

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

		EXAMINATION SUMMARY SHEET					Report No: D2R21-001	
							Site: Dresden	Component ID: 2/1/RPV SHELL/N1A-2
Outage: RFO 21	System: RPV	ASME Cat: B-D	ASME Item: B3.90	Aug Req: N/A	RPV-N			
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cert Level	Date	
60° Shear	D-049	N/A	GE-UT-311 Ver/Rev V16	VESSHELL	J. Kent Montgomery	II	11/8/2009	
70° Shear	D-052	N/A	GE-UT-311 Ver/Rev V16	VESSHELL	J. Kent Montgomery	II	11/8/2009	
60° RL	D-053	N/A	GE-UT-300 Ver/Rev 10	VESSHELL	Ryan Tauchen	II	11/8/2009	
60° RL	D-054	N/A	GE-UT-300 Ver/Rev 10	CAL-IIW2-044	Ryan Tauchen	II	11/8/2009	
Examination Results: During the manual ultrasonic examination of the above referenced nozzle to vessel weld, no recordable indications were detected utilizing the above procedures. The inner 15%T examination volume as defined by 10 CFR 50 (Supplement 7) searching for flaws oriented perpendicular to the weld axis was performed per procedure GE-UT-311 V16 utilizing search units validated by modeling. This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda. Manual examination were restricted due to the nozzle configuration. 27.2% code coverage was achieved.								
Examination results were compared to Data Report D354 from: 1995						<input type="checkbox"/> Change		
These examinations were performed under Work Order: 01096691-06						<input checked="" type="checkbox"/> No Change		
This Summary and the following data sheets have been reviewed and accepted by the following personnel						RWP: 1001-0426 Dose: 68 mr.		
Prepared By: <u>Scott R. Erickson</u>	Level: <u>III</u>	Date: <u>11/16/09</u>	Utility Review: <u>[Signature]</u>	Date: <u>11-16-09</u>				
GE Review By: <u>Scott R. Erickson</u>	Level: <u>III</u>	Date: <u>11/16/09</u>	ANII Review: <u>[Signature]</u>	Date: <u>11/19/09</u>	Page <u>1</u> of <u>9</u>			

Dresden Nuclear Power Station



HITACHI

**Fourth Instance Calibration Coverage Non-Destructive Examination Records
Inner Radius Examinations**

Site/Unit: Dresden / 2

Data Report Number: D2R21-001

Linearity Sheet: L-005

Outage: RFO 21

Data Sheet Number: D-049

Procedure: GE-UT-311

Rev: V16

DRR: N/A

Calibration Data for Block: VESSELL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>1309</u>		Exam Start: <u>1350</u>
Cal Check: <u>N/A</u>		Exam End: <u>1642</u>
Cal Check: <u>N/A</u>	<u>Ultragel II</u>	<u>07225</u>
Final Cal: <u>1700</u>	Couplant:	Batch
<u>264715</u>	<u>115° F</u>	<u>100° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp.

DAC Construction

Reflector	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.0"</u>	1X	<u>80%</u>	<u>12"</u>	<u>14</u>	<u>7"</u>
<u>N/A</u>	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X= 49

Sweep 0-10 - 20" Metal Path

Acceptable Linearity performed : 10/28/2009

Search Unit Data

<u>KBA</u> Manufacturer:	<u>QDK9NV</u> Serial No.:	<u>50" x 1.0" / Rect</u> Size/Shape:
<u>0.85 in.</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-291-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>031538006</u> Serial No.:
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<u>16.45 us</u> Zero:	<u>0.1278 in / usec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>20.0 in.</u> Range:	<u>Sq / Med</u> Pulsar/Energy
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Exam Data for Component: 2/1/RPV SHELL/N1A-2

RPV-N

Configuration:

<u>Plate</u> Exam Surface:	<u>115° F</u> Component Temp.				
Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0° - 3.5"</u>	<u>60°</u>	<u>±40-75°</u>	<u>N/A</u>	<u>63</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for nozzle to vessel weld (N/V).
Exams performed to maintain a 20 - 30% FSH clad roll.
Scanned CW and CCW.

JKM J Kent Montgomery II 11/8/2009
Initials: Examiner: Level: Cal/Exam Date:

See Summary Sheet for Signature
Utility Reviewed By: Date:

Scott R. Erickson III 11/11/09
GE Reviewed By: Level: Date:

See Summary Sheet for Signature
ANII Reviewed By: Date:

Dresden Nuclear Power Station
 **HITACHI**

**US Data Calibration and Certification Records
 Inner Radius Examinations**

Site/Unit: Dresden / 2

Data Report Number: D2R21-001

Linearity Sheet: L-005

Outage: RFO 21

Data Sheet Number: D-052

Procedure: GE-UT-311

Rev: V16

DRR: N/A

Calibration Data for Block: VESSHELL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>1318</u>	Exam Start: <u>1350</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1642</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>07225</u> Batch
Final Cal: <u>1708</u>		
<u>264715</u> Thermometer	<u>115° F</u> Initial Cal Temp.	<u>100° F</u> Final Cal Temp.

DAC Construction

Reflector	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.0"</u>	1X	<u>80%</u>	<u>19.2"</u>	<u>20.4</u>	<u>7.3"</u>
<u>N/A</u>	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X = 54.6

Sweep 0-10 = 28" Metal Path

Acceptable Linearity performed : 10/28/2009

Search Unit Data

<u>KBA</u> Manufacturer:	<u>C14437</u> Serial No.:	<u>50" x 1.0" / Rect.</u> Size/Shape:
<u>1.0 in.</u> Incident Point:	<u>70°</u> Nominal Angle:	<u>70°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-291-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>031538006</u> Serial No.:
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<u>17.54 μs</u> Zero:	<u>0.1261 in / μsec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>28.0 in.</u> Range:	<u>Sg / Med</u> Pulse/Energy
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Exam Data for Component: 2/1/RPV SHELL/N1A-2

RPV-N

Configuration:

<u>Plate</u> Exam Surface:	<u>115° F</u> Component Temp.				
Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0 - 4"</u>	<u>70°</u>	<u>±40 - 75</u>	<u>N/A</u>	<u>68.6</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for nozzle to vessel weld (N/V).
 Exams performed to maintain a 20 - 30% FSH clad roll.
 Scanned CW and CCW.

AKM J. Kent Montgomery II 11/8/2009
 Initials: Examiner: Level: Cal/Exam Date:

See Summary Sheet for Signature
 Utility Reviewed By: Date:

Scott R. Erickson III 11/8/09
 GE Reviewed By: Level: Date:

See Summary Sheet for Signature
 ANI Reviewed By: Date:

Site/Unit: Dresden / 2 Data Report Number: D2R21-001 Linearity Sheet: L-001
 Outage: RFO 21 Data Sheet Number: D-053
 Procedure: GE-UT-300 Ver.: 10 DRR: N/A

Calibration Block: VESSHLL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>1300</u>	Exam Start: <u>1350</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1642</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u>	<u>07225</u>
Final Cal: <u>1700</u>	Couplant:	Batch
<u>264715</u>	<u>115° F</u>	<u>100° F</u>
Thermometer	Initial Cal Temp-	Final Cal Temp-

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
ID Notch	<u>7.0"</u>	1X	<u>80%</u>	<u>12.1"</u>	<u>14.1</u>	<u>7.1"</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 74
 Sweep 0-10 - 10" Depth
 Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: Z/1/RPV SHELL/NIA-2

RPV-N
 Configuration:
DD
 Exam Surface: Component Temperature 115° F

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360</u>	<u>T&P</u>	<u>74</u>	<u>NRI</u>	<u>60</u>

Search Unit Data

<u>Sigma</u> Manufacturer:	<u>228C-08005</u> Serial Number:	<u>21.1x.62 / Rect</u> Size / Shape:
<u>.65</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>3.0 MHz</u> Frequency:	<u>SDC-3</u> Model:	<u>RL</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>031539406</u> Serial Number:
<u>9.4 μs</u> Delay/Zero:	<u>0.2332 in./μsec.</u> Velocity:
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:
<u>Off:</u> DAC:	<u>Off:</u> TVG:
<u>20.0 in.</u> Range:	<u>Sq / Med</u> Pulser:
<u>3.03 MHz</u> Frequency:	<u>Dual</u> Mode:
<u>Off:</u> CSC:	<u>Off:</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/28/2009

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
 Calibration for full volume examination.
 Exams performed to maintain a 10 - 20% clad roll.

<u>RT</u> <u>Ryan Tauchen</u>	<u>II</u>	<u>11/8/2009</u>
Initials: Examiner	Level: Co/Exam Date:	
<u>N/A</u>	<u>N/A</u>	
Initials: Examiner	Level:	<u>11/11/09</u>
<u>Scott R. Erickson</u>	<u>TII</u>	
GE Reviewed By:	Level:	Date:

See Summary Sheet for Signature
 Utility Reviewed By: _____ Date: _____
 See Summary Sheet for Signature
 ANII Reviewed By: _____ Date: _____

Dresden Nuclear Power Station **HITACHI** Fourth ISI Interval Limited Coverage NDE Summary Sheets
 Ultrasonic Calibration and Examination Record
 RPV Components

Site/Unit: Dresden / 2 Data Report Number: D2R21-001 Linearity Sheet: L-001
 Outage: RFO 21 Data Sheet Number: D-054
 Procedure: GE-UT-300 Ver.: 10 DRR: N/A

Calibration Block: CAL-IIW2-044

<u>CS</u> Material	<u>N/A</u> Size	<u>4.0"</u> Thickness
Initial Cal: <u>1225</u>	Exam Start: <u>1350</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1642</u>	
Cal Check: <u>N/A</u>	<u>Ultracel II</u> Couplant:	<u>07225</u> Batch
Final Cal: <u>1655</u>		
<u>264715</u> Thermometer	<u>95° F</u> Initial Cal Temp.	<u>95° F</u> Final Cal Temp.

Search Unit Data

Stama 22BC-08005 211x62 / Rect
 Manufacturer: Serial Number: Size / Shape:
.65 60° 60°
 Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 RL
 Frequency: Model: Mode:

Search Unit Cable

RG-174 9' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031539406
 Manufacturer/Model: Serial Number:
9.4 us 0.2332 in./usec. 0.8 - 3.0 MHz
 Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 4.0 in. Sq. / Med
 Rep Rate: Rectification: Range: Pulsar:
400 Ohms 0% 3.03 MHz Dual
 Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
 DAC: TVG: CSC: DGS:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/A	.6"	1X	80%	1.0"	1.25	3.2"
N/A	N/A	1X	N/A	N/A	N/A	N/A
N/A	N/A	1X	N/A	N/A	N/A	N/A
ID Notch	N/A	1X	N/A	N/A	N/A	N/A
N/A	N/A	1X	N/A	N/A	N/A	N/A

DAC 1X= 59
 Sweep 0-10 = 2" Depth
 Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N1A-2
RPV-N
 Configuration:
OD 115° F
 Exam Surface: Component Temperature

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360</u>	<u>T&P</u>	<u>73</u>	<u>NRI</u>	<u>60</u>

Acceptable Linearity performed: 10/28/2009

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
 Calibration for near surface examination.
 Exams performed a minimum of 14 dB above reference.

RJT Ryan Tauchen II 11/8/2009
 Initials: Examiner Level: Cal/Exam Date:
N/A N/A
 Initials: Examiner Level: TLL 4/11/09
 GE Reviewed By: Level: Date:

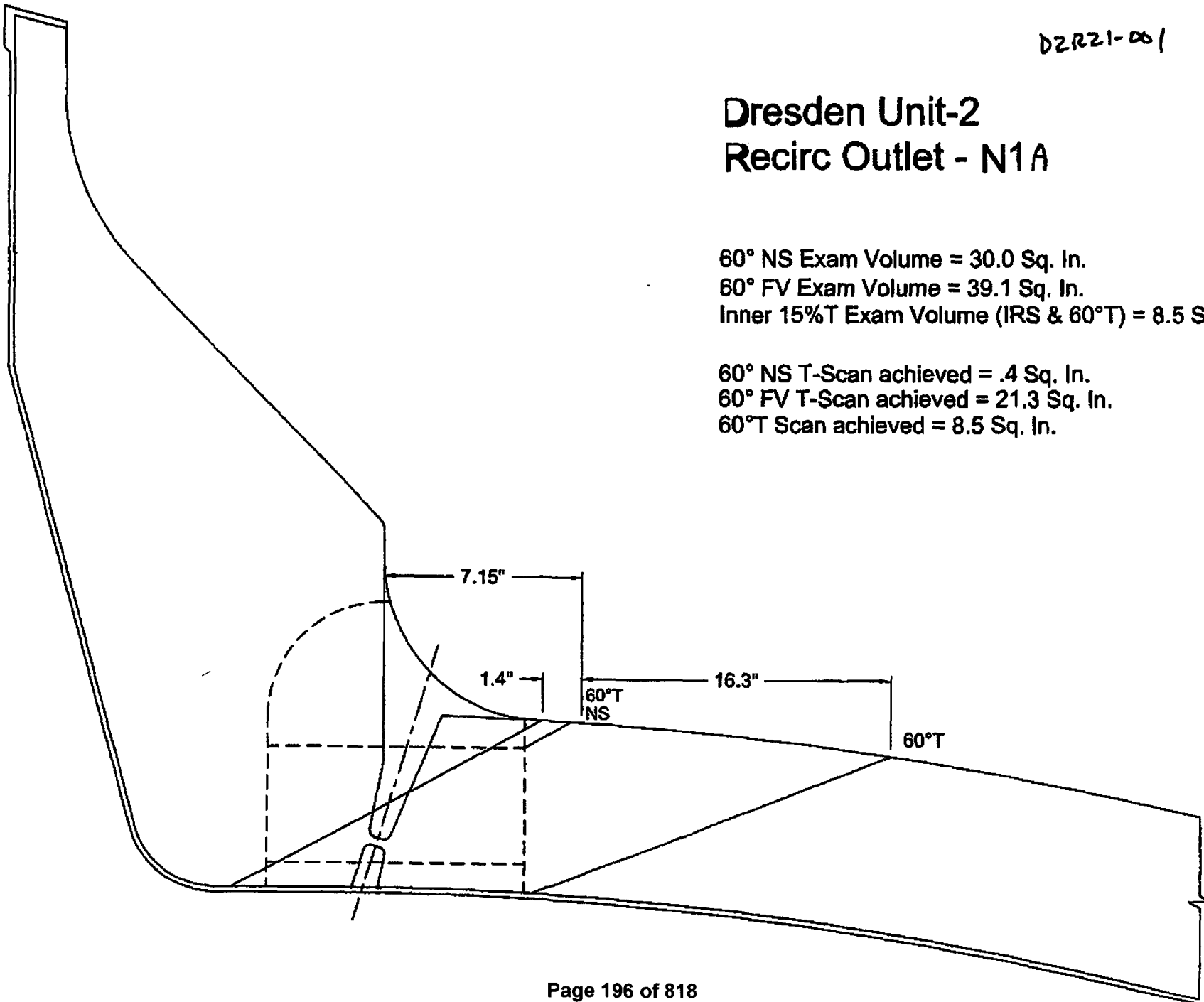
See Summary Sheet for Signature _____
 Utility Reviewed By: _____ Date: _____
 See Summary Sheet for Signature _____
 ANII Reviewed By: _____ Date: _____

D2R21-001

Dresden Unit-2 Recirc Outlet - N1A

60° NS Exam Volume = 30.0 Sq. In.
60° FV Exam Volume = 39.1 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° NS T-Scan achieved = .4 Sq. In.
60° FV T-Scan achieved = 21.3 Sq. In.
60°T Scan achieved = 8.5 Sq. In.



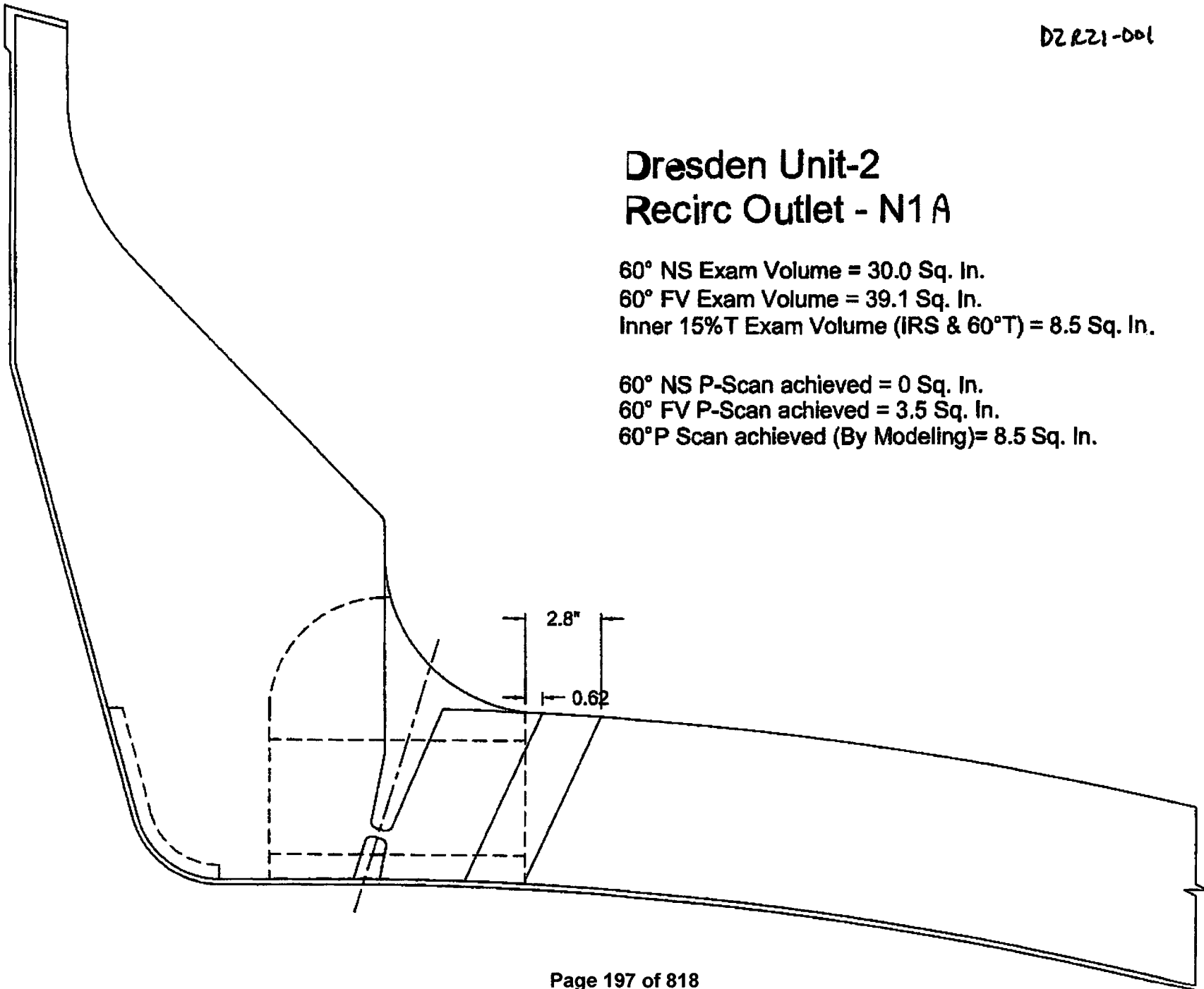
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Dresden Unit 2

Dresden Unit-2 Recirc Outlet - N1 A

60° NS Exam Volume = 30.0 Sq. In.
60° FV Exam Volume = 39.1 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° NS P-Scan achieved = 0 Sq. In.
60° FV P-Scan achieved = 3.5 Sq. In.
60°P Scan achieved (By Modeling)= 8.5 Sq. In.



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ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

J2K21-001

Detection

Nt_POI Dr2 Rev4.XLS

MANUAL DETECTION NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS									
PLANT		Dresden 2							
PREPARED BY		S.C. MORTENSON				DATE			10/12/09
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ	
RECIRC OUTLET									
N/V Weld (M)	PLATE	0 - 3.5"	60.0°	-	± 40°-75°	FLAT	14.0"	1 MHz	
N/V Weld (M)	PLATE	0 - 4.0"	70.0°	-	± 40°-75°	FLAT	25.3"	1 MHz	
Zone 1 (M)	ODBR	20° - 45°	35.0°	-	90.0°	5.5"	20.7"	1 MHz	
Zone 2A (M)	ODBR	45° - 90°	60.0°	-	35.0°	5.5"	20.4"	1 MHz	

W-021, W-022
W-023, W-024

NOTES:	(M)	MANUAL
	100X (100X)	WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor
SME Review / Date

Handwritten Signature
Site Review / Date



HITACHI

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden Unit 2 / D2R21
N1 Recirculation Outlet (Noz-Shell)
Fall / 2009

	Weld Length = Exam Volume =	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE			
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual	
60° T-Scan (S4 UC)	360.	A	8.5	8.5	11.0%	360	5.5%
60° T-Scan (S6 FV)	77.6	A	39.1	21.3	27.4%	360	13.7%
60° T-Scan (S6 NS)		A	30	0.4	0.5%	360	0.3%
IRS P-Scan (S4 UC)		A	8.5	8.5	11.0%	360	5.5%
60° P-Scan (S6 FV)		A	39.1	3.5	4.5%	360	2.3%
60° P-Scan (S6 NS)		A	30	0	0.0%	360	0.0%
60° T-Scan (S4 UC)							
60° T-Scan (S6 FV)							
60° T-Scan (S6 NS)							
IRS P-Scan (S4 UC)							
60° P-Scan (S6 FV)							
60° P-Scan (S6 NS)							
60° T-Scan (S4 UC)							
60° T-Scan (S6 FV)							
60° T-Scan (S6 NS)							
IRS P-Scan (S4 UC)							
60° P-Scan (S6 FV)							
60° P-Scan (S6 NS)							

% Total Composite Coverage = 27.2%

Rev. 0 9/23/05

Comments: A - Supplemental manual exam scanning was not restricted.

A* - Single side access, 50% credit of the achieved Supplement 4 T-scan volume claimed.

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in inches or degrees.

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

EXAMINATION SUMMARY SHEET

Report No.:
2R18-010

Site and Unit: **Dresden Unit 2** Component ID: **2/1/RPV SHELL/N1B-2**
 Outage: **D2R18** **RPV-NOZ**
 System: **RPV** ASME Cat.: **B-D** ASME Item **B3.90** Aug Requirements: **Section XI**

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° Shear	UT-089	UT-089	GE-UT-311	VESSEL SHELL	Kent Montgomery	II	10/23/2003
70° Shear	UT-090	UT-090	GE-UT-311	VESSEL SHELL	Kent Montgomery	II	10/23/2003
60° Long.	UT-091	UT-091	GE-UT-300	CAL-IIW2-013	Jonathan Guillote	II	10/23/2003
60° Long.	UT-092	UT-092	GE-UT-300	VESSEL SHELL	Jonathan Guillote	II	10/23/2003

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 60° RL, 60° and 70° shear wave search units.

Scanning was limited due to the nozzle configuration.

26% of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI, Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report 002 from D2R16 outage with No Change

These examinations were performed under Work Order: 00613889-04 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

		10/24/03		III	10-26-03
Prepared By:	Level:	Date:	Utility Reviewed By:	Title:	Date:
N/A	N/A	N/A			10-30-03
Reviewed By:	Level:	Date:	ANII Reviewed By:	Title:	Date:

Page 1 of 8

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**

Site/Unit: Dresden / 2
Outage: D2R1B

Data Report Number: 2R1B-010 Linearity Sheet: L-014
Data Sheet Number: UT-089

Procedure: GE-UT-311

Rev: 10 DRR: N/A

Calibration Data for Block: VESSEL SHELL

CS	N/A	7.0"
Material	Size	Thickness
Initial Cal: <u>0208</u>		Exam Start: <u>0315</u>
Cal Check: <u>N/A</u>		Exam End: <u>0420</u>
Cal Check: <u>N/A</u>	<u>Ultragel II</u>	<u>02125</u>
Final Cal: <u>0502</u>	Couplant:	Batch
<u>229174</u>	<u>77° F</u>	<u>77° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp:

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>12.4</u>	<u>14.3</u>	<u>5.5</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 52.0 dB

Sweep 0-10 26" Metal Path

Acceptable Linearity performed : 10/15/2003

Search Unit Data

KBA	107016	0.5"x1.0"/Rect.
Manufacturer:	Serial No.:	Size/Shape:
<u>0.7 in.</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>1.0 MHz</u>	<u>113-291-600</u>	<u>Shear</u>
Frequency:	Model:	Mode:

Search Unit Cable

RQ-174	12'	0
Cable Type:	Length:	Connectors:

Instrument Settings

Panometrics / EPOCH 4	031539806		
Manufacturer/Model:	Serial No.:		
<u>16.89 us</u>	<u>0.1275 u/sec</u>	<u>0.0 - 3.0 MHz</u>	<u>Auto</u>
Delay:	Velocity:	Filter:	Rep Rate:
<u>26.0 in.</u>	<u>Sq. / Med</u>	<u>400 ohms</u>	
Range:	Pulsar:	Damping:	
<u>Off</u>	<u>1.0 MHz</u>	<u>P/E</u>	
Reject:	Frequency:	Mode:	

Exam Data for Component: 2/1/RPV SHELL/N1B-2

RPV-NOZ
Configuration:

OD / Plate	97° F
Exam Surface:	Component Temp.

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>360°</u>	<u>60°</u>	<u>+75°</u>	<u>Flat</u>	<u>64.0</u>	<u>NRI</u>
<u>360°</u>	<u>60°</u>	<u>-75°</u>	<u>Flat</u>	<u>64.0</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration.

Rectification - Full wave; TVG, CSG, and DGS disabled.
Calibration for nozzle to vessel weld (N/V).
Exams performed to maintain a 20-30% FSH clad roll.
Scanned CW and CCW.

<u>1M</u> <u>Kent Montgomery</u>	<u>II</u>	<u>10/23/03</u>	<u>[Signature]</u>	<u>10-24-03</u>
Initials: Examiner:	Level:	Cal/Exam Date:	Utility Reviewed By:	Date:

<u>[Signature]</u>	<u>[Signature]</u>	<u>10-30-03</u>
GE Reviewed By:	Level:	Date:
<u>[Signature]</u>	<u>[Signature]</u>	<u>10-30-03</u>
ANII Reviewed By:	Level:	Date:



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**

Site/Unit: Dresden / 2

Data Report Number: 2R18-010

Linearity Sheet: L-014

Outage: D2R18

Data Sheet Number: UT-090

Procedure: GE-UT-311

Rev: 10

DRR: N/A

Calibration Data for Block: VESSEL SHELL

CS **N/A** **7.0"**
Material Size Thickness

Initial Cal: 0203 Exam Start: 0315

Cal Check: N/A Exam End: 0420

Cal Check: N/A Ultrageel II 02125

Final Cal: 0458 Couplant: Batch

229174 77° F 77° F
Thermometer Initial Cal Temp. Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>19.8</u>	<u>20.8</u>	<u>6.5</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 50.0 dB

Sweep 0-10 32" Metal Path

Acceptable Linearity performed : 10/15/2003

Search Unit Data

KBA **00L324** **0.5"x1.0"/Rect.**
Manufacturer: Serial No.: Size/Shape:

0.85 in. 70° 70
Incident Point: Nominal Angle: Measured Angle:

1.0 MHz 113-291-600 Shear
Frequency: Model: Mode:

Search Unit Cable

RG-174 **12'** **0**
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / EPOCH 4 **031538906**
Manufacturer/Model: Serial No.:

18.37 us 0.1276 u/sec 0.8 - 3.0 MHz Auto
Delay: Velocity: Filter: Rep Rate:

32.0 in. SG / Med 400 ohms
Range: Pulsar: Damping:

Off 1.0 MHz P/E
Reject: Frequency: Mode:

Exam Data for Component: 2/1/RPV SHELL/N1B-2

RPV-NOZ

Configuration:

OD / Plate

97° F

Exam Surface:

Component Temp.

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>360°</u>	<u>70°</u>	<u>+75°</u>	<u>Flat</u>	<u>64.0</u>	<u>NRI</u>
<u>360°</u>	<u>70°</u>	<u>-75°</u>	<u>Flat</u>	<u>64.0</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration.

Rectification - Full wave; TVG, CSG, and DGS disabled.
Calibration for nozzle to vessel weld (N/V).
Exams performed to maintain a 20-30% FSH clad roll.
Scanned CW and CCW.

KM Kent Montgomery II 10/23/03

Initials: Examiner:

Level:

Cal/Exam Date:

[Signature]

Utility Reviewed By:

10-26-03

Date:

[Signature]

GE Reviewed By:

Level:

Date:

[Signature]

ANII Reviewed By:

10-30-03

Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2
Outage: D2R18

Data Report Number: 2R18-010 Linearity Sheet: L-007
Data Sheet Number: UT-001 Beam Spread: N/A

Procedure: GE-UT-300

Ver.: 1

DRR: N/A

Calibration Block: CAL-IHW2-013

CS N/A 4.0"
Material Size Thickness
Initial Cal: 0205 Exam Start 0315
Cal Check: N/A Exam End: 0420
Cal Check: N/A Ultragal II 02125
Final Cal: 0445 Couplant: Batch
229174 77° F 77° F
Thermometer Initial Cal Temp. Final Cal Temp.

DAC Construction

Hole "r"	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	<u>0.6</u>	1X	<u>80%</u>	<u>1.0</u>	<u>0.58</u>	<u>2.9</u>
1/2	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
1D	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
5/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 58.1 dB

Sweep 0-10 2" Depth

Note N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

Sigma 22BC-02005 2(1.1x.62)Rect.
Manufacturer: Serial Number: Size / Shape:
0.6" 60° 59°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC3 Long.
Frequency: Model: Mode:

Search Unit Cable

RG-174 6' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / EPOCH 4 031528304
Manufactures/Model: Serial Number:
8.94 us 0.2316 in/ussec. 0.8 - 3.0 MHz Auto
Delay: Velocity: Filter: Rep Rate:
4.0 in. Sq. / Med 400 Ohms
Range: Pulsar: Damping:
Off 3.03 MHz Dual
Reject: Frequency: Mode:

Exam Data for Weld: 211/RPV SHELL/N1B-2

RPV-NOZ

Configuration:

0D / Plate

97° F

Exam Surface:

Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360°</u>	<u>I/P</u>	<u>72.1</u>	<u>NRI</u>	<u>90°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/9/2003

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVG, CSG and DGS disabled.
Calibration for near surface examination.
Exams performed a minimum of 14 dB above reference.

JG Jonathan Guillote II 10/23/2003
Initials: Examiner Level: Cal/Exam Date:

N/A N/A
Initials: Examiner Level:
CP 10/23/03
GE Reviewed By: Level: Date:

Am Med 10-21-03
Utility Reviewed By: Date:

10-30-03
ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: 2R18-010

Linearity Sheet: L-007

Outage: D2R18

Data Sheet Number: UT-092

Beam Spread:

Procedure: GE-UT-300

Ver.: Z

DRR: N/A

Calibration Block: VESSEL SHELL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>0205</u>		Exam Start: <u>0315</u>
Cal Check: <u>N/A</u>		Exam End: <u>0420</u>
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>0450</u>		
<u>229174</u> Thermometer	<u>77° F</u> Initial Cal Temp.	<u>77° F</u> Final Cal Temp:

DAC Construction

Hole " "	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
1/2	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
ID	<u>7.0</u>	1X	<u>80%</u>	<u>11.8</u>	<u>6.9</u>	<u>6.9</u>
5/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 72.1 dB

Sweep 0-10 10" Depth

Note N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

<u>Sigma</u> Manufacturer:	<u>22BC-02005</u> Serial Number:	<u>2(1.1x.62)/Rect.</u> Size / Shape:
<u>0.6"</u>	<u>60°</u>	<u>59°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u> Frequency:	<u>SDC3</u> Model:	<u>Long.</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>6'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Parametrics / EPOCH 4</u> Manufacturer/Model:	<u>031526304</u> Serial Number:		
<u>8.94 us</u> Delay:	<u>0.2316 in./usec.</u> Velocity:	<u>0.8 - 2.0 Mhz</u> Filter:	<u>Auto</u> Rep Rate:
<u>20.01 in.</u> Range:	<u>Sq. / Med</u> Pulsar:	<u>400 Ohms</u> Damping:	
<u>OFF</u> Reject:	<u>3.03 MHz</u> Frequency:	<u>Dual</u> Mode:	

Exam Data for Weld: 2/1/RPV SHELL/N1B-2

RPV-NOZ
Configuration:

<u>OD / Plate</u> Exam Surface:	<u>97° F</u> Component Temperature
------------------------------------	---------------------------------------

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360°</u>	<u>T/P</u>	<u>72.1</u>	<u>NRI</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/0/2003

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVG, CSG and DGS disabled.
Calibration for full volume examination.
Exams performed to maintain a 10-20% clad roll.

<u>JPH</u> Initials: Examiner	<u>Jonathan Guillote II</u> Level:	<u>10/23/2003</u> Cal/Exam Date:
<u>N/A</u> Initials: Examiner	<u>N/A</u> Level:	<u>istake</u> Date:
<u>CP</u> GE Reviewed By:	<u>Level:</u>	<u>Date:</u>

<u>Am</u> Utility Reviewed By:	<u>10-26-03</u> Date:
<u>CP</u> ANII Reviewed By:	<u>10-29-03</u> Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2, D2R18
N1B-2, Recirc. Outlet Nozzle
Fall 2003

Weld Length = 360. Exam Volume = 77.7		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
60° T-Scan	A	77.7	28.6	36.8%	360.0	18.4%
60° P-Scan, 85%T	A	69.2	3.4	4.4%	360.0	2.2%
IRS-Scan, 15%T	A	8.5	8.5	10.9%	360.0	5.5%
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						

% Total Composite Coverage = 26%

Comments: A - Examined 360° length. Scanning limited due to nozzle configuration.
Weld length in degrees. IRS examination coverage determined by modeling.

Note - Rounding methods may make calculated values appear in error.

Dresden Unit-2, D2R18

Page 5 of 8

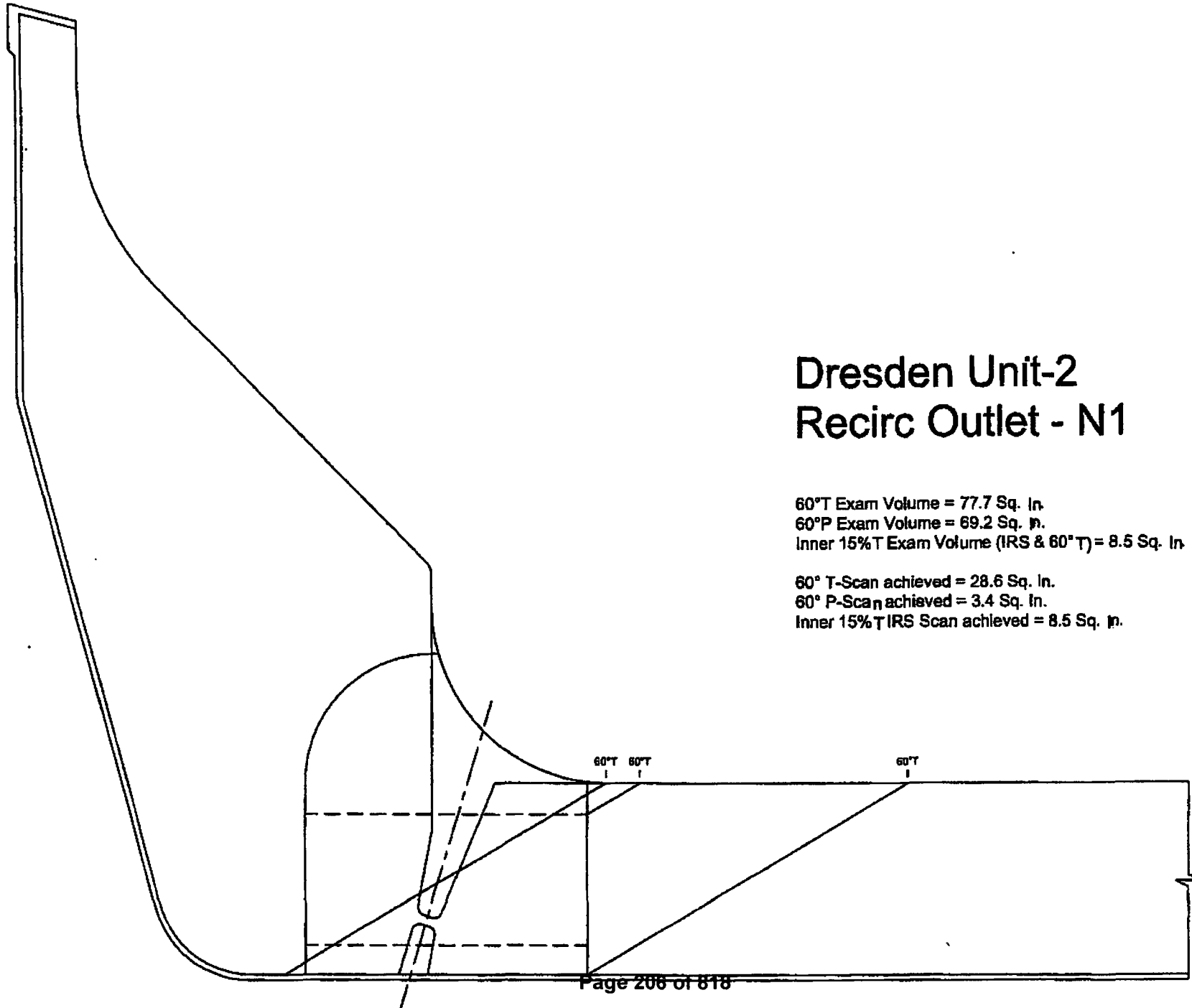
Dresden Unit-2 2009

Dresden Unit-2 Recirc Outlet - N1

60°T Exam Volume = 77.7 Sq. In.
60°P Exam Volume = 69.2 Sq. In.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° T-Scan achieved = 28.6 Sq. In.
60° P-Scan achieved = 3.4 Sq. In.
Inner 15°T IRS Scan achieved = 8.5 Sq. In.

5-2-09

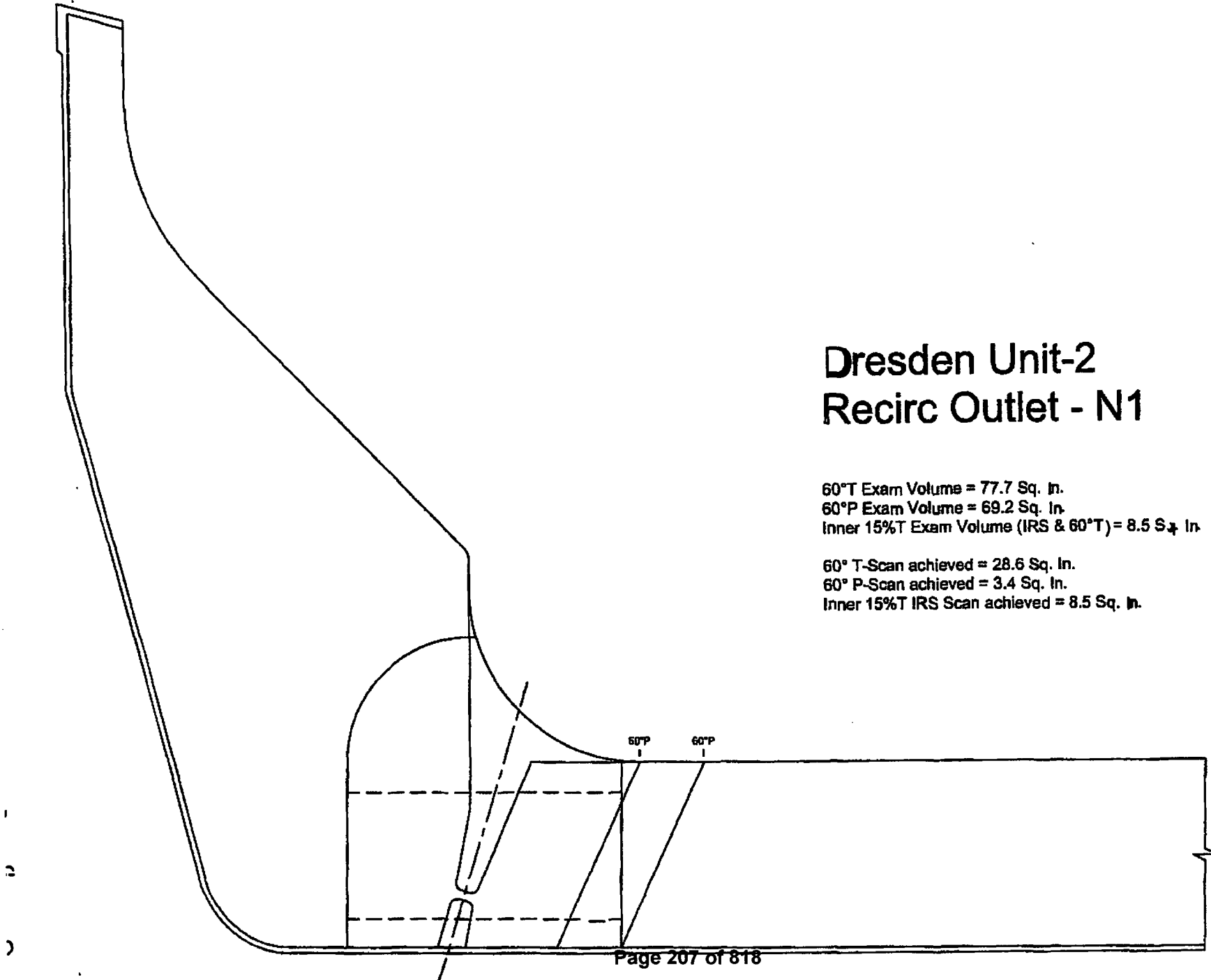


Dresden Unit 2 NDE

Dresden Unit-2 Recirc Outlet - N1


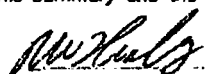
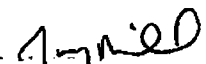
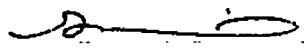
60°T Exam Volume = 77.7 Sq. In.
60°P Exam Volume = 69.2 Sq. In.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° T-Scan achieved = 28.6 Sq. In.
60° P-Scan achieved = 3.4 Sq. In.
Inner 15°T IRS Scan achieved = 8.5 Sq. In.



ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE ENERGY, NUCLEAR		EXAMINATION SUMMARY SHEET				Report No. 112120-004	
Site: Dresden		Component ID: 2/1/RPV SHELL/N2A-2					
Outage: D2R20		NOZ-RPV					
System: RPV		ASME Cal.: B-D		ASME Item B3.90		Aug Req N/A	
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° RL	D-078	N/A	GE-UT-300 Ver/Rev 10	CAL-11W2-047	Wallace Reid	II	11/8/2007
60° RL	D-079	N/A	GE-UT-300 Ver/Rev 10	99978AQC	Wallace Reid	II	11/8/2007
Examination Results: During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing a 60° RL wave search unit. 39.2% code coverage was achieved. Single side due to nozzle configuration. This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda							
Previous examination results supplied by customer for review from ISI Program documents?					<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> Change
These examinations were performed under Work Order: 871143-06					<input type="checkbox"/> No		<input checked="" type="checkbox"/> No Change
This Summary and the following data sheets have been reviewed and accepted by the following personnel:							RWP: N/A
Prepared By: 		Level: III	Date: 11-12-07		Utility Review: 		Date: 11-11-07
							Date: 11/14/07
					ANII Review:		Date:
						Page 1 of 7	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-063

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-07B

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-IIW2-047

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>4.0"</u> Thickness
Initial Cal: <u>1000</u>	Exam Start: <u>11:40</u>	
Cal Check: <u>N/A</u>	Exam End: <u>12:58</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1319</u>		
<u>255364</u> Thermometer	<u>85° F</u> Initial Cal Temp.	<u>85° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
SDH	.6"	1X	80%	1.3	.66	3.3
		1X				
		1X				
		1X				
		1X				

DAC 1X= 55.1 dB

Sweep 0-10 = 2.0 Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N2A-2

NOZ-RPV

Configuration:

OD Exam Surface: 98° F Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T DN</u>	<u>69.1</u>	<u>NRI</u>	<u>60°</u>
<u>Plate</u>	<u>P CW/CCW</u>	<u>69.1</u>	<u>NRI</u>	<u>60°</u>

Search Unit Data

<u>Sigma</u> Manufacturer:	<u>22BC-02004</u> Serial Number:	<u>2(1.1x.62)/Rect</u> Size / Shape:
<u>.65</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u> Frequency:	<u>SDC-3</u> Model:	<u>RL</u> Made:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>12'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>031572811</u> Serial Number:		
<u>7.655 μs</u> Delay/Zero:	<u>0.2245 in./usec.</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>4.0 in.</u> Range:	<u>Sq. / Max</u> Pulser:
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>3.03 MHz</u> Frequency:	<u>Dual</u> Made:
<u>Off</u> DAC:	<u>Off</u> TVG:	<u>Off</u> CSC:	<u>Off</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SDI)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for near surface examination.
Exam performed to minimum of 14 dB above reference.
Single side exam.

UWR Wallace Reid II 11/8/2007
Initials: Examiner Level: Cal/Exam Date:

[Signature] III 11-11-07
Utility Reviewed By: Date:

N/A N/A
Initials: Examiner Level: III 11-9-07
GE Reviewed By: Level: Date:

[Signature]
ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-063

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-079

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>7.3"</u> Thickness
Initial Cal: <u>0958</u>	Exam Start: <u>11:40</u>	
Cal Check: <u>N/A</u>	Exam End: <u>12:58</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1316</u>		
<u>255364</u> Thermometer	<u>85° F</u> Initial Cal Temp.	<u>85° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.0"</u>	1X	<u>80%</u>	<u>12.1</u>	<u>6.8</u>	<u>6.8</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 70.1 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N2A-2

NOZ-RPV
Configuration:

<u>OD</u> Exam Surface:	<u>98° F</u> Component Temperature
----------------------------	---------------------------------------

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T DN</u>	<u>64.4</u>	<u>NRI</u>	<u>60°</u>
<u>Plate</u>	<u>P CW/CCW</u>	<u>64.4</u>	<u>NRI</u>	<u>60°</u>

Search Unit Data

<u>Sigma</u> Manufacturer:	<u>228C-02004</u> Serial Number:	<u>21.1x.62/Rect.</u> Size / Shape:
<u>.65</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>3.0 MHz</u> Frequency:	<u>SDC-3</u> Model:	<u>RL</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>12'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panometrics / Epoch 4</u> Manufacturer/Model:	<u>031572811</u> Serial Number:
<u>7.655 μs</u> Delay/Zero:	<u>0.2245 in./μsec.</u> Velocity:
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:
<u>Off:</u> DAC:	<u>Off:</u> TVG:
<u>20.0 in.</u> Range:	<u>Sq. / Max</u> Filter:
<u>3.03 MHz</u> Frequency:	<u>Dual</u> Mode:
<u>Off:</u> CSC:	<u>Off:</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for full volume examination.
Exam performed to maintain a 10-20% clad roll. 360° examined.
Single side exam.

UWR: Wallace Reid

Initials: Examiner

N/A

Initials: Examiner

GE Reviewed By:

II 11/8/2007

Level: Cal/Exam Date:

N/A

Level:

Level:

III 11/9/07

Date:

Agneil III
Utility Reviewed By:

[Signature]
ANII Reviewed By:

11-11-07
Date:

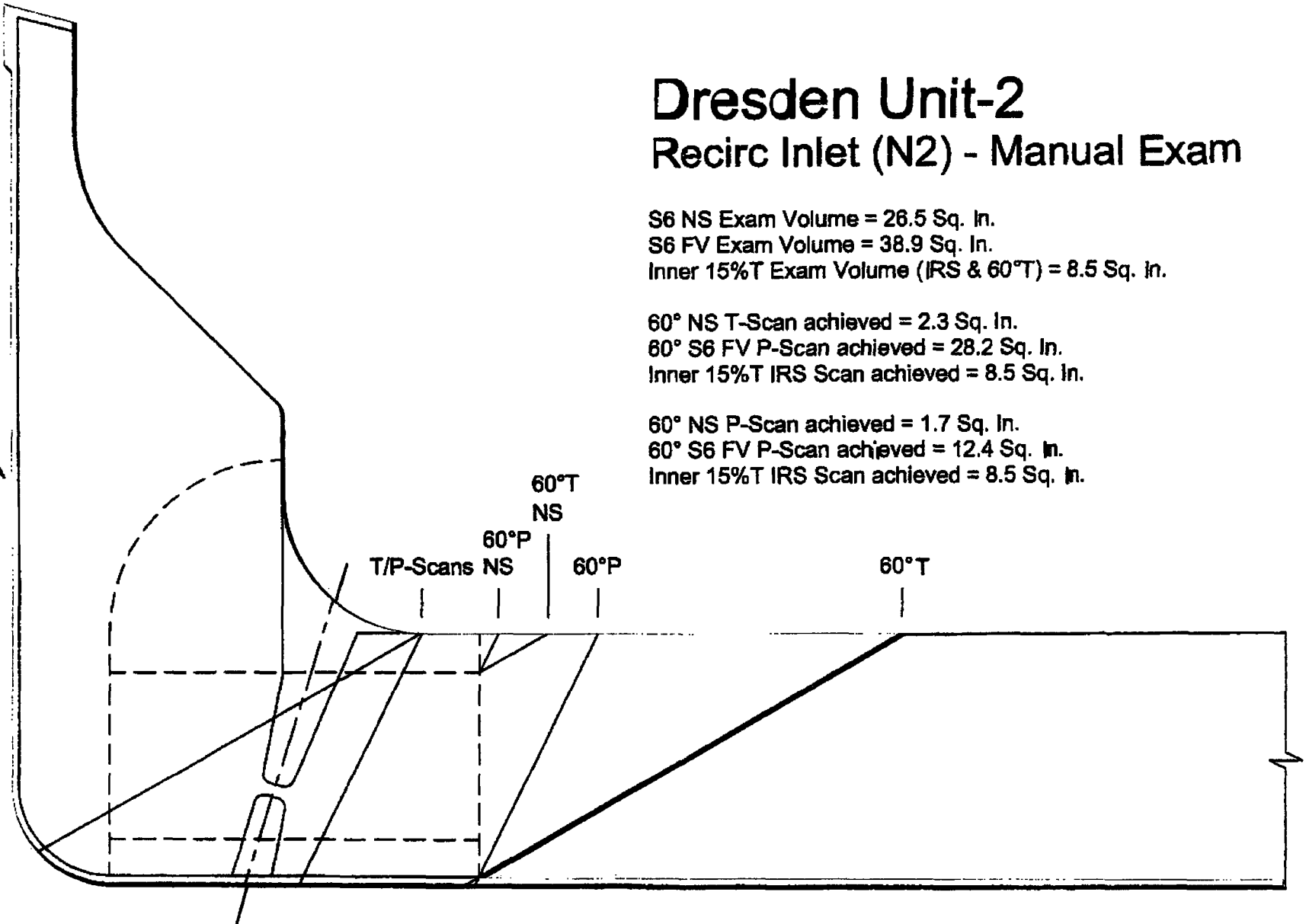
11/14/07
Date:

Dresden Unit-2 Recirc Inlet (N2) - Manual Exam

S6 NS Exam Volume = 26.5 Sq. In.
S6 FV Exam Volume = 38.9 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° NS T-Scan achieved = 2.3 Sq. In.
60° S6 FV P-Scan achieved = 28.2 Sq. In.
Inner 15%T IRS Scan achieved = 8.5 Sq. In.

60° NS P-Scan achieved = 1.7 Sq. In.
60° S6 FV P-Scan achieved = 12.4 Sq. In.
Inner 15%T IRS Scan achieved = 8.5 Sq. In.



Dresden Unit-2, 2007

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L-III
11-9-07

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11-9-07

Page 4 of 7

Manual RPV Exam Plan

Plant and Unit ID:	Dresden Unit 2 - 2007	Component:	N2A
Outage:	D2R20	Cal. Block:	99978AQC
Procedures:			
Examination:	GE-UT-300	Sizing:	GE-UT-304
Examination (N/V):	GE-UT-311	Sizing:	GE-UT-309
Extents:		Examiner:	Analyst:
Examine 360°. See attached drawing for limits.		N/A	N/A
60°RL Full Volume T-scan			
60°RL Full Volume P-scan CW/CCW			
60°RL Near Surface T-scan			
60°RL Near Surface P-scan CW/CCW			
60° Inner 15%T N/V CW/CCW, 0"-5.5", skew angle ±30° to 60°			
Limitations:	None		
Previous Results:	NRI		
Comments:	Verify N/V inner 15%T requirements on "Nozzle Inner Radius Requirements Sheet".		
<i>Joe C. Dind</i>	<i>Mike Kelly</i> 11-1-07	<i>Wallace W. Reid</i> 11-8-07	<i>Jim Miller</i> 11-11-07
Prepared By: _____ Date: _____	Reviewed By: _____ Date: _____	Examined By: _____ Date: _____	Reviewed By: _____ Date: _____

10-30-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Revision

Nir_PDI Dr? Rev3

MANUAL / AUTOMATED DETECTION								
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT	Dresden 2							
PREPARED BY	S.C. MORTENSON				DATE	10/28/07		
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
REGIRC INLET								
N/V Weld (M)	PLATE	0 - 5.5"	60.0°	-	± 30° - 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	24.6"	1 MHz
Zone 2a (M)	ODBR	55° - 90°	67.5°	-	18.1°	3.3"	12.0"	1 MHz
FEEDWATER								
N/V Weld	PLATE	0 - 8.0"	60.0°	1.5"	48.2° (43.7°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 8.0"	60.0°	4.5"	38.9° (23.2°)	FLAT	14.0"	1 MHz
N/V Weld / Zone 1	ODBR	50° - 90°	43.8°	2.5"	40.3° (31.8°)	3.5"	14.5"	1 MHz
Zone 2a	ODBR	50° - 90°	67.5°	2.5"	21.7° (13.2°)	3.5"	12.5"	1 MHz
Zone 2b	NOZOD	ALL	28.0°	2.5"	68.0°	FLAT	8.7"	2 MHz
Zone 3	NOZOD	ALL	20.0°	2.5"	90°	FLAT	7.4"	2 MHz
FEEDWATER								
N/V Weld (M)	PLATE	0 - 6.0"	60.0°	-	35° - 55°	FLAT	14.0"	1 MHz
N/V Weld / Zone 1-2A (M)	ODBR	50° - 90°	43.8°	-	40.3°	3.5"	14.5"	1 MHz
Zone 2A (M)	ODBR	50° - 90°	67.5°	-	21.7°	3.5"	12.5"	1 MHz
Zone 2b (M)	NOZOD	ALL	28.0°	-	68.0°	FLAT	8.7"	2 MHz
Zone 3 (M)	NOZOD	ALL	20.0°	-	90°	FLAT	7.4"	2 MHz
CORE SPRAY								
N/V Weld/Zone 1	PLATE	0 - 8.0"	60.0°	1.5"	31.1° (24.9°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 10.0"	60.0°	4.5"	45.9° (28.5°)	FLAT	14.0"	1 MHz
Zone 1	PLATE	0 - 10.0"	65.0°	4.5"	23.0° (5.7°)	FLAT	17.5"	1 MHz
Zone 1	PLATE	0 - 10.0"	70.0°	1.5"	12.3° (8.5°)	FLAT	22.2"	1 MHz
Zone 2A	ODBR	55° - 90°	66.3°	2.5"	16.7° (5.1°)	3.1"	10.8"	1 MHz
CORE SPRAY								
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0"	60.0°	-	± 15° - 55°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 23°	FLAT	19.6"	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3°	-	16.7°	3.1"	10.6"	1 MHz

W-025, W-026
W-027, W-028
W-029, W-030
W-027, W-028
W-029, W-030
W-031, W-032
W-031, W-032

NOTES: IMI MANUAL
XOXK° (XOXK°) WEDGE / (PICTURE) ROTATION ANGLE


Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor
SME Review / Date

[Signature]
Site Review / Date

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE ENERGY, NUCLEAR	EXAMINATION SUMMARY SHEET	Report No.: 107R20 064
--	----------------------------------	---------------------------

Site:	<u>Dresden</u>	Component ID:	<u>2/1/RPV SHELL/N23-2</u>
Outage:	<u>D2R20</u>		<u>NOZ-RPV</u>
System:	<u>RPV</u>	ASME Cat:	<u>B-D</u> ASME Item <u>3.90</u> Aug Req <u>N/A</u>

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° Long-	D-061	N/A	GE-UT-300 Ver/Rev 10	99978AQC	Wallace Reid	II	11/5/2007
60° Long-	D-062	N/A	GE-UT-300 Ver/Rev 10	CAL 11W2-047	Wallace Reid	II	11/5/2007

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing a 60° RL wave search unit.

39.2% code coverage was achieved.

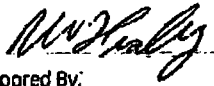
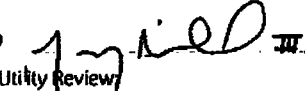
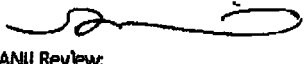
Single side due to nozzle configuration.

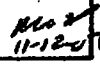
This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda

Previous examination results supplied by customer for review from ISI Program documents? Yes Change

These examinations were performed under Work Order: 871143-06 No No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

Prepared By:		Level:	III	Date:	11-12-07	Utility Review:		Date:	11-12-07
						ANII Review:			11/14/07

RWP: N/A	
Dose: N/A mrem	
Page 1 of 87	 11-12-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2
Outage: D2R20

Data Report Number: D2R20-065 Linearity Sheet: L-004
Data Sheet Number: D-061

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>7.3"</u> Thickness	
Initial Cal: <u>1339</u>		Exam Start: <u>15:45</u>	
Cal Check: <u>N/A</u>		Exam End: <u>17:47</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u>	<u>02125</u>	
Final Cal: <u>1943</u>	Couplant:	Bath:	
<u>255322</u>	<u>84° F</u>	<u>84° F</u>	
Thermometer	Initial Cal Temp:	Final Cal Temp:	

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.0"</u>	1X	<u>80%</u>	<u>12.1</u>	<u>6.8</u>	<u>6.8</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 70.1 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

<u>Sigma</u>	<u>228C-02003</u>	<u>20.1x.62/Rect.</u>
Manufacturer:	Serial Number:	Size / Shape:
<u>.65</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u>	<u>SDC-3</u>	<u>Long</u>
Frequency:	Model:	Mode:

Search Unit Cable

<u>RG-174</u>	<u>12'</u>	<u>0</u>
Cable Type:	Length:	Connectors:

Instrument Settings

<u>Parametrics / Epoch 4</u>	<u>031572811</u>		
Manufacturer/Model:	Serial Number:		
<u>7.655 us</u>	<u>0.2245 in./usec.</u>	<u>0.8 - 3.0 MHz</u>	
Delay/Zero:	Velocity:	Narrowband Filter:	
<u>Auto</u>	<u>Fullwave</u>	<u>20.0 in.</u>	<u>Sq. / Man</u>
Rep Rate:	Rectification:	Range:	Pulse:
<u>400 Ohms</u>	<u>0%</u>	<u>3.03 MHz</u>	<u>Dual</u>
Damping:	Reject:	Frequency:	Mode:
<u>Off</u>	<u>Off</u>	<u>Off</u>	<u>Off</u>
DAC:	TVG:	CSC:	DGS:

Exam Data for Weld: 2/1/RPV SHELL/N2B-2

NOZ-RPV

Configuration:

<u>OD</u>	<u>102° F</u>
Exam Surface:	Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>I</u>	<u>64.4</u>	<u>NRI</u>	<u>60°</u>
<u>Plate</u>	<u>P</u>	<u>64.4</u>	<u>NRI</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for full volume examination.

Exam performed to maintain a 10-20% clad roll. 360° examined.

WWR Wallace Reid II 11/5/2007
Initials: Examiner Level: Cal/Exam Date:

1. J. Niel III 11-12-07
Utility Reviewed By: Date:

N/A N/A
Initials: Examiner Level: III 11-10-07
GE Reviewed By: Level: Date:

[Signature] 11/14/07
ANI Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultra sonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Date Report Number: D2R20-103

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-062

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-HW2-047

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>4.0"</u> Thickness
Initial Cal: <u>1361</u>	Exam Start: <u>15:45</u>	
Cal Check: <u>N/A</u>	Exam End: <u>17:47</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1966</u>		
<u>255322</u> Thermometer	<u>84° F</u> Initial Cal Temp.	<u>84° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
S01	.6"	1X	80%	1.3	.66	3.3
		1X				
		1X				
		1X				
		1X				

DAC 1X= 55.1 dB

Sweep 0-10 = 2.0 Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N2B-2

NO2-RPV

Configuration:

<u>OD</u> Exam Surface:	<u>102° F</u> Component Temperature
Weld Examination Area:	Exam Access Scan dB Recordable Indications Exam Angle
<u>Plate</u>	<u>I</u> <u>69.1</u> <u>NR1</u> <u>60°</u>
<u>Plate</u>	<u>P</u> <u>69.1</u> <u>NR1</u> <u>60°</u>

Search Unit Data

Sigma 22BC-02003 2(1.1x.62) / Rect.
Manufacturer: Serial Number: Size / Shape:
.65 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 Long.
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Pangmetrics / Epoch 4 031572811
Manufacturer/Model: Serial Number:
7.655 us 0.2245 in./usec. 0.8 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 4.0 in. Sq. / Max
Rep Rate: Rectification: Range: Pulse:
400 Ohms 0% 3.03 MHz Dual
Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for near surface examination.
Exam performed to minimum of 14 dB above reference.

WR Wallace Reid II 11/5/2007
Initials: Examiner Level: Cal/Exam Date:

1-12-07
Utility Reviewed By: Date:

N/A N/A
Initials: Examiner Level: 11/07/07
GE Reviewed By: Level: Date:

11/14/07
ANII Reviewed By: Date:

11-12-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

Nr 101 Dr 2 Rev 3

MANUAL / AUTOMATED DETECTION								
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON			DATE 10/28/07			
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
RECIRC INLET								
N/V Weld (M)	PLATE	0 - 5.5"	60.0"	-	± 30° - 50°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0"	-	± 30°	FLAT	24.6"	1 MHz
Zone 2a (M)	ODBR	55° - 90°	67.5"	-	18.1"	3.3"	12.0"	1 MHz
FEEDWATER								
N/V Weld	PLATE	0 - 8.0"	60.0"	1.5"	48.2° (43.7°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 8.0"	60.0"	4.5"	38.9° (23.2°)	FLAT	14.0"	1 MHz
N/V Weld / Zone 1	ODBR	50° - 90°	43.8"	2.5"	40.3° (31.8°)	3.5"	14.5"	1 MHz
Zone 2a	ODBR	50° - 90°	67.5"	2.5"	21.7° (13.2°)	3.5"	12.5"	1 MHz
Zone 2b	NOZOD	ALL	28.0"	2.5"	68.0°	FLAT	8.7"	2 MHz
Zone 3	NOZOD	ALL	20.0"	2.5"	90°	FLAT	7.4"	2 MHz
FEEDWATER								
N/V Weld (M)	PLATE	0 - 6.0"	60.0"	-	35° - 55°	FLAT	14.0"	1 MHz
N/V Weld / Zone 1-2A (M)	ODBR	50° - 90°	43.8"	-	40.3°	3.5"	14.5"	1 MHz
Zone 2A (M)	ODBR	50° - 90°	67.5"	-	21.7°	3.5"	12.5"	1 MHz
Zone 2b (M)	NOZOD	ALL	28.0"	-	68.0°	FLAT	8.7"	2 MHz
Zone 3 (M)	NOZOD	ALL	20.0"	-	90°	FLAT	7.4"	2 MHz
CORE SPRAY								
N/V Weld/Zone 1	PLATE	0 - 8.0"	60.0"	1.5"	31.1° (24.9°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 10.0"	60.0"	4.5"	45.9° (28.5°)	FLAT	14.0"	1 MHz
Zone 1	PLATE	0 - 10.0"	65.0"	4.5"	23.0° (5.7°)	FLAT	17.5"	1 MHz
Zone 1	PLATE	0 - 10.0"	70.0"	1.5"	12.3° (8.5°)	FLAT	22.2"	1 MHz
Zone 2A	ODBR	55° - 90°	66.3"	2.5"	16.7° (5.1°)	3.1"	10.8"	1 MHz
CORE SPRAY								
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0"	60.0"	-	± 15° - 55°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 6.0"	70.0"	-	± 23°	FLAT	19.6"	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3"	-	16.7°	3.1"	10.6"	1 MHz

W-025, W-026

W-027, W-028
W-029, W-030

W-027, W-028
W-029, W-030

W-031, W-032

W-031, W-032

NOTES: (M) MANUAL
XXXX° (or X°) WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor
SME Review / Date

Handwritten signature
Site Review / Date

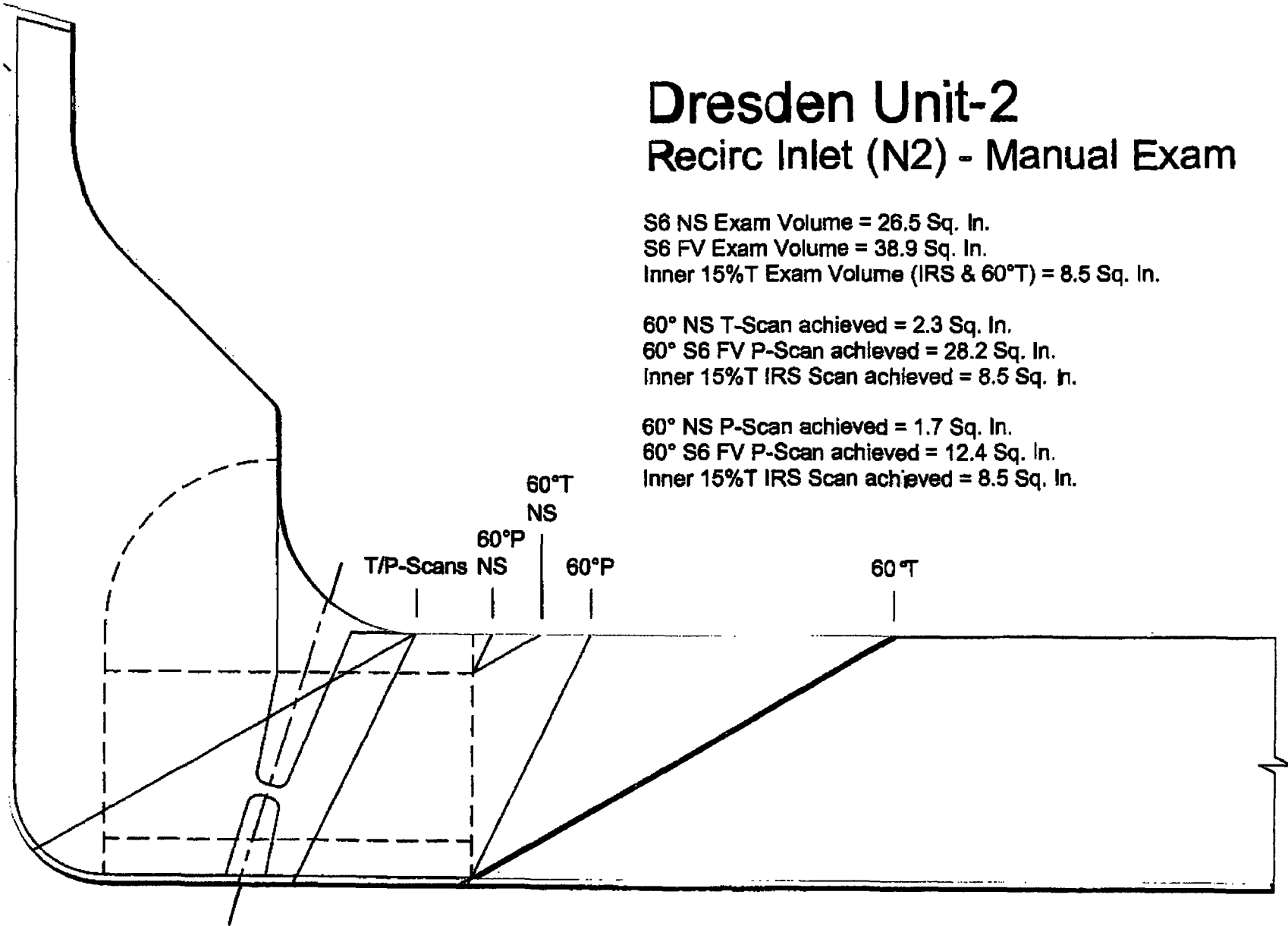
Dresden Unit-2, 2007

Dresden Unit-2 Recirc Inlet (N2) - Manual Exam

S6 NS Exam Volume = 26.5 Sq. In.
S6 FV Exam Volume = 38.9 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° NS T-Scan achieved = 2.3 Sq. In.
60° S6 FV P-Scan achieved = 28.2 Sq. In.
Inner 15%T IRS Scan achieved = 8.5 Sq. In.

60° NS P-Scan achieved = 1.7 Sq. In.
60° S6 FV P-Scan achieved = 12.4 Sq. In.
Inner 15%T IRS Scan achieved = 8.5 Sq. In.



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8-12-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Manual RPV Exam Plan

Plant and Unit ID:	Dresden Unit 2 - 2007	Component:	N2B
Outage:	D2R20	Cal. Block:	99978AQC
Procedures:			
Examination:	GE-UT-300	Sizing:	GE-UT-304
Examination (N/V):	GE-UT-311	Sizing:	GE-UT-309
Extents:		Examiner:	Analyst:
Examine 360°. See attached drawing for limits.		N/A	N/A
60°RL Full Volume T-scan			
60°RL Full Volume P-scan CW/CCW			
60°RL Near Surface T-scan			
60°RL Near Surface P-scan CW/CCW			
60° Inner 15%T N/V CW/CCW, 0"-5.5", skew angle ±30° to 60°			
Limitations:			
None			
Previous Results:			
NRI			
Comments:			
Verify N/V inner 15%T requirements on "Nozzle Inner Radius Requirements Sheet".			
Prepared By:	Date:	Reviewed By:	Date:
<i>M.C. Dier</i>		<i>Walter W. Reid</i>	<i>11-9-07</i>
	<i>11-30-07</i>	<i>Walter W. Reid</i>	<i>11-9-07</i>

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

GE NUCLEAR ENERGY	EXAMINATION SUMMARY SHEET	Report No 2R18-011
--------------------------	----------------------------------	-----------------------

Site and Unit: Dresden Unit 2	Component ID: 211/RPV SHELL/N2C-2
Outage: D2R18	NOZ-RPV
System: RPV	ASME Cat: B-D ASME Item: B3.90 Aug Requirements: Section XI

Exams Performed	D ² R Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° Shear	UT-064	UT-064	GE-UT-311	VESSEL SHELL	Kent Montgomery	II	10/21/2003
60° Long	UT-068	UT-068	GE-UT-300	CAL-IW2-013	Jonathan Guillote	II	10/21/2003
60° Long	UT-069	UT-069	GE-UT-300	VESSEL SHELL	Jonathan Guillote	II	10/21/2003

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 60° RL and 60° shear wave search units.

Scanning was limited due to the nozzle configuration.

42% of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI, Section XI, 1995 Edition with the 1996 Addendums as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report D323 from 1995 out@90 with <input checked="" type="checkbox"/> No Change
These examinations were performed under Work Order 00613889-04 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:						Page 1 of 7
 Prepared By	Level	Date	 Unity Reviewed By	Title	Date	
N/A	N/A	N/A	 	11-29-03	11-29-03	
Reviewed By	Level	Date	Auth Reviewed By	Title	Date	

GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**

Site/Unit: Dresden / 2

Data Report Number 2R18-004

Linearity Sheet: L-014

Outage: D2R18

Data Sheet Number UT-004

Procedure GE-UT-311

Rev 10

DRR N/A

Calibration Data for Block VESSEL SHELL

Search Unit Data

CS Material	N/A Size	Z.O. Thickness
Initial Cal <u>2097</u>	Exam Start <u>2318</u>	
Cal Check <u>N/A</u>	Exam End <u>0100</u>	
Cal Check <u>N/A</u>	<u>Untraced</u>	<u>02125</u>
Final Cal <u>0157</u>	Couplant	Batch
<u>220457</u>	<u>70° F</u>	<u>70° F</u>
Thermometer	Initial Cal Temp	Final Cal Temp

N/A Manufacturer	J07018 Serial No	0.5"x1.0"/Reel Size/Shape
<u>0.7 in.</u>	<u>60°</u>	<u>60°</u>
Incident Point	Nominal Angle	Measured Angle
<u>1.0 MHz</u>	<u>113-281-600</u>	<u>Shear</u>
Frequency	Model	Mode

Search Unit Cable

<u>RG-174</u>	<u>12'</u>	<u>0</u>
Cable Type	Length	Connectors

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim	Sweep	Screen Div
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>12.0</u>	<u>14.3</u>	<u>6.5</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Instrument Settings

Panameric / EPOCH 4 Manufacturer/Model	031539006 Serial No		
<u>16.88 us</u>	<u>01275 us/sec</u>	<u>0.8-3.0 MHz</u>	<u>AUTO</u>
Delay	Velocity	Filter	Rep Rate
<u>26.0 in.</u>	<u>Sq / Med</u>	<u>400 ohms</u>	
Range	Pulser	Damping	
<u>Off</u>	<u>1.0 MHz</u>	<u>PE</u>	
Reject	Frequency	Mode	

DAC @ 1X 52.0 dB

Sweep 0-10 26° Metal Path

Acceptable Linearity performed 10/15/2003

Exam Data for Component 2/1/RPV SHELL/N2C-2

NOZ-RPV

Configuration

COMPLATE

80° F

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>282°</u>	<u>80°</u>	<u>+60°</u>	<u>Flat</u>	<u>68</u>	<u>NR!</u>
<u>282°</u>	<u>80°</u>	<u>-60°</u>	<u>Flat</u>	<u>68.0</u>	<u>NR!</u>

Calibration Verification

Field Simulator	Block S/N	<u>N/A</u>	<u>N/A</u>
Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration.

Rectification - Full wave, TVG, CSG, and DGS disabled.
Calibration for nozzle to vessel weld (N/A).
Exams performed to maintain a 20-30% FSH clad roll.
Scanned CW and CCW.

KM Initial Examiner Level 10/21/03 Cal/Exam Date

Am Miller Utility Reviewed By 10-26-03 Date

GM GE Reviewed By Level 10/21/03 Date

Miller ANI Reviewed By 10-24-03 Date

GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2
Outage: D2R18

Data Report Number: 2R18-011 Linearity Sheet: L-007
Data Sheet Number: UT-002 Beam Spread: N/A

Procedure: GE-UT-300

Ver.: I DRR: N/A

Calibration Block: CAL-002-013

Search Unit Data

Material: CS Size: N/A Thickness: 4.0"
Initial Cal: 2042 Exam Start: 2143
Cal Check: N/A Exam End: 2313
Cal Check: N/A Couplant: Ultrasonix Batch: 02125
Final Cal: 0143 Thermometer: Z20657 Initial Cal Temp: 70° F Final Cal Temp: 70° F

Manufacturer: Stam Serial Number: 228C-02005 Size / Shape: 2(1.1x6.2)Rect.
Incident Point: 0.6" Nominal Angle: 60° Measured Angle: 58°
Frequency: 3.0 MHz Model: SDC3 Mode: Long

Search Unit Cable

Cable Type: RG-174 Length: 6' Connectors: 9

Instrument Settings

Manufacturer/Model: Parametrix/EPOCH 4 Serial Number: 031526304
Delay: 0.04 us Velocity: 0.2316 in./us Filter: 0.8 - 3.0 MHz Rep Rate: Auto
Range: 4.0 in. Pulser: 20. / Mod Damping: 500 Ohms
Reject: 07 Frequency: 3.03 MHz Mode: Dual

DAC Construction

Note	Hole T	Hole Depth	Gain @ 1X	Max Amp	"W" Dim	Sweep	Screen Div
	1/4	0.8	1X	20%	1.0	0.50	2.0
	1/2	N/A	1X	N/A	N/A	N/A	N/A
	3/4	N/A	1X	N/A	N/A	N/A	N/A
	ID	N/A	1X	N/A	N/A	N/A	N/A
	5/4	N/A	1X	N/A	N/A	N/A	N/A

DAC 1X= 58.1 dB
Sweep 0-10 2" Depth
Note N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N2C-2

NOZRPV

Configuration:

Exam Surface: OD/PLATE Component Temperature: 60° F
Weld Examination Area: 300" Exam Access: T/P Scan dB: 72.1 Recordable Indications: NR1 Exam Angle: 60°

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/9/2003

Comments: Cal/Exam Date is the date of initial calibration.
Recalibration - Full wave; TVG, CSG and DGS disabled
Calibration for near surface examination.
Exams performed a minimum of 14 dB above reference.

Inspector: Jonathan Gallate Level: II Cal/Exam Date: 10/21/2003

Reviewer: [Signature] Level: [Signature] Date: 10/21/03

Utility Reviewed By: [Signature] Date: 10-26-03

ANR Reviewed By: [Signature] Date: 10-24-03

GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: 2R18-011

Linearity Sheet: L-007

Outage: D2R18

Data Sheet Number: UT-069

Beam Spread

Procedure: GE-UT-300

Ver.: I

DRR: N/A

Calibration Block: VESSEL SHELL

Search Unit Data

ES Material: N/A Size: N/A Thickness: 7.0"
 Inital Cal: 2052 Exam Start: 2145
 Cal Check: N/A Exam End: 2315
 Cal Check: N/A Ultrasonic Couplant: 02125 Batch: 02125
 Final Cal: 0149 Thermometer: 22457 Initial Cal Temp: 70° F Final Cal Temp: 70° F

Sigma: 22BC-02005 Serial Number: 201.1x.42/Recl Size / Shape: 59°
 Manufacturer: 0.8" Nominal Angle: 59° Measured Angle: 59°
 Incident Point: 3.0 MHz Frequency: SDC3 Model: Long Mode: Long

Search Unit Cable

RG-174 Cable Type: 0 Length: 0 Connectors: 0

Instrument Settings

Manufacturer/Model: 021520304 Serial Number: 021520304
 Delay: 0.2118 In/Sec Velocity: 0.9 - 3.0 MHz Filter: Auto Rep Rate: Auto
 Range: 20.01 in. Pulse: Sp / Mod Damping: 400 Ohms
 Reject: Off Frequency: 3.03 MHz Mode: Dual

DAC Construction

Hole T	Hole Depth	Gain @ 1X	Max Amp	"W" Dim	Sweep	Screen Div
1/4	N/A	1X	N/A	N/A	N/A	N/A
1/2	N/A	1X	N/A	N/A	N/A	N/A
3/4	N/A	1X	N/A	N/A	N/A	N/A
1D	7.9	1X	80%	11.8	0.9	0.9
5/4	N/A	1X	N/A	N/A	N/A	N/A

DAC 1X= 72.1 dB

Sweep 0-10 10" Depth

Note N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N2C-2

N02-RPV

Configuration

80° F

OD/PLATE

Exam Surface:

Component Temperature

Weld Examination Area	Exam Access	Scan dB	Recordable Indicators	Exam Angle
<u>202</u>	<u>T/P</u>	<u>72.1</u>	<u>NR1</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed 10/9/2003

Comments: CalExam Date is the date of initial calibration.
 Recalibration - Full wave; TVG, CSG and DGS disabled.
 Calibration for full volume examination.
 Exams performed to maintain a 10-20% clad rod.

Signature: Jonathan Gullatz # 10/21/2003
 Initials: Examiner Level CalExam Date

Signature: [Signature] 10-26-03
 Utility Reviewed By Date

Signature: [Signature] N/A N/A
 GE Reviewed By Level Date

Signature: [Signature] 11-24-03
 ANI Reviewed By Date

Dresden Unit-2, D2R18

Dresden Unit-2, D2R18
 N2C-2, Recirc. Inlet Nozzle
 Fall 2003

		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
Weld Length =	360.	Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
Exam Volume =	73.8					
60° T-Scan	A	73.8	39.0	52.8%	360.0	26.4%
60° P-Scan, 85%T	A	65.3	14.0	19.0%	360.0	9.5%
IRS-Scan, 15%T	A	8.5	8.5	11.5%	360.0	5.8%
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						

% Total Composite Coverage = 42%

Comments: A - Examined 360° length. Scanning limited due to nozzle configuration.
 Weld length in degrees. IRS examination coverage determined by modeling.

Note - Rounding methods may make calculated values appear in error.

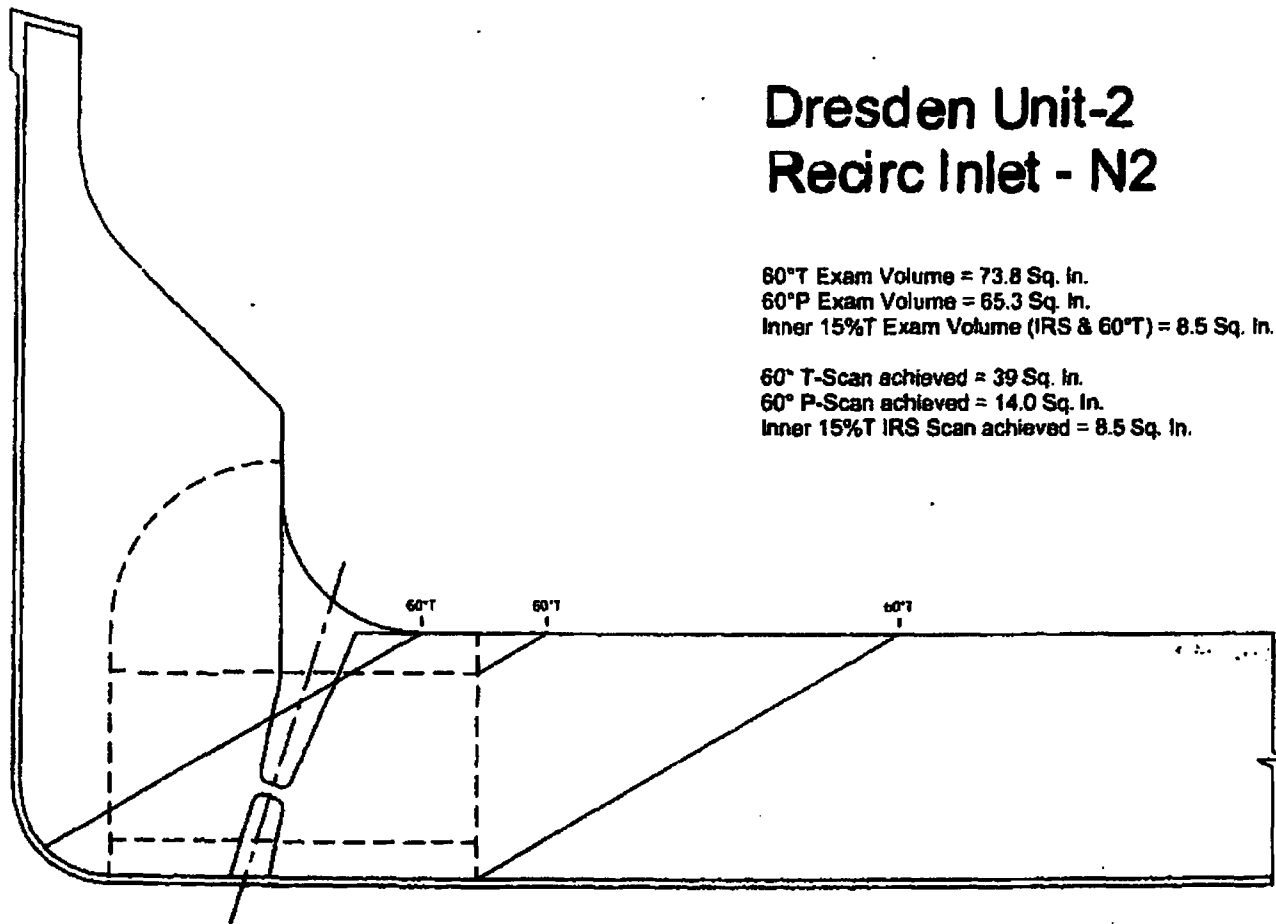
Page 5 of 7

Dresden Unit-2, 2003

Dresden Unit-2 Recirc Inlet - N2

60°T Exam Volume = 73.8 Sq. In.
60°P Exam Volume = 65.3 Sq. In.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° T-Scan achieved = 39 Sq. In.
60° P-Scan achieved = 14.0 Sq. In.
Inner 15°T IRS Scan achieved = 8.5 Sq. In.

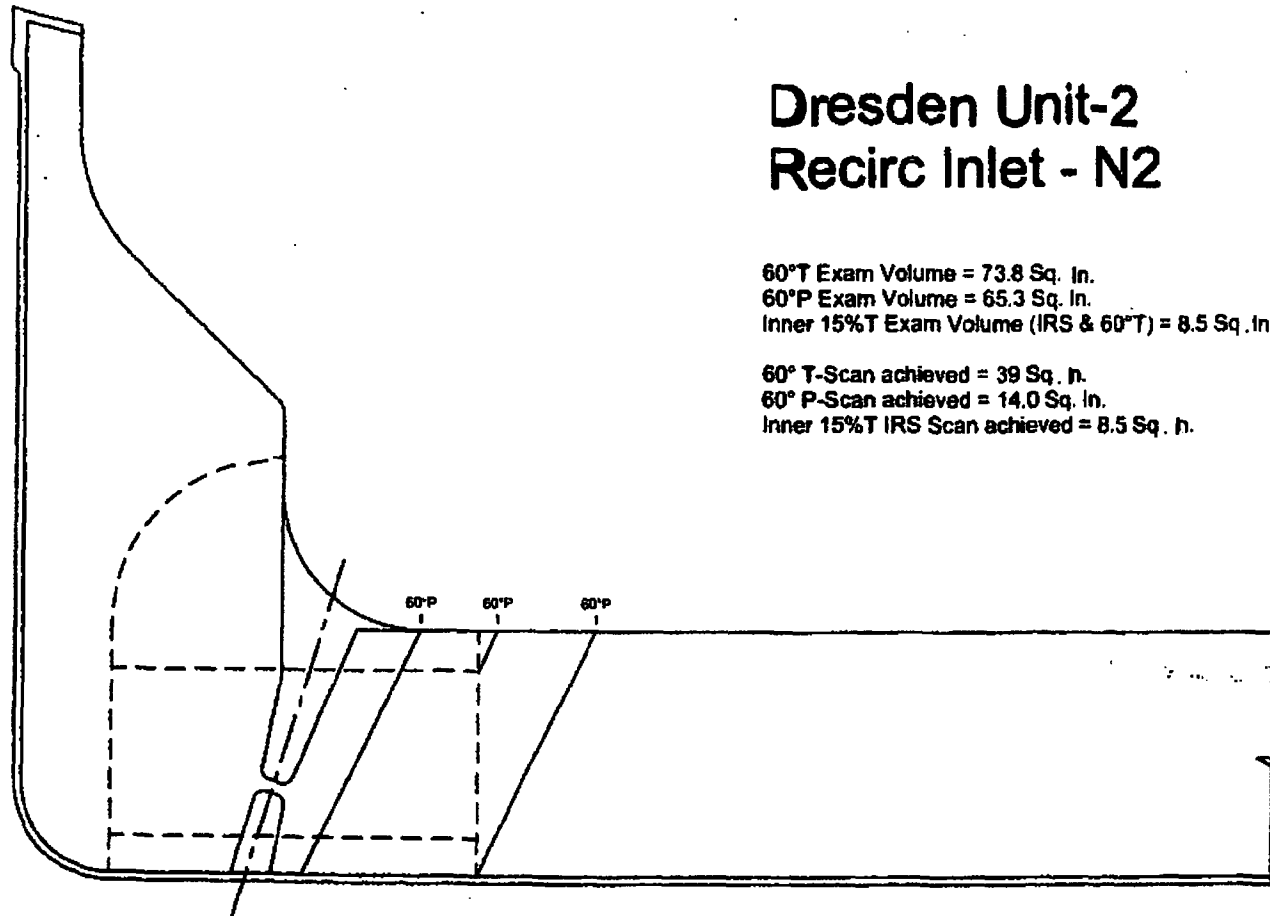


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Dresden Unit-2 Recirc Inlet - N2

60°T Exam Volume = 73.8 Sq. In.
60°P Exam Volume = 65.3 Sq. In.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° T-Scan achieved = 39 Sq. In.
60° P-Scan achieved = 14.0 Sq. In.
Inner 15°T IRS Scan achieved = 8.5 Sq. In.



ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

EXAMINATION SUMMARY SHEET

Report No.:
2R18-012

Site and Unit: **Dresden Unit 2** Component ID: **2/1/RPV SHELL/N2F-2**
 Outage: **D2R18** **NOZ-RPV**
 System: **RPV** ASME Cat.: **B-D** ASME Item **B3.90** Aug Requirements: **Section XI**

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° Shear	UT-058	UT-058	GE-UT-311	VESSEL SHELL	Jack Reisewitz	II	10/21/2003
60° Long.	UT-056	UT-056	GE-UT-300	CAL-ITW2-013	Jack Reisewitz	II	10/21/2003
60° Long.	UT-057	UT-057	GE-UT-300	VESSEL SHELL	Jack Reisewitz	II	10/21/2003

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 60° RL and 60° shear wave search units.

Scanning was limited due to the nozzle configuration.

42% of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI, Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report D301 from 1995 outage with No Change
 These examinations were performed under Work Order: 00813889-04 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

<u>CM</u>	<u>TU</u>	<u>10/24/03</u>	<u>J. Reisewitz</u>	<u>III</u>	<u>10-25-03</u>
Prepared By:	Level:	Date:	Utility Reviewed By:	Title:	Date:
N/A	N/A	N/A	<u>[Signature]</u>		<u>10-26-03</u>
Reviewed By:	Level:	Date:	ANII Reviewed By:	Title:	Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: **Dresden / 2**

Data Report Number: **2R18-012**

Linearity Sheet: **L-013**

Outage: **D2R18**

Data Sheet Number: **UT-056**

Beam Spread: **N/A**

Procedure: **GE-UT-300**

Ver.: **I**

DRR: **N/A**

Calibration Block: CAL-HW2-013

CS	N/A	4.0"
Material	Size	Thickness
Initial Cal: 1235		Exam Start: 1410
Cal Check: N/A		Exam End: 1430
Cal Check: NA	Ultracel II	02125
Final Cal: 1545	Couplant:	Batch
229344	75° F	75° F
Thermometer	Initial Cal Temp.	Final Cal Temp:

Search Unit Data

Sigma	22BC-93001	2(1.1x.62)/Rect.
Manufacturer:	Serial Number:	Size / Shape:
0.70"	60°	60°
Incident Point:	Nominal Angle:	Measured Angle:
3.0 MHz	SDC3	Long
Frequency:	Model:	Mode:

DAC Construction

Hole T"	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	0.60	1X	80%	1.04	0.6	3.0
1/2	N/A	1X	N/A	N/A	N/A	N/A
3/4	N/A	1X	N/A	N/A	N/A	N/A
1D	N/A	1X	N/A	N/A	N/A	N/A
5/4	N/A	1X	N/A	N/A	N/A	N/A

DAC 1X= **60.0 dB**
Sweep 0-10 **2.0" Depth**
Note **N/A** dB difference between 3/8 and 5/8 Vee

Search Unit Cable

RG-174	12'	Ø
Cable Type:	Length:	Connectors:

Instrument Settings

Panametrics / EPOCH 4 **031534305**
Manufacturer/Model: Serial Number:

0.4 us	0.233 in./usec.	0.8 - 3.0 MHz	Auto
Delay:	Velocity:	Filter:	Rep Rate:
4.0 in.	Sq. / Med	100 Ohms	
Range:	Pulser:	Damping:	
Off	3.03 MHz	Dual	
Reject:	Frequency:	Mode:	

Exam Data for Weld: **2/1/RPV SHELL/N2F-2**

N02-RPV
Configuration:

OD / Plate	88° F
Exam Surface:	Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
360°	T/P	74.0	NRI	60°

Calibration Verification

Field Simulator Block S/N: **N/A**

Reflector	Amplitude	Gain (dB)	Sweep (SD)
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Acceptable Linearity performed : **10/15/2003**

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVG, CSG and DGS disabled.
Calibration for near surface examination.
Exams performed a minimum of 14 dB above reference.

JAR Jack Reiszewitz **II** **10/21/2003**
Initials: Examiner Level: Cal/Exam Date:

N/A **N/A**
Initials: Examiner Level: Date:

CP GE Reviewed By: **10/24/03** Date:

Ang M. D. III **10-25-03**
Utility Reviewed By: Date:

R. J. ... **10-26-03**
ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets
 Ultrasonic Calibration and Examination Record
 RPV Components



Site/Unit: Dresden / 2

Data Report Number: 2R18-012

Linearity Sheet: L-013

Outage: D2R18

Data Sheet Number: UT-057

Beam Spread: N/A

Procedure: GE-UT-300

Ver.: Z

DRR: N/A

Calibration Block: VESSEL SHELL

CS N/A 7.0"
 Material Size Thickness
 Initial Cal: 1240 Exam Start 1340
 Cal Check: N/A Exam End: 1410
 Cal Check: NA Ultragel II 02125
 Final Cal: 1548 Couplant: Batch
228344 75° F 75° F
 Thermometer Initial Cal Temp. Final Cal Temp:

DAC Construction

Hole "m	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
1/2	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
ID	<u>7.0</u>	1X	<u>80%</u>	<u>12.04</u>	<u>6.95</u>	<u>7.0</u>
5/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 73.0 dB

Sweep 0-10 10" Depth

Note N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

Sigma 22BC-03901 211.1x.82/Recl.
 Manufacturer: Serial Number: Size / Shape:
0.70" 60° 60°
 Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC3 Long
 Frequency: Model: Mode:

Search Unit Cable

R9-174 12' 0
 Cable Type: Length: Connectors:

Instrument Settings

Parameetrics / EPOCH 4 031534305
 Manufacturer/Model: Serial Number:
7.88 us 0.224 in./usec. 0.8 - 3.0 MHz Auto
 Delay: Velocity: Filter: Rep Rate:
20.0 in. Sq. / Med 400 Ohms
 Range: Pulsar: Damping:
Off 3.03 MHz Dual
 Reject: Frequency: Mode:

Exam Data for Weld: 2/1/RPV SHELL/N2F-2

NOZ-RPV

Configuration:

OD / Plate 80° F
 Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360°</u>	<u>T/P</u>	<u>73.0</u>	<u>NR1</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/15/2003

Comments: Cal/Exam Date is the date of initial calibration.
 Rectification - Full wave; TVG, CSG and DGS disabled.
 Calibration for full volume examination.
 Exams performed to maintain 10-20% clad roll.

JAR Jack Reisewitz I 10/21/2003
 Initials: Examiner Level: Cal/Exam Date:

1- M. O. III 10-25-03
 Utility Reviewed By: Date:

N/A N/A
 Initials: Examiner Level:

[Signature] 10-26-03
 ANII Reviewed By: Date:

[Signature] [Signature] [Signature]
 GE Reviewed By: Level: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets
Ultrasonic Calibration and Examination Record



Inner Radius Examinations

Site/Unit: Dresden / 2
 Outage: D2R18

Data Report Number: 2R18-012 Linearity Sheet: L-013
 Data Sheet Number: UT-058

Procedure: GE-UT-311

Rev. 10 DRR: N/A

Calibration Data for Block: VESSEL SHELL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>1390</u>		Exam Start: <u>1315</u>
Cal Check: <u>N/A</u>		Exam End: <u>1340</u>
Cal Check: <u>N/A</u>	<u>Ultratel II</u>	<u>02125</u>
Final Cal: <u>1553</u>	Couplant:	Batch
<u>228344</u> Thermometer	<u>75° F</u> Initial Cal Temp.	<u>75° F</u> Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>11.2</u>	<u>13.2</u>	<u>7.5</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 44.5 dB

Sweep 0-10 17.5" Metal Path

Acceptable Linearity performed : 10/15/2003

Search Unit Data

<u>KBA</u> Manufacturer:	<u>M21322</u> Serial No.:	<u>0.5"x1.0"/Rect.</u> Size/Shape:
<u>0.7 in.</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>50°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-281-800</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>12'</u> Length:	<u>0</u> Connectors:
------------------------------	-----------------------	-------------------------

Instrument Settings

<u>Panometrics / EPOCH 4</u> Manufacturer/Model:	<u>031534305</u> Serial No.:		
<u>16.6 us</u> Delay:	<u>0.1255 u/sec</u> Velocity:	<u>0.8-2.0 MHz</u> Filter:	<u>Auto</u> Rep Rate:
<u>17.5 in.</u> Range:	<u>Sg. / Med</u> Pulser:	<u>400 ohms</u> Damping:	
<u>Off</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:	

Exam Data for Component: 21/RPV SHELL/N2F-2

NOZ-RPV

Configuration:

<u>OD / Plate</u> Exam Surface:	<u>88° F</u> Component Temp.
------------------------------------	---------------------------------

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>390°</u>	<u>60°</u>	<u>+60°</u>	<u>N/A</u>	<u>44.5</u>	<u>NRI</u>
<u>390°</u>	<u>60°</u>	<u>-60°</u>	<u>N/A</u>	<u>44.5</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration.

*Rectification - Full wave; TVG, CSG, and DGS disabled.
 Calibration for nozzle to vessel weld (N/V).
 Exams performed to maintain a 20-30% FSH clad roll.
 Scanned CW and CCW.*

JAR Jack Reiszewitz # 10/21/03
 Initials: Examiner: Level: Cal/Exam Date:

[Signature] 10-25-03
 Utility Reviewed By: Date:

CLM JR 10/21/03
 GE Reviewed By: Level: Date:

[Signature] 10-26-03
 ANII Reviewed By: Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2, D2R18

Dresden Unit-2, D2R18
N2F-2, Recirc. Inlet Nozzle
Fall 2003

Weld Length = 360. Exam Volume = 73.8		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
60° T-Scan	A	73.8	39.0	52.8%	360.0	26.4%
60° P-Scan, 85%T	A	65.3	14.0	19.0%	360.0	9.5%
IRS-Scan, 15%T	A	8.5	8.5	11.5%	360.0	5.8%
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						

% Total Composite Coverage = 42%

Comments: A - Examined 360° length. Scanning limited due to nozzle configuration.
Weld length in degrees. IRS examination coverage determined by modeling.

Note - Rounding methods may make calculated values appear in error.

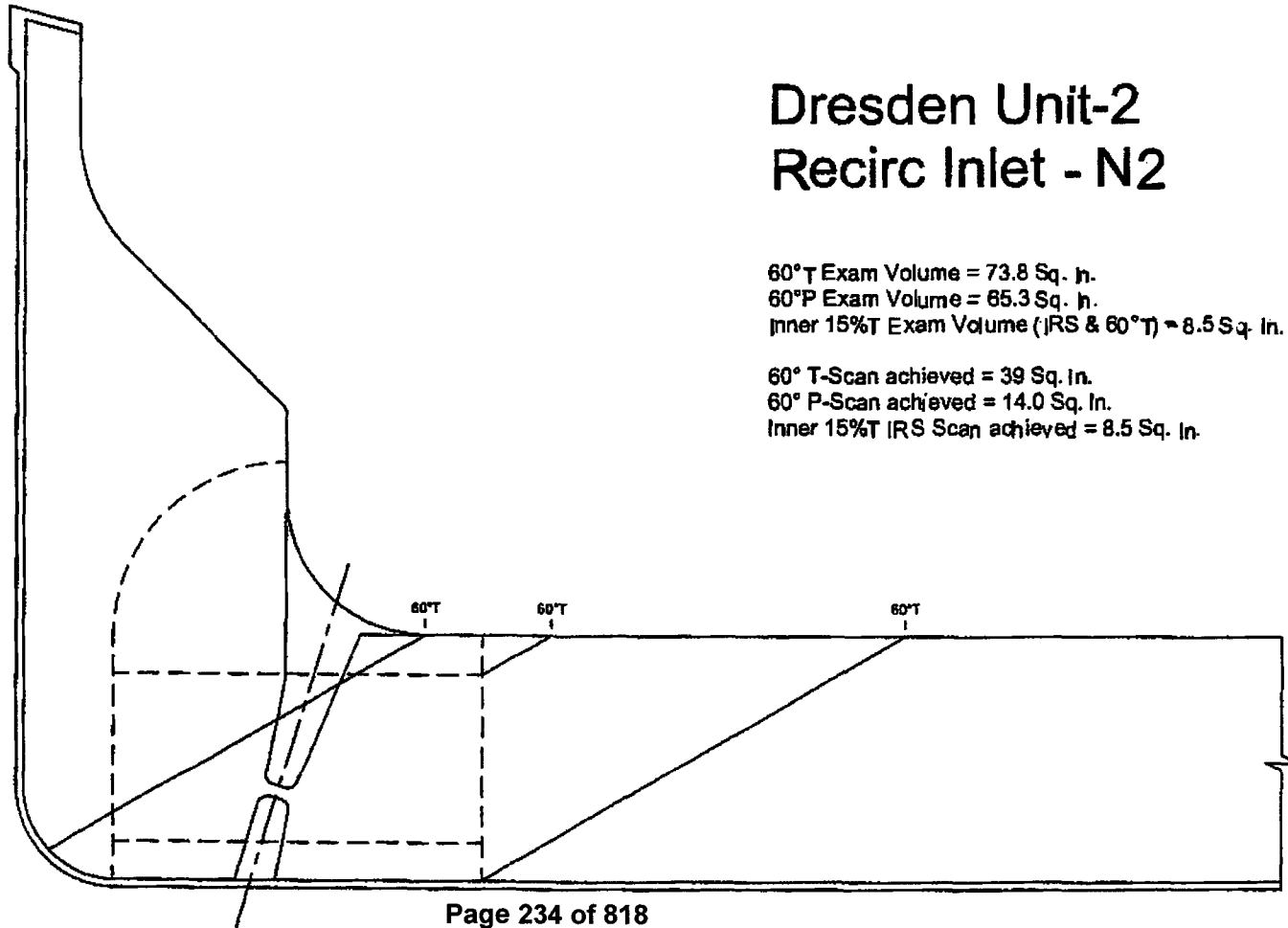
Page 5 of 7

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 Recirc Inlet - N2

60°T Exam Volume = 73.8 Sq. in.
60°P Exam Volume = 65.3 Sq. in.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. in.

60° T-Scan achieved = 39 Sq. in.
60° P-Scan achieved = 14.0 Sq. in.
Inner 15°T IRS Scan achieved = 8.5 Sq. in.

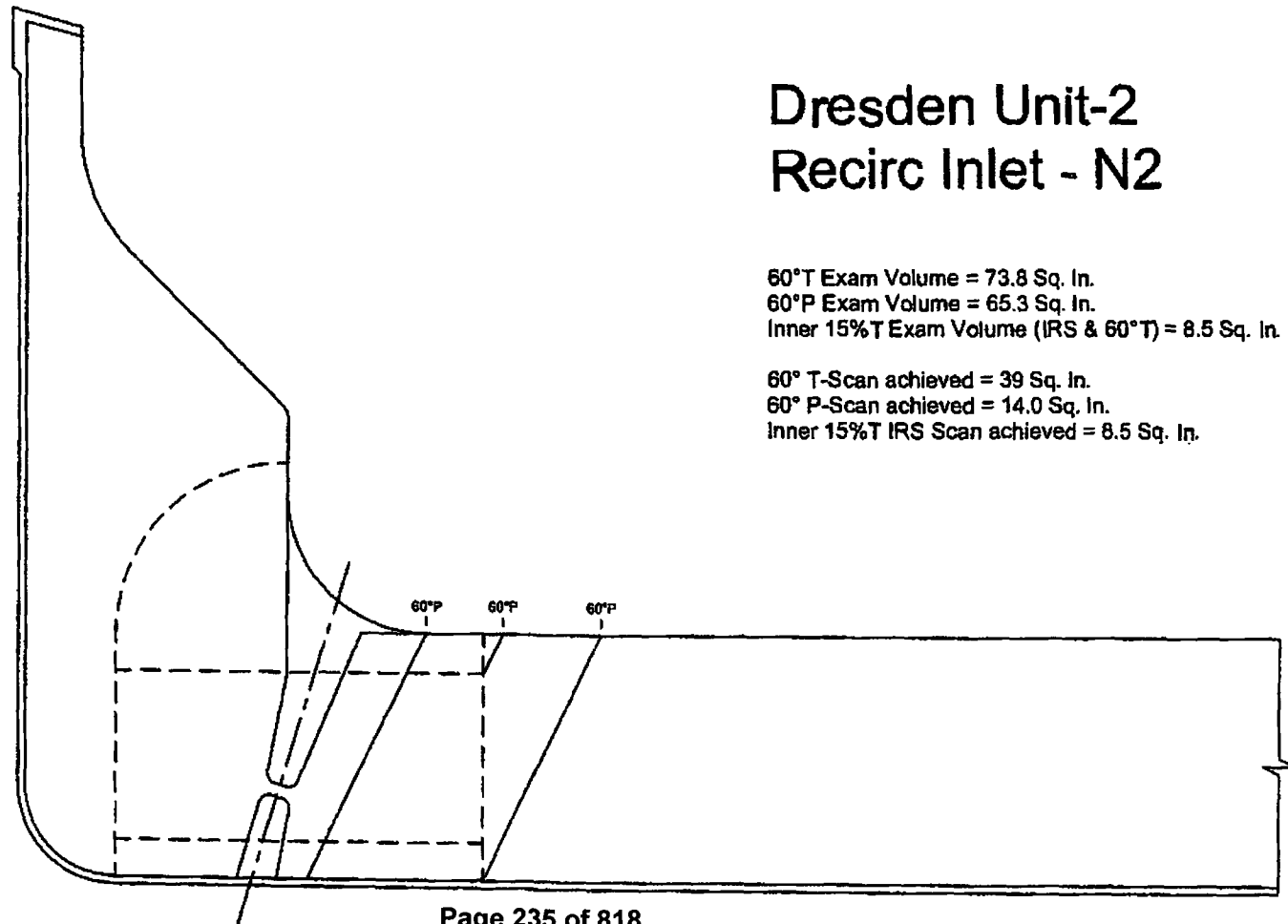


ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 Recirc Inlet - N2

60°T Exam Volume = 73.8 Sq. In.
60°P Exam Volume = 65.3 Sq. In.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. In.

60° T-Scan achieved = 39 Sq. In.
60° P-Scan achieved = 14.0 Sq. In.
Inner 15°T IRS Scan achieved = 8.5 Sq. In.



ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

EXAMINATION SUMMARY SHEET

Report No.:
2R18-013

Site and Unit: **Dresden Unit 2** Component ID: **2/1/RPV SHELL/N2H-2**
 Outage: **D2R18** **NOZ-RPV**
 System: **RPV** ASME Cat.: **B-D** ASME Item **B3.90** *Aug Requirements:* **Section XI**

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° Shear	UT-055	UT-055	GE-UT-311	VESSEL SHELL	Brad Dummer	III	10/21/2003
60° Long.	UT-053	UT-053	GE-UT-300	CAL-IIW2-013	Jack Relsewitz	II	10/21/2003
60° Long.	UT-054	UT-054	GE-UT-300	VESSEL SHELL	Jack Relsewitz	II	10/21/2003

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 60° RL and 60° shear wave search units.

Scanning was limited due to the nozzle configuration.

42% of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI, Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report 005 from D2R16 outage with No Change
 These examinations were performed under Work Order: 00613889-04 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

					10-21-03
Prepared By:	Level:	Date:	Utility Reviewed By:	Title:	Date:
N/A	N/A	N/A			10-30-03
Reviewed By:	Level:	Date:	ANII Reviewed By:	Title:	Date:



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**

Site/Unit: Dresden / 2
Outage: D2R18

Data Report Number: 2R18-013 Linearity Sheet: L-609
Data Sheet Number: UT-055

Procedure: GE-UT-311

Rev: 10 DRR: N/A

Calibration Data for Block: VESSEL SHELL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>1240</u>	Exam Start: <u>1342</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1402</u>	
Cal Check: <u>N/A</u>	<u>Ultrason II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1625</u>	<u>229244</u> Thermometer	<u>75° F</u> Initial Cal Temp.
		<u>75° F</u> Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>12.4</u>	<u>14.1</u>	<u>5.6</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 47.9 dB

Sweep 0-10 25" Metal Path

Acceptable Linearity performed : 10/9/2003

Search Unit Data

<u>KBA</u> Manufacturer:	<u>J07016</u> Serial No.:	<u>0.5"x1.0"/Rect.</u> Size/Shape:
<u>0.85 in.</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-291-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>6'</u> Length:	<u>2</u> Connectors:
------------------------------	----------------------	-------------------------

Instrument Settings

<u>Panametrics / EPOCH 4</u> Manufacturer/Model:	<u>031536006</u> Serial No.:		
<u>18.09 µs</u> Delay:	<u>0.129 µ/sec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Filter:	<u>Auto</u> Rep Rate:
<u>25.0 in.</u> Range:	<u>SQ / Mod</u> Pulser:	<u>400 ohms</u> Damping:	
<u>Off</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:	

Exam Data for Component: 2/1/RPV SHELL/N2H-2

NOZ-RPV

Configuration:

<u>OD / Plate</u> Exam Surface:	<u>88° F</u> Component Temp.
------------------------------------	---------------------------------

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>360°</u>	<u>60°</u>	<u>+60°</u>	<u>N/A</u>	<u>56.0</u>	<u>NRI</u>
<u>360°</u>	<u>60°</u>	<u>-60°</u>	<u>N/A</u>	<u>56.0</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration.

Rectification - Full wave; TVG, CSG, and DGS disabled.
Calibration for nozzle to vessel weld (N/A).

Exams performed to maintain a 20-30% FSH clad roll.

Exam sweep is 31" metal path, examination range setting is 31".

BD
Initials: Examiner: Brad Dummer

II
Level: II
Cal/Exam Date: 10/21/03

[Signature]
Utility Reviewed By: [Signature]
Date: 10-21-03

[Signature]
GE Reviewed By:

[Signature]
Level: [Signature]
Date: [Signature]

[Signature]
ANII Reviewed By: [Signature]
Date: 10-21-03

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: 2R18-013

Linearity Sheet: L-013

Outage: D2R18

Data Sheet Number: UT-053

Beam Spread: N/A

Procedure: GE-UT-300

Ver.: I

DRR: N/A

Calibration Block: CAL-IIW2-013

<u>CS</u>	<u>N/A</u>	<u>4.0"</u>
Material	Size	Thickness
Initial Cal: <u>1235</u>		Exam Start: <u>1440</u>
Cal Check: <u>N/A</u>		Exam End: <u>1500</u>
Cal Check: <u>NA</u>	<u>Ultragel II</u>	<u>02125</u>
Final Cal: <u>1545</u>	Couplant:	Batch
<u>229344</u>	<u>75° F</u>	<u>75° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp.

DAC Construction

Hole "r"	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	<u>0.60</u>	1X	<u>80%</u>	<u>1.04</u>	<u>0.6</u>	<u>3.0</u>
1/2	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
ID	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
5/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 60.0 dB

Sweep 0-10 2.0" Depth

Note N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

<u>Sigma</u>	<u>22BC-03001</u>	<u>2(1.1x.62)/Rect.</u>
Manufacturer:	Serial Number:	Size / Shape:
<u>0.70"</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u>	<u>SDC3</u>	<u>Long.</u>
Frequency:	Model:	Mode:

Search Unit Cable

<u>RG-174</u>	<u>12'</u>	<u>0</u>
Cable Type:	Length:	Connectors:

Instrument Settings

<u>Panametrics / EPOCH 4</u>	<u>031534305</u>		
Manufacturer/Model:	Serial Number:		
<u>9.4 us</u>	<u>0.233 in./usec.</u>	<u>0.8 - 3.0 MHz</u>	<u>Auto</u>
Delay:	Velocity:	Filter:	Rep Rate:
<u>4.0 in.</u>	<u>Sq. / Med</u>	<u>400 Ohms</u>	
Range:	Puter:	Damping:	
<u>Off</u>	<u>3.03 MHz</u>	<u>Dual</u>	
Reject:	Frequency:	Mode:	

Exam Data for Weld: 2/1/RPV SHELL/N2H-2

NOZ-RPV

Configuration:

OD / Plate

88° F

Exam Surface:

Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360°</u>	<u>T/P</u>	<u>74.0</u>	<u>NRI</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/15/2003

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVG, CSG and DGS disabled.
Calibration for near surface examination.
Exams performed a minimum of 14 dB above reference.

<u>JAR</u>	<u>Jack Reiszewitz</u>	<u>II</u>	<u>10/21/2003</u>
Initials:	Examiner	Level:	Cal/Exam Date:
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Initials:	Examiner	Level:	Date:
<u>CM</u>	<u>CM</u>	<u>III</u>	<u>10/21/03</u>
GE Reviewed By:	Level:	Date:	

<u>Am...</u>	<u>10-26-03</u>
Utility Reviewed By:	Date:
<u>...</u>	<u>10-22-03</u>
ANII Reviewed By:	Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: **Dresden / 2**

Data Report Number: **2R18-013**

Linearity Sheet: **L-013**

Outage: **D2R18**

Data Sheet Number: **UT-054**

Beam Spread: **N/A**

Procedure: **GE-UT-300**

Ver.: **Z**

DRR: **N/A**

Calibration Block: **VESSEL SHELL**

CS	N/A	7.0"
Material	Size	Thickness
Initial Cal: 1240		Exam Start: 1500
Cal Check: N/A		Exam End: 1530
Cal Check: NA	Ultratel II	02125
Final Cal: 1548	Couplant:	Batch
229344	75° F	75° F
Thermometer	Initial Cal Temp.	Final Cal Temp:

DAC Construction

Hole "t"	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	N/A	1X	N/A	N/A	N/A	N/A
1/2	N/A	1X	N/A	N/A	N/A	N/A
3/4	N/A	1X	N/A	N/A	N/A	N/A
ID	7.0	1X	80%	12.04	6.95	7.0
5/4	N/A	1X	N/A	N/A	N/A	N/A

DAC 1X= **73.0 dB**

Sweep 0-10 **10" Depth**

Note **N/A** dB difference between 3/8 and 5/8 Vee

Search Unit Data

Sigma	22BC-03001	2(1.1x.62)/Rect.
Manufacturer:	Serial Number:	Size / Shape:
0.70"	60°	60°
Incident Point:	Nominal Angle:	Measured Angle:
3.0 MHz	SDC3	Long.
Frequency:	Model:	Mode:

Search Unit Cable

RG-174	12'	0
Cable Type:	Length:	Connectors:

Instrument Settings

Panometrics / EPOCH 4	031534305		
Manufacturer/Model:	Serial Number:		
7.88 us	0.224 in./usec.	0.8 - 3.0 MHz	Auto
Delay:	Velocity:	Filter:	Rep Rate:
20.0 in.	Sq. / Med	400 Ohms	
Range:	Pulser:	Damping:	
Off	3.03 MHz	Dual	
Reject:	Frequency:	Mode:	

Exam Data for Weld: **2/1/RPV SHELL/N2H-2**

NOZ-RPV

Configuration:

OD / Plate

88° F

Exam Surface:

Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
360°	T/P	73.0	NRI	60°

Calibration Verification

Field Simulator Block S/N: **N/A**

Reflector	N/A	N/A	N/A
Amplitude	N/A	N/A	N/A
Gain (dB)	N/A	N/A	N/A
Sweep (SD)	N/A	N/A	N/A

Acceptable Linearity performed : **10/15/2003**

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVB, CSG and DGS disabled.
Calibration for full volume examination.
Exams performed to maintain 10-20% clad roll.

JAR **Jack Reiszewitz** **II** **10/21/2003**
Initials: Examiner Level: Cal/Exam Date:

Ang MND **10-26-03**
Utility Reviewed By: Date:

N/A **N/A**
Initials: Examiner Level: Date:
GE **Level:** **Date:**

10-20-03
ANR Reviewed By: Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2, D2R18
N2H-2, Recirc. Inlet Nozzle
Fall 2003

Weld Length = 360. Exam Volume = 73.8		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
60° T-Scan	A	73.8	39.0	52.8%	360.0	26.4%
60° P-Scan, 85%T	A	65.3	14.0	19.0%	360.0	9.5%
IRS-Scan, 15%T	A	8.5	8.5	11.5%	360.0	5.8%
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						

% Total Composite Coverage = 42%

Comments: A - Examined 360° length. Scanning limited due to nozzle configuration.
Weld length in degrees. IRS examination coverage determined by modeling.

Note - Rounding methods may make calculated values appear in error.

Dresden Unit-2, D2R18

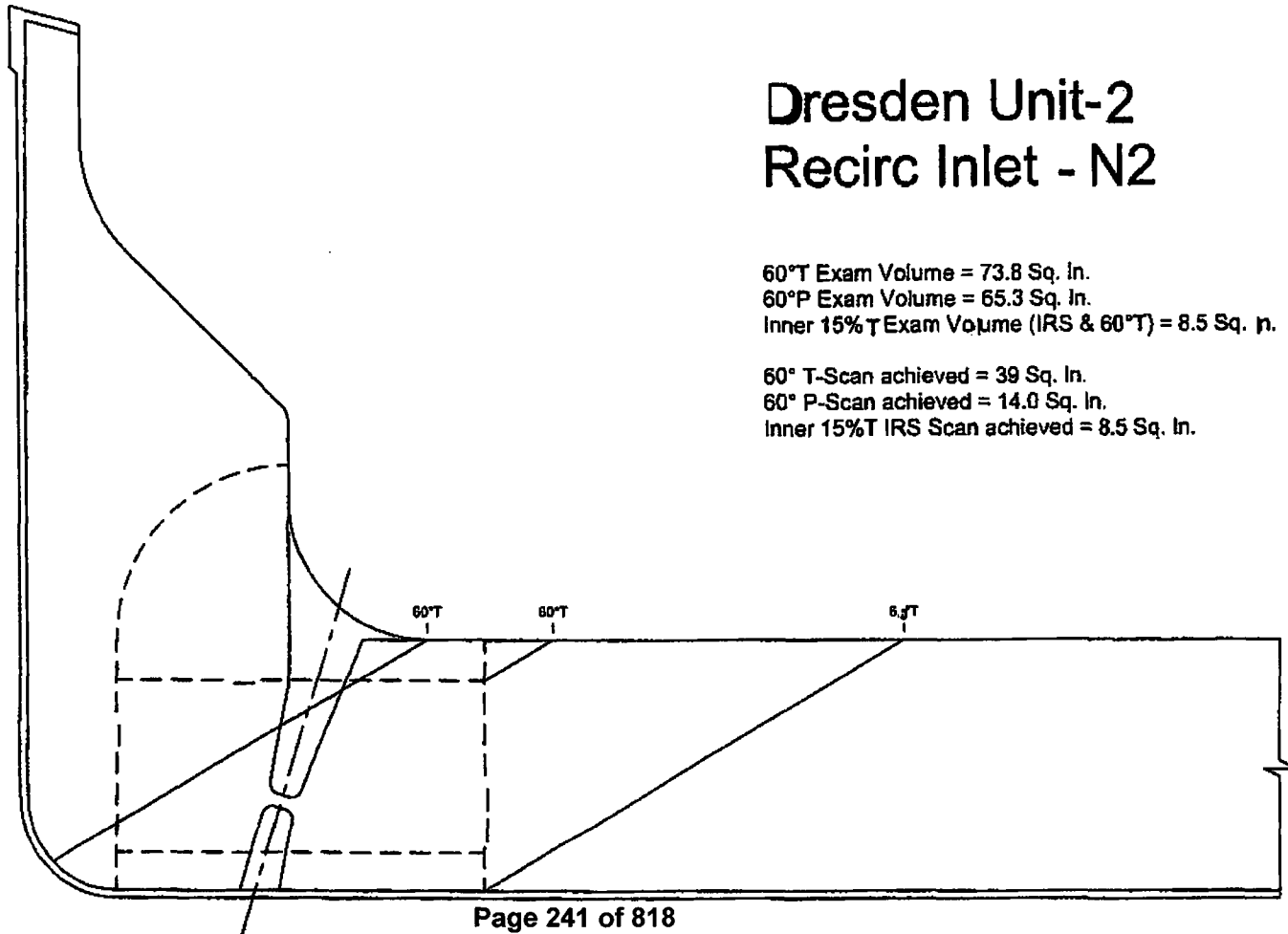
Page 5 of 7

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 Recirc Inlet - N2

60°T Exam Volume = 73.8 Sq. in.
60°P Exam Volume = 65.3 Sq. in.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. in.

60° T-Scan achieved = 39 Sq. in.
60° P-Scan achieved = 14.0 Sq. in.
Inner 15°T IRS Scan achieved = 8.5 Sq. in.

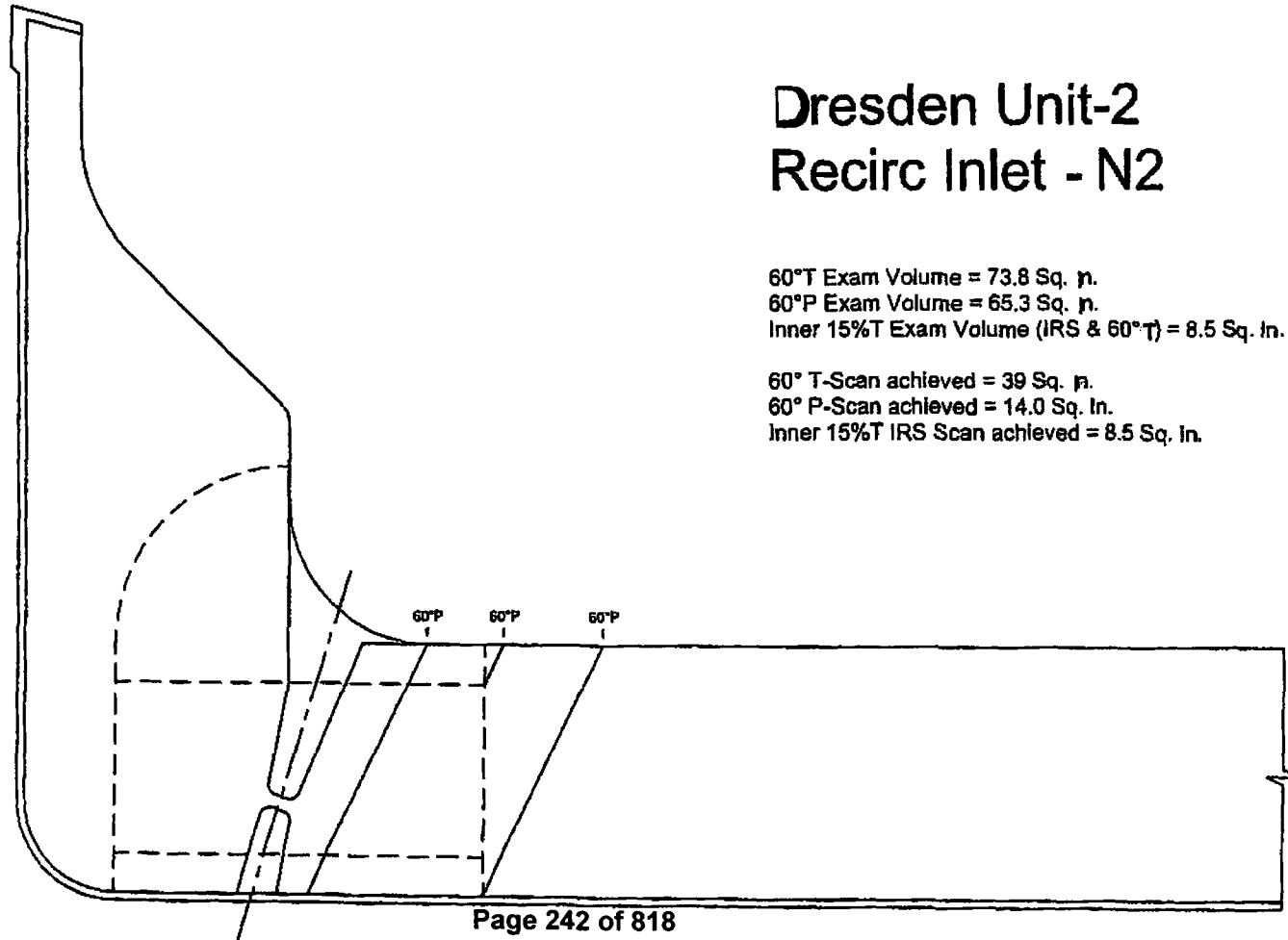


ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 Recirc Inlet - N2


60°T Exam Volume = 73.8 Sq. ft.
60°P Exam Volume = 65.3 Sq. ft.
Inner 15°T Exam Volume (IRS & 60°T) = 8.5 Sq. in.

60° T-Scan achieved = 39 Sq. ft.
60° P-Scan achieved = 14.0 Sq. in.
Inner 15°T IRS Scan achieved = 8.5 Sq. in.



ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

		EXAMINATION SUMMARY SHEET				Report No: D2R22-097	
Site: Dresden		Component ID: 2/1/RPV SHELL/N3D-2					
Outage: RFO 22		RPV-Noz					
System: RPV		ASME Cat.: B-D		ASME Item B3.90		Aug Req N/A	

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cert Level	Date
60° RL	D-132	N/A	GE-UT-500 Ver/Rev 10	CAL-IIW2-044	David Hancock	II	10/24/2011
60° RL	D-133	N/A	GE-UT-300 Ver/Rev 10	Vessel Shell	David Hancock	II	10/24/2011
60° Shear	D-134	N/A	GEH-UT-311 Ver/Rev 16 DRR 10-02/10-22	Vessel Shell	Edward Fish	II	10/24/2011
70° Shear	D-135	N/A	GEH-UT-311 Ver/Rev 16 DRR 10-02/10-22	Vessel Shell	Edward Fish	II	10/24/2011

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing the 60° refracted longitudinal, 60° and 70° shear wave search units.

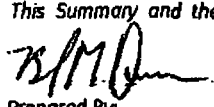
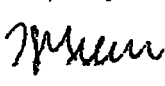
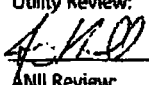
This examination meets the requirements of ASME Section XI, 1995 Edition through 1996 Addenda.

This examination was restricted due to nozzle configuration.

The UT composite coverage = 33.5%

Examination results were compared to Data Report D2-R17-09 from: D2R17 Change

These examinations were performed under Work Order: 1294562-6 No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:				RWP: 10012589	
Prepared By: 	Level: II	Date: 10-25-11	Utility Review: 	Date: 10-24-11	Dose: 65 mr.
ANII Review: 				Date:	Page <u>1</u> of <u>9</u>



Site/Unit: Dresden / 2

Data Report Number: D2R22-097

Linearity Sheet: L-008

Outage: RFO 22

Data Sheet Number: 0.132

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-IHW2-044

Search Unit Data

CS Material ELAT Size 4.0" Thickness

Initial Cal: 0935 Exam Start: 1020

Cal Check: N/A Exam End: 1150

Cal Check: N/A Ultragel II 07225

Final Cal: 1535 Couplant: Batch

272522 83° F 83° F

Thermometer Initial Cal Temp. Final Cal Temp.

Sigma 228C-08005 2(1.1"x0.62") / Rect.

Manufacturer: Serial Number: Size / Shape:

.75° 60° 60°

Incident Point: Nominal Angle: Measured Angle:

3.0 MHz SDC-3 RI

Frequency: Model: Mode:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
SDH	<u>.8"</u>	1X	<u>80%</u>	<u>.69"</u>	<u>1.37"</u>	<u>3.5</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X- 59.8 dB

Sweep 0-10 = 2.0" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Search Unit Cable

RG-174 12' 0

Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031539906

Manufacturer/Model: Serial Number:

8.12 us 0.227 in./usec. 0.8 - 3.0 MHz

Delay/Zero: Velocity: Narrowband Filter:

Auto Fullwave 4.0 in. Sa / Med

Rep Rate: Rectification: Range: P/Usef/Energy

400 Ohms 0% 3.03 MHz Dual

Damping: Reject: Frequency: Mode:

Off: Off: Off: Off:

DAC: TVG: CSC: DGS:

Exam Data for Weld: 2/1/RPV SHELL/N3D-2

RPV-Noz
Configuration:

OD 107° F

Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable indications	Exam Angle
<u>Plate 365°</u>	<u>T&P</u>	<u>74</u>	<u>NRI</u>	<u>60°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/12/2011

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for near surface examination.

Exams performed a minimum of 14 dB above reference.

45° Shear not used.

David Hancock II 10/24/2011

Initials: Examiner Level: Cal/Exam Date:

N/A N/A

Initials: Examiner Level: 10-25-11

GE Reviewed By: Level: Date:

See Summary Sheet for Signature

Utility Reviewed By: Date:

See Summary Sheet for Signature

ANII Reviewed By: Date:



Site/Unit: Dresden / 2

Data Report Number: D2R22-097

Linearity Sheet: L-008

Outage: RFD 22

Data Sheet Number: D-133

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: Vessel Shell

Search Unit Data

<u>CS</u> Material	<u>FLAT</u> Size	<u>7.3"</u> Thickness
Initial Cal: <u>0935</u>	Exam Start: <u>1020</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1150</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>07225</u> Batch
Final Cal: <u>1530</u>		
<u>272522</u> Thermometer	<u>83° F</u> Initial Cal Temp.	<u>83° F</u> Final Cal Temp.

Sluga 228C-08005 20.1"x0.62"/ Rect.
 Manufacturer: Serial Number: Size / Shape:
.75" 60° 60°
 Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 RL
 Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031539806
 Manufacturer/Model: Serial Number:
8.12 us 0.227 in./uscc. 0.8 - 3.0 MHz
 Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 20.0 in. Sa / Med
 Rep Rate: Rectification: Range: Pulsar/Energy
400 Ohms 0% 3.03 MHz Dual
 Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
 DAC: TVG: CSC: DGS:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.3"</u>	1X	<u>80%</u>	<u>12.3"</u>	<u>7.1"</u>	<u>2.1</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 75.7 dB
 Sweep 0-10 = 10' Depth
 Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N3D-2

RPV Noz
Configuration:

OD 107° F
 Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate 360°</u>	<u>T&P</u>	<u>80</u>	<u>NRI</u>	<u>60°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/12/2011

Comments: Cal/Exam Date is the date of Initial calibration. See coverage sheet for limitations. 0% Reject = Off.
 Calibration for full volume examination.
 Exams performed to maintain a 10 - 20% clad roll.
 45° Shear not used.

David Hancock II 10/24/2011
 Initials: Examiner Level: Ca/Exam Date:
N/A N/A
 Initials: Examiner Level: II 10-25-11
 GE Reviewed By: Level: Date:

See Summary Sheet for Signature
 Utility Reviewed By: Date:
 See Summary Sheet for Signature
 ANII Reviewed By: Date:



Site/Unit: Dresden / 2

Data Report Number: D2R22-097

Linearity Sheet: L-011

Outage: RFO 22

Data Sheet Number: D-134

Procedure: GEH-UT-311

Rev: 16

DRR: 10-02/10-22

Calibration Data for Block: Vessel Shell

<u>CS</u> Material	<u>FLAT</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>0935</u>	Exam Start: <u>1010</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1130</u>	
Cal Check: <u>N/A</u>	<u>Ultracel II</u> Couplant:	<u>07225</u> Batch
Final Cal: <u>1153</u>		
<u>272874</u> Thermometer	<u>85° F</u> Initial Cal Temp.	<u>85° F</u> Final Cal Temp.

DAC Construction

Reflector	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.0"</u>	1X	<u>80%</u>	<u>13.0"</u>	<u>14.13"</u>	<u>7.1</u>
	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X= 54.2 dB

Sweep 0-10 = 20.0" Metal Path

Acceptable Linearity performed : 10/12/2011

Search Unit Data

<u>KBA</u> Manufacturer:	<u>01FRP8</u> Serial No.:	<u>0.50" x 1.0" Rect</u> Size/Shape:
<u>0.8 in.</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>Shear</u> Model:	<u>Shear</u> Made:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>081579302</u> Serial No.:		
<u>14.8 us</u> Zero:	<u>0.1271 in / usec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>20.0 in.</u> Range:	<u>Sq. / Med</u> Pulse/Energy
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Data for Component: 2/1/RPV SHELL/N3D-2

RPV-Noz

Configuration:

<u>Plate</u> Exam Surface:	<u>107° F</u> Component Temp.
-------------------------------	----------------------------------

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0°-4.0°</u>	<u>60°</u>	<u>±28°-66°</u>	<u>N/A</u>	<u>60.2</u>	<u>NRI</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for nozzle to vessel weld (N/V).
Exams performed to maintain a 20 - 30% FSH clad roll.
Examined from 360°.
Scanned CW and CCW.

Edward Fish for E.G.S.H

<u>Edward Fish</u> Initials: Examiner:	<u>II</u> Level:	<u>10/24/2011</u> Cal/Exam Date:	See Summary Sheet for Signature
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Utility Reviewed By: _____ Date: _____

<u>R.M.D.</u> GE Reviewed By:	<u>III</u> Level:	<u>10-25-11</u> Date:	See Summary Sheet for Signature
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ANII Reviewed By: _____ Date: _____



Site/Unit: Dresden / 2

Data Report Number: D2R22-097

Linearity Sheet: L-011

Outage: RFO 22

Data Sheet Number: D-135

Procedure: GEH-UT-311

Rev: 16

DRR: 10-02/10-22

Calibration Data for Block: Vessel Shell

<u>CS</u> Material	<u>FLAT</u> Size	<u>7.0'</u> Thickness
Initial Cal: <u>0830</u>	Exam Start: <u>1010</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1130</u>	
Cal Check: <u>N/A</u>	<u>Ultrage II</u> Couplant:	<u>07225</u> Batch
Final Cal: <u>1157</u>	<u>272874</u> Thermometer	<u>85° F</u> Initial Cal Temp.
		<u>85° F</u> Final Cal Temp:

DAC Construction

Reflector	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.0'</u>	<u>1X</u>	<u>80%</u>	<u>18.5"</u>	<u>20.55"</u>	<u>5.9</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X= 45.0 dB

Sweep 0-10 = 35.0' Metal Path

Acceptable Linearity performed: 10/12/2011

Search Unit Data

<u>KBA</u> Manufacturer:	<u>01FRP4</u> Serial No.:	<u>0.50" x 1.0' Rect</u> Size/Shape:
<u>1.0 in.</u> Incident Point:	<u>70°</u> Nominal Angle:	<u>70°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-891-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>081579302</u> Serial No.:
<u>17.02 us</u> Zero:	<u>0.1305 in /usec</u> Velocity:
	<u>0.8 - 3.0 MHz</u> Narrowband Filter:
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:
	<u>35.0 in.</u> Range:
	<u>Sa / Med</u> Pulser/Energy
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:
	<u>1.0 MHz</u> Frequency:
	<u>P/E</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:
	<u>Off:</u> CSC:
	<u>Off:</u> DGS:

Exam Data for Component: 2/1/RPV SHELL/N3D-2

RPV-Noz

Configuration:

<u>Plate</u> Exam Surface:	<u>107° F</u> Component Temp.
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Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0°-6.0'</u>	<u>70°</u>	<u>±46°</u>	<u>N/A</u>	<u>5.0</u>	<u>NRI</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for nozzle to vessel weld (N/A).
Exams performed to maintain a 20 - 30% FSH clad roll.
Examined from 360°.
Scanned CW and CCW.

Scott R. Brinkman Fol. 6. 4/11

<u>Edward Fish</u> Initials: Examiner:	<u>II</u> Level:	<u>10/24/2011</u> Cal/Exam Date:
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See Summary Sheet for Signature

Unity Reviewed By: _____ Date: _____

<u>BIM</u> GE Reviewed By:	<u>III</u> Level:	<u>10-25-11</u> Date:
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See Summary Sheet for Signature

ANII Reviewed By: _____ Date: _____

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

Nir PDI Dr2 Rev5.xlsx

MANUAL DETECTION NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON			DATE 10/4/2011			
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
MAIN STEAM								
N/V WELD (M)	PLATE	0 - 4.0"	60.0°	-	± 28° - 66°	FLAT	14.0"	1 MHz
N/V WELD/ZONE 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 46°	FLAT	25.2"	1 MHz
ZONE 2A (M)	ODBR	60° - 90°	66.4°	-	24.1°	4.0"	16.3"	1 MHz
ISO COND								
N/V Weld (M)	PLATE	0 - 5.0"	60.0°	-	± 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	25.2"	1 MHz
Zone 2a (M)	ODBR	60° - 90°	66.5°	-	19.1°	3.8"	12.6"	1 MHz
TOP HEAD SPRAY (N10) - 48° Offset								
N/V Weld (M)	PLATE	0 - 8.0"	45.0°	-	± 15.0° - 85.0°	FLAT	5.7"	1.0 MHz
N/V Weld/Zone 1 (M)	PLATE	0 - 6.0"	60.0°	-	± 15.0° - 90.0°	FLAT	8.4"	1.0 MHz
Zone 1 (M)	PLATE	0 - 7.5"	70.0°	-	± 45°	FLAT	13.6"	1.0 MHz
Zone 2A (M)	PLATE	0 - 9.0"	80.0°	-	± 21°	FLAT	17.2"	1.0 MHz
Zone 2A (M)	ODBR	25° - 85°	50.0°	-	13°	1.9"	6.8"	1.0 MHz
Zone 2A (M)	ODBR	25° - 75°	50.0°	-	30°	1.9"	9.0"	1.0 MHz
SBLC								
N/V WELD (M)	PLATE	4.0 - 8.0"	45.0°	-	± 52.0°	FLAT	8.9"	1 MHz

W-039

W-035, W-036

W-180

W-132

NOTES:	IMI	MANUAL
	X.XX° (X.XX°)	WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor

Created/updated by Chris Minor
08/20/11 10:11 AM
08/20/11 10:11 AM
08/20/11 10:11 AM
08/20/11 10:11 AM

SME Review / Date

Site Review / Date



HITACHI

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden 2 / D2R22
N3D
Fall / 2011

Weld Length = 360. Exam Volume = 46.5		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
60° T-Scan (S4 UC)	A	4.2	4.2	9.0%	360	4.5%
60° T-Scan (S6 FV)	A	20.3	15.5	33.3%	360	16.7%
60° T-Scan (S6 NS)	A	22	0.1	0.2%	360	0.1%
60° P-Scan (S4 UC)	A	4.2	4.2	9.0%	360	4.5%
60° P-Scan (S6 FV)	A	20.3	7.2	15.5%	360	7.7%
60° P-Scan (S6 NS)	A	22	0	0.0%	360	0.0%
60° T-Scan (S4 UC)			0		0	
60° T-Scan (S6 FV)			0		0	
60° T-Scan (S6 NS)			0		0	
60° P-Scan (S4 UC)			0		0	
60° P-Scan (S6 FV)			0		0	
60° P-Scan (S6 NS)			0		0	
60° T-Scan (S4 UC)			0		0	
60° T-Scan (S6 FV)			0		0	
60° T-Scan (S6 NS)			0		0	
60° P-Scan (S4 UC)			0		0	
60° P-Scan (S6 FV)			0		0	
60° P-Scan (S6 NS)			0		0	

% Total Composite Coverage = 33.5%

Rev. 0 8/23/05

Comments: A - Manual UT was restricted due to the nozzle configuration.

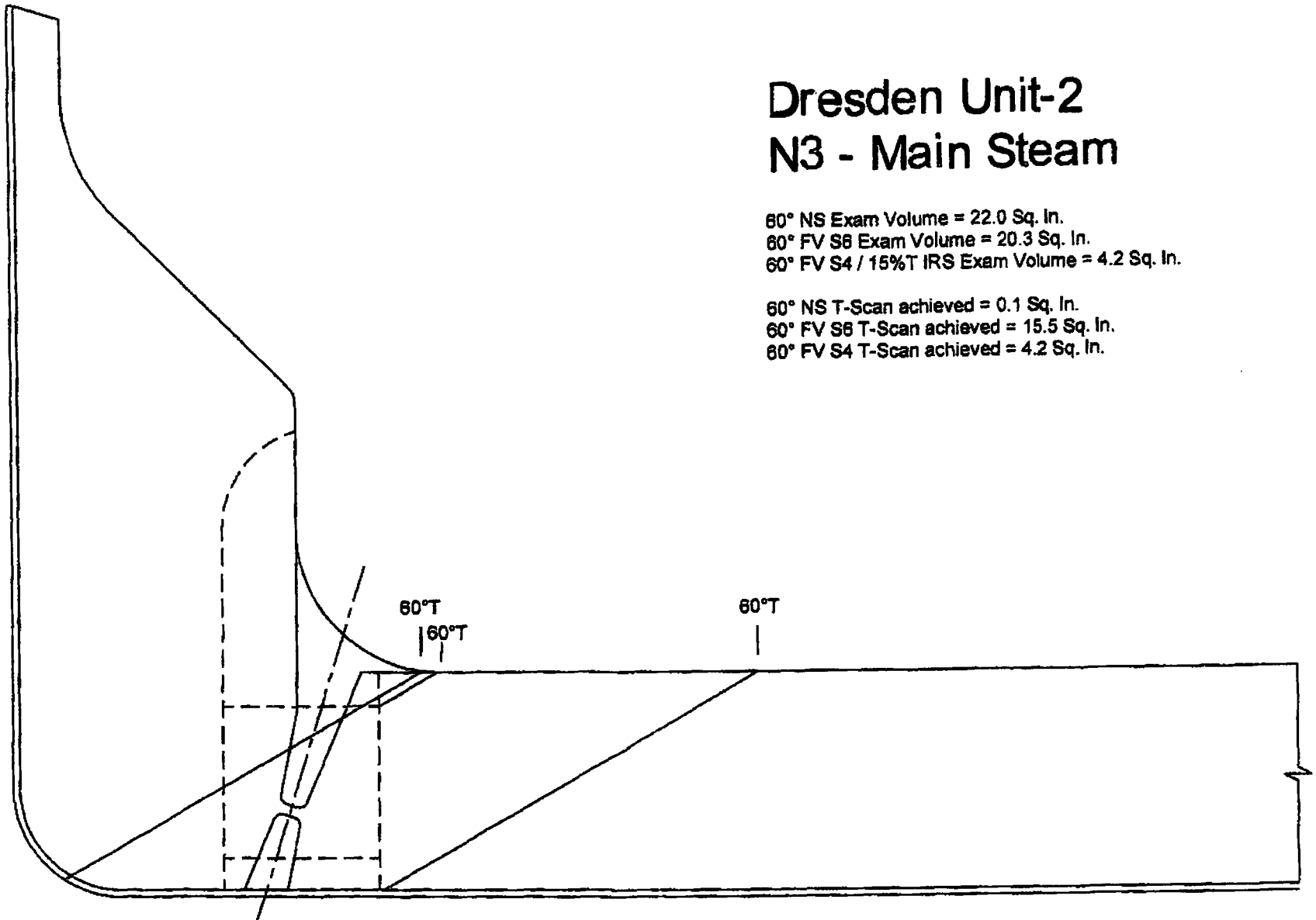
Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.

Page 7 of 9

Dresden Unit-2 N3 - Main Steam

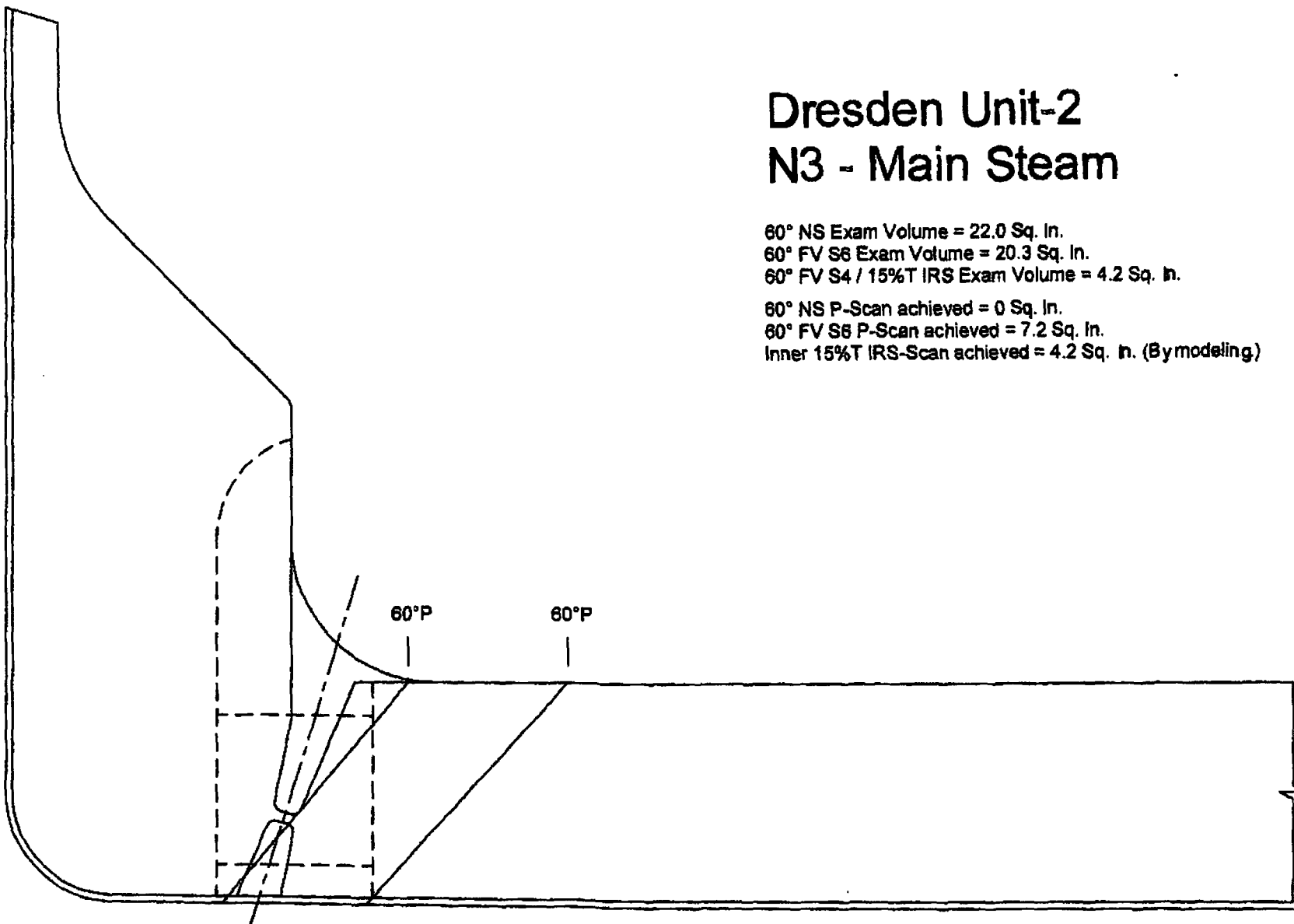
60° NS Exam Volume = 22.0 Sq. In.
60° FV S6 Exam Volume = 20.3 Sq. In.
60° FV S4 / 15%T IRS Exam Volume = 4.2 Sq. In.

60° NS T-Scan achieved = 0.1 Sq. In.
60° FV S6 T-Scan achieved = 15.5 Sq. In.
60° FV S4 T-Scan achieved = 4.2 Sq. In.



Dresden Unit-2 N3 - Main Steam



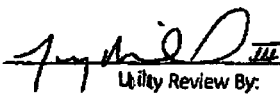

60° NS Exam Volume = 22.0 Sq. In.
60° FV S6 Exam Volume = 20.3 Sq. In.
60° FV S4 / 15%T IRS Exam Volume = 4.2 Sq. In.
60° NS P-Scan achieved = 0 Sq. In.
60° FV S6 P-Scan achieved = 7.2 Sq. In.
Inner 15%T IRS-Scan achieved = 4.2 Sq. In. (By modeling)



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ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 <p>GE Energy Nuclear</p>	<h2 style="margin:0;">Examination Summary Sheet</h2>	Report No.: N4A-2																																										
Site: Dresden Unit 2 Outage: D2R20 System: Feedwater	Component ID: 2/1/RPV SHELL/N4A-2 Configuration: Nozz-Shell / N/V IRS ASME Cat: B-D	ASME Item: B3.90 Aug. Requirements: N/A																																										
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Exams Performed:</th> <th style="width:20%;">Calibration Sheet(s):</th> <th style="width:20%;">Calibration Block:</th> <th style="width:20%;">Procedure:</th> <th style="width:20%;">Examination Personnel:</th> <th style="width:15%;">NDE Level:</th> <th style="width:10%;">Date:</th> </tr> </thead> <tbody> <tr> <td>45/S</td> <td rowspan="3">D-COD-001 thru 012</td> <td rowspan="3">99978AQC</td> <td>GE-UT-716 V1</td> <td>C. Gauthier</td> <td>LV II</td> <td rowspan="3">11/03/07</td> </tr> <tr> <td>60/L</td> <td>GE-UT-718 V0</td> <td>J. Guillote</td> <td>LV II</td> </tr> <tr> <td>70/L</td> <td></td> <td>M. Hilborn</td> <td>LV II</td> </tr> <tr> <td>60/S</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>60/L</td> <td>D-044</td> <td rowspan="2">99978AQC</td> <td>GE-UT-300 V10</td> <td>W. Reid</td> <td>LV II</td> <td>11/03/07</td> </tr> <tr> <td>60/S</td> <td>D-045</td> <td>GE-UT-311 V15</td> <td>M. Riccardelli</td> <td>LV II</td> <td>11/03/07</td> </tr> </tbody> </table>	Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:	45/S	D-COD-001 thru 012	99978AQC	GE-UT-716 V1	C. Gauthier	LV II	11/03/07	60/L	GE-UT-718 V0	J. Guillote	LV II	70/L		M. Hilborn	LV II	60/S							60/L	D-044	99978AQC	GE-UT-300 V10	W. Reid	LV II	11/03/07	60/S	D-045	GE-UT-311 V15	M. Riccardelli	LV II	11/03/07	Comments: Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Nozzle-to-Vessel Weld. Automated transverse and parallel scans were performed in accordance with procedure GE-UT-716, V1, using 45° Shear wave, 60° RL, and 70° RL search units, supplemental 0° L-Wave scans were also performed. Supplemental Manual 60°RL scans were performed in accordance with procedure GE-UT-300 V10 Automated 60° Shear Inner Radius Nozzle to Vessel examinations were performed in accordance with procedure GE-UT-718 V0, DRR No. 07-07 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document". Supplemental 60° Shear Inner Radius Nozzle to Vessel scans were performed in accordance with procedure GE-UT-311 V15 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document". Automated UT scanning was performed from the vessel OD surface and was restricted due to the nozzle configuration and insulation interference. Supplemental manual exams were performed to augment the automated exams. The SP 2000 OD automated UT system 0 reference is located at TDC of nozzle. For SP 2000 automated calibrations refer to report CAL-01. No relevant indications were recorded. Previous examination data was reviewed, with no significant changes noted. Automated and Manual UT Composite Coverage = 39.3%.	
Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:																																						
45/S	D-COD-001 thru 012	99978AQC	GE-UT-716 V1	C. Gauthier	LV II	11/03/07																																						
60/L			GE-UT-718 V0	J. Guillote	LV II																																							
70/L				M. Hilborn	LV II																																							
60/S																																												
60/L	D-044	99978AQC	GE-UT-300 V10	W. Reid	LV II	11/03/07																																						
60/S	D-045		GE-UT-311 V15	M. Riccardelli	LV II	11/03/07																																						
The examination results were compared with data report N4A-2 from 1998 outage with <input checked="" type="checkbox"/> No Change These examinations were performed under Work Order: 870087-06 <input type="checkbox"/> Change																																												
This summary and the following data sheets have been reviewed and accepted by the following personnel:																																												
 Prepared By:	Level: <u>III</u> Date: <u>11/3/07</u>	 Utility Review By:																																										
		 ANI Reviewed By:																																										
		Date: <u>11-8-07</u> Date: <u>11/12/07</u>																																										

ATTACHMENT 2
 Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2



GE Hitachi Nuclear Energy

SP2000 Examination Data Sheet

Project : Dresden Unit-2
Component : N4A-2

Summary No.: N4A-2
Exam Data Sheet: N4A-2-01

<i>File</i>	<i>Scan Type</i>	<i>Ch. 1</i>	<i>Ch. 2</i>	<i>Ch. 3</i>	<i>Ch. 4</i>	<i>Ch. 5</i>	<i>Ch. 6</i>	<i>Ch. 7</i>	<i>Ch. 8</i>	<i>Ch. 9</i>	<i>Ch. 10</i>	<i>Ch. 11</i>	<i>Ch. 12</i>
n4a_tl_01	TL	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n4a_p_01	P	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n4a_p_02	Void	~	~	~	~	~	~	~	~	~	~	~	~
n4a_p_03	P	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n4a_nv_01	Void	~	~	~	~	~	~	~	~	~	~	~	~
n4a_nv_02	N/V	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n4a_nv_03	N/V	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~

Comments: Analyzed by John Gilliard Level III 11/03/2007 JCG
 Non-recordable reflectors due to welding artifacts observed throughout the length of the weld.

The symbol ~ indicates "No entry required" or "Not Applicable". NRI indicates "No Recordable Indications".

Page 2 of 2

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-100

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-044

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

Search Unit Data

CS/CL Material: Flat Size: 7.3" Thickness

Initial Cal: 1620 Exam Start: 18:41

Cal Check: N/A Exam End: 19:26

Cal Check: N/A UltraGel II 02125

Final Cal: 2110 Couplant: Batch

255322 Thermometer Initial Cal Temp: 76° F Final Cal Temp: 76° F

Sigma 228C-02003 2(1.1x.62) / Rect.

Manufacturer: Serial Number: Size / Shape:

.65° 60° 60°

Incident Point: Nominal Angle: Measured Angle:

3.0 MHz SDC-3 Long

Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0

Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 031572811

Manufacturer/Model: Serial Number:

7.655 us 0.2245 in./usec. 0.8 - 3.0 MHz

Delay/Zero: Velocity: Narrowband Filter:

Auto Fullwave 20.0 in. Sg / Med

Rep Rate: Rectification: Range: Pulsar:

400 Ohms 0% 3.03 MHz Dual

Damping: Reject: Frequency: Mode:

Off Off Off Off

DAC: TVG: CSC: DGS:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0"</u>	1X	<u>80%</u>	<u>12.1</u>	<u>6.8</u>	<u>6.8</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 70.1 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N4A

NOZ-RPV
Configuration:

Q0 97° F

Exam Surface: Component Temperature

Weld Examination Area: Exam Access Scan dB Recordable Indications Exam Angle

*Plate 8"-16" I 70.1 NRI 60

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

SP2000 RPV pick up exam area.

Calibration for full volume examination.

Exams performed to maintain a 10-20% clad roll. Examined 360°

WWR Wallace Reid II 11/3/2007

Initials: Examiner Level: Col/Exam Date:

[Signature] 11-7-07

Utility Reviewed By: Date:

N/A N/A

Initials: Examiner Level: III 11-7-07

GE Reviewed By: Level: Date:

[Signature] 11/12/07

ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**



Site/Unit: Dresden / 2

Data Report Number: D2R20-100

Linearity Sheet: L-005

Outage: D2R20

Data Sheet Number: D-045

Procedure: GE-UT-311

Rev: 15

DRR: N/A

Calibration Data for Block: 99978AQC

Search Unit Data

CS/CL Material: 1530
 Flat Size: 7.3" Thickness: 18.56
 Exam Start: 18:56
 Exam End: 19:15
 Cal Check: N/A
 Cal Check: N/A
 Final Cal: 2101
255322 Thermometer Initial Cal Temp: 76° F Final Cal Temp: 76° F

KBA Manufacturer: Q0L323 Serial No.: 50" x 1.0" Rect Size/Shape:
0.7 in. Incident Point: 60° Nominal Angle: 60° Measured Angle:
1.0 MHz Frequency: 113-291-600 Model: Shear Mode:

Search Unit Cable

RG-174 Cable Type: 12' Length: 0 Connectors:

Instrument Settings

Panometrics / Epoch 4 Manufacturer/Model: 031540406 Serial No.:

15.62 μs Zero: 0.1277 in / μsec Velocity: 0.8 - 3.0 MHz Narrowband Filter:
Auto Rep Rate: Fullwave Rectification: 20.0 in. Range: Sg. / Med Pulsar/Energy
400 Ohms Damping: N/A Reject: 1.0 MHz Frequency: P/E Mode:
Off DAC: Off TVG: Off CSC: Off DGS:

Calibration Verification

Field Simulator Block S/N: N/A
 Reflector: N/A N/A N/A
 Amplitude: N/A N/A N/A
 Gain (dBI): N/A N/A N/A
 Sweep (SD): N/A N/A N/A

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>6.8"</u>	1X	<u>80%</u>	<u>11.2</u>	<u>13.6</u>	<u>6.8</u>
	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X = 49 dB

Sweep 0-10 = 20° Metal Path

Acceptable Linearity performed: 10/27/2007

Exam Data for Component: 2/1/RPV SHELL/N4A-2

NOZ-RPV

Configuration:

QD Plate Exam Surface: 97° F Component Temp.

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indicators
<u>0-6.0"</u>	<u>60°</u>	<u>35°-55°</u>	<u>N/A</u>	<u>55</u>	<u>NR</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

SP2000 RPV pick up exam area.

Exams performed to maintain a 20 - 30% FSH clad roll.

Scanned CW and CCW. 360°

Calibration for nozzle to vessel weld.

MR Michael Riccardelli
 Initials: Examiner:

II 11/3/2007
 Level: Cal/Exam Date:

[Signature] 11-7-07
 Utility Reviewed By: Date:

[Signature]
 IGE Reviewed By:

II 11/12/07
 Level: Date:

[Signature] 11/12/07
 ANI Reviewed By: Date:

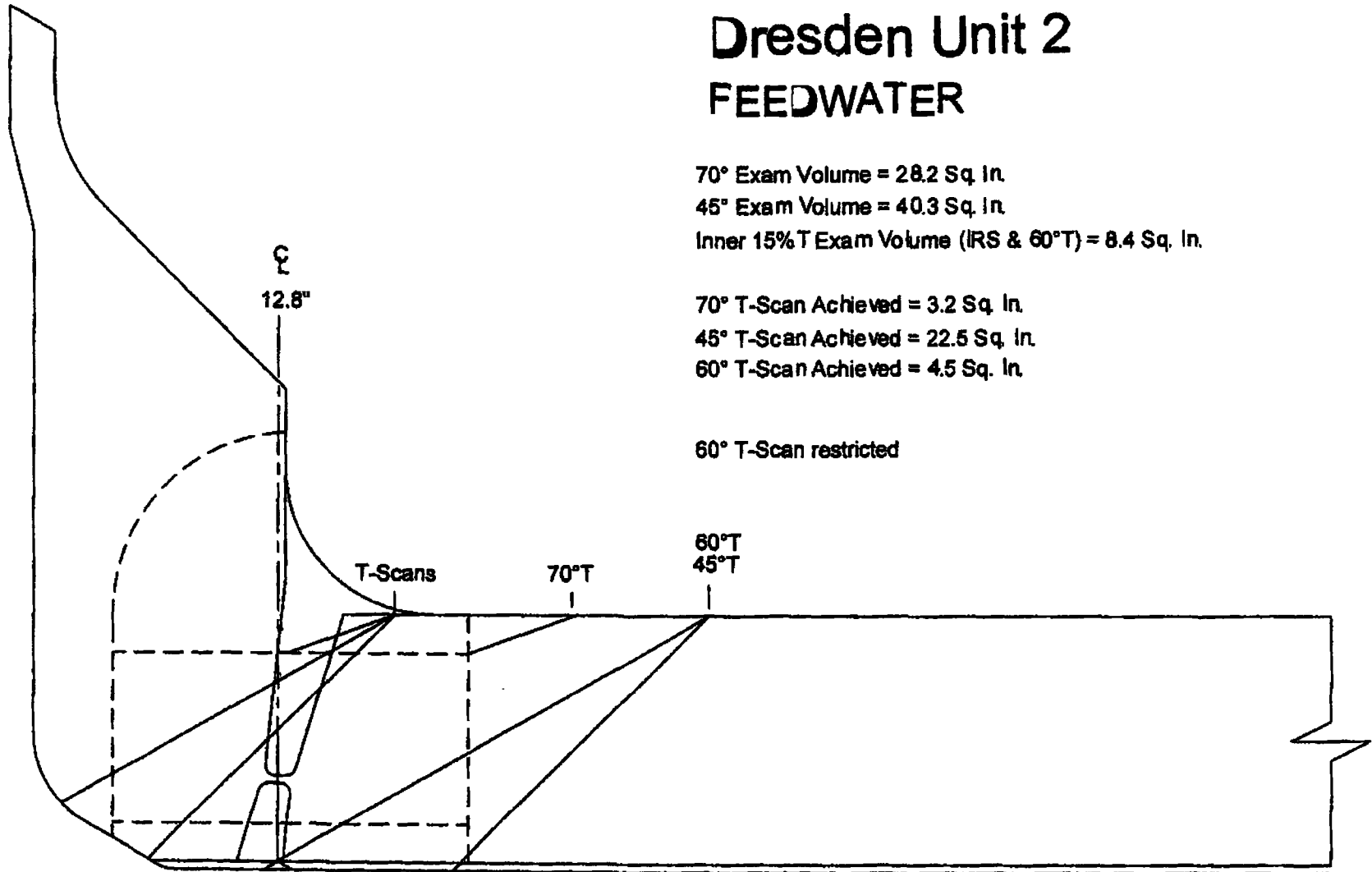
Dresden Unit 2, 2007, D2R20

Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15% T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

70° T-Scan Achieved = 3.2 Sq. In.
45° T-Scan Achieved = 22.5 Sq. In.
60° T-Scan Achieved = 4.5 Sq. In.

60° T-Scan restricted

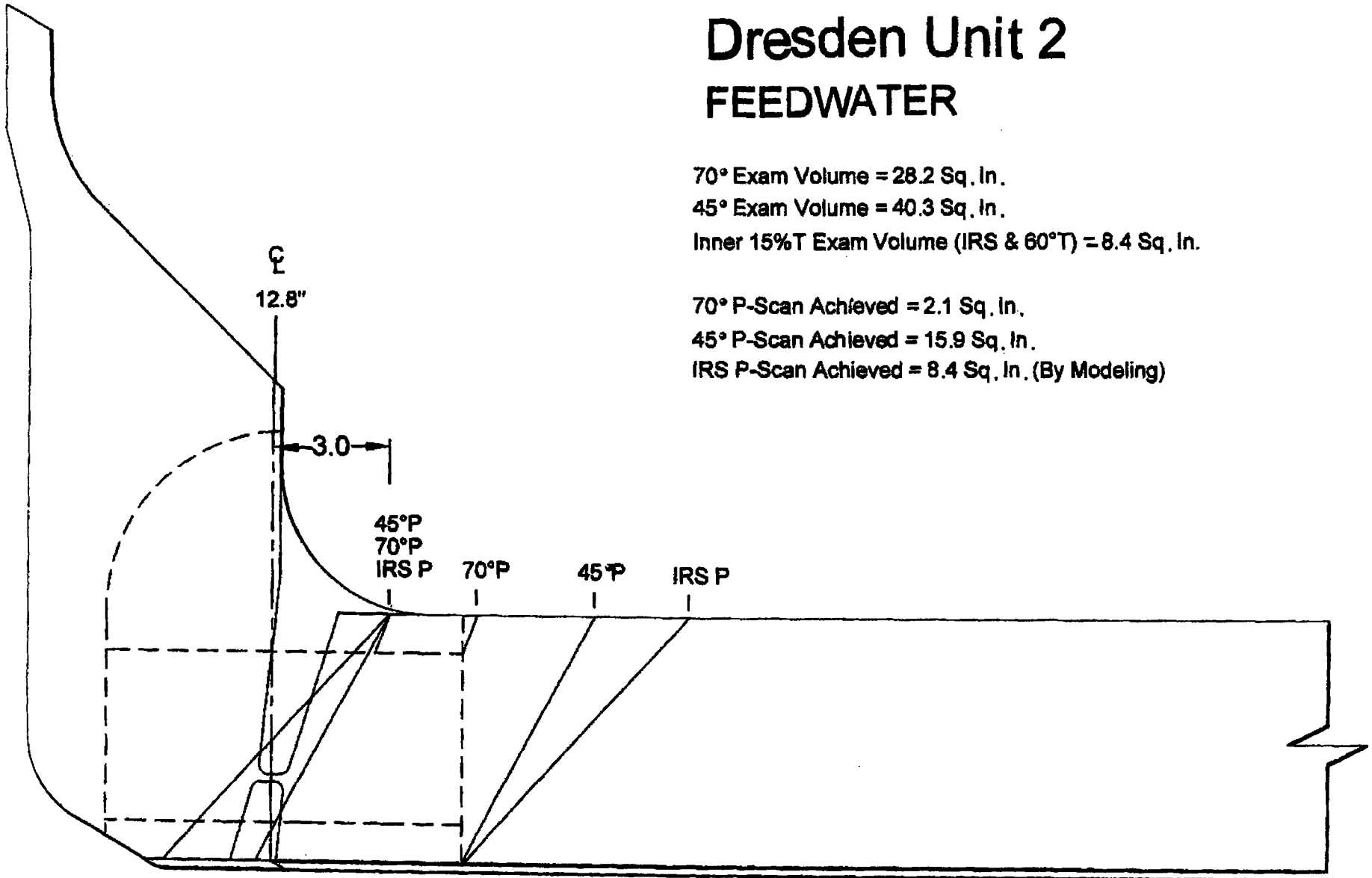


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Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

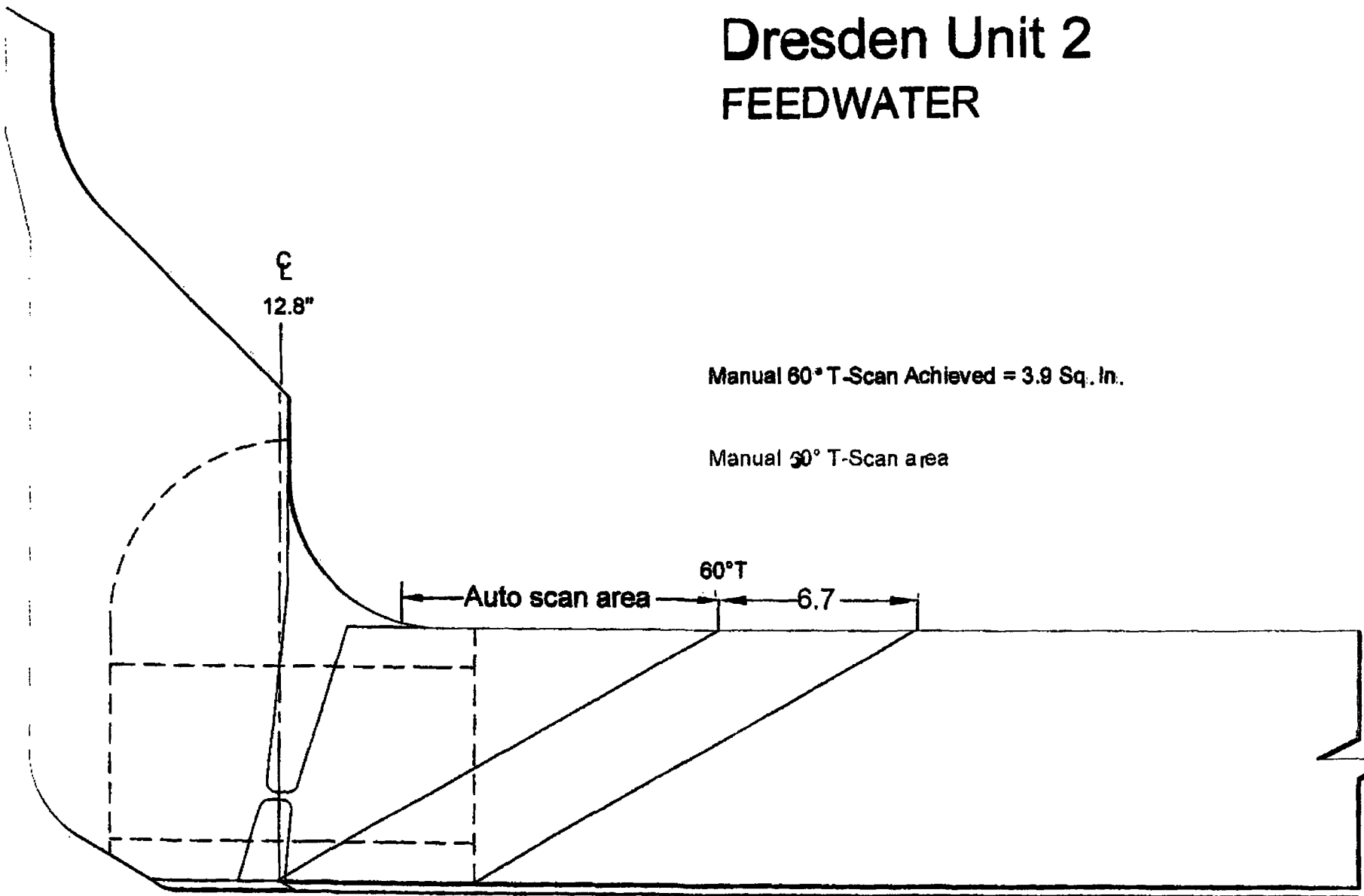
70° P-Scan Achieved = 2.1 Sq. In.
45° P-Scan Achieved = 15.9 Sq. In.
IRS P-Scan Achieved = 8.4 Sq. In. (By Modeling)



Dresden Unit 2 FEEDWATER

Manual 60° T-Scan Achieved = 3.9 Sq. In.

Manual 30° T-Scan area



ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit 2 / D2R20



GE Hitachi Nuclear Energy

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden Unit 2 / D2R20
N4A-2 FW (Noz-Shell)
Fall / 2007

Weld Length = Exam Volume =	CODE	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
360. 76.9	A	8.4	4.5	5.9%	360	2.9%
	A	40.3	22.5	29.3%	360	14.6%
	A	28.2	3.2	4.2%	360	2.1%
	A*	8.4	8.4	10.9%	360	5.5%
	A	40.3	15.9	20.7%	360	10.3%
	A	28.2	2.1	2.7%	360	1.4%
	B	8.4	3.9	5.1%	360	2.5%
			0		0	
			0		0	
			0		0	
			0		0	
			0		0	
			0		0	
			0		0	
			0		0	
			0		0	
			0		0	
			0		0	

% Total Composite Coverage = 39.3%

Rev. 0 9/23/08

Comments: A - Automated scanning was restricted due to insulation interference.
B - Manual pick-up performed.

A* - Single side access, 50% credit of the achieved Supplement 4 T-scan volume claimed.

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N4 FW Nozz N4A-2
 ASME Volume OD Radius: 26.0

Description: Nozz Shell
 Weld Centerline Radius: 12.8
 Nominal Thickness: 6.4

SP2000 Quad Package - Radial TL- Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-0°L	~	1 (P1)	180°	0°	0.0	-9.9°	-4.5	2.25
2-45°S T	~	2 (P2)	180°	4°	0.0	-3.3°	-1.5	1.0
3-60°L T	~	4 (P3)	180°	356°	0.0	3.3°	1.5	2.0
4-70°L T	~	5(P4) / 6(R4)	180°	343°	0.0	9.9°	4.5	2.0

Radial TL-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop: MAX
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in/sec.

SP2000 Quad Package - Circumferential P-Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-45°S LKCC	~	1 (P1)	180°	300°	0.0	-3.3°	-1.5	1.0
2-70°L LKCC	~	2(P2) / 3(R2)	180°	292°	0.0	-9.9°	-4.5	2.0
3-45°S LKCW	~	4 (P3)	180°	60°	0.0	3.3°	1.5	1.0
4-70°L LKCW	~	5(P4) / 6(R4)	180°	68°	0.0	9.9°	4.5	2.0

Circumferential P-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop:
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in/sec.



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N4 FW Nozz N4A-2
 ASME Volume OD Radius: 26.0

Description: Nozzle Inner Radius
 Weld Centerline Radius: 12.8
 Nominal Thickness: 6.4

ATTENTION - CHANGE OF PROCEDURE, INDEX INCREMENT AND SCANNER VELOCITY

SP2000 Quad Package - Circumferential N/V IRS-Scan Table - GE-UT-718

Channel	Probe ID	Cable	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-60° LKCC N/V	~	1 (P1)	180°	316.3°	0.0	-3.3°	-1.5	1.0
2-60° LKCC N/V	~	2 (P2)	180°	336.8°	0.0	-9.9°	-4.5	1.0
3-60° LKCW N/V	~	4 (P3)	180°	43.7°	0.0	3.3°	1.5	1.0
4-60° LKCW N/V	~	5 (P4)	180°	~	0.0	9.9°	4.5	1.0

Circumferential N/V IRS-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 1.1°

Scanner Start: Onset of liftoff
 Scanner Stop: .
 Max. Scanner Resolution: ≤ .25 in.
 Max. Scanner Velocity: ≤ 3.9

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

Nir_PDI Dr2 Rev3

MANUAL / AUTOMATED DETECTION								
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON				DATE 10/28/07		
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
RECIRC INLET								
N/V Weld (M)	PLATE	0 - 5.5"	60.0°	-	± 30° - 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	24.6"	1 MHz
Zone 2a (M)	ODBR	55° - 90°	67.5°	-	18.1°	3.3"	12.0"	1 MHz
FEEDWATER								
N/V Weld	PLATE	0 - 8.0"	60.0°	1.5°	48.2° (43.7°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 8.0"	60.0°	4.5°	38.9° (23.2°)	FLAT	14.0"	1 MHz
N/V Weld / Zone 1	ODBR	50° - 90°	43.8°	2.5°	40.3° (31.8°)	3.5"	14.5"	1 MHz
Zone 2a	ODBR	50° - 90°	67.5°	2.5°	21.7° (13.2°)	3.5"	12.5"	1 MHz
Zone 2b	NOZOD	ALL	28.0°	2.5°	68.0°	FLAT	8.7"	2 MHz
Zone 3	NOZOD	ALL	20.0°	2.5°	90°	FLAT	7.4"	2 MHz
FEEDWATER								
N/V Weld (M)	PLATE	0 - 6.0"	60.0°	-	35° - 55°	FLAT	14.0"	1 MHz
N/V Weld / Zone 1-2A (M)	ODBR	50° - 90°	43.8°	-	40.3°	3.5"	14.5"	1 MHz
Zone 2A (M)	ODBR	50° - 90°	67.5°	-	21.7°	3.5"	12.5"	1 MHz
Zone 2b (M)	NOZOD	ALL	28.0°	-	68.0°	FLAT	8.7"	2 MHz
Zone 3 (M)	NOZOD	ALL	20.0°	-	90°	FLAT	7.4"	2 MHz
CORE SPRAY								
N/V Weld/Zone 1	PLATE	0 - 8.0"	60.0°	1.5°	31.1° (24.9°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 10.0"	60.0°	4.5°	45.9° (28.5°)	FLAT	14.0"	1 MHz
Zone 1	PLATE	0 - 10.0"	65.0°	4.5°	23.0° (8.7°)	FLAT	17.5"	1 MHz
Zone 1	PLATE	0 - 10.0"	70.0°	1.5°	12.3° (8.5°)	FLAT	22.2"	1 MHz
Zone 2A	ODBR	55° - 90°	66.3°	2.5°	16.7° (5.1°)	3.1"	10.8"	1 MHz
CORE SPRAY								
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0"	60.0°	-	± 15° - 55°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 23°	FLAT	19.6"	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3°	-	16.7°	3.1"	10.6"	1 MHz

W-025, W-026

W-027, W-028
W-029, W-030

W-027, W-028
W-029, W-030

W-031, W-032

W-031, W-032

NOTES: (M) MANUAL
KX.X° (KX.X°) WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor

SME Review / Date

[Signature]
Site Review / Date

DRESDEN UNIT 2



GE Hitachi Nuclear Energy

SP2000 OD Examination Scan Files Data Sheet

Project : Dresden Unit-2
Component : N4A-1, N4A-2
Procedure No.: GE-UT-716 V1
 GE-UT-718 V0

Revision N/A
Revision N/A

Calibration Report No.: CAL-01
DRR No.: N/A
DRR No.: 07-07

File Name	Date	Drive Start (deg)	Drive Stop (deg)	Drive Direction	Drive Distance (deg)	Start Time	Stop Time
n4a tl 01	11/2/07	-5	365	CW	370	2145	2240
n4a p 01	11/2/07	-5	338	CW	341	1820	1910
n4a p 02	Void	-	-	-	-	-	-
n4a p 03	11/3/07	330	365	CW	35	0231	0248
n4a nv 01	Void	-	-	-	-	-	-
n4a nv 02	11/3/07	-5	133	CW	138	0036	0043
n4a nv 03	11/3/07	130	365	CW	235	0050	0105

COMMENTS: * Rotation angles per the SP2000 scan plan.

