI requirements for inservice inspection are considered impractical. If examination requirements are determined to be impractical during the course of the interval, relief requests shall be submitted in accordance with 10CFR50.55a(g)(5).

5.4.3 Relief Requests for incomplete examinations shall be submitted in accordance with 10CFR50.55a(g)(5)(iv) throughout the interval as limitations are identified. Due to ongoing changes in nondestructive examination procedures, techniques and requirements, it is considered that submitting Relief Requests for incomplete examinations when they are evaluated will provide a more accurate representation of the limitations.

REQUEST NUMBER: 97-003
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COMPONENT IDENTIFICATION

Code Class:	2
Reference:	IWC-1220, IWC-2500, Table IWC-2500-1
Examination Category:	C-F-1
Item Numbers:	C5.11, C5.12, C5.21
Description:	Examination of Class 2 Welds in Piping Less than 3/8 in. Nominal Wall Thickness
Component Numbers:	All Class 2 Austenitic Stainless Steel Piping Welds

CODE REQUIREMENT

ASME Section XI, Table IWC-2500, Examination Category C-F-1, Note (2) states the following:

The welds selected for examination shall include 7.5%, but not less than 28 welds, of all austenitic stainless steel or high alloy welds not exempted by IWC-1220. (Some welds not exempted by IWC-1220 are not required to be nondestructively examined per Examination Category C-F-1. These welds, however, shall be included in the total weld count to which the 7.5% sampling rate is applied.) The examinations shall be distributed as follows:

(a) the examinations shall be distributed among the Class 2 systems prorated, to the degree practicable, on the number of nonexempt austenitic stainless steel or high alloy welds in each system (i.e., if a system contains 30% of the nonexempt welds, then 30% of the nondestructive examinations required by Examination Category C-F-1 should be performed on that system);

(b) within a system, the examinations shall be distributed among terminal ends and structural discontinuities prorated, to the degree practicable, on the number of nonexempt terminal ends and structural discontinuities in that system; and

(c) within each system, examinations shall be distributed between line sizes prorated to the degree practicable.

BASIS FOR ALTERNATIVE

Pursuant to 10CFR50.55a(a)(3)(i), an alternative is requested on the basis that it provides an acceptable level of quality and safety.

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BASIS FOR ALTERNATIVE (con't)

Code rules require that a 7.5% sampling rate be applied to all Examination Category C-F-1 piping welds not exempted by IWC-1220. The total weld count to which the sampling rate is applied includes both those welds required to be examined (i.e., ≥ 3/8" nominal wall thickness) and those welds for which examination is not required (i.e., < 3/8" nominal wall thickness). The total number of welds required to be examined are then distributed, in a prorated manner, among those systems requiring examination. Those piping welds less than 3/8" nominal wall thickness, while not requiring examination, will have an impact on the number of examinations required in systems with piping ≥ 3/8" nominal wall thickness.

At ANO-1 a number of the Class 2 systems have piping with nominal wall thickness < 3/8". This includes portions of the Make-up, Decay Heat Removal, Low Pressure Injection and Building Spray systems. In the past, the Nuclear Regulatory Commission has expressed concerns at a number of nuclear facilities, including ANO-2, about examinations not being performed on sections of piping because they were less than 3/8" nominal wall thickness.

In addition to this issue, most of the same Class 2 stainless steel piping is subject to the commitments made in response to Nuclear Regulatory Commission IE Bulletin 79-17, which stipulates examination of pipes susceptible to cracking from stagnant borated systems in Pressurized Water Reactors. The purpose of this Request is to propose alternative examination requirements for Class 2 piping which addresses both the "thin wall piping" and the IE Bulletin 79-17 issues.

Based on the reasons listed below, the proposed alternative examinations will ensure that an acceptable level of quality and safety will be met.

1) Applying a sampling rate of 7.5% to all Examination Category C-F-1 piping welds regardless of wall thickness will ensure that all Class 2 systems will undergo examinations.

2) During the second ten year interval at ANO-1 piping that was originally subject to IE Bulletin 79-17, but not the ASME Code, was upgraded to Class T2 (i.e., treated as Class 2 for inspection and testing purposes). Therefore, this piping is included in the sampling plan and subject to examination.

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BASIS FOR ALTERNATIVE (con't)

3) Intergranular Stress Corrosion Cracking (IGSCC) in Class 2 piping is not the significant concern that it was in 1979. Since IE Bulletin 79-17 was first issued, numerous examinations have been performed. In addition, the cause of the cracking, which was the introduction of sodium thiosulfate, has long since been removed. It is logical to conclude that welds that have not shown signs of cracking thus far would remain defect-free because there is no longer a degradation mechanism to initiate or propagate flaws.

4) The examinations stipulated are conservative, but appropriate. Volumetric examinations are specified on piping which could be susceptible to IGSCC because they are more appropriate than surface examinations for detecting cracking initiating from the inside surface of the pipe. However, even IE Bulletin 79-17 doesn't require volumetric examinations on piping less than 0.250" thick.

