



GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

R 1151

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: C-5-FLG

ASME Code Category: B-A

Calibration Sheets: C-001, C-104, C-107, C-108 and C-109

Supporting Data: Examination Data Sheets E-20-00 and E-20-12, Indication Data Sheets 20-001 thru 20-110, G-115 and G-116, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheets D-001, D-002, D-007, D-008, D-009 and D-010.

Examination Summary

The ultrasonic examination of weld C-5-FLG resulted in five (5) recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to a clad patch at 30°, the Guide Rods at 0° and 180° and four (4) Main Steam plug lines at 74°, 110°, 250°, and 286°. Areas that could not be examined using the GERIS 2000 and accessible from the outside were examined with the manual technique utilizing Procedure No. GE-UT-300 Rev. 6, FRR-004. The total examination coverage was calculated to be 82%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The five (5) unacceptable indications were recorded and sized in accordance with GE-UT-700, Rev. 2 and GE-UT-701, Rev. 2 with the results tabulated below:

| Ind. No. | Oriented | Type | X Pos | Y Pos | Z Pos | "S" | T wall | Length | T Meas | a/l | % a/t Calculated | % a/t Allowed |
|----------|----------|------------|---------|---------|-------|-------|--------|--------|--------|------|---------------------|------------------|
| 20-007 | circ. | subsurface | 83.90" | 706.42" | 1.01" | .82" | .40" | 3.25" | 6.54" | .061 | 3.05 | 2.27 |
| 20-008 | circ. | subsurface | 88.40" | 706.44" | 1.02" | .83" | .39" | 1.50" | 6.55" | .130 | 2.98 | 2.74 |
| 20-009 | circ. | subsurface | 95.90" | 706.44" | 1.03" | .84" | .38" | 2.25" | 6.59" | .085 | 2.91 | 2.41 |
| 20-011 | circ. | subsurface | 100.90" | 706.37" | 1.23" | 1.04" | .39" | 1.75" | 6.62" | .111 | 2.92 | 2.58 |
| 20-012 | circ. | subsurface | 116.90" | 706.40" | 1.14" | .95" | .48" | 1.50" | 6.87" | .159 | 3.47 | 2.97 |

Indication 20-007 was sized with the 70°RL channel 3 utilizing the PATT technique. This indication was also recorded with 70°RL channel 5 as 20-016.

Indication 20-008 was sized with the 70°RL channel 3 utilizing the PATT technique. This indication was also recorded with 45° shear wave channel 7 as 20-022.

Indication 20-009 was sized with the 70°RL channel 3 utilizing the PATT technique. This indication was also recorded with 70°RL channel 5 as 20-017, 45° shear wave channels 7 as 20-023 and 9 as 20-027.

Indication 20-011 was sized with the 70°RL channel 3 utilizing the PATT technique. This indication was also recorded with 70°RL channel 5 as 20-018

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| GERIS Analyst: <i>Deena Kimball</i> | GE Reviewer: <i>CP M</i> |
| LEVEL: <i>III</i> DATE: <i>12-21-93</i> | LEVEL: <i>III</i> DATE: <i>12/21/93</i> |
| UTILITY Review: <i>2 Woody</i> | ANII Review: <i>Albert Ladd</i> |
| TITLE: <i>III</i> DATE: <i>1/26/94</i> | TITLE: <i>Albert Ladd</i> DATE: <i>8/25/94</i> |

GERIS 2000 Examination Summary (Continuation)

Indication 20-012 was sized with the 70°RL channel 3 utilizing the PATT technique. This indication was also recorded with 45° shear wave channel 7 as 20-024.

The GERIS 2000 also recorded indications with the 0° weld metal scans, 70°RL, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section. Geometric indications from the flange radius were recorded with the 45° and 60° shear wave scans.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base materials.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.



GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

R1152

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: C-4-5

ASME Code Category: B-A

Calibration Sheets: C-001, C-004

Supporting Data: Examination Data Sheets E-16-00 thru E-16-12, Indication Data Sheets 16-001 thru 16-094, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld C-4-5 resulted in two (2) recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the Guide Rods at 0° and 180°. The total examination coverage was calculated to be 93%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The two (2) unacceptable indications were recorded and sized in accordance with GE-UT-700, Rev. 2 and GE-UT-701, Rev. 2 with the results tabulated below:

| Ind. No. | Oriented | Type | X Pos | Y Pos | Z Pos | "S" | T wall | Length | T Meas | a/l | % a/t Calculated | % a/t Allowed |
|----------|----------|------------|---------|---------|-------|-------|--------|--------|--------|------|---------------------|------------------|
| 16-075 | circ. | subsurface | 603.30" | 574.70" | 3.17" | 2.83" | .30" | 2.75" | 6.6" | .055 | 2.27 | 2.23 |
| 16-076 | circ. | subsurface | 617.50" | 574.05" | 3.85" | 2.53" | .44" | 1.50" | 6.6" | .147 | 3.33 | 2.87 |

Indication 16-075 was sized with 60° shear wave channel 13 utilizing the SPOT technique. This indication was also recorded with 45° shear wave channel 9 as 16-072.

Indication 16-076 was sized with 60° shear wave channel 13 utilizing the SPOT technique. This indication was also recorded with 45° shear wave channel 9 as 16-074.

The GERIS 2000 also recorded indications with the 0° weld metal scans, 70° RL, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section. Geometric indications from the stabilizer brackets were recorded with the 0° weld metal, 45° and 60° shear wave scans. Geometric indications from the OD surface were recorded with the 45° shear wave scans.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst:

CF Me

GE Reviewer:

R.D. Forman

LEVEL:

III

DATE: *12/20/93*

LEVEL:

II

DATE: *12-20-93*

UTILITY Review:

2220007

ANII Review:

TITLE:

#1

DATE:

1/26/94

TITLE:

Albert Ladd

DATE:

7/11/94

00010



GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: C-3-4

ASME Code Category: B-A

Calibration Sheets: C-001, C-004, C-115, C-116, and C-117

Supporting Data: Examination Data Sheets E-12-00 thru E-12-15, Indication Data Sheets 12-001 thru 12-163, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Data Sheets D-034, D-035, D-036, D-037, D-040, D-041, D-044 and D-045.

Examination Summary

The ultrasonic examination of weld C-3-4 resulted in six (6) recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the Guide Rods at 0° and 180°. The total examination coverage was calculated to be 97%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The six (6) unacceptable indications were recorded and sized in accordance with GE-UT-700, Rev. 2 and GE-UT-701, Rev. 2 with the results tabulated below:

| Ind. No. | Oriented | Type | X Pos | Y Pos | Z Pos | "S" | T wall | Length | T Meas | a/l | % a/t Calculated | % a/t Allowed |
|----------|----------|------------|---------|---------|-------|-------|--------|--------|--------|------|---------------------|------------------|
| 12-015 | circ. | subsurface | 94.35" | 525.43" | 1.16 | .75" | .444" | 1.75" | 6.53" | 0.13 | 3.4 | 2.71 |
| 12-069 | circ. | subsurface | 424.65" | 524.58" | 2.30" | 1.94" | .34" | 1.75" | 6.51" | 0.10 | 2.66 | 2.48 |
| 12-116 | circ. | subsurface | 617.15" | 526.14" | 3.85" | 2.6 | .62" | .75" | 6.49" | 0.21 | 4.81 | 3.50 |
| 12-144 | circ. | subsurface | 760.10" | 525.11" | .78" | .75" | .325" | 2.00" | 6.44" | 0.10 | 2.45 | 2.39 |
| 12-145 | circ. | subsurface | 763.85" | 525.68" | .80" | 2.40" | .39" | 2.40" | 6.44" | 0.10 | 3.03 | 2.39 |
| 12-148 | circ. | subsurface | 771.35" | 525.07" | .87" | .43" | .511" | 2.75" | 6.44" | 0.10 | 3.97 | 2.46 |

Indication 12-015 was sized with 70° RL channel 5 utilizing the PATT technique. This indication was also recorded as 12-016 and 12-020. Indication 12-015 was also recorded within the exam volume of weld V-4-B.