Software Revision: 2.2Q14
Couplant: Water
Thermometer S/N: 255152
Vessel Temp.(°F) 92°


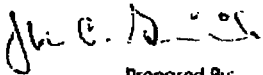
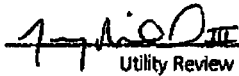

OPERATORS: Jonathan Gullote Lv. II
 Clint Gauthier Lv. II
 Mark Hilborn Lv. III

SEARCH UNIT DATA;			Angle/	Size	Freq.	Rotation
No.	Mfg.	S/N	Mode			
1	RTD	07-189	0°L	1.0"	2.25	°
2	RTD	07-1645	45°S	32 x 22 mm	1.0	°
3	RTD	07-192	60°L	30 x 25 mm	2.0	°
4	RTD	07-1851	70°L	2(12 x 25)mm	2.0	°
1	RTD	07-782	45°S	32 x 22 mm	1.0	°
2	RTD	07-1649	70°L	2(12 x 25)mm	2.0	°
3	RTD	07-783	45°S	32 x 22 mm	1.0	°
4	RTD	07-1650	70°L	2(12 x 25)mm	2.0	°
1	KBA	01LW0V	60°S	0.5 x 1.0"	1.0	°
2	KBA	01LW0W	60°S	0.5 x 1.0"	1.0	°
3	KBA	01LW0X	60°S	0.5 x 1.0"	1.0	°
4	KBA	01LW0Y	60°S	0.5 x 1.0"	1.0	°

2.1.0.12.0.1.1

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 <p>GE Energy Nuclear</p>	<h2 style="margin:0;">Examination Summary Sheet</h2>	Report No.: N48-2
Site: Dresden Unit 2 Outage: D2R20 System: Feedwater	Component ID: 2/1/RPV SHELL/N48-2 Configuration: Nozz-Shell / N/V IRS ASME Cat: B-D	ASME Item: B3.90 Aug. Requirements: N/A
Exams Performed: Calibration Sheet(s): Calibration Block: Procedure: Examination Personnel: NDE Level: Date:	45/S 60/L 70/L 60/S 60/L	D-COD-001 thru 012 99978AQC 99978AQC GE-UT-716 V1 GE-UT-718 V0 GE-UT-300 V10 C. Gauthier J. Guillote M. Hilborn W. Reid LV II LV II LV II LV II LV II
<p>Comments:</p> <p>Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addendo as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Nozzle-to-Vessel Weld.</p> <p>Automated transverse and parallel scans were performed in accordance with procedure GE-UT-716, V1, using 45° Shear wave, 60° RL, and 70° RL search units, supplemental 0° L-Wave scans were also performed.</p> <p>Supplemental Manual 60°RL scans were performed in accordance with procedure GE-UT-300 V10</p> <p>Automated 60° Shear Inner Radius Nozzle to Vessel examinations were performed in accordance with procedure GE-UT-718 V0, DRR No. 07-07 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document".</p> <p>Automated UT scanning was performed from the vessel OD surface and was restricted due to the nozzle configuration and insulation interference.</p> <p>Supplemental manual exams were performed to augment the automated exams.</p> <p>The SP 2000 OD automated UT system 0 reference is located at TDC of nozzle.</p> <p>For SP 2000 automated calibrations refer to report CAL-01.</p> <p>No relevant indications were recorded.</p> <p>Previous examination data was reviewed, with no significant changes noted.</p> <p>Automated and Manual UT Composite Coverage = 39.3%.</p>		
The examination results were compared with data report N48-2 from 1998 outage with <input checked="" type="checkbox"/> No Change These examinations were performed under Work Order: 870087-06 <input type="checkbox"/> Change		
This summary and the following data sheets have been reviewed and accepted by the following personnel:		
 Prepared By:	III Level:	11/4/07 Date:
	 Utility Review By:	11-8-07 Date:
	 ANII Reviewed By:	11/11/07 Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-097

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-050

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

Search Unit Data

CS/CL Flat 7.3"
Material Size Thickness
Initial Cal: 1204 Exam Start: 1350
Cal Check: N/A Exam End: 1425
Cal Check: N/A UltraGel II 02125
Final Cal: 1528 Couplant: Batch
255322 76° F 76° F
Thermometer Initial Cal Temp. Final Cal Temp.

Sigma 228C-02003 21.1x.62 / Rect.
Manufacturer: Serial Number: Size / Shape:
.65" 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 Long
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connect Q's:

Instrument Settings

Pangmetrics / Epoch 4 031572811
Manufacturer/Model: Serial Number:
7.655 μs 0.2245 in./μsec. 0.6 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 20.0 in. Sa. / Med
Rep Rate: Rejection: Range: Pulse:
400 Ohms 0% 3.03 MHz Dual
Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0"</u>	1X	<u>80%</u>	<u>12.1</u>	<u>6.8</u>	<u>6.8</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 70.1 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N4B-2

NOZ-RPV
Configuration:

OD 97° F
Exam Surface: Component Temperature
Weld Examination Exam Access Scan dB Recordable Exam Angle
Area: Indications
*Plate 8"-16" I 70.1 NRI 60

Calibration Verification

Field Simulator Block S/N: N/A
Reflector: N/A N/A N/A
Amplitude: N/A N/A N/A
Gain (dB): N/A N/A N/A
Sweep (SD): N/A N/A N/A

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
SP2000 RPV pick up exam area.
Calibration for full volume examination.
Exams performed to maintain a 10-20% clad roll. Examined 360°

WR Wallace Reid II 11/3/2007
Initials: Examiner Level: Cal/Exam Date:

[Signature] 11-7-07
Utility Reviewed By: Date:

N/A N/A
Initials: Examiner Level: III 11-7-07
GE Reviewed By: Level: Date:

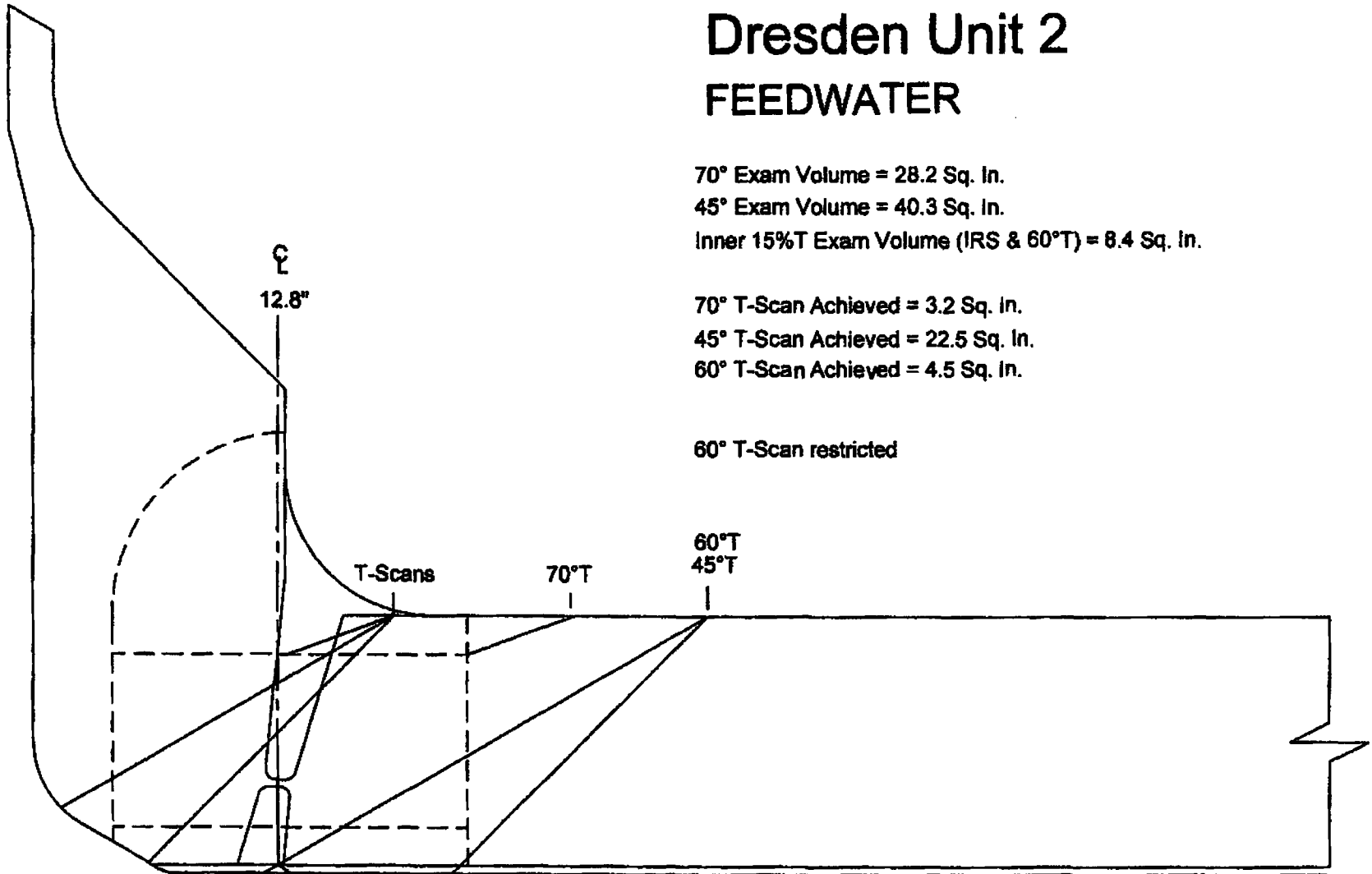
[Signature] 11/16/07
ANII Reviewed By: Date:

Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

70° T-Scan Achieved = 3.2 Sq. In.
45° T-Scan Achieved = 22.5 Sq. In.
60° T-Scan Achieved = 4.5 Sq. In.

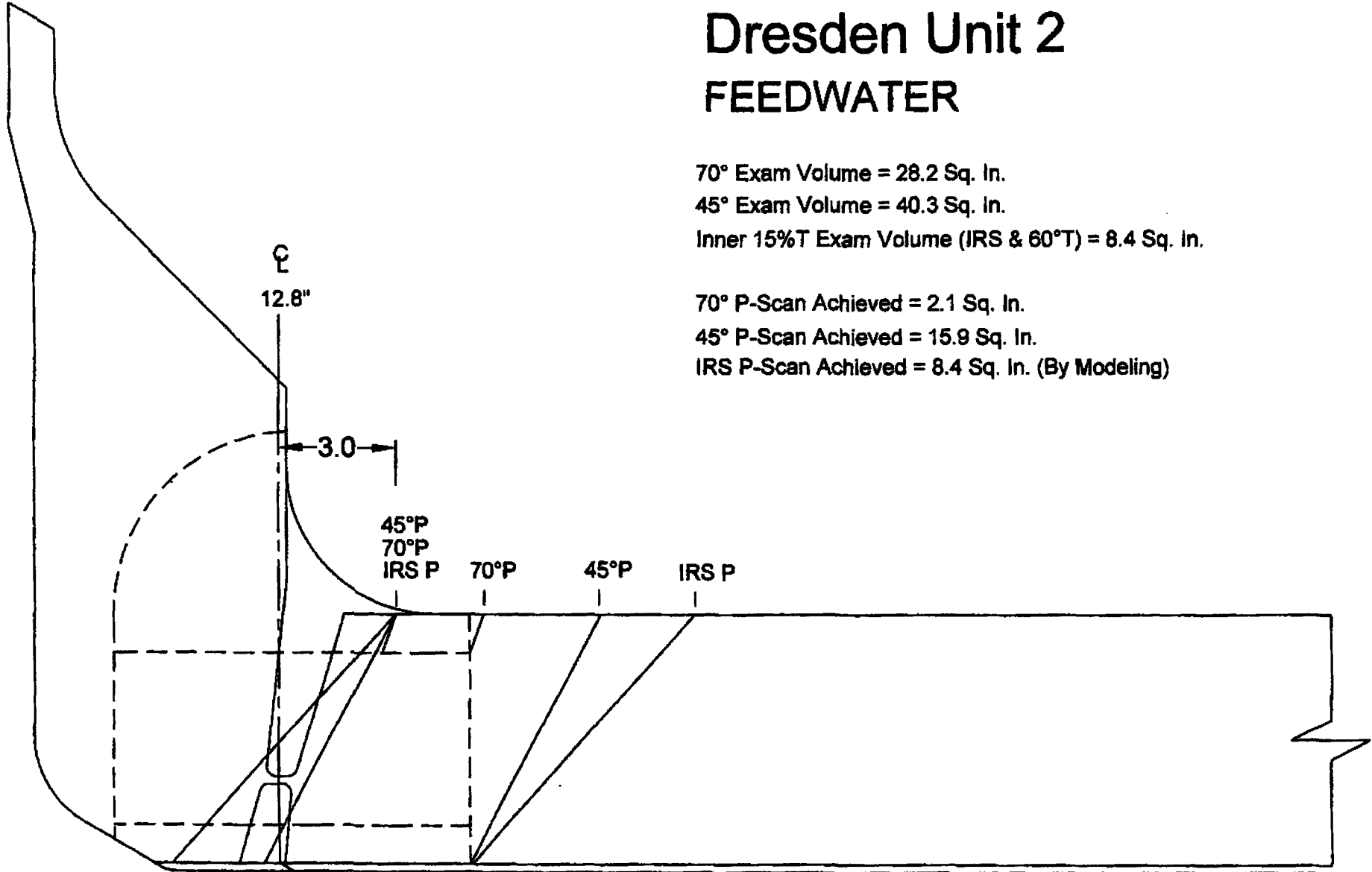
60° T-Scan restricted



Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

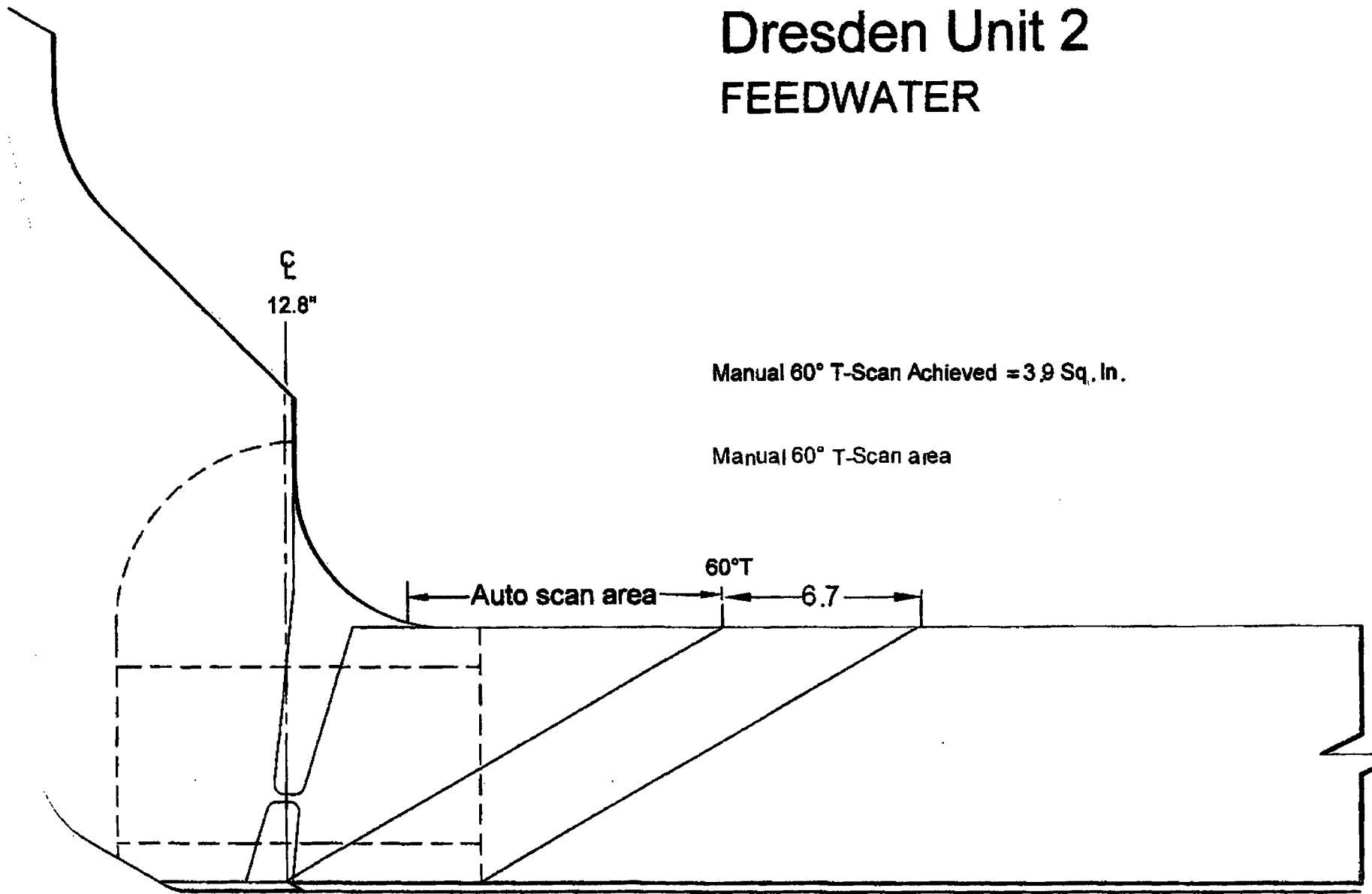
70° P-Scan Achieved = 2.1 Sq. In.
45° P-Scan Achieved = 15.9 Sq. In.
IRS P-Scan Achieved = 8.4 Sq. In. (By Modeling)



Dresden Unit 2 FEEDWATER

Manual 60° T-Scan Achieved = 3.9 Sq. In.

Manual 60° T-Scan area



ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit 2 / D2R20



GE Hitachi Nuclear Energy

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden Unit 2 / D2R20
N4B-2 FW (Noz-Shell)
Fall / 2007

		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
Weld Length =	Exam Volume =	Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
360.	76.9					
60° T-Scan (S4 UC)	A	8.4	4.5	5.9%	360	2.9%
45° T-Scan (S6 FV)	A	40.3	22.5	29.3%	360	14.6%
70° T-Scan (S6 NS)	A	28.2	3.2	4.2%	360	2.1%
IRS P-Scan (S4 UC)	A*	8.4	8.4	10.9%	360	5.5%
45° P-Scan (S6 FV)	A	40.3	15.9	20.7%	360	10.3%
70° P-Scan (S6 NS)	A	28.2	2.1	2.7%	360	1.4%
<hr/>						
60° T-Scan (S4 UC)	B	8.4	3.9	5.1%	360	2.5%
45° T-Scan (S6 FV)			0		0	
70° T-Scan (S6 NS)			0		0	
IRS P-Scan (S4 UC)			0		0	
45° P-Scan (S6 FV)			0		0	
70° P-Scan (S6 NS)			0		0	
<hr/>						
60° T-Scan (S4 UC)			0		0	
45° T-Scan (S6 FV)			0		0	
70° T-Scan (S6 NS)			0		0	
IRS P-Scan (S4 UC)			0		0	
45° P-Scan (S6 FV)			0		0	
70° P-Scan (S6 NS)			0		0	

% Total Composite Coverage = 39.3%

Rev. # 9/23/05

Comments: A - Automated scanning was restricted due to insulation interference.
B - Manual pick-up performed.

A* - Single side access, 50% credit of the achieved Supplement 4 T-scan volume claimed.

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.

Page 7 of 11



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N4 FW Nozzle N4B-2
 ASME Volume OD Radius: 26.0

Description: Nozz Shell
 Weld Centerline Radius: 12.8
 Nominal Thickness: 6.4

SP2000 Quad Package - Radial TL- Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-0°L	~	1 (P1)	180°	0°	0.0	-9.9°	-4.5	2.25
2-45°S T	~	2 (P2)	180°	4°	0.0	-3.3°	-1.5	1.0
3-60°L T	~	4 (P3)	180°	356°	0.0	3.3°	1.5	2.0
4-70°L T	~	5(P4) / 6(R4)	180°	343°	0.0	9.9°	4.5	2.0

Radial TL-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop: 9.00
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in./sec.

SP2000 Quad Package - Circumferential P-Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-45°S LKCC	~	1 (P1)	180°	300°	0.0	-3.3°	-1.5	1.0
2-70°L LKCC	~	2(P2) / 3(R2)	180°	292°	0.0	-9.9°	-4.5	2.0
3-45°S LKCW	~	4 (P3)	180°	60°	0.0	3.3°	1.5	1.0
4-70°L LKCW	~	5(P4) / 6(R4)	180°	68°	0.0	9.9°	4.5	2.0

Circumferential P-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop: 9.00
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in./sec.



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N4 FW Nozzle N4B-2
 ASME Volume OD Radius: 26.0

Description: Nozzle Inner Radius
 Weld Centerline Radius: 12.8
 Nominal Thickness: 6.4

ATTENTION - CHANGE OF PROCEDURE, INDEX INCREMENT AND SCANNER VELOCITY

SP2000 Quad Package - Circumferential N/V IRS-Scan Table - GE-UT-718

Channel	Probe ID	Cable	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-60° LKCC N/V	~	1 (P1)	180°	316.3°	0.0	-3.3°	-1.5	1.0
2-60° LKCC N/V	~	2 (P2)	180°	336.8°	0.0	-9.9°	-4.5	1.0
3-60° LKCW N/V	~	4 (P3)	180°	43.7°	0.0	3.3°	1.5	1.0
4-60° LKCW N/V	~	5 (P4)	180°	23.2°	0.0	9.9°	4.5	1.0

Circumferential N/V IRS-Scans

Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 1.1°

Scanner Start: Onset of liftoff
 Scanner Stop: 8.00 in.
 Max. Scanner Resolution: ≤ .25 in.
 Max. Scanner Velocity: ≤ 3.3

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

Nir_PDI Dr2 Rev3

MANUAL / AUTOMATED DETECTION								
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON			DATE 10/28/07			
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
RECIRC INLET								
N/V Weld (M)	PLATE	0 - 5.5"	60.0°	-	± 30° - 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	24.6"	1 MHz
Zone 2a (M)	ODBR	55° - 90°	67.5°	-	18.1°	3.3"	12.0"	1 MHz
FEEDWATER								
N/V Weld	PLATE	0 - 8.0"	60.0°	1.5"	48.2° (43.7°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 8.0"	60.0°	4.5"	38.9° (23.2°)	FLAT	14.0"	1 MHz
N/V Weld / Zone 1	ODBR	50° - 90°	43.8°	2.5"	40.3° (31.8°)	3.5"	14.5"	1 MHz
Zone 2a	ODBR	50° - 90°	67.5°	2.5"	21.7° (13.2°)	3.5"	12.5"	1 MHz
Zone 2b	NOZOD	ALL	28.0°	2.5"	68.0°	FLAT	8.7"	2 MHz
Zone 3	NOZOD	ALL	20.0°	2.5"	90°	FLAT	7.4"	2 MHz
FEEDWATER								
N/V Weld (M)	PLATE	0 - 6.0"	60.0°	-	35° - 55°	FLAT	14.0"	1 MHz
N/V Weld / Zone 1-2A (M)	ODBR	50° - 90°	43.8°	-	40.3°	3.5"	14.5"	1 MHz
Zone 2A (M)	ODBR	50° - 90°	67.5°	-	21.7°	3.5"	12.5"	1 MHz
Zone 2b (M)	NOZOD	ALL	28.0°	-	68.0°	FLAT	8.7"	2 MHz
Zone 3 (M)	NOZOD	ALL	20.0°	-	90°	FLAT	7.4"	2 MHz
CORE SPRAY								
N/V Weld/Zone 1	PLATE	0 - 8.0"	60.0°	1.5"	31.1° (24.9°)	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 10.0"	60.0°	4.5"	45.9° (28.5°)	FLAT	14.0"	1 MHz
Zone 1	PLATE	0 - 10.0"	65.0°	4.5"	23.0° (5.7°)	FLAT	17.5"	1 MHz
Zone 1	PLATE	0 - 10.0"	70.0°	1.5"	12.3° (8.5°)	FLAT	22.2"	1 MHz
Zone 2A	ODBR	55° - 90°	66.3°	2.5"	16.7° (5.1°)	3.1"	10.8"	1 MHz
CORE SPRAY								
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0"	60.0°	-	± 15° - 55°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 23°	FLAT	19.6"	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3°	-	16.7°	3.1"	10.6"	1 MHz

W-025, W-026

W-027, W-028
W-029, W-030

W-027, W-028
W-029, W-030

W-031, W-032

W-031, W-032

NOTES: (M) MANUAL
XX.X° (DXX.X°) WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor
SME Review / Date

[Signature]
Site Review / Date

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2



GE Hitachi Nuclear Energy

SP2000 OD Examination Scan Files Data Sheet

Project : Dresden Unit-2
Component : N4B-2
Procedure No.: GE-UT-716 V1
GE-UT-718 V0

Revision N/A
Revision N/A

Calibration Package Report No.: CAL-01
DRR No.: N/A
DRR No.: 07-07

<i>File Name</i>	<i>Date</i>	<i>Drive Start (deg)</i>	<i>Drive Stop (deg)</i>	<i>Drive Direction</i>	<i>Drive Distance (deg)</i>	<i>Start Time</i>	<i>Stop Time</i>
n4b tl 01	11/3/07	365	-5	CCW	-370	1805	1902
n4b p 01	11/3/07	-5	365	CW	370	1625	1747
n4b nv 01	11/3/07	-5	365	CW	370	1940	2024

COMMENTS: * Rotation angles per the SP2000 scan plan.

Software Revision: 2.2Q14
Couplant: Water
Thermometer S/N: 255152
Vessel Temp.(°F) 98°

OPERATORS: Jonathan Guillote Lv. II
Clint Gauthier Lv. II
Mark Hilborn Lv. III

SEARCH UNIT DATA;			Angle/	Size	Freq	Rotation
No.	Mfg	S/N	Mode			
1	RTD	07-189	0°L	1.0"	2.25	*
2	RTD	07-1645	45°S	32 x 22 mm	1.0	*
3	RTD	07-192	60°L	30 x 25 mm	2.0	*
4	RTD	07-1651	70°L	2(12 x 25)mm	2.0	*
1	RTD	07-782	45°S	32 x 22 mm	1.0	*
2	RTD	07-1649	70°L	2(12 x 25)mm	2.0	*
3	RTD	07-783	45°S	32 x 22 mm	1.0	*
4	RTD	07-1650	70°L	2(12 x 25)mm	2.0	*
1	KBA	01LW0V	60°S	0.5 x 1.0"	1.0	*
2	KBA	01LW0W	60°S	0.5 x 1.0"	1.0	*
3	KBA	01LW0X	60°S	0.5 x 1.0"	1.0	*
4	KBA	01LW0Y	60°S	0.5 x 1.0"	1.0	*

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ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE Energy Nuclear	Examination Summary Sheet	Report No.: N4C-2
--	----------------------------------	-------------------

Site: Dresden Unit 2	Component ID: 2/1/RPV SHELL/N4C-2	Outage: D2R20	Configuration: Nozz-Shell / N/V IRS
System: Feedwater	ASME Cat: B-D	ASME Item: B3.90	Aug. Requirements: N/A

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45/S	D-COD-001 thru 012	99978AQC	GE-UT-716 V1	C. Gauthier	LV II	11/03/07
60/L			GE-UT-718 V0	J. Guillote	LV II	
70/L				M. Hilborn	LV II	
60/S						
60/L	D-053	99978AQC	GE-UT-300 V10	W. Reid	LV II	11/04/07

Comments:

Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Nozzle-to-Vessel Weld.

Automated transverse and parallel scans were performed in accordance with procedure GE-UT-716, V1, using 45° Shear wave, 60° RL, and 70° RL search units, supplemental 0° L-Wave scans were also performed.

Supplemental Manual 60°RL scans were performed in accordance with procedure GE-UT-300 V10

Automated 60° Shear Inner Radius Nozzle to Vessel examinations were performed in accordance with procedure GE-UT-718 V0, DRR No. 07-07 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document".

Automated UT scanning was performed from the vessel OD surface and was restricted due to the nozzle configuration and insulation interference.

Supplemental manual exams were performed to augment the automated exams.

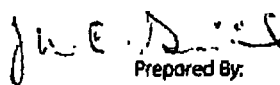


The SP 2000 OD automated UT system 0 reference is located at TDC of nozzle.

For SP 2000 automated calibrations refer to report CAL-01.

No relevant indications were recorded.
 Previous examination data was reviewed, with no significant changes noted.
 Automated and Manual UT Composite Coverage = 39.3%.

The examination results were compared with data report	N4C-2	from	1998	outage with	<input checked="" type="checkbox"/> No Change
These examinations were performed under Work Order:	870087-06				<input type="checkbox"/> Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

 Prepared By:	III Level	11-4-07 Date:	 Utility Review By:	11-8-07 Date:
			 ANII Reviewed By:	11/11/07 Date:

Dresden Unit-2



GE Hitachi Nuclear Energy

SP2000 Examination Data Sheet

Project : Dresden Unit-2
Component : N4C-2

Summary No.: N4C-2
Exam Data Sheet: N4C-2-01

File	Scan Type	Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7	Ch. 8	Ch. 9	Ch. 10	Ch. 11	Ch. 12
n4c_tl_01	TL	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n4c_p_01	P	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n4c_nv_01	N/V	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~

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Comments: Analyzed by Brad Dummer Level III 11/04/2007 *BD*
 Non-recordable reflectors due to welding artifacts observed throughout the length of the weld.
 The symbol ~ indicates "No entry required" or "Not Applicable". NRI indicates "No Recordable Indications".

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-095

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-053

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

Search Unit Data

CS/CL Flat 7.5"
Material Size Thickness
Initial Cal: 1204 Exam Start: 14:30
Cal Check: N/A Exam End: 15:00
Cal Check: N/A Ultrage II 02125
Final Cal: 1528 Couplant: Batch
255322 76° F 76° F
Thermometer Initial Cal Temp. Final Cal Temp.

Sigma 22BC-02003 2fl. 1x.62l / Rect.
Manufacturer: Serial Number: Size / Shape:
.65° 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 Long
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031572011
Manufacturer/Model: Serial Number:
7.655 us 0.2245 in./usec. 0.8 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 20.0 in. Sg. / Med
Rep Rate: Rectification: Range: Pulse:
400 Ohms 0% 3.03 MHz Dual
Damping: Reject: Frequency: Mode:
Off Off Off Off
DAC: TVG: CSC: DGS:

DAC Construction

Reflector ID	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
	<u>7.0"</u>	1X	<u>80%</u>	<u>12.1</u>	<u>6.8</u>	<u>6.0</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 70.1 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N4C-2

NOZ-RPV
Configuration:

OD 97° F
Exam Surface: Component Temperature
Weld Examination Area: Exam Access Scan dB Recordable Indications Exam Angle
*Plate 8"-16" I 70.1 NRI 60

Calibration Verification

Field Simulator Block S/N: N/A
Reflector: N/A N/A N/A
Amplitude: N/A N/A N/A
Gain (dB): N/A N/A N/A
Sweep (SD): N/A N/A N/A

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
SP2000 RPV pick up exam area.
Calibration for full volume examination.
Exams performed to maintain a 10-20% clad roll. Examined 360°

WWR Wallace Reid I 11/4/2007
Initials: Examiner Level: Ca Exam Date:

[Signature] 11-7-07
Utility Reviewed By: Date:

N/A N/A
Initials: Examiner Level: Ca
[Signature] 11/1/07
Reviewed By: Level: Date:

[Signature] 11/1/07
Reviewed By: Date:

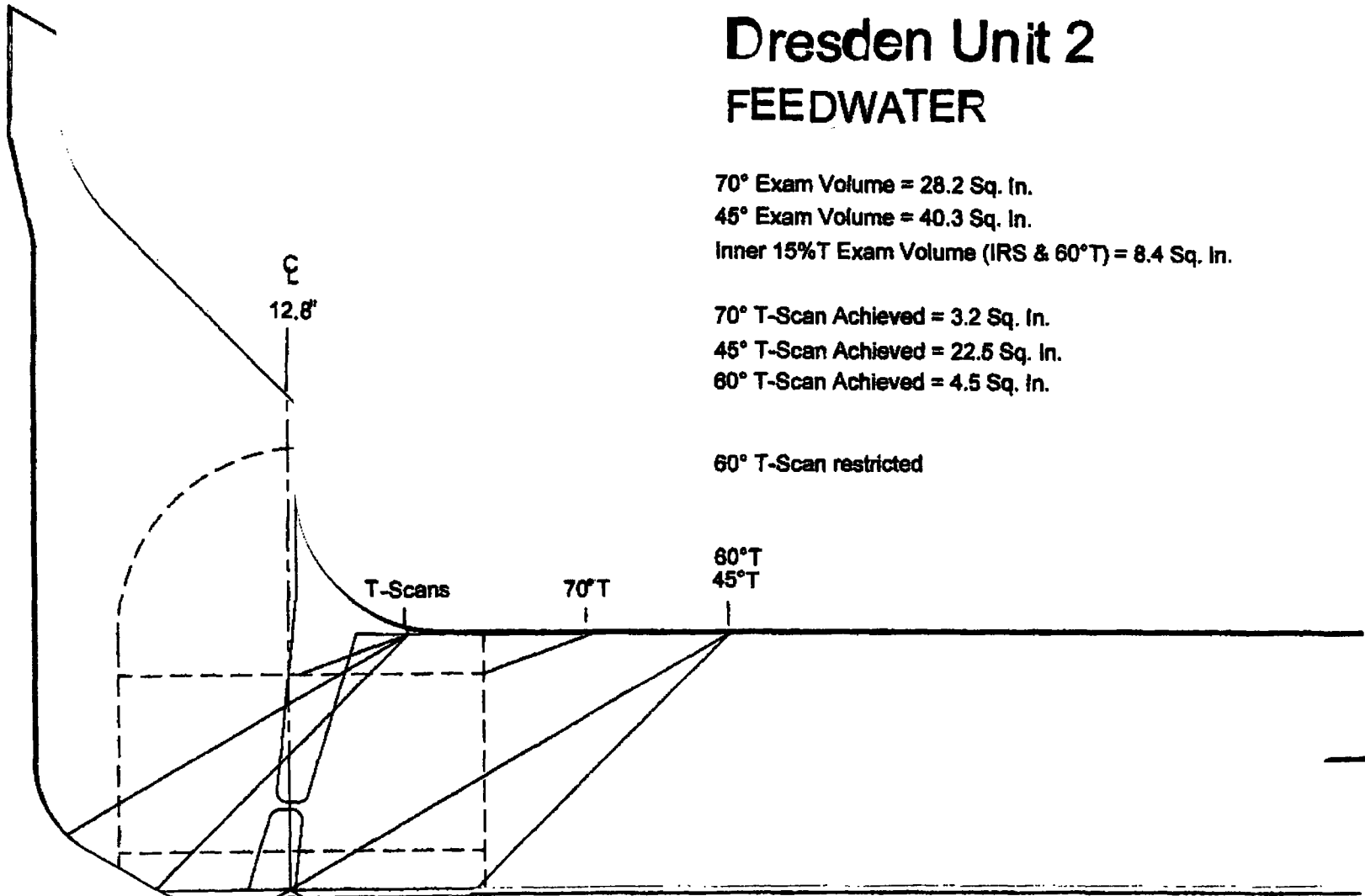
Dresden Unit 2, 2007, D2R2n

Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

70° T-Scan Achieved = 3.2 Sq. In.
45° T-Scan Achieved = 22.5 Sq. In.
60° T-Scan Achieved = 4.5 Sq. In.

60° T-Scan restricted

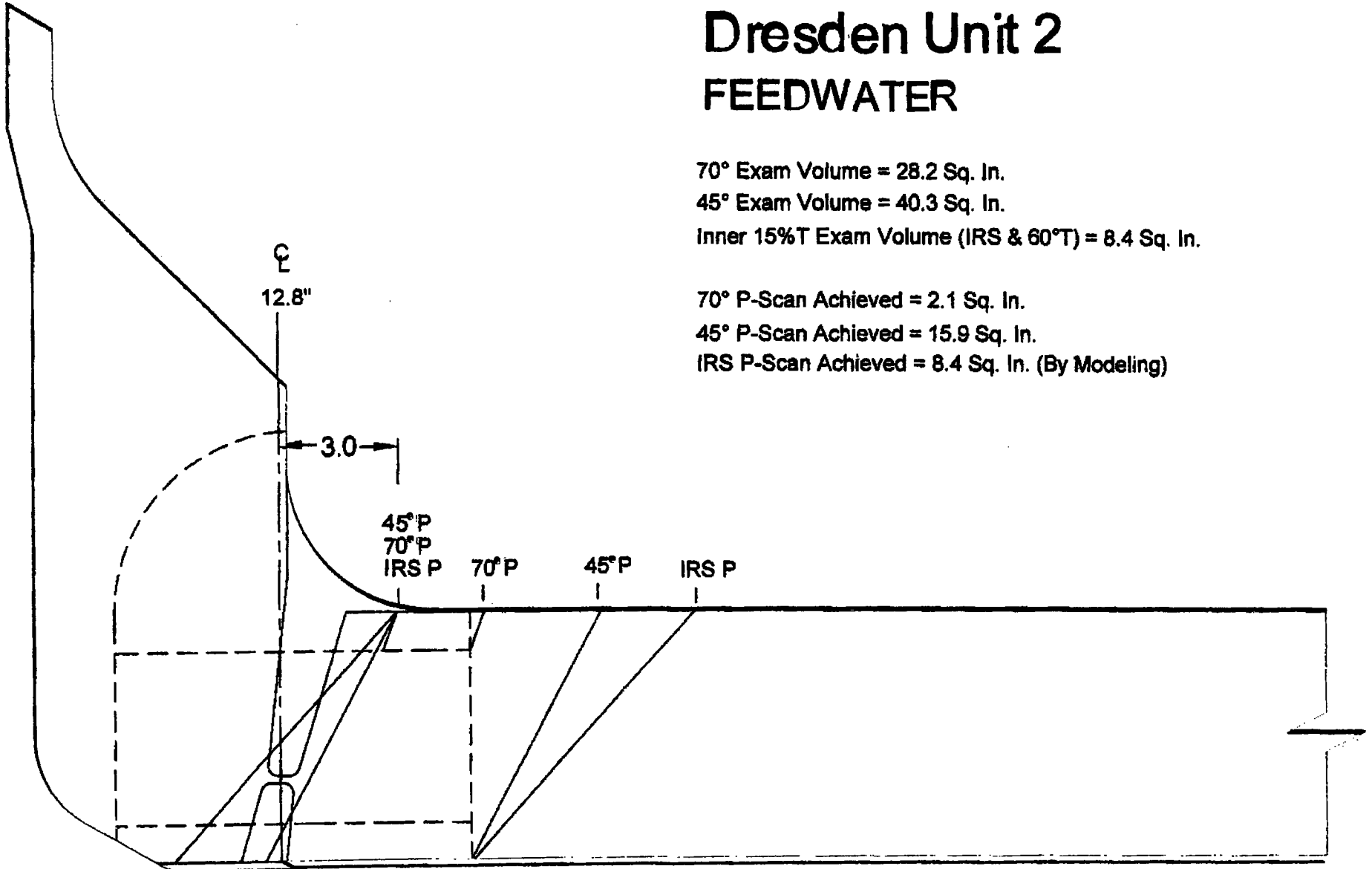


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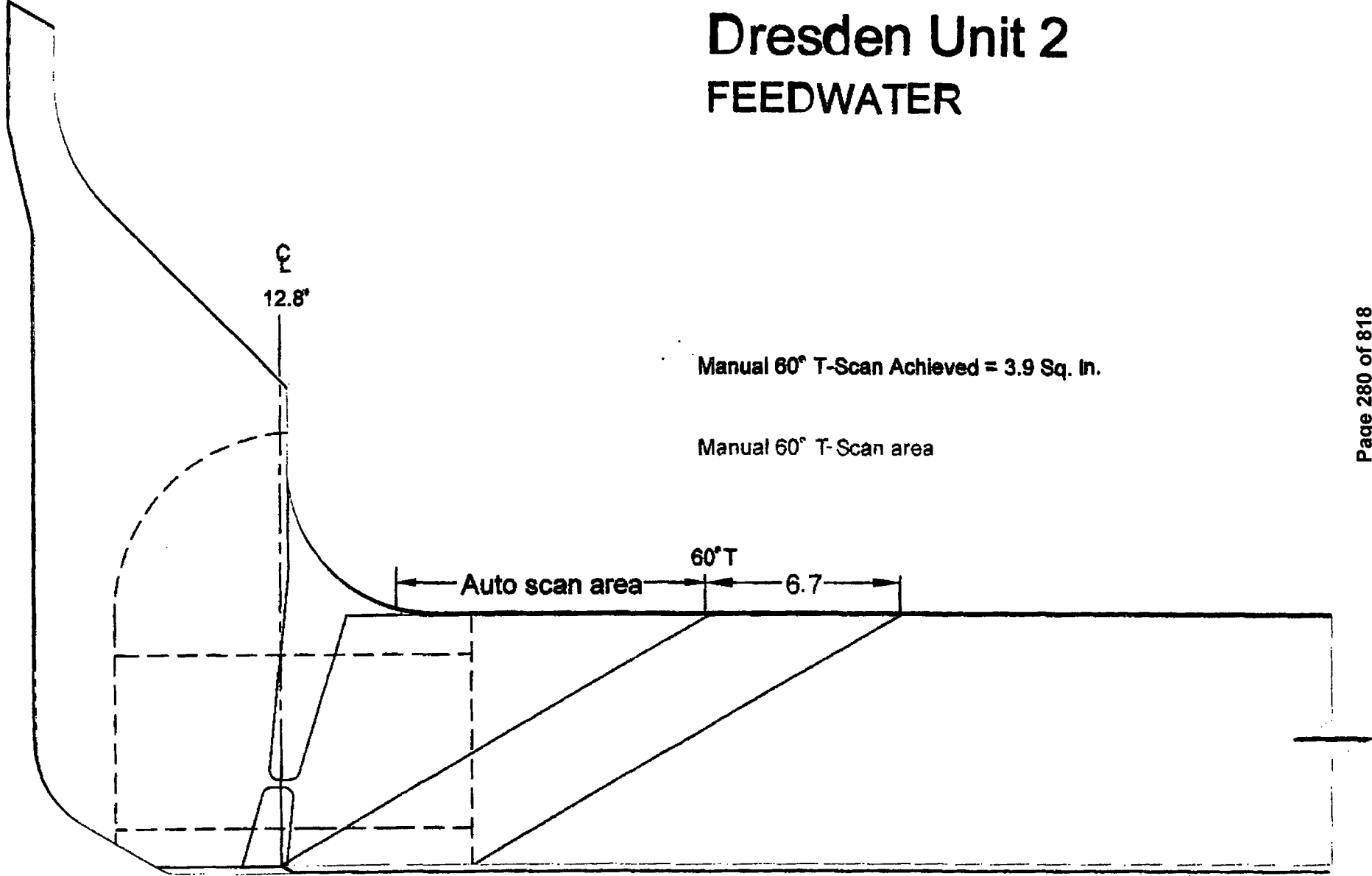
Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

70° P-Scan Achieved = 2.1 Sq. In.
45° P-Scan Achieved = 15.9 Sq. In.
IRS P-Scan Achieved = 8.4 Sq. In. (By Modeling)



Dresden Unit 2 FEEDWATER



Manual 60° T-Scan Achieved = 3.9 Sq. In.

Manual 60° T-Scan area

ATTACHMENT 2
 Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit 2 / D2R20



GE Hitachi Nuclear Energy

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden Unit 2 / D2R20
 N4C-2 FW (Noz-Shell)
 Fall / 2007

		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
Weld Length = 360. Exam Volume = 76.9		Required Exam Area Sq. In.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
60° T-Scan (S4 UC)	A	8.4	4.5	5.9%	360	2.9%
45° T-Scan (S6 FV)	A	40.3	22.5	29.3%	360	14.6%
70° T-Scan (S6 NS)	A	28.2	3.2	4.2%	360	2.1%
IRS P-Scan (S4 UC)	A*	8.4	8.4	10.9%	360	5.5%
45° P-Scan (S6 FV)	A	40.3	15.9	20.7%	360	10.3%
70° P-Scan (S6 NS)	A	28.2	2.1	2.7%	360	1.4%
60° T-Scan (S4 UC)	B	8.4	3.9	5.1%	360	2.5%
45° T-Scan (S6 FV)						
70° T-Scan (S6 NS)						
IRS P-Scan (S4 UC)						
45° P-Scan (S6 FV)						
70° P-Scan (S6 NS)						
60° T-Scan (S4 UC)						
45° T-Scan (S6 FV)						
70° T-Scan (S6 NS)						
IRS P-Scan (S4 UC)						
45° P-Scan (S6 FV)						
70° P-Scan (S6 NS)						

% Total Composite Coverage = 39.3%

Rev. 0 9/23/05

Comments: A - Automated scanning was restricted, due to insulation interference.
 B - Manual pick-up performed.

A* - Single side access, 50% credit of the achieved Supplement 4 T-scan volume claimed.

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.

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GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N4 FW Nozzle N4C-2
 ASME Volume OD Radius: 26.0

Description: Nozz Shell
 Weld Centerline Radius: 12.8
 Nominal Thickness: 6.4

SP2000 Quad Package - Radial TL- Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-0°L	~	1 (P1)	180°	0°	0.0	-9.9°	-4.5	2.25
2-45°S T	~	2 (P2)	180°	4°	0.0	-3.3°	-1.5	1.0
3-60°L T	~	4 (P3)	180°	356°	0.0	3.3°	1.5	2.0
4-70°L T	~	5(P4) / 6(R4)	180°	343°	0.0	9.9°	4.5	2.0

Radial TL-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop:
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in/sec.

SP2000 Quad Package - Circumferential P-Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-45°S LKCC	~	1 (P1)	180°	300°	0.0	-3.3°	-1.5	1.0
2-70°L LKCC	~	2(P2) / 3(R2)	180°	292°	0.0	-9.9°	-4.5	2.0
3-45°S LKCW	~	4 (P3)	180°	60°	0.0	3.3°	1.5	1.0
4-70°L LKCW	~	5(P4) / 6(R4)	180°	68°	0.0	9.9°	4.5	2.0

Circumferential P-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop:
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in/sec.



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N4 FW Nozzle N4C-2
ASME Volume OD Radius: 26.0

Description: Nozzle Inner Radius
Weld Centerline Radius: 12.8
Nominal Thickness: 6.4

ATTENTION - CHANGE OF PROCEDURE, INDEX INCREMENT AND SCANNER VELOCITY

SP2000 Quad Package - Circumferential N/V IRS-Scan Table - GE-UT-718

Channel	Probe ID	Cable	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-60° LKCC N/V	~	1 (P1)	180°	316.3°	0.0	-3.3°	-1.5	1.0
2-60° LKCC N/V	~	2 (P2)	180°	336.8°	0.0	-9.9°	-4.5	1.0
3-60° LKCW N/V	~	4 (P3)	180°	336.8°	0.0	3.3°	1.5	1.0
4-60° LKCW N/V	~	5 (P4)	180°	336.8°	0.0	9.9°	4.5	1.0

Circumferential N/V IRS-Scans			Scanner Start: Onset of liftoff	
Index Start:	-5°		Scanner Stop: 365°	
Index Stop:	365°		Max. Scanner Resolution: ≤ .25 in.	
Max. Index Increment:	≤ 1.1°		Max. Scanner Velocity: ≤ 3.3	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

Nir_PDI Dr2 Rev3

MANUAL / AUTOMATED DETECTION								
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON			DATE 10/28/07			
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
RECIRC INLET								
N/V Weld (M)	PLATE	0 - 5.5°	60.0°	-	± 30° - 60°	FLAT	14.0°	1 MHz
Zone 1 (M)	PLATE	0 - 9.0°	70.0°	-	± 30°	FLAT	24.6°	1 MHz
Zone 2a (M)	ODBR	55° - 90°	67.5°	-	18.1°	3.3°	12.0°	1 MHz
FEEDWATER								
N/V Weld	PLATE	0 - 8.0°	60.0°	1.5°	48.2° (43.7°)	FLAT	14.0°	1 MHz
N/V Weld	PLATE	0 - 8.0°	60.0°	4.5°	38.9° (23.2°)	FLAT	14.3°	1 MHz
N/V Weld / Zone 1	ODBR	50° - 90°	43.8°	2.5°	40.3° (31.8°)	3.5°	14.5°	1 MHz
Zone 2a	ODBR	50° - 90°	67.5°	2.5°	21.7° (13.2°)	3.5°	12.5°	1 MHz
Zone 2b	NOZOD	ALL	28.0°	2.5°	68.0°	FLAT	8.7°	2 MHz
Zone 3	NOZOD	ALL	20.0°	2.5°	90°	FLAT	7.4°	2 MHz
FEEDWATER								
N/V Weld (M)	PLATE	0 - 6.0°	60.0°	-	35° - 55°	FLAT	14.0°	1 MHz
N/V Weld / Zone 1-2A (M)	ODBR	50° - 90°	43.8°	-	40.3°	3.5°	14.5°	1 MHz
Zone 2A (M)	ODBR	50° - 90°	67.5°	-	21.7°	3.5°	12.5°	1 MHz
Zone 2b (M)	NOZOD	ALL	28.0°	-	68.0°	FLAT	8.7°	2 MHz
Zone 3 (M)	NOZOD	ALL	20.0°	-	90°	FLAT	7.4°	2 MHz
CORE SPRAY								
N/V Weld/Zone 1	PLATE	0 - 8.0°	60.0°	1.5°	31.1° (24.9°)	FLAT	14.0°	1 MHz
N/V Weld	PLATE	0 - 10.0°	60.0°	4.5°	45.9° (28.5°)	FLAT	14.0°	1 MHz
Zone 1	PLATE	0 - 10.0°	65.0°	4.5°	23.0° (5.7°)	FLAT	17.5°	1 MHz
Zone 1	PLATE	0 - 10.0°	70.0°	1.5°	12.3° (8.5°)	FLAT	22.2°	1 MHz
Zone 2A	ODBR	55° - 90°	66.3°	2.5°	16.7° (5.1°)	3.1°	10.8°	1 MHz
CORE SPRAY								
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0°	60.0°	-	± 15° - 55°	FLAT	14.0°	1 MHz
Zone 1 (M)	PLATE	0 - 6.0°	70.0°	-	± 23°	FLAT	19.6°	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3°	-	16.7°	3.1°	10.6°	1 MHz

W-025, W-026

W-027, W-028
W-029, W-030

W-027, W-028
W-029, W-030

W-031, W-032

W-031, W-032

NOTES:	(M)	MANUAL
	XX.X° (XX.X°)	WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor
SME Review / Date

[Signature]
Site Review / Date

Dresden Unit 2



GE Hitachi Nuclear Energy

SP2000 OD Examination Scan Files Data Sheet

Project : Dresden Unit-2
Component : N4C-2
Procedure No.: GE-UT-716 V1
 GE-UT-718 V0

Revision N/A
Revision N/A

Calibration Package Report No.: CAL-01
DRR No.: N/A
DRR No.: 07-07

File Name	Date	Drive Start (deg)	Drive Stop (deg)	Drive Direction	Drive Distance (deg)	Start Time	Stop Time
n4c tl_01	11/4/07	-5	365	CW	370	0345	0445
n4c p_01	11/4/07	365	-5	CCW	-370	0505	0558
n4c nv_01	11/4/07	365	-5	CCW	-370	0306	0331

COMMENTS: * Rotation angles per the SP2000 scan plan.

Software Revision: 2.2Q14
Couplant: Water
Thermometer S/N: 255152
Vessel Temp.(°F) 90°



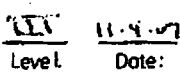


OPERATORS: Jonathan Guillote Lv. II
 Clint Gauthier Lv. II
 Mark Hilborn Lv. III

SEARCH UNIT DATA:			Angle/	Size	Freq.	Rotation
No.	Mfg.	S/N	Mode			
1	RTD	07-189	0°L	1.0"	2.25	*
2	RTD	07-1645	45°S	32 x 22 mm	1.0	*
3	RTD	07-192	60°L	30 x 25 mm	2.0	*
4	RTD	07-1651	70°L	2(12 x 25)mm	2.0	*
1	RTD	07-782	45°S	32 x 22 mm	1.0	*
2	RTD	07-1649	70°L	2(12 x 25)mm	2.0	*
3	RTD	07-783	45°S	32 x 22 mm	1.0	*
4	RTD	07-1650	70°L	2(12 x 25)mm	2.0	*
1	KBA	01LW0V	60°S	0.5 x 1.0"	1.0	*
2	KBA	01LW0W	60°S	0.5 x 1.0"	1.0	*
3	KBA	01LW0X	60°S	0.5 x 1.0"	1.0	*
4	KBA	01LW0Y	60°S	0.5 x 1.0"	1.0	*

Page 11 of 11

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE Energy Nuclear	<h1 style="margin:0;">Examination Summary Sheet</h1>	Report No.: N4D-2
Site: Dresden Unit 2 Outage: D2R20 System: Feedwater	Component ID: 2/1/RPV SHELL/N4D-2 Configuration: Nozz-Shell / N/V IRS ASME Cat: B-D	ASME Item: B3.90 Aug. Requirements: N/A
Exams Performed: Calibration Sheet(s): Calibration Block:	Procedure: Examination Personnel:	NDE Level Date:
45/S 60/L 70/L 60/S	D-COD-001 thru 012 99978AQC GE-UT-716 V1 GE-UT-718 V0 C. Gauthier J. Guillote M. Hilborn	LV II LV II LV II 11/03/07
60/L 60/S	D-057 D-056 99978AQC GE-UT-300 V10 GE-UT-311 V15 W. Reid M. Riccardelli	LV II LV II 11/03/07 11/03/07
<p>Comments:</p> <p>Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Nozzle to Vessel Weld.</p> <p>Automated transverse and parallel scans were performed in accordance with procedure GE-UT-716, V1, using 45° Shear wave, 60° RL, and 70° RL search units, supplemental 0° L-Wave scans were also performed. Supplemental Manual 60°RL scans were performed in accordance with procedure GE-UT-300 V10</p> <p>Automated 60° Shear Inner Radius Nozzle to Vessel examinations were performed in accordance with procedure GE-UT-718 V0, DRR No. 07-07 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document".</p> <p>Supplemental 60° Shear Inner Radius Nozzle to Vessel scans were performed in accordance with procedure GE-UT-311 V15 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document".</p> <p>Automated UT scanning was performed from the vessel OD surface and was restricted due to the nozzle configuration and insulation interference. Supplemental manual exams were performed to augment the automated exams.</p> <p>The SP 2000 OD automated UT system 0 reference is located at TDC of nozzle.</p> <p>For SP 2000 automated calibrations refer to report CAL-01.</p> <p>No relevant indications were recorded. Previous examination data was reviewed, with no significant changes noted. Automated and Manual UT Composite Coverage = 39.3%.</p>		
The examination results were compared with data report N4D-2 from 1998 outage with <input checked="" type="checkbox"/> No Change These examinations were performed under Work Order: 870087-06 <input type="checkbox"/> Change		
This summary and the following data sheets have been reviewed and accepted by the following personnel:		
 Prepared By:	 Level: _____ Date: 11-9-07	 Utility Review By: _____ Date: 11-8-07
 ANI Reviewed By: _____		Date: 11/12/07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**



Site/Unit: Dresden / 2
Outage: D2R20

Date Report Number: D2R20-099 Linearity Sheet: L-005
Data Sheet Number: D-066

Procedure: GE-UT-311

Rev: 15 DRR: N/A

Calibration Data for Block: 99978AQC

Search Unit Data

CS/CL Flat 7.3"
Material Size Thickness
Initial Cal: 1530 Exam Start: 19:38
Cal Check: N/A Exam End: 19:56
Cal Check: N/A Ultrageel II 02125
Final Cal: 2101 Couplant: Batch
255322 76° F 76° F
Thermometer Initial Cal Temp. Final Cal Temp.

K BA 00L323 .50" x 1.0" Rect.
Manufacturer: Serial No.: Size/Shape:
0.7 in. 60° 60°
Incident Point: Nominal Angle: Measured Angle:
1.0 MHz 113-291-600 Shear
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>6.8</u>	1X	<u>80%</u>	<u>11.2</u>	<u>13.6</u>	<u>6.8</u>
<u>N/A</u>	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Instrument Settings

Panametrics / Epoch 4 031540406
Manufacturer/Model: Serial No.:

DAC @ 1X = 49 dB

15.62 µs 0.1277 in /µsec 0.8 - 3.0 MHz
Zero: Velocity: Narrowband Filter:

Sweep 0-10 = 20" Metal Path

Auto Fullwave 20.0 in. Sa. / Med
Rep Rate: Rectification: Range: Pulse Energy
400 Ohms N/A 1.0 MHz P/E
Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

Acceptable Linearity performed: 10/27/2007

Exam Data for Component: 2/1/RPV SHELL/N4D-2

NOZ-RPV
Configuration:

OD Plate 97° F
Exam Surface: Component Temp.

Calibration Verification

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0-6.0"</u>	<u>60°</u>	<u>35°-55°</u>	<u>N/A</u>	<u>55</u>	<u>NRI</u>

Field Simulator Block S/N: N/A
Reflector N/A N/A N/A
Amplitude N/A N/A N/A
Gain (dB) N/A N/A N/A
Sweep (SD) N/A N/A N/A

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

SP2000 RPV pick up exam area.
Exams performed to maintain a 20 - 30% FSH clad roll.
Scanned CW and CCW. 360°
Calibration for nozzle to vessel weld.

Michael Riccardelli II 11/3/2007
Initials: Examiner: Level: Co/Exam Date:

[Signature] III 11-7-07
Utility Reviewed By: Date:

[Signature] III 11-7-07
GE Reviewed By: Level: Date:

[Signature] 11/2/07
A Nil Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2
Outage: D2R20

Data Report Number: D2R20-099 Linearity Sheet: L-004
Data Sheet Number: D-057

Procedure: GE-UT-300

Rev.: 10 DRR: N/A

Calibration Block: 99978AQC

Search Unit Data

CS/CL Material: Flat Size: 7.3" Thickness
Initial Cal: 1620 Exam Start: 19:35
Cal Check: N/A Exam End: 20:20
Cal Check: N/A Ultragal II 02125
Final Cal: 2110 Couplant: Batch
255322 Thermometer Initial Cal Temp: 76° F Final Cal Temp: 76° F

Sigma 228C-02003 2(1.1x.62) / Rect.
Manufacturer: Serial Number: Size / Shape:
.65" 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 Long
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 031572811
Manufacturer/Model: Serial Number:
7.655 us 0.2245 in./usec. 0.8 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 20.0 in. Sg. / Med
Rep Rate: Rectification: Range: Pulsar:
400 Ohms 0% 3.03 MHz Dual
Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
10	<u>7.0"</u>	1K	<u>80%</u>	<u>12.1</u>	<u>6.8</u>	<u>6.8</u>
		1K				
		1K				
		1X				
		1X				

DAC 1X= 70.1 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N4D-2

NOZ-RPV
Configuration:

OD Exam Surface: 97° F Component Temperature
Weld Examination Area: Exam Access Scan dB Recordable Indications Exam Angle
*Plate 8"-16" I 70.1 NR 60

Calibration Verification

Field Simulator Block S/N: N/A
Reflector: N/A N/A N/A
Amplitude: N/A N/A N/A
Gain (dB): N/A N/A N/A
Sweep (SDI): N/A N/A N/A

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

SP2000 RPV pick up exam area.

Calibration for full volume examination.

Exams performed to maintain a 10-20% clad roll. Examined 360°

WWR Wallace Reid
Initials: Examiner

II 11/3/2007
Level: Cal/Exam Date:

[Signature]
Utility Reviewed By:

11-7-07
Date:

N/A
Initials: Examiner
[Signature]
GE Reviewed By:

N/A
Level:
III 11/3/07
Level Date:

[Signature]
ANI Reviewed By:

11/12/07
Date:

Dresden Unit 2 2007 NDE

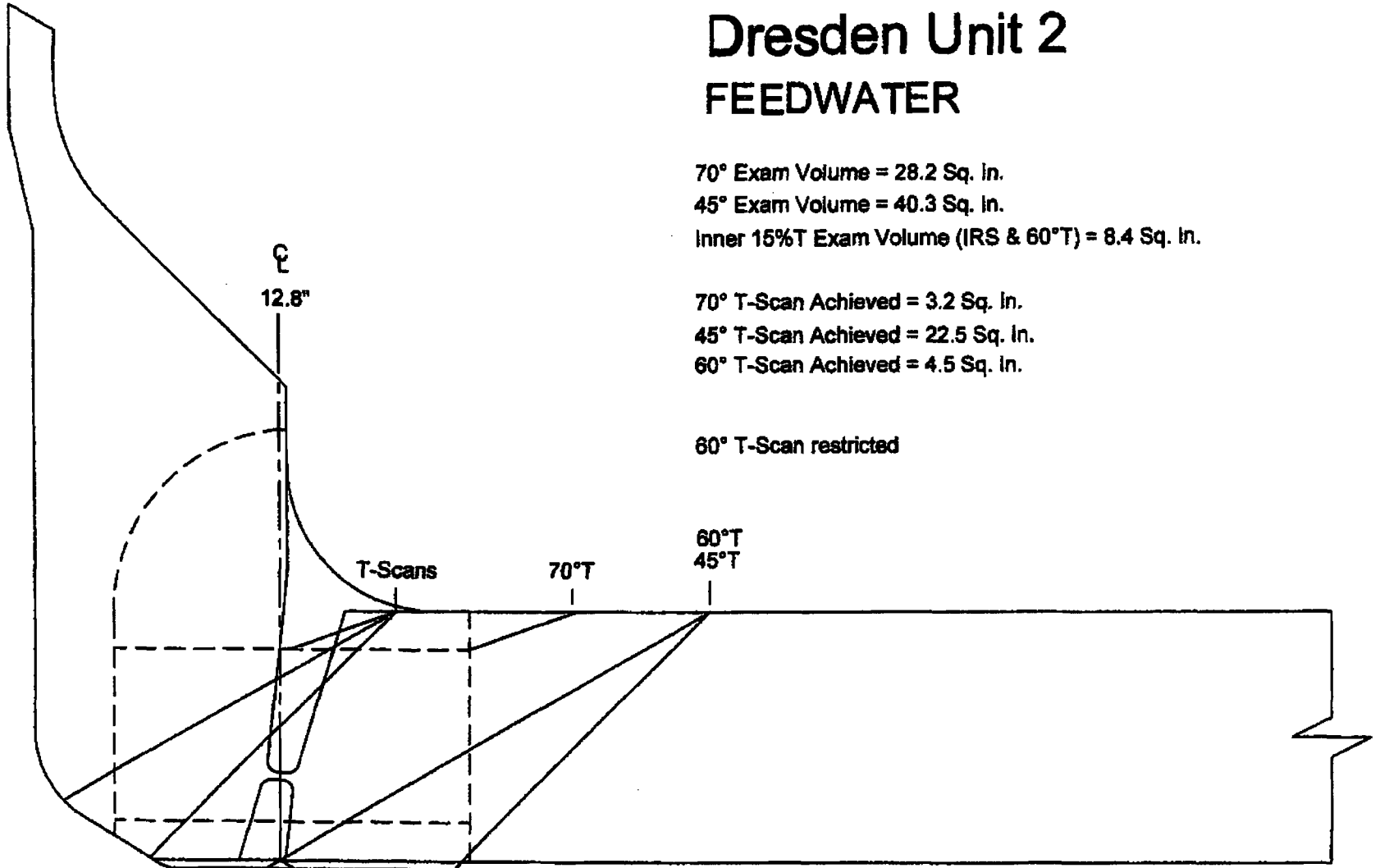
Page 5 of 12

Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

70° T-Scan Achieved = 3.2 Sq. In.
45° T-Scan Achieved = 22.5 Sq. In.
60° T-Scan Achieved = 4.5 Sq. In.

60° T-Scan restricted

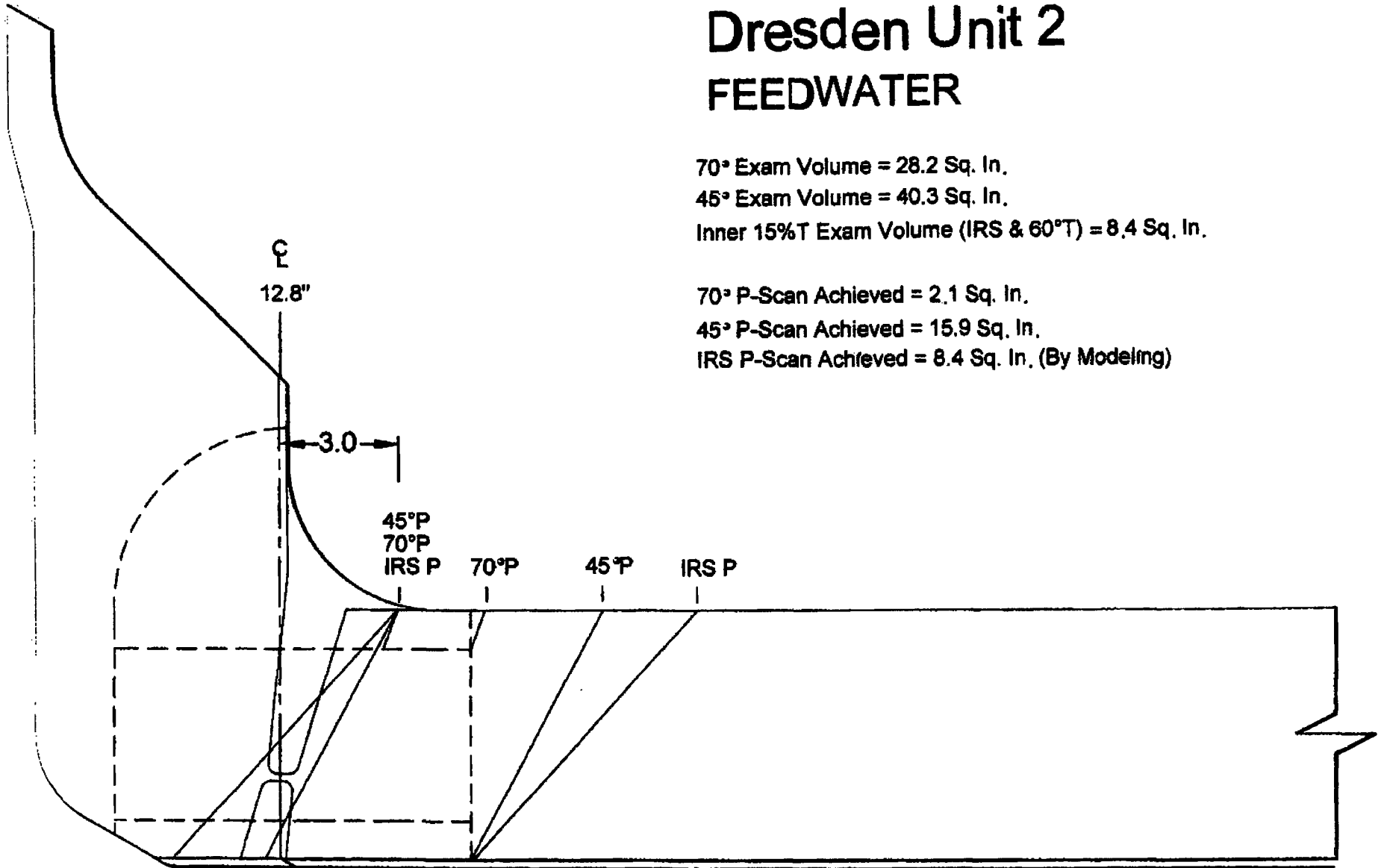


Dresden Unit 2, 2007, DZR20

Dresden Unit 2 FEEDWATER

70° Exam Volume = 28.2 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.4 Sq. In.

70° P-Scan Achieved = 2.1 Sq. In.
45° P-Scan Achieved = 15.9 Sq. In.
IRS P-Scan Achieved = 8.4 Sq. In. (By Modeling)

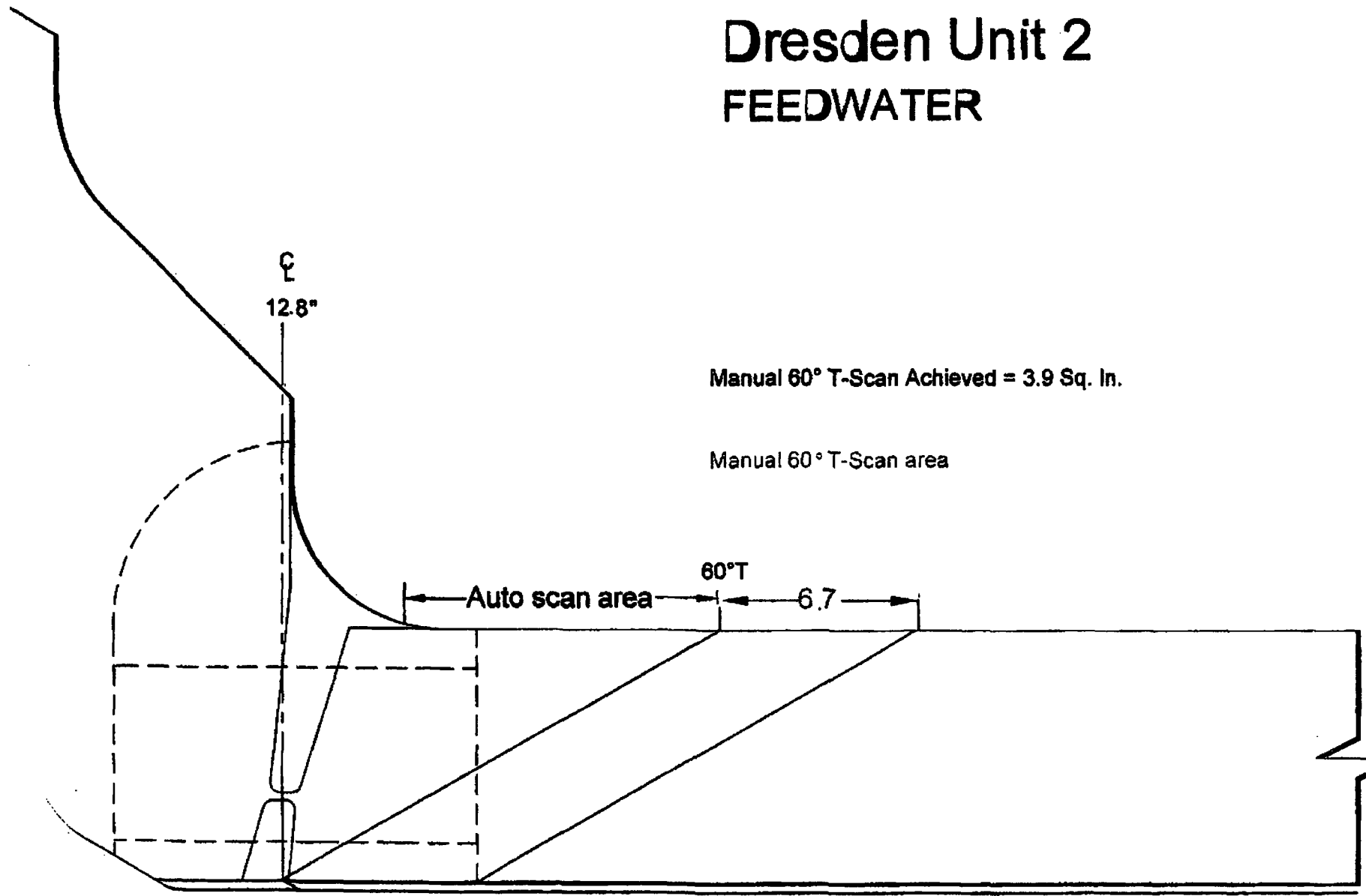


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Dresden Unit 2 FEEDWATER

Manual 60° T-Scan Achieved = 3.9 Sq. In.

Manual 60° T-Scan area





GE Hitachi Nuclear Energy

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden Unit 2 / D2R20
N4D-2 FW (Noz-Shell)
Fall / 2007

		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
Weld Length =	Exam Volume =	Required Exam Area Sq. In.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
360.	78.9					
60° T-Scan (S4 UC)	A	8.4	4.5	5.9%	360	2.9%
45° T-Scan (S6 FV)	A	40.3	22.5	29.3%	360	14.6%
70° T-Scan (S6 NS)	A	28.2	3.2	4.2%	360	2.1%
IRS P-Scan (S4 UC)	A*	8.4	8.4	10.9%	360	5.5%
45° P-Scan (S6 FV)	A	40.3	15.9	20.7%	360	10.3%
70° P-Scan (S6 NS)	A	28.2	2.1	2.7%	360	1.4%
<hr/>						
60° T-Scan (S4 UC)	B	8.4	3.9	5.1%	360	2.5%
45° T-Scan (S6 FV)						
70° T-Scan (S6 NS)						
IRS P-Scan (S4 UC)						
45° P-Scan (S6 FV)						
70° P-Scan (S6 NS)						
<hr/>						
60° T-Scan (S4 UC)						
45° T-Scan (S6 FV)						
70° T-Scan (S6 NS)						
IRS P-Scan (S4 UC)						
45° P-Scan (S6 FV)						
70° P-Scan (S6 NS)						

% Total Composite Coverage = 39.3%

Rev. 0 9/23/05

Comments: A - Automated scanning was restricted, due to insulation interference.
B - Manual pick-up performed.

A* - Single side access, 50% credit of the achieved Supplement 4 T-scan volume claimed.

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N4 FW Nozzle N4C-2
ASME Volume OD Radius: 26.0

Description: Nozz Shell
Weld Centerline Radius: 12.8
Nominal Thickness: 6.4

SP2000 Quad Package - Radial TL- Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-0°L	~	1 (P1)	180°	0°	0.0	-9.9°	-4.5	2.25
2-45°S T	~	2 (P2)	180°	4°	0.0	-3.3°	-1.5	1.0
3-60°L T	~	4 (P3)	180°	356°	0.0	3.3°	1.5	2.0
4-70°L T	~	5(P4) / 6(R4)	180°	343°	0.0	9.9°	4.5	2.0

Radial TL-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop: ...
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in/sec.

SP2000 Quad Package - Circumferential P-Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-45°S LKCC	~	1 (P1)	180°	300°	0.0	-3.3°	-1.5	1.0
2-70°L LKCC	~	2(P2) / 3(R2)	180°	292°	0.0	-9.9°	-4.5	2.0
3-45°S LKCW	~	4 (P3)	180°	60°	0.0	3.3°	1.5	1.0
4-70°L LKCW	~	5(P4) / 6(R4)	180°	68°	0.0	9.9°	4.5	2.0

Circumferential P-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop: ...
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in/sec.

SP2000 - RPV OD

Scan Plan for Nozzle Welds



GE Hitachi Nuclear Energy

Dresden Unit 2 / D2R20

Component: N4 FW Nozzle N4C-2
ASME Volume OD Radius: 26.0

Description: Nozzle Inner Radius
Weld Centerline Radius: 12.8
Nominal Thickness: 6.4

ATTENTION - CHANGE OF PROCEDURE, INDEX INCREMENT AND SCANNER VELOCITY

SP2000 Quad Package - Circumferential N/V IRS-Scan Table - GE-UT-718

Channel	Probe ID	Cable	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-60° LKCC N/V	~	1 (P1)	180°	316.3°	0.0	-3.3°	-1.5	1.0
2-60° LKCC N/V	~	2 (P2)	180°	336.8°	0.0	-9.9°	-4.5	1.0
3-60° LKCW N/V	~	4 (P3)	180°	43.7°	0.0	3.3°	1.5	1.0
4-60° LKCW N/V	~	5 (P4)	180°	...	0.0	9.9°	4.5	1.0

Circumferential N/V IRS-Scans

Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 1.1°

Scanner Start: Onset of liftoff
 Scanner Stop: ...
 Max. Scanner Resolution: ≤ .25 in.
 Max. Scanner Velocity: ≤ 3.9

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

Nir_PDI Dr 2 Rev 3

MANUAL / AUTOMATED DETECTION										
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS										
PLANT		Dresden 2								
PREPARED BY		S.C. MORTENSON				DATE				10/28/07
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ		
RECIRC INLET										
N/V Weld (M)	PLATE	0 - 5.5"	60.0°	-	± 30° - 60°	FLAT	14.0"	1 MHz		
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	24.6"	1 MHz		
Zone 2a (M)	ODBR	55° - 90°	67.5°	-	18.1°	3.3"	12.0"	1 MHz		
FEEDWATER										
N/V Weld	PLATE	0 - 8.0"	60.0°	1.5"	48.2° (43.7°)	FLAT	14.0"	1 MHz		
N/V Weld	PLATE	0 - 8.0"	60.0°	4.5"	38.9° (23.2°)	FLAT	14.0"	1 MHz		
N/V Weld / Zone 1	ODBR	50° - 90°	43.8°	2.5"	40.3° (31.8°)	3.5"	14.5"	1 MHz		
Zone 2a	ODBR	50° - 90°	67.5°	2.5"	21.7° (13.2°)	3.5"	12.5"	1 MHz		
Zone 2b	NOZOD	ALL	28.0°	2.5"	68.0°	FLAT	8.7"	2 MHz		
Zone 3	NOZOD	ALL	20.0°	2.5"	90°	FLAT	7.4"	2 MHz		
FEEDWATER										
N/V Weld (M)	PLATE	0 - 6.0"	60.0°	-	35° - 55°	FLAT	14.0"	1 MHz		
N/V Weld / Zone 1-2A (M)	ODBR	50° - 90°	43.8°	-	40.3°	3.5"	14.5"	1 MHz		
Zone 2A (M)	ODBR	50° - 90°	67.5°	-	21.7°	3.5"	12.5"	1 MHz		
Zone 2b (M)	NOZOD	ALL	28.0°	-	68.0°	FLAT	8.7"	2 MHz		
Zone 3 (M)	NOZOD	ALL	20.0°	-	90°	FLAT	7.4"	2 MHz		
CORE SPRAY										
N/V Weld/Zone 1	PLATE	0 - 8.0"	60.0°	1.5"	31.1° (24.9°)	FLAT	14.0"	1 MHz		
N/V Weld	PLATE	0 - 10.0"	60.0°	4.5"	45.9° (28.5°)	FLAT	14.0"	1 MHz		
Zone 1	PLATE	0 - 10.0"	65.0°	4.5"	23.0° (5.7°)	FLAT	17.5"	1 MHz		
Zone 1	PLATE	0 - 10.0"	70.0°	1.5"	12.3° (8.5°)	FLAT	22.2"	1 MHz		
Zone 2A	ODBR	55° - 90°	66.3°	2.5"	16.7° (5.1°)	3.1"	10.8"	1 MHz		
CORE SPRAY										
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0"	60.0°	-	± 15° - 55°	FLAT	14.0"	1 MHz		
Zone 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 23°	FLAT	19.6"	1 MHz		
Zone 2A (M)	ODBR	55° - 90°	66.3°	-	16.7°	3.1"	10.6"	1 MHz		

W-025, W-026

W-027, W-028
W-029, W-030

W-027, W-028
W-029, W-030

W-031, W-032

W-031, W-032

NOTES:	(M)	MANUAL
	XX.X° DD.X°	WEDGE / (FKTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770


SME Review / Date


Site Review / Date



GE Hitachi Nuclear Energy

SP2000 OD Examination Scan Files Data Sheet

Project : Dresden Unit-2
Component : N4D-2
Procedure No.: GE-UT-718 V1
GE-UT-718 V0

Revision N/A
Revision N/A

Calibration Report No.: CAL-01
DRR No.: N/A
DRR No.: 07-07

File Name	Date	Drive Start (deg)	Drive Stop (deg)	Drive Direction	Drive Distance (deg)	Start Time	Stop Time
n4d tl 01	11/3/07	-5	365	CW	370	0828	0919
n4d p 01	11/3/07	365	-5	CCW	-370	0710	0800
n4d nv 01	11/3/07	365	-5	CCW	-370	1020	1105

COMMENTS: * Rotation angles per the SP2000 scan plan.

Software Revision: 2.2Q14
Couplant: Water
Thermometer S/N: 255152
Vessel Temp.(°F) 92°

OPERATORS: Jonathan Guillote Lv. II
Clint Gauthier Lv. II
Mark Hilborn Lv. III

SEARCH UNIT DATA:			Angle/			
No.	Mfg	S/N	Mode	Size	Freq.	Rotation
1	RTD	07-189	0°L	1.0"	2.25	*
2	RTD	07-1645	45°S	32 x 22 mm	1.0	*
3	RTD	07-192	60°L	30 x 25 mm	2.0	*
4	RTD	07-1651	70°L	2(12 x 25)mm	2.0	*
1	RTD	07-782	45°S	32 x 22 mm	1.0	*
2	RTD	07-1649	70°L	2(12 x 25)mm	2.0	*
3	RTD	07-783	45°S	32 x 22 mm	1.0	*
4	RTD	07-1650	70°L	2(12 x 25)mm	2.0	*
1	KBA	01LW0V	60°S	0.5 x 1.0"	1.0	*
2	KBA	01LW0W	60°S	0.5 x 1.0"	1.0	*
3	KBA	01LW0X	60°S	0.5 x 1.0"	1.0	*
4	KBA	01LW0Y	60°S	0.5 x 1.0"	1.0	*

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	<p>EXAMINATION SUMMARY SHEET</p>	Report No: D2R22-099
---	---	-------------------------

Site	Dresden	Component ID:	2/1/RPV SHELL/N5A-2		
Outage	RFO 22		RPV-Noz		
System:	RPV	ASME Cat:	B-D	ASME Item	83.90
				Aug Req	N/A

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cert Level	Date
60° RL	D-162	N/A	GE-UT-300 Ver/Rev 10	Vessel Shell	Karen Fish	II	10/27/2011
60° RL	D-163	N/A	GE-UT-300 Ver/Rev 10	CAL-RW2-044	Karen Fish	II	10/27/2011
60° Shear	D-164	N/A	GEH-UT-311 Ver/Rev 16	Vessel Shell	Jimmy Johnson	II	10/27/2011

Examination Results:
 During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing 60° refracted longitudinal and 60° shear wave search units.

This examination meets the requirements of ASME Section XI, 1995 Edition through 1996 Addenda.

This examination was restricted due to nozzle configuration and the proximity of the insulation support bracket.

UT composite coverage = 28.5%

Examination results were compared to Data Report D2-R17-11 from: D2R17 Change

These examinations were performed under Work Order: 1294562-6 No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:				RWP: 10012589 Dose: 67 mr.
Prepared By: <u>BMD</u>	Level: <u>III</u>	Date: <u>10-28-11</u>	Utility Review: <u>[Signature]</u>	Date: <u>10-28-11</u>
			ANR Review: <u>[Signature]</u>	Date: <u>[Blank]</u>
				Page <u>1</u> of <u>10</u>



Dresden Nuclear Power Station

HITACHI

Ultrasound Calibration Coverage Data Sheet
Inner Radius Examinations - EPOCH 4

Site/Unit: Dresden / 2

Data Report Number: D2R22-099

Linearity Sheet: L-011

Outage: RFO 22

Data Sheet Number: D-164

Procedure: GEH-UT-311

Rev: 16

DRR: 10-02/10-22

Calibration Data for Block: Vessel Shell

<u>CS</u> Material	<u>FLAT</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>0934</u>	Exam Start: <u>1013</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1117</u>	
Cal Check: <u>N/A</u>	<u>Ultrage II</u> Couplant:	<u>07225</u> Batch
Final Cal: <u>1404</u>	<u>272874</u> Thermometer	<u>102° F</u> Initial Cal Temp.
		<u>90° F</u> Final Cal Temp.

DAC Construction

Reflector	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>7.0"</u>	1X	<u>80%</u>	<u>13.0"</u>	<u>14.13"</u>	<u>7.1</u>
		1X				

DAC @ 1X = 54.2 dB

Sweep 0-10 = 20' Metal Path

Acceptable Linearity performed: 10/12/2011

Search Unit Data

<u>KBA</u> Manufacturer:	<u>01FRP8</u> Serial No.:	<u>0.50" x 1.0" / Rect</u> Size/Shape:
<u>0.8 in.</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-891-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
------------------------------	----------------------	-------------------------

Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>081579302</u> Serial No.:		
<u>14.8 us</u> Zero:	<u>0.1271 in / usec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>20.0 in.</u> Range:	<u>Sa / Med</u> Pulsar/Energy
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Exam Data for Component: 2/1/RPV SHELL/NSA-2

RPV-Noz

Configuration:

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0°-5.0°</u>	<u>60°</u>	<u>±60°</u>	<u>N/A</u>	<u>60.2</u>	<u>NRI</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for nozzle to vessel weld (N/A).
Exams performed to maintain a 20 - 30% FSH dad roll.
Examined from 360°
Scanned CW and CCW.

Jimmv Johnson
Initials: Examiner:

II
Level: 10/27/2011
Cal/Exam Date:

See Summary Sheet for Signature

Utility Reviewed By: _____ Date: _____

RAMD
GE Reviewed By:

III
Level: 10-28-11
Date:

See Summary Sheet for Signature

ANIR Reviewed By: _____ Date: _____



Dresden Nuclear Power Station Four

**Ultrasonic Calibration and Examination Record Sheets
RPV Components - EPOCH 4**

Site/Unit: Dresden / 2

Data Report Number: D2R22-099

Linearity Sheet: L-012

Outage: RFO 22

Data Sheet Number: 0-163

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-11W2-044

CS Material: FLAT Size: 4.0" Thickness: 4.0"
 Initial Cal: 0940 Exam Start: 1011
 Cal Check: N/A Exam End: 1045
 Cal Check: N/A Ultra gel II 07225
 Final Cal: 1400 Couplant: Batch
272874 99° F 92° F
 Thermometer Initial Cal Temp. Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
SDH	<u>0.6"</u>	1X	<u>80%</u>	<u>1.1"</u>	<u>0.6"</u>	<u>3.0</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 63.5 dB

Sweep 0-10 = Z' Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

Sigma 22BC-08006 20.1"x0.627" Rect.
 Manufacturer: Serial Number: Size / Shape:
0.75 60° 61°
 Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 RI
 Frequency: Model: Mode:

Search Unit Cable

RG-174 6' Q
 Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 051573411
 Manufacturer/Model: Serial Number:
7.357 us 0.232 in./usec. 0.8 - 3.0 MHz
 Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 4.0 in. Sg. / Med
 Rep Rate: Rectification: Range: Pulsar/Energy
400 Ohms Off 3.03 MHz DUAL
 Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
 DAC: TVG: CSC: DGS:

Exam Data for Weld: 2/1/RPV SHELL/NSA-2

RPV-Noz
 Configuration:

QD 109° F
 Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T&P</u>	<u>77.5</u>	<u>NR1</u>	<u>61</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/12/2011

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
 Calibration for near surface examination.
 Exams performed a minimum of 14 dB above reference.

