

| TENNESSEE VALLEY<br>AUTHORITY                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                             | EXAMINATION SUMMARY<br>AND<br>RESOLUTION SHEET |                             | REPORT NUMBER:<br><i>R-P0344</i>        |            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------|-----------------------------|-----------------------------------------|------------|
| PROJECT: <i>WBN</i> UNIT: <i>2</i> CYCLE <i>00</i>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             | COMPONENT ID: <i>SIF-D198-05</i>               |                             |                                         |            |
| EXAMINATION METHOD                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             | SYSTEM: <i>SIS</i>                             |                             | ISI DWG NO: <i>ISI-2063-W-07 Rev. 1</i> |            |
| MT <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PT <input type="checkbox"/> | UT <input checked="" type="checkbox"/>         | VT <input type="checkbox"/> | CONFIGURATION:                          | CATEGORY   |
| PROCEDURE: <i>N-UT-64</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             | REV <i>11</i>                                  | TC: <i>N/A</i>              | <i>VLV TO TEE</i>                       | <i>B-J</i> |
| EXAMINER:<br><i>Jose Alejandro</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             | EXAMINER:<br><i>N A</i>                        |                             | EXAMINER:<br><i>N A</i>                 |            |
| LEVEL: <i>II</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             | LEVEL:                                         |                             | LEVEL:                                  |            |
| Total coverage calculated to be approximately <i>75</i> %                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                                                |                             |                                         |            |
| <p><i>An ultrasonic examination was performed to meet the requirements of ASME Section XI preservice inspection.</i></p> <p><i>A 45° shear wave and a 70° refracted longitudinal wave were calibrated and used for this examination.</i></p> <p><i>No examination scan 3 performed due to valve geometry.</i></p> <p><i>No recordable indications observed.</i></p> <p><i>75% examination volume coverage achieved utilizing both 45° shear and 70° refracted longitudinal waves.</i></p> |                             |                                                |                             |                                         |            |
| RESOLUTION BY:<br><i>[Signature]</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             | REVIEWED BY:<br><i>[Signature]</i>             |                             | ANII: <i>[Signature]</i>                |            |
| LEVEL <i>II</i> DATE: <i>05-07-09</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             | LEVEL: <i>III</i> DATE: <i>5-13-09</i>         |                             | DATE: <i>6/3/09</i>                     |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                             |                                                |                             | Page: <i>1</i> OF <i>6</i>              |            |

TENNESSEE VALLEY  
AUTHORITY

DIGITAL ULTRASONIC  
CALIBRATION  
DATA SHEET

REPORT NUMBER

R.P0344

PROJECT WBN UNIT/CYCLE 21 00  
PROCEDURE: N-UT-64 REV: 11 TC: N/A

CALIBRATION DATE: 05-07-09  
CALIBRATION BLOCK NO. WB 83 TEMP: 76.5°F  
SIMULATOR BLOCK: Rompas  
THERMOMETER S/N: 558271 DUE DATE: 06-24-09  
COUPLANT: Ultragel Z BATCH: 06225-F

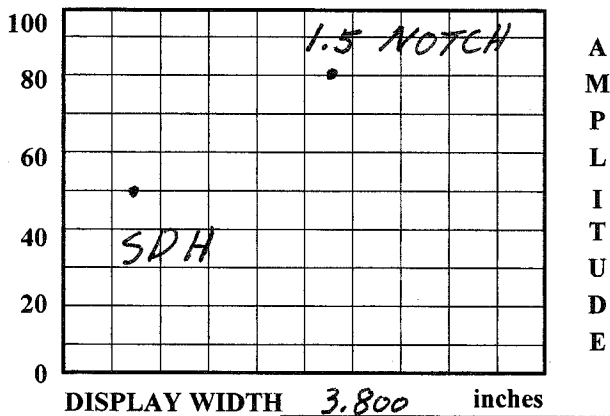
TRANSDUCER  
MANUFAC KBA MODEL: COMP-G  
# ELEMENTS: 1 SHAPE: Round  
S/N 01FH9T SIZE: .375 FREQ: 1.5 MHz  
CONTOUR: N/A FOCUS: N/A  
CABLE TYPE RG174 LENGTH: 72.0 # CNT: N/A

