

Mr. C. Randy Hutchinson
Vice President, Operations ANO
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72801

December 2, 1997

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION PERTAINING TO THE ARKANSAS
NUCLEAR ONE (ANO-1) THIRD 10-YEAR INSERVICE INSPECTION PROGRAM
(TAC NO. M99243)

Dear Mr. Hutchinson:

This is a request for additional information. The request pertains to the ANO-1 third 10-year inservice inspection program and associated requests for alternatives submitted by you on June 25, 1997. The requested additional information is contained in the enclosure to this letter.

We request your response before the end of 1997 to enable us to maintain our review schedule. Also to expedite our review, please send a copy of your response directly to our contractor, Mr. Michael T. Anderson, at the Idaho National Engineering and Environmental Laboratory (INEEL) at the following address:

INEEL Research Center
2151 North Boulevard
P.O. Box 1625
Idaho Falls, ID 83415-2209

Please communicate with your Nuclear Regulatory Commission project manager if the requested schedule can not be met.

Sincerely,

ORIGINAL SIGNED BY:

George Kalman, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-313

Enclosure: Request for Additional Information

cc w/encl: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Mr. C. Randy Hutchinson
Entergy Operations, Inc.

Arkansas Nuclear One, Unit 1

cc:

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County Judge of Pope County
Pope County Courthouse
Russellville, AR 72801

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE - UNIT 1

DOCKET NO. 50-313

CIVIL ENGINEERING AND GEOSCIENCES BRANCH

DIVISION OF ENGINEERING

Request for Additional Information - Third 10-Year Interval Inservice
Inspection Program Plan

Scope/Status of Review

Throughout the service life of a water-cooled nuclear power facility, 10 CFR 50.55a(g)(4) requires that components (including supports) that are classified as American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, Class 2, and Class 3 meet the requirements, except design and access provisions and preservice examination requirements, set forth in the ASME Code Section XI, "*Rules for Inservice Inspection of Nuclear Power Plant Components*", to the extent practical within the limitations of design, geometry, and materials of construction of the components. This section of the regulations also requires that inservice examinations of components and system pressure tests conducted during the successive 120-month inspection intervals comply with the requirements in the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the start of a successive 120-month interval, subject to the limitations and modifications listed therein. The components (including supports) may meet requirements set forth in subsequent editions and addenda of the Code that are incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Nuclear Regulatory Commission (NRC) approval. As authorized in the NRC's safety evaluation dated December 12, 1996, the licensee, Entergy Operations, Inc. has prepared the Arkansas Nuclear One, Unit 1, (ANO-1) Inservice Inspection (ISI) Program Plan to meet the requirements of the 1992 Edition of Section XI of the ASME Code, with pressure testing requirements from the 1993 Addenda. The third 10-year interval for ANO-1 started June 1, 1997, and is scheduled through May 31, 2007.

ENCLOSURE

The staff has reviewed the available information in the "Third Ten-Year Interval Inservice Inspection Plan for Arkansas Nuclear One, Unit 1" Revision 0, submitted June 25, 1997, by Entergy Operations, Inc., including three proposed alternatives to the requirements of the Code of Record.

2. Additional Information Required

Based on the above review, the staff has concluded that the following information and/or clarification is required in order to complete the review of the third 10-year ISI Program Plan:

Section 1.1.3, of the "Inservice Inspection Plan for ANO-1" references an "Inservice Inspection Program for ANO-1". Provide the staff with a copy of the "Inservice Inspection Program for ANO-1". The referenced Program may contain some of the information requested below in Items B, C, D, and E. In any case, ensure the following is provided for staff review.

Provide the staff with the Boundary Diagrams which define the ASME Code Class 1, Class 2, and Class 3 boundaries for the systems in the ANO-1, Third 10-Year Interval ISI Program Plan.