KF Karen Fish II 10/27/2011
 Initials: Examiner Level: Cal/Exam Date:
N/A N/A
 Initials: Examiner Level: 10-23-11
 GE Reviewed By: Level: Date:

See Summary Sheet for Signature
 Utility Reviewed By: Date:
 See Summary Sheet for Signature
 ANII Reviewed By: Date:

Site/Unit: Dresden / 2
Outage: RFO 22

Data Report Number: D2R22-099 Linearity Sheet: L-012
Data Sheet Number: D-162

Procedure: GE-UT-300

Rev.: 10 DRR: N/A

Calibration Block: Vessel Shell

<u>CS</u> Material	<u>FLAT</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>0945</u>		Exam Start: <u>1011</u>
Cal Check: <u>N/A</u>		Exam End: <u>1045</u>
Cal Check: <u>N/A</u>	<u>Ultragel II</u>	<u>07225</u>
Final Cal: <u>1420</u>	Couplant:	Batch
<u>272874</u> Thermometer	<u>102° F</u> Initial Cal Temp.	<u>90° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
IDN	<u>7.0"</u>	1X	<u>80%</u>	<u>12.5"</u>	<u>6.95"</u>	<u>7.2</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 75 dB
Sweep 0-10 = 10" Depth
Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/NSA-2

RPV-NAZ
Configuration:

OD Exam Surface: 109° F Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T&P</u>	<u>75</u>	<u>NRI</u>	<u>01</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Search Unit Data

Sigma 22BC-08006 29.1"x0.62"/ Rect.
Manufacturer: Serial Number: Size / Shape:

0.75 60° 61°
Incident Point: Nominal Angle: Measured Angle:

3.0 MHz SDC-3 RL
Frequency: Model: Mode:

Search Unit Cable

RG-174 6 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 031573411
Manufacturer/Model: Serial Number:

6.596 us 0.232 in./usec. 0.8 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:

Auto Fullwave 20.0 in. Ss / Med
Rep Rate: Rectification: Range: Pulsar/Energy

400 Ohms Off 3.03 MHz DUAL
Damping: Reject: Frequency: Mode:

Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

Calibration Verification

Field Stimulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/12/2011

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for full volume examination.
Exams performed to maintain a 10 - 20% clad roll.
Scan area restricted, see attached drawing.

Karen Fish II 10/27/2011
Initials: Examiner Level: Cal/Exam Date:

N/A N/A
Initials: Examiner Level: 10 26-11

GE Reviewed By: Level: Date:

See Summary Sheet for Signature

Utility Reviewed By: Date:

See Summary Sheet for Signature

ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

Nir_PD1 Dr2 Rev 5.xls

MANUAL DETECTION NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON				DATE 10/4/2011		
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
MAIN STEAM								
N/V WELD (M)	PLATE	0 - 4.0"	60.0°	-	± 28° - 66°	FLAT	14.0"	1 MHz
N/V WELD/ZONE 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 46°	FLAT	25.2"	1 MHz
ZONE 2A (M)	ODBR	60° - 90°	66.4°	-	24.1°	4.0"	16.3"	1 MHz
ISO COND								
N/V Weld (M)	PLATE	0 - 5.0"	60.0°	-	± 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	25.2"	1 MHz
Zone 2a (M)	ODBR	60° - 90°	66.5°	-	19.1°	3.8"	12.6"	1 MHz
TOP HEAD SPRAY (N18) - 48" Offset								
N/V Weld (M)	PLATE	0 - 8.0"	45.0°	-	± 15.0° - 85.0°	FLAT	5.7"	1.0 MHz
N/V Weld/Zone 1 (M)	PLATE	0 - 6.0"	60.0°	-	± 15.0° - 90.0°	FLAT	8.4"	1.0 MHz
Zone 1 (M)	PLATE	0 - 7.5"	70.0°	-	± 45°	FLAT	13.6"	1.0 MHz
Zone 2A (M)	PLATE	0 - 9.0"	80.0°	-	± 21°	FLAT	17.2"	1.0 MHz
Zone 2A (M)	ODBR	25° - 85°	50.0°	-	13°	1.9"	6.8"	1.0 MHz
Zone 2A (M)	ODBR	25° - 75°	50.0°	-	30°	1.9"	9.0"	1.0 MHz
SBLC								
N/V WELD (M)	PLATE	4.0 - 8.0"	45.0°	-	± 52.0°	FLAT	8.9"	1 MHz

W-039

W-035, W-036

W-180

W-132

NOTES: (M) MANUAL
 (X)° (X)X° WEDGE / (FOXTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor
Project Engineer
 in charge of the
 inspection team
 and the
 data collection

SME Review / Date

Site Review / Date



HITACHI

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden 2 / D2R22
 N5A
 Fall / 2011

Weld Length = 360. Exam Volume = 38.7	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE			
	Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual	
60° T-Scan (S4 UC)	A	3.6	3.6	9.3%	350	4.5%
60° T-Scan (S6 FV)	A	16.5	12.7	32.8%	350	16.0%
60° T-Scan (S6 NS)	A	18.6	0	0.0%	350	0.0%
60° P-Scan (S4 UC)	A	3.6	3.6	9.3%	350	4.5%
60° P-Scan (S6 FV)	A	16.5	2.2	5.7%	350	2.8%
60° P-Scan (S6 NS)	A	18.6	0	0.0%	350	0.0%
60° T-Scan (S4 UC)	B	3.6	3.6	9.3%	10	0.1%
60° T-Scan (S6 FV)	B	16.5	12.7	32.8%	10	0.5%
60° T-Scan (S6 NS)	B	18.6	0	0.0%	10	0.0%
60° P-Scan (S4 UC)	B	3.6	3.2	8.3%	10	0.1%
60° P-Scan (S6 FV)	B	16.5	2.2	5.7%	10	0.1%
60° P-Scan (S6 NS)	B	18.6	0	0.0%	10	0.0%
60° T-Scan (S4 UC)			0		0	
60° T-Scan (S6 FV)			0		0	
60° T-Scan (S6 NS)			0		0	
60° P-Scan (S4 UC)			0		0	
60° P-Scan (S6 FV)			0		0	
60° P-Scan (S6 NS)			0		0	

% Total Composite Coverage = 28.5%

Comments: A - Manual UT scanning was restricted due to nozzle configuration.
 B - Manual UT scanning was restricted due to the proximity of the insulation support bracket.

Rev. 0 9/23/05

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.

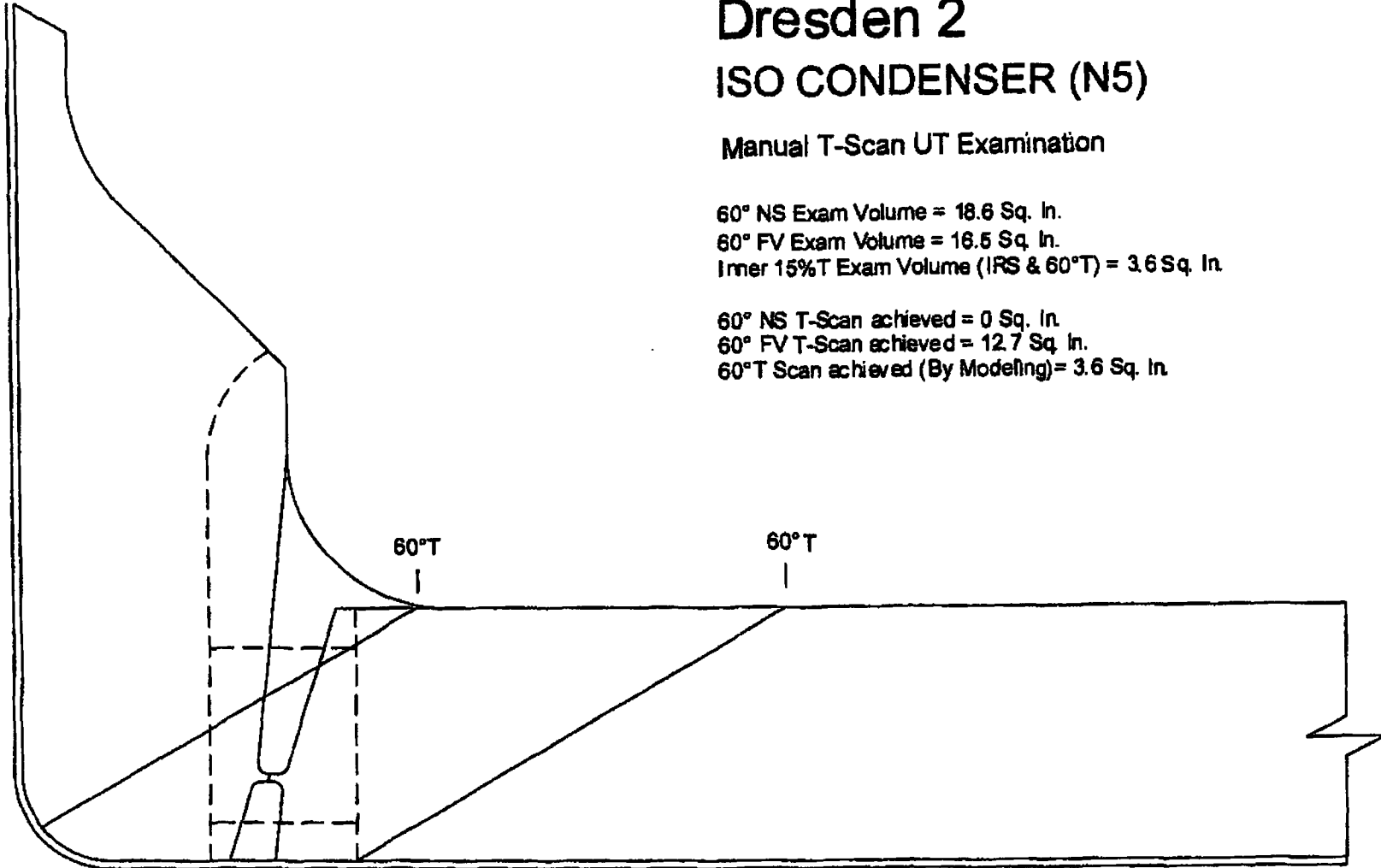
Page 6 of 10

Dresden 2 ISO CONDENSER (N5)

Manual T-Scan UT Examination

60° NS Exam Volume = 18.6 Sq. In.
60° FV Exam Volume = 16.5 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 3.6 Sq. In.

60° NS T-Scan achieved = 0 Sq. In.
60° FV T-Scan achieved = 12.7 Sq. In.
60°T Scan achieved (By Modeling) = 3.6 Sq. In.

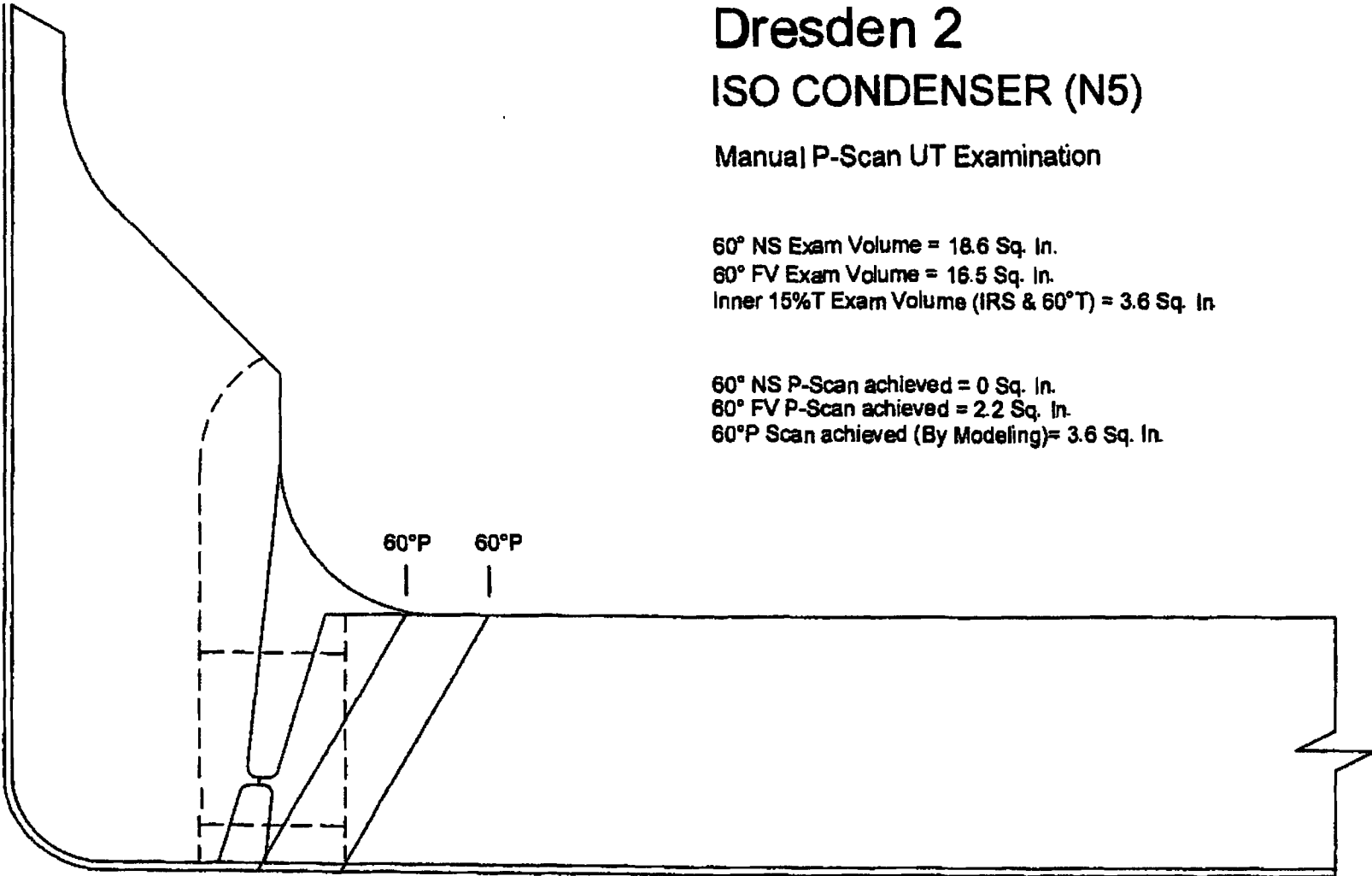


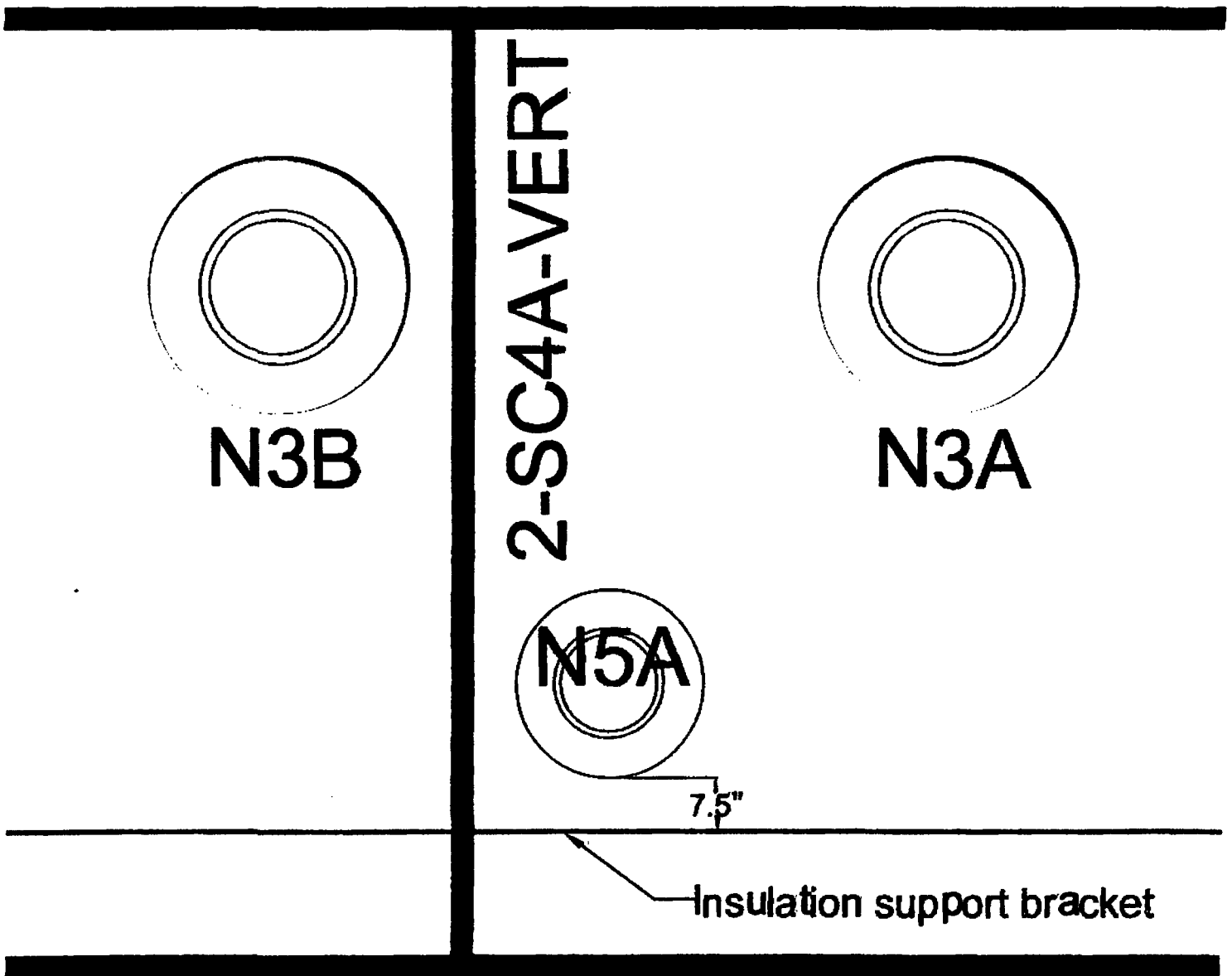
Dresden 2 ISO CONDENSER (N5)

Manual P-Scan UT Examination

60° NS Exam Volume = 18.6 Sq. In.
60° FV Exam Volume = 16.5 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 3.6 Sq. In.

60° NS P-Scan achieved = 0 Sq. In.
60° FV P-Scan achieved = 2.2 Sq. In.
60°P Scan achieved (By Modeling) = 3.6 Sq. In.



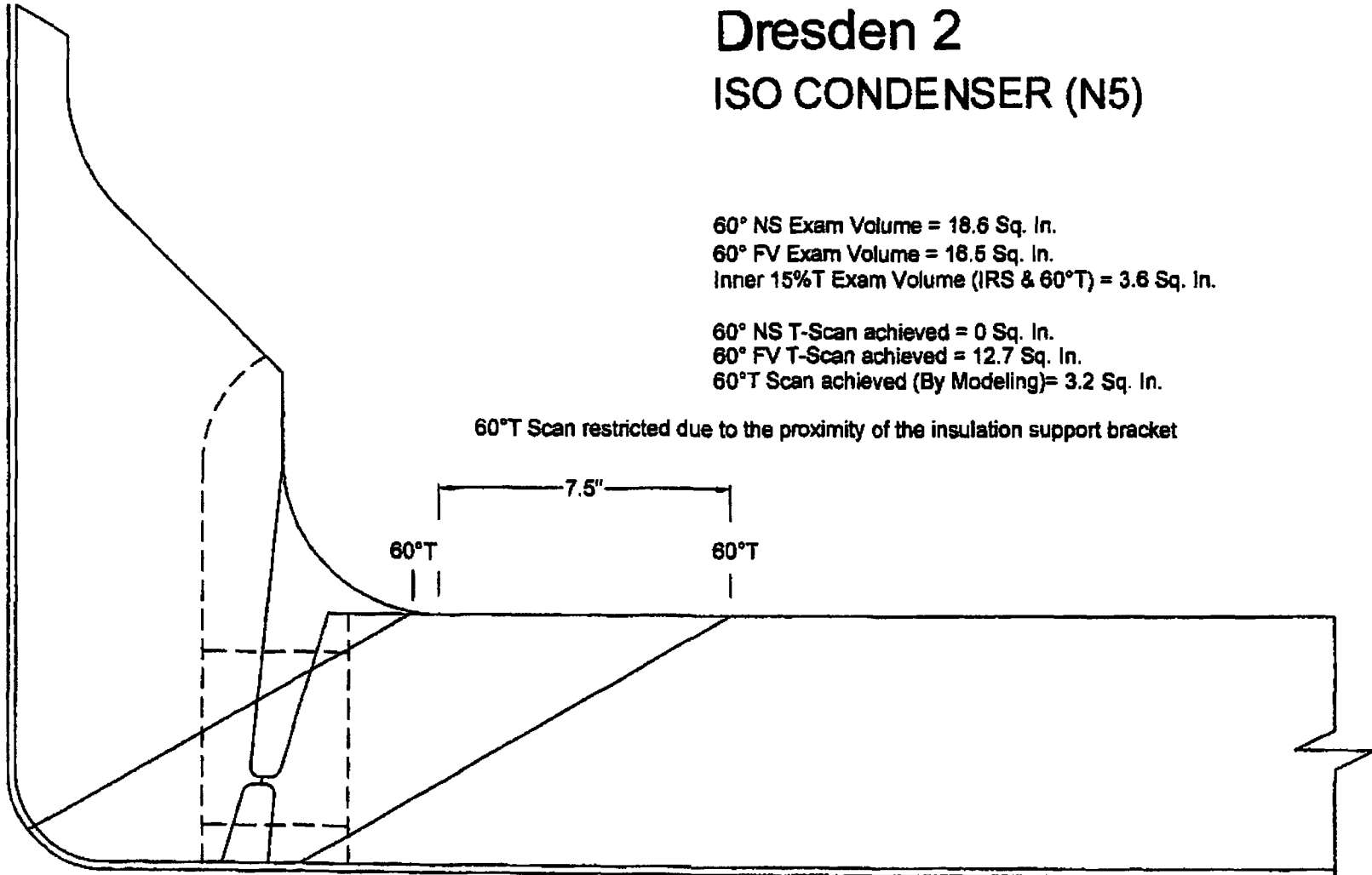


Dresden 2 ISO CONDENSER (N5)

60° NS Exam Volume = 18.6 Sq. In.
60° FV Exam Volume = 18.5 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 3.6 Sq. In.

60° NS T-Scan achieved = 0 Sq. In.
60° FV T-Scan achieved = 12.7 Sq. In.
60°T Scan achieved (By Modeling) = 3.2 Sq. In.

60°T Scan restricted due to the proximity of the insulation support bracket



ATTACHMENT 2

~~Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets~~



GE NUCLEAR ENERGY

EXAMINATION SUMMARY SHEET

Report No.:
2R18-014

Site and Unit: Dresden Unit 2 Component ID: 2/1/RPV SHELL/N5B-2
 Outage: D2R18 RPV-NOZ
 System: RPV ASME Cat.: B-D ASME Item B3.90 Aug Requirements: Section XI

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° Shear	UT-038	UT-038	GE-UT-311	VESSEL SHELL	Jack Reiszewitz	II	10/20/2003
80° Long.	UT-036	UT-036	GE-UT-300	CAL-IIW2-013	Jack Reiszewitz	II	10/20/2003
60° Long.	UT-037	UT-037	GE-UT-300	VESSEL SHELL	Jack Reiszewitz	II	10/20/2003

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 60° RL and 60° shear wave search units.

Scanning was limited due to the nozzle configuration and a stabilizer lug below the nozzle.

31% of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI, Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report D355 from 1995 outage with No Change
 These examinations were performed under Work Order: 00813889-04 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

<u>CPM</u>	<u>JRM</u>	<u>10/20/03</u>	<u>David M. [Signature]</u>	<u>III</u>	<u>10/20/03</u>
Prepared By:	Level:	Date:	Utility Reviewed By:	Title:	Date:
N/A	N/A	N/A	<u>[Signature]</u>		<u>10-28-03</u>
Reviewed By:	Level:	Date:	ANII Reviewed By:	Title:	Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2
Outage: D2R18

Data Report Number: 2R18-014
Data Sheet Number: UT-036

Linearity Sheet: L-013
Beam Spread:

Procedure: GE-UT-300

Ver.: I

DRR: NA

Calibration Block: CAL-IHW2-013

<u>CS</u>	<u>N/A</u>	<u>4.0</u>
Material	Size	Thickness
Initial Cal: <u>1412</u>		Exam Start: <u>1600</u>
Cal Check: <u>N/A</u>		Exam End: <u>1626</u>
Cal Check: <u>NA</u>	<u>Ultrasgel II</u>	<u>02125</u>
Final Cal: <u>1645</u>	Couplant:	Batch
<u>229344</u>	<u>85° F</u>	<u>85° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp:

DAC Construction

Hole "I"	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	<u>0.60</u>	1X	<u>80%</u>	<u>1.04</u>	<u>0.6</u>	<u>3.0</u>
1/2	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
ID	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
5/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 60.0 dB
Sweep 0-10 2.0" Depth
Note NA dB difference between 3/8 and 5/8 Vee

Search Unit Data

Sigma 22BC-03001 2(1.1x.62)Rect.
Manufacturer: Serial Number: Size / Shape:
0.70" 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC3 Long
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / EPOCH 4 031534305
Manufacturer/Model: Serial Number:
9.4 us 0.233 in./usec. 0.8 - 3.0 MHz Auto
Delay: Velocity: Filter: Rep Rate:
4.0 in. Sq. / Med 400 Ohms
Range: Pulsar: Damping:
Off 3.03 MHz Dual
Reject: Frequency: Mode:

Exam Data for Weld: 2/1/RPV SHELL/NSB-2

RPV-NOZ
Configuration:
OD / Plate 84° F
Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360°</u>	<u>T/P</u>	<u>74.1</u>	<u>NRI</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/15/2003

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVG, CSG and DGS disabled.
Calibration for near surface examination volume.
Exams performed a minimum of 14 dB above reference.
Scanning limited due to stabilizer lag.

JAR Jack Reiszewitz II 10/20/2003
Initials: Examiner Level: Cal/Exam Date:
N/A N/A
CPM Level: 10/20/03
GE Reviewed By: Level: Date:

Dan K... 10/20/03
Utility Reviewed By: Date:
William Y 10-29-03
ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden L2 Data Report Number: ZR18-014 Linearity Sheet: L-013
 Outage: D2R18 Data Sheet Number: UT-037 Beam Spread:
 Procedure: GE-UT-300 Ver.: 1 DRR: N/A

Calibration Block: VESSEL SHELL

<u>CS</u>	<u>N/A</u>	<u>7.0"</u>
Material	Size	Thickness
Initial Cal: <u>1414</u>		Exam Start: <u>1525</u>
Cal Check: <u>N/A</u>		Exam End: <u>1550</u>
Cal Check: <u>NA</u>	<u>Ultrawel II</u>	<u>02125</u>
Final Cal: <u>1648</u>	Couplant:	Batch
<u>228344</u>	<u>85° F</u>	<u>85° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp:

Search Unit Data

<u>Sigma</u>	<u>Z2RC-03001</u>	<u>2(1.1x.62)/Rect.</u>
Manufacturer:	Serial Number:	Size / Shape:
<u>0.70"</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u>	<u>SDC3</u>	<u>Long.</u>
Frequency:	Model:	Mode:

DAC Construction

Hole " "	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	N/A	1X	N/A	N/A	N/A	N/A
1/2	N/A	1X	N/A	N/A	N/A	N/A
3/4	N/A	1X	N/A	N/A	N/A	N/A
ID	<u>7.0</u>	1X	<u>80%</u>	<u>12.04</u>	<u>6.95</u>	<u>7.0</u>
5/4	N/A	1X	N/A	N/A	N/A	N/A

Search Unit Cable

<u>RG-174</u>	<u>12'</u>	<u>0</u>
Cable Type:	Length:	Connectors:

DAC 1X= 73.0 dB
 Sweep 0-10 10" Depth
 Note N/A dB difference between 3/8 and 5/8 Vee

Instrument Settings

Panametrics / EPOCH 4 031534305
 Manufacturer/Model: Serial Number:

<u>7.00 us</u>	<u>0.224 in./ussec.</u>	<u>0.8-3.0 MHz</u>	<u>Auto</u>
Delay:	Velocity:	Filter:	Rep Rate:
<u>20.0 in.</u>	<u>sg./Med</u>	<u>400 Ohms</u>	
Range:	Pulser:	Damping:	
<u>Off</u>	<u>3.03 MHz</u>	<u>Dual</u>	
Reject:	Frequency:	Mode:	

Exam Data for Weld: 2/1/RPV SHELL/NSB-2

RPV-NOZ
 Configuration:

OD / Plate 84° F
 Exam Surface: Component Temperature

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/15/2003

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360°</u>	<u>T/P</u>	<u>73.0</u>	<u>NRI</u>	<u>60°</u>

Comments: Cal/Exam Date is the date of initial calibration.
 Rectification - Full wave; TVG, CSG and DGS disabled.
 Calibration for full volume examination.
 Exams performed to maintain 10-20% clad roll.
 Scanning limited due to stabilizer lug.

JAR Jack Reisewitz II 10/20/2003
 Initials: Examiner Level: Cal/Exam Date:

N/A N/A
 Initials: Examiner Level:

CPM not in file
 GE Reviewed By: Level: Date:

[Signature] 10/20/03
 Utility Reviewed By: Date:

[Signature] 10-29-03
 ANII Reviewed By: Date:

ATTACHMENT 2

**Dresden Nuclear Power Station - Fourth ISI Interval Limited Coverage NDE Summary Sheets
Ultrasonic Calibration and Examination Record**



GE NUCLEAR ENERGY

Inner Radius Examinations

Site/Unit: **Dresden / 2**

Data Report Number: **2R18-014**

Linearity Sheet: **L-013**

Outage: **D2R18**

Data Sheet Number: **UT-038**

Procedure: **GE-UT-311**

Rev: **10**

DRR: **N/A**

Calibration Data for Block: VESSEL SHELL

CS	N/A	7.0"
Material	Size	Thickness
Initial Cal: 1428		Exam Start: 1550
Cal Check: N/A		Exam End: 1620
Cal Check: N/A	Ultraset II	02125
Final Cal: 1703	Couplant:	Batch
229344	85° F	85° F
Thermometer	Initial Cal Temp.	Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	7.0	1X	80%	11.2	13.2	7.5
N/A	N/A	1X	N/A	N/A	N/A	N/A

DAC @ 1X **46.0 dB**

Sweep 0-10 **17.5" Metal Path**

Acceptable Linearity performed : **10/15/2003**

Search Unit Data

KBA	M21322	0.5"x1.0" Rect.
Manufacturer:	Serial No.:	Size/Shape:
0.7 in.	60°	58°
Incident Point:	Nominal Angle:	Measured Angle:
1.0 MHz	113-291-800	Shear
Frequency:	Model:	Mode:

Search Unit Cable

RG-174	12'	0
Cable Type:	Length:	Connectors:

Instrument Settings

Panametrics / EPOCH 4		031534305
Manufacturer/Model:		Serial No.:
16.6 us	0.1255 u/sec	0.8 - 3.0 MHz
Delay:	Velocity:	Filter:
17.5 in.	Sq. / Med	400 ohms
Range:	Pulser:	Damping:
Off	1.0 MHz	P/E
Reject:	Frequency:	Mode:

Exam Data for Component: 2/1/RPV SHELL/N5B-2

RPV-NOZ

Configuration:

OD / Plate

M° F

Exam Surface:

Component Temp.

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan Recordable dB	Recordable Indications
360°	60°	+60°	N/A	46.0	NRI
360°	60°	-60°	N/A	46.0	NRI

Calibration Verification

Field Simulator Block S/N: **N/A**

Reflector	N/A	N/A	N/A
Amplitude	N/A	N/A	N/A
Gain (dB)	N/A	N/A	N/A
Sweep (SD)	N/A	N/A	N/A

Comments: **Cal/Exam Date is the date of initial calibration.**

**Rectification - Full wave; TVG, CSG, and DGS disabled.
Calibration for nozzle to vessel weld (NV).
Exams performed to maintain a 20-30% FSH clad roll.
Scanned CW and CCW.
Scanning limited due to stabilizer lug.**

JAR Jack Reiszewitz

Initials: Examiner:

II

Level:

10/20/03

Cal/Exam Date:

[Signature]
Utility Reviewed By:

10/20/03

Date:

[Signature]

GE Reviewed By:

II

Level:

10/16/03

Date:

[Signature]
ANII Reviewed By:

10-28-03

Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2, D2R18
N5B-2, Isolation Condenser
Fall 2003

Weld Length = 360. Exam Volume = 81.		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
60° T-Scan	A	81.0	36.8	45.4%	310.0	19.6%
60° P-Scan, 85%T	A	72.1	12.6	15.6%	310.0	6.7%
IRS-Scan, 15%T	A	8.9	8.9	11.0%	310.0	4.7%
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						

% Total Composite Coverage = 31%

Comments: A - Examined 310° length. Scanning limited due to nozzle configuration.
A - Examination limited due to stabilizer lug 3" below nozzle ODBR to plate interface, 20 inches in length, centered on nozzle CL.
Weld length in degrees. IRS examination coverage determined by modeling.

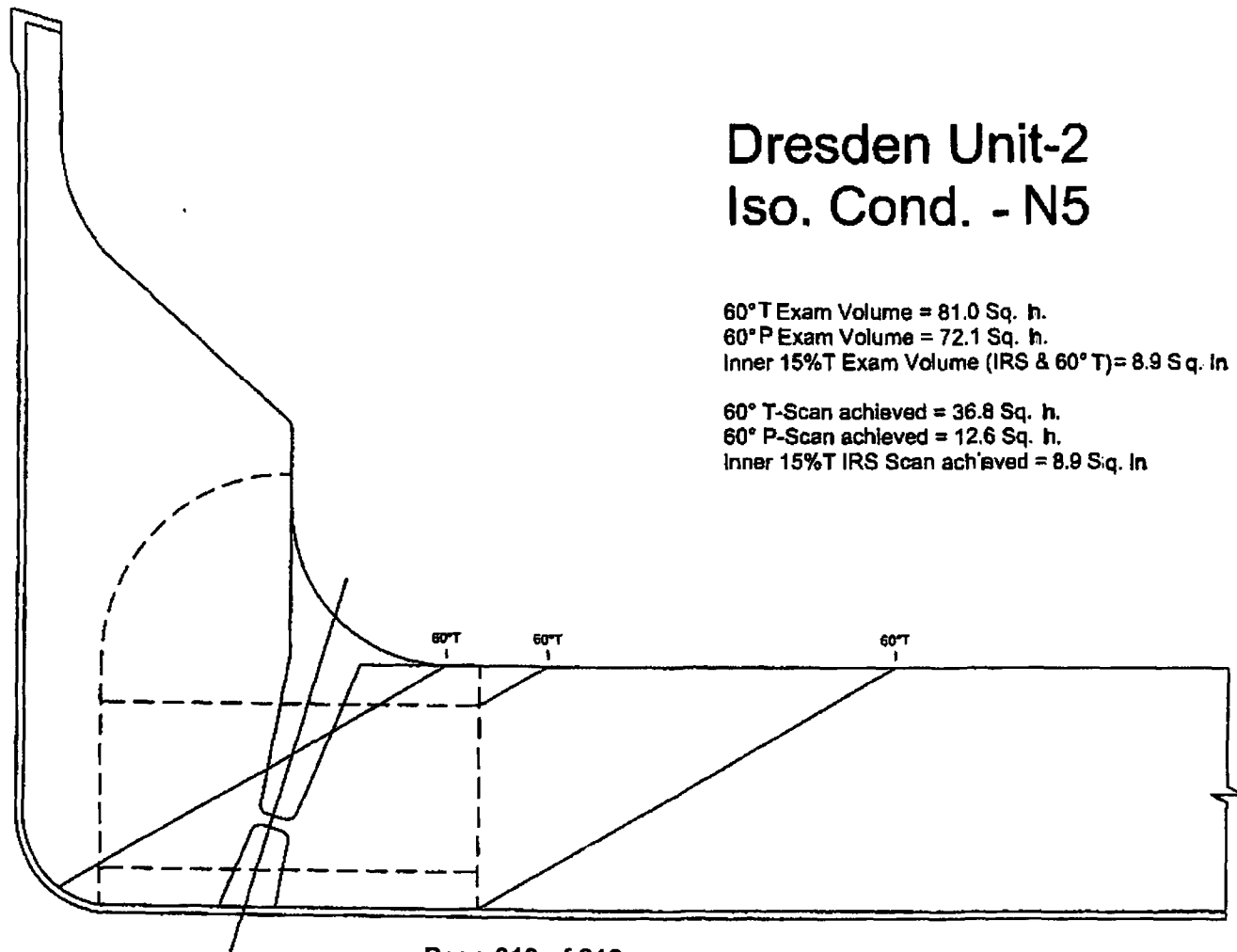
Note - Rounding methods may make calculated values appear in error.

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 Iso. Cond. - N5

60° T Exam Volume = 81.0 Sq. in.
60° P Exam Volume = 72.1 Sq. in.
Inner 15% T Exam Volume (IRS & 60° T) = 8.9 Sq. in.

60° T-Scan achieved = 36.8 Sq. in.
60° P-Scan achieved = 12.6 Sq. in.
Inner 15% T IRS Scan achieved = 8.9 Sq. in.

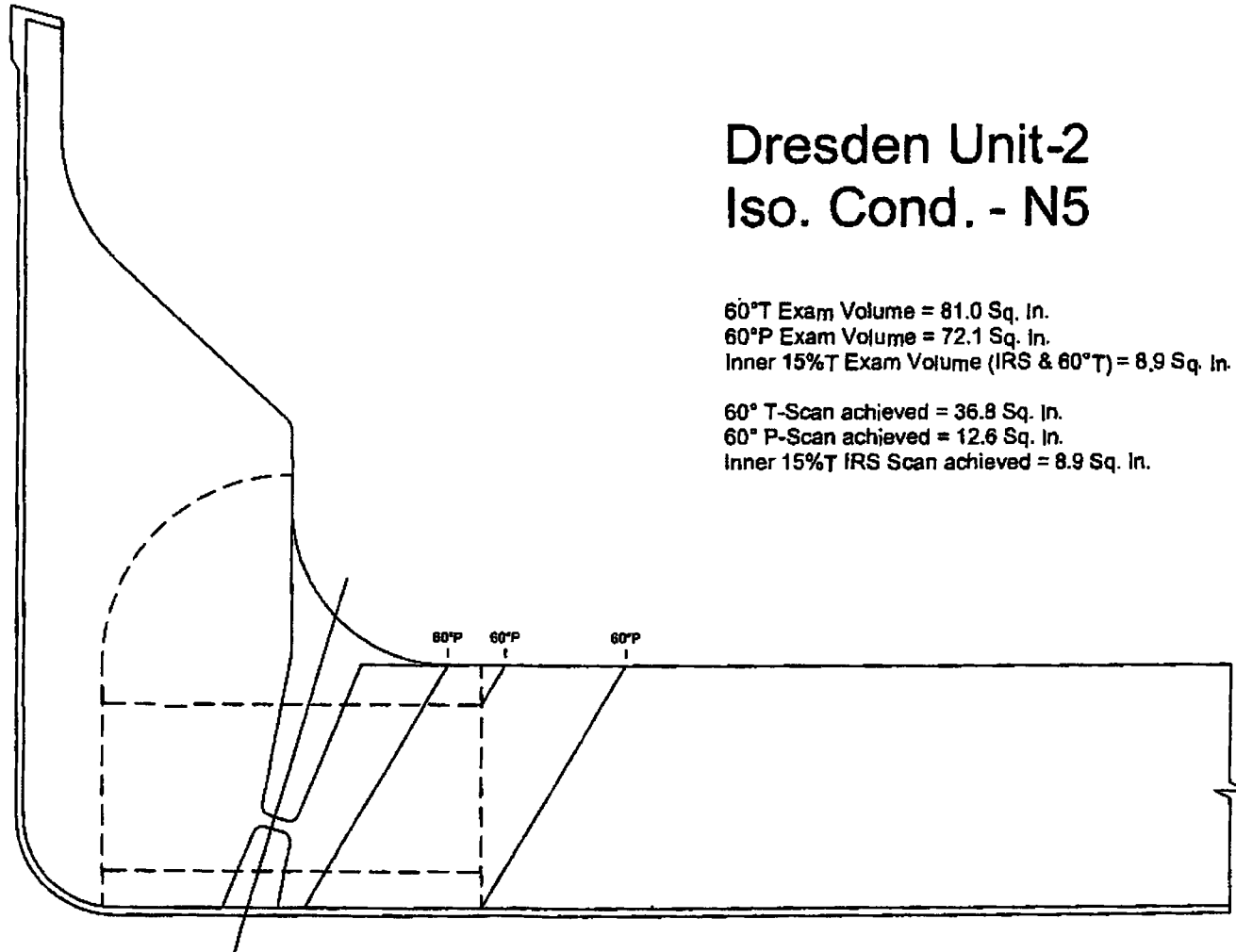


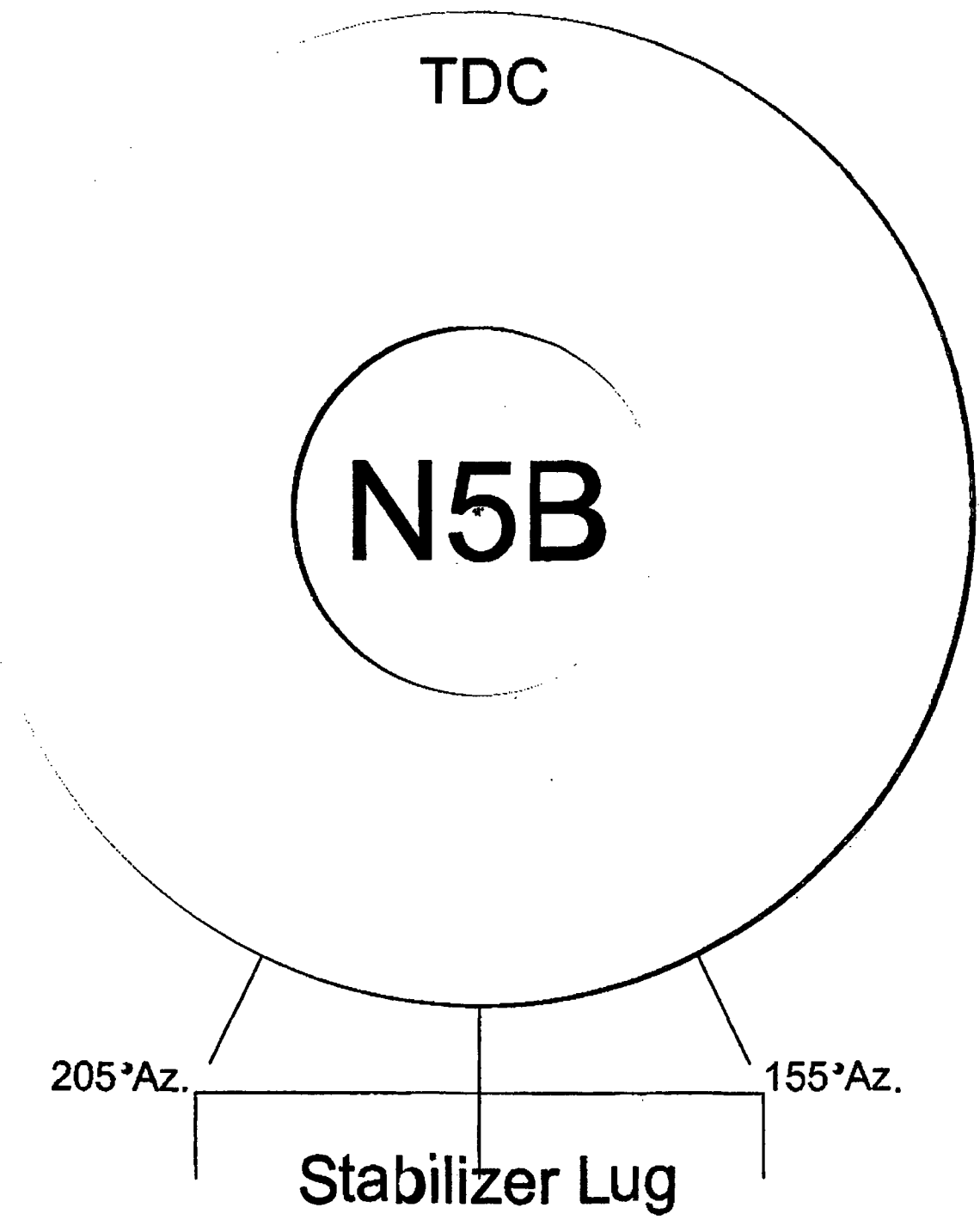
ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 Iso. Cond. - N5

60°T Exam Volume = 81.0 Sq. In.
60°P Exam Volume = 72.1 Sq. In.
Inner 15%T Exam Volume (IRS & 60°T) = 8.9 Sq. In.

60° T-Scan achieved = 36.8 Sq. In.
60° P-Scan achieved = 12.6 Sq. In.
Inner 15%T IRS Scan achieved = 8.9 Sq. In.





ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

EXAMINATION SUMMARY SHEET

Report No.:
2R18-015

Site and Unit: **Dresden Unit 2** Component ID: **2/1/RPV SHELL/N9-2**
 Outage: **D2R18** **NOZ-RPV**
 System: **RPV** ASME Cat.: **B-D** ASME Item **B3.90** Aug Requirements: **Section XI**

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
45° Shear	UT-079	UT-079	GE-UT-311	VESSEL SHELL	Brad Dummer	III	10/22/2003
60° Long.	UT-077	UT-077	GE-UT-300	CAL-IW2-013	Jack Reisewitz	II	10/22/2003
60° Long.	UT-078	UT-078	GE-UT-300	VESSEL SHELL	Jack Reisewitz	II	10/22/2003

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 60° RL and 45° shear wave search units.

Scanning was limited due to the nozzle configuration.

75% of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI, Section XI, 1998 Edition with the 1998 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report **N9-2** from **1998** outage with **No Change**
 These examinations were performed under Work Order: **00613889-04** **Change**

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

<u>CD MT</u>	<u>III</u>	note:	<u>David M. Smith</u>	<u>IV</u>	<u>10/25/03</u>
Prepared By:	Level:	Date:	Utility Reviewed By:	Title:	Date:
N/A	N/A	N/A	<u>William?</u>		<u>10-24-03</u>
Reviewed By:	Level:	Date:	ANII Reviewed By:	Title:	Date:

Page 1 of 2

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2
Outage: D2R18

Data Report Number: 2R18-015
Data Sheet Number: UT-077

Linearity Sheet: L-013
Beam Spread:

Procedure: GE-UT-300

Ver.: 7

DRR: N/A

Calibration Block: CAL-HW2-013

<u>CS</u>	<u>N/A</u>	<u>4.0"</u>
Material	Size	Thickness
Initial Cal: <u>1524</u>		Exam Start: <u>1730</u>
Cal Check: <u>N/A</u>		Exam End: <u>1745</u>
Cal Check: <u>N/A</u>	<u>Uttrage II</u>	<u>02125</u>
Final Cal: <u>1818</u>	Couplant:	Batch
<u>229344</u>	<u>72° F</u>	<u>74° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp:

Search Unit Data

Sigma 22BC-03001 2/1.1x.62/Rect.
Manufacturer: Serial Number: Size / Shape:
0.70" 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC3 Long
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / EPOCH 4 031534305
Manufacturer/Model: Serial Number:
9.4 us 0.233 in./usec. 0.8 - 3.0 MHz Auto
Delay: Velocity: Filter: Rep Rate:
4.0 in. Sq. / Mod 400 Ohms
Range: Pulsar: Damping:
Off 3.03 MHz Dual
Reject: Frequency: Mode:

DAC Construction

Hole "I"	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	<u>0.60</u>	1X	<u>80%</u>	<u>1.04</u>	<u>0.60</u>	<u>3.0</u>
1/2	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
ID	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
5/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 60.0 dB
Sweep 0-10 2.0" Depth
Note N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N9-2

NOZ-RPV
Configuration:
OD / Plate 84° F
Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>360°</u>	<u>T/P</u>	<u>74.0</u>	<u>NR!</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/16/2003

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVG, CSG and DGS disabled.
Calibration for near surface examination.
Exams performed a minimum of 14 dB above reference.

JAR Jack Reisewitz II 10/22/2003
Initials: Examiner Level: Cal/Exam Date:
N/A N/A
Initials: Examiner Level:
CP 10/24/03
GE Reviewed By: Level: Date:

Ra-1 10/26/06
Utility Reviewed By: Date:
Whelan 10-24-03
ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISL Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2
Outage: D2R18

Data Report Number: 2R18-015 Linearity Sheet: L-013
Data Sheet Number: UT-078 Beam Spread:

Procedure: GE-UT-300

Ver.: I

DRR: N/A

Calibration Block: VESSEL SHELL

<u>CS</u>	<u>N/A</u>	<u>7.0"</u>
Material	Size	Thickness
Initial Cal: <u>1525</u>		Exam Start: <u>1748</u>
Cal Check: <u>N/A</u>		Exam End: <u>1800</u>
Cal Check: <u>N/A</u>	<u>Ultrason II</u>	<u>02125</u>
Final Cal: <u>1820</u>	Couplant:	Batch
<u>228344</u>	<u>72°F</u>	<u>74°F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp.

Search Unit Data

<u>Sigma</u>	<u>22BC-03001</u>	<u>2(1.1x.62)/Rect.</u>
Manufacturer:	Serial Number:	Size / Shape:
<u>0.70"</u>	<u>60"</u>	<u>60"</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u>	<u>SDC3</u>	<u>Long.</u>
Frequency:	Model:	Mode:

Search Unit Cable

<u>RG-174</u>	<u>12'</u>	<u>0</u>
Cable Type:	Length:	Connectors:

Instrument Settings

<u>Panametrics / EPOCH 4</u>	<u>031534305</u>		
Manufacturer/Model:	Serial Number:		
<u>7.88 us</u>	<u>0.224 in./usec.</u>	<u>0.8 - 3.0 MHz</u>	<u>Auto</u>
Delay:	Velocity:	Filter:	Rep Rate:
<u>20.0 in.</u>	<u>Sq. / Med</u>	<u>400 Ohms</u>	
Range:	Pulsar:	Damping:	
<u>Off</u>	<u>3.02 MHz</u>	<u>Dual</u>	
Reject:	Frequency:	Mode:	

DAC Construction

Hole "r	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
1/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
1/2	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
3/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
ID	<u>7.0</u>	1X	<u>80%</u>	<u>12.04</u>	<u>6.95</u>	<u>7.0</u>
5/4	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 73.0 dB

Sweep 0-10 10" Depth

Note N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N9-2

NOZ-RPV
Configuration:

<u>OD / Plate</u>	<u>84°F</u>
Exam Surface:	Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable indications	Exam Angle
<u>360°</u>	<u>T/P</u>	<u>73.0</u>	<u>NRI</u>	<u>60°</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/15/2003

Comments: Cal/Exam Date is the date of initial calibration.
Rectification - Full wave; TVG, CSG and DGS disabled.
Calibration for full volume examination.
Exams performed to maintain a 10-20% clad roll

<u>JAR</u>	<u>Jack Reise Witz</u>	<u>#</u>	<u>10/22/2003</u>
Initials:	Examiner	Level:	Cal/Exam Date:
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Initials:	Examiner	Level:	
<u>CM</u>	<u>CM</u>	<u>10/24/03</u>	
GE Reviewed By:	Level:	Date:	

<u>[Signature]</u>	<u>10/15/03</u>
Utility Reviewed By:	Date:
<u>[Signature]</u>	<u>10-24-03</u>
ANII Reviewed By:	Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets
Ultrasonic Calibration and Examination Record



Inner Radius Examinations

Site/Unit: Dresden / 2
 Outage: D2R18

Data Report Number: 2R18-015 Linearity Sheet: L-009
 Data Sheet Number: UT-079

Procedure: GE-UT-311

Rev: 10 DRR: N/A

Calibration Data for Block: VESSEL SHELL

CS	N/A	7.0"
Material	Size	Thickness
Initial Cal: <u>1512</u>		Exam Start: <u>1645</u>
Cal Check: <u>N/A</u>		Exam End: <u>1700</u>
Cal Check: <u>N/A</u>	<u>Ultrage II</u>	<u>02125</u>
Final Cal: <u>1817</u>	Couplant:	Batch
<u>229344</u>	<u>72° F</u>	<u>74° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp:

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>0.5</u>	<u>0.7</u>	<u>2.0</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 38.1 dB

Sweep 0-10 25° Metal Path

Acceptable Linearity performed : 10/9/2003

Search Unit Data

KBA	00L89L	0.5"x1.0"/Rect.
Manufacturer:	Serial No.:	Size/Shape:
<u>0.45 in.</u>	<u>45°</u>	<u>45°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>1.0 MHz</u>	<u>113-291-600</u>	<u>Shear</u>
Frequency:	Model:	Mode:

Search Unit Cable

RG-174	6'	0
Cable Type:	Length:	Connectors:

Instrument Settings

Panametrics / EPOCH 4	031536006		
Manufacturer/Model:	Serial No.:		
<u>14.84 us</u>	<u>0.129 u/sec</u>	<u>0.8 - 3.0 MHz</u>	<u>Auto</u>
Delay:	Velocity:	Filter:	Rep Rate:
<u>25.0 in.</u>	<u>Sq / Med</u>	<u>400 ohms</u>	
Range:	Pulsar:	Damping:	
<u>Off</u>	<u>1.0 MHz</u>	<u>P/E</u>	
Reject:	Frequency:	Mode:	

Exam Data for Component: 2/1/RPV SHELL/N9-2

Noz-RPV

Configuration:

OD / Plate

94° F

Exam Surface: Component Temp.

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>360°</u>	<u>45°</u>	<u>+60°</u>	<u>N/A</u>	<u>49.0</u>	<u>NRI</u>
<u>360°</u>	<u>45°</u>	<u>-60°</u>	<u>N/A</u>	<u>49.0</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration.

Rectification - Full wave; TVG, CSG, and DGS disabled.

Calibration for nozzle to vessel weld (N/V).

Calibration performed on flat 45° wedge.

Exams performed to maintain a 20-30% FSH clad roll.

Examination sweep is 14.14" metal path, examination range setting is 14.14".

BD Brad Dummer SI 10/22/03
 Initials: Examiner: Level: Cal/Exam Date:

[Signature] 10/25/03
 Utility Reviewed By: Date:

CP [Signature] [Signature]
 GE Reviewed By: Level: Date:

[Signature] 10-29-03
 ANII Reviewed By: Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2, D2R18
N9-2 - CRD Return
Fall 2003

Weld Length = 360. Exam Volume = 40.9		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
60° T-Scan	A	40.9	31.8	77.8%	360.0	38.9%
60° P-Scan, 85%T	A	35.6	24.6	60.1%	360.0	30.1%
IRS-Scan, 15%T	A	5.3	5.3	13.0%	360.0	6.5%
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						
60° T-Scan						
60° P-Scan, 85%T						
IRS-Scan, 15%T						

% Total Composite Coverage = 75%

Comments: A - Examined 360° length. Scanning limited due to nozzle configuration.
Weld length in degrees. IRS examination coverage determined by modeling.

Note - Rounding methods may make calculated values appear in error.

Dresden Unit-2, D2R18

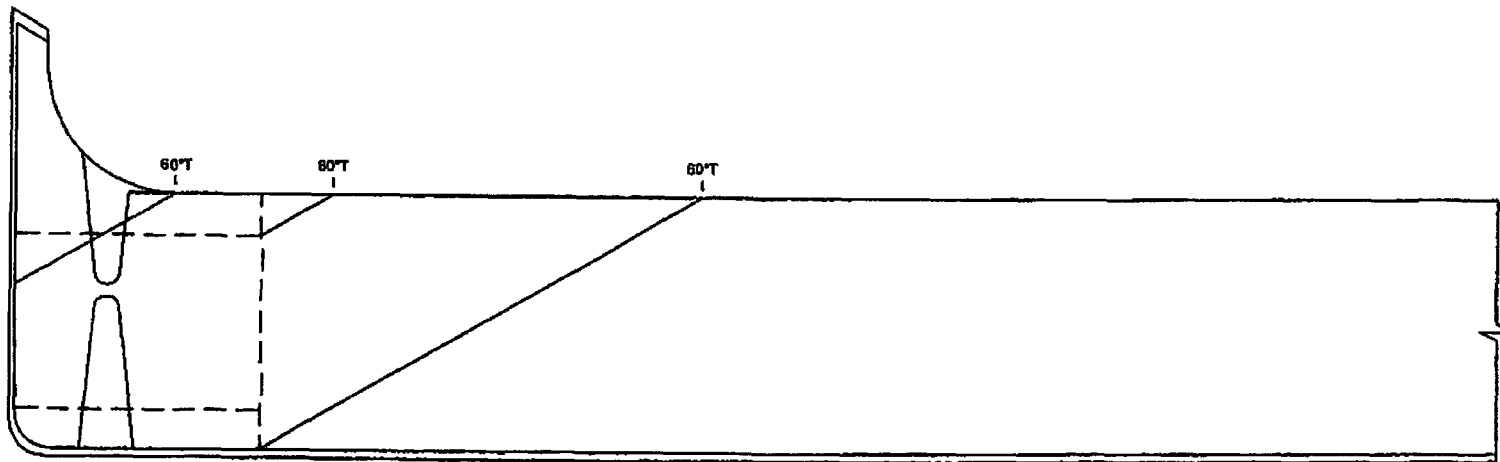
Page 5 of 7

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 CRD Return - N9

60°T Exam Volume = 40.9 Sq. In.
60°P Exam Volume = 35.6 Sq. In.
Inner 15°T Exam Volume (IRS & 60°T) = 5.3 Sq. In.

60° T-Scan achieved = 31.8 Sq. In.
60° P-Scan achieved = 24.6 Sq. In.
Inner 15°T IRS Scan achieved = 5.3 Sq. In.

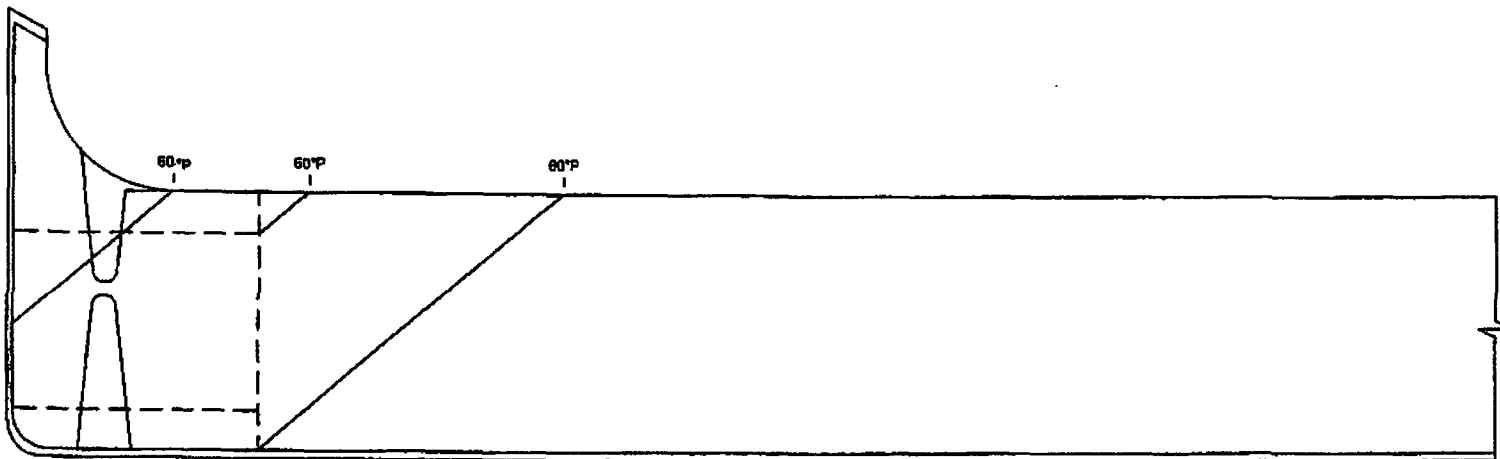


ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2 CRD Return - N9


60°T Exam Volume = 40.9 Sq. In.
60°P Exam Volume = 35.6 Sq. In.
Inner 15°T Exam Volume (IRS & 60°T) = 5.3 Sq. In.

60° T-Scan achieved = 31.8 Sq. In.
60° P-Scan achieved = 24.6 Sq. In.
Inner 15°T IRS Scan achieved = 5.3 Sq. In.



ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 <p>GE ENERGY, NUCLEAR</p>	<p>EXAMINATION SUMMARY SHEET</p>	<p>Report No.: D2R20-047</p>
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Site:	Dresden	Component ID:	2/1/RPV UPP HD/2-THD-FLG		
Outage:	D2R20		THD-FLG		
System:	RPV	ASME Cal.:	B-A	ASME Item	B1.40
				Aug Req	N/A

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° RL	D-066	N/A	GE-UT-300 Ver/Rev 10	99978AQC	Michael Riccardelli	II	11/6/2007
60° RL	D-067	N/A	GE-UT-300 Ver/Rev 10	CAL-IIW2-047	Michael Riccardelli	II	11/6/2007
45° Shear	D-06B	N/A	GE-UT-300 Ver/Rev 10	99978AQC	Michael Riccardelli	II	11/6/2007
60° Shear	D-07G	N/A	GE-UT-304 Ver/Rev 8	CAL-IIW2-047	Brad Dummer	III	11/8/2007
60° RL	D-069	N/A	GE-UT-300 Ver/Rev 10	99978AQC	Michael Riccardelli	II	11/6/2007
60° RL	D-070	N/A	GE-UT-300 Ver/Rev 10	CAL-IIW2-047	Michael Riccardelli	II	11/6/2007

Examination Results:

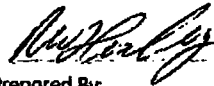
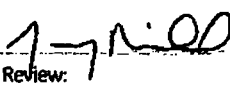
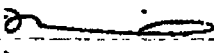
During the manual ultrasonic examination of the above referenced weld, there no reportable indications detected utilizing the 60° RL search unit. Two indications originally detected in D2R14 were seen and sized for length and thru-wall dimensions. No changes were observed.

Examination was performed from the head side due to flange configuration.

41.7% of the code required volume was examined.

This exam meets the requirements of ASME Section XI 1995 Edition, 1996 Addenda.

Previous examination results supplied by customer for review from ISI Program documents?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Change
These examinations were performed under Work Order: 8B0876-06	<input type="checkbox"/> No	<input checked="" type="checkbox"/> No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:					RWP: N/A
Prepared By: 	Level: III	Date: 11-12-07	Utility Review: 	Date: 11-13-07	Dose: N/A mr.
ANI Review: 				Date: 11/15/07	Page 1 of 12

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-037

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-066

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>7.3"</u> Thickness
Initial Cal: <u>1304</u>	Exam Start: <u>16:15</u>	
Cal Check: <u>N/A</u>	Exam End: <u>18:56</u>	
Cal Check: <u>N/A</u>	<u>Ultrage II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1912</u>	<u>255322</u> Thermometer	<u>76° F</u> Initial Cal Temp.
	<u>76° F</u> Initial Cal Temp.	<u>76° F</u> Final Cal Temp.

Search Unit Data

Sigma 228C-02004 21.1x.62/Rect
Manufacturer: Serial Number: Size / Shape:
.65" 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 RL
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031572811
Manufacturer/Model: Serial Number:
7.865 us 0.224 in./usec. 0.8 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 20.0 in. Sq. / Med
Rep Rate: Rectification: Range: Pulse:
400 Ohms 0% 3.03 MHz Dual
Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen DV
IDENTIFIER	<u>7.0"</u>	1X	<u>80%</u>	<u>12.4</u>	<u>7.0</u>	<u>7.0</u>
		2X				
		3X				
		4X				
		5X				

DAC 1X= 74.9 dB
Sweep 0-10 = 10" Depth
Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV UPP HD/2-THD-FLG

THD-FLG
Configuration:

OD Plate 70° F
Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>Transverse DN</u>	<u>74.9</u>	<u>RI</u>	<u>60</u>
<u>Plate</u>	<u>Parallel CW/CCW</u>	<u>74.9</u>	<u>NRI</u>	<u>60</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for full volume.

Exam performed to maintain a 10-20% clad roll.

Single side exam, scanned 360°.

MR Michael Riccardelli II 11/6/2007
Initials: Examiner Level: Cal/Exam Date:

Ignacio III 11-13-07
Utility Reviewed By: Date:

WWR Wallace Reid II
Initials: Examiner Level:
WWR II 11-12-07
GE Reviewed By: Level: Date:

Ignacio III 11/15/07
Utility Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-037

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-067

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-11W2-047

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>4.0"</u> Thickness
Initial Cal: <u>1301</u>	Exam Start: <u>16:15</u>	
Cal Check: <u>N/A</u>	Exam End: <u>18:56</u>	
Cal Check: <u>N/A</u>	<u>Ultrageel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1910</u>	<u>255322</u> Thermometer	<u>76° F</u> Initial Cal Temp.
		<u>76° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
<u>SDH</u>	<u>.6"</u>	<u>1X</u>	<u>80%</u>	<u>1.2</u>	<u>.68</u>	<u>3.5</u>
		<u>1X</u>				
		<u>1X</u>				
		<u>1X</u>				
		<u>1X</u>				

DAC 1X= 58.4 dB

Sweep 0-10 = 2" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV UPP HD/2-THD-FLG

THD-FLG

Configuration:

OD Plate

70° F

Exam Surface:

Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>Transverse DN</u>	<u>72.4</u>	<u>RI</u>	<u>60</u>
<u>Plate</u>	<u>Parallel CW/CCW</u>	<u>72.4</u>	<u>NRI</u>	<u>60</u>

Search Unit Data

Sigma
Manufacturer: 22BC-02004
Serial Number: 211x.62/Rect.
Size / Shape:

.65" 60° 60°
Incident Point: Nominal Angle: Measured Angle:

3.0 MHz SDC-3 RL
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4
Manufacturer/Model: 031572811
Serial Number:

7.865 μs 0.224 in./usec. 0.8 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:

Auto Fullwave 4.0 in. Sq. / Med
Rep Rate: Rectification: Range: Pulse:

400 Ohms 0% 3.03 MHz Dual
Damping: Reject: Frequency: Mode:

Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for near surface examination.

Exam performed a minimum of 14 dB above reference.

Single side exam, scanned 360°.

MR Michael Riccardelli II 11/6/2007
Initials: Examiner Level: Cal/Exam Date:

[Signature] 11-15-07
Utility Reviewed By: Date:

WR Wallace Reid II
Initials: Examiner Level: 11-12-07
[Signature] Level: Date:

[Signature] 11/15/07
ANR Reviewed By: Date:

GE Reviewed By: Level: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-037

Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-068

Procedure: GE-UT-300

Rev: 10

DRR: N/A

Calibration Block: 99978AQC

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>7.3"</u> Thickness
Initial Cal: <u>1308</u>	Exam Start:	<u>16:15</u>
Cal Check: <u>N/A</u>	Exam End:	<u>18:56</u>
Cal Check: <u>N/A</u>	<u>Ultracel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1859</u>	<u>255322</u> Thermometer	<u>76° F</u> Initial Cal Temp.
		<u>76° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
SDH 1/4 T	<u>1.7"</u>	1X	<u>80%</u>	<u>1.7</u>	<u>1.7</u>	<u>1.7</u>
SDH 1/2 T	<u>3.5"</u>	1X	<u>42%</u>	<u>3.5</u>	<u>3.5</u>	<u>3.5</u>
SDH 3/4 T	<u>5.3"</u>	1X	<u>24%</u>	<u>5.3</u>	<u>5.3</u>	<u>5.3</u>
		1X				
		1X				

DAC 1X = 19.8 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV UPP HD/2-THD-FLG

THD-FLG

Configuration:

OD Plate

70° F

Exam Surface:

Component Temperature

Weld Examination Area:	Exam Access	Scon dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>Transverse</u>	<u>33.8</u>	<u>RI</u>	<u>45</u>

Search Unit Data

<u>KBA</u> Manufacturer:	<u>825428</u> Serial Number:	<u>50" x 1.0" Rect</u> Size / Shape:
<u>2"</u> Incident Point:	<u>45°</u> Nominal Angle:	<u>45°</u> Measured Angle:
<u>2.25 MHz</u> Frequency:	<u>113-292-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>12'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panometrics / Epoch 4</u> Manufacturer/Model:	<u>031572811</u> Serial Number:
<u>12.18 μs</u> Delay/Zero:	<u>0.128 in./μsec.</u> Velocity:
<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:
<u>14.14 in.</u> Range:	<u>Sq. / Med</u> Pulser:
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:
<u>2.0 MHz</u> Frequency:	<u>Pulse/Echo</u> Mode:
<u>Off</u> DAC:	<u>Off</u> TVG:
<u>Off</u> CSC:	<u>Off</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for indication verification.

Exam performed a minimum of 14 dB above reference.

MOR Michael Riccardelli II 11/6/2007
Initials: Examiner Level: Cal/Exam Date:

[Signature] III 11/13/07
Utility Reviewed By: Date:

WWR Wallace Reid II
Initials: Examiner Level: III 11-12-07
[Signature] Date:

[Signature] 11/15/07
ANI Reviewed By: Date:

GE Reviewed By: [Signature] Level: III Date: 11-12-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Date Report Number: D2R20-037

Line Item Sheet: L-005

Outage: D2R20

Date Sheet Number: D-069

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

<u>CS/CL</u> Material	<u>Elat</u> Size	<u>7.3"</u> Thickness
Initial Cal: <u>1422</u>	Exam Start:	<u>16:15</u>
Cal Check: <u>N/A</u>	Exam End:	<u>18:56</u>
Cal Check: <u>N/A</u>	<u>Uttragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1905</u>		
<u>255322</u> Thermometer	<u>76° F</u> Initial Cal Temp.	<u>76° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dlm.	Sweep	Screen Div.
<u>1/4" Ch</u>	<u>6.8"</u>	<u>1X</u>	<u>80%</u>	<u>12</u>	<u>6.8</u>	<u>6.8</u>
		<u>1X</u>				
		<u>1X</u>				
		<u>1X</u>				

DAC 1X= 75 dB

Sweep 0-10 = 10" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

<u>Sigma</u> Manufacturer:	<u>22BC-02005</u> Serial Number:	<u>2(L1x.62)/Rect.</u> Size / Shape:
<u>.65"</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>3.0 MHz</u> Frequency:	<u>SDC-3</u> Model:	<u>RL</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>12'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>031540406</u> Serial Number:
<u>7.32 µs</u> Delay/Zero:	<u>0.2221 in./µsec.</u> Velocity:
<u>Auto</u> Rep Rate:	<u>20.0 in.</u> Range:
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:
<u>Off</u> DAC:	<u>Off</u> TVG:
<u>0.8 - 3.0 MHz</u> Narrowband Filter:	<u>Sq. / Mod</u> Pulse:
<u>3.03 MHz</u> Frequency:	<u>Dual</u> Mode:
<u>Off</u> CSC:	<u>Off</u> DGS:

Exam Data for Weld: 2/1/RPV UPP HD/2-THD-FLG

THD-FLG
Configuration:

<u>OD Plate</u> Exam Surface:	<u>70° F</u> Component Temperature
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Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T DN</u>	<u>72</u>	<u>RI</u>	<u>60</u>
<u>Plate</u>	<u>P CW/CCW</u>	<u>72</u>	<u>NRI</u>	<u>60</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/27/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for full volume examination
Exam performed to maintain a 10-20% clad roll.
Single side exam, scanned 360°.

MR Michael Riccardetti II 11/6/2007
Initials: Examiner Level: Cal/Exam Date:

[Signature] II 11-15-07
Utility Reviewed By: Date:

WWR Wallace Reid II
Initials: Examiner Level: III 11-12-07
Date:

[Signature] 11/15/07
ANI Reviewed By: Date:

GE Reviewed By: [Signature] Level: III Date: 11-12-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: D2R20-037

Linearity Sheet: L-005

Outage: D2R20

Data Sheet Number: D-070

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-IIW2-047

<u>CS/CL</u> Material	<u>Flat</u> Size	<u>4.0"</u> Thickness
Initial Cal: <u>1420</u>	Exam Start: <u>16:15</u>	
Cal Check: <u>N/A</u>	Exam End: <u>18:56</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1908</u>	<u>255322</u> Thermometer	<u>76° F</u> Initial Cal Temp.
		<u>76° F</u> Final Cal Temp.

Search Unit Data

Sigma 228C-02005 20.1x.621/Rect.
Manufacturer: Serial Number: Size / Shape:
.65" 60° 60°
Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 RL
Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031540406
Manufacturer/Model: Serial Number:
7.32 µs 0.2221 in./µsec. 0.8 - 3.0 MHz
Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 4.0 in. Sq. / Med
Rep Rate: Rectification: Range: Pulsar:
400 Ohms 0% 3.03 MHz Dual
Damping: Reject: Frequency: Made:
Off: Off: Off: Off:
DAC: TVG: CSC: DGS:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
SUII	<u>0.60"</u>	1X	<u>80%</u>	<u>1.2</u>	<u>0.68</u>	<u>3.4</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 59 dB
Sweep 0-10 = 2" Depth
Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV UPP HD/2-THD-FLG

THD-FLG
Configuration:

OD Plate 70° F
Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T DN</u>	<u>73</u>	<u>RI</u>	<u>60</u>
<u>Plate</u>	<u>P CW/CCW</u>	<u>73</u>	<u>NR/</u>	<u>60</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/27/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for near surface examination
Exam performed a minimum of 14 dB above reference.
Single side exam, scanned 360°.

MR Michael Riccardelli II 11/6/2007
Initials: Examiner Level: Cal/Exam Date:

[Signature] 11-13-07
Utility Reviewed By: Date:

WR Wallace Reid II 11-12-07
Initials: Examiner Level: Date:
[Signature] II 11-12-07
GE Reviewed By: Level: Date:

[Signature] 11/13/07
ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
RPV Components**



GE ENERGY, NUCLEAR

Site/Unit: Dresden / 2

Data Report Number: D2R20-037

Linearity Sheet: L-002

Outage: D2R20

Data Sheet Number: Q-076

Procedure: GE-UT-304

Rev.: 8

DRR: N/A

Calibration Block: CAL-IIW2-047

<u>CS</u> Material	<u>N/A</u> Size	<u>4.0"</u> Thickness	
Initial Cal: <u>1048</u>		Exam Start: <u>11:20</u>	
Cal Check: <u>N/A</u>		Exam End: <u>11:42</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch	
Final Cal: <u>1220</u>	<u>255269</u> Thermometer	<u>93° F</u> Initial Cal Temp.	<u>88° F</u> Final Cal Temp:

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= N/A

Sweep 0-10 = 2" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV UPP HD/2-THD-FLG

THD-FLG
Configuration:

OD Exam Surface: 110° F Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Note 1</u>	<u>T/P</u>	<u>29.5</u>	<u>YES</u>	<u>60°</u>

Search Unit Data

<u>KBA</u> Manufacturer:	<u>0100YB</u> Serial Number:	<u>50"/Round</u> Size / Shape:
<u>0.45"</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>2.25 MHz</u> Frequency:	<u>Benchmark</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

RG-174 Cable Type: 6' Length: 0 Connectors:

Instrument Settings

<u>Panometrics / Epoch 4</u> Manufacturer/Model:		<u>031539906</u> Serial Number:	
<u>8.975 us</u> Delay/Zero:	<u>0.1298 in./usec.</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>4.0 in.</u> Range:	<u>Sq. / Med</u> Pulser:
<u>400 Ohms</u> Damping:	<u>Off</u> Reject:	<u>2.0 MHz</u> Frequency:	<u>Pulse/Echo</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed : 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Rectification - Full wave; TVG, CSG and DGS disabled.

Calibration for sizing.

Calibrated on 2" and 4" radius and 2" and 4" metal pad.

Note 1: Examined previous indication area.

BD Brad Dummer III 11/8/2007

Initials: Examiner Level: Col/Exam Date:

N/A N/A

Initials: Examiner Level:

[Signature] JFH 11-12-07
GE Reviewed By: Level Date:

[Signature] 11-15-07
Utility Reviewed By: Date:

[Signature] 11/15/07
ANI Reviewed By: Date:

Manual RPV Exam Plan

Plant and Unit ID:	Dresden Unit 2	Component:	Top Hd. to Flg Weld
Outage:	D2R20	Cal. Block:	99978BQC
Procedures:			
Examination:	GE-UT-300 V. 10	Sizing:	GE-UT-304 V.8
Examination (N/V):	N/A	Sizing:	N/A
Extents:		Examiner:	Analyst:
Examine 360°. See attached drawing for limits.		N/A	N/A
60°RL NS T-scan -			
60°RL FV S4/S6 T-scan /			
60°RL FV S4/S6 P-Scan CW/CCW -			
60°RL NS P-Scan CW/CCW <i>OK</i>			
Limitations:			
Previous Results:			
Check Previous Data			
Comments:			
<i>J.C. Smith</i>	<i>W. Kelly</i> 11-1-07	<i>[Signature]</i> 11-12-07	<i>[Signature]</i> 11-13-07
Prepared By: <i>J.C. Smith</i>	Reviewed By: <i>W. Kelly</i>	Examined By: <i>[Signature]</i>	Reviewed By: <i>[Signature]</i>
Date: 10-30-07	Date: 11-1-07	Date: 11-12-07	Date: 11-13-07

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

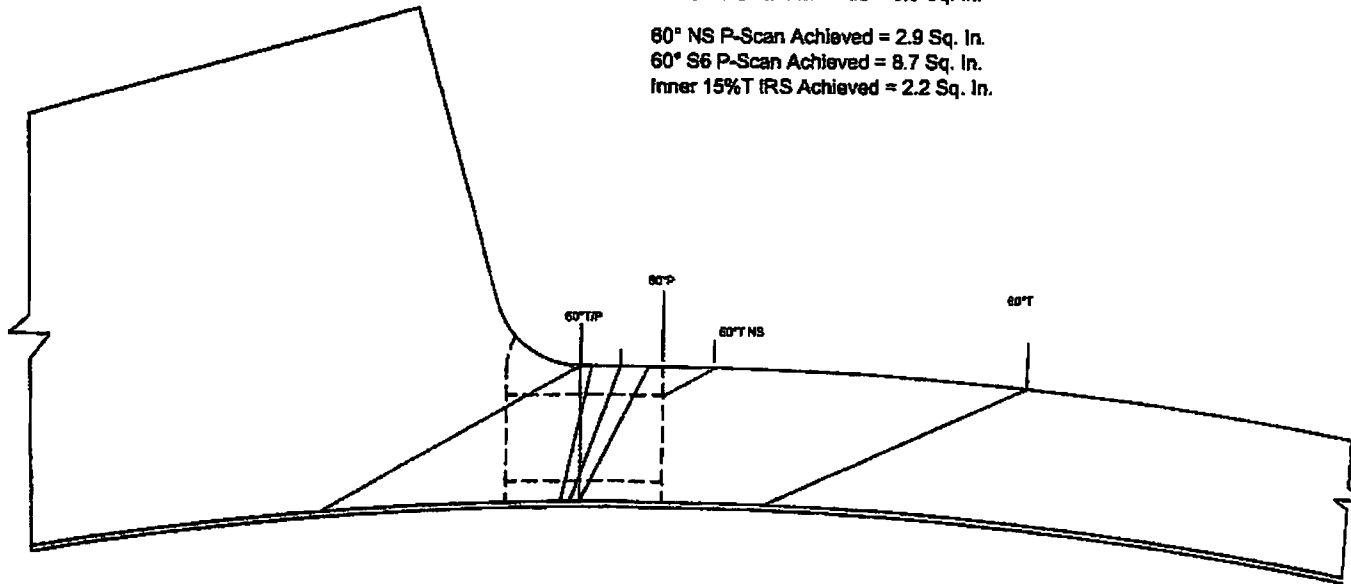
Quad Office Unit 1, Q1R19, 2007

Dresden Unit 2 Top Head - Fig.

60° NS Exam Volume = 8.4 Sq. In.
60° S6 Exam Volume = 16.5 Sq. In.
Inner 15%T S6 Exam Volume (60° & IRS) = 3.9 Sq. In.

60° NS T-Scan Achieved = 3.8 Sq. In.
60° S6 T-Scan Achieved = 16.3 Sq. In.
60° S4 T-Scan Achieved = 3.9 Sq. In.

60° NS P-Scan Achieved = 2.9 Sq. In.
60° S6 P-Scan Achieved = 8.7 Sq. In.
Inner 15%T IRS Achieved = 2.2 Sq. In.



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ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit 2 / D2R20



Reactor Pressure Vessel Coverage Calculation Sheet

Dresden Unit 2 / D2R20
 2-THD-FLG (THD-FLG)
 Fall / 2007

		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
Weld Length =	Exam Volume =	Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
360.	73.9					
60° T-Scan (S4 UC)	A	26.5	2.3	3.1%	360	1.6%
60° T-Scan (S6 FV)	A	38.9	28.2	38.2%	360	19.1%
60° T-Scan (S6 NS)	A	8.5	8.5	11.5%	360	5.8%
IRS P-Scan (S4 UC)	A	26.5	1.7	2.3%	360	1.2%
60° P-Scan (S6 FV)	A	38.9	12.4	16.8%	360	8.4%
60° P-Scan (S6 NS)	A	8.5	8.5	11.5%	360	5.8%
60° T-Scan (S4 UC)						
60° T-Scan (S6 FV)						
60° T-Scan (S6 NS)						
IRS P-Scan (S4 UC)						
60° P-Scan (S6 FV)						
60° P-Scan (S6 NS)						
60° T-Scan (S4 UC)						
60° T-Scan (S6 FV)						
60° T-Scan (S6 NS)						
IRS P-Scan (S4 UC)						
60° P-Scan (S6 FV)						
60° P-Scan (S6 NS)						

% Total Composite Coverage = 41.7%

Rev. 0 9/23/05

Comments: A - Single side exam due to flange configuration


Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in inches or degrees.

11-12-07
 LIII
 W. J. Kelly

17 mtd
 III #13-07
 Page 12 of 12

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

		EXAMINATION SUMMARY SHEET				Report No: 02R22-115	
Site: <u>Dresden</u>		Component ID: <u>2/2/1302A-12/12-9</u>					
Outage: <u>RFO 22</u>		Noz-Shell					
System: <u>ISCO</u>		ASME Cat: <u>C-B</u>		ASME Item <u>C2.21</u>		Aug Req <u>N/A</u>	
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cert Level	Date
MT	MT-004	N/A	GE-MT-100 Ver/Rev 6	N/A	Chad Congdon	II	10/21/2011
45° Shear	D-044	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	12 ISO SE	Troy Huhe	II	10/21/2011
70° Shear	D-043	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	12 ISO SE	Troy Huhe	II	10/21/2011
Examination Results: <p>During the magnetic particle examination of the above referenced component, no recordable indications were observed.</p> <p>100% of the code required area was achieved.</p> <p>During the manual ultrasonic examination of the above referenced component, no recordable indications were observed.</p> <p>1995 Edition through 1996 Addenda does not address the exact configuration of this weld condition (weld in nozzle vs. weld in vessel shell), however, later code editions do (WC-2500-4(d)).</p> <p>UT examination was limited by component configuration.</p> <p>Code coverage: Axial coverage from nozzle side = 100% Axial coverage from shell side = 0% 45° CW coverage = 50% 45° CCW coverage = 50% $100 + 0 + 50 + 50 = 200 / 4 = 50\%$ 50% of the code required volume was achieved.</p> <p>These examinations meet the requirements of ASME Section XI, 1995 Edition through 1996 Addenda.</p>							
Examination results were compared to Data Report D-044 & D-045 from: D2R17						<input type="checkbox"/> Change	
These examinations were performed under Work Order: 1292541-6						<input checked="" type="checkbox"/> No Change	
This Summary and the following data sheets have been reviewed and accepted by the following personnel:							
Prepared By: <u>Scott R. Erickson III</u>		Level: <u>10/23/11</u>		Date: <u>10/23/11</u>		RWP: 10012589 Dose: 1 mr.	
Utility Review: <u>[Signature]</u>				Date: <u>2/20/11</u>			
ANII Review: <u>[Signature]</u>				Date:		Page <u>1</u> of <u>6</u>	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

MAGNETIC PARTICLE EXAMINATION REPORT

Site: Dresden Unit: 2 Project: RFO 22 Report Number: D2R22-115
 Sheet No.: MT-004

Weld No.: 2/2/1302A-12/12-9 Configuration: Nox-Shell
 Drawing: 201 System: ISCO

Procedure No.: GE-MT-100 Version / Revision: 6 DRR: 06-02/11-21

Material: Carbon Steel Material Thickness: 1.188" Surface Condition: Ground Item: Weld - Final

Magnetizing Apparatus		Black Light	
Mfg:	<u>Parker Research</u>	Yoke Calibration:	<u>9/22/2011</u>
Model:	<u>B-100</u>	Blacklight	<u>N/A</u>
Serial No.:	<u>2025</u>	Light Meter	<u>N/A</u>
Thermometer:	<u>272755</u>	Surface Temperature:	<u>79 ° F</u>

Technique	Examination Medium	Blacklight Intensity
Current Type: <u>AC</u>	Magnetic Particles: <u>Dry</u>	<u>N/A</u>
Exam Techniqu: <u>Continuous</u>	Manufacturer: <u>Maagnaflix</u>	Blacklight Intensity:
	Particle Type: <u>#1 Gray</u>	
	Batch No: <u>05J075</u>	

Exam Start: 10/21/11 09:19 Exam End: 10/21/11 09:38

Indication Number: <u>N/A</u>	Description: <u>N/A</u>	Results: <u>NR1</u>
----------------------------------	----------------------------	------------------------

Comments:
2/2/1302A-12/12-9 IS EAST/TOP SIDE

<u>Chad Conroy</u> Initial Examiner	<u>II</u> Level	<u>10/21/2011</u> Date	<u>M. Allen</u> Utility Review	<u>10-23-11</u> Date
<u>Scott R. Erickson</u> GE Review	<u>III</u> Level	<u>10/22/11</u> Date	<u>A. M. P.</u> AN II Review	<u>23.1.11</u> Date

ATTACHMENT 2

Dresden Nuclear Power Station Fourth Island Calibration Program NDE Summary Sheets



HITACHI

Manual Piping and Components - EPOCH 4

Site/Unit: Dresden / 2
 Outage: RFO 22

Report Number: D2R22-115
 Data Sheet Number: D-044
 Linearity Sheet: L-010

Calibration Data for Block: 12/ISO SE

Procedure: UT-DRE-301V2

<u>CS</u>	<u>12.0"</u>	<u>1.188"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1317</u>
<u>Ultragel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74° F</u>		Final Cal:	<u>1523</u>
Thermometer S/N	Cal Temp.			

Ver / Rev: 0 DRR: N/A

Search Unit Data

KBA 01DSYN 0.375/Round
 Manufacturer: Serial Number Size/Shape:
0.15 in. 45° 45°
 Incident Point: Nominal Angle: Measured Angle:
2.25 MHz Comp-G Shawc 1
 Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 061487310
 Manufacturer/Model: Serial Number:
4.62 Hz 0.1258 in./usec 0.8 - 3.0 MHz
 Zero: Velocity: Narrowband Filter:
Auto Fullwave 3.500 in Sq / Max
 Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz P/E
 Damping: Reject: Frequency: Mode:

DAC Construction

Scan Direction: Ax
 Cal Reflector: ID Notch
 Signal Amplitude: 80%
 Signal Sweep: 4.80 Div
 Signal dB: 23.2 dB
 Sweep 0-10 = 3.500 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2.0" RAD</u>
Amplitude	<u>80%</u>	<u>50%</u>
Gain (dB)	<u>2.9</u>	<u>2.9</u>
Sweep (SD)	<u>2.9</u>	<u>5.8</u>

Acceptable Linearity performed: 10/22/2011

Exam Comments / Limitations:

*No recordable indications.
 No downstream exam due to nozzle to shell configuration.*

Exam Data for Weld: 2/2/1302A-12/12-9

Noz-Shell
 Configuration:

OD 80° F 272610
 Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>AXIAL</u>	<u>UPST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>CIRC</u>	<u>UPST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Start: 1400 Exam End: 1511

TH Troy Huhe II
 Initials: Examiner: Level:
N/A N/A N/A
 Initials: Examiner 2: Level:

Initial Cal/Exam Date: 10/21/2011

Scott R. Erickson III 10/22/2011
 GE Reviewed By: Level: Date:
 See Summary Sheet for Signature
 Utility Review: Date:
 See Summary Sheet for Signature
 ANII Review: Date: Page 3 of 6

ATTACHMENT 2

Dresden Nuclear Power Station Fourth Unit Calibration and Examination Summary Sheets



Manual Piping and Components - EPOCH 4

Site/Unit: Dresden / 2
 Outage: RFQ 22

Report Number: D2R22-115
 Data Sheet Number: D-043
 Linearity Sheet: L-010

Calibration Data for Block: 12 ISO SE

<u>CS</u>	<u>12.0"</u>	<u>1.188"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1322</u>
<u>Ultragel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74° F</u>		Final Cal:	<u>1525</u>
Thermometer S/N	Col Temp.			