Indication 12-069 was sized with 45° shear wave channel 9 utilizing the SPOT technique.

Indication 12-116 and 12-117 is a combined indication in accordance with IWA-3390 and is included in the table above as 12-116. Indication 12-116 and 12-117 were sized with 45° shear wave channel 7 utilizing the SPOT technique.

Indication 12-144 was sized with 70° RL channel 5 utilizing the PATT technique. This indication was also recorded as 12-130, 12-150, and 12-157.

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| GERIS Analyst: <i>Ch M/A</i> | GE Reviewer: <i>Leresa Kimball</i> |
| LEVEL: <i>III</i> DATE: <i>12/21/93</i> | LEVEL: <i>III</i> DATE: <i>12-21-93</i> |
| UTILITY Review: <i>J M/W</i> | ANII Review: <i>Albert Todd</i> |
| TITLE: <i>TH</i> DATE: <i>1/26/94</i> | TITLE: <i>Albert Todd</i> DATE: <i>9/8/94</i> |

R1153

GERIS 2000 Examination Summary (Continuation)

Indication 12-145 was sized with 70° RL channel 4 utilizing the PATT technique. This indication was also recorded as 12-131, 12-151, 12-161, 12-162 and 12-163.

Indication 12-148 was sized with 70° RL channel 5 utilizing the PATT technique. This indication was also recorded as 12-132 and 12-150.

The GERIS 2000 also recorded indications with the 0° weld metal scans, 70° RL, 45° and 60° shear wave scans that were evaluated to be acceptable per the referencing Code section. Geometric indications from the OD surface, Nozzles N11-A, N11-B and N4-F were found recorded with the 45° and 60° shear wave scans.

Selected areas were rescanned using 45° RL search units.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in 1, 2 directions to effectively examine the weld and adjacent base material.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.



GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: C-2-3

ASME Code Category: B-A

Calibration Sheets: C-004 AND C-003 CATT 1/25/94

Supporting Data: Examination Data Sheets E-08-00 thru E-08-26, Indication Data Sheets 08-001 thru 08-110, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld C-2-3 resulted in two (2) recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the core spray downcomers and surveillance specimen brackets. The total examination coverage was calculated to be 80%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The two (2) unacceptable indications were recorded and sized in accordance with GE-UT-700, Rev. 2 and GE-UT-701, Rev. 2 with the results tabulated below:

| Ind. No. | Oriented | Type | X Pos | Y Pos | Z Pos | "S" | T wall | Length | T Meas | a/l | % a/t Calculated | % a/t Allowed |
|----------|----------|------------|---------|---------|-------|-------|--------|--------|--------|------|---------------------|------------------|
| 08-026 | circ. | subsurface | 198.50" | 392.42" | 1.77" | 1.56" | .41" | 1.50" | 6.60" | .137 | 3.11 | 2.79 |
| 08-067 | circ. | subsurface | 558.25" | 392.85" | 1.65" | 1.47" | .37" | 1.50" | 6.55" | .123 | 2.82 | 2.68 |

Indication 08-026 was sized with 60° shear wave channel 11 utilizing the PATT technique. This indication was also recorded with 70°RL channel 3 as 08-023 and seen with 45° shear wave channel 7.

Indication 08-067 was sized with 70°RL channel 3 utilizing the PATT technique. This indication was also recorded with 45° shear wave channel 7 as 08-073 and seen with 60° shear wave channel 11.

