Entergy

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Dale E. James
Manager, Licensing

1CAN050705

May 22, 2007

U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Weld Overlay Examination Results
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

REFERENCES:
1. Entergy Operations, Inc. letter CNRO-2007-00014 to the NRC dated March 22, 2007
2. NRC letter to Entergy Operations, Inc., dated April 6, 2007

Dear Sir or Madam:

In Reference #1, Entergy Operations, Inc. (Entergy) submitted to the NRC staff a revised Request for Alternative ANO1-R&R-010, which requested approval to install full structural weld overlays on dissimilar metal welds of pressurizer nozzles at Arkansas Nuclear One, Unit 1 (ANO-1). The staff approved this request via Reference #2.

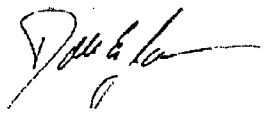
In Reference #1, Entergy committed to submit to the staff the following information pertaining to ultra sonic examinations performed on the overlays:

- Weld overlay examination results including a list of indications detected;
- Disposition of all indications using the standards of ASME Section XI, IWB-3514-2 and/or IWB-3514-3 criteria, and, if possible, the type and nature of the indications; and
- A discussion of any repairs to the weld overlay material and/or base metal and the reason for the repairs.

This information is provided in Enclosure 1. Should you have any questions regarding this information, please contact Guy Davant at (601) 368-5756.

This letter contains no new commitments.

Sincerely,



DEJ/GHD/ghd

Enclosure: Summary of Weld Overlay Ultrasonic Inspections for Pressurizer and Hot Leg Dissimilar Metal Welds

cc: Mr. W. A. Eaton (ECH)
Mr. J. S. Forbes (ECH)
Mr. T. G. Mitchell (ANO)

Dr. Bruce S. Mallet
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NRC Senior Resident Inspector
Arkansas Nuclear One
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U. S. Nuclear Regulatory Commission
Attn: Mr. A. B. Wang
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bcc: Mr. W. B. Abraham (G-ADM2-LIC)
Mr. C. A. Bottemiller (G-ADM2-LIC)
Ms. C. D. Faison (K-WPO-12C)
Ms. S. T. Fontenot (W-GSB-318)
Mr. K. W. Hall (M-ECH-36)
Ms. K. A. Maher (R-GSB-42)
Mr. R. J. Murillo (W-GSB-318)
Mr. R. S. Lewis (M-ECH-36)
Mr. D. N. Lorfing (R-GSB-42)
Mr. D. J. Ropson (K-WPO-11D)
Mr. W. D. Sims (N-GSB-59)
Ms. D. S. Waldron (N-GSB-64)
Echelon Information Management File [20]

ENCLOSURE

1CAN050705

SUMMARY OF WELD OVERLAY ULTRASONIC INSPECTIONS FOR PRESSURIZER AND HOT LEG DISSIMILAR METAL WELDS

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May 18, 2007
SIR-07-162-NPS, Rev. 0

Mr. Robert Gordon
Entergy Operations, Inc.
Arkansas Nuclear One
1448 SR 333
Russellville, AR 72802

Subject: Summary of Weld Overlay Ultrasonic Inspections for Pressurizer Surge, Hot Leg Surge, Spray, Safety Valve and Pressure Relief Valve Nozzle-to-Safe End Welds at Arkansas Nuclear One, Unit 1

Reference: Entergy Operations, Inc., ANO-1, Request for Alternative ANO1-RandR-010, March 22, 2007

Dear Mr. Gordon:

The following attachment is transmitted in support of Entergy's response to commitments in the above-referenced request for alternative:

Attachment: A report summarizing the ultrasonic inspections performed on Arkansas Nuclear One Unit 1 weld overlays. The inspections were performed using SI's PDI qualified ultrasonic inspection procedure and inspectors.

Flaw indications were detected in one of the overlays, and disposition of the indications is summarized in the attachment.

If you have any questions or comments regarding this summary, please contact one of the undersigned.

Prepared by:

05/11/07
Ned Finney
Date
Senior Consultant
NDE Level III

Verified by:

05/18/07
John Hayden
Date
Manager, Nuclear NDE

Approved by:

05/18/07
Moses Taylor, P.E.
Date
Associate

nnn
Attachment
cc: Dixon Parker
Project File: ANO-39Q-406

Attachment

Summary of Weld Overlay Ultrasonic Inspections for
Pressurizer Surge, Hot Leg Surge, Spray, Safety Valve and
Pressure Relief Valve Nozzle-to-Safe End Welds
at Arkansas Nuclear One, Unit 1

Ultrasonic Examination Procedure

SI-UT-126, Revision 3, *Procedure for the Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds*, was used during the examinations. This procedure, and the examiners who applied the procedure, are qualified through the PDI Program at the EPRI NDE Center.