Procedure: UT-DRE-301V2

Ver / Rev: 0 DRR: N/A

Search Unit Data

KBA 0100V5 0.375"/Round
 Manufacturer: Serial Number Size/Shape:
0.3 in. 70° 70°
 Incident Point: Nominal Angle: Measured Angle:
2.25 MHz Comp-G Shear 1
 Frequency: Style: Mode: Elements:

DAC Construction

Scan Direction: Ax
 Cal Reflector: ID Notch
 Signal Amplitude: 80%
 Signal Sweep: 4.40 Div
 Signal dB: 36.3 dB
 Sweep 0-10 = 6.000 in Metal Path

Search Unit Cable

RG-174 E 1
 Cable Type: Length: Connectors:

Instrument Settings

Pennmetrics / Epoch 4 160487316
 Manufacturer/Model: Serial Number:
5.75 us 0.1259 in./usec. 0.8 - 3.6 MHz
 Zero: Velocity: Narrowband Filter:
Auto Fullwave 6.000 in 5% / Max
 Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 1% 2.0 MHz P/E
 Damping: Reject: Frequency: Mode:

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2.0" RAD</u>
Amplitude	<u>80%</u>	<u>60%</u>
Gain (dB)	<u>9.4</u>	<u>9.4</u>
Sweep (SD)	<u>1.7</u>	<u>3.4</u>

Acceptable Linearity performed: 10/12/2011

Exam Data for Weld: 2/2/1302A-12/12-9

Noz-Shell

Configuration:

OD 80° F 272610
 Exam Surface: Exam Temp. Exam Thermometer

Exam Comments / Limitations:

*No recordable indications.
 No downstream exam due to nozzle to shell configuration.*

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>UPST</u>	<u>36.3</u>	<u>NRI</u>	<u>70°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Start: 1400 Exam End: 1511

TH Troy Huhe II
 Initials: Examiner: Level:
N/A N/A N/A
 Initials: Examiner 2: Level:

Scott R. Erickson III 10/22/2011
 GE Reviewed By: Level: Date:

See Summary Sheet for Signature

Utility Review: Date:

See Summary Sheet for Signature

ANV Review: Date:

Initial Cal/Exam Date: 10/21/2011

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ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

Wall Thickness Profile Sheet

Site: Dresden Unit: 2
Project: RFO 22

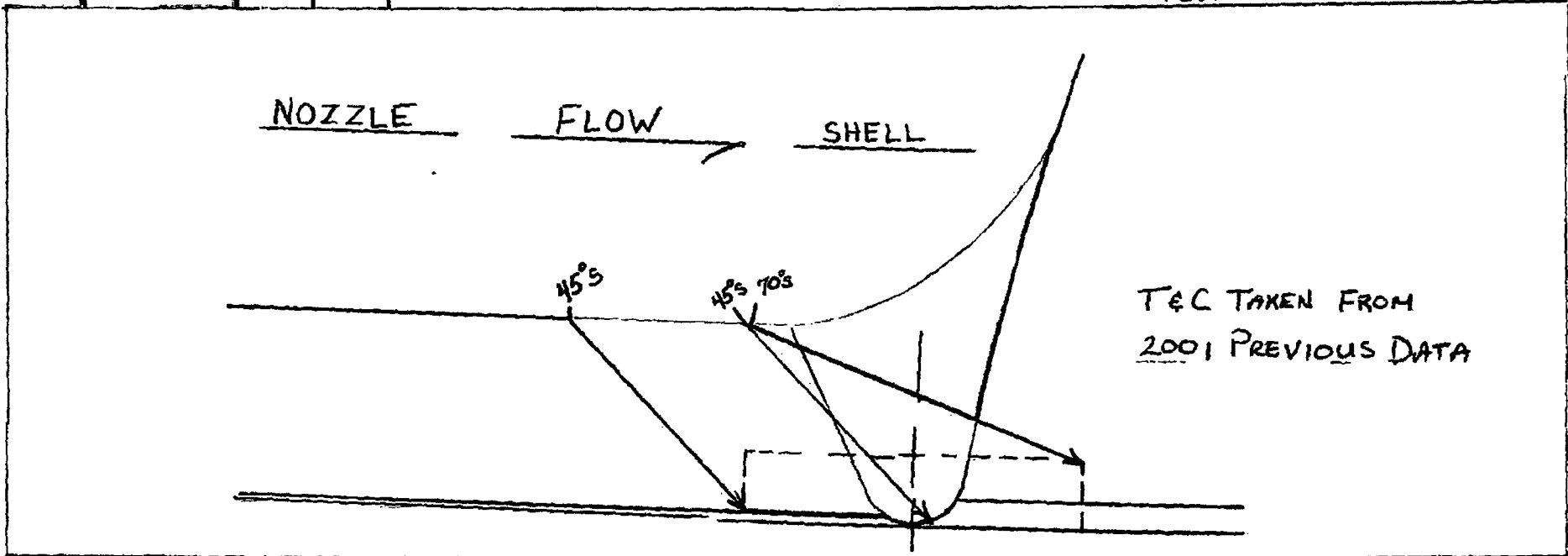
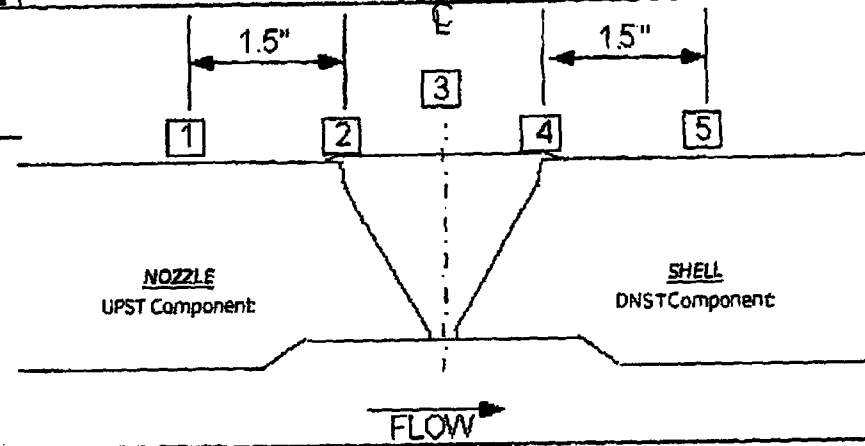
Report No.: DZR22-115

System: ISCO

Position	0°	90°	180°	270°
1	1.21"	N/A	N/A	N/A
2	1.21"	N/A	N/A	N/A
3	1.25"	N/A	N/A <td N/A	
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A

Component ID Number: 2/2/1302A-12/12-9

Crown Height: FLUSH
Crown Width: 1.5"
Nominal Diameter: 12.0"
Weld Length: 41.75"



TH
Troy Huhe
Drawn by: #
Level: Date:

Scott R. Erickson III
GE Reviewed By: Level: Date: 10/20/13

See Summary Sheet for Signature
Utility Rev'gr: Date:

See Summary Sheet for Signature
ANII Review: Date:
Page 5 of 6



2/2/1502A-12/12-9

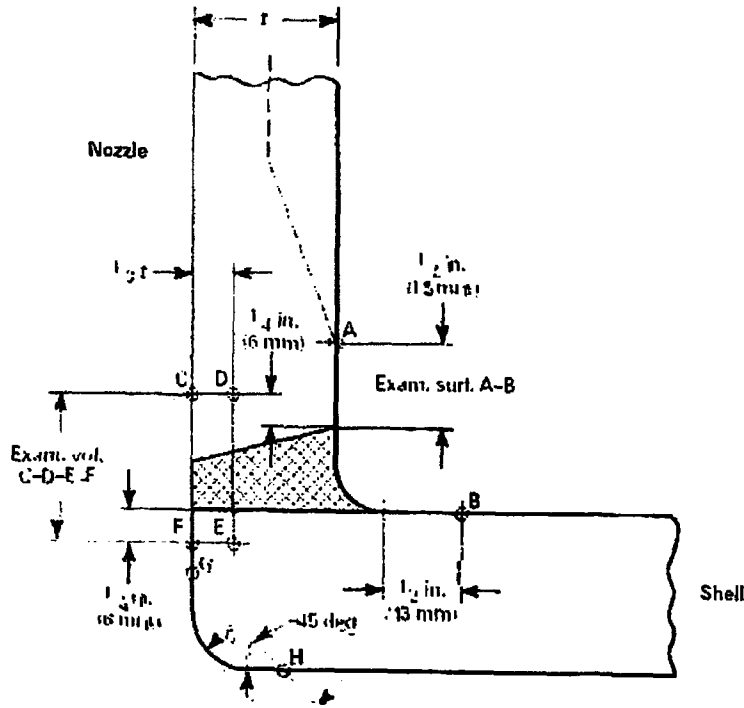
Report #D2R22-115

Section XI Weld, Category C-B, Item C2.21

Component: Noz-Shell 12" Dia. 1.188" Nom. Thick. Cal Block: 12 ISO SE

Procedure: UT-DRE-301V2 Rev. 0

Manual Exam



- 1) Scan as shown in figure. The absolute minimum scan includes the weld plus 1/4".
- 2) Examination is single sided. 45° and 70° Shear required.
- 3) Scan sensitivity is per procedure
- 4) Any questions or problems call ISI Coordinator or GEH Level III.

BTF

SCOTT R. ERICSSON


Prepared By: Scott R Ericsson GEH LIII 09/28/2011

Approved By: [Signature] III 10-6-11

Page 6 of 6

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

		EXAMINATION SUMMARY SHEET				Report No: B2R22-117	
Site: <u>Dresden</u>		Component ID: <u>2/2/1302B-12/12-8</u>					
Outage: <u>RFO 22</u>		ASME Cat.: <u>C-B</u>		ASME Item: <u>C2.21</u>		Aug Req: <u>N/A</u>	
System: <u>ISCO</u>							
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cert Level	Date
MT	MT-007	N/A	GE-MT-100 Ver/Rev 6	N/A	Chad Congdon	II	10/21/2011
70° Shear	D-046	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	12 ISO SE	Troy Huhe	II	10/21/2011
45° Shear	D-045	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	12 ISO SE	Troy Huhe	II	10/21/2011
Examination Results:							
During the magnetic particle examination of the above referenced component, no recordable indications were observed.							
100% of the code required area was achieved.							
During the manual ultrasonic examination of the above referenced component, no recordable indications were observed.							
1995 Edition through 1996 Addenda does not address the exact configuration of this weld condition (weld in nozzle vs. weld in vessel shell), however, later code editions do (IWC-2500-4(d)).							
UT examination was limited by component configuration.							
Code coverage: Axial coverage from nozzle side = 100% Axial coverage from shell side = 0% 45° CW coverage = 50% 45° CCW coverage = 50% $100 + 0 + 50 + 50 = 200 / 4 = 50\%$ 50 % of the code required volume was achieved.							
These examinations meet the requirements of ASME Section XI, 1995 Edition through 1996 Addenda.							
Examination results were compared to Data Report D-046, D-047 from: D2R17						<input type="checkbox"/> Change	
These examinations were performed under Work Order: 1292541-6						<input checked="" type="checkbox"/> No Change	
This Summary and the following data sheets have been reviewed and accepted by the following personnel:						RWP: 10012589	
Prepared By: <u>Scott R. Erickson III</u>		Level: <u>III</u>		Date: <u>10/22/11</u>		Dose: 1 mr.	
		Utility Review: <u>[Signature]</u>		Date: <u>10-23-11</u>			
		ANI Review: <u>[Signature]</u>		Date: <u>25 OCT 11</u>			
						Page <u>1</u> of <u>6</u>	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

MAGNETIC PARTICLE EXAMINATION REPORT

Site: Dresden Unit: 2 Project: RFO 22 Report Number: D2R22-117
 Sheet No.: MT-007

Weid No.: 2/2/1302B-12/12-8 Configuration: Noz-Shell
 Drawing: 201 System: ISCO

Procedure No.: GE-MT-100 Version / Revision 6 DRR: 06-02/11-21

Material: Carbon Steel Material Thickness: 1.188" Surface Condition: Ground Item: Weld - Final

Magnetizing Apparatus

Black Light

Mfg: <u>Parker Research</u>	Yoke Calibration: <u>9/22/2011</u>	Model	Serial Number
Model: <u>B-100</u>		Blacklight <u>N/A</u>	<u>N/A</u>
Serial No.: <u>2025</u>	Yoke Spacing: <u>3'-6"</u>	Light Meter <u>N/A</u>	<u>N/A</u>
Thermometer: <u>272755</u>	Surface Temperature: <u>78 ° F</u>		

Technique

Examination Medium

Blacklight Intensity

Current Type <u>AC</u>	Magnetic Particles: <u>Dry</u>	Blacklight Intensity: <u>N/A</u>
Exam Techniqu <u>Continuous</u>	Manufacturer: <u>Magnaflux</u>	Batch No: <u>05J075</u>
	Particle Type: <u>#1 Gray</u>	

Exam Start: 10/21/11 14:14 Exam End: 10/21/11 14:32

Indication Number:	Description:	Results:
<u>N/A</u>	<u>N/A</u>	<u>NRI</u>

Comments:
2/2/1302B-12/12-8 IS WEST/TOP SIDE

<u>[Signature]</u> Chad Corigan	<u>II</u>	<u>10/21/2011</u>
Initial Examiner	Level	Date
<u>[Signature]</u> Scott R. Erichson	<u>III</u>	<u>10/22/11</u>
GE Review	Level	Date

<u>[Signature]</u>	<u>10-23-11</u>
Utility Review	Date
<u>[Signature]</u>	<u>23 OCT 11</u>
ANN Review	Date

ATTACHMENT 2

Dresden Nuclear Power Station Fourth Shift Calibration Coverage NRE Summary Sheets



HITACHI

Manual Piping and Components - EPOCH 4

Site/Unit: Dresden / 2
 Outage: RFO 22

Report Number: DPR2-117
 Data Sheet Number: D-045
 Linearity Sheet: L-010

Calibration Data for Block: 12 ISO SE

Procedure: UT-DRE-301V2

Ver / Rev: 0 DRR: N/A

<u>CS</u>	<u>12.0"</u>	<u>1.188"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1317</u>
<u>Ultragel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74° F</u>		Final Cal:	<u>1523</u>
Thermometer S/N	Cal Temp.			

Search Unit Data

KBA 0105YN 0.375"/Round
 Manufacturer: Serial Number Size/Shape:
0.25 in. 45° 45°
 Incident Point: Nominal Angle: Measured Angle:
2.25 MHz Comp-G Shear 1
 Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 061487310
 Manufacturer/Model: Serial Number:
4.62 us 0.1258 in./ussec. 0.8 - 3.0 MHz
 Zero: Velocity: Narrowband Filter:
Auto Fullwave 3.500 in Sa / Max
 Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz P/E
 Damping: Reject: Frequency: Mode:

DAC Construction

Scan Direction: Ax
 Cal Reflector: ID Notch
 Signal Amplitude: 80%
 Signal Sweep: 4.80 Div
 Signal dB: 23.2 dB
 Sweep 0-10 = 3.500 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2.0" RAD</u>
Amplitude	<u>80%</u>	<u>50%</u>
Gain (dB)	<u>2.9</u>	<u>2.9</u>
Sweep (SD)	<u>2.9</u>	<u>5.8</u>

Acceptable Linearity performed: 10/12/2011

Exam Data for Weld: 2/21302B-12/12-8

Noz-Shell

Configuration:

OD 80° F 272610
 Exam Surface: Exam Temp. Exam Thermometer

Exam Comments / Limitations:

*No recordable indications.
 No downstream exam due to nozzle to shell configurations.*

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>AX</u>	<u>UPST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>CIRC</u>	<u>UPST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Start: 1400 Exam End: 1511

TH Troy Huhe II
 initials: Examiner: Level:
N/A N/A
 initials: Examiner 2: Level:
 initial Cal/Exam Date: 10/21/2011

Scott R. Erickson III 10/22/2011
 GE Reviewed By: Level: Date:
 See Summary Sheet for Signature
 Utility Review: Date:
 See Summary Sheet for Signature
 ANI Review: Date: Page 3 of 6

ATTACHMENT 2

Dresden Nuclear Power Station Fourth Island Calibration and Exam NDE Record Sheets



HITACHI

Manual Piping and Components - EPOCH 4

Site/Unit: Dresden / 2
 Outage: RFO 22

Report Number: D2R22-117
 Data Sheet Number: D-046
 Linearity Sheet: L-010

Calibration Data for Block: 12 ISO SE

Procedure: UT-DRE-301 V2

Ver / Rev: 0 DRR: N/A

<u>CS</u>	<u>12.0"</u>	<u>1.188"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1322</u>
<u>Ultragel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74 F</u>		Final Cal:	<u>1525</u>
Thermometer S/N	Cal Temp.			

Search Unit Data

KBA 0100Y5 0.375"/Round
 Manufacturer: Serial Number Size/Shape:

0.3 in. 70° 70°
 Incident Point: Nominal Angle: Measured Angle:

2.25 MHz Comp-G Shear 1
 Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 061487310
 Manufacturer/Model: Serial Number:

5.78 us 0.1259 in./usec. 0.8 - 3.0 MHz
 Zero: Velocity: Narrowband Filter:

Auto Fullwave 6,000 In Sg. / Max
 Rep Rate: Rectification: Range: Pulsar/Energy:

400 Ohms 0% 2.0 MHz P/E
 Damping: Reject: Frequency: Mode:

DAC Construction

Scan Direction: AX
 Cal Reflector: ID Notch
 Signal Amplitude: 80%
 Signal Sweep: 4.40 Div
 Signal dB: 36.3 dB
 Sweep 0-10 = 6,000 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2.0" RAD</u>
Amplitude	<u>80%</u>	<u>60%</u>
Gain (dB)	<u>9.4</u>	<u>9.4</u>
Sweep (SD)	<u>1.7</u>	<u>3.4</u>

Acceptable Linearity performed: 10/12/2011

Exam Comments / Limitations:

*No recordable indications.
 No downstream exam due to nozzle to shell configuration.*

Exam Data for Weld: 2/2/1302B-12/12-8

Noz-Shell

Configuration:

OD 80° F 272610
 Exam Surface: Exam Temp. Exam Thermometer

Axial	UPST	Scan dB	Recordable	Exam
Circ	DNST		Indications	Angle
<u>AX</u>	<u>UPST</u>	<u>36.3</u>	<u>NRI</u>	<u>70°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Start: 1400 Exam End: 1511

TH

Troy Huhe

Initials: Examiner:

Level:

Scott R. Erickson

GE Reviewed By:

Level:

Date:

See Summary Sheet for Signature

Utility Review:

Date:

See Summary Sheet for Signature

ANII Review:

Date:

Initials: Examiner 2: N/A

Level: N/A

Initial Cal/Exam Date: 10/21/2011

Page 4 of 6



HITACHI

Wall Thickness Profile Sheet

Site: Dresden

Unit: 2

Report No.:

Project: RFO 22

D2 #22-117

System: ISCO

Position	0°	90°	180°	270°
1	1.22"	N/A	N/A	N/A
2	1.21"	N/A	N/A	N/A
3	1.24"	N/A	N/A	N/A
4	N/A	N/A <td N/A	N/A	
5	N/A	N/A	N/A	N/A

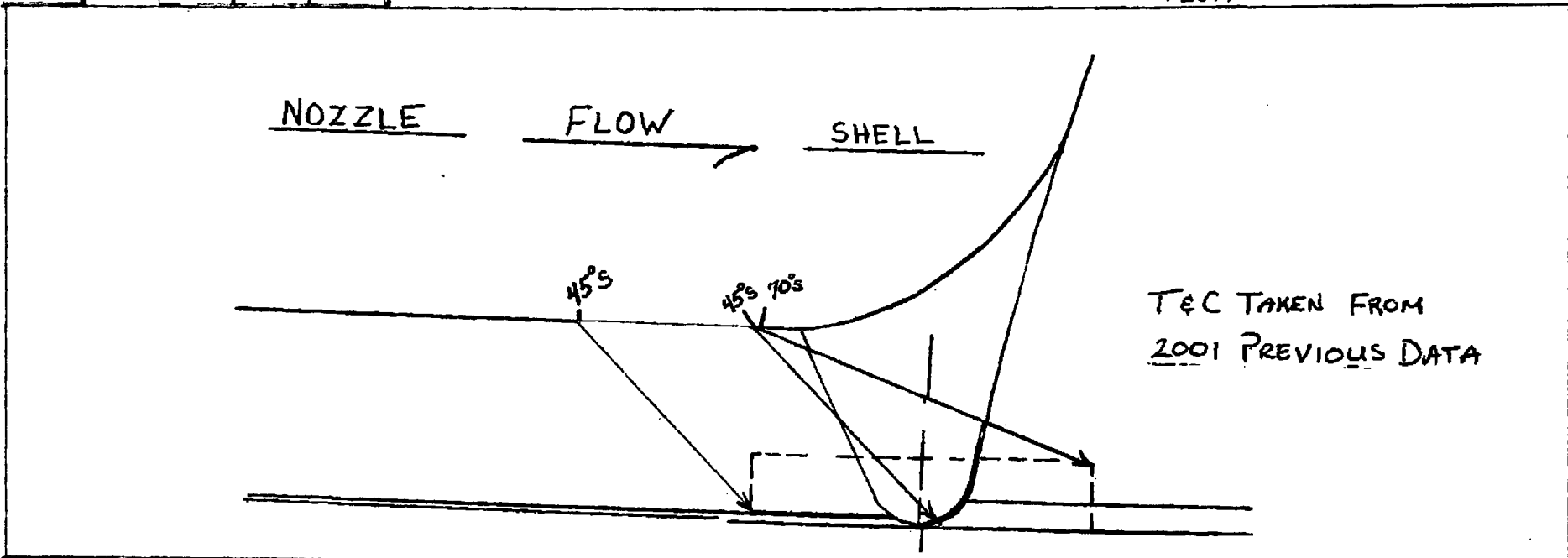
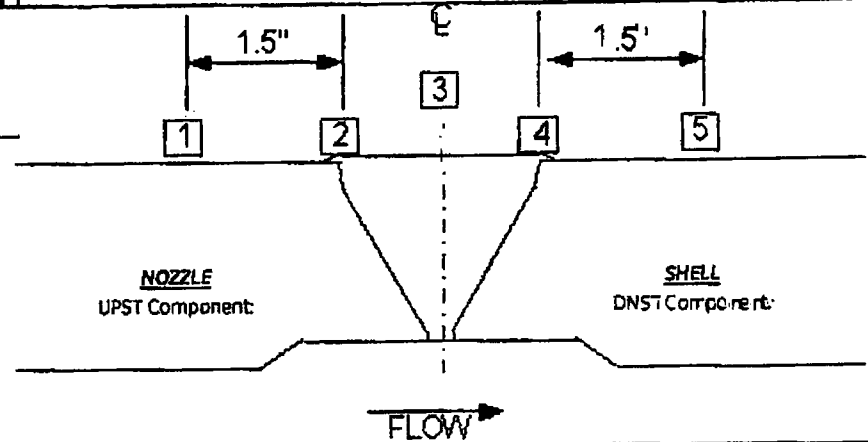
Component ID Number: 2/2/1302B-12/12-8

Crown Height: FLUSH

Crown Width: 1.3"

Nominal Diameter: 12.0"

Weld Length: 41.75"



TH

Drawn by: Troy Huhe
Level: II Date: 10/21/2011

GE Reviewed By: Scott R. Richman III
Level: III Date: 10/22/11

See Summary Sheet for Signature
Utility Review: _____ Date: _____

See Summary Sheet for Signature
ANI Review: _____ Date: _____



Report #: D2R22-117

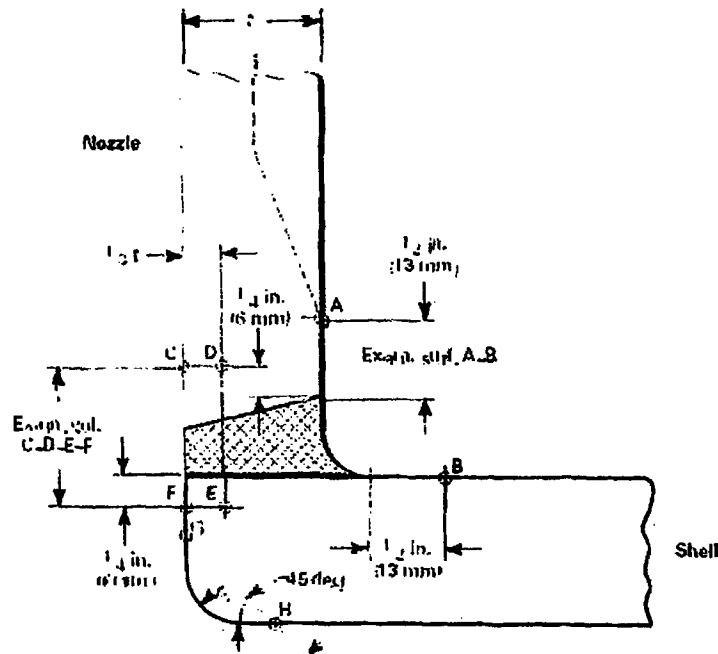
2/2/1302B-12/12-8

Section XI Weld, Category C-B, Item C2.21

Component: Noz-Shell 12" Dia. 1.188" Nom. Thick. Cal Block: 12 ISO SE

Procedure: UT-DRE-301V2 Rev. 0

Manual Exam




- 1) Scan as shown in figure. The absolute minimum scan includes the weld plus 1/4".
- 2) Examination is single sided. 45° and 70° Shear required.
- 3) Scan sensitivity is per procedure
- 4) Any questions or problems call ISI Coordinator or GEH Level III.

Prepared By: Scott R. Erickson GEH CIII 09/28/2011

Approved By: [Signature] 10-6-11

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

		EXAMINATION SUMMARY SHEET				Report No: D2R22-119	
Site: <u>Dresden</u>		Component ID: <u>2/2/1303A-8/8-9</u>					
Outage: <u>RFO 22</u>		SHL-Noz					
System: <u>ISCO</u>		ASME Cat.: <u>C-B</u>	ASME Item <u>C2.21</u>	Aug Req	<u>N/A</u>		
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cert Level	Date
MT	MT-005	N/A	GE-MT-100 Ver/Rev 6	N/A	Chad Congdon	II	10/21/2011
45° Shear	D-048	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	8 ISO SE	Mark Hilborn	III	10/21/2011
70° Shear	D-047	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	8 ISO SE	Mark Hilborn	III	10/21/2011
Examination Results: During the magnetic particle examination of the above referenced component, no recordable indications were observed. 100% of the code required area was achieved. During the manual ultrasonic examination of the above referenced component, no recordable indications were observed. 1995 Edition through 1996 Addenda does not address the exact configuration of this weld condition (weld in nozzle vs. weld in vessel shell), however, later code editions do (IWC-2500-4(d)). UT examination was limited by component configuration. Code coverage: Axial coverage on nozzle side = 100% Axial coverage on shell side = 0% 45° CW coverage = 50% 45° CCW coverage = 50% $100 + 0 + 50 + 50 = 200 / 4 = 50\%$ 50% of the code required volume was achieved. These examinations meet the requirements of ASME Section XI, 1995 Edition through 1996 Addenda.							
Examination results were compared to Data Report D-038,040,043 from: D2R17						<input type="checkbox"/> Change	
These examinations were performed under Work Order: 1292541-6						<input checked="" type="checkbox"/> No Change	
This Summary and the following data sheets have been reviewed and accepted by the following personnel:						RWP: 10012589	
Prepared By: <u>Scott R Erickson III</u>		Level: <u>III</u>		Date: <u>10/22/11</u>		Dose: 1 mr.	
Utility Review: <u>[Signature]</u>				Date: <u>10/23/11</u>			
ANII Review: <u>[Signature]</u>				Date: <u>2/2/11</u>			
						Page <u>1</u> of <u>6</u>	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

MAGNETIC PARTICLE EXAMINATION REPORT

Site: Dresden Unit: 2 Project: RFO 22 Report Number: D2R22-119
 Sheet No.: MT-005

Weld No.: 2/2/1303A-8/8-9 Configuration: SHL-Noz
 Drawing: 201 System: ISCO

Procedure No.: GE-MT-100 Version / Revision 6 DRR: 06-02/11-21

Material: Carbon Steel Material Thickness: 1.188" Surface Condition: Ground Item: Weld - Final

Magnetizing Apparatus

Black Light

Mfg: <u>Parker Research</u>	Yoke Calibration: <u>9/22/2011</u>	Model	Serial Number
Model: <u>B-100</u>		Blacklight <u>N/A</u>	<u>N/A</u>
Serial No.: <u>2025</u>	Yoke Spacing: <u>3'-6"</u>	Light Meter <u>N/A</u>	<u>N/A</u>
Thermometer: <u>272755</u>	Surface Temperature: <u>76° F</u>		

Technique

Examination Medium

Blacklight Intensity

Current Type AC Magnetic Particles: Dry Blacklight Intensity: N/A
 Exam Techniqu Continuous Manufacturer: Magnaflux Particle Type: #1 Gray Batch No: 05J075

Exam Start: 10/21/11 09:44 Exam End: 10/21/11 10:01

Indication Number:	Description:	Results:
<u>N/A</u>	<u>N/A</u>	<u>NR</u>

Comments:
2/2/1303A-8/8-9 IS EAST/BOTTOMSIDE

<u>Chad Condon</u>	<u>II</u>	<u>10/21/2011</u>
Initial Examiner	Level	Date
<u>Scott R Erickson</u>	<u>III</u>	<u>10/22/11</u>
GE Review	Level	Date

<u>W. Miller</u>	<u>10-23-11</u>
Utility Review	Date
<u>A. Hill</u>	<u>23 OCT 11</u>
ANII Review	Date

ATTACHMENT 2

**Dresden Nuclear Power Station Four Unit Containment Coverage NDE Secondary Sheets
Manual Piping and Components - EPOCH 4**



Site/Unit: Dresden / 2
Outage: RFO 22

Report Number: D2R22-119
Data Sheet Number: D-048
Linearity Sheet: L-010

Calibration Data for Block: 8 ISO SE

Procedure: UT-DRE-301V2

Ver / Rev: 0 DRR: N/A

<u>CS</u>	<u>8"</u>	<u>1.188"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1315</u>
<u>UltraGel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74° F</u>		Final Cal:	<u>1522</u>
Thermometer S/N	Col Temp.			

Search Unit Data

KBA Manufacturer: 0105YN Serial Number: 0.375"/Round Size/Shape:
0.15 in. Incident Point: 45° Nominal Angle: 45° Measured Angle:
2.25 MHz Frequency: Comp-G Style: Shear Mode: 1 Elements:

Search Unit Cable

RG-174 Cable Type: 8' Length: 0 Connectors:

Instrument Settings

Panometrics / Epoch 4 Manufacturer/Model: 061487310 Serial Number:
4.62 us Zero: 0.1258 in./usec Velocity: 0.8 - 3.0 MHz Narrowband Filter:
Auto Rep Rate: Fullwave Rectification: 3.500 in Range: Sq. / Max Pulsar/Energy:
400 Ohms Damping: 0% Reject: 2.0 MHz Frequency: P/E Mode:

DAC Construction

Scan Direction: Ax
Cal Reflector: ID Notch
Signal Amplitude: 80%
Signal Sweep: 4.80 Div
Signal dB: 23.2 dB
Sweep 0-10 = 3.500 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2" RAD</u>
Amplitude	<u>80%</u>	<u>50%</u>
Gain (dB)	<u>2.9</u>	<u>2.9</u>
Sweep (SD)	<u>2.9</u>	<u>5.8</u>

Acceptable Linearity performed: 10/12/2011

Exam Data for Weld: 2/2/1303A-B/B-9

SHL-Noz
Configuration:

OD Exam Surface: 80° F Exam Temp.: 272610 Exam Thermometer

Exam Comments / Limitations:

*No exam performed from upstream side due to component configuration.
No recordable indications.*

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>AX</u>	<u>DNST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>CIRC</u>	<u>DNST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Start: 1400 Exam End: 1511

mas Initials: Mark Hilborn Examiner: III Level:

TH Initials: Troy Huhe Examiner 2: II Level:

Initial Cal/Exam Date: 10/21/2011

Scott R. Erickson GE Reviewed By: III Level: 10/22/2011 Date:

See Summary Sheet for Signature

Utility Review: _____ Date: _____

See Summary Sheet for Signature

ANII Review: _____ Date: _____



HITACHI

Manual Piping and Components - EPOCH 4

Site/Unit: Dresden / 2
 Outage: RFO 22

Report Number: D2R22-119
 Data Sheet Number: D-047
 Linearity Sheet: L-010

Calibration Data for Block: 8 ISO SE

CS	8"	<u>1.186"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1320</u>
<u>Ultragel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74° F</u>		Final Cal:	<u>1525</u>
Thermometer S/N	Cal Temp.			

DAC Construction

Scan Direction: AX
 Cal Reflector: ID Notch
 Signal Amplitude: 80%
 Signal Sweep: 4.40 Div
 Signal dB: 36.3 dB
 Sweep 0-10 = 6.000 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2.0" RAD</u>
Amplitude	<u>80%</u>	<u>60%</u>
Gain (dB)	<u>8.4</u>	<u>9.4</u>
Sweep (SD)	<u>1.7</u>	<u>3.4</u>

Acceptable Linearity performed: 10/12/2011

Exam Data for Weld: 2/2/1303A-B/B-9

SHL-Noz
 Configuration:

OD 80° F 272610
 Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>AX</u>	<u>DNST</u>	<u>36.3</u>	<u>NR</u>	<u>70°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Procedure: UT-DRE-301V2

Ver / Rev: 0 DRR: N/A

Search Unit Data

KBA 010DY5 0.375"/Round
 Manufacturer: Serial Number Size/Shape:
0.3 in. 70° 70°
 Incident Point: Nominal Angle: Measured Angle:
2.25 MHz Comp-G Shear 1
 Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 061487310
 Manufacturer/Model: Serial Number:
5.788 uS 0.1259 in./uSec. 0.8 - 3.0 MHz
 Zero: Velocity: Narrowband Filter:
Auto Fullwave 6.000 in Sa / Max
 Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz P/E
 Damping: Reject: Frequency: Mode:

Exam Comments / Limitations:

*No exam performed from upstream side due to component configuration.
 No recordable indications.*

Exam Start: 1400 Exam End: 1511

M.H. Mark Hillborn III
 Initials: Examiner: Level:

TH Troy Huhs II
 Initials: Examiner 2: Level:

Initial Cal/Exam Date: 10/21/2011

Scott R. Erickson III 10/22/2011
 GE Reviewed By: Level: Date:

See Summary Sheet for Signature

Utility Review: Date:

See Summary Sheet for Signature

ANII Review: Date:



HITACHI

Wall Thickness Profile Sheet

Site: Dresden

Unit: 2

Report No.:

Project: RFO 22

D2/R22-119

System: ISCO

Component ID Number: 2/2/1303A-8/8-9

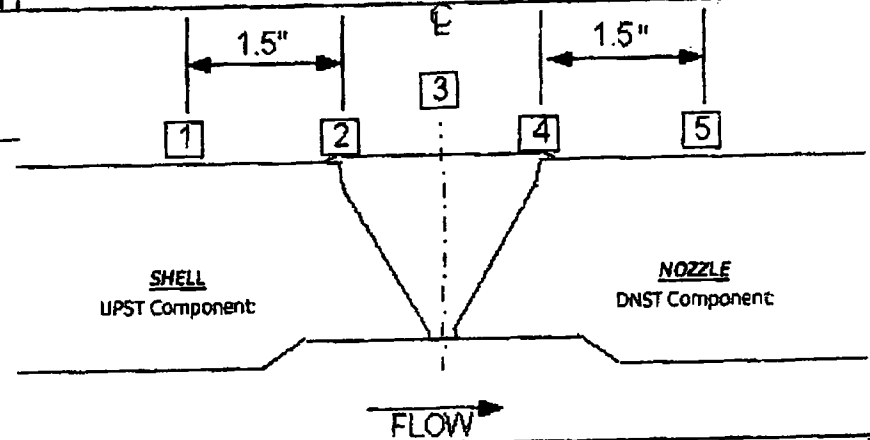
Position	0°	90°	180°	270°
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	1.28"	N/A	N/A	N/A
4	1.23"	N/A	N/A	N/A
5	1.23"	N/A	N/A	N/A

Crown Height: FLUSH

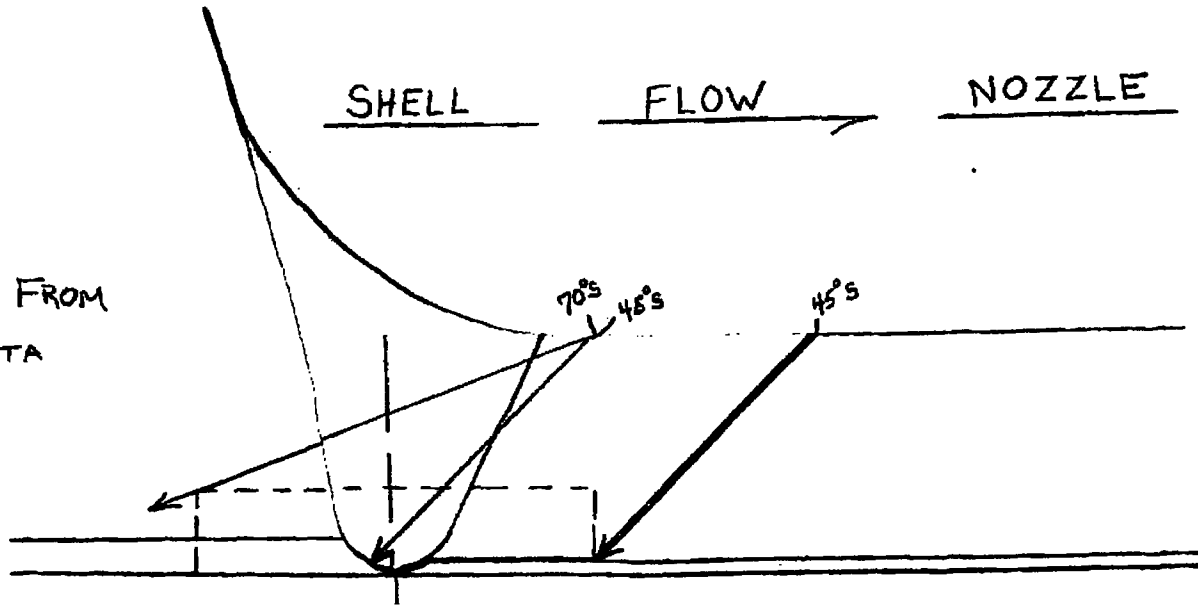
Crown Width: 1.5"

Nominal Diameter: 8.0"

Weld Length: 27.8"



T&C TAKEN FROM 2001 PREV. DATA



Mark Hilborn
Drawn by:

III 10/21/2011
Level: Date:

Scott R. Erickson III
GE Reviewed By: Level: Date:

10/22/11
Date:

See Summary Sheet for Signature
Utility Review: Date:

See Summary Sheet for Signature
ANII Review: Date:

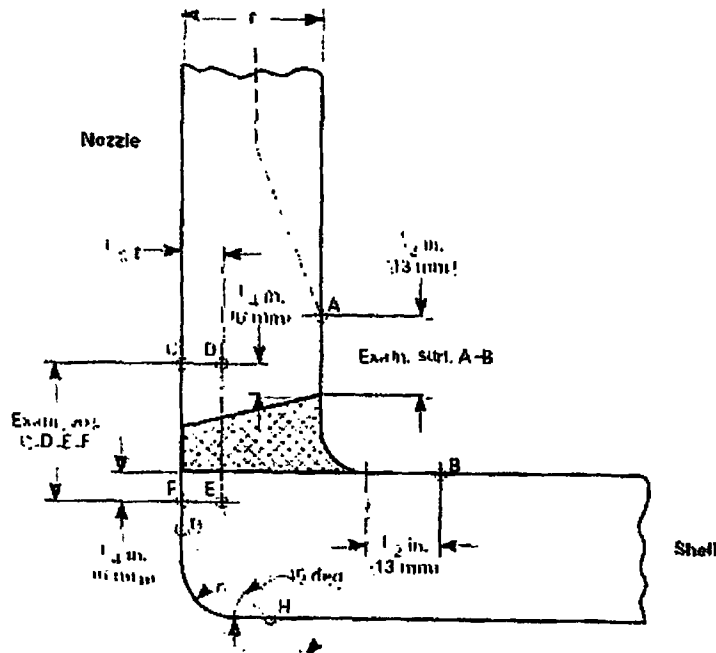
2/2/1303A-8/8-9

Section 41 weld, Category C-B, Item C2.21

Component: Shell-Noz 8" Dia. 1.183" Nom. Thick. Cal Block: 8 ISO SE / NOZ

Procedure: UT-DRE-301V2 Rev. 0

Manual Exam



- 1) Scan as shown in figure. The absolute minimum scan includes the weld plus 1/4".
- 2) Examination is single sided. 45° and 70° Shear required.
- 3) Scan sensitivity is per procedure
- 4) Any questions or problems call ISI Coordinator or GEH Level III.


Scott R. Erickson

Prepared By: Scott R. Erickson GEH LTL 08/29/2011

Approved By: [Signature] 10-6-11

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

		EXAMINATION SUMMARY SHEET				Report No.: E2K22-120	
Site: <u>Dresden</u>		Component ID: <u>2/2/1303B-8/8-B</u>					
Outage: <u>RFO 22</u>		SHL-Noz					
System: <u>ISCO</u>		ASME Cat.: <u>C-B</u>		ASME Item <u>C2.21</u>		Aug Req <u>N/A</u>	
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cert Level	Date
MT	MT-006	N/A	GE-MT-100 Ver/Rev 6	N/A	Chad Congdon	II	10/21/2011
70° Shear	D-042	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	8 ISO SE	Mark Hilbom	III	10/21/2011
45° Shear	D-041	N/A	UT-DRE-301V2 Ver/Rev 0 N/A	8 ISO SE	Mark Hilbom	III	10/21/2011
Examination Results:							
During the magnetic particle examination of the above referenced component, no recordable indications were observed.							
100% of the code required area was achieved.							
During the manual ultrasonic examination on the above referenced component, no recordable indications were observed.							
1995 Edition through 1996 Addenda does not address the exact configuration of this weld condition (weld in nozzle vs. weld in vessel shell), however, later code editions do (IWC-2550-4(d)).							
UT examination was limited by component configuration.							
Code coverage: Axial coverage from nozzle side = 100% Axial coverage from shell side = 0% 45° CW coverage = 50% 45° CCW coverage = 50% $100 + 0 + 50 + 50 = 200 / 4 = 50\%$ 50% of the code required volume was achieved.							
These examinations meet the requirements of ASME Section XI, 1995 Edition through 1996 Addenda.							
Examination results were compared to Data Report D-039,041,042 from: D2R17						<input type="checkbox"/> Change	
These examinations were performed under Work Order: 1282541-6						<input checked="" type="checkbox"/> No Change	
This Summary and the following data sheets have been reviewed and accepted by the following personnel:						RWP: 10012589	
Prepared By: <u>Scott R. Erickson III</u>		Level: <u>III</u>		Date: <u>10/22/11</u>		Dose: 1 mr.	
Utility Review: <u>[Signature]</u>				Date: <u>10-23-11</u>			
ANII Review: <u>[Signature]</u>				Date: <u>25 Oct 11</u>			
						Page <u>1</u> of <u>6</u>	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

MAGNETIC PARTICLE EXAMINATION REPORT

Site: Dresden Unit: 2 Project: RFO 22 Report Number: D2R22-120
 Sheet No.: MT-006

Weld No.: 2/2/13038-8/8-8 Configuration: SHL-Noz
 Drawing: 201 System: ISCO

Procedure No.: GE-MT-100 Version / Revision: 6 DRR: 06-02/11-21

Material: Carbon Steel Material Thickness: 1.188" Surface Condition: Ground Item: Weld - Final

Magnetizing Apparatus

Black Light

Mfg:	<u>Parker Research</u>	Yoke Calibration:	<u>9/22/2011</u>	Model	Serial Number
Model:	<u>B-100</u>	Blacklight	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Serial No.:	<u>2025</u>	Yoke Spacing:	<u>3'-6"</u>	Light Meter	<u>N/A</u>
Thermometer:	<u>272755</u>	Surface Temperature:	<u>75 ° F</u>		

Technique

Examination Medium

Blacklight Intensity

Current Type	<u>AC</u>	Magnetic Particles:	<u>Dry</u>	Blacklight Intensity:	<u>N/A</u>
Exam Techniqu	<u>Continuous</u>	Manufacturer:	<u>Magnaflux</u>	Particle Type:	<u>#1 Gray</u>
				Batch No	<u>051075</u>

Exam Start: 10/21/11 10:14 Exam End: 10/21/11 10:30

Indication Number:	Description:	Results:
<u>N/A</u>	<u>N/A</u>	<u>NR!</u>

Comments:

2/2/13038-8/8-8 IS WEST/BOTTOM SIDE.

<u>Chad Dornon</u>	<u>II</u>	<u>10/21/2011</u>
Initial Examiner	Level	Date
<u>Scott R. Erickson</u>	<u>III</u>	<u>10/22/2011</u>
GE Review	Level	Date

<u>[Signature]</u>	<u>10-23-11</u>
Utility Review	Date
<u>[Signature]</u>	<u>10-24-11</u>
AVII Review	Date

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Inter-calibration and Examination Report Sheets
 Ultrasonic Calibration and Examination Record



HITACHI

Manual Piping and Components - EPOCH 4

Site/Unit: Dresden / 2
 Outage: RFO 22

Report Number: D2R22-120
 Data Sheet Number: D-041
 Linearity Sheet: L-010

Calibration Data for Block: B ISO SE

<u>CS</u>	<u>8"</u>	<u>1.188"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1315</u>
<u>Ultragel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74°F</u>		Final Cal:	<u>1522</u>
Thermometer S/N	Cal Temp.			

Procedure: UT-DRE-301V2

Ver / Rev: 0 DRR: N/A

Search Unit Data

KBA Q1D5YN 0.375"/Round
 Manufacturer: Serial Number Size/Shape:
0.15 in. 45° 45°
 Incident Point: Nominal Angle: Measured Angle:
2.25 MHz Comp-G Shear 1
 Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 061487310
 Manufacturer/Model: Serial Number:
4.62 us 0.1258 in./usec. 0.8 - 3.0 MHz
 Zero: Velocity: Narrowband Filter:
Auto Fullwave 3.500 in Sa / Max
 Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz P/E
 Damping: Reject: Frequency: Mode:

DAC Construction

Scan Direction: Ax
 Cal Reflector: ID Notch
 Signal Amplitude: 80%
 Signal Sweep: 4.80 Div
 Signal dB: 23.2 dB
 Sweep 0-10 = 3.500 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2.0" RAD</u>
Amplitude	<u>80%</u>	<u>50%</u>
Gain (dB)	<u>2.9</u>	<u>2.9</u>
Sweep (SD)	<u>2.9</u>	<u>5.8</u>

Acceptable Linearity performed: 10/12/2011

Exam Comments / Limitations:

*No exam performed from upstream side due to component configuration.
 No recordable indications.*

Exam Data for Weld: 2/2/13038-8/8-8

SHL-Nag
 Configuration:

OD 80°F 272610
 Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>AXIAL</u>	<u>DNST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>CIRC</u>	<u>DNST</u>	<u>29.2</u>	<u>NRI</u>	<u>45°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Start: 1400 Exam End: 1511

M.R.H Mark Hillborn III
 Initials: Examiner: Level:
T.H Troy Huha II
 Initials: Examiner 2: Level:

Initial Cal/Exam Date: 10/21/2011

Scott R Erickson JL 10/22/2011
 GE Reviewed By: Level: Date:
 See Summary Sheet for Signature
 Utility Review: Date:
 See Summary Sheet for Signature
 ANII Review: Date: Page 3 of 6



HITACHI

Manual Piping and Components - EPOCH 4

Site/Unit: Dresden / 2
Outage: RFO 22

Report Number: D2R22-120
Data Sheet Number: D-042
Linearity Sheet: L-010

Calibration Data for Block: 8/ISO SE

<u>CS</u>	<u>8"</u>	<u>1.188"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1320</u>
<u>Ultrageel II</u>	<u>07225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>272610</u>	<u>74° F</u>		Final Cal:	<u>1526</u>
Thermometer S/N	Cal Temp.			

Procedure: UT-DRE-301V2

Ver / Rev: 0 DRR: N/A

Search Unit Data

KBA 0100YS 0.375"/Round
Manufacturer: Serial Number Size/Shape:
0.3 in. 70° 70°
Incident Point: Nominal Angle: Measured Angle:
2.25 MHz Comp-G Shear 1
Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 061487310
Manufacturer/Model: Serial Number:
5.788 us 0.1259 in./usec. 0.8 - 3.0 MHz
Zero: Velocity: Narrowband Filter:
Auto Fullwave 6.000 in Sa / Max
Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz P/E
Damping: Reject: Frequency: Mode:

DAC Construction

Scan Direction: 4x
Cal Reflector: ID Notch
Signal Amplitude: 80%
Signal Sweep: 4.40 Div
Signal dB: 36.3 dB
Sweep 0-10 = 6.000 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-108

Reflector	<u>1.0" RAD</u>	<u>2.0" RAD</u>
Amplitude	<u>80%</u>	<u>60%</u>
Gain (dB)	<u>9.4</u>	<u>9.4</u>
Sweep (SD)	<u>1.7</u>	<u>3.4</u>

Acceptable Linearity performed: 10/12/2011

Exam Comments / Limitations:

*No exam performed from upstream side due to component configuration.
No recordable indications.*

Exam Data for Weld: 2/2/13038-8/8-8

SHL-Nag
Configuration:

OD 80° F 272610
Exam Surface: Exam Temp. Exam Thermometer

Axial Ctrc	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>AXIAL</u>	<u>DNST</u>	<u>36.3</u>	<u>NR</u>	<u>70°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Start: 1400 Exam End: 1511

Mark Hilborn III

Initials: Examiner: Level:

Troy Huhe II

Initials: Examiner 2: Level:

Initial Cal/Exam Date: 10/21/2011

Scott R. Eichorn III 10/22/2011

GE Reviewed By: Level: Date:

See Summary Sheet for Signature

Utility Review: Date:

See Summary Sheet for Signature

ANII Review: Date:

Page 4 of 6



Wall Thickness Profile Sheet

Site: Dresden
Project: RFO 22

Unit: 2

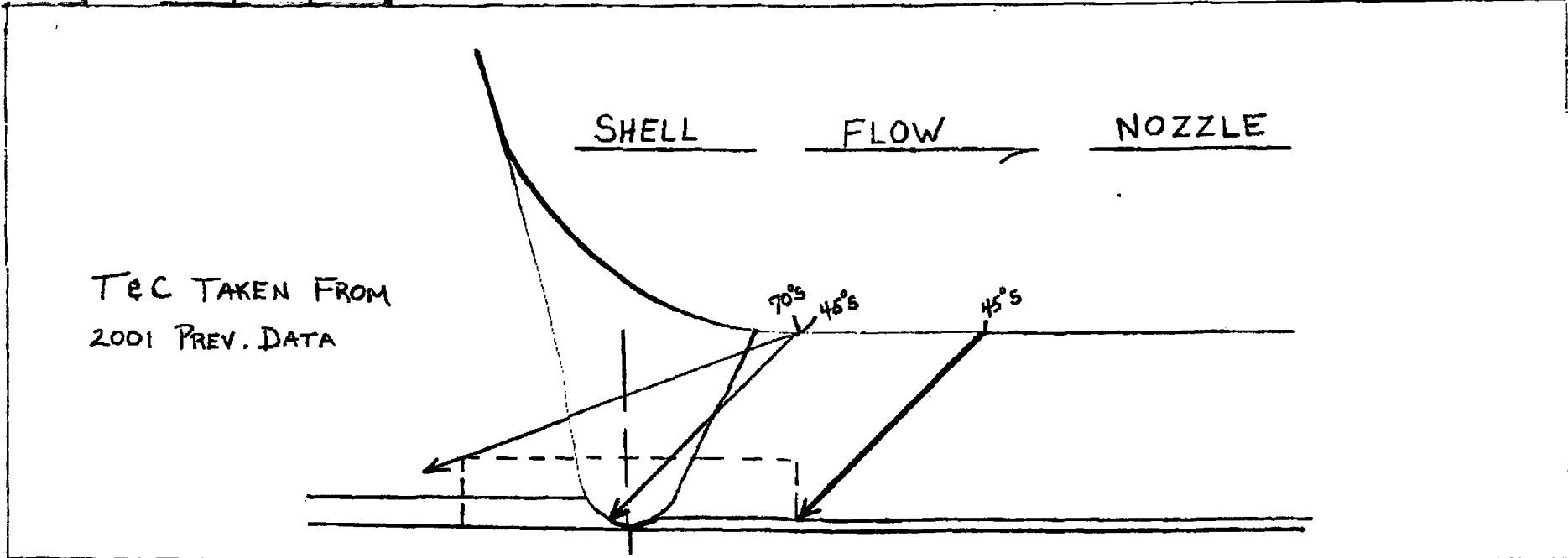
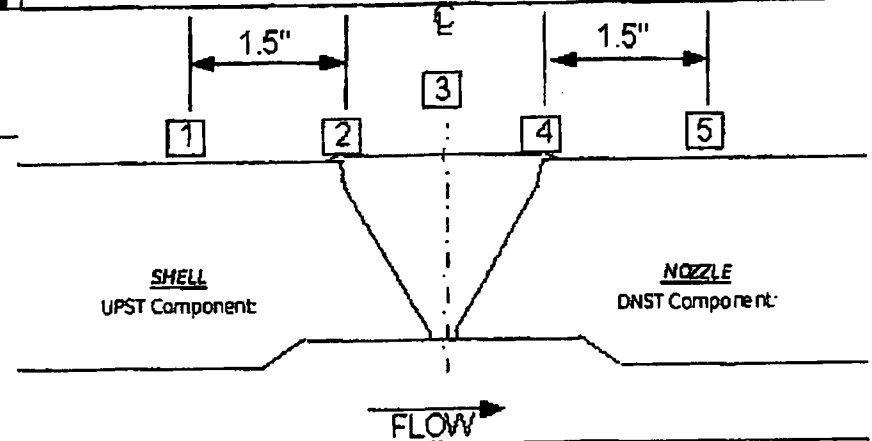
Report No.: 02R22-120

System: ISCO

Position	0°	90°	180°	270°
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	1.28"	N/A	N/A	N/A
4	1.23"	N/A	N/A	N/A
5	1.23"	N/A	N/A	N/A

Component ID Number: 2/213038-8/8-8

Crown Height: FLUSH
Crown Width: 1.3"
Nominal Diameter: 8.0"
Weld Length: 27.8"



Mark Hillborn
Drawn by:

III 10/21/2011
Level: Date:

Scott Erickson III
GE Reviewed By:

III 10/22/11
Level: Date:

See Summary Sheet for Signature

Utility Review:

Date:

See Summary Sheet for Signature

ANII Review:

Date:

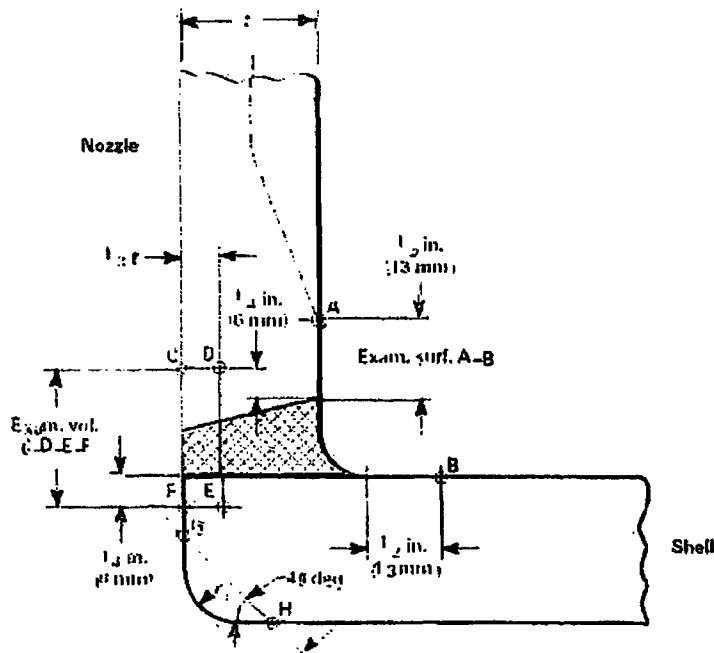
2/2/1303B-2/8-8

Section XI Weld, Category C-8, Item C2.21

Component: Shell-Noz 8" Dia. 1.188" Nom. Thick. Cal Block: 8 ISO SE / NOZ

Procedure: UT-DRE-301V2 Rev. 0

Manual Exam



- 1) Scan as shown in figure. The absolute minimum scan includes the weld plus 1/4".
- 2) Examination is single sided. 45° and 70° Shear required.
- 3) Scan sensitivity is per procedure
- 4) Any questions or problems call ISI Coordinator or GEH Level III.

Prepared By: Scott R. Erickson GEH III 09/29/2011

Approved By: [Signature] 10-6-11

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

HITACHI		EXAMINATION SUMMARY SHEET				Report No.: D2R22-110	
Site: Dresden		Component ID: 2/1/RPV UPP HD/N18A-2					
Outage: RFO 22		ASME Cat.: B-D		ASME Item: B3.90		Aug Req: N/A	
System: RPV							

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Exam / Oper. Personnel	Cart Level	Date
60° RL	D-104	N/A	GE-UT-300 Ver/Rev 10	Vessel Head	Jimmy Johnson	II	10/21/2011
60° RL	D-105	N/A	GE-UT-300 Ver/Rev 10	CAL-IIW2-044	Jimmy Johnson	II	10/21/2011
45° Shear	D-106	N/A	GEH-UT-311 Ver/Rev 10 DRR 10-02/10-22	Vessel Head	Jimmy Johnson	II	10/21/2011
60° Shear	D-107	N/A	GEH-UT-311 Ver/Rev 10 DRR 10-02/10-22	Vessel Head	Jimmy Johnson	II	10/21/2011

Examination Results:

During the manual ultrasonic examination of the above reference component, no recordable indications were detected utilizing an 60° refracted longitudinal, 45° and 60° shear wave search units.

This examination is acceptable per the requirements of ASME Section XI 1995 Edition, 1996 Addenda.

This examination was restricted due to nozzle configuration

The UT composite coverage = 74.2%

Examination results were compared to Data Report RPV-001,002,003, from: D2R17 [] Change

These examinations were performed under Work Order: 1292542-6 No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:				RWP: 10012589	
Prepared By:	Level: III	Date: 10-24-11	Utility Review:	Date: 10-29-11	Dose: 6 mr.
ANII Review:				Date: 29-2-11	Page <u>1</u> of <u>9</u>



Dresden Nuclear Power Station

ATTACHMENT 2
Ultrasonic Calibration and Examination Record Sheets
RPV Components - EPOCH 4

Site/Unit: Dresden / 2

Data Report Number: D2R22-110

Linearity Sheet: L-011

Outage: RFO 22

Data Sheet Number: D-104

Procedure: GE-UT-300

Rev: 10

DRR: N/A

Calibration Block: Vessel Head

<u>CS</u> Material	<u>FLAT</u> Size	<u>5.0"</u> Thickness
Initial Cal: <u>1011</u>	Exam Start: <u>1218</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1451</u>	
Cal Check: <u>N/A</u>	<u>Ultrage II</u> Couplant	<u>07225</u> Batch
Final Cal: <u>1815</u>		
<u>272874</u> Thermometer	<u>75° F</u> Initial Cal Temp.	<u>75° F</u> Final Cal Temp.

DAC Construction

Reflector	Gate Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>5.0"</u>	1X	<u>80%</u>	<u>8.6"</u>	<u>4.9"</u>	<u>7.2</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 68.2 dB

Sweep 0-10 = 7" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

Stigma 22BC-03002 21.1"X0.62"Rect.
 Manufacturer: Serial Number: Size / Shape:
75° 60° 60°
 Incident Point: Nominal Angle: Measured Angle:
3.0 MHz SDC-3 BL
 Frequency: Model: Mode:

Search Unit Cable

RG-174 12' 0
 Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 081579302
 Manufacturer/Model: Serial Number:
8.12 us 0.227 in./usec. 0.8 - 3.0 MHz
 Delay/Zero: Velocity: Narrowband Filter:
Auto Fullwave 14.0 in. Sq. / Med
 Rep Rate: Rectification: Range: Pulsar/Energy
400 Ohms 0% 3.03 MHz Dual
 Damping: Reject: Frequency: Mode:
Off: Off: Off: Off:
 DAC: TVG: CSC: DGS:

Exam Data for Weld: 2/1/RPV UPP HD/N18A-2

Noz-RPV
 Configuration:

OD 64° F
 Exam Surface: Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>TRP</u>	<u>74.2</u>	<u>NRI</u>	<u>60°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/12/2011

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
 Calibration for full volume examination.
 Exams performed to maintain a 10 - 20% clad roll.
 Examined from 0° CW to 360°.

JJ Jimmy Johnson II 10/21/2011
 Initials: Examiner Level: Cal/Exam Date:
N/A N/A
 Initials: Examiner Level:
[Signature] III 10-24-11
 GE Reviewed By: Level: Date:

See Summary Sheet for Signature
 Utility Reviewed By: _____ Date: _____
 See Summary Sheet for Signature
 ANII Reviewed By: _____ Date: _____



HITACHI

ATTACHMENT 2 - Ultrasonic Calibration and Examination Record Sheets
Fourth ISI Interval Limited Coverage NDE Summary Sheets
RPV Components - EPOCH 4

Site/Unit: Dresden / 2

Data Report Number: D2R22-110

Linearity Sheet: L-011

Outage: RFO 22

Data Sheet Number: D-105

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-11W2-044

CS Material	ELAT Size	4.0" Thickness
Initial Cal: <u>1009</u>	Exam Start: <u>1218</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1451</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u>	<u>07225</u>
Final Cal: <u>1812</u>	Couplant:	Batch
<u>272874</u>	<u>75° F</u>	<u>75° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
SDH	<u>.6"</u>	1X	<u>80%</u>	<u>1.1"</u>	<u>.60"</u>	<u>3.1</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
N/A	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC 1X= 60.7 Db

Sweep 0-10 = 2" Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV UPP HD/N18A-2

Noz-RPV
Configuration:

OD Exam Surface:	64° F Component Temperature
----------------------------	---------------------------------------

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T&P</u>	<u>74.7</u>	<u>NRI</u>	<u>60°</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Search Unit Data

<u>Sigma</u>	<u>228C-03002</u>	<u>20.1"x0.62"/Rect.</u>
Manufacturer:	Serial Number:	Size / Shape:
<u>.75"</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u>	<u>SDC-3</u>	<u>RL</u>
Frequency:	Model:	Mode:

Search Unit Cable

<u>RG-174</u>	<u>12'</u>	<u>0</u>
Cable Type:	Length:	Connectors:

Instrument Settings

<u>Panametrics / Epoch 4</u>	<u>081579302</u>		
Manufacturer/Model:	Serial Number:		
<u>8.12 us</u>	<u>0.227 in./usec.</u>	<u>0.8 - 3.0 MHz</u>	
Delay/Zero:	Velocity:	Narrowband Filter:	
<u>Auto</u>	<u>Fullwave</u>	<u>4.0 in.</u>	<u>Sg / Med</u>
Rep Rate:	Rectification:	Range:	Pulsar/Energy
<u>400 Ohms</u>	<u>0%</u>	<u>3.03 MHz</u>	<u>Dual</u>
Damping:	Reject:	Frequency:	Mode:
<u>Off:</u>	<u>Off:</u>	<u>Off:</u>	<u>Off:</u>
DAC:	TVG:	CSC:	DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/12/2011

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for near surface examination.
Exams performed a minimum of 14 dB above reference.
Examined from 0° CW to 360°.

<u>JJ</u>	<u>Jimmy Johnson</u>	<u>II</u>	<u>10/21/2011</u>
Initials:	Examiner	Level:	Cal/Exam Date:
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Initials:	Examiner	Level:	Date:
<u>BMW</u>	<u>IV</u>	<u>10-24-11</u>	
GE Reviewed By:	Level:	Date:	

See Summary Sheet for Signature

Utility Reviewed By: _____ Date: _____

See Summary Sheet for Signature

ANJ Reviewed By: _____ Date: _____



Site/Unit: Dresden / 2

Data Report Number: D2R22-110

Linearity Sheet: L-011

Outage: RFO 22

Data Sheet Number: D-106

Procedure: GEH-UT-311

Rev: 10

DRR: 10-02/10-22

Calibration Data for Block: Vessel Shell

<u>CS</u> Material	<u>FLAT</u> Size	<u>5.0'</u> Thickness
Initial Cal: <u>0950</u>	Exam Start: <u>1218</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1451</u>	
Cal Check: <u>N/A</u>	<u>Ultrage II</u> Couplant:	<u>07225</u> Batch
Final Cal: <u>1742</u>	<u>272874</u> Thermometer	<u>75° F</u> Initial Cal Temp.
		<u>75° F</u> Final Cal Temp.

DAC Construction

Reflector	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>5.0'</u>	<u>1X</u>	<u>80%</u>	<u>5.0'</u>	<u>7.1"</u>	<u>7.1</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X= 29.3 dB

Sweep 0-10 = 10.0' Metal Path

Acceptable Linearity performed: 10/12/2011

Exam Data for Component: 2/1/RPV UPP HD/N18A-2

Noz-RPV

Configuration:

<u>Plate</u> Exam Surface:	<u>64° F</u> Component Temp.
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Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0°-8.0°</u>	<u>45°</u>	<u>±15°-85°</u>	<u>N/A</u>	<u>35.3</u>	<u>NRI</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Search Unit Data

<u>KBA</u> Manufacturer:	<u>01X820</u> Serial No.:	<u>0.50" x 1.07" Rect</u> Size/Shape:
<u>0.7 in.</u> Incident Point:	<u>45°</u> Nominal Angle:	<u>45°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-891-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>081579302</u> Serial No.:
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<u>13.54 us</u> Zero:	<u>0.1294 in / ussec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:
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<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>10.0 in.</u> Range:	<u>Sa / Med</u> Pulse/Energy
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<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:
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<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:
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Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for nozzle to vessel weld.
Exams performed to maintain a 20 - 30% FSH clad roll.
Examined from 0° CW to 360°.
Previous recorded indication does not meet current rejectable criteria

JJ Jimmy Johnson
Initials: Examiner:

II 10/21/2011
Level: Cal/Exam Date:

See Summary Sheet for Signature

Utility Reviewed By: _____ Date: _____

RMD
GE Reviewed By:

III 10-24-11
Level: Date:

See Summary Sheet for Signature

ANIL Reviewed By: _____ Date: _____



Site/Unit: Dresden / 2

Data Report Number: D2R22-110

Linearity Sheet: L-011

Outage: RFO 22

Data Sheet Number: D-107

Procedure: GEH-UT-311

Rev: 10

DRR: 10-02/10-22

Calibration Data for Block: Vessel Shell

<u>CS</u> Material	<u>FLAT</u> Size	<u>5.0"</u> Thickness
Initial Cal: <u>0253</u>		Exam Start: <u>1218</u>
Cal Check: <u>N/A</u>		Exam End: <u>1451</u>
Cal Check: <u>N/A</u>	<u>Ultracel II</u>	<u>07225</u>
Final Cal: <u>1754</u>	Couplant:	Batch
<u>272874</u>	<u>75° F</u>	<u>75° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp:

DAC Construction

Reflector	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID Notch	<u>5.0"</u>	1X	<u>80%</u>	<u>8.6"</u>	<u>10.0"</u>	<u>67</u>
	<u>N/A</u>	1X	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X= 39.2 dB

Sweep 0-10 = 15.0" Metal Path

Acceptable Linearity performed: 10/12/2011

Search Unit Data

<u>KBA</u> Manufacturer:	<u>01FRPB</u> Serial No.:	<u>0.50" x 1.0"/Rect</u> Size/Shape:
<u>0.8 in.</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>1.0 MHz</u> Frequency:		<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panometrics / Epoch 4</u> Manufacturer/Model:	<u>081579302</u> Serial No.:		
<u>14.8 us</u> Zero:	<u>0.1271 in /usec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>15.0 in.</u> Range:	<u>Sq. / Med</u> Pulser/Energy
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Exam Data for Component: 2/1/RPV UPP HD/N18A-2

Noz-RPV
Configuration:

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>0°-6.0°</u>	<u>60°</u>	<u>±15°-90°</u>	<u>N/A</u>	<u>45.2</u>	<u>NRI</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for nozzle to vessel weld.
Exams performed to maintain a 20 - 30% FSH clad roll.
Examined from 0° CW to 360°.

JJ Jimmy Johnson
Initials: Examiner:

II 10/21/2011
Level: Cal/Exam Date:

See Summary Sheet for Signature

Utility Reviewed By: _____ Date: _____

BM
GE Reviewed By:

III 10-24-11
Level: Date:

See Summary Sheet for Signature

ANII Reviewed By: _____ Date: _____

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

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Nir .PDI Dr2 Rev5.xlsx

MANUAL DETECTION NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON			DATE 10/4/2011			
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
MAIN STEAM								
N/V WELD (M)	PLATE	0 - 4.0"	60.0°	-	± 28° - 66°	FLAT	14.0"	1 MHz
N/V WELD/ZONE 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 46°	FLAT	25.2"	1 MHz
ZONE 2A (M)	ODBR	60° - 90°	66.4°	-	24.1°	4.0"	16.3"	1 MHz
ISO COND								
N/V Weld (M)	PLATE	0 - 5.0"	60.0°	-	± 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	25.2"	1 MHz
Zone 2a (M)	ODBR	60° - 90°	66.5°	-	19.1°	3.8"	12.6"	1 MHz
TOP HEAD SPRAY (H18) - 48" Offset								
N/V Weld (M)	PLATE	0 - 8.0"	45.0°	-	± 15.0° - 85.0°	FLAT	5.7"	1.0 MHz
N/V Weld/Zone 1 (M)	PLATE	0 - 6.0"	60.0°	-	± 15.0° - 90.0°	FLAT	8.4"	1.0 MHz
Zone 1 (M)	PLATE	0 - 7.5"	70.0°	-	± 45°	FLAT	13.6"	1.0 MHz
Zone 2A (M)	PLATE	0 - 9.0"	80.0°	-	± 21°	FLAT	17.2"	1.0 MHz
Zone 2A (M)	ODBR	25° - 85°	50.0°	-	13°	1.9"	6.8"	1.0 MHz
Zone 2A (M)	ODBR	25° - 75°	50.0°	-	30°	1.9"	9.0"	1.0 MHz
S81C								
N/V WELD (M)	PLATE	4.0 - 8.0"	45.0°	-	± 52.0°	FLAT	8.9"	1 MHz

W-039

W-035, W-036

W-180

W-132

NOTES:	(M) MANUAL
	(ODBR) WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor

SME Review / Date

Site Review / Date



HITACHI

Reactor Pressure Vessel Coverage Calculation

Dresden 2 / D2R22
N18A
Fall / 2011

Weld Length = 360. Exam Volume = 21.3	CODE	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
60° T-Scan (S4 UC)	A	6.6	2.9	13.6%	360	6.8%
60° T-Scan (S6 FV)	A	11.8	11.7	54.9%	360	27.5%
60° T-Scan (S6 NS)	A	2.9	2.5	11.7%	360	5.9%
60° P-Scan (S4 UC)	A	6.6	2.9	13.6%	360	6.8%
60° P-Scan (S6 FV)	A	11.8	9.7	45.5%	360	22.8%
60° P-Scan (S6 NS)	A	2.9	1.9	8.9%	360	4.5%
60° T-Scan (S4 UC)			0		0	
60° T-Scan (S6 FV)			0		0	
60° T-Scan (S6 NS)			0		0	
60° P-Scan (S4 UC)			0		0	
60° P-Scan (S6 FV)			0		0	
60° P-Scan (S6 NS)			0		0	
60° T-Scan (S4 UC)			0		0	
60° T-Scan (S6 FV)			0		0	
60° T-Scan (S6 NS)			0		0	
60° P-Scan (S4 UC)			0		0	
60° P-Scan (S6 FV)			0		0	
60° P-Scan (S6 NS)			0		0	

% Total Composite Coverage = 74.2%

Comments: A - Manual UT scanning was restricted due to nozzle configuration.

Rev. 0 9/23/05

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.

2011-09-27
 Page 18 of 9

Dresden 2 Top Head Spray/Spare N18 Nozzle

60° P-Scan examination scan plan

60° NS Exam Volume = 6.6 Sq. In.

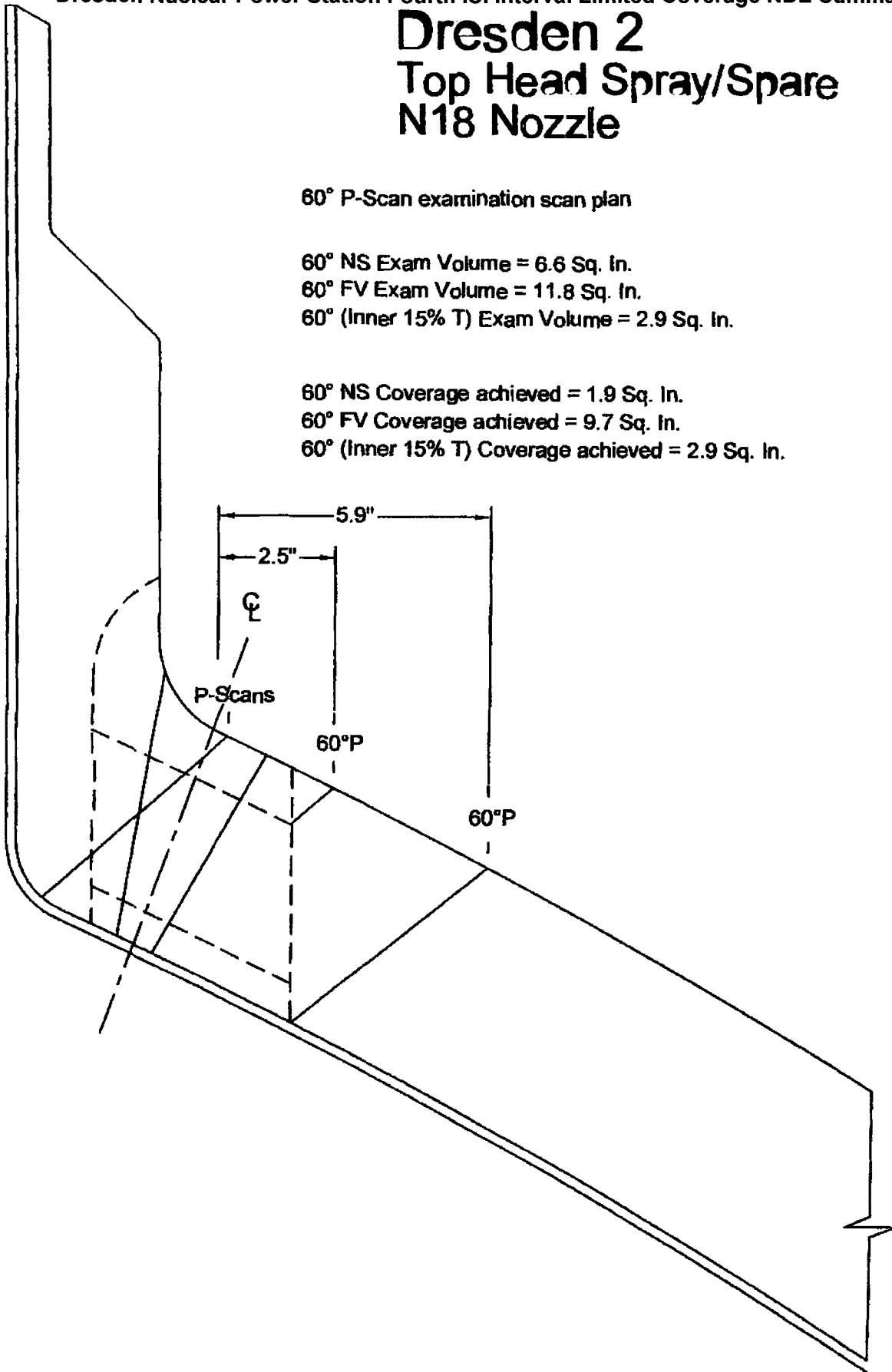
60° FV Exam Volume = 11.8 Sq. In.

60° (Inner 15% T) Exam Volume = 2.9 Sq. In.

60° NS Coverage achieved = 1.9 Sq. In.

60° FV Coverage achieved = 9.7 Sq. In.

60° (Inner 15% T) Coverage achieved = 2.9 Sq. In.

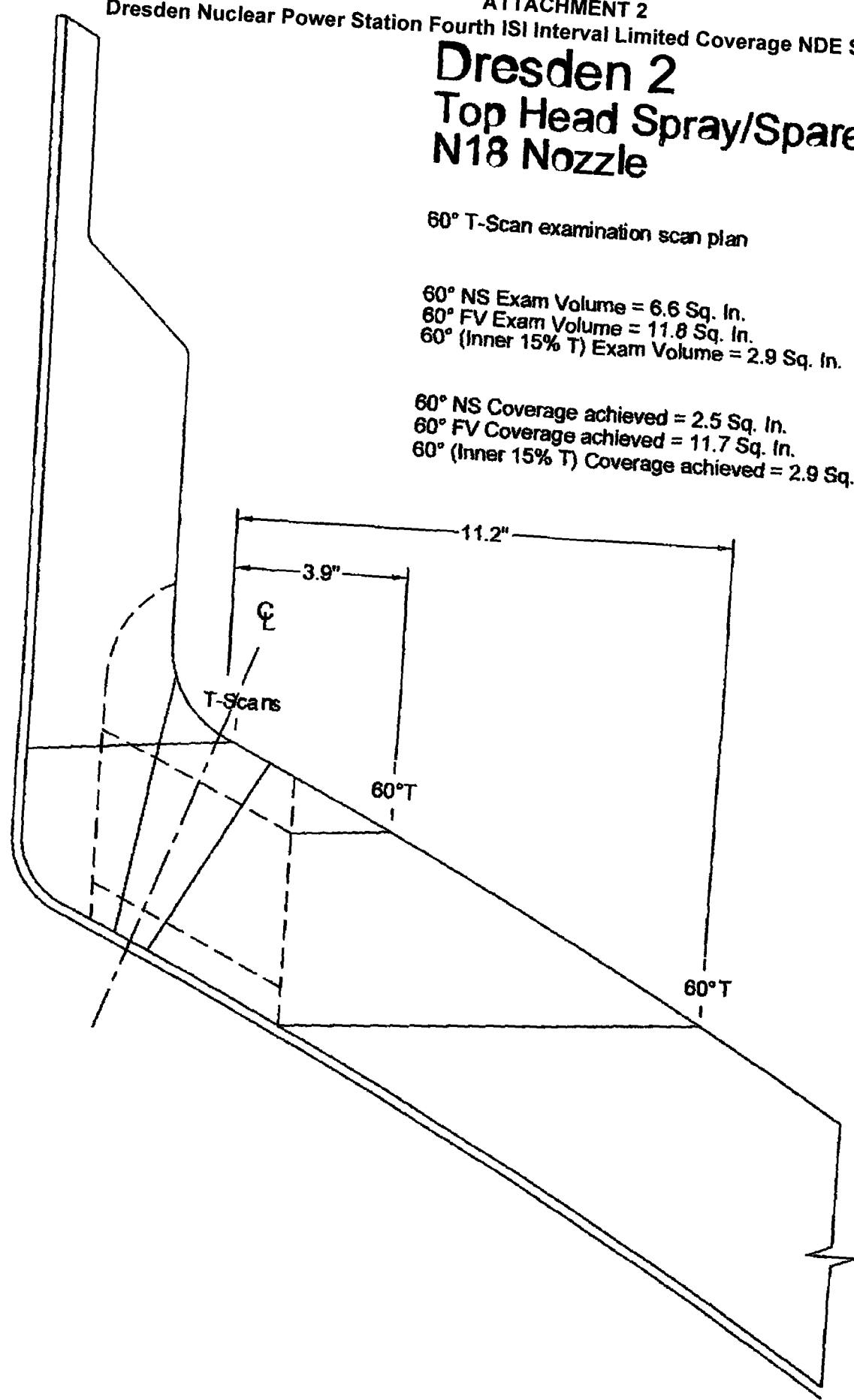


Dresden 2 Top Head Spray/Spare N18 Nozzle

60° T-Scan examination scan plan

60° NS Exam Volume = 6.6 Sq. In.
60° FV Exam Volume = 11.8 Sq. In.
60° (Inner 15% T) Exam Volume = 2.9 Sq. In.

60° NS Coverage achieved = 2.5 Sq. In.
60° FV Coverage achieved = 11.7 Sq. In.
60° (Inner 15% T) Coverage achieved = 2.9 Sq. In.



ATTACHMENT 2

~~Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets~~



GE NUCLEAR ENERGY

EXAMINATION SUMMARY SHEET

Report No.:
2R18-007

Site and Unit: Dresden Unit 2 Component ID: 2/1/RPV SHELL/N5B-1
 Outage: D2R18 NIR
 System: RPV ASME Cat.: B-D ASME Item B3.100 Aug Requirements: Section XI

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
70° Shear	UT-034	UT-034	GE-UT-311	VESSEL SHELL	Brad Dummer	III	10/20/2003
70° Shear	UT-035	UT-035	GE-UT-311	VESSEL SHELL	Brad Dummer	III	10/20/2003

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 66.5° and 70° shear wave search units.

Scanning was limited due to a stabilizer lug below the nozzle.

86% of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI, Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report D358 from 1995 outage with No Change
 These examinations were performed under Work Order: 00613889-04 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

<u>CLM</u>	<u>III</u>	<u>10/25/03</u>	<u>Dan K. [Signature]</u>	<u>III</u>	<u>10/26/03</u>
Prepared By:	Level:	Date:	Utility Reviewed By:	Title:	Date:
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>[Signature]</u>	<u>10-29-03</u>	
Reviewed By:	Level:	Date:	ANII Reviewed By:	Title:	Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**

Site/Unit: Dresden / 2
Outage: D2R18

Data Report Number: 2R18-007 Linearity Sheet: L-009
Data Sheet Number: UT-034

Procedure: GE-UT-311

Rev: 10

DRR: N/A

Calibration Data for Block: VESSEL SHELL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>1408</u>		Exam Start: <u>1548</u>
Cal Check: <u>N/A</u>		Exam End: <u>1620</u>
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1638</u>	<u>229344</u> Thermometer	<u>85° F</u> Initial Cal Temp.
		<u>85° F</u> Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>19.2</u>	<u>21.6</u>	<u>8.6</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 44.0 dB

Sweep 0-10 25° Metal Path

Acceptable Linearity performed : 10/9/2003

Search Unit Data

<u>KBA</u> Manufacturer:	<u>C14437</u> Serial No.:	<u>0.5"x1.0"/Rect.</u> Size/Shape:
<u>0.85 in.</u> Incident Point:	<u>70°</u> Nominal Angle:	<u>70°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-291-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>6'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / EPOCH 4</u> Manufacturer/Model:	<u>031536006</u> Serial No.:		
<u>19.23 us</u> Delay:	<u>0.132 u/sec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Filter:	<u>Auto</u> Rep Rate:
<u>25.0 in.</u> Range:	<u>Sq. / Mod</u> Pulser:	<u>400 ohms</u> Damping:	
<u>Off</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:	

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Exam Data for Component: 2/1/RPV SHELL/N5B-1

NIR

Configuration:

OD / ODBR

94° F

Exam Surface:

Component Temp.

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>360°</u>	<u>66.5°</u>	<u>+19.1°</u>	<u>35a</u>	<u>58.0</u>	<u>NRI</u>
<u>360°</u>	<u>66.5°</u>	<u>-19.1°</u>	<u>35b</u>	<u>58.0</u>	<u>NRI</u>

Comments: Cal/Exam Date is the date of initial calibration.

Rectification - Full wave; TVG, CSG, and DGS disabled.
Calibration for Zone 2A inner radius.
Calibration performed on wedge 70.
Exams performed to maintain a 20-30% FSH clad roll.
Examination sweep is 20° metal path, examination range setting is 20°.

BD Brad Dummer

Initials: Examiner:

III 10/20/03

Level: Cal/Exam Date:

[Signature]
Utility Reviewed By:

10/20/03
Date:

[Signature]
GE Reviewed By:

[Signature]
Level:

10/20/03
Date:

[Signature]
ANII Reviewed By:

10-20-03
Date:



GE NUCLEAR ENERGY

**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**

Site/Unit: Dresden / 2

Data Report Number: 2R18-007

Linearity Sheet: L-009

Outage: D2R18

Data Sheet Number: UT-035

Procedure: GE-UT-311

Rev: 10

DRR: N/A

Calibration Data for Block: VESSEL SHELL

<u>CS</u> Material	<u>N/A</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>1405</u>	Exam Start: <u>1500</u>	
Cal Check: <u>N/A</u>	Exam End: <u>1540</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>1635</u>	<u>229344</u> Thermometer	<u>85° F</u> Initial Cal Temp.
		<u>85° F</u> Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	<u>1X</u>	<u>80%</u>	<u>19.2</u>	<u>21.6</u>	<u>8.6</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 53.1 dB

Sweep 0-10 25° Metal Path

Acceptable Linearity performed : 10/9/2003

Search Unit Data

<u>KBA</u> Manufacturer:	<u>00L891</u> Serial No.:	<u>0.5"x1.0"/Rect.</u> Size/Shape:
<u>0.85 in.</u> Incident Point:	<u>70°</u> Nominal Angle:	<u>70°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-291-800</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>6'</u> Length:	<u>0</u> Connectors:
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Instrument Settings

<u>Panametrics / EPOCH 4</u> Manufacturer/Model:	<u>031538006</u> Serial No.:		
<u>19.23 us</u> Delay:	<u>0.132 u/sec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Filter:	<u>Auto</u> Rep Rate:
<u>25.0 in.</u> Range:	<u>Sq. / Med</u> Pulser:	<u>400 ohms</u> Damping:	
<u>Off</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>P/E</u> Mode:	

Exam Data for Component: 2/1/RPV SHELL/N5B-1

NIR

Configuration:

QD / Plate

94° F

Exam Surface:

Component Temp.

Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan dB	Recordable Indications
<u>360°</u>	<u>70°</u>	<u>+30°</u>	<u>N/A</u>	<u>58.0</u>	<u>NRI</u>
<u>360°</u>	<u>70°</u>	<u>-30°</u>	<u>N/A</u>	<u>58.0</u>	<u>NRI</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration.

Rectification - Full wave; TVG, CSG, and DGS disabled.
Calibration for Zone 1 inner radius.
Exams performed to maintain a 20-30% FSH clad roll.
Examination sweep is 32° metal path, examination range setting is 32°.

