January 25, 2002

Mr. Craig G. Anderson
Vice President, Operations ANO
Entergy Operations, Inc.
1448 S. R. 333
Russellville, Akansas 72801

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 - RE: REQUEST FOR RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE (CODE) CONCERNING SECOND TEN-YEAR INSERVICE INSPECTION (ISI) (TAC NO. MB1563)

Dear Mr. Anderson:

By letter dated March 26, 2001, Entergy Operations, Inc. (licensee) submitted its proposed Second Ten-year ISI Program Plan requests for relief for Arkansas Nuclear One, Unit 2 (ANO-2). The licensee provided additional information for Relief Request ISI-01-2-005, by supplemental letter dated August 23, 2001.

The U. S. Nuclear Regulatory Commission (NRC) staff concludes that compliance with the Code requirements would result in hardship without a compensating increase in the level of quality and safety, and that the requirements of the Code are impractical and the examinations performed provide reasonable assurance of structural integrity of the subject components. Therefore, the licensee's proposed reliefs are authorized pursuant to 10 CFR 50.55a(3)(ii), and granted pursuant 10 CFR 50.55a(g)(6)(i), for the second ten-year ISI interval at ANO-2.

The NRC staff's safety evaluation is enclosed.

Sincerely,

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT 2

DOCKET NUMBER 50-368

1.0 INTRODUCTION

By letter dated March 26, 2001, Entergy Operations, Inc. (Entergy or the licensee) submitted its proposed Second Ten-year Interval Inservice Inspection (ISI) Program Plan Requests for Relief for ANO-2. The licensee provided additional information for Relief Request ISI-01-2-005, by supplemental letter dated August 23, 2001.

2.0 BACKGROUND

ISI of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Code and its applicable addenda, as required by 10 CFR 50.55a(g), except where specific relief has been granted by the U.S. Nuclear Regulatory Commission (NRC or the Commission) pursuant to 10 CFR 50.55a(g)(6)(i). Pursuant to 10 CFR 50.55a(a)(3), alternatives to the requirements of paragraph (g) may be used when authorized by the NRC, if the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in 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. The regulations require that inservice examination of components and system pressure tests conducted during the first ten-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the ANO-2 Second Ten-year ISI interval is the 1986 Edition of the ASME Boiler and Pressure Vessel Code. The licensee's second ten-year ISI interval ended March 26, 2000.

3.0 EVALUATION OF RELIEF REQUESTS

The NRC staff has reviewed the information concerning the second ten-year ISI program requests for relief for ANO-2, in the licensee's letter dated March 26, 2001, as supplemented by letter dated August 23, 2001, and the basis for disposition is documented below:

3.1 Relief Request ISI-01-2-001, Rev. 0

Components for which relief is requested:

Nozzle to safe end to circumferential weld and safe end to pressurizer surge nozzle. Component 2BCA-1-12" ISI #16-001N & 16-004

Code Requirements:

ASME Section XI, Table IWB-2500-1, Examination Category B-F, Item B5.130 requires a surface examination and a volumetric examination on circumferential piping welds as defined by Figure IWB-2500-8. Item B5.40 requires a surface and volumetric examination of circumferential welds as defined by Figure IWB-2500-8.

Licensee's proposed alternative:

None

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(g)(6)(i), Entergy requests relief from achieving the Code-required greater than 90% coverage when performing volumetric examinations on the circumferential welds identified above."

Licensee's Basis for Relief (as stated):

"Both of the referenced examinations were dissimilar metal welds that attached a stainless steel safe-end to a carbon steel/clad nozzle. Due to the coarse grain structure of the stainless steel safe-end and the inconel interface, a 45°, refracted longitudinal-wave search-unit was used. The search-unit was a dual element, 1.0 MHz, which was necessary to provide adequate sound penetration in the component. The rectangular design yielded a contact surface of approximately 1.25" x 1.35".