PROPOSED ALTERNATE EXAMINATIONS

A uniform 7.5% sampling rate will be applied to all Examination Category C-F-1 piping welds regardless of nominal wall thickness. The examination requirements shall be as follows:

1) Piping $\geq$ 3/8" thick will be subject to volumetric and surface examinations as stated in ASME Section XI.

2) Piping < 3/8" thick which is not subject to IE Bulletin 79-17 will be subject to a surface examination.

3) Piping < 3/8" thick which is subject to IE Bulletin 79-17 will be subject to a volumetric examination.

Systems considered subject to IE Bulletin 79-17 will be those that meet the definition of a "stagnant, oxygenated, borated water system," as stated in the bulletin.

The piping welds selected for examination will still be subject to the distribution requirements stated in ASME Section XI, Table IWC-2500-1, Examination Category C-F-1, Note (2).

APPLICABLE TIME PERIOD

Application of the alternative criteria is requested for the third ten-year interval of the Inservice Inspection Program for ANO-1, which began on June 1, 1997.

REQUEST NUMBER: 97-004
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COMPONENT IDENTIFICATION

Code Class:	1
References:	IWB-2500, Table IWB-2500-1 Code Case N-521
Examination Categories:	B-D, B-F
Item Numbers:	B3.90, B3.100, B5.10
Description:	Alternate Rules for the Deferral of Inspections on Nozzle-to-Vessel Welds, Inside Radius Sections and Nozzle-to-Safe End Welds of the Reactor Vessel
Component Numbers:	Nozzle-to-Vessel Welds (Item No. B3.90) 01-011 01-012 01-013 01-014 01-015 01-016 01-017 01-018 Inner Radius Sections (Item No. B3.100) 01-011R 01-012R 01-013R 01-014R 01-015R 01-016R 01-017R 01-018R Nozzle-to-Safe End Welds (Item No. B5.10) 01-025 01-026

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CODE REQUIREMENTS

ASME Section XI, Table IWB-2500-1, Examination Category B-D requires volumetric examination of reactor vessel nozzle-to-vessel welds and their inside radius sections once each ten-year inspection interval. Note (2) of Examination Category B-D states that at least 25 percent, but not more than 50 percent (credited), of the reactor vessel nozzles shall be examined by the end of the first inspection period, and the remainder by the end of the inspection interval.

Table IWB-2500-1, Examination Category B-F, Note (1) states that the reactor vessel nozzle-to-safe end weld examinations may be performed coincident with the vessel nozzle examinations required by Examination Category B-D.

BASIS FOR ALTERNATIVE

Pursuant to 10CFR50.55a(a)(3)(ii), an alternative is requested on the basis that the original requirements would result in hardship without a compensating increase in the level of quality and safety.

Relief is requested to defer 100 percent of the reactor vessel nozzle-to-vessel weld examinations, the nozzle inside radius section examinations, and the nozzle-to-safe end weld examinations to the third period of the third ten-year inspection interval at ANO-1.

Entergy Operations believes that performing 25 percent to 50 percent of the reactor vessel nozzle examinations in the first period of the third inspection interval is impractical for the following reasons:

1) The vendor cost (not including site training, plant support, or potential critical path time) to perform these examinations with automated tooling in the first inspection period is currently estimated at $250,000. The cost to perform these same examinations at the end of the third inspection interval concurrent with the reactor vessel ten-year examination is estimated at only $25,000. The major expense associated with the first inspection period examinations is the added equipment and personnel mobilization costs and equipment assembly and disassembly costs.

2) Approximately three to four man-rem exposure is currently expended for automated equipment assembly and disassembly in the reactor cavity area. In addition to exposure, there are approximately two to three cubic feet of solid radwaste generated during performance of automated examinations in the reactor vessel. Under current Code rules, this personnel exposure and radwaste generation would be incurred twice; once for the nozzle first inspection period examinations and again for the reactor vessel examinations at the end of the inspection interval. Performing the nozzle examinations concurrent with the reactor vessel ten-year examinations will save approximately three to four man-rem exposure and two to three cubic feet of solid radwaste.

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BASIS FOR ALTERNATIVE (con't)

For reasons listed below, Entergy Operations believes that deferral of 100 percent of the reactor vessel nozzle examinations to the end of the third inspection interval will provide an acceptable level of safety and quality.

1) All Reactor Vessel nozzle-to-vessel welds, nozzle inside radius sections, and nozzle-to-safe end welds were examined in 1995 during the third period of the second ten-year inspection interval. No indications or relevant conditions were discovered that required successive inspections in accordance with Paragraph IWB-2420(b). Furthermore, no inservice repairs or replacements by welding have ever been performed on any of the nozzle-to-vessel welds, nozzle inside radius sections, or nozzle-to-safe end welds at ANO-1.