BD Brad Dummer

Initials: Examiner:

II

Level:

10/20/03

Cal/Exam Date:

Danah Rudy

Utility Reviewed By:

10/26/03

Date:

CP 110

GE Reviewed By:

JU

Level:

10/26/03

Date:

Wijaya

ANII Reviewed By:

10-29-03

Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Dresden Unit-2, D2R18

N5B-1

Spring 2003

Dresden Unit-2, D2R18

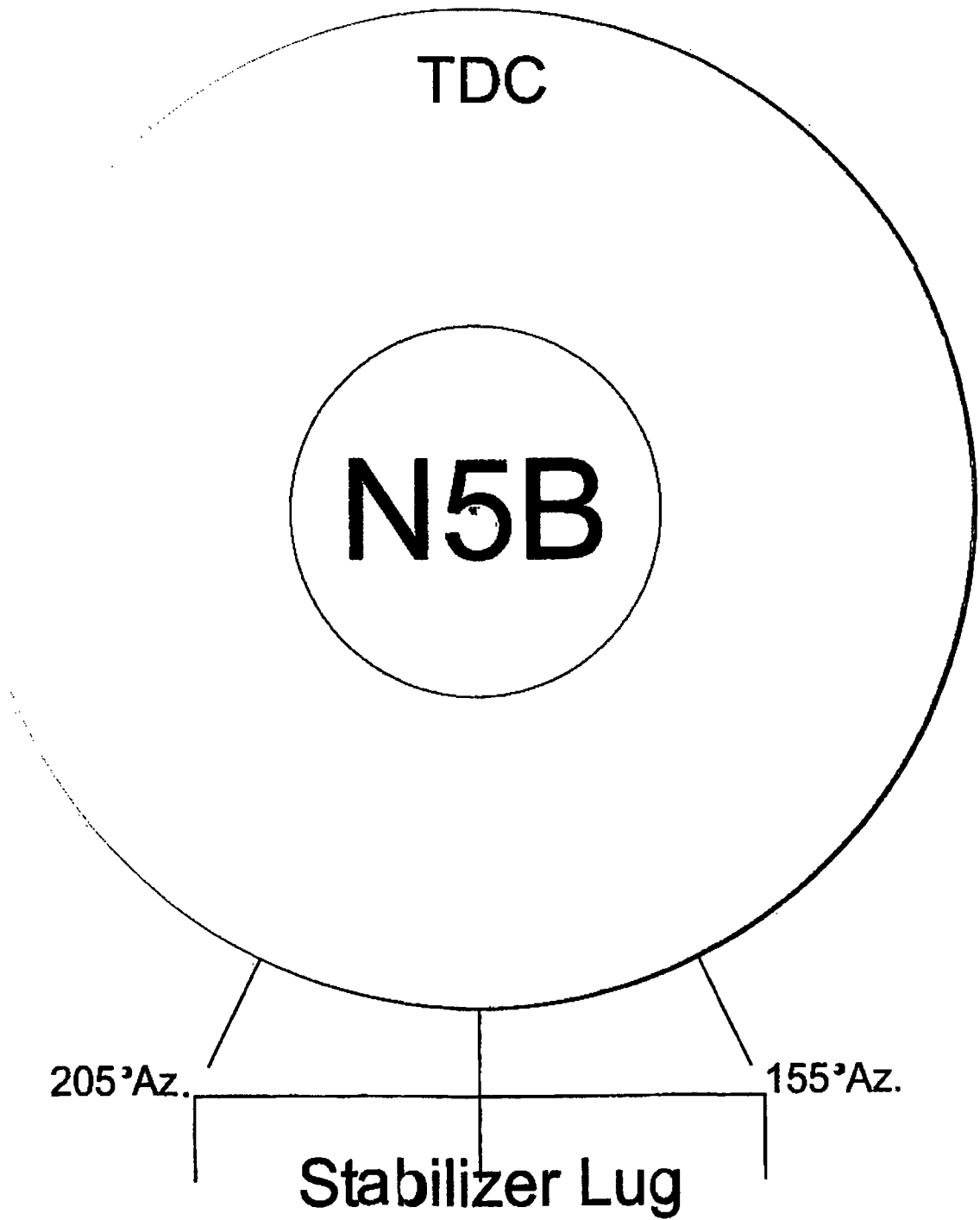
Weld Length = 360. Exam Volume = 3.4		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Manual	Percent of Area Manual	Weld Length Manual	Percent Manual
IRS CW	A	3.4	3.4	100.0%	310	43.1%
IRSCCW	A	3.4	3.4	100.0%	310	43.1%
IRS CW						
IRSCCW						
IRS CW						
IRSCCW						
IRS CW						
IRSCCW						
IRS CW						
IRSCCW						
IRS CW						
IRSCCW						
IRS CW						
IRSCCW						

% Total Composite Coverage = 86%

Comments: A - Examination limited due to stabilizer lug 3" below nozzle ODBR to plate interface, 20 inches in length, centered on nozzle CL.
Weld length in degrees.

Note - Rounding methods may make calculated values appear in error.

Page 7 of 6



ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Nr_PD1D2

MANUAL / GERIS							
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS							
PLANT		Dresden 2					
PREPARED BY		S.C. MORTENSON			DATE		
					10/13/03		
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
RECIRC OUTLET							
N/V Weld (M)	PLATE	0 - 3.5"	60.0°	± 75°	FLAT	14.0"	1 MHz
N/V Weld (M)	PLATE	0 - 4.0"	70.0°	± 75°	FLAT	25.3"	1 MHz
Zone 1 (M)	ODBR	20° - 45°	35.0°	90.0°	5.5"	20.7"	1 MHz
Zone 2a (M)	ODBR	45° - 90°	60.0°	35.0°	5.5"	20.4"	1 MHz
RECIRC INLET							
N/V Weld (M)	PLATE	0 - 5.5"	60.0°	± 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	± 30°	FLAT	24.4"	1 MHz
Zone 2a (M)	ODBR	60° - 90°	67.5°	18.1°	3.3"	12.0"	1 MHz
ISO COND							
N/V Weld (M)	PLATE	0 - 5.0"	60.0°	± 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	± 30°	FLAT	25.2"	1 MHz
Zone 2a (M)	ODBR	60° - 90°	66.5°	19.1°	3.8"	12.6"	1 MHz
CORE SPRAY							
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0"	60.0°	± 55°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 6.0"	70.0°	± 23°	FLAT	19.6"	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3°	16.7°	3.1"	10.6"	1 MHz
CRD							
N/V Weld (M)	PLATE	0 - 6.5"	45°	± 60°	FLAT	9.3"	1 MHz
Zone 1 (M)	PLATE	0 - 7.5"	60.0°	± 15°	FLAT	13.9"	1 MHz
Zone 2A (M)	PLATE	0 - 11.0"	70.0°	± 15°	FLAT	17.2"	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3°	16.7°	3.1"	3.6"	1 MHz

W-021, W-022
W-023, W-024

W-025, W-026

W-035, W-036

W-031, W-032

W-031, W-032

NOTES:	*	DESIGN / (FIXTURE) ROTATION FOR 3.0" PKG OFFSET
	#	DESIGN / (FIXTURE) ROTATION FOR 1.45" PKG OFFSET
	**	WEDGE / (FIXTURE) ROTATION ANGLE FOR 2.5" OFFSET
	---	DESIGN / (FIXTURE) ROTATION FOR 1.5" PKG OFFSET
	(M)	MANUAL

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 948-0253

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

EXAMINATION SUMMARY SHEET

Report No.:
D7R20 03G

Site: Dresden

Component ID: 2/1/RPV SHELL/M-1175D-1(IWA)

Outage: D2R20

IWA

System: RPV ASME Cat.: B-K ASME Item B10.10 Aug Req N/A

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
PT	PT-003	N/A	GE-PT-100	N/A	Steve Snyder	II	11/2/2007
MT	MT-005	N/A	GE-MT-100	N/A	Steve Snyder	II	11/3/2007

Examination Results:

During the liquid penetrant examination of the above referenced component, five (5) rounded indications were detected. A magnetic particle examination was performed to confirm the liquid penetrant indications, resulting in no recordable indications. Thus, the five (5) liquid penetrant indications are classified as non-relevant.

The liquid penetrant examination was limited due to inaccessibility to the bottom of the lug.

This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda.

56% of the required area was examined.

Previous examination results supplied by customer for review from ISI Program documents? Yes Change
 These examinations were performed under Work Order: 880876-06 No No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:


Prepared By: George E. Huber III Level: III Date: 11/5/07 Utility Review: [Signature] Date: 11-8-07
 ANW Review: Jiff Anyak Date: 11/8/07

RWP: N/A
 Dose: N/A mr.

Page 1 of 35 11-6-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE Energy, Nuclear	LIQUID PENETRANT EXAMINATION REPORT
---	--

Site: <u>Dresden</u>	Unit: <u>2</u>	Project: <u>D2R20</u>	Report Number: <u>D2R20-036</u>
			Sheet No.: <u>PT-003</u>

Weld No.: <u>2/1/RPV SHELL/M-11750-1(IWA)</u>	Configuration: <u>IWA</u>
Drawing: <u>M-11750-1 Rev A</u>	System: <u>RPV</u>

Procedure No.: <u>GE-PT-100</u>	Ver/Rev.: <u>6</u>	DRR: <u>N/A</u>
---------------------------------	--------------------	-----------------

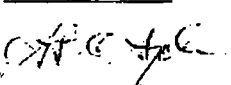


Material: <u>Carbon Steel</u>	Surface Condition: <u>Prepped</u>	Item: <u>Weld - Final</u>
-------------------------------	-----------------------------------	---------------------------

Technique: <u>Visible Solvent Removable (B-3)</u>	Cleaner: <u>Magnaflux</u>	Penetrant: <u>Magnaflux</u>	Developer: <u>Magnaflux</u>
Thermometer: <u>255322</u>	Manufacturer: <u>SKC-S</u>	<u>SKL-SP</u>	<u>SKD-S2</u>
Temperature: <u>98</u>	Brand / type: <u>05B01K</u>	<u>01H04K</u>	<u>05C08K</u>
Black Light: <u>N/A</u>	Batch No.:	<u>05B01K</u>	<u>01H04K</u>
	Light Meter: <u>N/A</u>	Blacklight Intensity: <u>N/A</u>	$\mu\text{W}/\text{cm}^2$

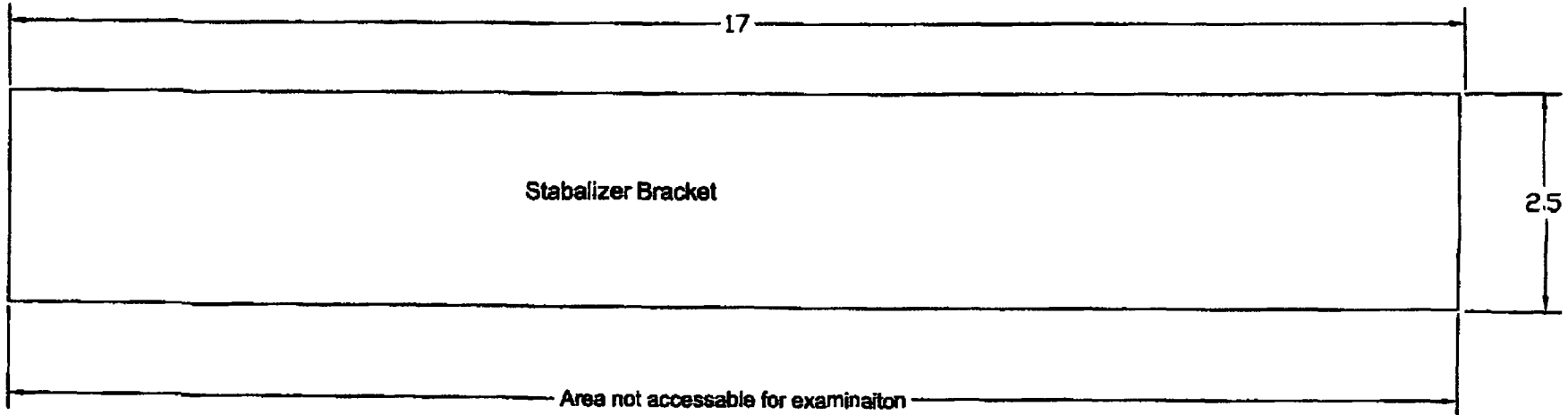
Pre Clean Method: <u>Spray / Wipe</u>	Drying Time: <u>5 Min</u>
Penetrant Application: <u>Brushing</u>	Dwell Time: <u>10 Min</u>
Penetrant Removal: <u>Wipe with dry towel</u> <u>Wipe with damp towel</u>	Drying Time: <u>5 Min</u>
Developer Application: <u>Spray</u>	Developing Time: <u>10 Min</u>

Indication Number:	Description:	Results:
<u>5</u>	<u>5 Rounded Indications. See Sheet MT-005, see attached photo.</u>	<u>RI</u>

Comments:
 Only 56% coverage was obtained due to inaccessibility to the bottom of the lug. L = 17" H = 2.5", see attached sketch
 Flashlight - 2 D-Cell

Steve Snyder Examiner 	II Level	11/2/2007 Date	 Utility Reviewer	11-8-07 Date
GE Review 	III Level	11-6-07 Date	Jeff Snyder ANII Reviewer	11/8/07 Date

Page 2 of 5



Total Length = 39 inches
Length Examined = 22 inches
Percent Coverage = 56%

D2R20-036
Page 3 of 5

M. Haly L-III
11-6-07
7-7-07 11-8-07

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



McHealy L-III

11-6-07

1-7 Mil Staff 11-8-07

DZR20-03C
PAGE 4 of 5

ATTACHMENT 2

~~Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets~~



GE Energy, Nuclear

MAGNETIC PARTICLE EXAMINATION REPORT

Site: Dresden Unit: 2 Project: D2R20 Report Number: D2R20-036
 Sheet No.: MT-005

Weld No.: 2/1/RPV SHELL/M-1175D-1(IWA) Configuration: IWA
 Drawing: M-1175D-1 Rev A System: RPV

Procedure No.: GE-MT-100 Version / Revision 6 DRR: 06-02/06-04

Material: Carbon Steel Surface Condition: Prepped Item: Weld - Final

Magnetizing Apparatus

Black Light

Mfg: <u>Parker Research</u>	Yoke Calibration: <u>AC - 10 lb. Lift</u>	Model	Serial Number
Model: <u>B-100</u>		Blacklight <u>N/A</u>	<u>N/A</u>
Serial No.: <u>2026</u>	Yoke Spacing: <u>3 - 6"</u>	Light Meter <u>N/A</u>	<u>N/A</u>
Thermometer: <u>255322</u>	Surface Temperature: <u>98 ° F</u>		

Technique

Examination Medium

Blacklight Intensity

Magnetization: <u>AC</u>	Magnetic Particles: <u>Dry</u>	Blacklight Intensity: <u>N/A</u>
Technique: <u>Continuous</u>	<u>Magnaflux</u> <u>8A Red</u> <u>988086</u>	Blacklight Intensity:
	Manufacturer: Particle Type: Batch No	

Indication Number:	Description:	Results:
<u>N/A</u>	<u>N/A</u>	<u>NR</u>

Comments: 10 lb. Lift Block: S/N Lot # 6 Supplied by Customer - UTC0002605768
 Exam performed to verify non relevant indication observed during the liquid penetrant exam. PT-003.
 Indications recorded during PT exam are non-relevant.

Steve Snyder

Steve Snyder
Initial Examiner

George E. ...
GE Review

II Level Date 11/3/2007
 III Level Date 11/5/07

My will
Utility Review

Jeff Snyder
ANI Review


11-6-07
Date

11/8/07
Date

11/2/07
11/6/07
5 of 5
Page 3 of 3

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE ENERGY, NUCLEAR	EXAMINATION SUMMARY SHEET	Report No: 102R20-059
--	----------------------------------	--------------------------

Site:	Dresden	Component ID:	2/1/1506-16/M-1164D-296(IWA)		
Outage:	D2R20		IWA		
System:	LPCI	ASME Cat:	B-K	ASME Item	B10.20
				Aug Req	N/A

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
P1	P1-002	N/A	GE-PT-100	N/A	Wallace Reid	II	10/31/2007

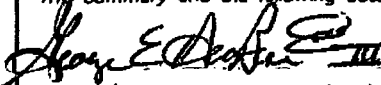
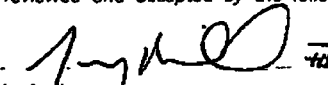
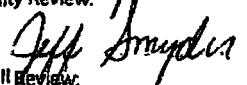
Examination Results:

During the liquid penetrant surface examination of the above referenced component, one 3/32" rounded indication was detected. This indication is less than .23 as allowed by ASME Section XI, paragraph IWB-3516.1(a), Table IWB-3514-2. **THEREFORE ACCEPTABLE WITH NO FURTHER WORK.**

Inner weld on attachment was not accessible, could not be prepped.


50% of the required area was examined.

Previous examination results supplied by customer for review from ISI Program documents?	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Change
These examinations were performed under Work Order: 876131-06	<input type="checkbox"/> No	<input type="checkbox"/> No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:				RWP: N/A
Prepared By: 	Level: III	Date: 11/3/07	Utility Review: 	Date: 11-8-07
			ANII Review: 	Date: 11/8/07
				Page 1 of 3

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 <p>GE Energy, Nuclear</p>	<p>LIQUID PENETRANT EXAMINATION REPORT</p>
--	---

Site: <u>Dresden</u>	Unit: <u>2</u>	Project: <u>D2R20</u>	Report Number: <u>D2R20-039</u>	Sheet No.: <u>PT-002</u>
----------------------	----------------	-----------------------	---------------------------------	--------------------------

Weld No.: <u>2/1/1506-16/M-1164D-296(IWA)</u>	Configuration: <u>IWA</u>
Drawing: <u>M-1164D-296 Rev B</u>	System: <u>LPCI</u>

Procedure No.: <u>GE-PT-100</u>	Ver/Rev.: <u>6</u>	DRR: <u>N/A</u>
---------------------------------	--------------------	-----------------

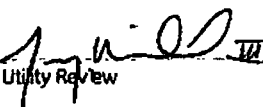
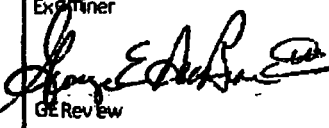
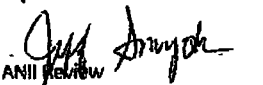
Material: <u>Stainless Steel</u>	Surface Condition: <u>Ground</u>	Item: <u>Integral Attachment</u>
----------------------------------	----------------------------------	----------------------------------

Technique:	Cleaner	Penetrant	Developer
<u>Visible Solvent Removable (B-3)</u>	Manufacturer: <u>Magnaflux</u>	<u>Magnaflux</u>	<u>Magnaflux</u>
Thermometer: <u>255254</u>	Brand / Type: <u>SKC-S</u>	<u>SKL-SP</u>	<u>SKD-S2</u>
Temperature: <u>94°F</u>	Batch No.: <u>05D06K</u>	<u>01H04K</u>	<u>05C08K</u>
Black Light: <u>N/A</u>	Light Meter: <u>N/A</u>	Blacklight Intensity: <u>N/A</u>	$\mu\text{W}/\text{cm}^2$

Pre Clean Method: <u>SPRAY AND WIPE</u>	Drying Time: <u>5 MINUTES</u>
Penetrant Application: <u>BRUSHING</u>	Dwell Time: <u>10 MINUTES</u>
Penetrant Removal: <u>Wipe with dry towel Wipe with damp towel</u>	Drying Time: <u>5 MINUTES</u>
Developer Application: <u>Spray</u>	Developing Time: <u>10 MINUTES</u>

Indication Number:	Description:	Results:
1	<u>3/32" rounded indication. See attached photograph Coverage: 8" long outside of each plate</u>	<u>RI</u>

Comments:
Flashlight: 2D cell batteries

<u>Wallace Reid</u> Wallace Reid Examiner	II Level	10/31/2007 Date	 Utility Review	11-8-07 Date	
 GE Review	III Level	11/3/07 Date	 ANII Review	11/8/07 Date	Page 2 of 3

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

COMPONENT M-1164D-129 IWA
Wallace Reid, 10/31/07



D2R20-039 Page 3 of 3

161107

APPLIED TECHNICAL SERVICES, INCORPORATED



() Main Office
1049 Third Court, Marietta, Georgia 30062
(770) 423-1400 - FAX (770) 614-3299 FAX#HC4R227M

NDT Field Offices:

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- () Mobile, AL
- () Arlington, VA

Page 1 of 1

Job No. P157813

P.O. No. 100902ATS

Date 9/27/10

EXELON NDE REPORT
10-310

RADIOGRAPHIC INSPECTION REPORT

NWS
SPARTANBURG, SC

Part No.: BK 7080
Part Name: ERU Valve
Material: 9/8
Thickness: 1.25"
Type Weld: Butt

Radiographic Inspection Technique										Set-Up						
Specification(s) <u>ATS R2.1 Rev 21 Appendix</u>																
Isotope <u>Ta 172</u>		Film Size <u>9 1/2 x 11"</u>		Film Type <u>Fuji 80</u>		Sensitivity <u>2-25</u>		Penetrator <u>ASAC 25; 40 (60 sec)</u>				Shim(s) <u>N/A</u>				
Curies <u>108</u>		Time <u>24 min</u>		Develop Temp: <u>72°</u>		Time: <u>4:15</u>		Screen(s) <u>0.010" Pb Front & Back</u>				Source Size (Effective) <u>0.1" x 0.1"</u>				
KV <u>N/A</u>		SOD <u>11.25"</u>		OFD <u>1.25"</u>		Source Size (Physical) <u>0.125"</u>		Geometric Unsharpness <u>0.015"</u>				Weld Reinforcement <u>0.120"</u>				
INTERPRETATION																
PART ID/ FILM VIEW	Acet	Refract	Crack	Slag Inclusion	Tungsten Inclusion	Porosity	Undercut	Intermittent Fusion	Incompleteness Penetration			Root Concavity	Root Cracks	Penetrantable	Area of Interest	REMARKS
<u>BK 7080</u>																
<u>26-11</u>	✓															
<u>10-20</u>	✓															
<u>20-29</u>	✓															
<u>29-36</u>	✓															
														<u>Mask Stamp #1 is between RT 2+3</u>		
														<u>Mask Stamp #2 is @ 14</u>		
														<u>Mask Stamp #3 is @ 29 W</u>		
														<u>Mask Stamp #4 is @ 33.5</u>		

Radiographer(s): Mark Ruggles Level 2 R.T.

Interpreter: Mark Ruggles Level 2 R.T.

Client Approval: Scott A. Kinnison, Exelon EDC

MSBLTANCE 9/29/10

ATS120, 07/07

181107

COVERAGE SUMMARY FORM

Station: DRESDEN Unit: B 2 Date: 09/29/2010 Page 1 of 1

System: 0200 Comp. ID: BK7080 Exam. No.: 10-310

Config: Valve Bonnet to Valve Body Procedure/Rev.: ATS 120.1 Rev. 21
WITH ADDENDA

Examiner: R. Matt Ruggles Level: II

Examiner: N/A Level: N/A

Notes: Calculations performed by S. Kravnicka IAW EC-AA-335-010
Rev. 1

NDE Method: UT MT PT RT

Comments:

Radiography Examination Coverage was Limited
due to integrally welded cage on valve TB.

The following calculation was performed to
determine examination volume achieved:

OD Circumference of weld = 38"

RT Los. to RT Los.
From 0.5" to 1.37" = 1.07"
10" to 1.25" = 1.05"
11.5" to 0.75" = 1.25"
27.125 to 28.375" = 1.25"

4.62" of weld not examined
33.18 inches out of 38 inches of weld length inspected
87.32% EXAMINATION WAS ACHIEVED

ASME Section XI Examination Volume Achieved: 87.32%

Attachments: Yes / No No

REVIEWER: Scott A. Ruggles LEVEL: III DATE: 09/29/2010

REVIEWER: John N. Kieh LEVEL: II DATE: 9/29/10

ANI: [Signature] DATE: 9/29/10

161107



PROCEDURE REVIEW RECORD

Company: Applied Technical Services, Inc Date: 09/15/2010

Procedure Number 120.1

Revision: 21 Addenda / DRR: Addendum - ASME Section XI
1995 Ed. 1996 Add.

Procedure Title: Radiographic Inspection

Remarks / Comments or Limitations to Procedure Use:

Approved for use limited to radiography performed in accordance with ASME Section XI 1995 Edition, 1996 Addenda.

Approved for use in conjunction with ATS 120.1 Rev. 21 radiographic procedure.

ANII Review Required: Yes No

ANII Demonstration Required: Yes No



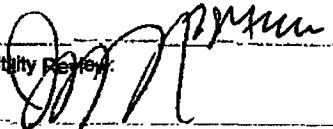
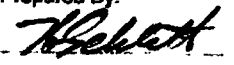

Exelon Approval: Scott A. Kvasnicka  Date: 09/15/2010

ANII Approval: M L  Date: 9/16/2010

ANII Demonstration Approval: N/A  Date: 9/16/10

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE NUCLEAR ENERGY		EXAMINATION SUMMARY SHEET				Report No: R19-043	
Site: Dresden		Component ID: 2/2/2304-14/M-1151D-10					
Outage: REQ19		IWA					
System: HPCI		ASME Cat.: C-C		ASME Item: C3.20		Aug Req: N/A	
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
MT	MT-006	N/A	GE-MT-100	N/A	Kim Robideau	II	11/3/2005
Examination Results: During the magnetic particle examination of the above referenced component, no recordable indications were recorded. 81.63% coverage of the examination area was achieved. This examination meets the requirements of ASME Section XI 1995 Edition, 1996 Addenda.							
Examination results were compared to data report D011-C from 3-13-01 outage with <input checked="" type="checkbox"/> No Change These examinations were performed under Work Order: 667527-15 <input type="checkbox"/> Change							
This Summary and the following data sheets have been reviewed and accepted by the following personnel:							
Prepared By: 		Level: UT III		Date: 11/3/05		Utility Review: 	
GE Review By: 		Level: UT III		Date: 11/3/05		ANII Review: 	
						Date: 11-6-05 Date: 11/6/05 Date: _____	
						Page 1 of 3	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE Nuclear Energy	MAGNETIC PARTICLE EXAMINATION REPORT
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Site: <u>Dresden</u>	Unit: <u>2</u>	Project: <u>RFO19</u>	Report Number: <u>R19-043</u>
			Sheet No.: <u>MT-006</u>

Weld No.: <u>2/2/2304-14/M-1151D-10</u>	Configuration: <u>IWA</u>
Drawing: <u>ISI-203 SHT 1</u>	System: <u>HPCI</u>

Procedure No.: <u>GE-MT-100</u>	Version / Revision: <u>V5</u>	DRR: <u>N/A</u>
---------------------------------	-------------------------------	-----------------

Material: <u>Carbon Steel</u>	Surface Condition: <u>As Welded</u>	Item: <u>Lugs</u>
-------------------------------	-------------------------------------	-------------------

Magnetizing Apparatus		Black Light	
Mfg: <u>Parker Research</u>	Yoke Calibration: ^{Due} <u>11/12/05</u>	Model: <u>N/A</u>	Serial Number: <u>N/A</u>
Model: <u>B-300</u>		Blacklight: <u>N/A</u>	
Serial No.: <u>5771</u>	Yoke Spacing: <u>3-8"</u>	Light Meter: <u>N/A</u>	
Thermometer: <u>241760</u>	Surface Temperature: <u>86 ° F</u>		

Technique	Examination Medium			Blacklight Intensity
Magnetization: <u>AC</u>	Magnetic Particles: <u>Dry</u>			<u>N/A</u>
Technique: <u>Continuous</u>	Manufacturer: <u>Magnaflux</u>	Particle Type: <u>8A Red</u>	Batch No: <u>02G063</u>	Blacklight Intensity:

Indication Number:	Description:	Results:
<u>N/A</u>	<u>SAT</u>	<u>Nil</u>

Comments:
MT examination of 8 lugs welded on three sides only. No examination performed on 4th side due to pipe clamp. 81.63% coverage as calculated in 2001 data report DQ11.

Initial Examiner: <u>Kim Rohidasu</u> Level: <u>II</u> Date: <u>11/3/2005</u>	Utility Review: <u>[Signature]</u> Date: <u>11-6-05</u>	Date: <u>11/6/05</u> Date: <u>11/6/05</u> Page <u>2</u> of <u>3</u>
GE Review: <u>[Signature]</u> Level: <u>II</u> Date: <u>11/3/2005</u>	ANII Review: <u>[Signature]</u> Date: <u>11-6-05</u>	



WELDED LUG EXAMINATION COVERAGE SHEET

PAGE: 4 of 4

COMPONENT NO.: M-1151D-10

LUG WIDTH : 2.00"

LUG LENGTH : 2.00"

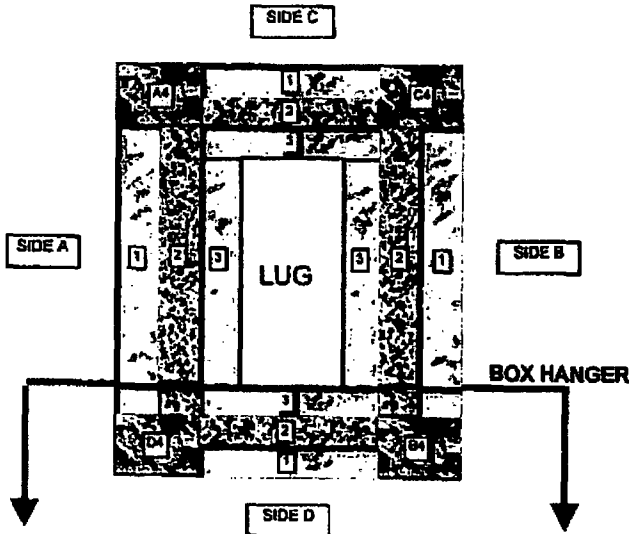
WELD WIDTH : 0.50"

LUG WELDED ON SIDES : A, B and C

TOTAL EXAMINABLE AREA

TOTAL AREA EXAMINED

	LENGTH		WIDTH	=			LENGTH		WIDTH	=		
A1	2.00	x	0.50	=	1.00	A1	2.00	x	0.50	=	1.00	
A2	2.00	x	0.50	=	1.00	A2	2.00	x	0.50	=	1.00	
A3	2.00	x	0.50	=	1.00	A3	2.00	x	0.50	=	1.00	
A4	0.00	x	0.00	=	0.00	A4	0.00	x	0.00	=	0.00	
					TOTAL	=	3.00					
B1	2.00	x	0.50	=	1.00	B1	2.00	x	0.50	=	1.00	
B2	2.00	x	0.50	=	1.00	B2	2.00	x	0.50	=	1.00	
B3	2.00	x	0.50	=	1.00	B3	2.00	x	0.50	=	1.00	
B4	2.25	x	0.50	=	1.13	B4	0.00	x	0.00	=	0.00	
					TOTAL	=	4.13					
C1	3.00	x	0.50	=	1.50	C1	3.00	x	0.50	=	1.50	
C2	3.00	x	0.50	=	1.50	C2	3.00	x	0.50	=	1.50	
C3	2.00	x	0.50	=	1.00	C3	2.00	x	0.50	=	1.00	
C4	0.00	x	0.00	=	0.00	C4	0.00	x	0.00	=	0.00	
					TOTAL	=	4.00					
D1	0.00	x	0.00	=	0.00	D1	0.00	x	0.00	=	0.00	
D2	0.00	x	0.00	=	0.00	D2	0.00	x	0.00	=	0.00	
D3	0.00	x	0.00	=	0.00	D3	0.00	x	0.00	=	0.00	
D4	2.25	x	0.50	=	1.13	D4	0.00	x	0.00	=	0.00	
					TOTAL	=	1.13					



- 1 = 0.50" COMPONENT BASE MATERIAL
 - 2 = WELD MATERIAL
 - 3 = 0.50" LUG BASE MATERIAL
 - 4 = 0.50" ADJOINING MATERIAL
- (UTILIZED ONLY IF ENDS ARE UNWELDED OR HAVE LIMITATIONS)

M. Miller 11-6-05

TOTAL AREA = 12.25
(TOTAL AREA = A+B+C+D)

TOTAL AREA = 10.00
(TOTAL AREA = A+B+C+D)

TOTAL CODE COVERAGE ACHIEVED = 81.63%

EXAMINER: *E. Sulik*

DATE: 3-13-01

REVIEWER: *[Signature]*

DATE: 3/16/01

REVIEWER: *[Signature]*


DATE: 3-13-01

ANII: *[Signature]*

DATE: 3-19-01

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE NUCLEAR ENERGY	EXAMINATION SUMMARY SHEET	Report No.: R19-024
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Site:	Dresden	Component ID:	2/1/1001A-16/16-11		
Outage:	RFO19		TEE-P		
System	SDC	ASME Cat.:	R-A	ASME Item	R1.11
		Aug Req	RI-ISI		

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
45° Shear	D-045	N/A	GE-PDI-UT-2	DRE-PDI-304-01	Kurt Bauman	II	11/5/2005
60° Long.	D-046	N/A	GE-PDI-UT-2	DRE-PDI-304-01	Kurt Bauman	II	11/5/2005

Examination Results:

During the manual ultrasonic examination of the above referenced weld examinations were performed using a 45° shear wave and a 60° longitudinal wave search unit.

No recordable indications.





36% of the required examination volume was examined.

This examination meets the requirements of ASME Section XI 1995 Edition, 1996 Addenda.

Examination results were compared to data report 082 from D2R16 outage with No Change

These examinations were performed under Work Order: 667515-06 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

Prepared By:		Level:	III	Date:	11/8/05	Utility Review:		Date:	11/05
GE Review By:		Level:	III	Date:	11/8/05	ANII Review:		Date:	11/16/05

Page 1 of 4

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
Manual Piping and Components**



GE NUCLEAR ENERGY

Site/Unit: Dresden / 2
Outage: RFO19

Report Number: R19-024
Data Sheet Number: D-045
Linearity Sheet: L-005

Calibration Data for Block DRE-PDI-304-01

<u>SS</u>	<u>Flat</u>	<u>2.0"</u>	Calibration:	Cal Time
Material	Size	Thick	Initial Cal:	<u>1218</u>
<u>Ultracel II</u>	<u>04225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>1231</u>
<u>245200</u>	<u>82° F</u>		Final Cal:	<u>1333</u>
Thermometer S/N	Cal Temp.			

DAC Construction

Scan Direction: Ax
Cal Reflector: 1.0" Notch
Signal Amplitude: 80%
Signal Sweep: 7.0 Div
Signal dB: 5.0 dB
Sweep 0-10 = 2.0 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-073

Reflector	<u>NSDH</u>	<u>FSDH</u>
Amplitude	<u>38%</u>	<u>19%</u>
Gain (dB)	<u>5.0</u>	<u>5.0</u>
Sweep (SD)	<u>2.4</u>	<u>5.4</u>

Acceptable Linearity performed: 10/24/2005

Exam Data for Weld: 2/1/1001A-16/16-11

TEE-P

Configuration:

OD 100° F 245200
Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>DNST</u>	<u>20</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>UPST</u>	<u>20</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>DNST</u>	<u>20</u>	<u>NRI</u>	<u>45°</u>

Procedure: GE-PDI-UT-2

Ver / Rev: R3 DRR: N/A

Search Unit Data

KBA 00HROV .375"/Round
Manufacturer: Serial Number Size/Shape:
0.25 in. 45° 45°
Incident Point: Nominal Angle: Measured Angle:
1.5 MHz Comp-G Shear 1
Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 8' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 031533805
Manufacturer/Model: Serial Number:
5.855 us 0.1205 in./usec. 0.8 - 3.0
Zero: Velocity: Narrowband Filter:
Auto Fullwave 2.0 in Sq. / Max
Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms Off 2.0 MHz P/E
Damping: Reject: Frequency: Mode:

Exam Comments / Limitations:

Exams performed to maintain scanning sensitivity of 5% - 20% ID roll.

No axial exam performed from the downstream side due to saddle weld obstruction from 32" to 46".

No axial exam performed from the upstream side due to component configuration.

0" exam performed to locate counterbore. No counterbore detected. Scan gain set greater than 12 dB + RI-ISI requirement.

Exam Start: 1242 Exam End: 1252

KEB Kurt Bauman I
Initials: Examiner: Level:
TH Troy Hulse II
Initials: Examiner 2: Level:
Initial Cal/Exam Date: 11/5/2005

B. Balwit III 11/8/05
GE Reviewed By: Level: Date:
M. M... 11-9-05
Utility Review: Date:
com 11/16/05
ANII Review: Date: Page 2 of 4

**Ultrasonic Calibration and Examination Record
Manual Piping and Components**



GE NUCLEAR ENERGY

Site/Unit: Dresden / 2
Outage: RFO19

Report Number: R19-024
Data Sheet Number: D-048
Linearity Sheet: L-005

Calibration Data for Block DRE-PDL304-01

SS	<u>Flat</u>	<u>2.0"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1224</u>
<u>Ultrage II</u>	<u>04225</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>1289</u>
<u>245200</u>	<u>82° F</u>		Final Cal:	<u>1334</u>
Thermometer S/N	Cal Temp.			

DAC Construction

Scan Direction: Ax
Cal Reflector: 1.0" Notch
Signal Amplitude: 80%
Signal Sweep: 7.8 Div
Signal dB: 39.0 dB
Sweep 0-10 = 3.0 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-073

Reflector	<u>1.0"</u>	<u>2.0"</u>
Amplitude	<u>30%</u>	<u>80%</u>
Gain (dB)	<u>10.0</u>	<u>10.0</u>
Sweep (SD)	<u>3.5</u>	<u>6.6</u>

Acceptable Linearity performed: 10/24/2005

Exam Data for Weld: 211001A-16/16-11

TEE-P

Configuration:

OD 100° F 245200
Exam Surface: Exam Temp. Exam Thermometer

Axial	UPST	Scan dB	Recordable	Exam
Circ	DNST		Indications	Angle
<u>Axial</u>	<u>UPST</u>	<u>40</u>	<u>NRI</u>	<u>60°</u>

Procedure: GE-PDLUT-2

Ver / Rev: R3 DRR: N/A

Search Unit Data

RTD 99-172 2(10x18) mm/Rect.
Manufacturer: Serial Number Size/Shape:
0.4 in. 60° 60°
Incident Point: Nominal Angle: Measured Angle:
2.0 MHz 60° TRL2-Aust Long. 2
Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
Cable Type: Length: Connectors:

Instrument Settings

Panametrics / Epoch 4 031533905
Manufacturer/Model: Serial Number:
9.625 us 0.225 in./usec. 0.8 - 3.0
Zero: Velocity: Narrowband Filter:
Auto Fullwave 3.0 in Sq. / Max
Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms Off 2.0 MHz -P/E
Damping: Reject: Frequency: Mode: 11/16/05

Exam Comments / Limitations:

Exams performed to maintain scanning sensitivity of 5% - 20% noise level.

No axial exam performed from the downstream side due to saddle weld obstruction from 32" to 46".

No axial exam performed from the upstream side due to component configuration.

0° exam performed to locate counterbore.

No counterbore detected.

Exam Start: 1312 Exam End: 1322

KB Kurt Bauman II
Initials: Examiner: Level:

TH Troy Huhe II
Initials: Examiner 2: Level:

Initial Cal/Exam Date: 11/5/2005

W. Schmitt II 11/8/05
GE Reviewed By: Level: Date:

M. M. M. 11-9-05
Utility Review: Date:

out 11/16/05
ANI Review: Date:

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



Wall Thickness Profile Sheet

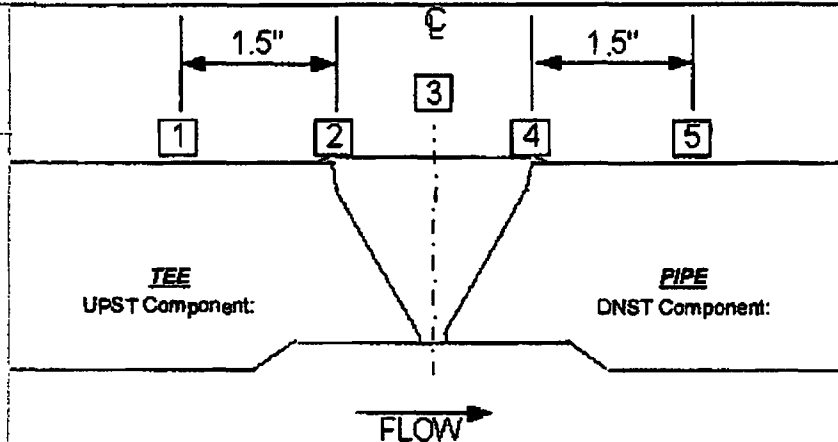
Site: Dresden Unit: 2 Report No.: R19-024
 Project: RFQ19

System: SDC

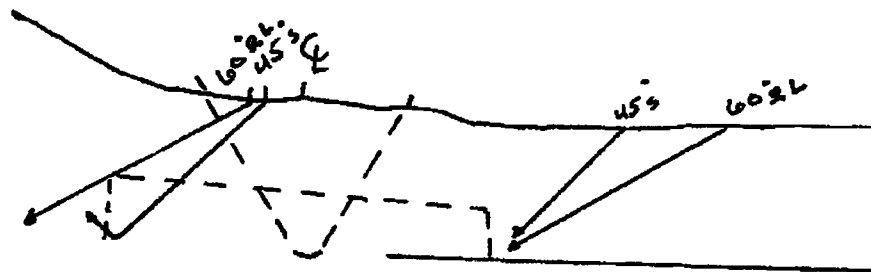
Component ID Number: 2/1/1001A-18/16-11

Position	0°	90°	180°	270°
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	.88	N/A	N/A	N/A
4	.80	N/A	N/A	N/A
5	.80	N/A	N/A	N/A

Crown Height: .05"
 Crown Width: 1.1"
 Nominal Diameter: 18.0"
 Weld Length: 50.5"



Flow →



TAKEN FROM PREVIOUS DATA.
 SEE DATA SHEET NO. D-015

TH
 Drawn by: Troy Huhe # 11/5/2005
 Level: _____ Date: _____


Beatty 11/8/05 III
 GE Reviewed By: _____ Level: _____ Date: _____

WMM 11/9/05
 Utility Review: _____ Date: _____

ANT 11/10/05
 ANI Review: _____ Date: _____

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE ENERGY, NUCLEAR	EXAMINATION SUMMARY SHEET	Report No.: D2R20 076
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Site: Dresden	Component ID: 2/1/1001B-16/16-2
Outage: D2R20	F-P
System: SDC	ASME Ccl.: R-A ASME Item R1.11 Aug Req N/A

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
45° Shear	D-077	N/A	GE-PDI-U1-1 Ver/Rev 5	ORE-PDI-516-02	Troy Steinbauer	II	11/8/2007

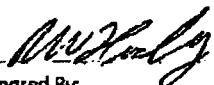
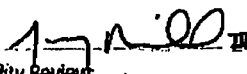
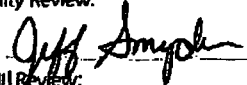
Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing a 45° shear wave search unit.

Axial = 100%
 Circ = 70%

85% Code coverage was achieved.

This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda.

Previous examination results supplied by customer for review from ISI Program documents?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Change	
These examinations were performed under Work Order: 871141-06	<input type="checkbox"/> No	<input checked="" type="checkbox"/> No Change	
This Summary and the following data sheets have been reviewed and accepted by the following personnel:			
Prepared By: 	Level: II	Date: 11-4-07	Utility Review:  11-4-07
			ANII Review:  11/11/07
			RWP: N/A
			Dose: N/A mR
			Page 1 of 24 <i>RWY</i> 11-4-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
Manual Piping and Components**



GE ENERGY, NUCLEAR

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: D2R20-045
Data Sheet Number: D-077
Linearity Sheet: L-001

Calibration Data for Block: DRE-PDI-516-02

<u>C/S</u>	<u>Flat</u>	<u>5"-2.0"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1145</u>
<u>Ultragel II</u>	<u>02125</u>		Cal Check:	<u>1205</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>257506</u>	<u>78° F</u>		Final Cal:	<u>1249</u>
Thermometer S/N	Cal Temp.			

DAC Construction

Scan Direction: Ax
Cal Reflector: 1.5" Notch
Signal Amplitude: 80%
Signal Sweep: 7.10 Div
Signal dB: 4.5 dB
Sweep 0-10 -- 3.000 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL RHOM 104

Reflector	<u>FSDH</u>	<u>N/A</u>
Amplitude	<u>21%</u>	<u>N/A</u>
Gain (dB)	<u>4.5</u>	<u>N/A</u>
Sweep (SD)	<u>3.5</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Data for Weld: 2/1/1001B-16/16-2

F-P
Configuration:

OD 90° F 257506
Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>DNST</u>	<u>20</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>DNST</u>	<u>20</u>	<u>NRI</u>	<u>45°</u>

Procedure: GE-PDI-UT-1

Ver / Rev: 5 DRR: 07-28

Search Unit Data

KBA 01CX3F 50/Round
Manufacturer: Serial Number Size/Shape:

0.35 in. 45° 45°
Incident Point: Nominal Angle: Measured Angle:

2.25 MHz Comp-G Shear 1
Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031526704
Manufacturer/Model: Serial Number:

6.115 us 0.1272 in./usec. 0.8 - 3.0 MHz
Zero: Velocity: Narrowband Filter:

Auto Fullwave 3.000 in Sq. / Max
Rep Rate: Rectification: Range: Pulsar/Energy:

400 Ohms 0% 2.0 MHz Pulse/Echo
Damping: Reject: Frequency: Mode:

Exam Comments / Limitations:

Circ exam performed on pipe side base material only and weld crown with skew angles to examine the additional required exam volume.
No recordable indications.
Previously recorded geometry observed below recordable levels.
No exam performed from upstream side due to component configuration.
Scan gain levels set to maintain an ID response between 5% and 20% FSH. This exceeds the 12 dB requirements of RI-6I.
0° exam performed to locate counterbore and/or any ID transition. Counterbore/ID transition not seen, exam volume extended from toe of weld to meet RI-6I.

Exam Start: 1205 Exam End: 1230

Troy Steinbauer II
Initials: Examiner: Level:

N/A
Initials: Examiner 2: Level:

Initial Cal/Exam Date: 11/8/2007

W. Kelly II 11-9-07
GE Reviewed By: Level: Date:

Tom Miller II 11-10-07
Utility Review: Date:

Jeff Amador 11/11/07
ANRI Review: Date:



Dresden Nuclear Power Station
 GE ENERGY, NUCLEAR

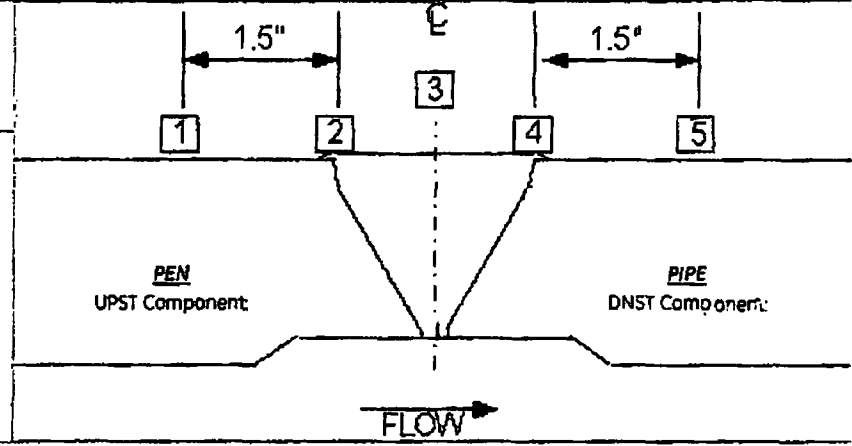
Wall Thickness Profile Sheet
 Limited Coverage NDE Summary Sheets

Report No.:
 D2R20-045

Project: D2R20

System: SDC

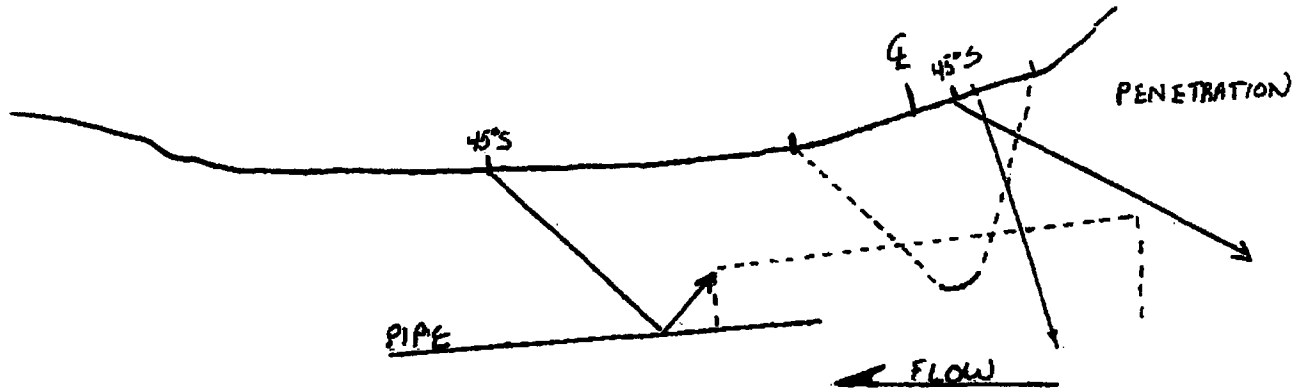
Component ID Number: 2/1/10018-16/16-2



Position	0°	90°	180°	270°
1	.94"	N/A	N/A	N/A
2	.92"	N/A	N/A	N/A
3	.95"	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A

Crown Height: FLUSH
 Crown Width: 1.4"
 Nominal Diameter: 16
 Weld Length: 50.5"

2/1/10018-16/16-2



Troy Steinbauer II 11/8/2007
 Drawn by: Level: Date:

M. Walsh III 11-9-07
 GE Reviewed By: Level: Date:

Amid III 11-10-07
 Utility Review: Date:

Jeff Simpson 11/16/07
 ANH Review: Date:

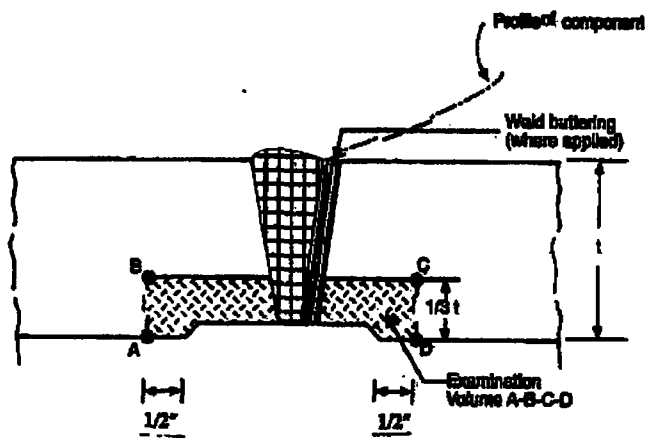
11/9/07

16-2 RISI Weld, Category R-A, Item No. R1.11

Degradation Mechanism = Thermal Fatigue

Component: F-Pipe 16" Dia. .843" Nom. Cal Block: CS ASME Alt

Procedure: GE-PDI-UT-1 Rev. 5, DRR07-28 Manual Exam




- 1) Scan as shown in figures. The absolute minimum scan includes the weld plus 1/2". If there is a CB, scan at least 1/2" beyond the CB. Note scan distance(s) on data sheet. e.g. Scanned 1.5" from weld toe to assure adequate coverage.
- 2) Either locate the counterbore or state that no counterbore can be detected.
- 3) Scan at a minimum of 4X (+12dB) over calibration gain.
- 4) Look for areas of excessive ID noise, especially in the thinner portions of the component.
- 5) Scan both sides unless restricted by physical limitations.
- 6) Any questions or problems call S. Snyder @ 4656 or R. Healey @ 4658 ASAP

Scott R. Erickson GE LVIII 10/27/2007

Chris H. McKean EXELON LVIII 10/27/07
 Chris H. McKean

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE ENERGY, NUCLEAR	EXAMINATION SUMMARY SHEET	Report No: D2R20 04B
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Site:	<u>Dresden</u>	Component ID:	<u>2/1/10058-14/14-7</u>
Outage:	<u>D2R20</u>		<u>VLV-P</u>
System:	<u>SDC</u>	ASME Cat.:	<u>R-A</u> ASME Item <u>R1.11</u> Aug Req <u>N/A</u>

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
45° Shear	D-011	N/A	GE-PDI-UT-2 Ver/Rev 4	DRC-PDI-304-01	Chad Olson	II	10/31/2007
60° Long.	D-012	N/A	GE-PDI-UT-2 Ver/Rev 4	DRE-PDI-304-01	Chad Olson	II	10/31/2007

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing a 45° shear wave and a 60° RL search unit.

No upstream examination due to valve configuration.

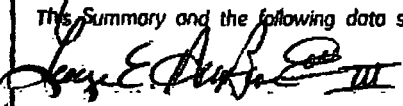

This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda.

50% of the required volume was examined.

Previous examination results supplied by customer for review from ISI Program documents? Yes Change

These examinations were performed under Work Order: 871341-06 No No Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

	Level:	Date:	Utility Review:	Date:	RWP: N/A
Prepared By:		11/2/07		11/4/07	Dose: N/A mr.
				11/13/07	
			ANII Review:	Date:	Page 1 of 5

Dresden Nuclear Power Station GE ENERGY, NUCLEAR	Wall Thickness Profile Sheet	Limited Coverage NDE Summary Sheets Site: <u>Dresden</u> Unit: <u>2</u> Project: <u>D2R20</u>	Report No.: <u>D2R20-048</u>
--	-------------------------------------	---	---------------------------------

System: <u>SDC</u>				
Position	0°	90°	180°	270°
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	.70"	N/A	N/A	N/A
4	.63"	N/A	N/A	N/A
5	.63"	N/A	N/A	N/A

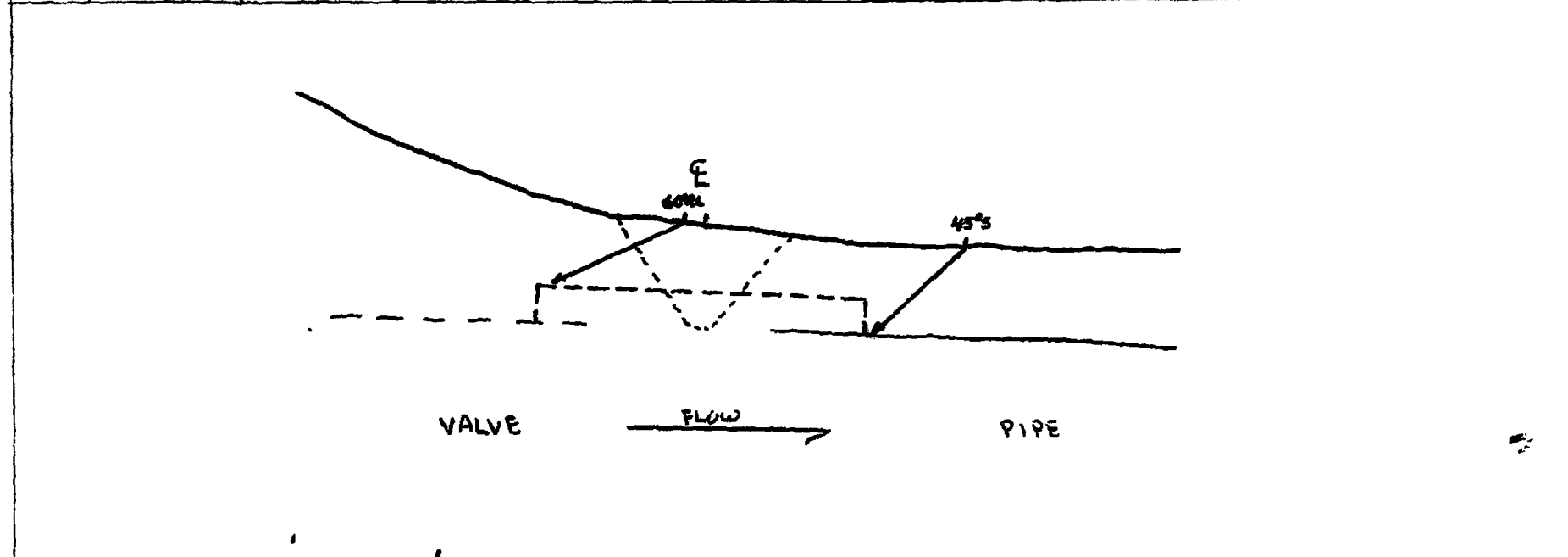
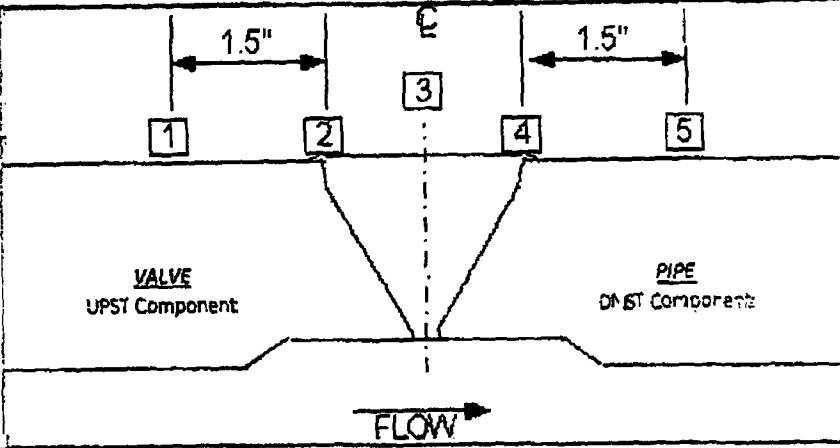
Component ID Number: 2/1/10058-14/14-7

Crown Height: .25"

Crown Width: 1.20"

Nominal Diameter: 14.0"

Weld Length: 44.5"



Drawn by: <u>Chad Olson</u> Level: <u>II</u> Date: <u>10/31/2007</u>	GE Reviewed By: <u>[Signature]</u> Level: <u>III</u> Date: <u>11/2/07</u>	Utility Review: <u>[Signature]</u> Date: <u>11-4-07</u>	ANII Review: <u>[Signature]</u> Date: <u>11/3/07</u>
Page <u>2</u> of <u>5</u>			

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
Manual Piping and Components**

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: D2R20-048
Data Sheet Number: D-011
Linearity Sheet: L-004

Calibration Data for Block: DRE-PDI-304-01

SS	<u>FLAT</u>	<u>5"-2.0"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1450</u>
<u>Ultracel II</u>	<u>02125</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>257506</u>	<u>82° F</u>		Final Cal:	<u>1750</u>
Thermometer S/N	Cal Temp.			

DAC Construction

Scan Direction: Handwritten: Ax
Cal Reflector: ID Notch
Signal Amplitude: 80%
Signal Sweep: 5.8 Div
Signal dB: 3.0 dB
Sweep 0-10 = 2.443 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-066

Reflector	<u>FSDH</u>	<u>N/A</u>
Amplitude	<u>18%</u>	<u>N/A</u>
Gain (dB)	<u>3.0</u>	<u>N/A</u>
Sweep (SD)	<u>4.4</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Data for Weld: 2/1/1005B-14/14-7

VLV-P

Configuration:

OD 99° F 257506
Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>DNST</u>	<u>20</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>DNST</u>	<u>20</u>	<u>NRI</u>	<u>45°</u>

Procedure: GE-PDI-UT-2

Ver / Rev: 4 DRR: 07-07/07-29

Search Unit Data

KBA 00L189 375"/Round
Manufacturer: Serial Number Size/Shape:
0.2 in. 45° 45°
Incident Point: Nominal Angle: Measured Angle:
1.5 MHz Comp-G Shear 1
Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031572811
Manufacturer/Model: Serial Number:
5.92 us 0.1232 in./usec. 0.8 - 3.0 MHz
Zero: Velocity: Narrowband Filter:
Auto Fullwave 2.443 in Sg. / Max
Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz P/E
Damping: Reject: Frequency: Mode:

Exam Comments / Limitations:

No counterbore detected.
Scan gain levels set to maintain on ID response between 5% and 20% FSH. This exceeds the 12dB requirements of RI-ISI. Increased exam volume due to RI-ISI requirements. See attached coverage plot.
No exam performed from upstream side due to component configuration.
Single side exam. 50% code coverage.
No recordable indications

Exam Start: 1600 Exam End: 1720

CO Chad Olson II
Initials: Examiner: Level:
N/A N/A
Initials: Examiner 2: Level:
Initial Cal/Exam Date: 10/31/2007

Steve E. [Signature] 11/2/07
GE Reviewed By: Level: Date:
J. Muen 11-9-07
Utility Review: Date:
[Signature] 11/13/07
ANI Review: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
Manual Piping and Components**



GE ENERGY, NUCLEAR

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: 02R20-048
Data Sheet Number: 0-012
Linearity Sheet: L-004

Calibration Data for Block: DRE-PDI-304-01

<u>SS</u> Material	<u>FLAT</u> Size	<u>5"-2.0"</u> Thick	Calibration	Cal Time
<u>Ultrage II</u> Couplant	<u>02125</u> Couplant batch		Initial Cal:	<u>1418</u>
<u>257506</u> Thermometer S/N	<u>82° F</u> Cal Temp.		Cal Check:	<u>N/A</u>
			Cal Check:	<u>N/A</u>
			Final Cal:	<u>1749</u>

DAC Construction

Scan Direction: AK
Cal Reflector: ID Notch
Signal Amplitude: 80%
Signal Sweep: 6.6 Div
Signal dB: 39.8 dB
Sweep 0-10 = 3,000 in Metal Path

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-066

Reflector	<u>NSDH</u>	<u>N/A</u>
Amplitude	<u>80%</u>	<u>N/A</u>
Gain (dB)	<u>33.0</u>	<u>N/A</u>
Sweep (SD)	<u>2.2</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Data for Weld: 2/1/10058-14/14-7

VLV-P
Configuration:

OD 99° F 257506
Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>DNST</u>	<u>45.8</u>	<u>NRI</u>	<u>60°</u>

Procedure: GE-PDI-UT-2 11-3-07
Ver / Rev: 4 DRR: 07-07/07-29 04/11/07

Search Unit Data

RTD 99-506 2(Bx14) mm/Rect.
Manufacturer: Serial Number Size/Shape:
0.3 in. 60° 60°
Incident Point: Nominal Angle: Measured Angle:
2.0 MHz 60° TRL2-Aust Long. 2
Frequency: Style: Mode: Elements:

Search Unit Cable

RG-174 6' 0
Cable Type: Length: Connectors:

Instrument Settings

Panometrics / Epoch 4 031572811
Manufacturer/Model: Serial Number:
9.61 us 0.2397 in./usec. 0.8 - 3.0
Zero: Velocity: Narrowband Filter:
Auto Fullwave 3,000 In Sq. / Max
Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz Dual
Damp'ng: Reject: Frequency: Mode:

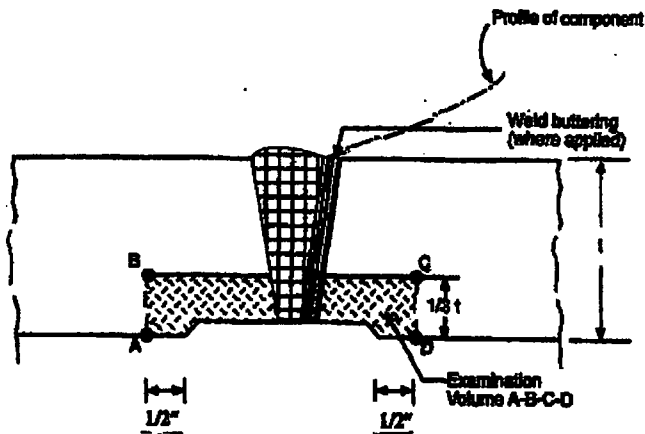
Exam Comments / Limitations:

*No counterbore detected.
Exam performed to maintain 5% to 20% noise level.
Increased exam volume due to RI-ISI requirements. See attached coverage plot.
Supplemental 60° RL examination due to single side access.
No exam performed from upstream side due to component configuration.
Single side exam. 50% code coverage.
No recordable indications*

Exam Start: 1600 Exam End: 1720

CO Chad Olson II
Initials: Examiner: Level:
N/A N/A
Initials: Examiner 2: Level:
Initial Cal/Exam Date: 10/31/2007

[Signature] 11/2/07
GE Reviewed By: Level: Date:
[Signature] 11/4/07
Utility Review: Date:
[Signature] 11/3/07
ANII Review: Date:

14-7 RISI Weld, Category R-A, Item No. R1.11**Degradation Mechanism = Thermal Fatigue****Component: Vlv-Pipe 14" Dia. .638" Nom. Cal Block: SS ASME Alt****Procedure: GE-PDI-UT-2 Rev. 4, DRR 07-04/DRR 07-29 Manual Exam**

Scott R. Erickson GE LV III 10/27/2007

Chris H. McKeown EXELON LV III 10/27/07


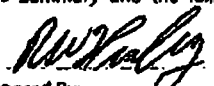
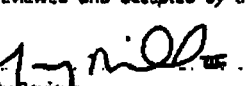
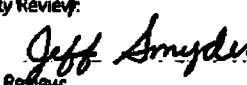
Chris H. McKeown

D2R2D-048
PAGE 5 OF 5

- 1) Scan as shown in figures. The absolute minimum scan includes the weld plus 1/2". If there is a CB, scan at least 1/2" beyond the CB. Note scan distance(s) on data sheet. e.g. Scanned 1.5" from weld toe to assure adequate coverage.
- 2) Either locate the counterbore or state that no counterbore can be detected.
- 3) Scan at a minimum of 4X (+12dB) over calibration gain.
- 4) Look for areas of excessive ID noise, especially in the thinner portions of the component.
- 5) Scan both sides unless restricted by physical limitations.
- 6) Any questions or problems call S. Snyder @ 4656 or R. Healey @ 4658 ASAP

ATTACHMENT 2

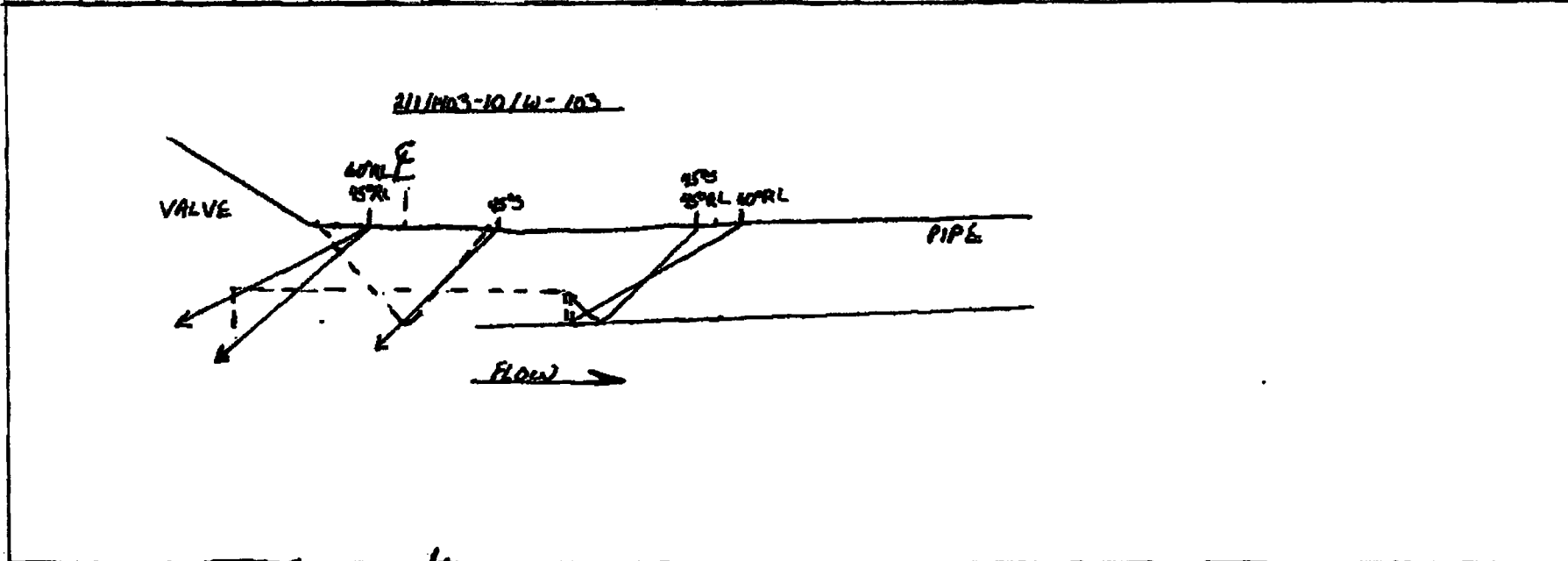
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE ENERGY, NUCLEAR		EXAMINATION SUMMARY SHEET				Report No: D2R20-049	
Site: Dresden		Component ID: 2/1/1403-10/W-103					
Outage: D2R20		VLV-P					
System: CS		ASME Cat: R-A		ASME Item R1.20		Aug Req N/A	
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
45° Shear	D-058	N/A	GE-PDI-UT-10 Ver/Rev 2	DRE-PDI-304-01	Troy Steinbauer	II	11/5/2007
45° RL	D-059	N/A	GE-PDI-UT-10 Ver/Rev 2	DRE-PDI-304-01	Troy Steinbauer	II	11/5/2007
60° RL	D-060	N/A	GE-PDI-UT-10 Ver/Rev 2	DRE-PDI-304-01	Troy Steinbauer	II	11/5/2007
Examination Results: During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing a 45° shear wave, a 45° and 60° RL search unit. Axial coverage = 85% Circ coverage = 77% The examination was performed from the pipe side due to valve configuration. 81% Code coverage was achieved. This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda.							
Previous examination results supplied by customer for review from ISI Program documents?					<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> Change
These examinations were performed under Work Order: 870092-06					<input type="checkbox"/> No		<input checked="" type="checkbox"/> No Change
This Summary and the following data sheets have been reviewed and accepted by the following personnel:						RWP: N/A Dose: N/A mr.	
Prepared By: 		Level: II		Date: 11-7-07		Date: 11-10-07	
				Utility Review: 		Date: 11/11/07	
				ANII Review: 		Date:	
						Page <u>1</u> of <u>5</u>	

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI In-Service Limited Coverage NDE Summary Sheets

GE ENERGY, NUCLEAR					<h3 style="margin: 0;">Wall Thickness Profile Sheet</h3>		Site: <u>Dresden</u>	Unit: <u>2</u>	Report No.: <u>D2R20-049</u>
System: <u>CS</u>					Component ID Number: <u>211/1003-10/W-103</u>				
Position	0°	90°	180°	270°	Crown Height: <u>FLUSH</u>				
1	N/A	N/A	N/A	N/A	Crown Width: <u>1.1"</u>				
2	N/A	N/A	N/A	N/A	Nominal Diameter: <u>10.0"</u>				
3	.612"	N/A	N/A	N/A	Weld Length: <u>34.0"</u>				
4	.606"	N/A	N/A	N/A					
5	.598"	N/A	N/A	N/A					



Drawn by: <u>Troy Steinbauer</u>	Level: <u>II</u>	Date: <u>11/5/07</u>	GE Reviewed By: <u>[Signature]</u>	Level: <u>III</u>	Date: <u>11/7/07</u>	Utility Review: <u>[Signature]</u>	Date: <u>11-10-07</u>	ANR Review: <u>[Signature]</u>	Date: <u>11/16/07</u>
Page 2 of 5									

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
Manual DM Welds - Epoch 4**

GE ENERGY, NUCLEAR

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: D2R20-049
Data Sheet Number: D-058
Linearity Sheet: L-002

Calibration Data for Block: DRE-PDI-304-01

<u>SS</u>	<u>Flat</u>	<u>5"-2.0"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>0955</u>
<u>Ultragel II</u>	<u>02125</u>		Cal Check:	<u>1315</u>
Couplant:	Couplant batch		Cal Check	<u>N/A</u>
<u>257887</u>	<u>78° F</u>		Final Cal:	<u>1329</u>
Thermometer S/N	Cal Temp.			

Procedure: GE-PDI-UT-10

Ver / Rev: 2 DRR: 06-40

Search Unit Data

KBA 00MPN7 50/Round
Manufacturer: Serial Number Size/Shape:
N/A 45° 45°
Focal Depth: Nominal Angle: Measured Angle:
1.5 MHz Comp-G Shear 1
Frequency: Style: Mode: Elements:
0.20 in 5
Exit Point to Wedge Front: Exit Point to Wedge Back:
Flat 7x7"
Wedge Contour: Footprint:

DAC Construction

Search Unit Cable

Scan Direction Am RG-174
Cable Reflector 5" Notch Cable Type:
Signal Amplitude: 80% 6'
Signal Sweep: 3.5 Div Length:
Signal dB: 2.4 dB 0
Sweep 0-10 = 2.000 in Metal Path Connectors:

Instrument Settings

Panometrics / Epoch 4 031539906
Manufacturer/Model: Serial Number:
6.91 us 0.1257 in/ussec 0.8 - 3.0 MHz
Zero: Velocity: Narrowband Filter:
Auto Fullwave 2.000 in Sa / Max
Rep Rate: Rectification: Range: Pulser/Energy:
400 Ohms 0% 2.0 MHz Pulse/Echo
Damping: Reject: Frequency: Mode:

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-047

Reflector	<u>FSDH</u>	<u>N/A</u>
Amplitude	<u>23%</u>	<u>N/A</u>
Gain (dB)	<u>2.4</u>	<u>N/A</u>
Sweep ISDI	<u>5.2</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Data for Weld: 2/1/1403-10/W-103

VLV-P

Configuration:

00 79° F 257887
Exam Surface: Exam Temp. Exam Thermometer

Axial	UPST	Scan dB	Recordable	Exam
Circ	DNST		Indications	Angle
<u>Adol</u>	<u>DNST</u>	<u>15.0</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>DNST</u>	<u>15.0</u>	<u>NRI</u>	<u>45°</u>

Exam Comments / Limitations:

Circ exam performed on pipe side base material only and weld crown with skew angles to examine the additional required exam volume. No recordable indications. ID geometry observed below recordable levels. No exam performed from upstream side due to component configuration. Scan gain levels set to maintain an ID response between 5% to 20% FSH. This exceeds the 12dB requirements of RI-ISI. 0° exam performed to locate counterbore and/or any ID transition. Counterbore/ID transition not seen, exam volume extended from toe of weld to meet RI-ISI.

Exam Start: 1315 Exam End: 1320

Troy Steinbauer II
Initials: Examiner: Level:

JE 11/7/07
GE Reviewed By: Level: Date:

N/A
Initials: Examiner 2: Level:

Jeff Snyder 11/11/07
Utility Review: Date:

Initial Cal/Exam Date: 11/5/2007

ANII Review: 11/11/07
Date:

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ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

**Ultrasonic Calibration and Examination Record
Manual DM Welds - Epoch 4**

GE ENERGY, NUCLEAR

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: D2R20-049
Data Sheet Number: D-059
Linearity Sheet: L-002

Calibration Data for Block: DRE-PDI-304-01

<u>SS</u> Material	<u>Flat</u> Size	<u>5"-2.0"</u> Thick	Calibration	Cal Time
<u>Ultracel II</u>	<u>02125</u>		Initial Cal:	<u>1004</u>
Couplant:	Couplant batch		Cal Check:	<u>1258</u>
<u>257887</u>	<u>78° F</u>		Cal Check:	<u>N/A</u>
Thermometer S/N	Cal Temp.		Final Cal:	<u>1331</u>

Procedure: GE-PDI-UT-10

Ver / Rev: 2 DRR: 06-40

Search Unit Data

RTD 03-176 217x10 mm/Rect.
Manufacturer: Serial Number Size/Shape:

56° 45° 45°
Focal Depth: Nominal Angle: Measured Angle:

2.0 MHz 45° TBL2-Aust RL 2
Frequency: Style: Made: Elements:

0.33 in .45"
Exit Point to Wedge Front: Exit Point to Wedge Back:

Flat 78"x78"
Wedge Contour: Footprint:

DAC Construction

Search Unit Cable

Scan Direction: Ax RG-174
Cable Type:

Cal Reflector: 5" Notch

Signal Amplitude: 80% 6'
Length:

Signal Sweep: 4.7 Div

Signal dB: 39.8 dB 0
Connectors:

Sweep 0-10 = 1.500 in Metal Path

Instrument Settings

Pangmetrics / Epoch 4 031539906
Manufacturer/Model: Serial Number:

7.974 us 0.2304 in./usec. 0.8 - 3.0 MHz
Zero: Velocity: Narrowband Filter:

Auto Fullwave 1500 in Sq. / Max
Rep Rate: Rectification: Range: Pulsar/Energy:

400 Ohms 0% 2.0 MHz Dual
Damping: Reject: Frequency: Mode:

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-047

Reflector	<u>FSDH</u>	<u>N/A</u>
Amplitude	<u>80%</u>	<u>N/A</u>
Gain (dB)	<u>35.7</u>	<u>N/A</u>
Sweep (SD)	<u>6.8</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Comments / Limitations:

Circ exam performed on pipe side base material only and weld crown with skew angles to examine the additional required exam volume.
No recordable indications.
ID geometry observed below recordable levels.
No exam performed from upstream side due to component configuration.
0° exam performed to locate counterbore and/or any ID transition. Counterbore/ID transition not seen, exam volume extended from toe of weld to meet RI-ISI.

Exam Data for Weld: 2/1/1403-10/W-103

V.V.-P

Configuration:

OD 78° F 257887
Exam Surface: Exam Temp. Exam Thermometer

Axial	UPST	Scan dB	Recordable	Exam
Circ	DNST		Indications	Angle
<u>Axial</u>	<u>DNST</u>	<u>39.8</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>DNST</u>	<u>39.8</u>	<u>NRI</u>	<u>45°</u>

MAINTAINED 5-2.0% NOISE 04/11/07

Exam Start: 1258 Exam End: 1314

Troy Steinbauer II
Initials: Examiner: Level:

N/A
Initials: Examiner 2: Level:

Initial Cal/Exam Date: 11/5/2007

[Signature] III 11-9-07
GE Reviewed By: Level: Date:

[Signature] 11-9-07
Utility Review: Date:

[Signature] 11/11/07
ANII REVIEW: Date:

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ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
Manual DM Welds - Epoch 4**

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: D2R20-049
Data Sheet Number: D-060
Linearity Sheet: L-002

Calibration Data for Block: DRE-PDI-304-01

<u>SS</u>	<u>FLAT</u>	<u>1-1.9"</u>	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>1015</u>
<u>Ultrasel II</u>	<u>02125</u>		Cal Check:	<u>1247</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>257887</u>	<u>78° F</u>		Final Cal:	<u>1330</u>
Thermometer S/N	Cal Temp.			

Procedure: GE-PDI-UT-10

Ver / Rev: 2 DRR: 06-40

Search Unit Data

RTD 03-178 217x101 mm/Rect.
Manufacturer: Serial Number Size/Shape:
.49" 60° 61°
Focal Depth: Nominal Angle: Measured Angle:
2.0 MHz 60° TRL2-Aust RL 2
Frequency: Style: Mode: Elements:
0.33 in .45
Exit Point to Wedge Front: Exit Point to Wedge Back:
Flat 7.8"x.78"
Wedge Contour: Footprint:

DAC Construction

Search Unit Cable

Scan Direction: Ax Cable Type: RG-174
Cal Reflector: .6 SDH Length: 6'
Signal Amplitude: 80% Connectors: 0
Signal Sweep: 6.2 DIV
Signal dB: 38.6 dB
Sweep 0-10 = 2.000 in Metal Path

Instrument Settings

Panometrics / Epoch 4 031539906
Manufacturer/Model: Serial Number:
7.974 us 0.2304 in/us.ec 0.8 - 3.0
Zero: Velocity: Narrowband Filter:
Auto Fullwave 2.000 in Sg / Max
Rep Rate: Rectification: Range: Pulser/Energy:
400 Ohms 0% 2.0 MHz Dual
Damping: Reject: Frequency: Mode:

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-047

Reflector	<u>MSDH</u>	<u>N/A</u>
Amplitude	<u>90%</u>	<u>N/A</u>
Gain (dB)	<u>35.9</u>	<u>N/A</u>
Sweep (SD)	<u>3.6</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Data for Weld: 2/1/1403-10/W-103

VLV-P

Configuration:

OD 79° F 257887
Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>DNST</u>	<u>35.9</u>	<u>NRI</u>	<u>60°</u>

Exam Comments / Limitations:

No recordable indications.

0° exam performed to locate counterbore and/or any ID transition. Counterbore/ID transition not seen, exam volume extended from toe of weld to meet RI-ISI.

MAINTAINED 5-20% NOISE
NW/ 11-9-07

Exam Start: 1247 Exam End: 1256

Troy Steinbauer II
Initials: Examiner: Level:

George E. ... III 11/2/07
GE Reviewed By: Level: Date:

N/A
Initials: Examiner 2: Level:


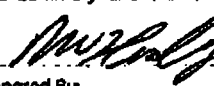
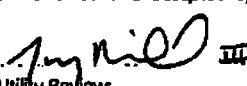
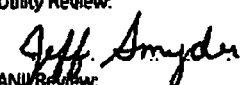
Jeff ... II 11-11-07
Utility Review: Date:

Initial Cal/Exam Date: 11/5/2007

Jeff ... II 11/14/07
ANII Review: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 GE ENERGY, NUCLEAR	EXAMINATION SUMMARY SHEET	Report No.: D2R20-050																					
Site: Dresden Component ID: 2/1/1404-10/W-112																							
Outage: D2R20 VLV-P																							
System: CS ASME Cat.: R-A ASME Item R1.20 Aug Req N/A																							
Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date																
45 Shear	D-003	N/A	GE-PDI-UT-10 Ver/Rev 2	DRE-PDI-304-01	Chad Olson	II	10/30/2007																
45° RL	D-004	N/A	GE-PDI-UT-10 Ver/Rev 2	DRE-PDI-304-01	Chad Olson	II	10/30/2007																
60° RL	D-005	N/A	GE-PDI-UT-10 Ver/Rev 2	CAL-DPTH-071	Chad Olson	II	10/30/2007																
<p>Examination results:</p> <p>During the manual ultrasonic examination of the above referenced component, no recordable indications were detected utilizing a 45° shear wave, a 45° and 60° RL search unit.</p> <p>During the liquid penetration examination of the above referenced component, no recordable indications were detected.</p> <p>Exam was performed from the pipe side due to valve configuration.</p> <p>This examination meets the requirements of ASME Section XI, 1995 Edition with 1996 Addenda.</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:20%;"></td> <td style="width:20%; text-align: center;">Procedure</td> <td style="width:20%; text-align: center;">RI-ISI</td> <td style="width:40%;"></td> </tr> <tr> <td style="text-align: center;">Ava lScan</td> <td style="text-align: center;">87.8%</td> <td style="text-align: center;">91.3%</td> <td></td> </tr> <tr> <td style="text-align: center;">Circ Scan</td> <td style="text-align: center;">85.6%</td> <td style="text-align: center;">80.1%</td> <td></td> </tr> <tr> <td style="text-align: center;">Total Composite Coverage</td> <td style="text-align: center;">86.7%</td> <td style="text-align: center;">85.7%</td> <td></td> </tr> </table>									Procedure	RI-ISI		Ava lScan	87.8%	91.3%		Circ Scan	85.6%	80.1%		Total Composite Coverage	86.7%	85.7%	
	Procedure	RI-ISI																					
Ava lScan	87.8%	91.3%																					
Circ Scan	85.6%	80.1%																					
Total Composite Coverage	86.7%	85.7%																					
Previous examination results supplied by customer for review from ISI Program documents?					<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> Change																	
These examinations were performed under Work Order: 870092-06					<input type="checkbox"/> No	<input checked="" type="checkbox"/> No Change																	
This Summary and the following data sheets have been reviewed and accepted by the following personnel:						RWP: N/A																	
Prepared By: 	Level: 11-2-07	Date:	Utility Review: 	Date: 11-10-07	Dose: mr.																		
			ANI Review: 	Date: 11/11/07	Page 1 of 7																		



GE ENERGY, NUCLEAR

Wall Thickness Profile Sheet

Site: Dresden Unit: 2
Project: D2R20

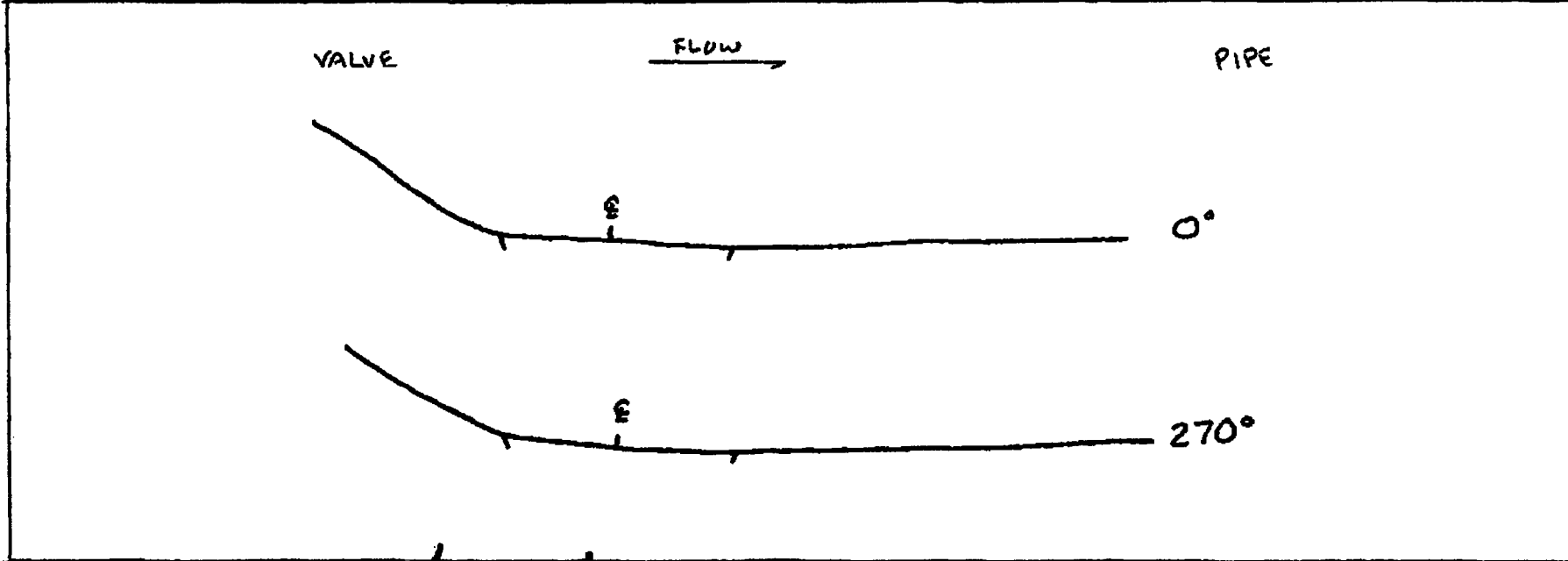
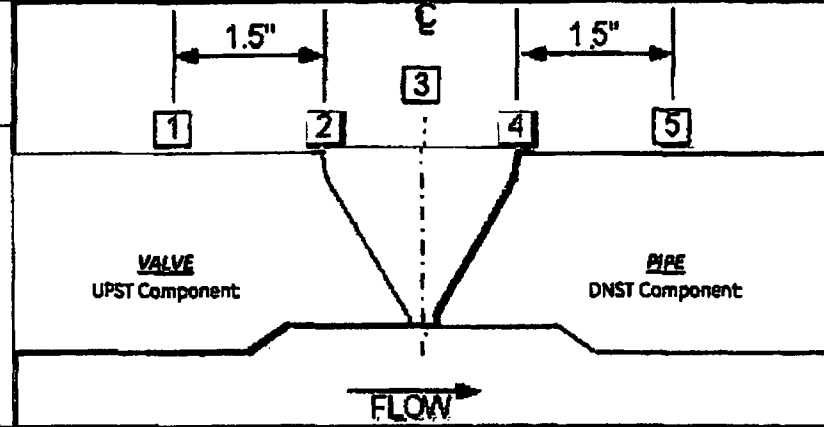
Report No.: D2R20-050

System: CS

Component ID Number: 2/2/0004-10/W-112

Position	0°	90°	180°	270°
1	N/A	N/A	N/A	N/A
2	.647"	N/A	N/A	N/A
3	.564"	N/A	N/A	N/A
4	.561"	N/A	N/A	N/A
5	.567"	N/A	N/A </td <td>N/A</td>	N/A

Crown Height: FLUSH
Crown Width: 1.5"
Nominal Diameter: 10.0"
Weld Length: 34.0"



CS/OK
Drawn by: Chad Olson

Level: II Date: 10/30/2007

GE Reviewed By: [Signature] Level: III Date: 11/16/07

Utility Review: [Signature] Date: 11-10-07

ANL Review: [Signature] Date: 11/11/07

11/17/07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

Indication / Coverage
Plot Sheet

Site: Dresden
Project: D2R20

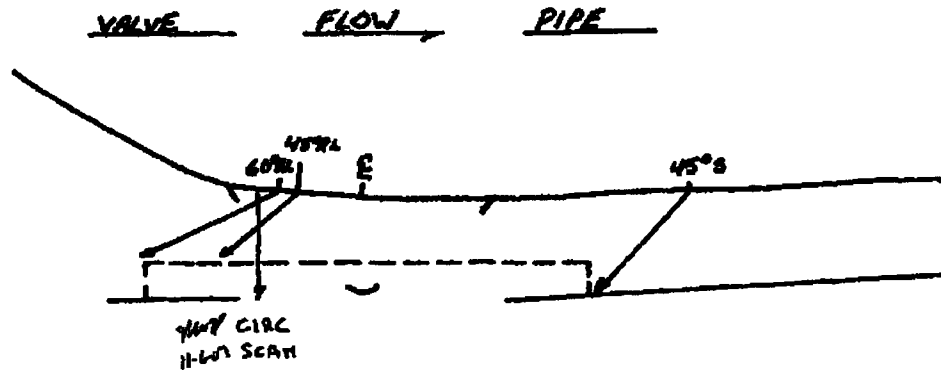
Unit: 2

Report Number:
D2R20-050

System: CS

Component ID Number: 2/1/1404-10/W-112

Configuration: VALVE to PIPE



Chad Olson
Drawn by:

Level: II Date: 10/30/2007

[Signature]
GE Reviewed By: Level: III Date: 11/1/07

[Signature]
Utility Reviewed By: Date: 11-10-07

[Signature]
ANR Reviewed By: Date: 11/1/07

11-7-07



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
Manual DM Welds - Epoch 4**

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: D2R20-050
Data Sheet Number: D-003
Linearity Sheet: L-002

Calibration Data for Block: DRE-PDI-304-01

Procedure: GE-PDI-UT-10

SS Material	Flat Size	<u>.5"-2.0"</u> Thick	Calibration Initial Cal:	Cal Time
<u>Ultrageel II</u>	<u>02125</u>		Cal Check:	<u>0740</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>257506</u>	<u>70°F</u>		Cal Check:	<u>N/A</u>
Thermometer S/N	Cal Temp.		Final Cal:	<u>1330</u>

Ver / Rev: 2 DRR: 06-80

Search Unit Data

KBA 001189 .375"/Round
Manufacturer: Serial Number Size/Shape:
N/A 45 45°
Focal Depth: Nominal Angle: Measured Angle:
1.5 MHz Comp-G Shear 1
Frequency: Style: Mode: Elements:
0.20 in 4"
Exit Point to Wedge Front: Exit Point to Wedge Back:
Flat 6"x.55"
Wedge Contour: Footprint:

DAC Construction

Search Unit Cable

Scan Direction Ax RG-174
Cable Type:
Cal Reflector 5" Notch
Signal Amplitude: 80% ε
Signal Sweep: 3.5 Div Length:
Signal dB: 4.0 dB 0
Sweep 0-10 = 2.006 in Metal Path Connectors:

Instrument Settings

Panometrics / Epoch 4 031539906
Manufacturer/Model: Serial Number:
6.235 μs 0.1234 in./usec. 0.8 - 3.0 MHz
Zero: Velocity: Narrowband Filter:
Auto Fullwave 2.006 in Sa / Max
Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz P/E
Damping: Reject: Frequency: Mode:

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-066

Reflector	<u>FSDH</u>	<u>N/A</u>
Amplitude	<u>20%</u>	<u>N/A</u>
Gain (dB)	<u>4.0</u>	<u>N/A</u>
Sweep (SD)	<u>5.2</u>	<u>N/A</u>

Acceptable Uncertainty performed: 10/19/2007

Exam Comments / Limitations:

Exams performed to maintain 5% to 20% ID roll.
No exam performed from upstream side due to component configuration.
No counterbore detected.
Increased exam volume due to RI-ISI requirements. See attached coverage plot.
No recordable indications.