The examinations were limited to a one half-vee path; therefore credit could not be taken for skipping sound off the inside-diameter. Only shear-wave search units provide credible examinations when examining beyond one-half-vee and could not be used effectively for these applications due to the metallurgical design of the welds.

Geometric scanning limitations exist on both welds, as follows:

16-001 The downstream safe-end to pipe weld 16-003 limited the axial scan path due to interference with the search-unit at the toe of the 16-003 weld.

The slightly angled surface of the weld crown prevented scanning over the weld without lift-off of the search-unit. This condition is the limiting factor in reducing the scan coverage. Due to these conditions and the size of the transducer, the two directional coverage achieved on this weld was 68.18%. 100% of the weld was inspected using the dye penetrant inspection method.

16-014 The upstream safe-end to pipe weld 16-013 limited the axial scan path due to interference with the search-unit at the toe of the 16-013 weld.

The slightly angled surface of the weld crown prevented scanning over the weld without lift-off of the search-unit. This condition is the limiting factor in reducing the scan coverage. Due to these conditions and the size of the transducer, the two directional coverage achieved on this weld was 42.38%. 100% of the weld was inspected using the dye penetrant inspection method.

Entergy Operations[, Inc.] is physically unable to perform the required inspections due to pressurizer surge nozzle design."

Evaluation:

The Code for Items B5.130 and B5.40 requires a surface and volumetric examination of circumferential piping welds as defined by Figure IWB-2500-8.

Based on the information provided in this request for relief, it is impractical to examine the subject welds to the extent required by the Code. In order to obtain the required examination coverage, redesign and modification of the subject components would be necessary. Imposition of this requirement would result in a significant burden on the licensee.

The licensee has examined the subject welds to the extent practical which amounts to composite coverage of 68.18% and 42.38%. The percentages covered on these individual welds, along with the information obtained from similar nozzle weld examinations, should have revealed any ongoing conditions of degradation if it had occurred. The limited examinations, combined with 100% surface examinations and Code-required visual inspections (VT-2) performed during system pressure tests, provide reasonable assurance of the continued structural integrity of these nozzle-to-vessel welds.

3.2 Relief Request ISI-01-2-002, Rev. 0

Components for which relief is requested:

Welds on Control Element Drive Mechanism (CEDM) Housing Welds ISI #2-W-69, 2-W-80, and 2-W-81

Code Requirement:

ASME Section XI, Table IWB-2500-1, Examination Category B-O, Item B14.10 requires a surface examination or a volumetric examination on the welds on the CEDM housings of 10% of the peripheral of the CEDMs.

Licensee's Proposed Alternative:

None.

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(g)(6)(i), Entergy requests relief from achieving the Code-required greater than [sic] 90% coverage when performing volumetric examinations on the lower CEDM housing welds identified above."

Licensee's Basis for Relief (as stated):

"Automated ultrasonic examinations were performed on the lower CEDM housing welds. Automated ultrasonic examinations were required due to interference's [sic] with the cooling shroud and the lower CEDM housing welds. This interference did not allow access to perform a manual inspection of the welds. The shroud is welded to the vessel head, which made access to the lower housing welds only achievable from the top of the CEDM. Once the automated device was lowered to the bottom housing welds, limited coverage was achieved, due to the interferences between the automated device and the cooling shroud. The scanning performed on these welds was accomplished using a 45° and 60° longitudinal [transducer]. Axial scans were performed with the 45° and 60° longitudinal transducer while a 45° longitudinal transducer was used for the circumferential scan.

Coverage achieved was as follows:
ISI#2-W-69 84%
ISI#2-W-80 82%
ISI#2-W-81 84%

Entergy Operations[, Inc.] is physically unable to perform the required inspections due to CEDM configuration."

Evaluation:

The Code requires a surface examination or a volumetric examination on the welds on the CEDM housings of 10% of the peripheral of the CEDMs

Based on the information provided in this request for relief, it is impractical to examine the subject welds to the extent required by the Code. In order to obtain the required examination coverage, redesign and modification of the subject components would be necessary. Imposition of this requirement would result in a significant burden on the licensee.