2) The pressurizer and primary steam generator nozzle-to-vessel welds, inside radius sections, and nozzle-to-safe end welds are similar in configuration, material properties, weld process parameters, and operate in the same reactor coolant system environment as the reactor vessel nozzles. Due to this similarity, distribution of the pressurizer and steam generator nozzle examinations in accordance with Examination Category B-D and Examination Category B-F will further substantiate the integrity of the reactor vessel nozzles until they are examined at or near the end of the third inservice inspection interval.

3) Performing all the automated reactor vessel examinations during a single refueling outage improves consistency of the examinations by utilizing the same equipment, personnel, and procedures. Moreover, this improves the reliability and reproducibility of the examinations.

PROPOSED ALTERNATE EXAMINATION

Entergy Operations shall complete the required nozzle-to-vessel weld examinations, the nozzle inside radius section examinations, and the nozzle-to-safe end weld examinations concurrent with the reactor vessel ten-year examinations during the third period of the third ten-year inservice inspection interval, in accordance with Code Case N-521.

APPLICABLE TIME PERIOD

Application of the alternative criteria is requested for the third ten-year interval of the Inservice Inspection Program for ANO-1, which began on June 1, 1997.

REQUEST NUMBER: 97-005
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COMPONENT IDENTIFICATION

Code Classes:	1 and 2
References:	IWA-5242(a) Code Case N-533
Examination Categories:	B-P and C-H
Item Numbers:	B15.10, B15.20, B15.30, B15.40, B15.50, B15.60, B15.70, C7.10, C7.30, C7.50, C7.70
Description:	Alternate Rules for Insulation Removal During IWB-5000 and IWC-5000 Pressure Tests at Bolted Connections in Systems Borated for the Purpose of Controlling Reactivity
Component Numbers:	Bolted Connections in Systems Borated for the Purpose of Controlling Reactivity

CODE REQUIREMENT

IWA-5242(a) states "For systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for visual examination VT-2."

BASIS FOR ALTERNATIVE

Pursuant to 10CFR50.55a(a)(3)(ii), an alternative is requested on the basis that the original requirements would result in hardship without a compensating increase in the level of quality and safety.

Systems which are borated for the purpose of controlling reactivity at ANO-1 include reactor coolant, decay heat removal, high pressure injection and make-up. These systems encompass a large portion of the overall ISI program and physically cover a large expanse of the reactor building. Many areas in which this piping and the associated bolted connections are located are difficult to access (e.g., scaffold and /or ladder installation is required) and many of these areas are located such that significant radiation exposures would be encountered.

In order to identify leakage to be repaired during the outage, the preferred time frame to perform this inspection is in the beginning of the outage subsequent to depressurization of the reactor coolant system. To perform these inspections at pressure would involve holding the reactor coolant system at operating pressure and temperature for an extended period of time to allow for scaffold construction, insulation removal and VT-2 inspection.

This is normally a relatively short time frame when the unit is transitioning to cold shutdown. Holding the unit at normal operating temperature and pressure for an extended period of time would result in a significant delay in going to cold shutdown.

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BASIS FOR ALTERNATIVE (con't)

Performing this inspection at the end of the outage would be ineffective, since finding leakage at that time would constitute bringing the unit back to cold shutdown to perform the repair and then beginning the start up process over again. Also, in order to reinsulate the reactor coolant system at the end of the outage, the unit would have to remain at hot standby while the insulation is reinstalled and the scaffolding is removed. Typically, the reinstallation of insulation and removal of scaffolding is performed prior to leaving cold shutdown.

In addition, the removal and reinstallation of insulation with plant equipment in operation at system pressure and temperature increases the risk of personnel injury and presents a safety concern to plant personnel. The personnel risk and radiation exposure is significant for the removal and reinstallation of insulation at these bolted connections during pressure testing activities.

A VT-2 visual examination with the system depressurized would still provide adequate detection of leakage because boric acid residue can be easily detected with insulation removed at the bolted connection.

Based on the previously stated reasons, Entergy Operations requests relief from the inspection at operating pressure requirements detailed in IWA-5242(a). In lieu of these requirements, Entergy Operations proposes the alternative examination requirements that follow.

PROPOSED ALTERNATIVE EXAMINATION

A system pressure test with a minimum four hour hold time and VT-2 visual examination shall be performed each refueling outage without the removal of insulation on systems borated for the purpose of controlling reactivity.

Each refueling outage, the insulation shall be removed from the bolted connections in systems borated for the purpose of controlling reactivity, and a VT-2 visual examination shall be performed on each of the connections. During this VT-2 examination, the connections are not required to be pressurized. Any evidence of leakage shall be evaluated in accordance with IWA-5250.

These alternative examination requirements are the same as those specified in ASME Section XI Code Case N-533 as approved by the Board of Nuclear Codes and Standards, with the additional four hour hold time provision stated above.

These alternatives provide reasonable assurance that safety and integrity will be maintained for bolted connections in systems borated for the purpose of controlling reactivity.

REQUEST NUMBER: 97-005
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APPLICABLE TIME PERIOD

Application of the alternative criteria is requested for the third ten-year interval of the Inservice Inspection Program for ANO-1, which began on June 1, 1997.