The GERIS 2000 also recorded indications with the 0° weld metal scans, 70°RL, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

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| GERIS Analyst: <i>Deeusa Kimball</i> | GE Reviewer: <i>R.O. Forman</i> |
| LEVEL: <i>III</i> DATE: <i>12-19-93</i> | LEVEL: <i>II</i> DATE: <i>12-20-93</i> |
| UTILITY Review: <i>28 Woody</i> | ANII Review: |
| TITLE: <i>IV</i> DATE: <i>1/26/94</i> | TITLE: <i>Albert Ladd</i> DATE: <i>7/12/94</i> |

00013



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

R1155

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: C-1-2

ASME Code Category: B-A

Calibration Sheets: C-003

Supporting Data: Examination Data Sheets E-04-00 thru E-04-33, Indication Data Sheets 04-001 thru 04-040, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld C-1-2 resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, no Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the Core Spray Downcomers at 7.5°, 172.5°, 187.5° and 352.5°, Surveillance Specimen Holders at 30°, 120°, and 300° and the Jet Pump Diffuser configuration at 210° and 240°. The total examination coverage was calculated to be 90%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 70°RL scans and the 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *Ch M-5*

GE Reviewer: *Deena Kimball*

LEVEL: *III* DATE: *12/16/93*

LEVEL: *III* DATE: *12-16-93*

UTILITY Review: *Deena Kimball*

ANII Review:

TITLE: *II* DATE: *1/26/94*

TITLE: *Albert Todd* DATE: *7/12/94*

00014



Reactor Vessel Examination Summary Sheet

Supporting Data: Manual Examination Data Sheets D-130 thru D-141, Exam Coverage Plots, and Vessel Rollout with manual examination area locations.

Examination Summary

The ultrasonic examination of weld C-BH-1 resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined by the manual technique utilizing Procedure No. GE-UT-300, Rev. 6, FRR-004. Examination of weld C-BH-1 was restricted to areas accessible from the N1 and N8 Nozzle bioshield windows. These areas were limited due to Nozzles N1-A at 0°, N1-B at 180°, N8-A at 105°, N8-B at 285° and insulation support ring. The total examination coverage was calculated to be 28%.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: R.O. Forman

GE Reviewer: Ch M

LEVEL: II DATE: 12-20-93

LEVEL: III DATE: 12/20/93

UTILITY Review: *A. J. Wood*

ANII Review:

TITLE: 121 DATE: 1/26/94

TITLE: Robert Taylor DATE: 8/25/94



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-1-A

ASME Code Category: B-A

Calibration Sheets: C-003, C-159, C-160 and C-161

Supporting Data: Examination Data Sheets E-01-00 thru E-01-03, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheet D-142, D-143, D-144 and D-145.

Examination Summary

The ultrasonic examination of weld V-1-A resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the N2-A Nozzle at 30°, surveillance specimen brackets and the lower limit of the GERIS 2000 manipulator. Areas that could not be examined using the GERIS 2000 and accessible from the outside surface were examined by the manual technique utilizing Procedure No. GE-UT-300, Rev. 6, FRR-004. The total examination coverage was calculated to be 82%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

No indications were recorded with the GERIS 2000.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst:

C. J. Min

GE Reviewer:

Debra Kimball

LEVEL: *III*

DATE: *12/15/93*

LEVEL: *III*

DATE: *12-15-93*

UTILITY Review:

2 reviews

ANII Review:

TITLE: *III*

DATE: *1/26/94*

TITLE: *Albert Todd*

DATE: *7/12/94*



GE Nuclear Energy

21158

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-1-B

ASME Code Category: B-A

Calibration Sheets: C-003, C-159, C-160 and C-161

Supporting Data: Examination Data Sheets E-02-00 thru E-02-02, Indication Data Sheet 02-001, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheets D-146, D-147, D-148 and D-149.

Examination Summary

The ultrasonic examination of weld V-1-B resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the N2-E Nozzle at 150°, and the lower limit of the GERIS 2000 manipulator. Areas that could not be examined using the GERIS 2000 and accessible from the outside surface were examined by the manual technique utilizing Procedure No. GE-UT-300, Rev. 6, FRR-004. The total examination coverage was calculated to be 83%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 system recorded one (1) indication with the 45° shear wave scan that was evaluated and found to be acceptable per the referencing Code section.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *Ch. Mas*

GE Reviewer: *Debra Kimball*

LEVEL: *III* DATE: *12/15/93*

LEVEL: *III* DATE: *12-15-93*

UTILITY Review: *Don Woods*

ANII Review:

TITLE: *TH* DATE: *1/26/94*

TITLE: *Albert Todd* DATE: *7/12/94*

00017



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-1-C

ASME Code Category: B-A

Calibration Sheets: C-003, C-139, C-140 and C-141

Supporting Data: Examination Data Sheets E-03-00 thru E-03-02, Indication Data Sheets 03-001 thru 03-004, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheet D-093, D-094, D-098 and D-102.