The licensee has examined the subject welds to the extent practical. The licensee obtained volumetric coverages of 84% for weld ISI#2-W-69, 82% for weld ISI#2-W-80, and 84% for ISI#2-W-81. The percentages covered on these individual welds should have revealed any ongoing conditions of degradation if it had occurred. The limited examinations combined and Code-required visual inspections (VT-2) performed during system pressure tests provides reasonable assurance of continued structural integrity of the subject welds.

3.3 Relief Request ISI-01-2-003, Rev. 0

Components for which relief is requested:

Vessel Welds ISI#01-006, 01-008, 01-012, 01-013, 01-018, 01-019, 01-020

Code Requirement:

ASME Section XI, Table IWB-2500-1, Examination Category B-A, Items B1.22, B1.11, B1.12, and B1.30 require a volumetric examination on the welds on the Reactor Vessel.

Licensee's Proposed Alternative:

None.

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(g)(6)(i), Entergy requests relief from achieving the Code-required greater than 90% coverage when performing volumetric examinations on the above mentioned welds."

Licensee's Basis for Relief (as stated):

"Automated ultrasonic examinations were performed on the Unit 2 Reactor Vessel for the Second [Ten-]Year Interval. This inspection had seven B-A welds that could not achieve the required greater tha[n] [sic] 90% coverage. Scanning was conducted bi-directionally on all vessel shell welds in accordance with Wesdyne Operating Procedures. The list below identifies each weld, the reason for limitation and the percent coverage achieved.

01-006 - Bottom Head Meridian - This weld examination was limited due to the location of the flow skirt. Coverage achieved was 60%.

01-008 - Bottom Head to Lower Shell - This weld examination was limited due to the location of the core lugs and core stop lugs. Coverage achieved was 66.7%.

01-012 - Lower shell to Middle Shell - This weld examination was limited due to the location of the specimen capsule holders. Coverage achieved was 83.66%.

01-013 - Mid Long Seam Weld @ 90° - This weld examination was limited due to the location of the specimen capsule holders. Coverage achieved was 77.66%.

01-018 - Upper Long Seam Weld @ 210° - This weld examination was limited due to the location of the nozzle boss. Coverage achieved was 81%.

01-019 - Upper Shell Long Seam @ 330° - This weld examination was limited due to the location of the nozzle boss. Coverage achieved was 86.5%.

01-020 - Upper Shell to Flange Circumferential Weld - This weld examination was limited due to the flange taper. Coverage achieved was 87.3%.

Entergy Operations, [Inc.] is physically unable to perform the required inspections due to reactor vessel design."

Evaluation:

The Code requires a 100% volumetric examination on the welds on the Reactor Vessel Shell Welds. The licensee noted that automated ultrasonic examinations were performed on the Unit 2 Reactor Vessel Shell Welds. There were seven B-A welds in which the licensee could not achieve the required 100% volumetric coverage. Scanning was conducted bi-directionally on all vessel shell welds.

Based on the information provided in this request for relief, it is impractical to examine the subject welds to the extent required by the Code. In order to obtain the required examination coverage, redesign and modification of the subject components would be necessary. Imposition of this requirement would result in a significant burden on the licensee.

The licensee has examined the subject welds to the extent practical. The licensee obtained volumetric coverages of 60% through 87.3%. The percentages covered on these individual welds should have revealed any ongoing conditions of degradation if it had occurred. The limited examinations combined and Code-required visual inspections (VT-2) performed during system pressure tests provide reasonable assurance of continued structural integrity of the subject welds.

3.4 Relief Request ISI-01-2-004, Rev. 0

Components for which relief is requested:

Vessels welds ISI#01-021, 01-022, 01-023, 01-024, 01-025, and 01-026.