Provide isometric and/or component drawings showing the Code Class 1 and 2 piping welds, components and supports that Section XI of the ASME Code requires to be examined during the third 10-year inspection interval. Provide the staff with a summary of examinations (itemized listing of the components) scheduled to be performed during each period of the third 10-Year interval. The requested summary, along with the requested isometric/component drawings, will permit the staff to determine if the extent of ISI examinations meets the applicable Code requirements. Provide a list of the ultrasonic calibration standards being used during the third 10-year interval ISI at ANO-1. The list should include the calibration standard identifications, material specifications, and sizes. Section 1.2.1 states: "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)."

Provide the staff with the status of the augmented reactor pressure vessel examinations required by 10CFR50.55a(g)(6)(ii)(A), effective September 8, 1992. In accordance with the regulations, plants with greater than 40 months remaining in the interval on the effective date of the rule, were required to perform the augmented examination in that interval. Based on the end date for the second 10-year interval at ANO-1, the augmented examinations should have been performed. Provide a technical discussion (include any specialized techniques or equipment used) describing how the regulations were implemented at ANO-1.

Augmented examinations have been established by the NRC when added assurance of structural reliability is deemed necessary. Section 1.4 of the "Inservice Inspection Plan for ANO-1" lists augmented inservice inspections. Provide the staff with clarification on the following:

- (1) Section 1.4.2 states: "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 G6D-1005-29, Appendix B, and ANO-1 Technical Specification 4.15."

Address the degree of compliance with, and/or any exceptions to, NRC Branch Technical Position MEB 3-1, *High Energy Fluid Systems, Protection Against Postulated Piping Failures in Fluid Systems Outside Containment*.

- (2) Section 1.4.6 states: "Surface and volumetric examinations of reactor coolant pump flywheels shall be conducted in accordance with ANO-1 Technical Specification 4.2.6."

Address the degree of compliance with, and/or any exceptions to, NRC Regulatory Guide 1.14, *Reactor Coolant Pump Flywheel Integrity*, Revision 1, August 1975.

Request for Alternative 97-003 proposes a uniform 7.5% sampling rate for all Examination Category C-F-1 piping welds regardless of nominal wall thickness. The examination requirements are stated to 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."

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. The staff is concerned with the total number of Class 2 welds, including the piping welds $< 3/8$ " nominal wall thickness, receiving 'volumetric' examinations. What is the percentage and total number of the welds selected for examination, including welds $< 3/8$ " nominal wall thickness, that is receiving a 'volumetric' examination? Provide the staff with a table listing the specific welds, their nominal wall thicknesses, and the type of examinations being performed (volumetric and/or surface) for the welds applicable to Request for Alternative 97-003.

In Request for Alternative 97-005, the licensee has proposed an alternative to the Code-required removal of insulation on borated Class 1 and Class 2 systems for the VT-2 examinations during pressure tests. This alternative is similar to Code Case N-533. However, the licensee has proposed the following:

"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."

The purpose of a VT-2 visual examination is to look for evidence of leakage so that, if leakage has occurred, corrective action may be taken. Because certain Class 2 systems are required for the safe shutdown of the plant (i.e., provide emergency shutdown features), it is technically prudent to monitor the integrity of their bolted connections in a similar manner to Class 1 systems. For Class 2 systems, the Code requires pressure tests on a periodic basis. The staff has determined that

because hydrostatic pressure test requirements can be satisfied by pressure tests performed at normal operating pressure and because the subject VT-2 test can be performed during refueling outages by looking for evidence of leakage, the subject insulation removal frequency is not pressure-test dependent. Therefore, the requirement for insulation removal is the same for both Class 1 and 2 borated systems and licensees are required to remove insulation and perform VT-2 visual examinations of all bolted connections in Class 1 and 2 systems borated for control of reactivity during each refueling outage. Confirm that insulation removal will be performed for both Class 1 and 2 borated systems each refueling outage.

Verify that there are no additional relief requests or requests for proposed alternatives, other than those submitted June 25, 1997. If additional requests are required, the licensee should submit them for staff review.

The schedule for timely completion of this review requires that the licensee provide, by the requested date, the above requested information and/or clarifications regarding the Arkansas Nuclear One, Unit 1, Third 10-Year Interval ISI Program Plan.