ANGLE VERIFICATION  
BLOCK TYPE Rompas S/N: 790 390  
NOMINAL ANGLE: 45 ACTUAL ANGLE 45°

MODE:  SHEAR  LONG  RL

INSTRUMENT  
MANUFACTURER: KrautKramer DUE DATE: 06-23-09  
MODEL NO.: USN 60 S/N: E36304

DAC



DISPLAY WIDTH 3.800 inches

| REFLECTOR    |                                     |                          | REFERENCE SENSITIVITY | MEMORY NUMBER |
|--------------|-------------------------------------|--------------------------|-----------------------|---------------|
| SCAN DIRECT. | NTC                                 | SDH                      |                       |               |
| AXIAL        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 29.0 dB               | 45°-10in-55   |
| CIRC.        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 29.0 dB               | 45°-10in-55   |

RANGE: 3.800 inches \*FREQ: 2.25 MHz  
PROBE DELA 7.2138 msec \*RECTIFY: Fullwave  
VELOCITY 0.1198 msec DUAL  ON  OFF  
DISP DELAY: 0.00 \*REJECT: 2 %  
\*ENERGY: High \*DISP. START: IP  
\*DAMPING: 1k ohms DET:  Peak  Flank  
\*PRR/PRF: Auto High TCG:  ON  OFF  
ANGLE: 45 deg \*PULSER: Single  
ZERO: N/A msec

REF. REFLECTOR: Rompas SDH GAIN: 31.6 dB  
AMPLITUDE: 50 % METAL PATH: A90

CALIBRATION TIMES  
INITIAL TIME: 0900 FINAL TIME: 1245

VERIFICATION TIMES 1) 1006 2) 1017 3) 1039 4) 1049 5) 1110 6) 1123 7) 1149 8) 1218 9) N/A

\*PDI QUALIFIED INSTRUMENT SETTINGS:  
VERIFY INSTRUMENT SETTINGS AND CALIBRATION SEQUENCE ARE IN ACCORDANCE WITH TABLE 2 OF THE APPLICABLE PDI QUALIFICATION IMPLEMENTATION PROCEDURE!

LINEARITY CHECK

| VERTICAL   | SIGNAL   |     |          |          |     |          |     |          |    |    |
|------------|----------|-----|----------|----------|-----|----------|-----|----------|----|----|
|            | SIGNAL 1 | 100 | 90       | 80       | 70  | 60       | 50  | 40       | 30 | 20 |
|            | SIGNAL 2 | 50  | 45       | 40       | 35  | 30       | 25  | 20       | 15 | 10 |
| ATTENUATOR | GAIN     | SET | -6 dB    | -12dB    | SET | +12      | SET | +6       |    |    |
|            | AMP      | 80% | 32 TO 48 | 16 TO 24 | 20% | 64 TO 96 | 40% | 64 TO 96 |    |    |
|            |          |     | 40       | 20       |     | 80       |     | 80       |    |    |

COMMENTS

WELD / ITEMS EXAMINED

|  |                         |
|--|-------------------------|
|  | SIS-108                 |
|  | SIF-D198-10 SIF-D198-04 |
|  | SIS-106                 |
|  | SIS-105                 |
|  | SIS-104                 |
|  | SIF-D198-05             |

EXAMINER: Jose Alejandro Juel Cruz LVL: II

ANII: @

EXAMINER: Edie Reed LVL: II

DATE: 6/3/09

REVIEWER: Debra Dooly LVL: III DATE: 5-13-09

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**TENNESSEE VALLEY  
AUTHORITY**

**DIGITAL ULTRASONIC  
CALIBRATION  
DATA SHEET**

**REPORT NUMBER**

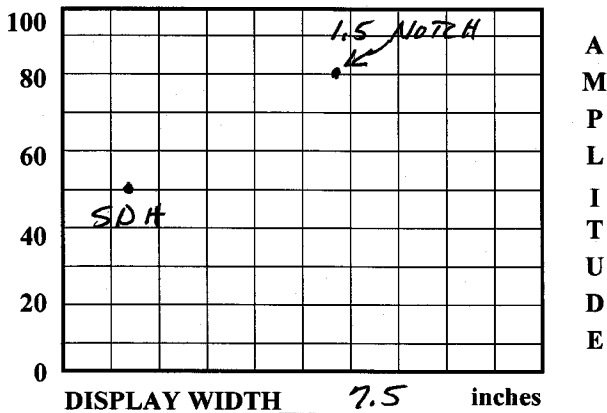
R. PO 344

PROJECT WBN UNIT/CYCLE 2100  
PROCEDURE: N-UT-64 REV: 11 TC: N/A

MANUFAC RTD MODEL: TRL 2  
# ELEMENTS: 2 SHAPE: Rectangle  
S/N 85-639 SIZE: 2(8x14) FREQ: 2 MHZ  
CONTOUR: N/A FOCUS: N/A  
CABLE TYPE RG174 LENGTH: 72 # CNT: N/A