Examination Summary

The ultrasonic examination of weld V-1-C resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the N2-H Nozzle at 270°, and the lower limit of the GERIS 2000 manipulator. Areas that could not be examined using the GERIS 2000 and accessible from the outside surface were examined by the manual technique utilizing Procedure No. GE-UT-300, Rev. 6, FRR-004. The total examination coverage was calculated to be 88%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 system recorded indications with the 0° base metal scans and the 45° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *CD MS*

GE Reviewer: *Debra Kimball*

LEVEL: *III* DATE: *12/15/93*

LEVEL: *III* DATE: *12-15-93*

UTILITY Review: *2/26/94*

ANII Review:

TITLE: *III* DATE: *1/26/94*

TITLE: *Albert Ladd* DATE: *7/12/94*

00018



GE Nuclear Energy

**GERIS 2000 Examination
Summary Sheet**

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-2-A

ASME Code Category: B-A

Calibration Sheets: C-003

Supporting Data: Examination Data Sheets E-05-00 thru E-05-05, Indication Data Sheets 05-001 thru 05-008 and G-001 thru G-008, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-2-A resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the N16-A Nozzle at 40° and the Jet Pump brackets at 30° and 60°. The total examination coverage was calculated to be 85%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 0° weld metal scan, 70°RL, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section. Geometric indications from the N16-A Nozzle and OD surface were recorded with the 45° and 60° shear wave scans.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *CJ Ma*

LEVEL: *III*

DATE: *12/15/93*

UTILITY Review: *J. Wood*

TITLE: *10*

DATE: *1/26/94*

GE Reviewer: *Deesa Kimball*

LEVEL: *III*

DATE: *12-15-93*

ANII Review:

TITLE: *Albert Lohel*

DATE: *9/8/94*

00019



GE Nuclear Energy

R1161

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-2-B

ASME Code Category: B-A

Calibration Sheets: C-003

Supporting Data: Examination Data Sheets E-06-00 thru E-06-02, Indication Data Sheets 06-001 and 06-002, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-2-B resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the Jet Pump brackets at 160°. The total examination coverage was calculated to be 90%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 0° weld metal scans and the 45° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst:

CLF Mac

GE Reviewer:

Carol Kimball

LEVEL:

III

DATE: *12/14/93*

LEVEL:

III

DATE: *12-15-93*

UTILITY Review:

2 H. Woody

ANII Review:

Albat Ladd

TITLE:

III

DATE:

1/26/94

TITLE:

DATE:

7/13/94

00020



GE Nuclear Energy

R1162

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-2-C

ASME Code Category: B-A

Calibration Sheets: C-003

Supporting Data: Examination Data Sheets E-07-00 thru E-07-02, Indication Data Sheet 07-001, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-2-C resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the Jet Pump brackets at 270° and 300°. The total examination coverage was calculated to be 91%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded one (1) indication with the 45° shear wave scans that was evaluated and found to be acceptable per the referencing Code section.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *CL Ma*

GE Reviewer: *Ceresa Kimball*

LEVEL: *III*

DATE: *12/15/93*

LEVEL: *III*

DATE: *12-15-93*

UTILITY Review: *J. M. Wood*

ANII Review:

TITLE: *III*

DATE: *1/26/94*

TITLE: *What's Left*

DATE: *7/12/94*

00021



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-3-A

ASME Code Category: B-A

Calibration Sheets: C-004, C-115, C-116 and C-117

Supporting Data: Examination Data Sheets E-09-00 thru E-09-03, Indication Data Sheets 09-001 thru 09-004, Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheets D-030, D-031, D-038 and D-042.