Exam Data for Weld: 2/1/1404-10/W-112

VLV-P

Configuration:

GD 88°F 257506
Exam Surface: Exam Temp. Exam Thermometer

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>DNST</u>	<u>14</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>DNST</u>	<u>18</u>	<u>NRI</u>	<u>45°</u>

Exam Start: 1223 Exam End: 1318

CO Chad Olson II
Initials: Examiner- Level:

NW Kelly III 11-2-07
GE Reviewed By: Level: Date:

N/A N/A
Initials: Examiner 2: Level:

Jay Hill 11-10-07
Utility Review: Date:

Initial Cal/Exam Date: 10/30/2007

Jeff Snyder 11/11/07 Page 4 of 7
Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

GE ENERGY, NUCLEAR **Ultrasonic Calibration and Examination Record**
Manual DM Welds - Epoch 4

Site/Unit: Dresden / 2
 Outage: D2R20

Report Number: D2R20-050
 Data Sheet Number: D-004
 Linearity Sheet: L-002

Calibration Data for Block: DRE-PDI-304-01

Procedure: GE-PDI-UT-10

SS	Flat	5"-2.0"	Calibration	Cal Time
Material	Size	Thick	Initial Cal:	<u>0746</u>
<u>Ultrason II</u>	<u>02125</u>		Cal Check:	<u>N/A</u>
Couplant:	Couplant batch		Cal Check:	<u>N/A</u>
<u>257506</u>	<u>70° F</u>		Final Cal:	<u>1328</u>
Thermometer S/N	Cal Temp.			

Ver / Rev: 2 DRR: 06-40

Search Unit Data

RTD 03-176 2(7x20) mm/Rect.
 Manufacturer: Serial Number Size/Shape:
56° 45° 45°
 Focal Depth: Nominal Angle: Measured Angle:
2.0 MHz 45° TRL2-Aust RL 2
 Frequency: Style: Mode: Elements:
0.33 in 45°
 Exit Point to Wedge Front: Exit Point to Wedge Back:
Flat 78°x.78°
 Wedge Contour: Footprint

DAC Construction **Search Unit Cable**

Scan Direction Ax RG-174
 Cal Reflector 5" Notch Cable Type:
 Signal Amplitude: 80% 6'
 Signal Sweep: 3.6 Div Length:
 Signal dB: 39.8 dB 0
 Sweep 0-10 = 1.988 in Metal Path Connectors:

Instrument Settings

Panametrics / Epoch 4 051539906
 Manufacturer/Model: Serial Number:
7.974 us 0.2304 in./usec. 0.8 - 3.0
 Zero: Velocity: Narrowband Filter:
Auto Fullwave 1.988 in Sq. / Max
 Rep Rate: Rectification: Range: Pulsar/Energy:
400 Ohms 0% 2.0 MHz Dual
 Damping: Reject: Frequency: Mode:

Calibration Verification

Field Simulator Block S/N: CAL-RHOM-066

Reflector	<u>FSDH</u>	<u>N/A</u>
Amplitude	<u>80%</u>	<u>N/A</u>
Gain (dB)	<u>36.2</u>	<u>N/A</u>
Sweep (SD)	<u>5.2</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Data for Weld: 2/1/1404-10/W-112

Exam Comments / Limitations:

Exam performed at reference sensitivity to maintain 5% to 20% noise level.
 No exam performed from upstream side due to component configuration.
 No counterbore detected.
 Increased exam volume due to RI-ISI requirements. See attached coverage plot.
 No recordable indications.

VLV-P
 Configuration:
OD 88° F 257506
 Exam Surface: Exam Temp. Exam Thermometer

Axial	UPST	Scan dB	Recordable	Exam
Circ	DNST		Indications	Angle
<u>Axial</u>	<u>DNST</u>	<u>39.8</u>	<u>NRI</u>	<u>45°</u>
<u>Circ</u>	<u>DNST</u>	<u>39.8</u>	<u>NRI</u>	<u>45°</u>

Exam Start: 1223 Exam End: 1318

CO Chad Olson II
 Initials: Examiner: Level:
N/A N/A N/A
 Initials: Examiner 2: Level:
 Initial Cal/Exam Date: 10/30/2007

Michael IV 11-20-07
 GE Reviewed By: Level: Date:
Jim Hill III 11-18-07
 Utility Review: Date:
Jeff Smyth 11/11/07
 ANI Review: Date: Page 5 of 7



**Ultrasonic Calibration and Examination Record
Manual DM Welds - Epoch 4**

Site/Unit: Dresden / 2
Outage: D2R20

Report Number: D2R20-050
Data Sheet Number: D-005
Linearity Sheet: L-002

Calibration Data for Block: CAL-DPTH-071

Procedure: GE-PDI-UT-10

SS Material	Flat Size	<u>1-1.9" Thick</u>	Calibration Initial Cal	<u>0804</u>
<u>Ultrason II</u>	<u>02125</u>		Cal Check	<u>N/A</u>
Couplant	Couplant batch		Cal Check	<u>N/A</u>
<u>257506</u>	<u>70°F</u>		Final Cal:	<u>1326</u>
Thermometer S/N	Cal Temp.			

Ver / Rev: 2 DRR: 06-40

Search Unit Data

RTD Manufacturer: 03-178 Serial Number: 270401 mm/Rect
Focal Depth: 49" Nominal Angle: 60" Measured Angle: 61"
Frequency: 2.0 MHz Style: 60° TRIZ-Aust Mode: RL Elements: 2
Exit Point to Wedge Front: 0.33 in Exit Point to Wedge Back: .45
Wedge Contour: Flat Footprint: .78" x .78"

DAC Construction

Search Unit Cable

Scan Direction: Ax Cable Type: RG-174
Cal Reflector: 6" SDH Length: 6'
Signal Amplitude: 80% Connectors: 0
Signal Sweep: 6.2 Div
Signal dB: 38.6 dB
Sweep 0-10 = 1.988 in Metal Path

Instrument Settings

Panometrics / Epoch 4 Manufacturer/Model: 031539906 Serial Number:
7.974 us Zero: 0.2304 in./usec. Velocity: 0.8 - 3.0 Narrowband Filter:
Rep Rate: Auto Rectification: Fullwave Range: 1.988 in Sq. / Max
Damping: 400 Ohms Reject: 0% Frequency: 2.0 MHz Mode: Dual

Calibration Verification

Field Simulator Block S/N:	<u>CAL-RHDM-068</u>	
Reflector	<u>NSDH</u>	<u>N/A</u>
Amplitude	<u>90%</u>	<u>N/A</u>
Gain (dB)	<u>35.9</u>	<u>N/A</u>
Sweep (SD)	<u>3.6</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Exam Comments / Limitations:

Exam performed at reference sensitivity to maintain 5% to 20% noise level.
No exam performed from upstream side due to component configuration.
No counterbore detected.
Increased exam volume due to RI-ISI requirements. See attached coverage plot.
No recordable indications.

Exam Data for Weld: 2/1/1004-10/W-112

VW-P

Configuration:

Exam Surface: QD Exam Temp: 88°F Exam Thermometer: 257506

Axial Circ	UPST DNST	Scan dB	Recordable Indications	Exam Angle
<u>Axial</u>	<u>DNST</u>	<u>36.6</u>	<u>NRI</u>	<u>60°</u>

Exam Start: 1223 Exam End: 1318

CO Chad Olson II
Initials: Examiner: Level:

N/A N/A
Initials: Examiner 2: Level:
Initial Cal/Exam Date: 10/30/2007

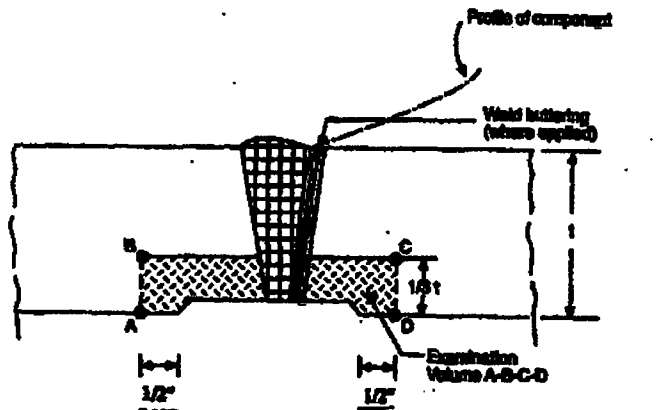
W. Walsh III 11-2-07
GE Reviewed By: Level: Date:
J. Mills III 11-10-07
Utility Review: Date:
Jeff Snyder 11/11/07
Date: Page 6 of 87
11-7-07

2/1/1404-10/W-112 RISI Weld, Category R-A, Item No. R1.20

Degradation Mechanism = None Defined

Component: Valve to Pipe 10" Dia. 0.58" Nom Cal Block: CS-ASME Alt.

Procedure: GE-PDI-UT-10, Rev. 2 DRR 06-40 Manual Exam



Examination Volume For Piping Welds NPS 4 And Larger, When No Degradation Mechanism Has Been Determined

1. Scan as shown in figures. The absolute minimum scan includes the weld plus 1/2". If there is a CB, scan at least 1/2" beyond the CB. Note scan distance(s) on data sheet. e.g. Scanned 1.5" from weld toe to assure adequate coverage.
2. Either locate the counterbore or state that no counterbore can be detected.
3. Scan both sides unless restricted by physical limitations.
4. Any questions or problems call S. Snyder @ 4656 or R. Healey @ 4658, ASAP

R. Healey GE LIII 10-30-07

Chris H. McKown EXELON LIII 10-30-07

Chris H. McKown

D2R20 - 050

PAGE 87 OF 87

MMH 11-7-07

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	HITACHI	Examination Summary Sheet		Report No.: D3R22-010
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Site:	Dresden Unit 3	Component ID:	3-5C1A		
Outage:	D3R22	Configuration:	Shell 1 Vert Weld		
System:	RPV	ASME Cat:	B-A	ASME Item:	B1.12
				Aug. Requirements:	N/A

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II/II	11/20/12

Comments:
 Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° Shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated scanning was performed on the left and right side of the weld simultaneously.

Automated scanning was restricted due to the proximity of the Jet Pump Diffuser.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.

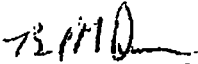

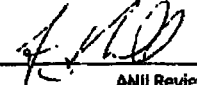
No flaw indications were recorded.

The Auto coverage was calculated to be 85.0%.

Previous data was reviewed with no changes.

The examination results were compared with data report 000100 from D3R16 outage with	<input checked="" type="checkbox"/> No Change
These examinations were performed under Work Order: 01391209-02	<input type="checkbox"/> Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

 Prepared By:	TH	Level:	11-25-12 Date:	 Utility Review By:	11-25-12 Date:
				 ANII Reviewed By:	11-25-12 Date:

ATTACHMENT 2
 Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Report D3R22-010



HITACHI

**SP2000 RPV Examination
 Coverage Calculation Sheet**

Report No.: D3R22-010

**Dresden Unit-3, D3R22
 Weld 3-SC1A (Shell Course 1)**

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	80.00	2.3%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	80.00	2.3%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	80.00	25.5%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	80.00	2.3%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	80.00	2.3%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	80.00	25.5%
70° T-Scan CW (S4 NS)	B	8.1	8.1	0.1	33.00	1.0%
70° T-Scan CCW (S4 NS)	B	8.1	8.1	0.1	33.00	1.0%
45° T-Scan (S6 FV)	B	44.6	44.6	0.8	33.00	10.5%
70° P-Scan UP (S4 NS)	B	8.1	8.1	0.1	33.00	1.0%
70° P-Scan DN (S4 NS)	B	8.1	8.1	0.1	33.00	1.0%
45° P-Scan (S6 FV)	B	44.6	44.6	0.8	33.00	10.5%
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						

% Total Composite Coverage = 85.0%

Comments: A - Automated scanning was not restricted. Scanner head facing up.
 B - Automated scanning was restricted due to the proximity of the jet pump diffuser. Scanner head facing down.

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

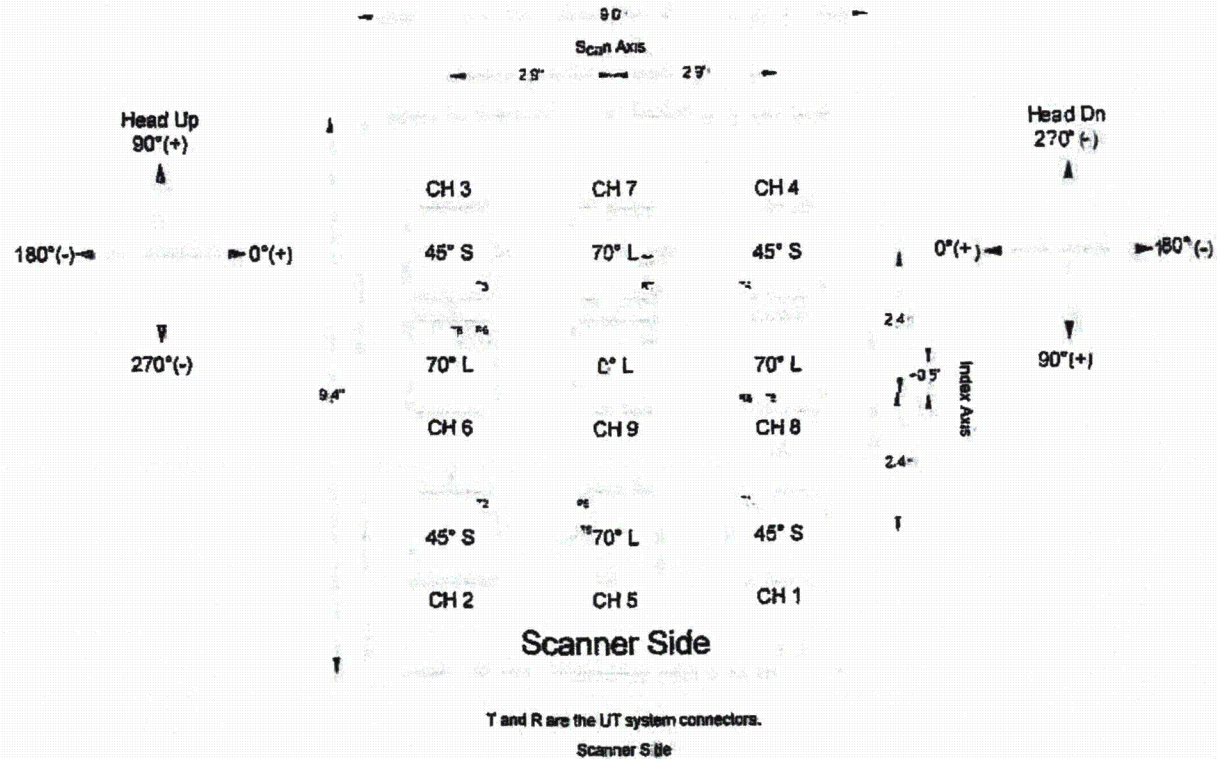
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ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets
Dresden Unit 3
Reference Drawings

Report D3R22-010

Viewed from Back Side of Package



GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE: NONE DWG.DN3-2012-02 REV. 0

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

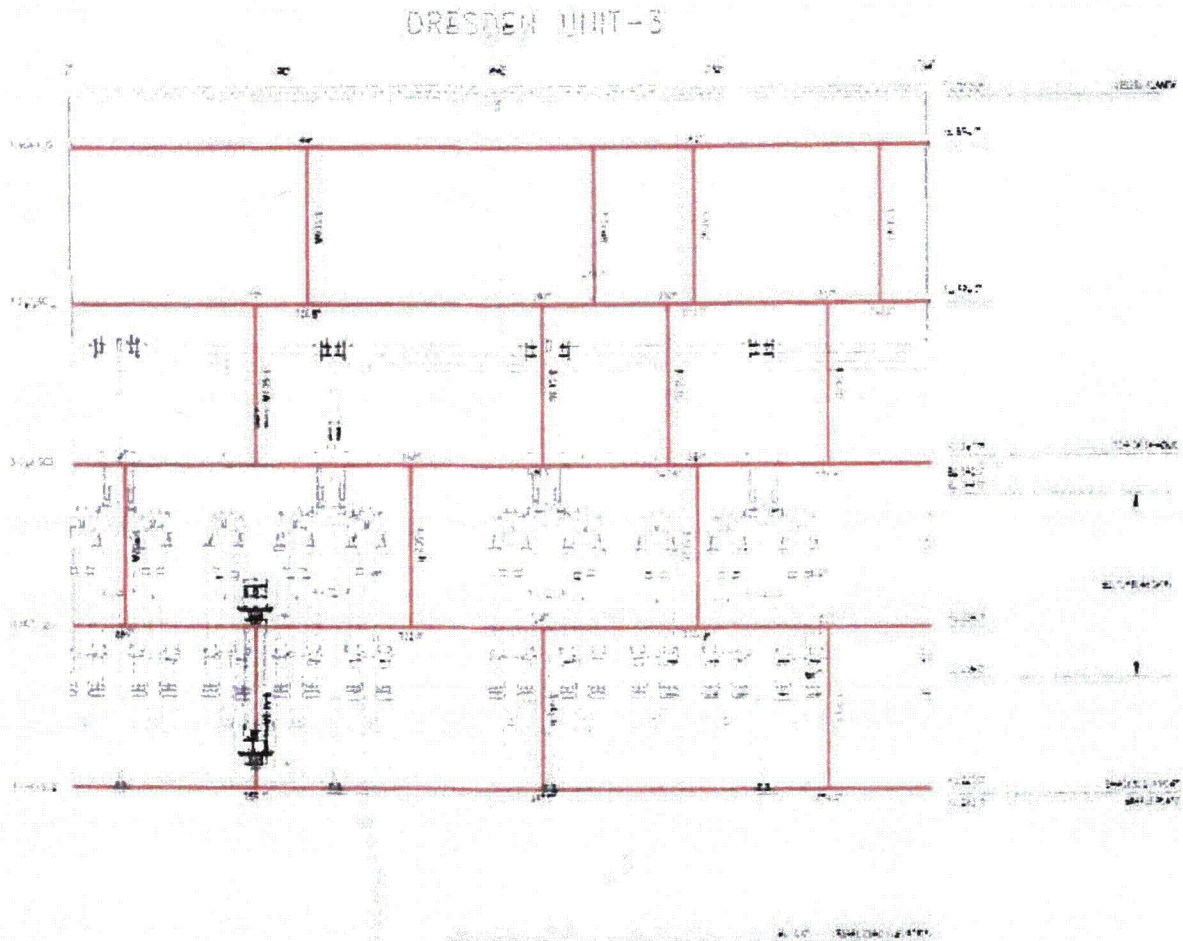
Page 5 of 11



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-010



SEE DRAWING D3R22-010 FOR
VESSEL LOCATION MAP

NUCLEAR ENERGY CORPORATION DRESDEN UNIT-3 VESSEL LOCATION MAP SCALE: NONE DWN: D3R-2013-01 REV: 0

Vessel Location Map

ATTACHMENT 2

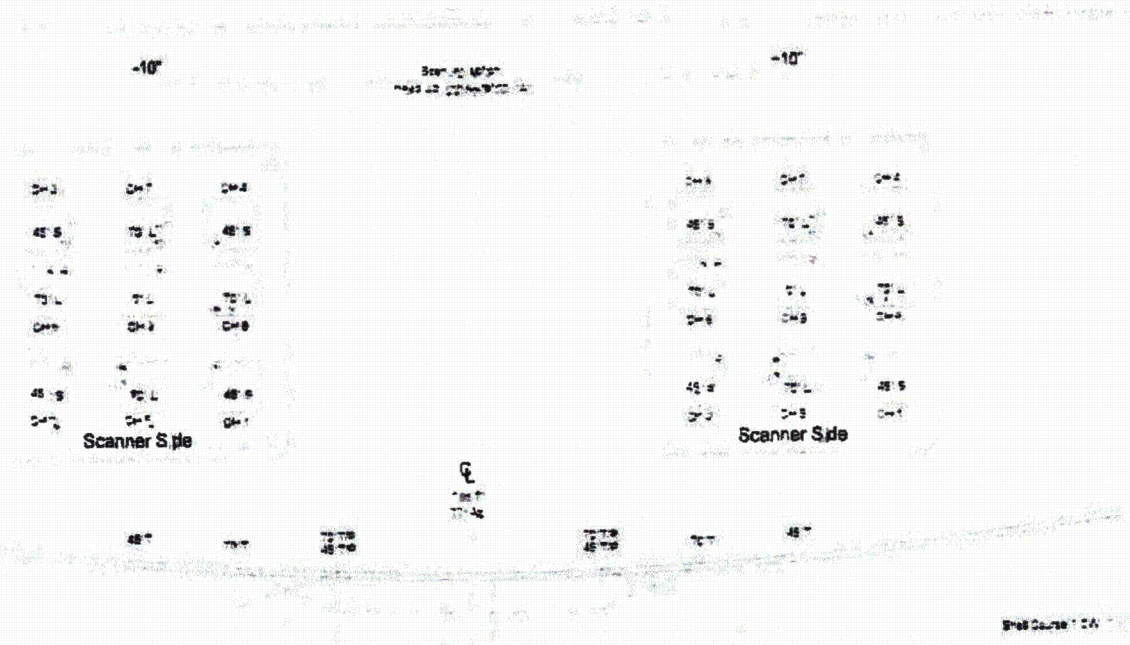
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

Dresden Unit 3
Reference Drawings

Report DR22-010



Supplement 4 Exam Volume = 8.1 Sq. In.
Supplement 5 Exam Volume = 44.6 Sq. In.

S4 T-Scan Achieved = 8.1 Sq. In.
S4 P-Scan Achieved = 8.1 Sq. In.
S5 T-Scan Achieved = 44.6 Sq. In.
S5 P-Scan Achieved = 44.6 Sq. In.

Vessel Diameter of Flange = 251.376 inches
Vessel Azimuths = 2.16 inches/degree
Nominal Clad T = 0.19 inches
Nominal Shell T = 6.38 inches

GE HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC1A EXAM VOLUME

SCALE: NONE

DWG. DR3-2012-04

REV. 0

Cross Section of Achieved Coverage "A"

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ATTACHMENT 2

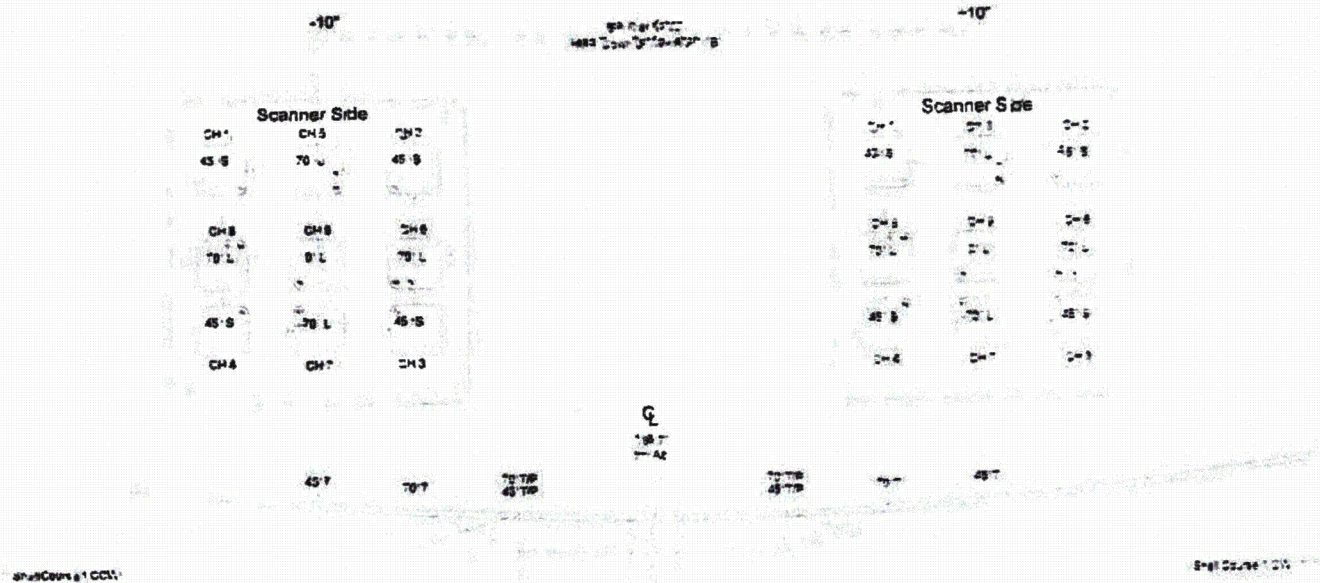
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

Dresden Unit 3
Reference Drawings

Report DAR22-010



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.8 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.8 Sq. In.
 S6 P-Scan Achieved = 44.8 Sq. In.

Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuths = 2.18 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 6.38 inches

GE-HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC1A EXAM VOLUME

SCALE: NONE

DWG. DR3-2012-04

REV. 0

Cross Section of Achieved Coverage "B"

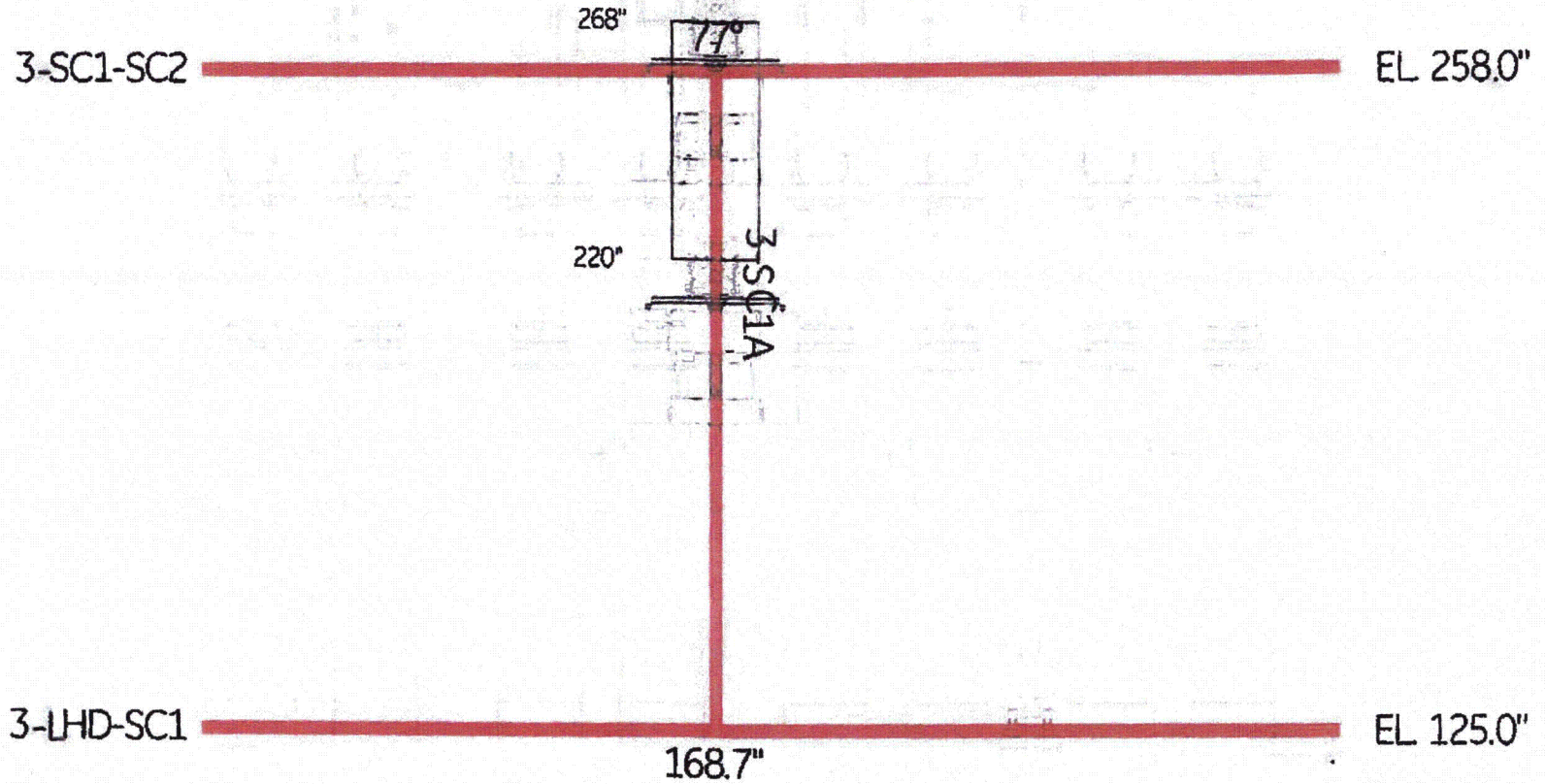
Page 8 of 11



HITACHI

Dresden Unit 3 Reference Drawings

Report DAR22-010



Page 9 of 11

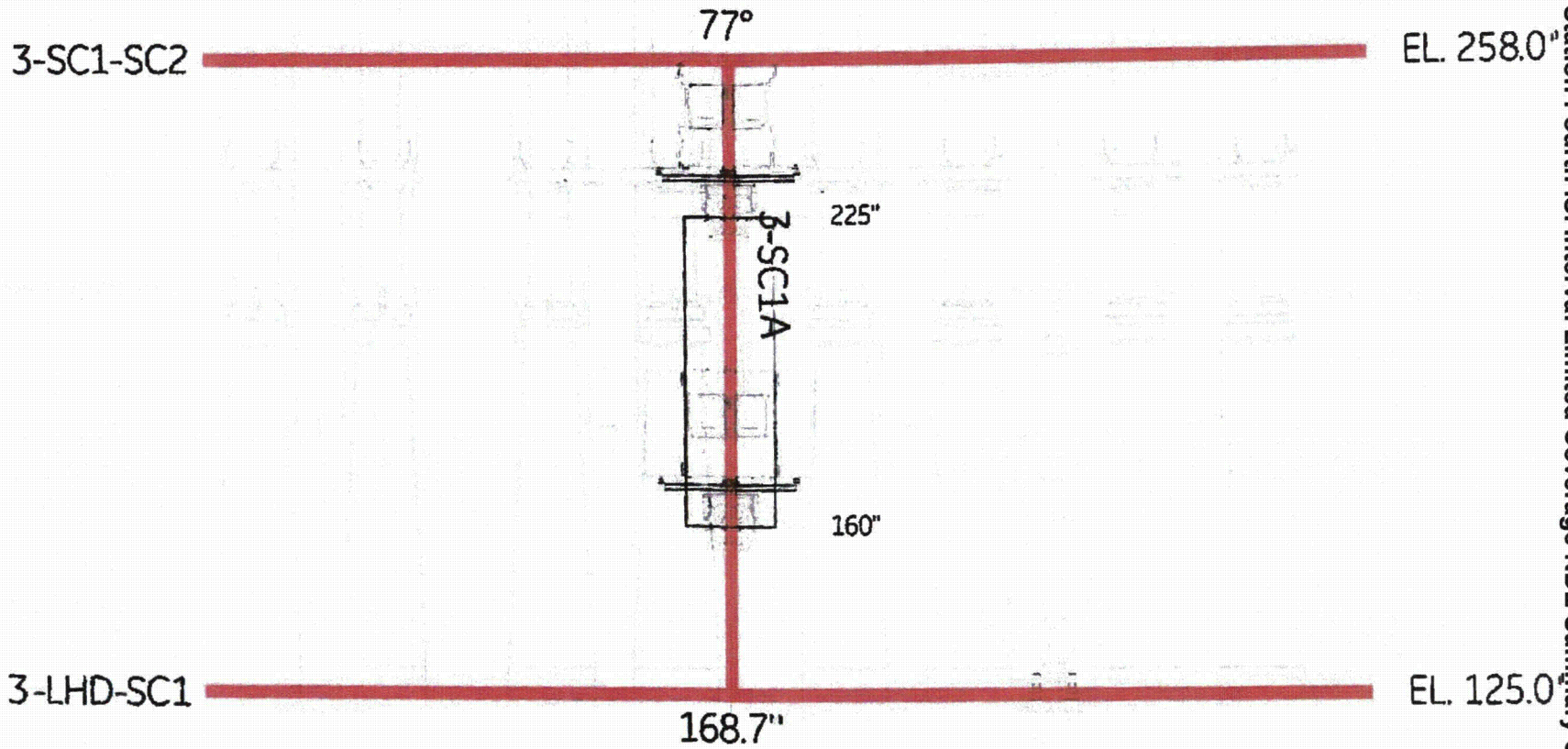
Scanned Patches Facing Up



HITACHI

Dresden Unit 3 Reference Drawings

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



Scanned Patches Facing Down

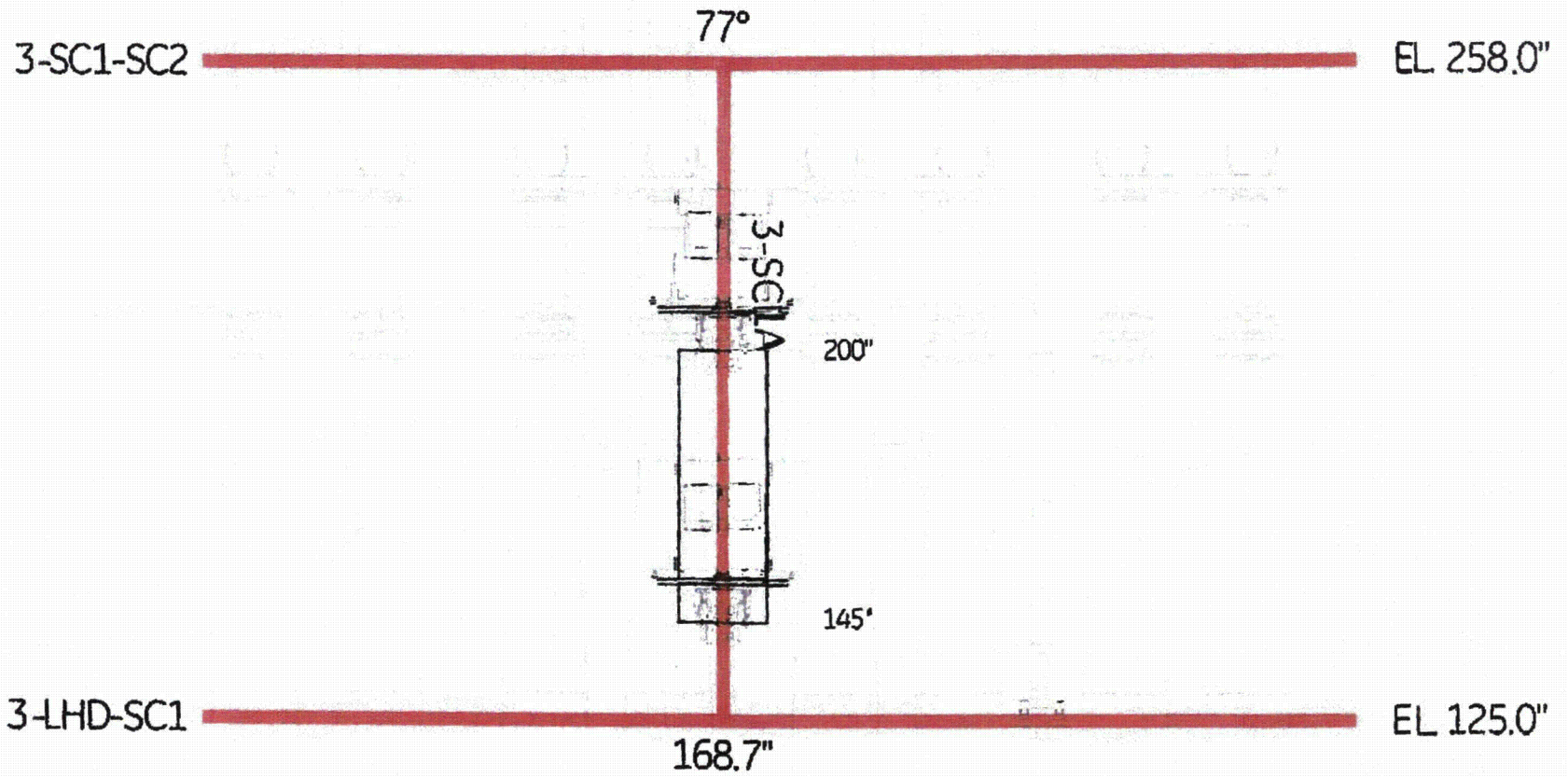


HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-010

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



Scanned Patches Facing Down

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Report D3R22-011



HITACHI

**SP2000 RPV Examination
 Coverage Calculation Sheet**

Report No.: D3R22-011

**Dresden Unit-3, D3R22
 Weld 3-SC1B (Shell Course 1)**

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	28.00	8.9%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	28.00	8.9%
70° T-Scan CW (S4 NS)	B	8.1	8.1	0.1	25.00	0.7%
70° T-Scan CCW (S4 NS)	B	8.1	8.1	0.1	25.00	0.7%
45° T-Scan (S6 FV)	B	44.6	44.6	0.8	25.00	8.0%
70° P-Scan UP (S4 NS)	B	8.1	8.1	0.1	25.00	0.7%
70° P-Scan DN (S4 NS)	B	8.1	8.1	0.1	25.00	0.7%
45° P-Scan (S6 FV)	B	44.6	44.6	0.8	25.00	8.0%
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						

% Total Composite Coverage = 39.8%

Comments: A - Automated scanning was not restricted. Scanner head facing up.
 B - Automated scanning was restricted due to the proximity of the shroud repair tie rod. Scanner head facing down.

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

3 of 10

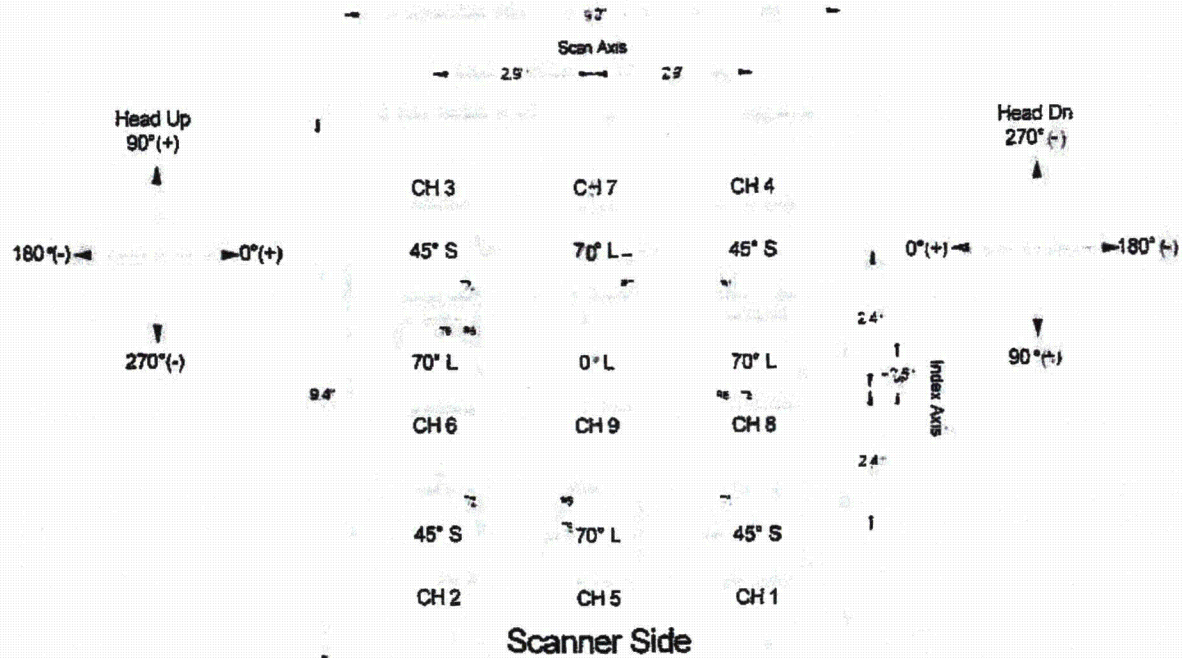


HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-011

Viewed from Back Side of Package



T and R are the UT system connectors.
 Scanner Side

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE: NONE DWG.DN3-2012-02 REV. 0

5 of 10

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

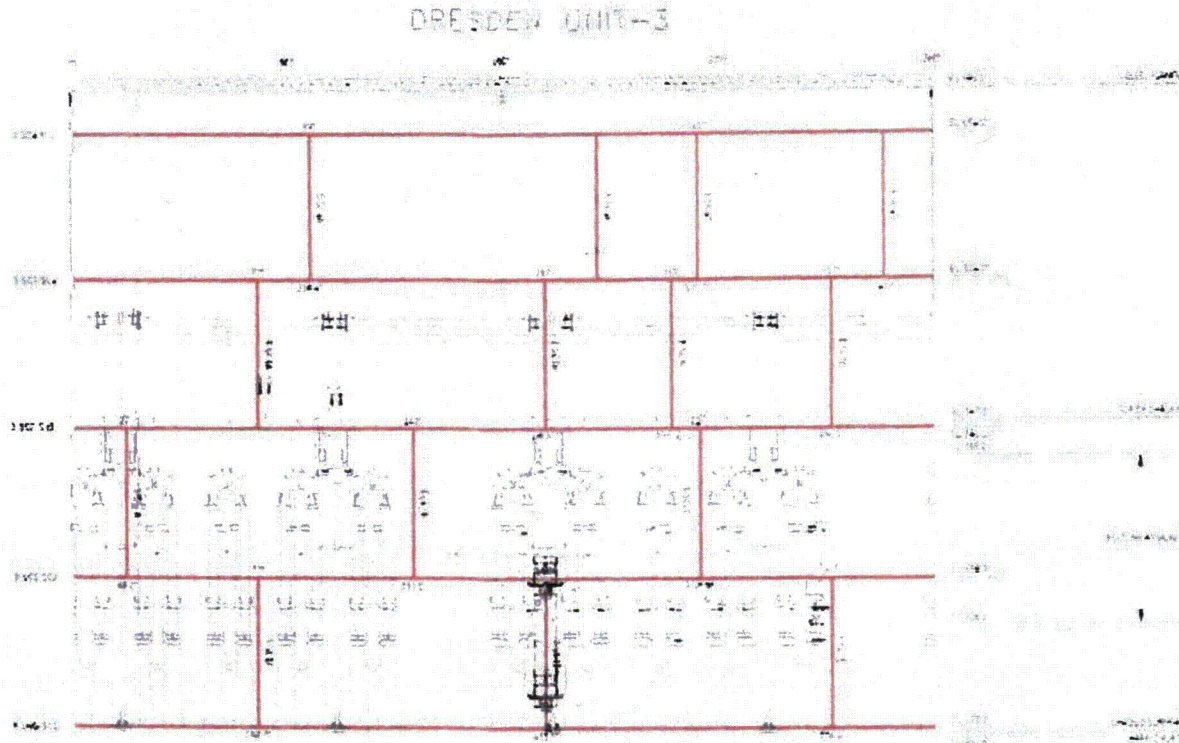


HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-011

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



VESSEL CAPABILITY RANGES - 25.00"
AS NOTED - 2.000 INCHES IN WIDTH

NUCLEAR ENERGY DRESDEN UNIT-3 REVISION 01 SHEET 01 OF 01 DATE 03-2012-01 REV 01

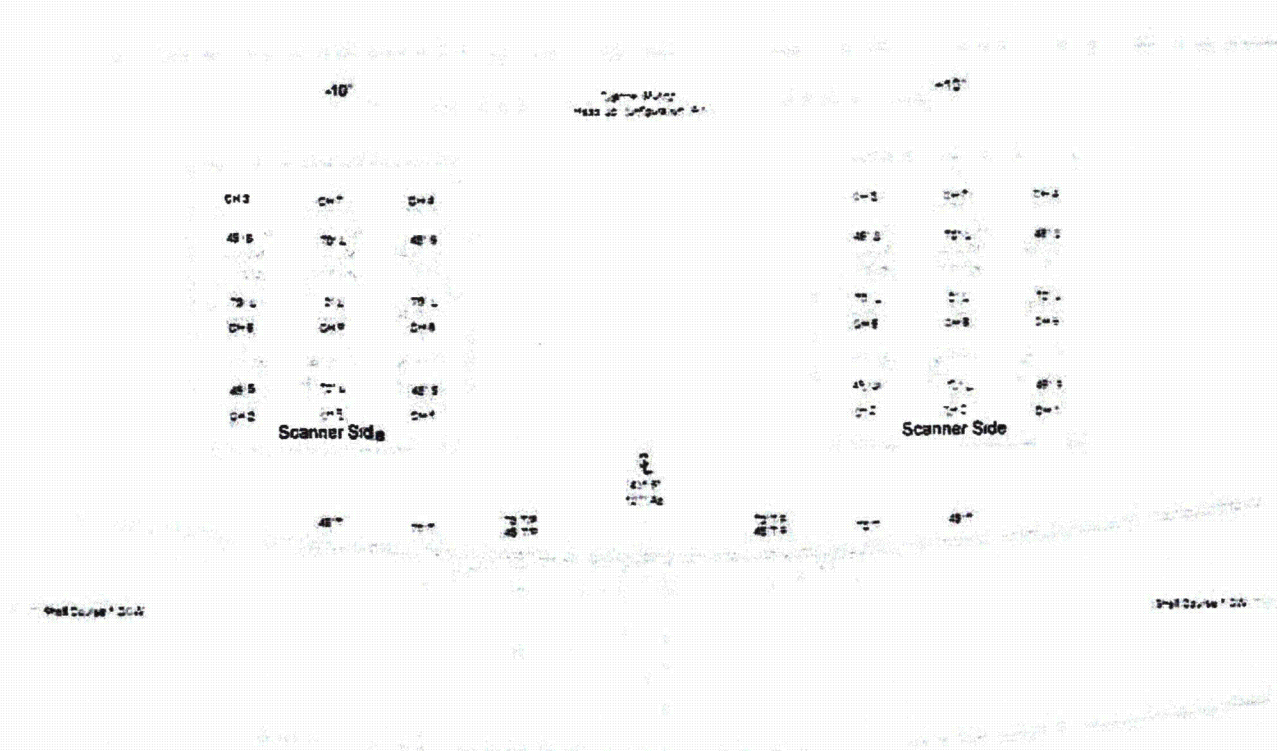
Vessel Location Map



HITACHI

Dresden Unit 3
 Reference Drawings

Report DRF22-011



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 8 Exam Volume = 44.6 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S8 T-Scan Achieved = 44.6 Sq. In.
 S8 P-Scan Achieved = 44.6 Sq. In.

Vessel Diameter at Flange = 261.375 inches
 Vessel Azimuths = 2.19 inches/degree
 Nominal Clad T = 5.19 inches
 Nominal Shell T = 5.38 inches

GE- HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC1B EXAM VOLUME

SCALE: NONE

DWG. DR3-2012-05

REV. 0

Cross Section of Achieved Coverage "A"

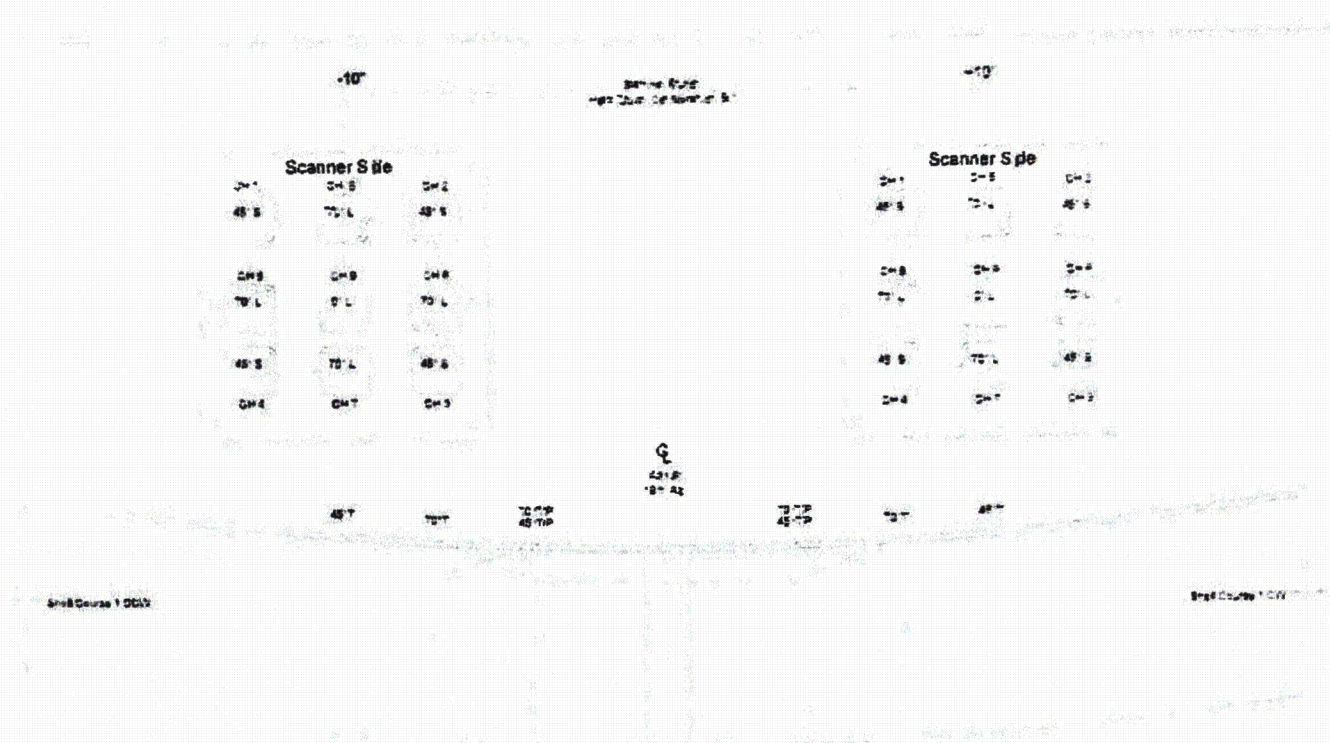
7 of 10



HITACHI

Dresden Unit 3
 Reference Drawings

Report D3R22-011



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.6 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.6 Sq. In.
 S6 P-Scan Achieved = 44.6 Sq. In.

Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuths = 2.16 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 6.38 inches

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 WELD 3-SC18 EXAM VOLUME SCALE: NONE DWG. DR3-2012-05 REV. 0

Cross Section of Achieved Coverage "B"

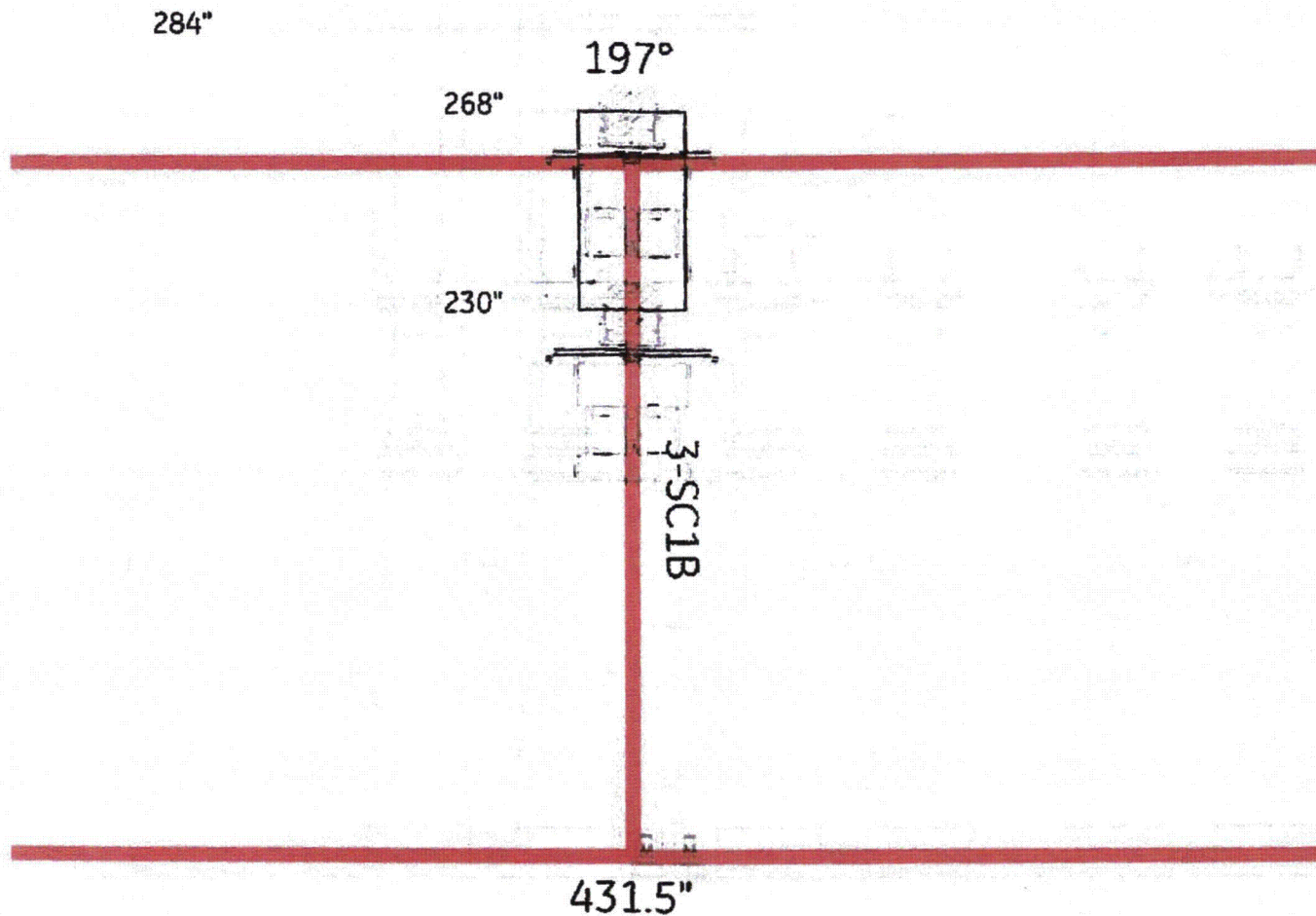
8 of 10

Dresden Unit 3 Reference Drawings



HITACHI

Report DPR22-011

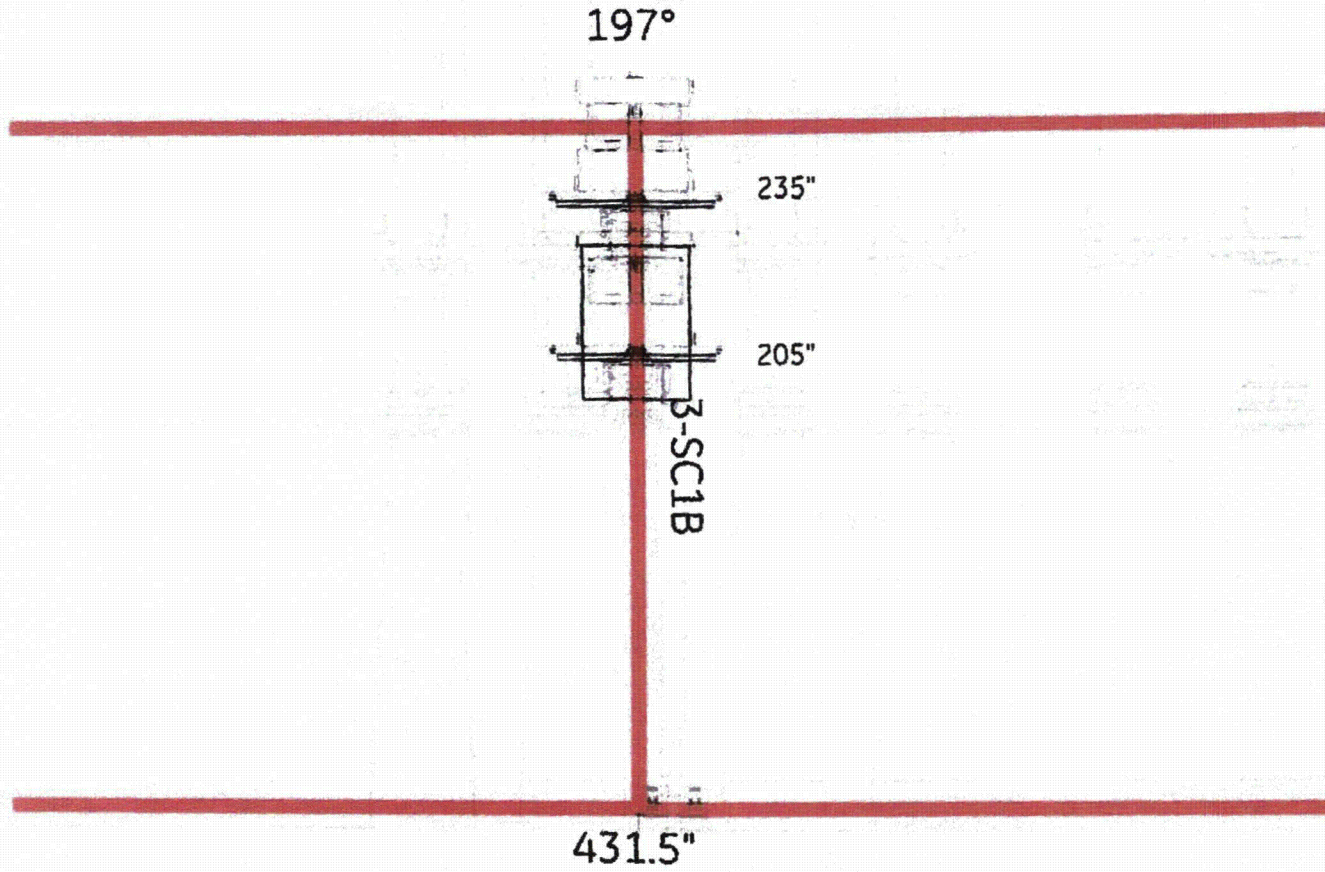


Scanned Patches Facing Up

Dresden Unit 3 Reference Drawings




Report DAR22-011



Scanned Patches Facing Down

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	<h1 style="margin:0;">HITACHI Examination Summary Sheet</h1>	Report No.: D3R22-012
---	--	-----------------------

Site: Dresden Unit 3	Component ID: 3-SC1C	Configuration: Shell 1 Vert Weld	
Outage: D3R22	ASME Cat: B-A	ASME Item: B1.12	Aug. Requirements: N/A
System: RPV			

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12

Comments:
 Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated scanning was performed on the left and right side of the weld simultaneously.

Automated scanning was restricted due to the proximity of the Jet Pump Diffuser.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.

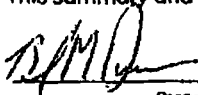
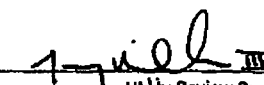

Two (2) acceptable flaw indications were recorded.

The Auto coverage was calculated to be 83.4%.

Previous data was reviewed with no changes.

The examination results were compared with data report 000300 from D3R16 outage with No Change
 These examinations were performed under Work Order: 01391209-02 Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

 Prepared By:	III Level:	11-22-12 Date:	 Utility Review By:	11-23-12 Date:
 ANR Reviewed By:				_____ Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

**SP2000 RPV Examination
 Coverage Calculation Sheet**

Report No.: D3R22-012

**Dresden Unit-3, D3R22
 Weld 3-SC1C (Shell Course 1)**

Weld Length = Exam Volume =	CODE	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
133.00 52.70						
	A	8.1	8.1	0.1	106.00	3.1%
	A	8.1	8.1	0.1	106.00	3.1%
	A	44.6	44.6	0.8	106.00	33.7%
	A	8.1	8.1	0.1	106.00	3.1%
	A	8.1	8.1	0.1	106.00	3.1%
	A	44.6	44.6	0.8	106.00	33.7%
	B	8.1	4.5	0.0	6.00	0.1%
	B	8.1	4.5	0.0	6.00	0.1%
	B	44.6	36.9	0.7	6.00	1.6%
	B	8.1	6.8	0.1	6.00	0.1%
	B	8.1	6.8	0.1	6.00	0.1%
	B	44.6	37.9	0.7	6.00	1.6%

% Total Composite Coverage = 83.4%

Comments: A - Automated scanning was not restricted. Scanner head facing down.
 B - Automated scanning was restricted due to the proximity of the jet pump sensor ring. Scanner head facing down.

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

Rev. 0. 9/23/05

Report D3R22-012

Page 3 of 14



HITACHI

**Reactor Pressure Vessel
Flaw Evaluation Sheet**

Project : Dresden Unit-3, D3R22
Weld ID : 3-5C1C

Indication : 2
Report : D3R22-012

	<u>Measured</u>	<u>Rounded</u>
Flaw Through Wall =	0.075	0.1
Flaw Length "l" =	0.80	0.8
Surface Separation "S" =	2.70	2.7

	<u>Measured</u>	<u>Rounded</u>
"T" nominal =	6.38	6.4
"T" measured =	N/A	N/A

ASME Section XI, 1995 Edition, with the 1996 Addenda
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.9	2.0	-	-
0.05	2.0	2.2	2.05	2.28 Y
0.10	2.2	2.5	-	-
0.15	2.5	2.9	-	-
0.20	2.8	3.3	-	-
0.25	3.3	3.8	-	-
0.30	3.8	4.4	-	-
0.35	4.4	5.1	-	-
0.40	5.0	5.8	-	-
0.45	5.1	6.7	-	-
0.50	5.2	7.6	-	-
			Allowed 2.05	Allowed 2.28

a = 0.050
a/l value = 0.063
Y = 1.000

Flow is Subsurface

Allowed a/t = 2.3%
a/t = 0.8%

Flow is acceptable by Table IWB-3510-1.

Revised: 1/27/06

Comments: ASME Section XI rounding performed in accordance with IWA-3200 and ASTM E29.

This indication had no determinable through wall dimension. The 0.075" dimension is an assigned value for evaluation purposes only.

Evaluation by: Mark Hilborn Level III

Reviewed by: Brad Dummer Level III

Utility Reviewed by: *[Signature]* III 11-28-12

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

**Reactor Pressure Vessel
Flaw Evaluation Sheet**

Project : Dresden Unit-3, D3R22
Weld ID : 3-SC1C

Indication : 1
Report : D3R22-012

	<u>Measured</u>	<u>Rounded</u>
Flaw Through Wall =	0.075	0.1
Flow Length "L" =	1.30	1.3
Surface Separation "S" =	2.78	2.8

	<u>Measured</u>	<u>Rounded</u>
"T" nominal =	6.38	6.4
"T" measured =	N/A	N/A

ASME Section XI, 1995 Edition, with the 1996 Addenda
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.9	2.0	1.98	2.15 Y
0.05	2.0	2.2	-	-
0.10	2.7	2.5	-	-
0.15	2.5	2.9	-	-
0.20	2.8	3.3	-	-
0.25	3.3	3.8	-	-
0.30	3.8	4.4	-	-
0.35	4.4	5.1	-	-
0.40	5.0	5.8	-	-
0.45	5.1	6.7	-	-
0.50	5.2	7.6	-	-
			Allowed	Allowed
			1.98	2.15

a = 0.050
a/l value = 0.038
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.2%
a/t = 0.8%

Flaw is acceptable by Table IWB-3510-1.

Revised: 1/21/05

Comments: ASME Section XI rounding performed in accordance with IWA-3200 and ASTM E29.

This indication had no determinable through wall dimension. The 0.075" dimension is an assigned value for evaluation purposes only.

This indication was previously recorded as indication #1 during the D3R16 outage examination of major repair area MRA-013-2. No change

Evaluation by: Mark Hilborn Level III

Reviewed by: Brad Dummer Level III

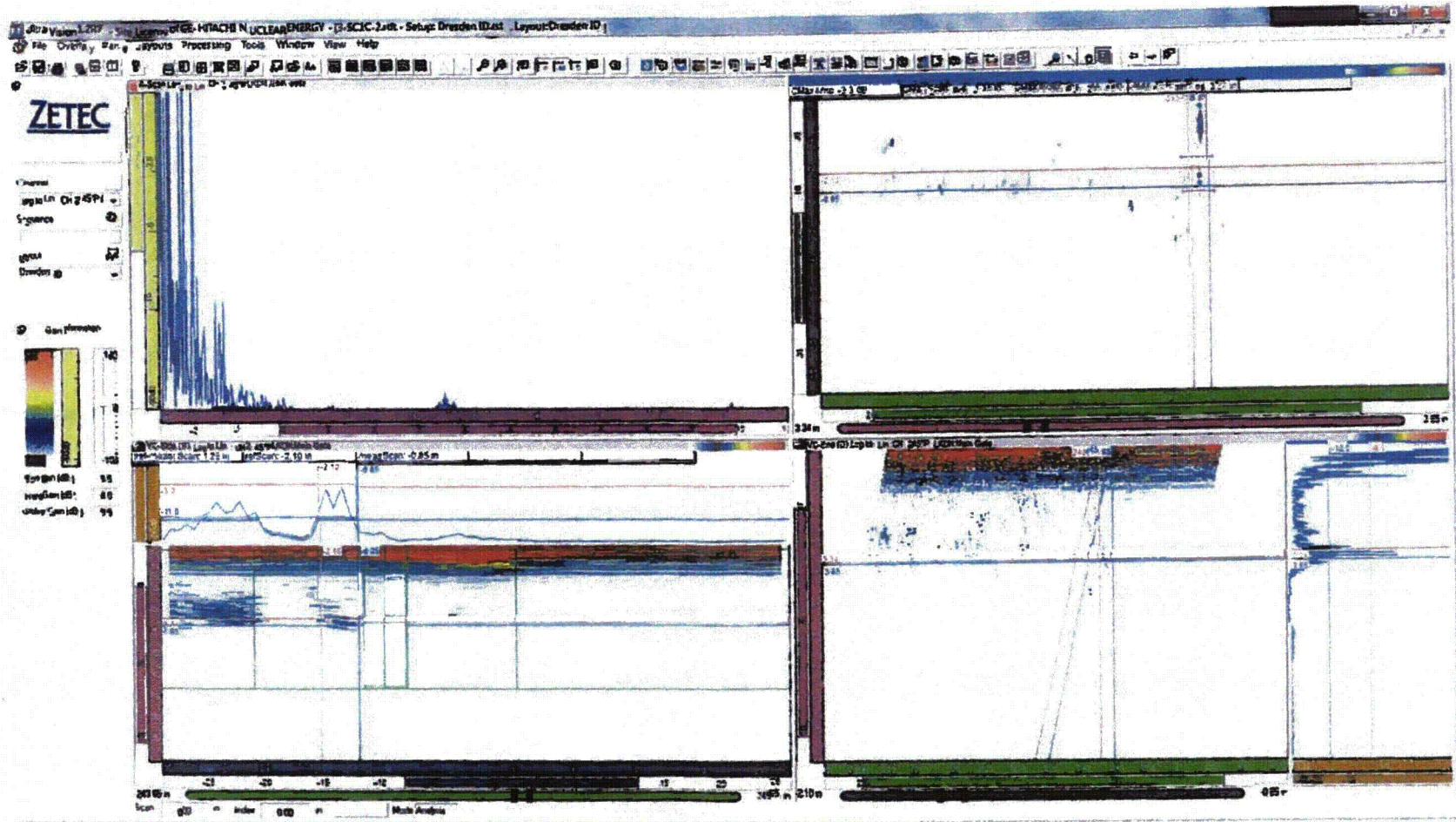
Utility Reviewed by: *[Signature]* 11-25-12



HITACHI

Dresden Unit 3 Indication Screen Prints

Report D3R2-012



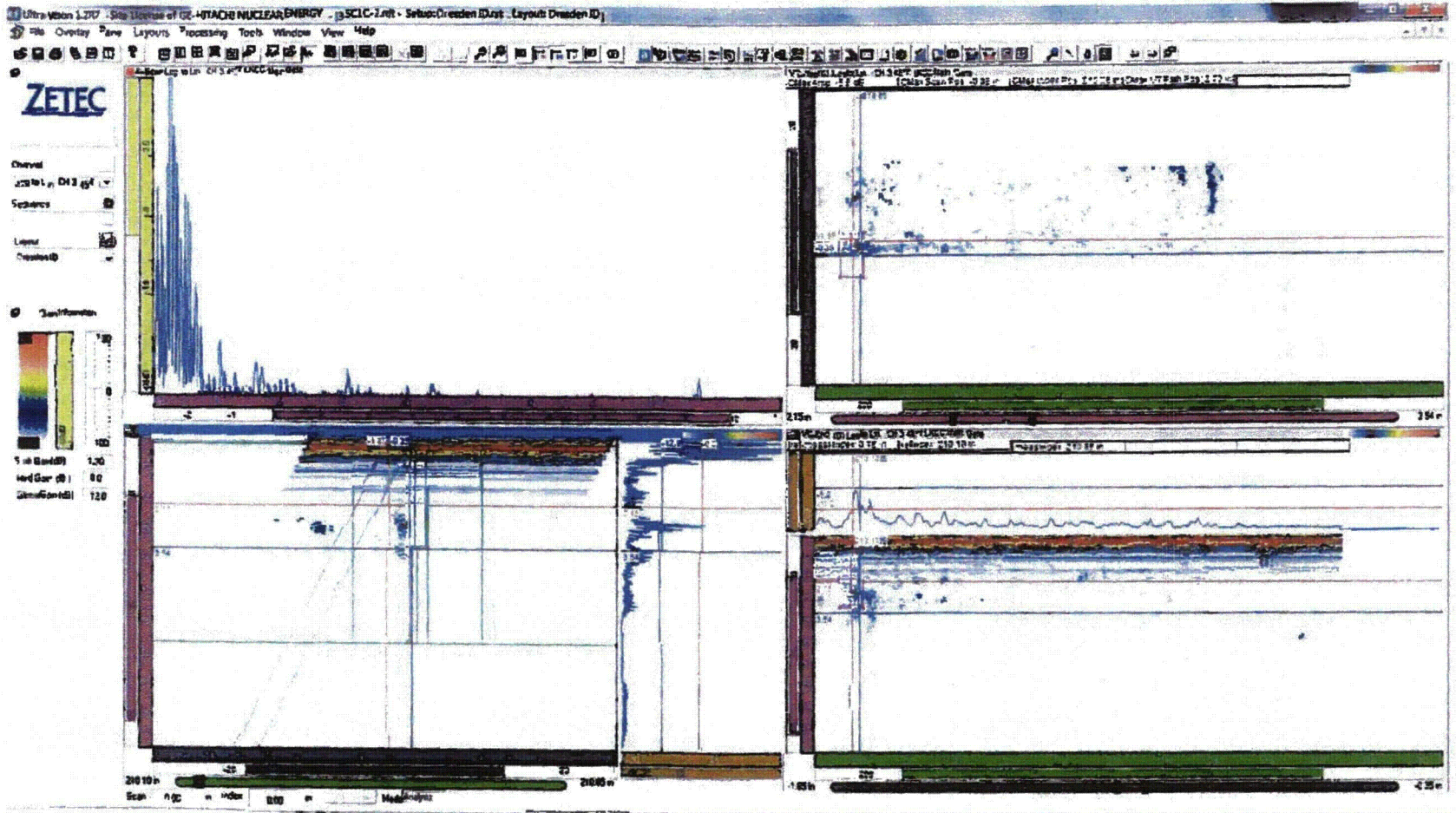
Indication #1



HITACHI

Dresden Unit 3 Indication Screen Prints

Report D3R22-012



Indication #2

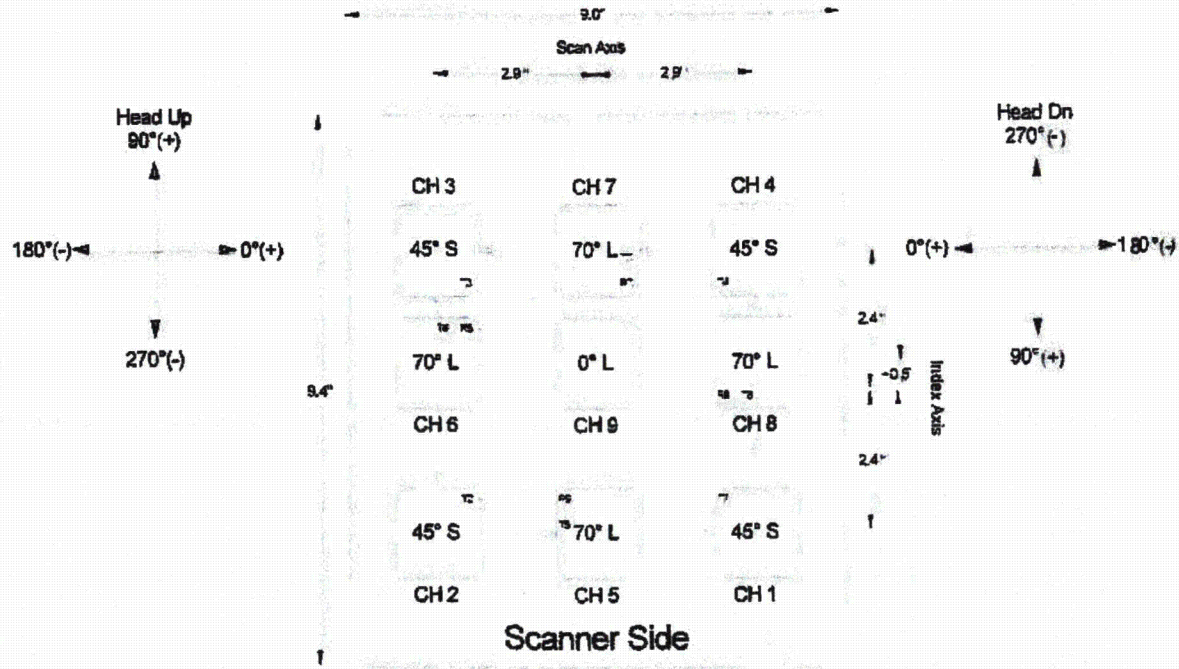


HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-012

Viewed from Back Side of Package



T and R are the UT system connectors.
 Scanner Side

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE: NONE DWG.DN3-2012-02 REV. 0

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

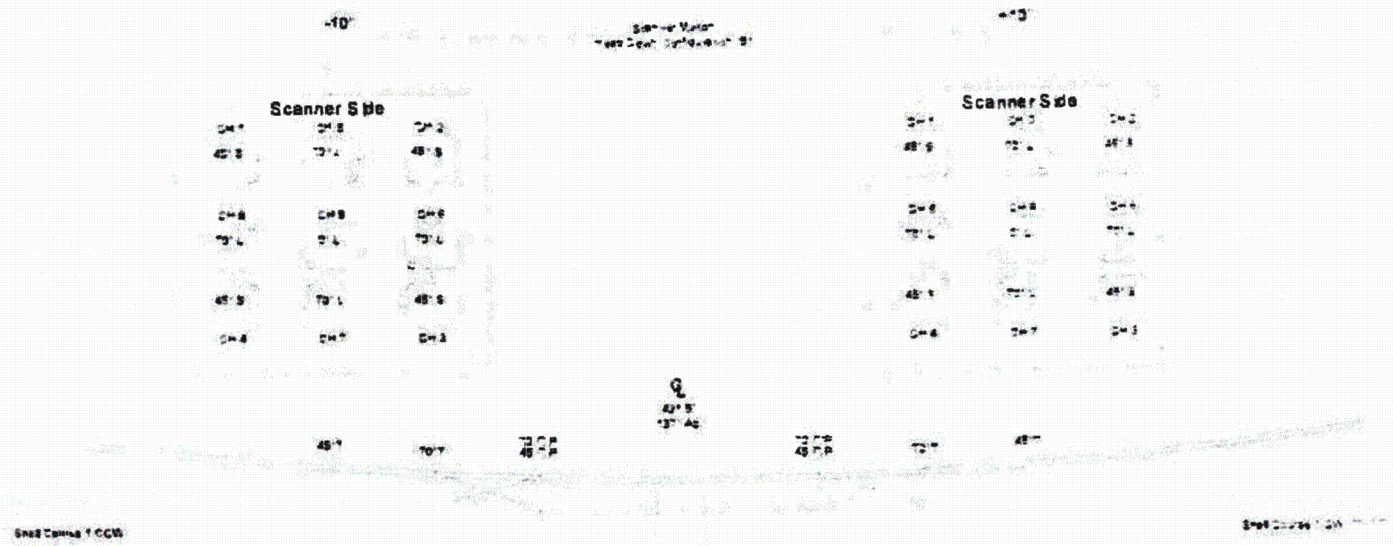
Page 10 of 14



HITACHI

Dresden Unit 3
Reference Drawings

Report D3R22-012



Supplement 4 Exam Volume = 8.1 Sq. In.
Supplement 6 Exam Volume = 44.6 Sq. In.

S4 T-Scan Achieved = 8.1 Sq. In.
S4 P-Scan Achieved = 8.1 Sq. In.
S6 T-Scan Achieved = 44.6 Sq. In.
S6 P-Scan Achieved = 44.6 Sq. In.

Vessel Diameter at Flange = 251.375 inches
Vessel Azimuths = 2.19 inches/degree
Nominal Clad T = 0.18 inches
Nominal Shell T = 5.38 inches

GE-HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC1B EXAM VOLUME

SCALE NONE

DWG. DR3-2012-05

REV. 0

Cross Section of Achieved Coverage "A"

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ATTACHMENT 2

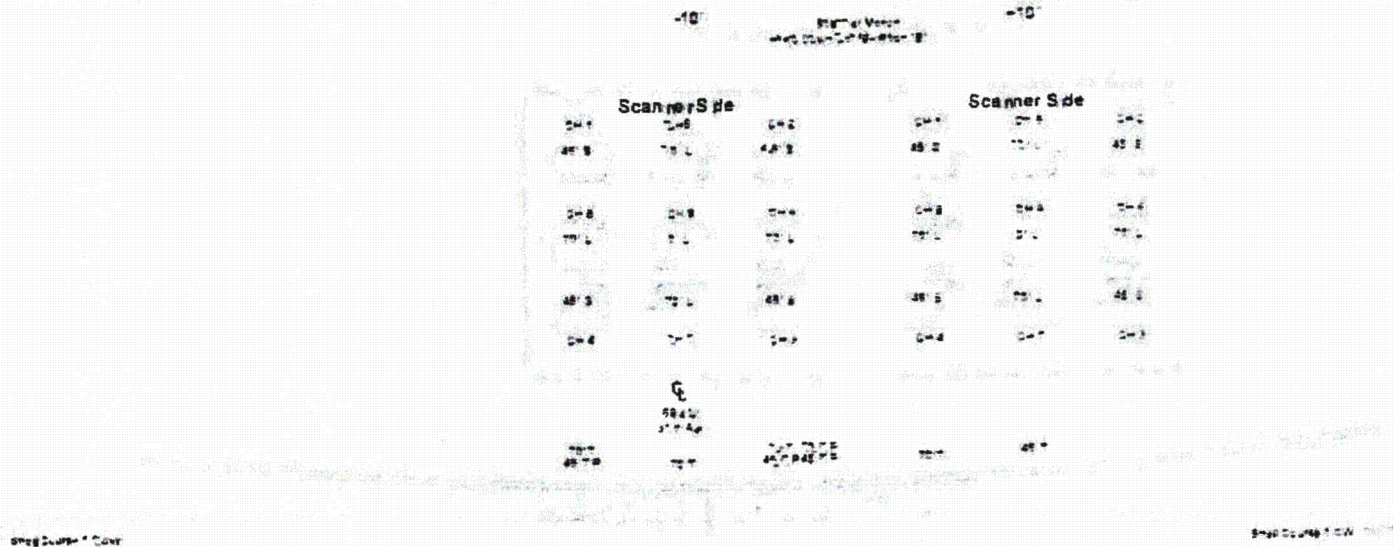
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

Dresden Unit 3
Reference Drawings

Report DR22-012



Supplement 4 Exam Volume = 8.1 Sq. In.
Supplement 6 Exam Volume = 44.5 Sq. In.

S4 T-Scan Achieved = 4.5 Sq. In.
S4 P-Scan Achieved = 8.8 Sq. In.
S6 T-Scan Achieved = 38.9 Sq. In.
S6 P-Scan Achieved = 37.9 Sq. In.

Vessel Diameter at Flange = 251.375 inches
Vessel Azimuths = 2.19 inches/degree
Nominal Clad T = 0.19 inches
Nominal Shell T = 5.38 inches

GE- HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC1C EXAM VOLUME

SCALE: NONE

DWG. DR3-2012-06

REV. 0

Cross Section of Achieved Coverage "B"

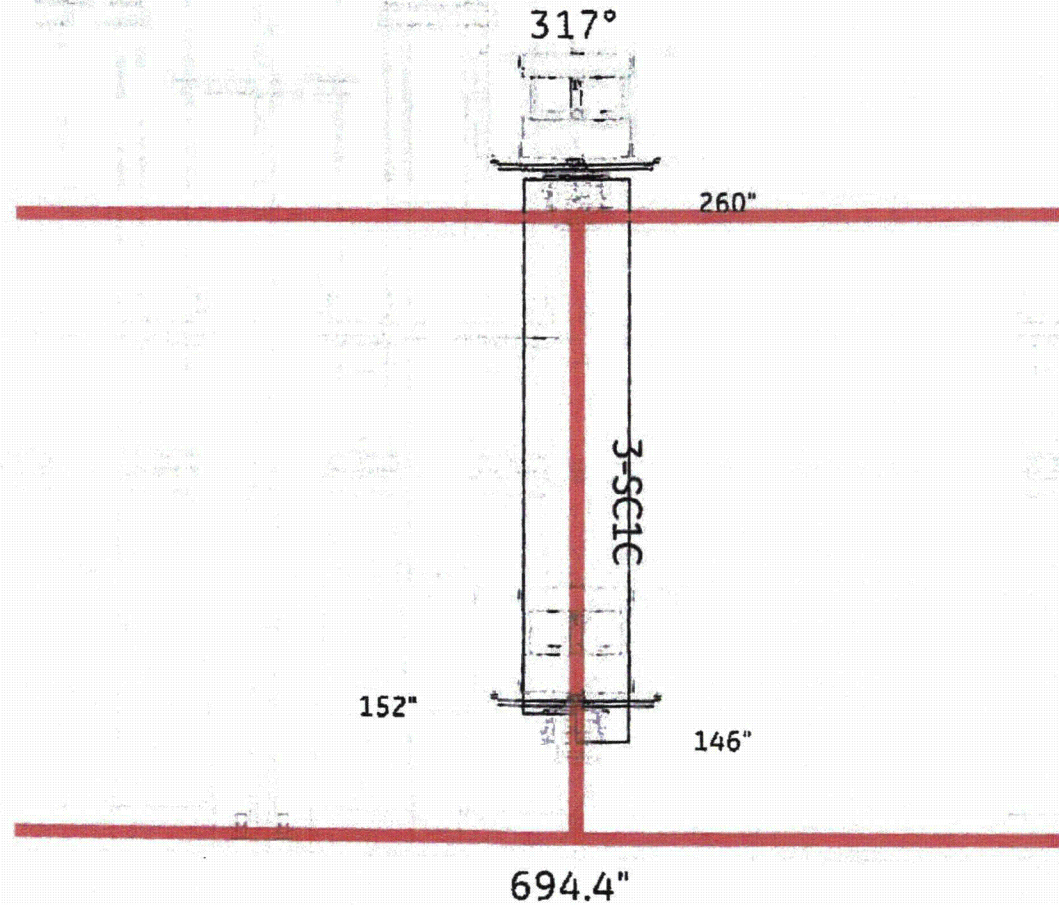
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HITACHI

Dresden Unit 3 Reference Drawings

Report D3R122-012




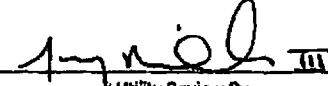
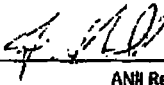


Scanned Patches Facing Down

Page 14 of 14

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	HITACHI	Examination Summary Sheet				Report No.: D3R22-013																																																														
Site: Dresden Unit 3 Outage: D3R22 System: RPV	Component ID: 3-SC2A Configuration: Shell 2 Vert Weld ASME Cat: B-A	ASME Item: B1.12 Aug. Requirements: N/A																																																																		
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Exams Performed:</th> <th style="width:15%;">Calibration Sheet(s):</th> <th style="width:15%;">Calibration Block:</th> <th style="width:15%;">Procedure:</th> <th style="width:15%;">Examination Personnel:</th> <th style="width:10%;">NDE Level:</th> <th style="width:10%;">Date:</th> </tr> </thead> <tbody> <tr> <td>45°S</td> <td>RPV-ID-01</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> <tr> <td>45°S</td> <td>RPV-ID-02</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> <tr> <td>45°S</td> <td>RPV-ID-03</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> <tr> <td>45°S</td> <td>RPV-ID-04</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> <tr> <td>70°RL</td> <td>RPV-ID-05</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> <tr> <td>70°RL</td> <td>RPV-ID-06</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> <tr> <td>70°RL</td> <td>RPV-ID-07</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> <tr> <td>70°RL</td> <td>RPV-ID-08</td> <td>CAL-IIW2-013</td> <td>GEH-UT-717 V3</td> <td>C. Gauthier / J. Guillote</td> <td>II / II</td> <td>11/19/12</td> </tr> </tbody> </table>	Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:	45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12	<p>Comments: Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.</p> <p>Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° Shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.</p> <p>Automated scanning was performed on the left and right side of the weld simultaneously.</p> <p>Automated scanning was restricted due to the tie-rod stabilizer bracket.</p> <p>For Auto RPV ID Calibrations refer to calibration report D3R22-029.</p> <p>No flaw indications were recorded.</p> <p>The Auto coverage was calculated to be 75.8%.</p> <p>Previous data was reviewed with no changes.</p>				
Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:																																																														
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/19/12																																																														
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The examination results were compared with data report 000400 from D3R17 outage with <input checked="" type="checkbox"/> No Change These examinations were performed under Work Order: 01391209-02 <input type="checkbox"/> Change																																																																				
This summary and the following data sheets have been reviewed and accepted by the following personnel:																																																																				
 Prepared By:		 Level:		11-23-12 Date:																																																																
				 Utility Review By:																																																																
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ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Report D3R22-013



HITACHI

**SP2000 RPV Examination
 Coverage Calculation Sheet**

Report No.: D3R22-013

**Dresden Unit-3, D3R22
 Weld 3-SC2A (Shell Course 2)**

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	62.00	1.8%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	62.00	1.8%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	62.00	19.7%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	62.00	1.8%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	62.00	1.8%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	62.00	19.7%
70° T-Scan CW (S4 NS)	B	8.1	8.1	0.1	38.75	1.1%
70° T-Scan CCW (S4 NS)	B	8.1	8.1	0.1	38.75	1.1%
45° T-Scan (S6 FV)	B	44.6	44.6	0.8	38.75	12.3%
70° P-Scan UP (S4 NS)	B	8.1	8.1	0.1	38.75	1.1%
70° P-Scan DN (S4 NS)	B	8.1	8.1	0.1	38.75	1.1%
45° P-Scan (S6 FV)	B	44.6	44.6	0.8	38.75	12.3%
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						

% Total Composite Coverage = 75.8%

Page 9 of 23/03

Comments: A - Automated scanning was restricted due to the tie-rod stabilizer bracket. Scanner head facing up.
 B - Automated scanning was restricted due to the tie-rod stabilizer bracket. Scanner head facing down.