Code Requirement:

ASME Section XI, Table IWB-2500-1, Examination Category B-D, Item B3.90, requires a volumetric examination on the inlet and outlet to shell welds on the Reactor Vessel

Licensee's Proposed Alternative:

None.

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(g)(6)(i), Entergy requests relief from achieving the Code-required greater than 90% coverage when performing volumetric examinations on the above mentioned welds."

Licensee's Basis for Relief (as stated):

"Automated ultrasonic examinations were performed on the Unit 2 Reactor Vessel for the Second [Ten-]Year Interval. This inspection had six B-D welds that could not achieve the required greater that 90% coverage. All of the nozzle welds were examined from within the nozzle bore and from the shell ID surface in accordance with Wesdyne Operating Procedure CARK-ISI-254, Rev. 0. The list below identifies each weld, the reason for limitation and the percent coverage achieved.

01-021 - Outlet Nozzle to Shell @ 0° - This weld examination was limited due to the nozzle boss. Coverage achieved was 49%.

01-022 - Inlet Nozzle to Shell @ 60° - This weld examination was limited due to saddle geometry. Coverage achieved was 88%.

01-023 - Inlet Nozzle to Shell @ 120° - This weld examination was limited due to saddle geometry. Coverage achieved was 88%.

01-024 - Outlet Nozzle to Shell @ 180° - This weld examination was limited due to the nozzle boss. Coverage achieved was 49%.

01-025 - Inlet Nozzle to Shell @ 240° - This weld examination was limited due to saddle geometry. Coverage achieved was 88%.

01-026 - Inlet Nozzle to Shell @ 300 - This weld examination was limited due to the location of the nozzle boss. Coverage achieved was 88%.

Entergy is physically unable to perform the required inspections due to reactor vessel design."

Evaluation:

The Code requires a 100% volumetric examination on the inlet and outlet to nozzle shell welds on the Reactor Vessel. The licensee noted that automated ultrasonic examinations were performed on the Unit 2 Reactor Vessel for the second ten-year interval. This inspection had six B-D welds in which the licensee could not achieve the required 100% volumetric coverage. All of the nozzle welds were examined from within the nozzle bore and from the shell inside diameter surface.

Based on the information provided in this request for relief, the staff has determined that it is impractical to examine the subject welds to the extent required by the Code. In order to obtain the required examination coverage, redesign and modification of the subject components would be necessary. Imposition of this requirement would result in a significant burden on the licensee.

The licensee has examined the subject welds to the extent practical. The licensee obtained volumetric coverages of 49% through 88%. The percentages covered on these individual welds should have revealed any ongoing conditions of degradation if it had occurred. The limited examinations combined and Code- required visual inspections (VT-2) performed during system pressure tests provide reasonable assurance of the continued structural integrity of the subject welds.

3.5 Relief Request ISI-01-2-005, Rev. 0

Components for which relief is requested:

Vessel Support Welds ISI#01-089, 01-190, and 01-091

Code Requirement:

ASME Section XI, Table IWB-2500-1, Examination Category B-H, Item B8.10 requires a volumetric or surface examination on the Integrally Welded Attachments on the Reactor Vessel.

Licensee's Proposed Alternative:

None.

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy requests relief from performing the Code-required examinations on the above mentioned welds [Vessel Supports Welds ISI#01-089, 01-090, and 01-091]."

Licensee's Basis for Relief (as stated):

"The Reactor Pressure Vessel is supported by pads welded to the underside of two cold leg and one hot leg nozzle, which normally have stress loads in compression. It was found that, if the inspections were to be attempted from the bottom of the reactor vessel, the limited area from the vessel to the concrete wall would not allow enough room for scaffolding. In order to access the supports from the top of the vessel, it would be necessary to remove a number of access hole covers located in the shield plate. Once inside the access holes, carbon/graphite blocks (used for air cooling) exist. These blocks would have to be removed to access the vessel supports. Surveys taken above the blocks are approximately 45 mrem/hr, while under the blocks, dose rates are approximately 4.5 Rem/hr. An average of the expected doses while performing scaffold work in this area are assumed to be 2 Rem/hr. The following list contains estimates of personnel dose that would be received, if these inspections were pursued:

- It would take approximately 10.5 man-hrs to take measurements for scaffolding needed to inspect all three nozzles. Using an average of 2 Rem/hr for 10.5 hrs would give you an estimated dose of 13 Rem for taking measurements.
- To build scaffold 15 man-hrs are required for each support 45 man-hrs at 2 Rem/hr = 90 Rem
- Three man-hrs to clean adhered scale, rust, and minor surface irregularities on each support weld. This could possibly create non-relevant indications. Nine man-hrs using 4 Rem/hr = 36 Rem.
- Two men at 1 hour per support to perform a magnetic particle inspection. Two man hrs times 3 supports = 6 man-hrs at 4 Rem/hr =24 Rem.
- Health Physics support for the job would be estimated to be 58 Rem.

Totaling the above items, the accumulated dose of this task would be 221 Rem.

All support pad base and weld materials were procured in compliance with ASME Section III, with all stresses within the requirements of ASME Section III. The supports are adequate for fatigue due to cyclic loads resulting from heatup, cooldown and seismic with a maximum usage factor of .0002.

The above doses would present an undue burden on the inspectors to perform these inspections."

Additional information from the licensee's supplemental letter dated August 23, 2001.

"However, in lieu of a volumetric or surface examination of the supports, Entergy was able to perform visual inspections of the supports below the shield blocks on the bottom head of the vessel. The inspection was conducted in May 1997 during the ANO-2 2R12 refueling outage, which consisted of a visual examination for boric acid deposits for potential corrosion. The presence of significant corrosion could indicate a potential for degradation of the structural integrity of the vessel supports. The results indicated that only light boron deposits were present on the supports. It was concluded that there is no active degradation occurring on the supports that would impair their structural integrity."

Evaluation:

The Code requires a volumetric or surface examination on the Integrally Welded Attachments on the Reactor Vessel. The licensee noted that the Reactor Pressure Vessel is supported by pads welded to the underside of two cold leg and one hot leg nozzle, which normally have stress loads in compression. The inspections of these integrally welded attachments were attempted from the bottom of the reactor vessel and the limited area from the vessel to the concrete wall would not allow enough room for the licensee to erect scaffolding. In order for the licensee to access the supports from the top of the vessel, it would be necessary to remove a number of access hole covers located in the shield plate.

Once inside the access holes, carbon/graphite blocks (used for air cooling) exist. These blocks would have to be removed by the licensee to access the vessel supports. Radiological surveys were taken above the blocks and the licensee found it to be

approximately 45 mrem/hr. In addition, the dose rates were approximately 4.5 Rem/hr under the blocks. The average of the expected doses while performing scaffold work in this area were assumed to be 2 Rem/hr. The licensee noted that the total accumulated dose of this task to erect scaffolding, prepare the weld for inspection, and to perform the inspections would be 221 Rem.

The support pad base and weld materials were procured in compliance with ASME Section III, with all stresses within the requirements of ASME Section III. The supports are adequate for fatigue due to cyclic loads resulting from heatup, cooldown and seismic with a maximum usage factor of .0002.

The licensee noted that in lieu of a volumetric or surface examination of the supports it was able to perform visual inspections of the supports below the shield blocks on the bottom head of the vessel. The results indicated that only light boron deposits were present on the supports. The licensee concluded that there was no active degradation occurring on the supports that would impair their structural integrity.

The staff determined that to require the licensee to perform the Code-required examinations on the reactor vessel support pads welds would result in hardship without a compensating increase in the level of quality and safety. The visual examinations the licensee performed provided reasonable assurance of structural integrity.

3.6 Relief Request ISI-01-2-006, Rev. 0

Components for which relief is requested:

Steam Generator 2E24B Weld #ISI-04-009, Pressurizer Welds ISI-05-002 and 05-003

Code Requirement:

ASME Section XI, Table IWB-2500-1, Examination Category B-B, Table IWB-2412-1 B identifies minimum and maximum inspection percentage requirements for the number of inspections necessary for each period.