MODE:  SHEAR  LONG  RL

**DAC**



CALIBRATION DATE: 05-07-09  
CALIBRATION BLOCK NO. WB83 TEMP: 76.5 °F  
SIMULATOR BLOCK: Rompas  
THERMOMETER S/N: 558271 DUE DATE: 06-24-09  
COUPLANT: Ultraget II BATCH: 06225F

ANGLE VERIFICATION  
BLOCK TYPE Rompas S/N: 790390  
NOMINAL ANGLE: 70RL ACTUAL ANGLE 70RL

INSTRUMENT  
MANUFACTURER: Kaufman DUE DATE: 06-23-09  
MODEL NO.: USN60 S/N: E36304

| REFLECTOR    |                                     |                          | REFERENCE SENSITIVITY | MEMORY NUMBER |
|--------------|-------------------------------------|--------------------------|-----------------------|---------------|
| SCAN DIRECT. | NTC                                 | SDH                      |                       |               |
| AXIAL        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 68.5 dB               | 70RL-10in     |
| CIRC.        | <u>N/A</u>                          | <input type="checkbox"/> | <u>N/A</u> dB         | <u>N/A</u>    |

RANGE: 7.5 inches \*FREQ: 2.25 MHZ  
PROBE DELA 26.4397 msec \*RECTIFY: Full wave  
VELOCITY .2274 msec DUAL  ON  OFF  
DISP DELAY: 0.000 \*REJECT: 0 %  
\*ENERGY: High \*DISP. START: IP  
\*DAMPING: 1K ohms DET:  Peak  Flank  
\*PRR/PRF: Autohigh TCG:  ON  OFF  
ANGLE: 70RL deg \*PULSER: Dual  
ZERO: N/A msec

REF. REFLECTOR: Rompas SDH GAIN: 52.5 dB  
AMPLITUDE: 50 % METAL PATH: .913

**CALIBRATION TIMES**

INITIAL TIME: 0900 FINAL TIME: 1243

VERIFICATION TIMES 1) 1126 2) 1135 3) 1138 4) N/A 5) N/A 6) N/A 7) N/A 8) N/A 9) N/A

**\*PDI QUALIFIED INSTRUMENT SETTINGS:**

VERIFY INSTRUMENT SETTINGS AND CALIBRATION SEQUENCE ARE IN ACCORDANCE WITH TABLE 2 OF THE APPLICABLE PDI QUALIFICATION IMPLEMENTATION PROCEDURE!

**LINEARITY CHECK**

| VERTICAL   | SIGNAL 1 |          | 100       | 90 | 80        | 70        | 60        | 50        | 40        | 30        | 20        |
|------------|----------|----------|-----------|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|            |          | SIGNAL 2 |           | 50 | <u>45</u> | <u>40</u> | <u>35</u> | <u>30</u> | <u>25</u> | <u>20</u> | <u>15</u> |
| ATTENUATOR | GAIN     | SET      | -6 dB     |    | -12dB     |           | SET       | +12       |           | SET       | +6        |
|            | AMP      | 80%      | 32 TO 48  |    | 16 TO 24  |           | 20%       | 64 TO 96  |           | 40%       | 64 TO 96  |
|            |          |          | <u>40</u> |    | <u>20</u> |           |           | <u>80</u> |           |           | <u>80</u> |

**COMMENTS**

**WELD / ITEMS EXAMINED**

SIF-D198-05

EXAMINER: Jose Alejandro De la Cruz LVL.: II

ANII: Q

EXAMINER: Edric Reed LVL.: II

DATE: 6/3/09

REVIEWER: Darlene Duley LVL.: IV DATE: 5-13-09

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TENNESSEE VALLEY  
AUTHORITY

MANUAL ULTRASONIC  
PIPING EXAMINATION  
DATA SHEET

REPORT NUMBER

R. P0344

PROJECT: WBN UNIT/CYCLE 2100

SYSTEM: SIS

WELD I.D.: SIF-D198-05

CONFIG.: VLV TO TEE

FLOW 

PROCEDURE: N-UT-64 REV: 11 TC: N/A

W<sub>0</sub> REFERENCE: 2 of weld

L<sub>0</sub> REFERENCE: TDC

EXAMINATION DATE 05-07-09

START TIME: 1134 END TIME: 1148

EXAM SURFACE  ID  OD

MATERIAL TYPE:  CS  SS  CSCL  CCSS

SURFACE TEMP.: 80.7 PYRO NO. 558271

EXAMINATION ANGLE 45 DEG. 70 RL DEG.