Examination Summary

The ultrasonic examination of weld V-3-A resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the feedwater sparger and core spray downcomer. Areas that could not be examined using the GERIS 2000 and accessible from the outside surface were examined by the manual technique utilizing Procedure No. GE-UT-300, Rev. 6, FRR-004. The total examination coverage was calculated to be 99%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 70°RL and 45° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *Ch MA*

GE Reviewer: *Deusa Kimball*

LEVEL: *III* DATE: *12/15/93*

LEVEL: *III* DATE: *12-15-93*

UTILITY Review: *J. Woody*

ANII Review:

TITLE: *III* DATE: *1/26/94*

TITLE: *Albert Ladd* DATE: *9/8/94*



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-3-B

ASME Code Category: B-A

Calibration Sheets: C-004, C-115, C-116 and C-117

Supporting Data: Examination Data Sheets E-10-00 thru E-10-04, Indication Data Sheets 10-001 thru 10-006, Indication Evaluation Data Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheets D-032, D-033, D-039 and D-043.

Examination Summary

The ultrasonic examination of weld V-3-B resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the feedwater sparger, core spray downcomer and N11-B Nozzle at 220°. Areas that could not be examined using the GERIS 2000 and accessible from the outside surface were examined by the manual technique utilizing Procedure No. GE-UT-300, Rev. 6, FRR-004. The total examination coverage was calculated to be 99%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 70°RL scans and the 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

No indications were recorded with the manual technique.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *C. G. M. A.*

GE Reviewer: *Quesa Kimball*

LEVEL: *III* DATE: *12/15/93*

LEVEL: *III* DATE: *12-15-93*

UTILITY Review: *J. J. Woody*

ANII Review:

TITLE: *#* DATE: *1/26/94*

TITLE: *Albert Ladd* DATE: *7/13/94*

00023



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-3-C

ASME Code Category: B-A

Calibration Sheets: C-004, C-118, C-119 and C-120

Supporting Data: Examination Data Sheets E-11-00 thru E-11-03, Indication Data Sheets 11-001 thru 11-004, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheets D-046, D-047, D-048 and D-049.

Examination Summary

The ultrasonic examination of weld V-3-C resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the feedwater sparger and the core spray downcomer. Areas that could not be examined using the GERIS 2000 and accessible from the outside surface were examined by the manual technique utilizing Procedure No. GE-UT-300, Rev. 6, FRR-004. The total examination coverage was calculated to be 70%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 0° weld metal scans and the 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

The manual examination recorded one (1) geometric indication with the 0° search unit due to a core spray sparger support bracket.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

| | |
|---|--|
| GERIS Analyst: <i>CR M-5</i> | GE Reviewer: <i>Deusa Kimball</i> |
| LEVEL: <i>III</i> DATE: <i>12/15/93</i> | LEVEL: <i>III</i> DATE: <i>12-15-93</i> |
| UTILITY Review: <i>JRW</i> | ANII Review: |
| TITLE: <i>4th</i> DATE: <i>1/26/94</i> | TITLE: <i>Albert Todd</i> DATE: <i>7/13/94</i> |

00024



GE Nuclear Energy

**GERIS 2000 Examination
Summary Sheet**

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-4-A

ASME Code Category: B-A

Calibration Sheets: C-001

Supporting Data: Examination Data Sheets E-13-00 and E-13-01, Indication Data Sheets 13-001 thru 13-008, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-4-A resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. The total examination coverage was calculated to be 100%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 0° weld metal scans, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst:

Aeresa Kimball

GE Reviewer:

R.D. Forman

LEVEL:

III

DATE: *12-16-93*

LEVEL:

II

DATE: *12-16-93*

UTILITY Review:

A. Kimball

ANII Review:

TITLE:

IA

DATE:

1/26/94

TITLE:

Robert Hall

DATE:

7/13/94



GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-4-B

ASME Code Category: B-A

Calibration Sheets: C-001

Supporting Data: Examination Data Sheets E-14-00 and E-14-01, Indication Data Sheets 14-001 thru 14-005 and G-100 thru G-108, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-4-B resulted in one (1) recorded indication that exceeds the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the N11-A Nozzle at 40°. The total examination coverage was calculated to be 83%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The one indication evaluated as being reportable to IWB-3500, ASME Section XI, 1986 Edition, No Addenda was recorded and sized in accordance with GE-UT-700, Rev. 2 and GE-UT-701, Rev. 2. This indication was recorded during the examination of both welds V-4-B as 14-002 and C-3-4 as 12-015. The flaw dimensions were determined from weld C-3-4 Indication Data Sheet 12-015 with the results tabulated below:

| Ind. No. | Oriented | Type | X Pos | Y Pos | Z Pos | "S" | T wall | Length | T Meas | a/l | % a/t Calculated | % a/t Allowed |
|----------|----------|------------|--------|---------|-------|-------|--------|--------|--------|------|---------------------|------------------|
| 12-015 | circ. | subsurface | 94.35" | 525.43" | 1.13" | 0.94" | .44" | 1.75" | 6.53" | 0.13 | 3.4 | 2.71 |

This indication was sized with the 70°RL utilizing the PATT technique. It was also recorded with the 45° and 60° shear waves.

The GERIS 2000 also recorded an indication with the 0° weld metal scan that was evaluated and found to be acceptable per the referencing Code section. Geometric indications from the stabilizer bracket at 45° were recorded with the 0° weld metal, 45° and 60° shear wave scans.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *Leusa Kimball*

GE Reviewer: *R.O. Forman*

LEVEL: *III* DATE: *12-21-93*

LEVEL: *II* DATE: *12-21-93*

UTILITY Review: *J. M. W. only*

ANII Review:

TITLE: *XX* DATE: *1/26/94*

TITLE: *Albat. Ladd* DATE: *7/13/94*



GE Nuclear Energy

**GERIS 2000 Examination
Summary Sheet**

R1168

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-4-C

ASME Code Category: B-A

Calibration Sheets: C-001

Supporting Data: Examination Data Sheets E-15-00 and E-15-01, Indication Data Sheets 15-001, 15-004, 15-005, 15-012, 15-018, 15-024, 15-027 thru 15-032, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-4-C resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. The total examination coverage was calculated to be 100%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 0° weld metal scans, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *Deesa Kimball*

GE Reviewer: *R.O. Forman*

LEVEL: *III* DATE: *12-16-93*

LEVEL: *II* DATE: *12-18-93*

UTILITY Review: *2 x w code*

ANII Review:

TITLE: *TH* DATE: *1/26/94*

TITLE: *Robert Todd* DATE: *1/13/94*

00027



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-5-A

ASME Code Category: B-A

Calibration Sheets: C-001, C-104, C-105, C-106

Supporting Data: Examination Data Sheets E-17-00 thru E-17-03, Indication Data Sheets 17-001, G-020 thru G-024, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, GERIS 2000 Setup Records and Manual Examination Data Sheets D-003, D-004, D-005, D-006.

Examination Summary

The ultrasonic examination of weld V-5-A resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the steam dryer support bracket at 94°. Areas that could not be examined using the GERIS 2000 and accessible from the outside were examined with manual technique utilizing Procedure No. GE-UT-300 Rev. 6 with FRR-004. The total examination coverage was calculated to be 100%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded one (1) indication with the 45° shear wave scans that was evaluated and found to be acceptable per the referencing Code section. Geometric indications from the stabilizer bracket and flange radius were recorded with the 45° and 60° shear wave scans.

The manual technique utilized 0° longitudinal, 45° and 60° shear wave search units both parallel and perpendicular to the weld axis in two directions to effectively examine the weld and adjacent base material.