Licensee's Proposed Alternative:

None.

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy requests relief from achieving the Code percentage requirements for the second period of the second interval."

Licensee's Basis for Requesting Relief (as stated):

"During the ANO-2 2R11 refueling outage, two Category B-B welds were scheduled for inspection. These inspections would have been the only inspections required to meet the percentage requirements for the second period. Once into the outage, it was realized that with all the inspection work being performed on the "B" steam generator,

enough insulation was removed and scaffolding built, that another Category B-B weld could be examined. The 67% maximum limit was exceeded once this third weld was inspected. Since only 7 Category B-B welds are in the distribution over the entire interval, moving this one weld raised the percentage for this period to 71.43%.

In performing this inspection during 2R11, estimates of dose savings are approximately 17.5 Rem. This was determined by multiplying 245 man-hrs, which is the time it would take to prepare the weld for inspection, by 72 mr/hr (the dose rate which this weld resides).

Presently, an ASME approved Code Case N-598 exists. This allows the maximum percentage increase in the second period from 67% to 75%. If this code case was applied to this category, ANO 2 inspection results would fall within the bounds of the new code case."

Evaluation:

The Code requires a minimum and maximum inspection percentage for the number of inspections necessary for each period. The licensee noted that during the last refueling outage, two Category B-B welds were scheduled for inspection as required by the Code. However, the licensee examined an additional weld which was scheduled for the second inspection period, because insulation was already removed and scaffolding was in place.
Because the license inspected the third weld, the inspection percentage for the second period was raised to 71.43%, which exceeded the 67% maximum Code limit. However, by inspecting the weld in the second inspection period in lieu of the third inspection period, the licensee realized a dose saving of approximately 17.5 rem. To require the licensee to perform the Code-required inspection in the second inspection period would be a hardship without a compensating increase in the level of quality and safety. Reasonable assurance of structural integrity is provided by the examination completed in the first inspection period.

3.7 Relief Request ISI-01-2-007, Rev. 0

Components for which relief is requested:

Steam Generator 2E24B Welds #ISI-04-027, ISI-04-028, and 04-029

Code Requirements:

ASME Section XI, Table IWC-2500-1, Examination Category C-A, Table IWC-2412-1 Program B identifies minimum and maximum inspection percentage requirements for the number of inspections necessary for each period.

Licensee's Proposed Alternative:

None.

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy requests relief from achieving the Code percentage requirements for the second period of the second interval."

Licensee's Basis for Requesting Relief (as stated):

"During the ANO-2 2R11 outage, only two Category C-A welds would have been scheduled for inspection, but three were completed. This was performed due to the close proximity of all the welds to be inspected. In removing insulation, access was allowed to all of the welds (#04-027, 04-028 and 04-029). In order to meet the percentage requirements for the second period only two of these welds were required to be inspected. Once into the outage, it was recognized that with the inspection work being performed on the "B" steam generator, enough insulation was removed and scaffolding built, that another Category C-A weld could be examined. The 67% maximum limit was exceeded once this third weld was inspected. Since only 8 Category C-A welds are in the distribution over the entire interval, moving this one weld raised the percentage for this period to 75%.

In performing this inspection during 2R11, estimates of dose savings are approximately 14.4 R. This was determined by multiplying 200 man-hrs, which is the time it would take to prepare the weld for inspection by 72 mr/hr (the dose rate which this weld resides).

Presently, an ASME approved Code Case N-598 exists that allows the maximum percentage increase in the second period from 67% to 75%. If this code case was applied to this category, ANO 2, Unit 2 would fall within the bounds of the new code case."