AXIAL SCAN SENSITIVITY 34.6 dB 70.0 dB

CIRC. SCAN SENSITIVITY 42.9 dB N/A dB

| IND NO. | L (in) FROM REF. |       |    | AT MAX AMP |        |       | MAX AMP % DAC | EXAM NO. 3-14 | NOM. ANG. | NRI                                 | INDICATION INFORMATION: TYPE, DAMPING, ETC. |
|---------|------------------|-------|----|------------|--------|-------|---------------|---------------|-----------|-------------------------------------|---------------------------------------------|
|         | L1               | L Max | L2 | W MAX      | MP MAX | D MAX |               |               |           |                                     |                                             |
|         |                  |       |    |            |        |       |               | 4             | 45°       | <input checked="" type="checkbox"/> |                                             |
|         |                  |       |    |            |        |       |               | 5             | 45°       | <input checked="" type="checkbox"/> |                                             |
|         |                  |       |    |            |        |       |               | 6             | 45°       | <input checked="" type="checkbox"/> |                                             |
|         |                  |       |    |            |        |       |               | 4             | 70° RL    | <input checked="" type="checkbox"/> |                                             |
|         |                  |       |    |            |        |       |               |               |           | <input type="checkbox"/>            |                                             |
|         |                  |       |    |            |        |       |               |               |           | <input type="checkbox"/>            |                                             |

REMARKS/LIMITATIONS No examination scan 3 performed due to valve geometry. Scanned on weld. Examination performed maintaining 5-20% ID roll.

EXAMINER: Jose Alejandro Juarez LEVEL: II

ANII: @

EXAMINER: Eddie Reed LEVEL: II

DATE: 05/3/09

REVIEWED BY: David Dealey LEVEL: III DATE: 5/3/09

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TVA

WALL THICKNESS  
PROFILE SHEET

REPORT NO:

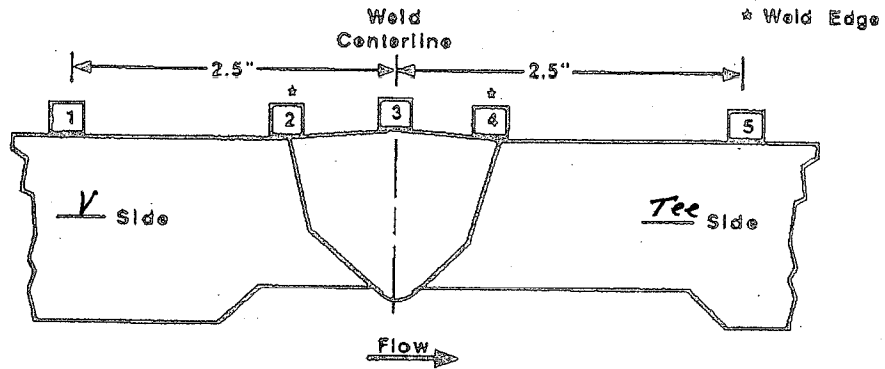
R. P03414

PROJECT: WBN  
UNIT: 2

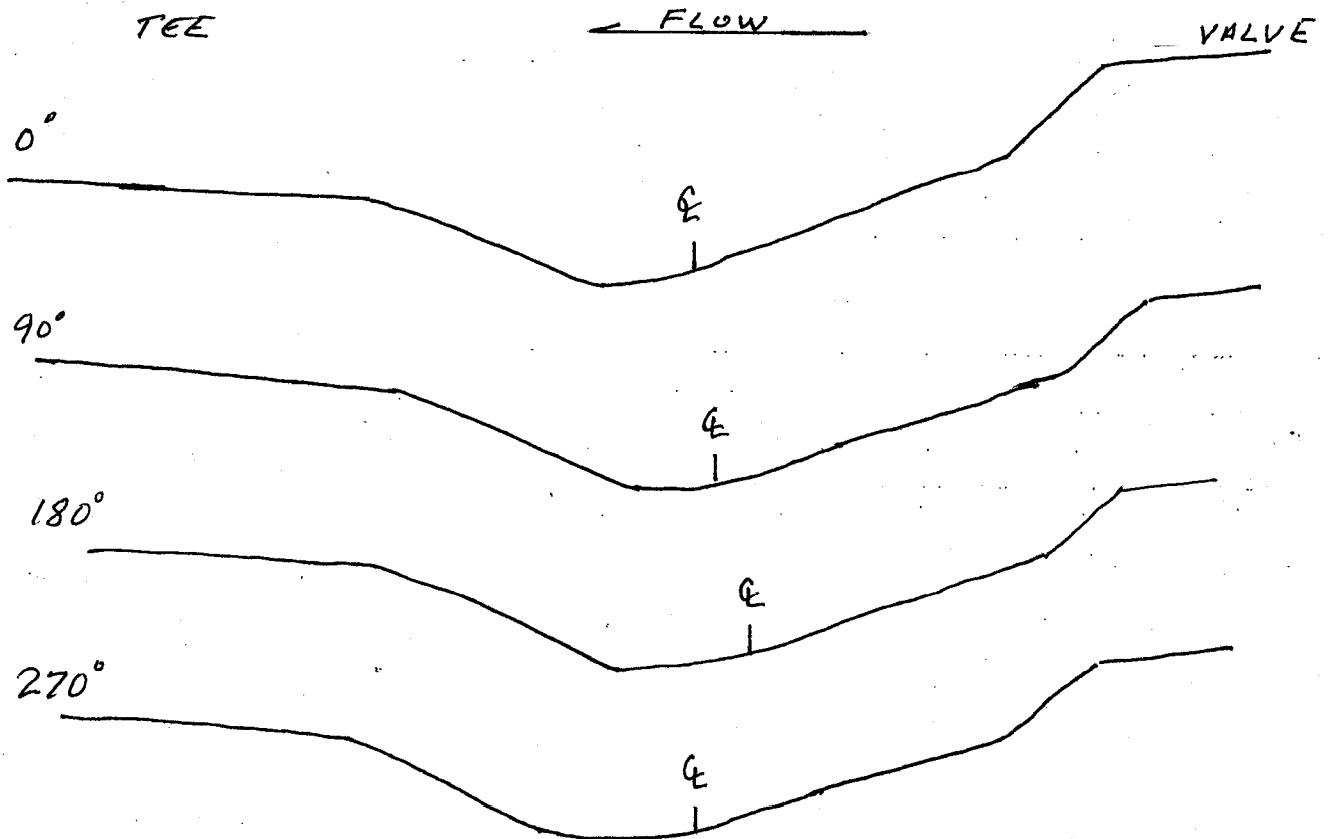
WELD NO: SIF-D198-05  
SYSTEM: SIS

Record Thickness Measurements As Indicated, Including Weld Width, Edge-To-Edge At 0°

| Position | 0°   | 90°  | 180° | 270° |
|----------|------|------|------|------|
| 1        | N/A  | N/A  | N/A  | N/A  |
| 2        | 1.35 | 1.42 | 1.39 | 1.40 |
| 3        | 1.26 | 1.12 | 1.34 | 1.37 |
| 4        | 1.19 | N/A  | 1.18 | 1.17 |
| 5        | 1.48 | 1.80 | 1.67 | 1.64 |



CROWN HEIGHT: FLUSH DIAMETER: 10.0  
CROWN WIDTH: 1.0 WELD LENGTH: 37.125



EXAMINER: Joe Clemente  
LEVEL: II  
DATE: 04-06-09  
05-05-09

REVIEWED BY: Doreen Deley  
LEVEL: III DATE: 5-13-09

ANII: [Signature]  
DATE: 05/13/09  
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Weld# SIF-D198-05

Attachment 3

|         |                                                                         |     |     |       |
|---------|-------------------------------------------------------------------------|-----|-----|-------|
| Item 1  | Required examination Volume in sq. in. (width x height)                 | 1.6 | 0.5 | 0.8   |
| Item 2  | Number of scan directions                                               |     |     | 4     |
| Item 3  | Total Scan volume in sq. in.                                            |     |     | 3.2   |
| Item 4  | Total length of weld                                                    |     |     | 36    |
| Item 5  | Total required exam volume in cubic inches                              |     |     | 115.2 |
| Item 6  | Exam volume achieved (sq. in.) in direction 1 X length of weld achieved | 0.8 | 36  | 28.8  |
| Item 7  | Exam volume achieved (sq. in.) in direction 2 X length of weld achieved | 0.8 | 36  | 28.8  |
| Item 8  | Exam volume achieved (sq. in.) in direction 3 X length of weld achieved | 0.8 | 36  | 28.8  |
| Item 9  | Exam volume achieved (sq. in.) in direction 4 X length of weld achieved | 0   | 36  | 0     |
| Item 10 | Determined the achivied exam volume add 6, 7, 8 & 9                     |     |     | 86.4  |
| Item 11 | Exam volume percentage item 10/item 5 x 100                             |     |     | 75    |

JA

05-07-09

limitation due to valve  
one sided examination

**INFORMATION ONLY**