2.5" Relief Valve Nozzle Weld Overlay Examination

Component Identification: WOL-03, CV-1000 Nozzle to Flange, ISI Examination No. 05-041
Examination Date: 05/04/07
Examination Time: 1150 to 1215 and 2025 to 2041
Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld and Adjacent Base Material.
Examination Angles: Axial - 0° through 83°, Circumferential - 0° through 62°
Examination Summary: The examination of the required volumes in the weld overlay and underlying upper 25% of base material contained no suspected flaw indication. The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact/coupling effectiveness during the examination. 100% of the Code required volume was examined with no limitations.

3" Safety Valve Nozzle PSV-1001 Weld Overlay Examination

Component Identification: WOL-01, PSV-1001, ISI Examination No. 05-042
Examination Date: 05/03/07
Examination Time: 18:00 through 2000 and 1100 to 1145 (5/4)
Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld and Adjacent Base Material.
Examination Angles: Axial - 0° through 83°, Circumferential - 0° through 63°
Examination Summary: The examination of the underlying 25% of the dissimilar metal weld, stainless steel, and base material contained no suspected flaw indications. The examination of the weld overlay revealed six recordable indications at the base material to weld overlay interface as the low alloy steel nozzle transitions into the nozzle boss. The indications were characterized in accordance with IWA-3300 of Section XI of the ASME Code. All indications were characterized as subsurface planar indications. The indications were then evaluated in accordance with IWB-3514; Code Case N-740; and Relief Request ANO-1-R&R-010. Five of the indications were determined to be acceptable in accordance with these requirements. One of the indications was found to be unacceptable. The unacceptable indication was determined to be outside the required structural region of the weld overlay as it was tapered into the nozzle. This indication was mechanically removed and subsequent ultrasonic re-examination on 05/05/07 between 0142 and 0257 confirmed there were no indications present. Since the indication was outside the required overlay length for structural reinforcement and the remaining overlay is acceptable after removal of the indication, repair welding of the indication removal area was not required.

The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact/coupling effectiveness during the examination. 100% of the Code required volume was examined with no limitations.

3" Safety Valve Nozzle PSV-1002 Weld Overlay Examination

Component Identification: WOL-02, PSV-1002, ISI Examination No. 05-040
Examination Date: 05/03/07
Examination Time: 1704 through 1800
Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld and Adjacent Base Material.
Examination Angles: Axial - 0° through 83°, Circumferential - 0° through 63°
Examination Summary: The examination of the required volumes in the weld overlay and underlying upper 25% of base material contained no suspected flaw indication. The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact/coupling effectiveness during the examination. 100% of the Code required volume was examined with no limitations.

Pressurizer Spray Nozzle Weld Overlay Examination

Component Identification: WOL-04, Pressurizer Spray, ISI Examination Nos. 18-001, 18-001A
Examination Date: 05/04/07
Examination Time: 0327 through 0525
Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld and Adjacent Base Material and Outer 25% Safe End-to-Pipe Weld and Adjacent Base Material.
Examination Angles: Axial - 0° through 83°, Circumferential - 0° through 63°
Examination Summary: The examination of the required volumes in the weld overlay and underlying upper 25% of base material contained no suspected flaw indication. The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact/coupling effectiveness during the examination. 100% of the code required volume was examined with no limitations.

Hot Leg Surge Nozzle Weld Overlay Examination

Component Identification: WOL-05, Hot Leg Surge, ISI Examination No. 16-001
Examination Date: 05/06/07
Examination Time: 0149 through 0306
Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld and Adjacent Base Material.
Examination Angles: Axial - 0° through 83°, Circumferential - 0° through 63°
Examination Summary: The examination of the required volumes in the weld overlay and underlying upper 25% of base material contained no suspected flaw indication. The examination

gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact/coupling effectiveness during the examination. 100% of the Code required volume was examined with no limitations.

Pressurizer Surge Nozzle Weld Overlay Examination

Component Identification: WOL-06, Pressurizer Surge, ISI Examination No. 16-012A
Examination Date: 05/06/07
Examination Time: 1711 through 1830
Examination Regions: Weld Overlay Material, Outer 25% Dissimilar Metal Weld and Adjacent Base Material.
Examination Angles: Axial - 0° through 83°, Circumferential - 0° through 63°
Examination Summary: The examination of the required volumes in the weld overlay and underlying upper 25% of base material contained no suspected flaw indication. The examination gain was adjusted to maintain the procedure-specified baseline noise level from 5% to 20% of full screen height. The lower range of examination angles detected responses from the inside surface of the component which were useful for monitoring search unit contact/coupling effectiveness during the examination. 100% of the Code required volume was examined with no limitations.