Evaluation:

The Code requires a minimum and maximum inspection percentage for the number of inspections necessary for each period. The licensee noted that during the last refueling outage, two Category C-A welds were scheduled for inspection as required by the Code. However, the licensee examined an additional weld which was scheduled for the second inspection period, because insulation was already removed and scaffolding was in place.

Because the license inspected the third weld, the inspection percentage for the second period was raised to 75%, which exceeded the 67% maximum Code limit. However, by inspecting the weld in the second inspection period in lieu of the third inspection period, the licensee realized a dose savings of approximately 14.4 rem. To require the licensee to perform the Code-required inspection in the second inspection period would be a hardship without a compensating increase in the level of quality and safety. Reasonable assurance of structural integrity is provided by the examination completed in the first inspection period.

3.8 Relief Request ISI-01-2-008, Rev. 0

Components for which relief is requested:

Steam Generator 2E24A Welds #ISI-03-030, 03-031 and 03-032.

Code Requirement:

ASME Section XI, Table IWC-2500-1, Examination Category C-A, Table IWC-2412-1 Program B identifies minimum and maximum inspection percentage requirements for the number of inspections necessary for each period.

Licensee's Proposed Alternative:

None.

Licensee's Code Relief Request (as stated):

"Pursuant to 10 CFR 50.55a(a)(3)(ii), Entergy requests relief from achieving the Code percentage requirements for the first period of the second interval."

Licensee's Basis for Requesting Relief (as stated):

"During Arkansas Nuclear One's 2R8 outage, two Category C-A welds were inspected. The completion of these two welds met the period distribution requirements for the first period. Once into ANO's 2R9 outage, insulation was removed to gain access to another inspection on the steam generator. With this accomplished, along with other insulation removed for other reasons, it was determined that with a minimal amount of additional insulation removal weld #ISI 03-032 could be examined. In order to meet the percentage requirements for the first period, only two of these welds were required to be inspected. The 34% maximum limit was exceeded once this third weld was inspected. Since only 8 Category C-A welds are in the distribution over the entire interval, moving this one weld raised the percentage for this period to 37.5%.

In performing this inspection during 2R9, estimates of dose savings are approximately 5 Rem. This was determined by multiplying 500 man-hrs (estimate), which is the time it would take to ready the weld for inspection (scaffolding, insulation), by 10 mrem/hr (average field which work will be performed in).

Presently, an ASME approved Code Case N-598 exists. This allows the maximum percentage increase in the first period from 34% to 50%. If this code case was applied to this category, ANO 2 Unit 2 [sic] would fall within the bounds of the new code case."

Evaluation:

The Code requires a minimum and maximum inspection percentage for the number of inspections necessary for each period. The licensee noted that during the last refueling outage, two Category C-A welds were scheduled for inspection as required by the Code. However, the licensee examined an additional weld which was scheduled for the second

inspection period, because insulation was already removed and scaffolding was in place.

Because the licensee inspected the third weld, the inspection percentage for the first period was raised to 37.5%, which exceeded the 34% maximum Code limit. However, by inspecting the weld in the first inspection period in lieu of the second inspection period, the licensee realized a dose savings of approximately 5 rem. To require the licensee to perform the Code-required inspection in the second inspection period would be a hardship without a compensating increase in quality and safety. Reasonable assurance of structural integrity is provided by the examination completed in the first inspection period.

4.0 CONCLUSION

For Relief Request Nos. ISI-01-2-001, ISI-01-02-002, ISI-01-003, and ISI-01-004, the staff concludes that the requirements of the Code are impractical and the examinations performed provide reasonable assurance of structural integrity of the subject components. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i). This grant of relief is authorized by law and will not endanger life or property, or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

For Relief Request Nos. ISI-01-2-005, ISI-01-2-006, ISI-01-2-007, and ISI-01-2-008, the staff concludes that to require the licensee to perform the Code-required examinations would result in a hardship without a compensating increase in the level of quality and safety. Furthermore, the examinations the licensee performed provided reasonable assurance of structural integrity. Therefore, the licensee's proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the Second Ten-year Interval.

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