One (1) geometric indication from the steam dryer support bracket was recorded manually with the 0° scans.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *CS M/S*

GE Reviewer: *R.O. Forman*

LEVEL: *III* DATE: *12/15/93*

LEVEL: *II* DATE: *12-15-93*

UTILITY Review: *J. M. W. only*

ANII Review:

TITLE: *III* DATE: *1/26/94*

TITLE: *Albert Todd* DATE: *7/13/94*



GE Nuclear Energy

GERIS 2000 Examination
Summary Sheet

R1170

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-5-B

ASME Code Category: B-A

Calibration Sheets: C-004

Supporting Data: Examination Data Sheets E-18-00 thru E-18-04, Indication Data Sheets 18-001 thru 18-016, G-112, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-5-B resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the N12-B Nozzle at 220°. The total examination coverage was calculated to be 99%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 70° RL, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section. Geometric indications from the flange radius were recorded with the 60° shear wave scans.

No manual supplemental examination was performed from the RPV outside surface due to OD access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst:

Debra Kimball

GE Reviewer:

R.O. Zeman

LEVEL:

III

DATE: 12-15-93

LEVEL:

II

DATE: 12-15-93

UTILITY Review:

Smiley

ANII Review:

Albat Ladd

TITLE:

III

DATE:

1/26/94

TITLE:

DATE:

9/8/94

00029



GE Nuclear Energy

GERIS 2000 Examination Summary Sheet

Project: TVA, Browns Ferry Nuclear Plant, Unit 3

System: Reactor Pressure Vessel

Weld ID: V-5-C

ASME Code Category:

B-A

Calibration Sheets: G-004 C-001 mcd 1-26-94

Supporting Data: Examination Data Sheets E-19-00 thru E-19-03, Indication Data Sheets 19-001 thru 19-004, G-113, G-114, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots, and GERIS 2000 Setup Records.

Examination Summary

The ultrasonic examination of weld V-5-C resulted in no recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. The total examination coverage was calculated to be 100%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The GERIS 2000 recorded indications with the 70° RL and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section. Geometric indications from the flange radius were recorded with the 45° and 60° shear wave scans.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *Debra Kimball*

GE Reviewer: *Clb M5*

LEVEL: *III* DATE: *12-14-93*

LEVEL: *III* DATE: *12/15/93*

UTILITY Review: *D. M. Woody*

ANII Review:

TITLE: *III* DATE: *1/26/94*

TITLE: *Albert Tadel* DATE: *7/13/94*

00030

ASME Estimated Examination Coverage

RPV Seam Welds

| WELD | EXAM. COVERAGE | |
|---------|-------------------|--|
| C-5-FLG | 82% | |
| C-4-5 | 93% | |
| C-3-4 | 97% | |
| C-2-3 | 80% | |
| C-1-2 | 90% | |
| C-BH-1 | 28% | |
| V-1-A | 82% | |
| V-1-B | 83% | |
| V-1-C | 88% | |
| V-2-A | 85% | |
| V-2-B | 90% | |
| V-2-C | 91% | |
| V-3-A | 99% | |
| V-3-B | 99% | |
| V-3-C | 70% | |
| V-4-A | 100% | |
| V-4-B | 83% | |
| V-4-C | 100% | |
| V-5-A | 100% | |
| V-5-B | 99% | |
| V-5-C | 100% | |

RPV Nozzle Welds and Inner Radius

| NOZZLE | NOZZLE WELD | INNER RADIUS * |
|--------|----------------|-------------------|
| N-1-A | N/A | 100% |
| N-1-B | N/A | 100% |
| N-2-H | 42% | 100% |
| N-2-J | 42% | 100% |
| N-2-K | 42% | 100% |
| N-3-C | 28% | 100% |
| N-3-D | 28% | 100% |
| N-4-A | N/A | 97% |
| N-4-B | N/A | 97% |
| N-4-C | N/A | 97% |
| N-4-D | 44% | 97% |
| N-4-E | 43% | 97% |
| N-4-F | N/A | 97% |
| N-8-B | 68% | 82% |

* FEEDWATER NOZZLES (N-4'S) INNER RADIUS COVERAGE INCLUDES BORE REGION AREA