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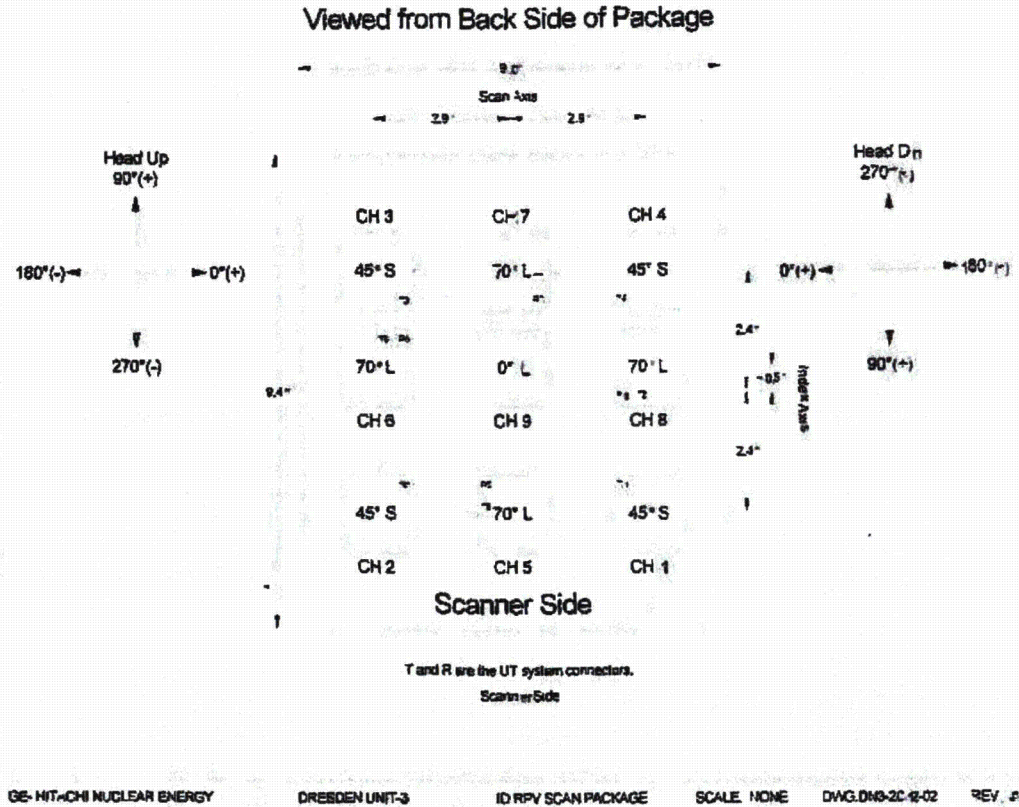
Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-013



ID RPV Vessel Scanner Package Configuration for Vertical Welds

5 of 11

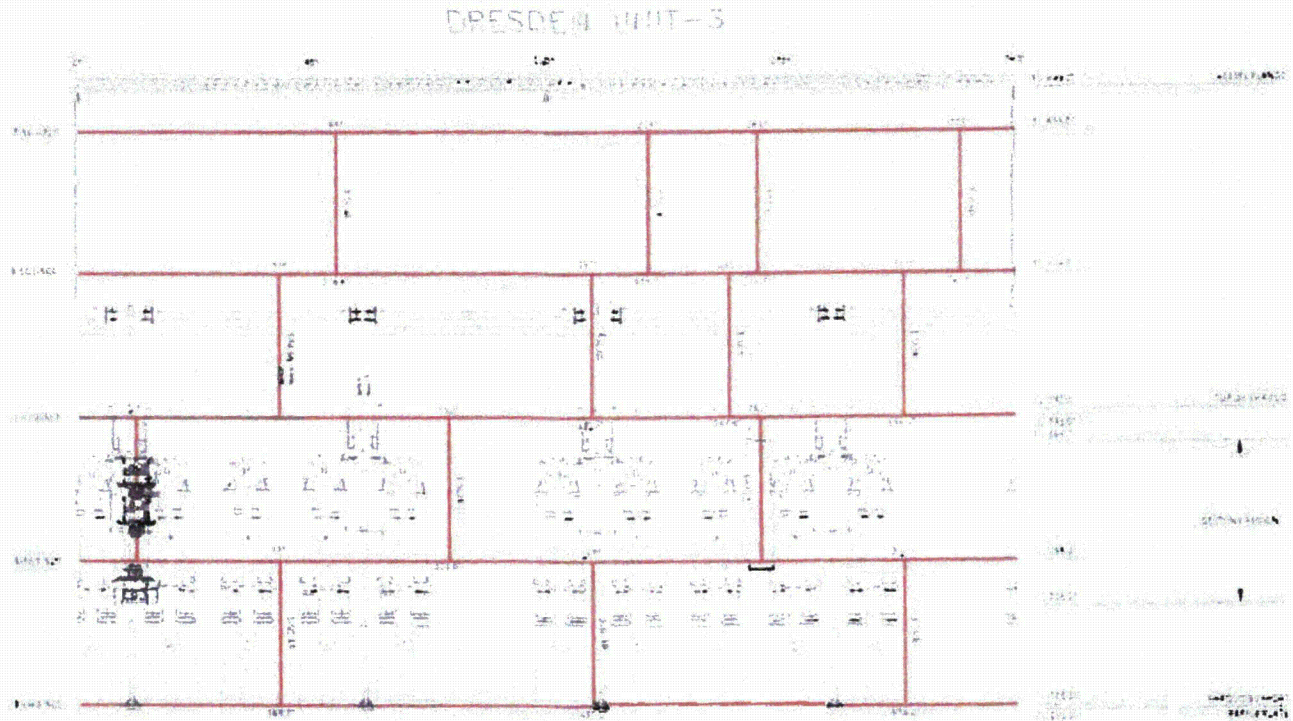


HITACHI

Dresden Unit 3 Reference Drawings

Report D01P22-013

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



Vessel Diameter at 20000

Vessel Length at 20000

GE NUCLEAR ENERGY

DRESDEN UNIT-3

VESSEL LOCATION

SCALE: NONE

OWG: 045-2012-01 REV. 0

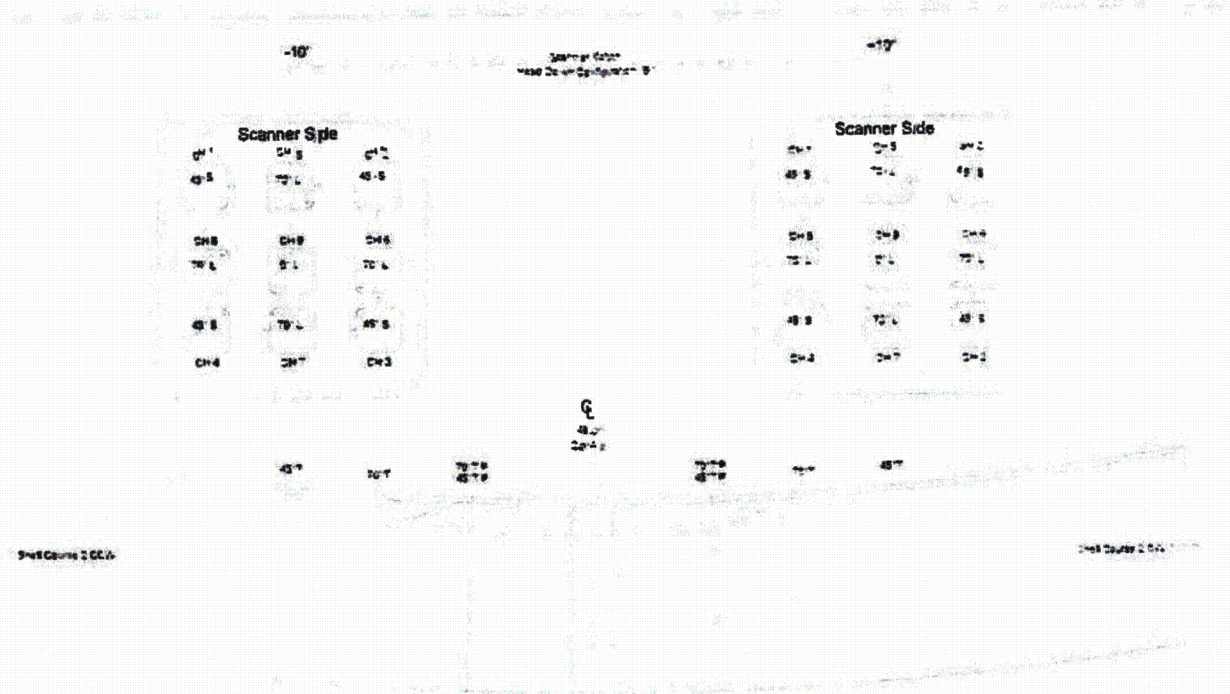
Vessel Location Map



HITACHI

Dresden Unit 3
Reference Drawings

Report D3R22-013



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.6 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.6 Sq. In.
 S6 P-Scan Achieved = 44.6 Sq. In.
 Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuths = 2.19 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 0.36 inches

GE HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 WELD 3-SC2A EXAM VOLUME SCALE: NONE DWG. DR3-2012-07 REV. 0

Cross Section Achieved Coverage "A"

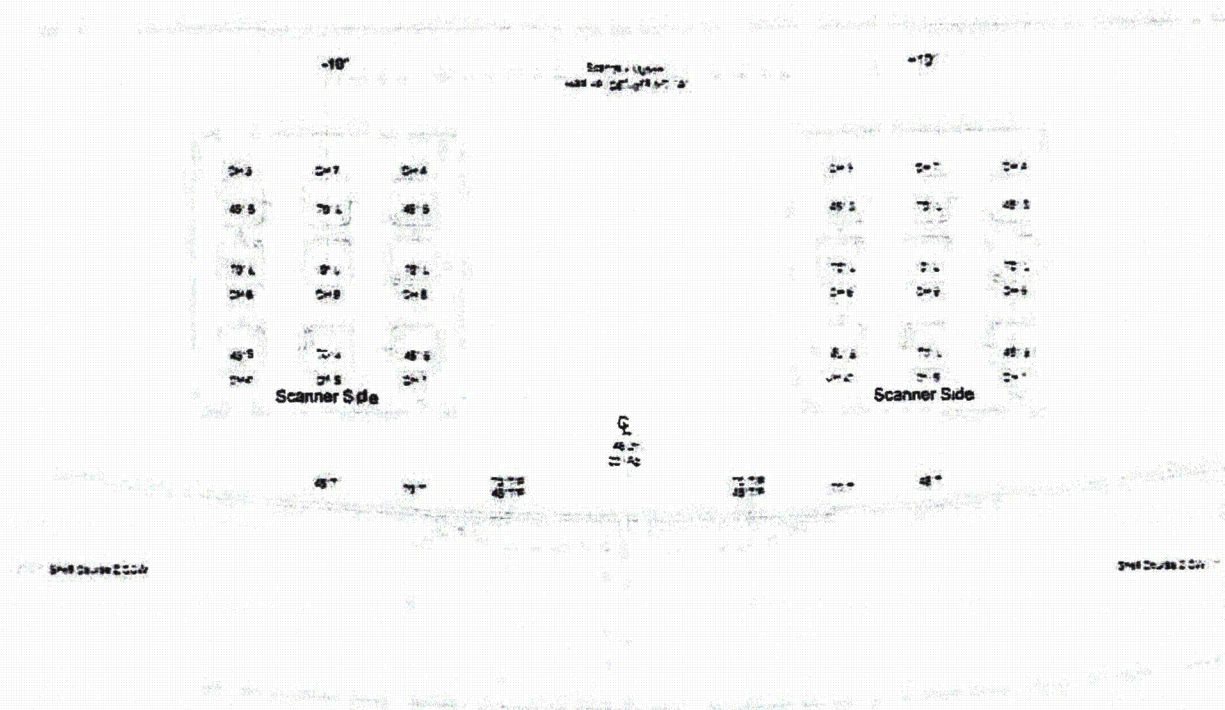
7 of 11



HITACHI

Dresden Unit 3 Reference Drawings

Report DSR22-013



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.8 Sq. In.

S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.8 Sq. In.
 S6 P-Scan Achieved = 44.8 Sq. In.

Vessel Diameter at Flange = 281.375 inches
 Vessel Axial Profile = 2.19 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 5.38 inches

GE- HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 WELD 3-SC2A EXAM VOLUME SCALE: NONE DWG , DR3-2012-07 REV , 0

Cross Section Achieved Coverage "B"

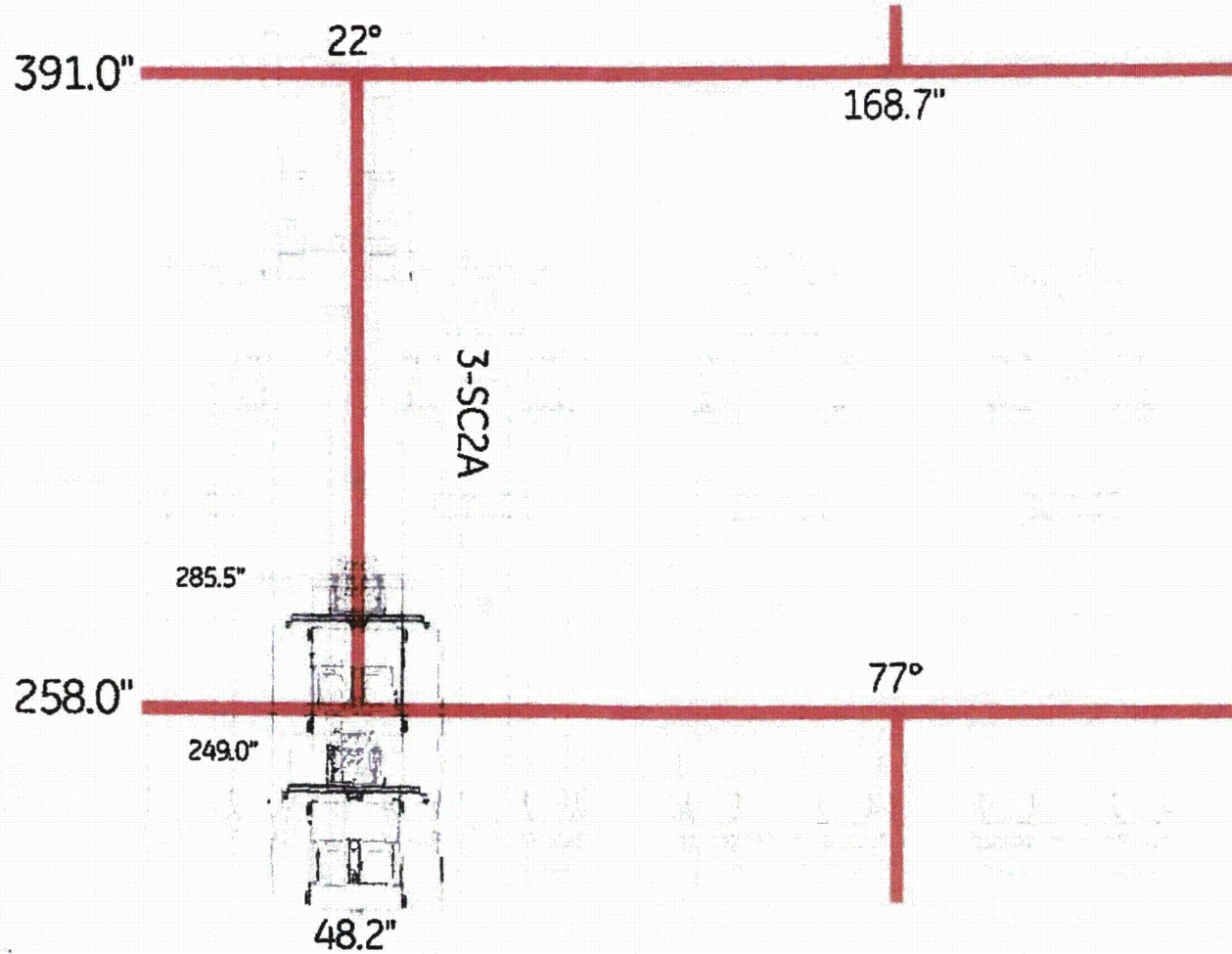
8 of 11



HITACHI

Dresden Unit 3 Reference Drawings

Report DAR22-013



9 of 11

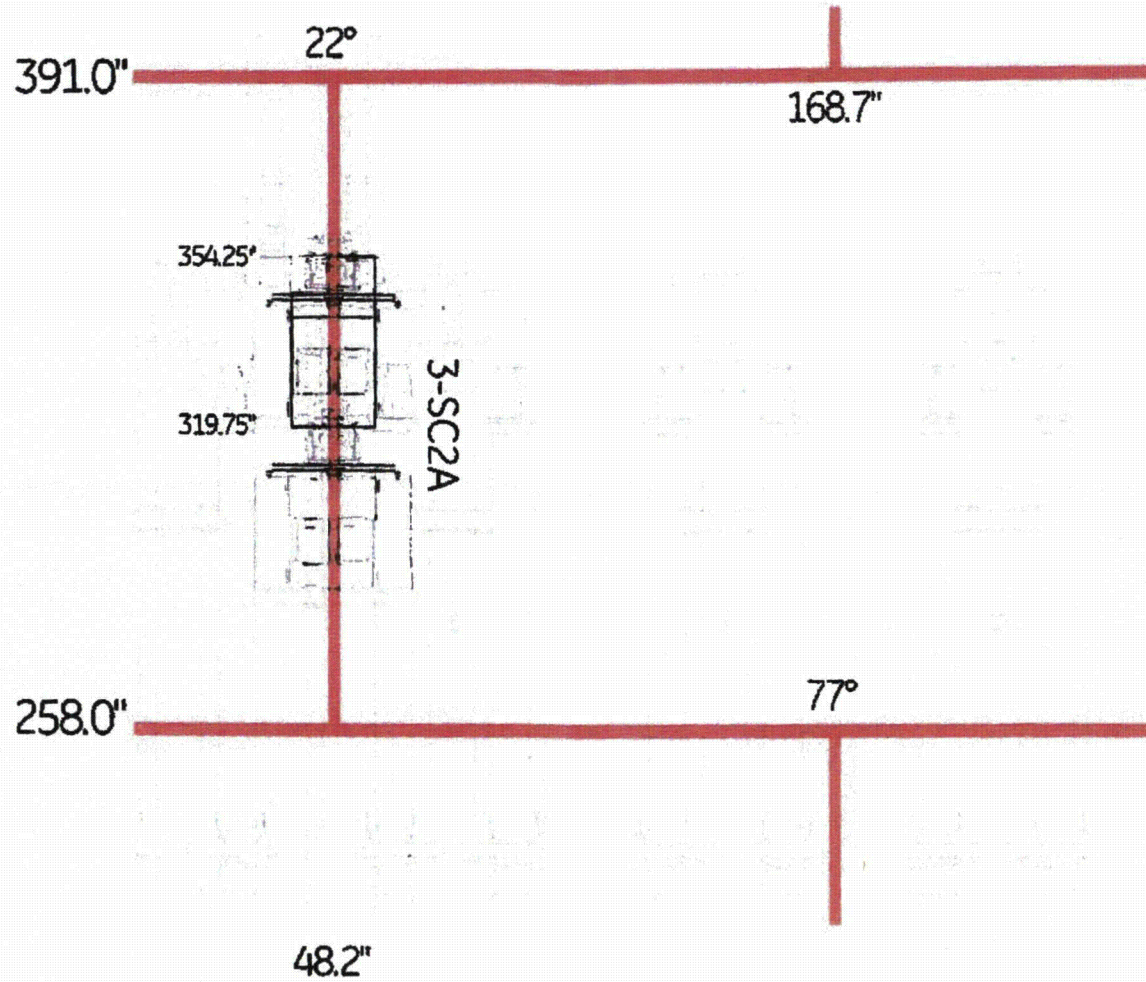
Scanned Patches Head Facing Up



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-013



10 of 11

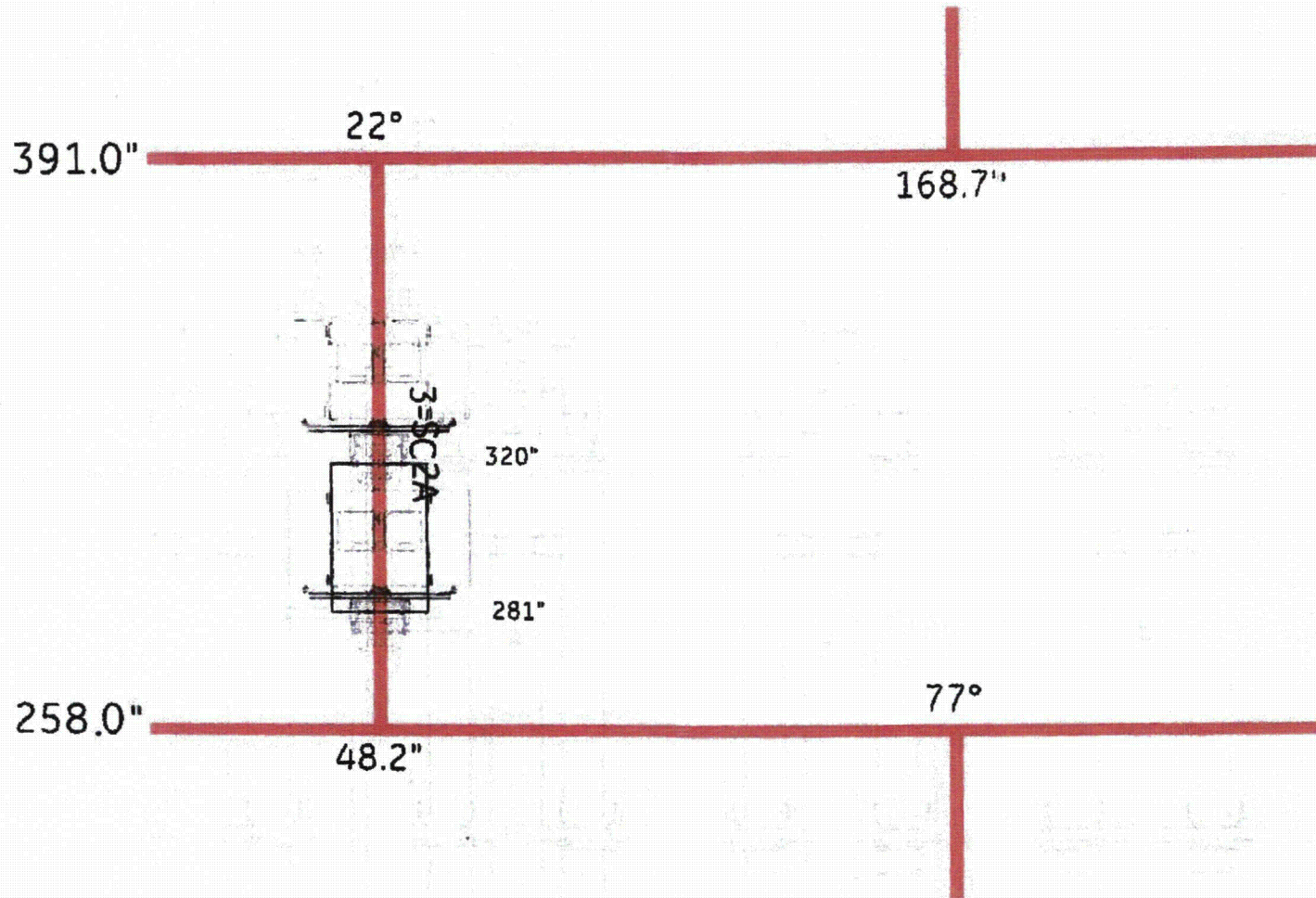
Scanned Patches Head Facing Up



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-013




11 of 11

Scanned Patches Head Facing Down

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	<h2 style="margin:0;">HITACHI Examination Summary Sheet</h2>	Report No.: D3R22-015				
Site: Dresden Unit 3 Component ID: 3-SC2C Outage: D3R22 Configuration: Shell 2Vert Weld System: RPV ASME Cat: B-A ASME Item: B1.12 Aug. Requirements: N/A						
Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/20/12

Comments:
 Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated scanning was performed on the left and right side of the weld simultaneously.


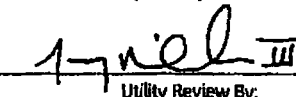
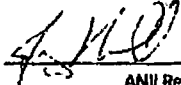
Automated scanning was restricted due to the proximity of the core spray piping.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.

No flow indications were recorded.

The Auto coverage was calculated to be 84.2%.

Previous data was reviewed with no changes.

The examination results were compared with data report 000600 from D3R17 outage with	<input checked="" type="checkbox"/> No Change <input type="checkbox"/> Change			
These examinations were performed under Work Order: 01391209-02				
This summary and the following data sheets have been reviewed and accepted by the following personnel:				
 Prepared By:	III Level:	11-22-12 Date:	 Utility Review By:	11-22-12 Date:
			 ANII Reviewed By:	11-22-12 Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

**SP2000 RPV Examination
Coverage Calculation Sheet**

Report No.: D3R22-015

Dresden Unit-3, D3R22
Weld 3-SC2C (Shell Course 2)

Report D3R22-015

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	112.00	3.2%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	112.00	3.2%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	112.00	35.6%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	112.00	3.2%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	112.00	3.2%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	112.00	35.6%
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						

% Total Composite Coverage = 84.2%

Comments: A - Automated scanning was restricted due to the proximity of the core spray piping. Scanner head facing up.

Rev. 0 9/23/05

3 of 8

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

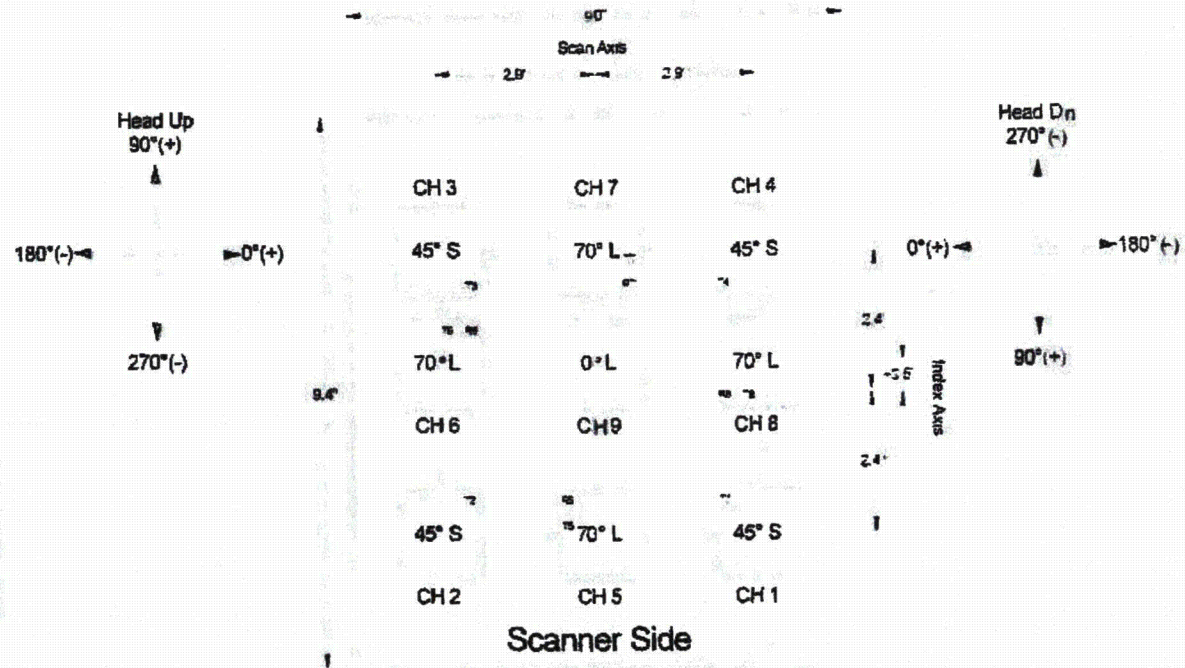


HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-015

Viewed from Back Side of Package



T and R are the UT system connectors.
 Scanner Side

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE, NONE DWG.DN3-2012-02 REV. 0

5 of 8

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

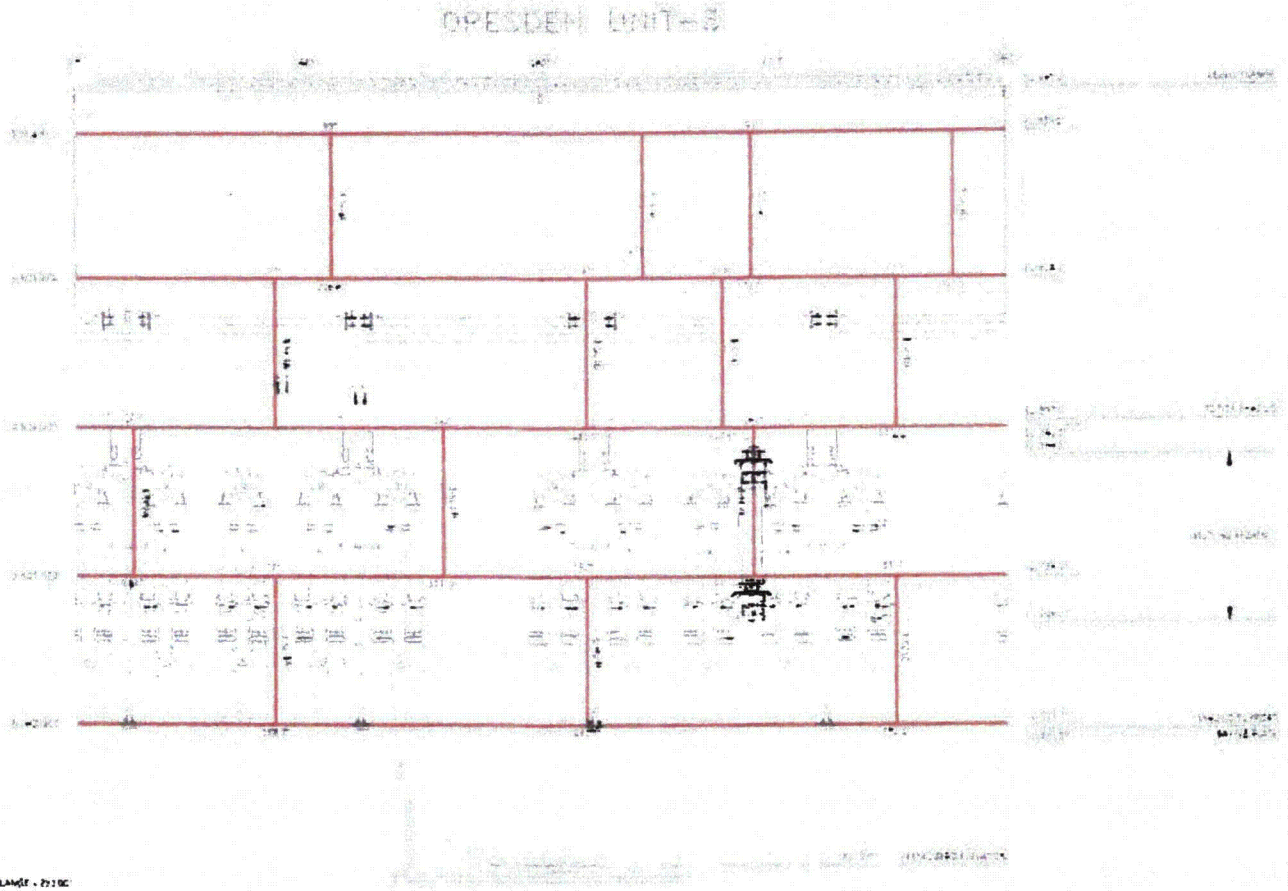


HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-015

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



1. NO. OF VESSELS AT RISK - 2380
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 94. NO. OF VESSELS AT RISK - 2380
 95. NO. OF VESSELS AT RISK - 2380
 96. NO. OF VESSELS AT RISK - 2380
 97. NO. OF VESSELS AT RISK - 2380
 98. NO. OF VESSELS AT RISK - 2380
 99. NO. OF VESSELS AT RISK - 2380
 100. NO. OF VESSELS AT RISK - 2380

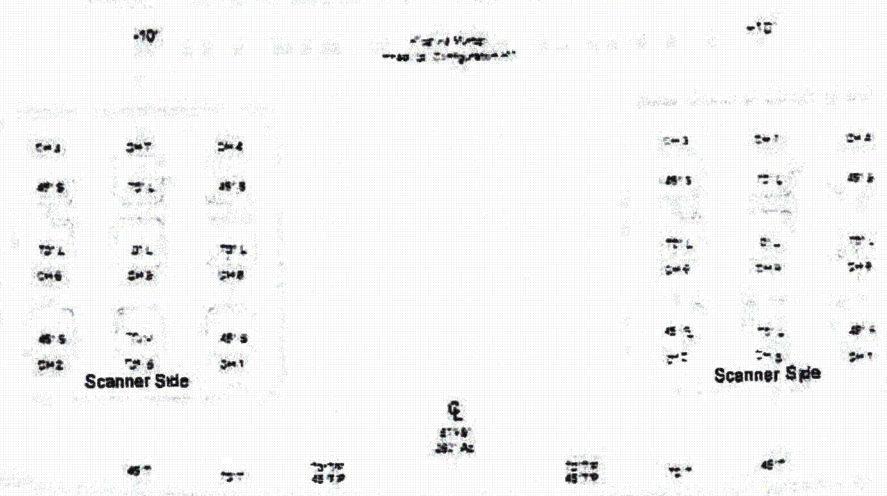
Vessel Location Map



HITACHI

Dresden Unit 3
 Reference Drawings

Report D3R22-015



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 5 Exam Volume = 44.5 Sq. In.

S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.5 Sq. In.
 S6 P-Scan Achieved = 44.5 Sq. In.

Vessel Diameter at Flange = 261.375 inches
 Vessel Azimuth = 2.19 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 0.36 inches

GE-HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC2C EXAM VOLUME

SCALE, NONE

DWG. DRS-2012-09

REV. 0

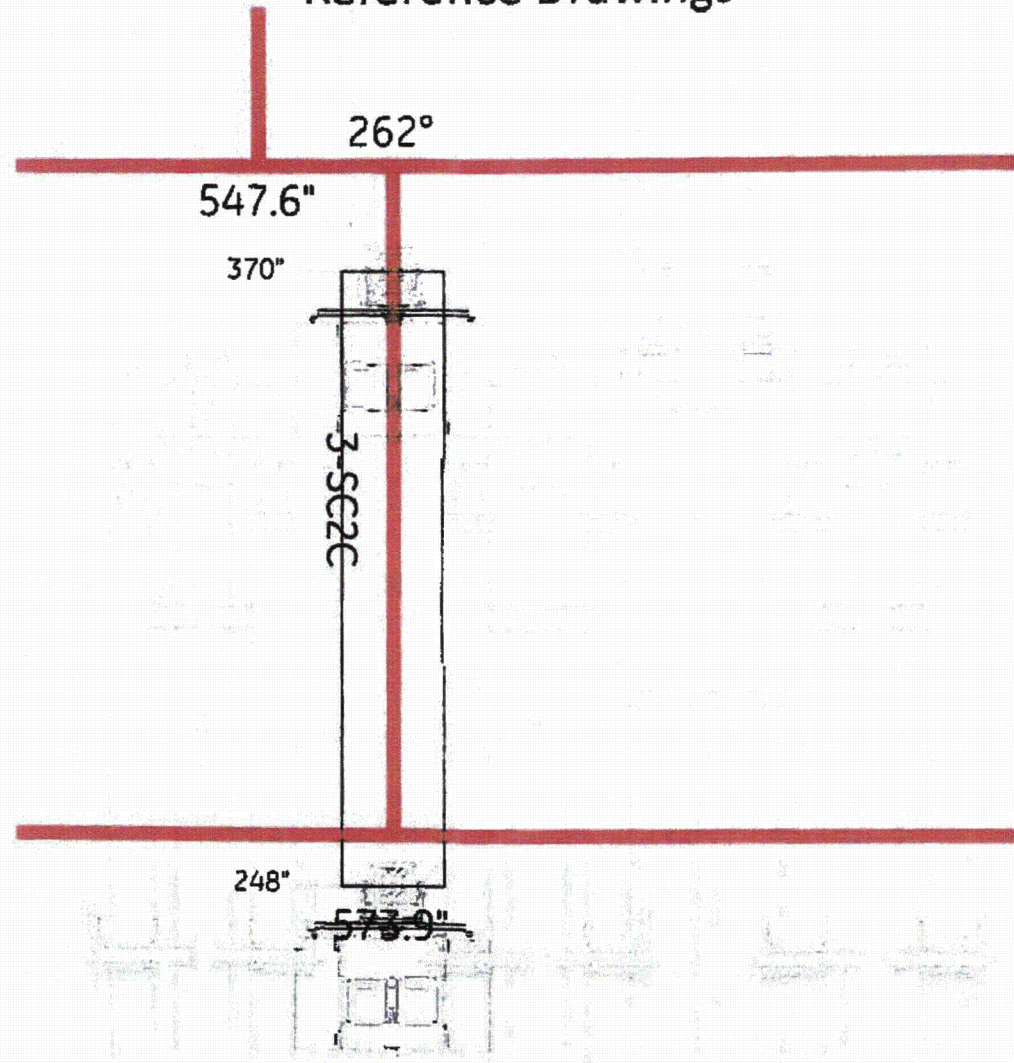
7 of 8

Cross Section of Achieved Coverage "A"



HITACHI

Dresden Unit 3 Reference Drawings



Scanned Patches Facing Up

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	HITACHI	Examination Summary Sheet	Report No.: D3R22-016
---	----------------	----------------------------------	-----------------------

Site:	Dresden Unit 3	Component ID:	3-SC3A	Configuration:	Shell 3 Vert Weld	ASME Item:	B1.12	Aug. Requirements:	N/A
Outage:	D3R22	Configuration:	Shell 3 Vert Weld	ASME Cat:	B-A	ASME Item:	B1.12	Aug. Requirements:	N/A
System:	RPV	ASME Cat:	B-A	ASME Item:	B1.12	Aug. Requirements:	N/A		

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12

Comments:
 Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° Shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated scanning was performed on the left and right side of the weld simultaneously.

Automated scanning was restricted due to the proximity of the Feedwater Sparger and Core Spray Downcomer.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.

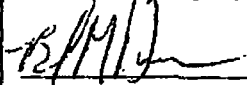

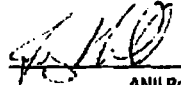
No flaw indications were recorded.

The Auto coverage was calculated to be 22.6%.

Previous data was reviewed with no changes.

The examination results were compared with data report 000700 from D3R17 outage with No Change
 These examinations were performed under Work Order: 01391209-02 Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

 Prepared By:	III Level:	11-24-12 Date:	 Utility Review By:	11-24-12 Date:
			 ANII Reviewed By:	11-24-12 Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

D3R22-016



HITACHI

**SP2000 RPV Examination
Coverage Calculation Sheet**

Report No.: D3R22-016

Dresden Unit-3, D3R22
Weld 3-SC3A (Shell Course 3)

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	30.00	0.9%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	30.00	0.9%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	30.00	9.5%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	30.00	0.9%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	30.00	0.9%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	30.00	9.5%
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						

% Total Composite Coverage = 22.6%

Comments: A - Automated scanning was restricted due to the proximity of the feedwater sparger. Scanner head facing down. Additionally, the vertical weld 3-SC3A below the feedwater sparger is limited due to the proximity of the Core Spray Downcomer.

Rev. 0 2/22/03

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

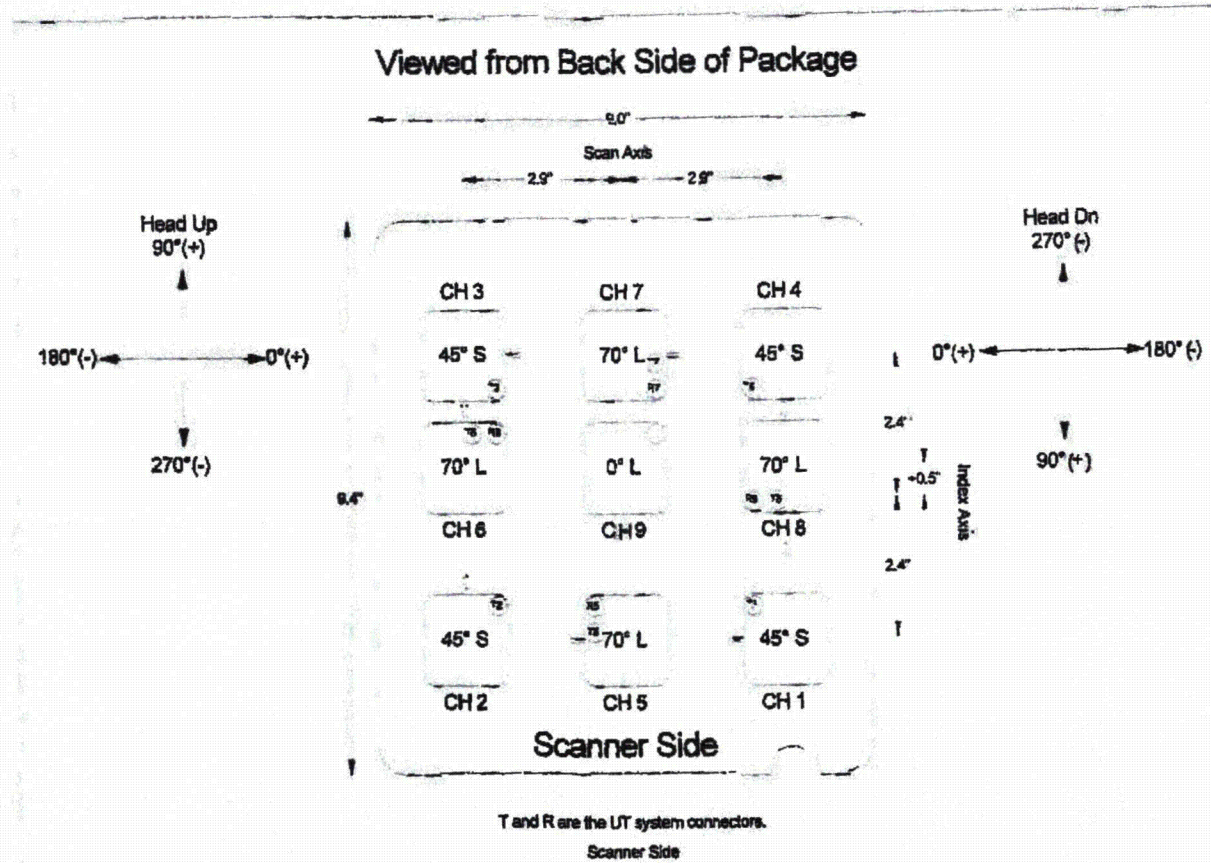
Page 3 of 8



HITACHI

Dresden Unit 3 Reference Drawings

D3R22-018

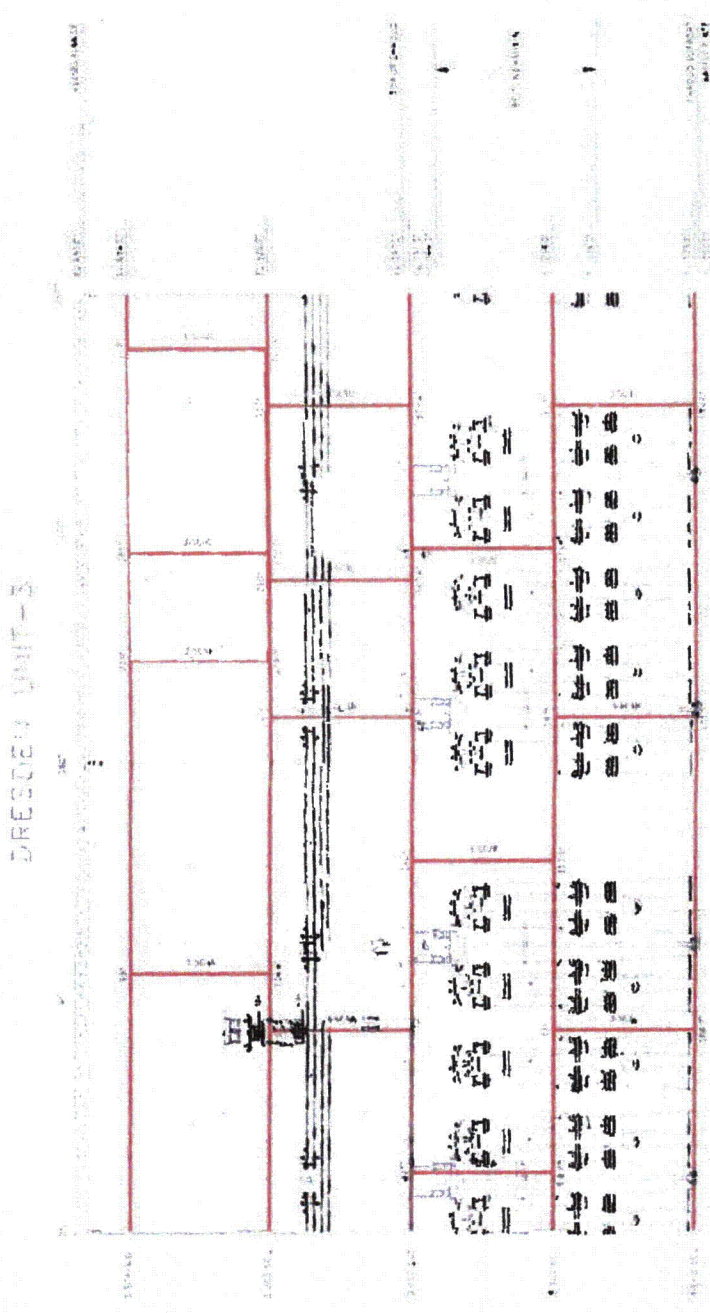


GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE: NONE DWG.DNB-2012-02 REV. 0

Page 5 of 8

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

Dresden Unit 3
Reference Drawings



DRESDEN UNIT-3 VESSEL NO. 10100000 SCALE: NONE DWG. DWS-3042-01 REV. 0

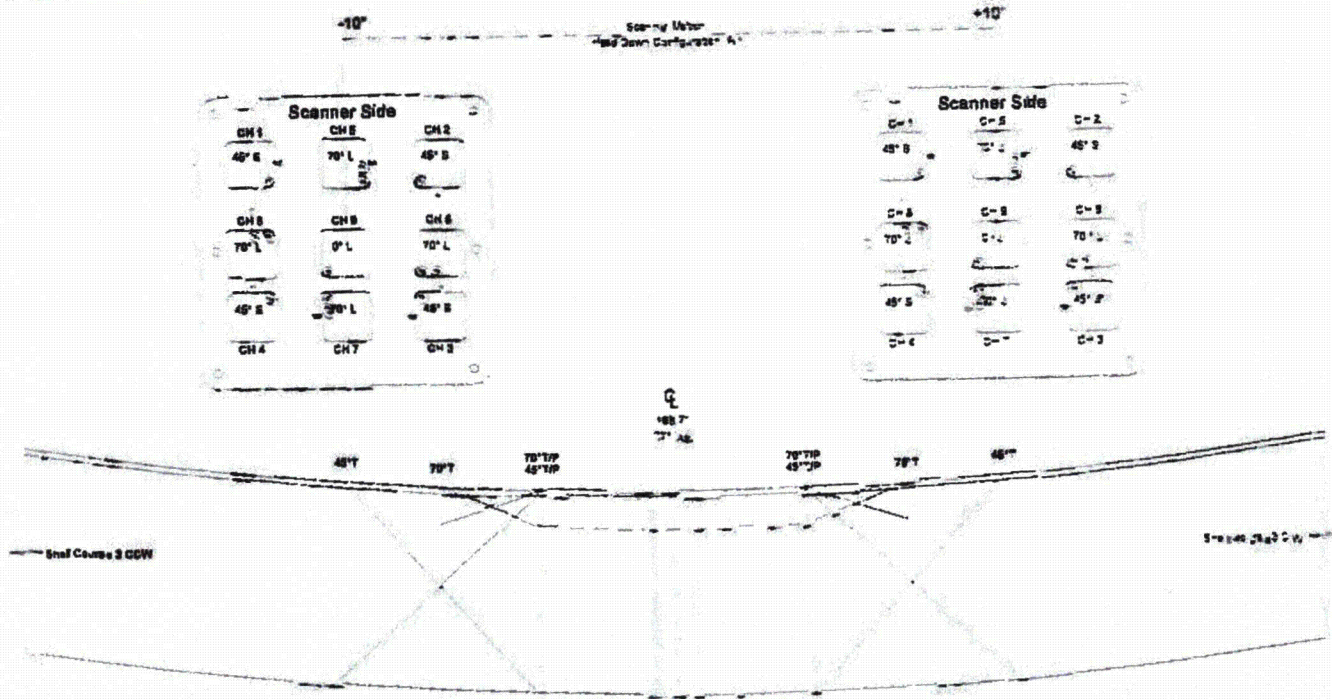
Vessel Location Map



HITACHI

Dresden Unit 3 Reference Drawings

D3R22-016



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 8 Exam Volume = 44.8 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.8 Sq. In.
 S6 P-Scan Achieved = 44.8 Sq. In.

Vessel Diameter at Flange = 251.376 inches
 Vessel Azimuths = 2.16 inches/degree
 Nominal C/T = 0.18 inches
 Nominal Shell T = 8.38 inches

GE- HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC3A EXAM VOLUME

SCALE: NONE

DWG. DR3-20 (2-19)

REV. 0

Cross Section of Achieved Coverage "A"

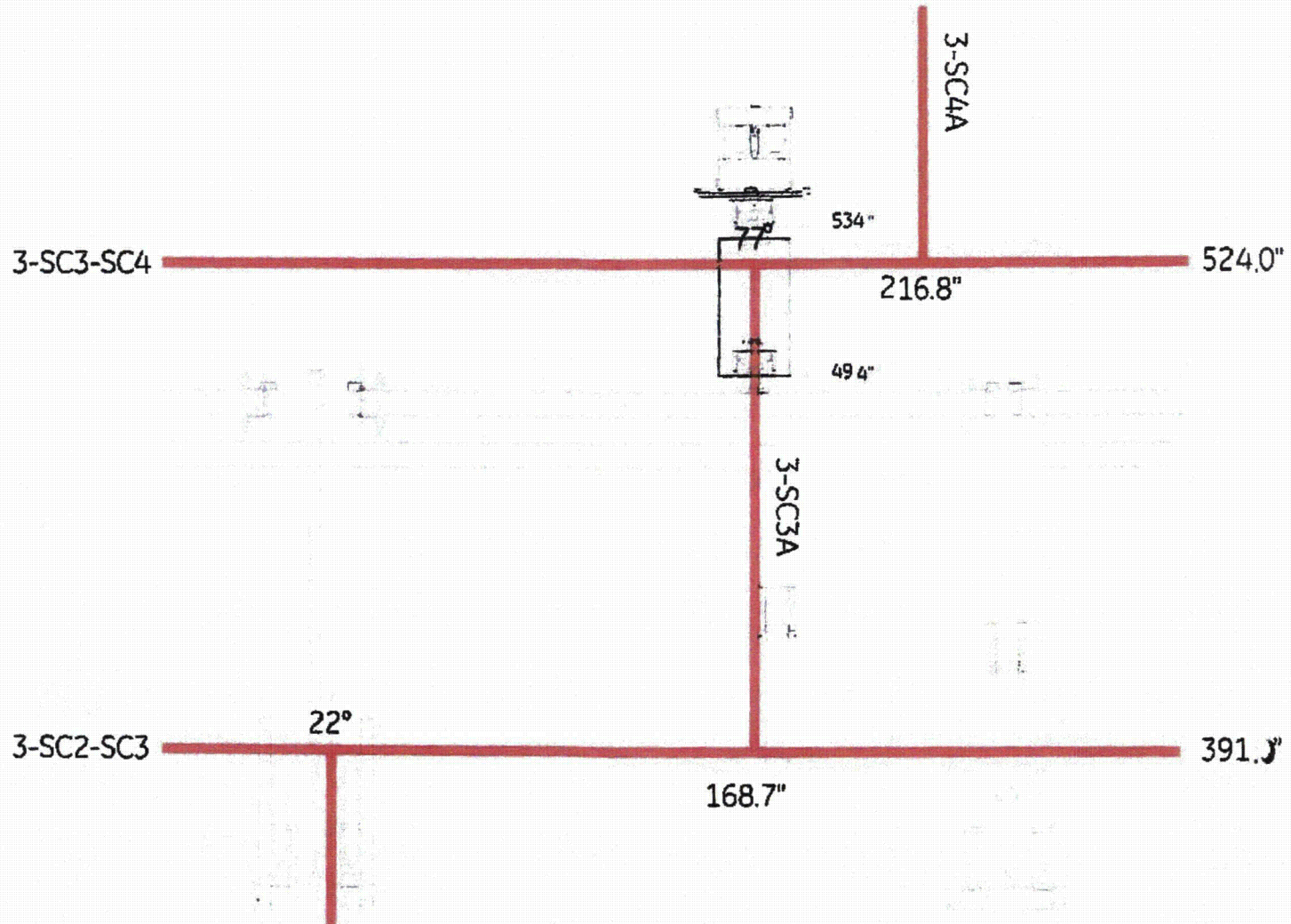
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HITACHI

Dresden Unit 3 Reference Drawings

D3R22-016




Scanned Patches Facing Down

Page 8 of 8

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

 <p>GE Energy Nuclear</p>	<h2 style="margin: 0;">Examination Summary Sheet</h2>	Report No: N19A-2				
Site: Dresden Unit 2 Outage: D2R20 System: Core Spray	Component ID: 2/1/RPV SHELL/N19A-2 Configuration: Nozz-Shell / N/V IRS ASME Cat: B-D	ASME Item: B3.90 Aug. Requirements: N/A				
Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45/S 60/L 70/L 60/S	D-COD-001 thru 012	99978AQC	GE-UT-716 V1 GE-UT-718 V0	C. Gauthier J. Guillote M. Hilborn	LV II LV II LV II	11/03/07
60/L 60/S	D-037, D-038 D-039	99978AQC	GE-UT-300 V10 GE-UT-311 V15	C. Gauthier C. Gauthier	LV II LV II	11/04/07 11/04/07
<p>Comments:</p> <p>Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10 CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Nozzle-to-Vessel Weld.</p> <p>Automated transverse and parallel scans were performed in accordance with procedure GE-UT-716, V1, using 45° Shear wave, 60° RL, and 70° RL search units, supplemental 0° L-Wave scans were also performed. Supplemental Manual exams were performed in accordance with procedure GE-UT-300 V10, using 60° RL search units</p> <p>Automated 60° Shear Inner Radius Nozzle to Vessel examinations were performed in accordance with procedure GE-UT-718 V0, DRR No. 07-07 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document". Supplemental Manual 60° Shear Inner Radius Nozzle to Vessel examinations were performed in accordance with procedure GE-UT-311 V15 and validated by modeling; Reference, "The General Electric Dresden Nozzle Modeling Document".</p> <p>Automated UT scanning was performed from the vessel OD surface and was restricted due to the nozzle configuration and insulation support interference. Manual UT scanning was performed from the vessel OD surface and was restricted due to the nozzle configuration.</p> <p>Supplemental manual exams were performed in the restricted area of the insulation support.</p> <p>The SP 2000 OD automated UT system 0 reference is located at TDC of nozzle.</p> <p>For SP 2000 automated calibrations refer to report CAL-01.</p> <p>No relevant indications were recorded.</p> <p>Previous examination data was reviewed, with no significant changes noted. Automated and Manual UT Composite Coverage = 47.7%.</p>						
The examination results were compared with data report N19A-2 from 1998 outage with				<input checked="" type="checkbox"/> No Change <input type="checkbox"/> Change		
These examinations were performed under Work Order: 871143-06						
This summary and the following data sheets have been reviewed and accepted by the following personnel:						
 Prepared By:		III Level:	11-5-07 Date:	 Utility Review By:		11-8-07 Date:
 ANII Reviewed By:					11/11/07 Date:	



GE Hitachi Nuclear Energy

SP2000 Examination Data Sheet

Project : Dresden Unit-2
Component : Feedwater Nozz-Shell

Summary No.: N19A-2
Exam Data Sheet: N19A-2-01

<i>File</i>	<i>Scan Type</i>	<i>Ch. 1</i>	<i>Ch. 2</i>	<i>Ch. 3</i>	<i>Ch. 4</i>	<i>Ch. 5</i>	<i>Ch. 6</i>	<i>Ch. 7</i>	<i>Ch. 8</i>	<i>Ch. 9</i>	<i>Ch.10</i>	<i>Ch.11</i>	<i>Ch.12</i>
n19a tl_01	TL	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n19a tl_02	TL	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n19a p1_01	P	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~
n19a n/z1_01	NV/Z1	NRI	NRI	NRI	NRI	~	~	~	~	~	~	~	~

Comments: Analyzed by Brad Dummer Level III 11/04/07 *BD*

The symbol ~ indicates "No entry required" or "Not Applicable". NRI indicates "No Recordable Indications".

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ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Outage: D2R20

Procedure: GE-UT-300

Data Report Number: N19A-2 NOZ-RPV Linearity Sheet: L-004

Data Sheet Number: D-037

Rev.: 10

DRR: N/A

Calibration Block: 99978AQC

<u>CS</u> Material	<u>Flat</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>2030</u>	Exam Start: <u>21:10</u>	
Cal Check: <u>N/A</u>	Exam End: <u>22:43</u>	
Cal Check: <u>N/A</u>	<u>UltraGel II</u> Couplant	<u>02125</u> Batch
Final Cal: <u>0103</u>		
<u>255152</u> Thermometer	<u>75° E</u> Initial Cal Temp.	<u>75° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID No/Ph	<u>7.0</u>	1X	<u>80</u>	<u>11.79</u>	<u>13.62</u>	<u>6.8</u>
		1X				
		1X				
		1X				
		1X				

DAC 1X= 70.1

Sweep 0-10 = 10 Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Exam Data for Weld: 2/1/RPV SHELL/N19A-2

NOZ-RPV

Configuration:

OD Exam Surface: 98° F Component Temperature

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T&P</u>	<u>60</u>	<u>NRI</u>	<u>60</u>

Search Unit Data

<u>Sigma</u> Manufacturer:	<u>22BC-02005</u> Serial Number:	<u>21.1x.62 / Rect</u> Size / Shape:
<u>0.50"</u>	<u>60°</u>	<u>60°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>3.0 MHz</u> Frequency:	<u>SDC-3</u> Model:	<u>RL</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
------------------------------	----------------------	-------------------------

Instrument Settings

<u>Panametrics / Epoch 4</u> Manufacturer/Model:	<u>031572811</u> Serial Number:		
<u>7.655 μs</u> Delay/Zero:	<u>0.2245 in./μsec.</u> Velocity:		
	<u>0.8 - 3.0 MHz</u> Narrowband Filter:		
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>20.0 in.</u> Range:	<u>Sg. / Med</u> Pulser:
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>3.03 MHz</u> Frequency:	<u>Dual</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for full volume examination. Calibration for nozzle to vessel weld (N/V).
Exams performed to maintain a minimum 10-20% FSH clad roll.
Exam performed from 65° to 268° clockwise and counter-clockwise in automated limited area.

CG Clint Gauthier II 11/4/2007
Initials: Examiner Level: Cal/Exam Date:

[Signature] III 11-4-07
Utility Reviewed By: Date:

N/A N/A III 11-5-07
Initials: Examiner Level: Date:
[Signature] III 11-5-07
Reviewed By: Level: Date:

[Signature]
ANII Reviewed By: Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE ENERGY, NUCLEAR

**Ultrasonic Calibration and Examination Record
RPV Components**

Site/Unit: Dresden / 2

Data Report Number: N19A-2 NOZ-RPV Linearity Sheet: L-004

Outage: D2R20

Data Sheet Number: D-038

Procedure: GE-UT-300

Rev.: 10

DRR: N/A

Calibration Block: CAL-IIW2-047

<u>CS</u> Material	<u>Flat</u> Size	<u>4.0"</u> Thickness
Initial Cal: <u>2025</u>	Exam Start: <u>21:10</u>	
Cal Check: <u>N/A</u>	Exam End: <u>22:43</u>	
Cal Check: <u>N/A</u>	<u>Ultragel II</u> Couplant:	<u>02125</u> Batch
Final Cal: <u>0055</u>	<u>255152</u> Thermometer	<u>75° F</u> Initial Cal Temp.
		<u>75° F</u> Final Cal Temp.

DAC Construction

Reflector	Hole Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
SDH	.60	1X	80	1.17	1.17	3.4
		1X				
		1X				
		1X				

DAC 1X= 55.1

Sweep 0-10 = 2 Depth

Note: N/A dB difference between 3/8 and 5/8 Vee

Search Unit Data

<u>Sigma</u> Manufacturer:	<u>22BC-02005</u> Serial Number:	<u>2(1.1x.62) / Rect.</u> Size / Shape:
<u>0.50"</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>3.0 MHz</u> Frequency:	<u>SDC-3</u> Model:	<u>RL</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
------------------------------	----------------------	-------------------------

Instrument Settings

<u>Panometrics / Epoch 4</u> Manufacturer/Model:	<u>031572811</u> Serial Number:
<u>7.655 us</u> Delay/Zero:	<u>0.2245 in./usec.</u> Velocity:
	<u>0.8 - 3.0 MHz</u> Narrowband Filter:
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:
	<u>4.0 in.</u> Range:
	<u>Sq. / Med</u> Pulser:
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:
	<u>3.03 MHz</u> Frequency:
	<u>Dual</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:
	<u>Off:</u> CSC:
	<u>Off:</u> DGS:

Exam Data for Weld: 2/1/RPV SHELL/N19A-2

NOZ-RPV
Configuration:

<u>OD</u> Exam Surface:	<u>96° F</u> Component Temperature
----------------------------	---------------------------------------

Weld Examination Area:	Exam Access	Scan dB	Recordable Indications	Exam Angle
<u>Plate</u>	<u>T&P</u>	<u>69.1</u>	<u>NRI</u>	<u>60</u>

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	Amplitude	Gain (dB)	Sweep (SD)
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Acceptable Linearity performed: 10/19/2007

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.
Calibration for near surface examination. Calibration for nozzle to vessel weld (N/A).
Exams performed a minimum of 14 dB above reference.
Exam performed from 65° to 268° clockwise and counter-clockwise in automated limited area.

<u>Clint Gauthier</u> Initials: Examiner	<u>II</u> Level:	<u>11/4/2007</u> Date:
<u>N/A</u> Initials: Examiner	<u>N/A</u> Level:	
<u>J.C. Rice</u> GR Reviewed By:	<u>III</u> Level:	<u>11-5-07</u> Date:

<u>[Signature]</u> Utility Reviewed By:	<u>11-7-07</u> Date:
<u>[Signature]</u> ANII Reviewed By:	<u>11/11/07</u> Date:

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



**Ultrasonic Calibration and Examination Record
Inner Radius Examinations**

Site/Unit: Dresden / 2
Outage: D2R20

Data Report Number: N19A-2 Linearity Sheet: L-004
Data Sheet Number: D-039

Procedure: GE-UT-311

Rev: 15 DRR: N/A

Calibration Data for Block: 99978AQC

<u>CS</u> Material	<u>Flat</u> Size	<u>7.0"</u> Thickness
Initial Cal: <u>2037</u>	Exam Start: <u>2110</u>	
Cal Check: <u>N/A</u>	Exam End: <u>2243</u>	
Cal Check: <u>N/A</u>	<u>UltraGel II</u>	<u>02125</u>
Final Cal: <u>0109</u>	Couplant:	Batch
<u>255152</u> Thermometer	<u>75° F</u> Initial Cal Temp.	<u>75° F</u> Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>7.0</u>	1X	<u>80</u>	<u>11.63</u>	<u>13.42</u>	<u>6.8</u>
		1X				

DAC @ 1X = 45.7

Sweep 0-10 = 20" Metal Path

Acceptable Linearity performed: 10/19/2007

Exam Data for Component: 2/1/RPV SHELL/N19A-1

N/V / Zone 1

Configuration:

<u>OD</u> Exam Surface:	<u>98° F</u> Component Temp.				
Examination Area	Exam Angle	Rotation Angle	Wedge S/N	Scan Recordable dB	Indications
<u>0° - 7"</u>	<u>60°</u>	<u>±15°-55°</u>	<u>N/A</u>	<u>56</u>	<u>NRI</u>

Search Unit Data

<u>KBA</u> Manufacturer:	<u>00L323</u> Serial No.:	<u>50" x 1.0" Rect</u> Size/Shape:
<u>0.65 in.</u> Incident Point:	<u>60°</u> Nominal Angle:	<u>60°</u> Measured Angle:
<u>1.0 MHz</u> Frequency:	<u>113-291-600</u> Model:	<u>Shear</u> Mode:

Search Unit Cable

<u>RG-174</u> Cable Type:	<u>9'</u> Length:	<u>0</u> Connectors:
------------------------------	----------------------	-------------------------

Instrument Settings

<u>Panometrics / Epoch 4</u> Manufacturer/Model:	<u>031572811</u> Serial No.:		
<u>15.62 us</u> Zero:	<u>0.1277 in / usec</u> Velocity:	<u>0.8 - 3.0 MHz</u> Narrowband Filter:	
<u>Auto</u> Rep Rate:	<u>Fullwave</u> Rectification:	<u>20.0 in.</u> Range:	<u>Sq. / Med</u> Pulse/Energy
<u>400 Ohms</u> Damping:	<u>0%</u> Reject:	<u>1.0 MHz</u> Frequency:	<u>Pulse/Echo</u> Mode:
<u>Off:</u> DAC:	<u>Off:</u> TVG:	<u>Off:</u> CSC:	<u>Off:</u> DGS:

Calibration Verification

Field Simulator Block S/N: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dBI)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations. 0% Reject = Off.

Calibration for Zone 1.

Calibration for nozzle to vessel weld (NV-IRS)

Calibration for nozzle inner radius exam.

Exams performed to maintain 20-30% FSH clad roll.

Exam performed from 65° to 268° clockwise and counter-clockwise in automated limited area.

CG Clint Gauthier

Initials: Examiner:

II

Level:

11/4/2007

Cal/Exam Date:

[Signature]
Utility Reviewed By:

11-7-07

Date:

[Signature]

GE Reviewed By:

III

Level:

11-5-07

Date:

[Signature]
ANI Reviewed By:

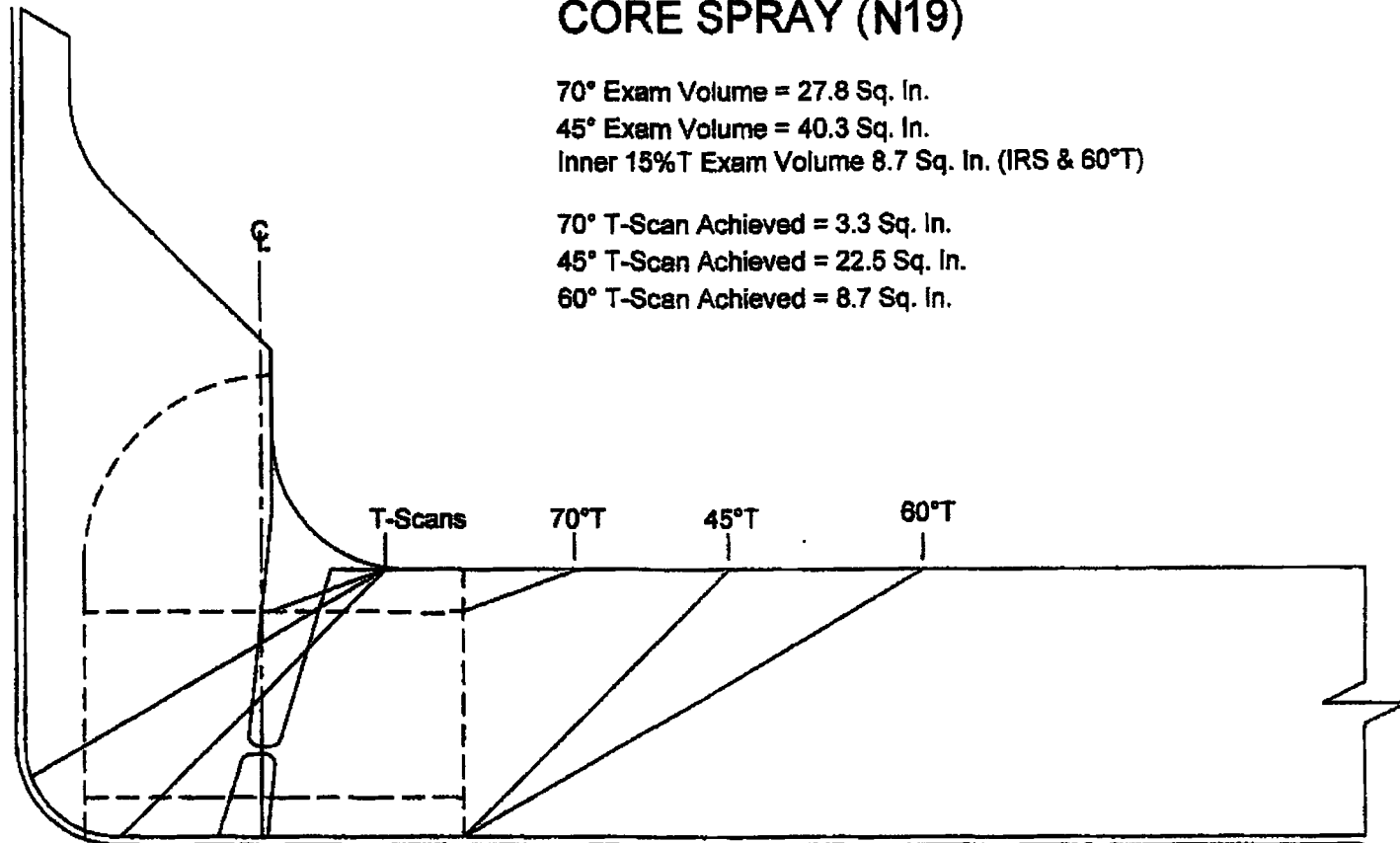
11/11/07

Date:

Dresden 2 CORE SPRAY (N19)

70° Exam Volume = 27.8 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume 8.7 Sq. In. (IRS & 60°T)

70° T-Scan Achieved = 3.3 Sq. In.
45° T-Scan Achieved = 22.5 Sq. In.
60° T-Scan Achieved = 8.7 Sq. In.

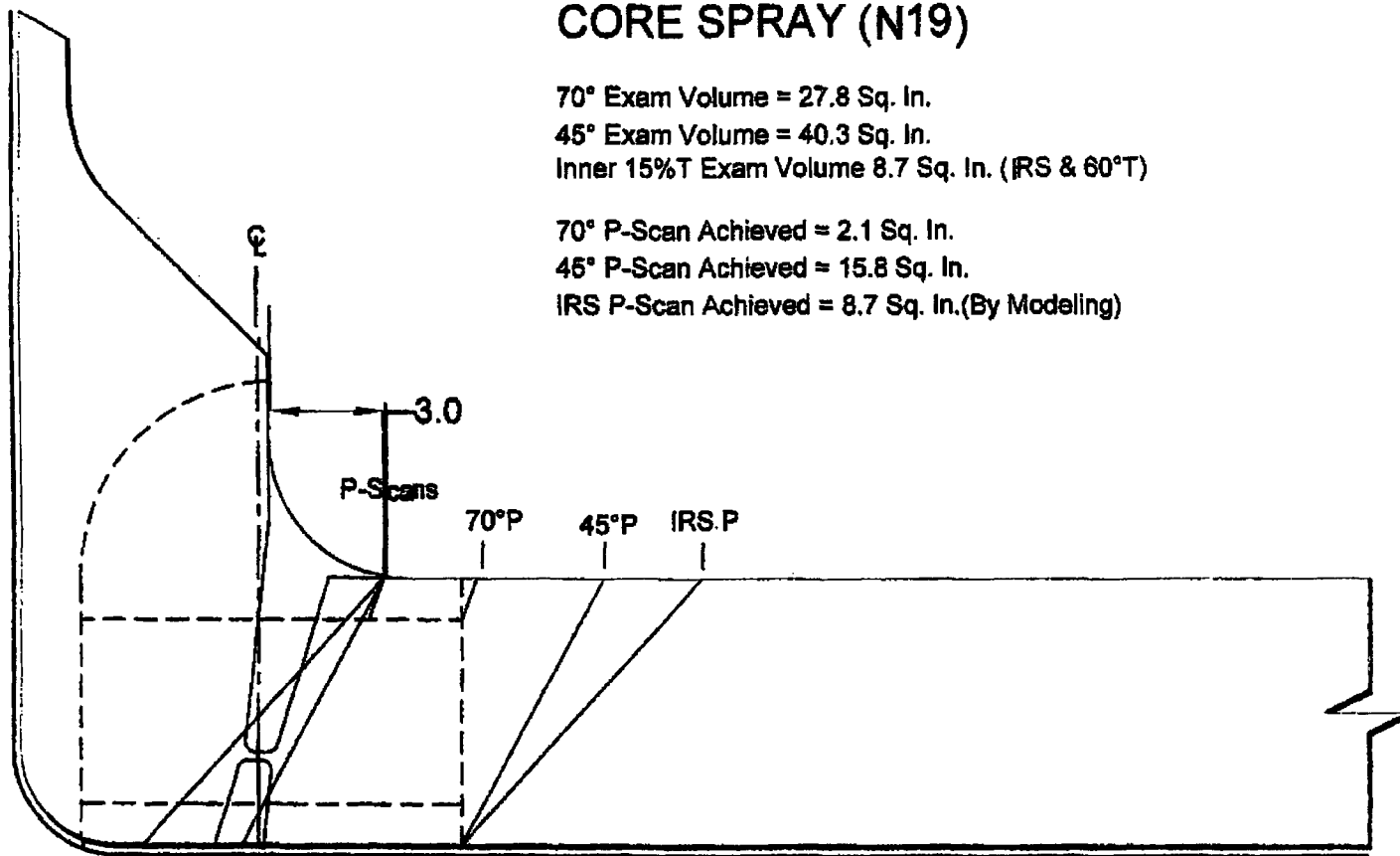


Dresden unit 2, D2/20, 2007

Dresden 2 CORE SPRAY (N19)

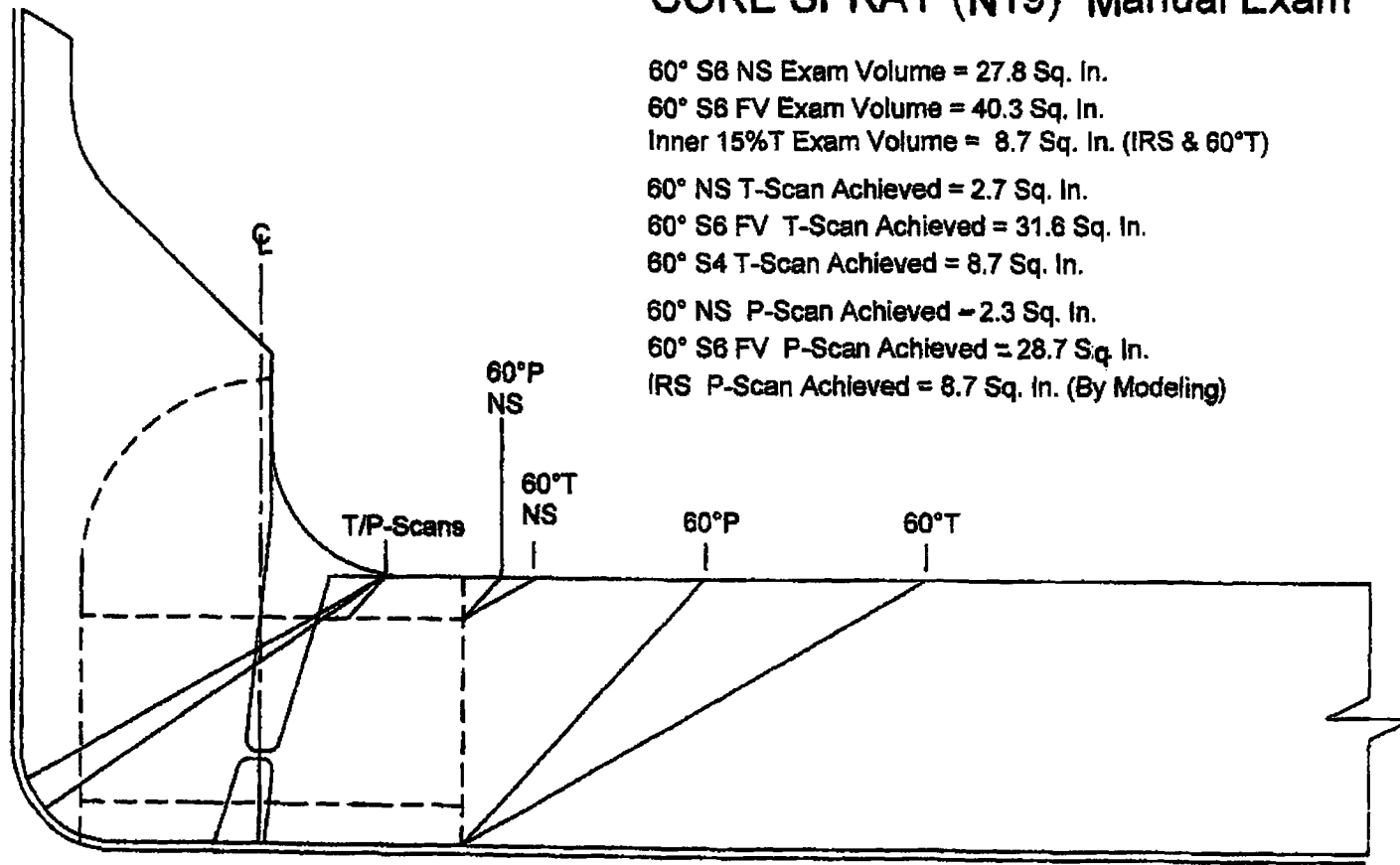
70° Exam Volume = 27.8 Sq. In.
45° Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume 8.7 Sq. In. (IRS & 60°T)

70° P-Scan Achieved = 2.1 Sq. In.
45° P-Scan Achieved = 15.8 Sq. In.
IRS P-Scan Achieved = 8.7 Sq. In. (By Modeling)

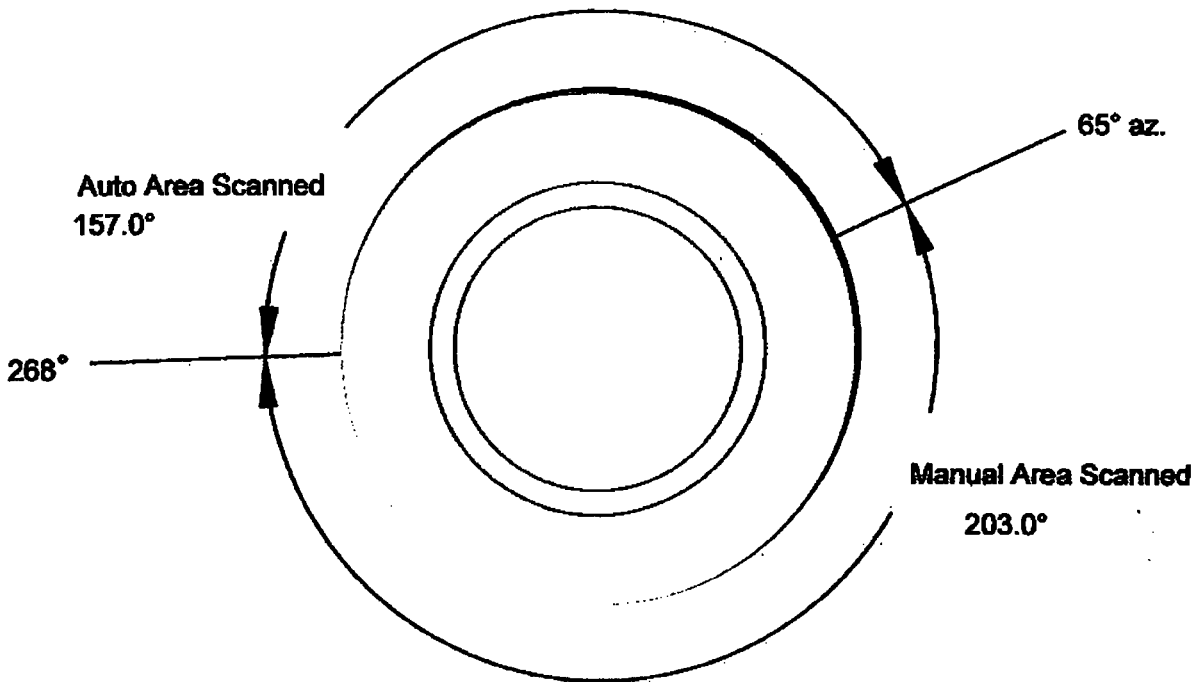


Dresden 2 CORE SPRAY (N19) Manual Exam

60° S6 NS Exam Volume = 27.8 Sq. In.
60° S6 FV Exam Volume = 40.3 Sq. In.
Inner 15%T Exam Volume = 8.7 Sq. In. (IRS & 60°T)
60° NS T-Scan Achieved = 2.7 Sq. In.
60° S6 FV T-Scan Achieved = 31.8 Sq. In.
60° S4 T-Scan Achieved = 8.7 Sq. In.
60° NS P-Scan Achieved = 2.3 Sq. In.
60° S6 FV P-Scan Achieved = 28.7 Sq. In.
IRS P-Scan Achieved = 8.7 Sq. In. (By Modeling)



Dresden 2
Core Spray
N19A Nozzle



N19A nozzle. Automated UT Nozz-Shell and NV scans, restricted due to insulation support.

Dresden Unit 2 / D2R20



GE Hitachi Nuclear Energy

Reactor Pressure Vessel Coverage Calculation Sheet

Dresden Unit 2 / D2R20
N19A-2 Core Spray (Noz-Shell)
Fall / 2007

Weld Length = 360. Exam Volume = 76.8		CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. In.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
60° T-Scan (S4 UC)	A	8.7	8.7	11.3%	157	2.5%
45° T-Scan (S6 FV)	A	40.3	22.5	29.3%	157	6.4%
70° T-Scan (S6 NS)	A	27.8	3.3	4.3%	157	0.9%
IRS P-Scan (S4 UC)	A*	8.7	8.7	11.3%	157	2.5%
45° P-Scan (S6 FV)	A	40.3	15.8	20.8%	157	4.5%
70° P-Scan (S6 NS)	A	27.8	2.1	2.7%	157	0.6%
60° T-Scan (S4 UC)			0		0	
45° T-Scan (S6 FV)			0		0	
70° T-Scan (S6 NS)			0		0	
IRS P-Scan (S4 UC)			0		0	
45° P-Scan (S6 FV)			0		0	
70° P-Scan (S6 NS)			0		0	
60° T-Scan (S4 UC)			0		0	
45° T-Scan (S6 FV)			0		0	
70° T-Scan (S6 NS)			0		0	
IRS P-Scan (S4 UC)			0		0	
45° P-Scan (S6 FV)			0		0	
70° P-Scan (S6 NS)			0		0	

% Total Composite Coverage = 17.3%

Rev. 0 1/23/05

Comments: A - Automated scanning was restricted due to insulation support, manual pick-ups required.

A* - Single side access, 50% credit of the achieved Supplement 4 T-scan volume claimed.

Note - Rounding methods may affect calculated values. UC-Underclad, FV-Full volume, NS-Near Surface. Weld length in degrees.

Page 10 of 15



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N19 Core Spray Nozzle N19A-2
ASME Volume OD Radius: 21.0

Description: Nozz Shell
Weld Centerline Radius: 10.3
Nominal Thickness: 6.4

SP2000 Quad Package - Radial TL- Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-0°L	~	1 (P1)	180°	0°	0.0	-12.3°	-4.5	2.25
2-45°S T	~	2 (P2)	180°	5°	0.0	-4.1°	-1.5	1.0
3-60°L T	~	4 (P3)	180°	356°	0.0	4.1°	1.5	2.0
4-70°L T	~	5(P4) / 6(R4)	180°	340°	0.0	12.3°	4.5	2.0

Radial TL-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.5°

Scanner Start: Onset of liftoff
 Scanner Stop: MAX
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in./sec.

SP2000 Quad Package - Circumferential P-Scan Table - GE-UT-716

Channel	Probe ID	Cable (Jack)	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-45°S LKCC	~	1 (P1)	180°	306°	0.0	-4.1°	-1.5	1.0
2-70°L LKCC	~	2(P2) / 3(R2)	180°	297°	0.0	-12.3°	-4.5	2.0
3-45°S LKCW	~	4 (P3)	180°	54°	0.0	4.1°	1.5	1.0
4-70°L LKCW	~	5(P4) / 6(R4)	180°	63°	0.0	12.3°	4.5	2.0

Circumferential P-Scans
 Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 0.6°

Scanner Start: Onset of liftoff
 Scanner Stop: MAX
 Max. Scanner Resolution: ≤ .25 in
 Max. Scanner Velocity: ≤ 6.0 in./sec.



GE Hitachi Nuclear Energy

SP2000 - RPV OD

Scan Plan for Nozzle Welds

Dresden Unit 2 / D2R20

Component: N19A-1 Core Spray Nozz
 ASME Volume OD Radius: 21.0

Description: Nozzle Inner Radius
 Weld Centerline Radius: 10.3
 Nominal Thickness: 6.4

ATTENTION - CHANGE OF PROCEDURE, INDEX INCREMENT AND SCANNER VELOCITY

SP2000 Quad Package - Circumferential N/V IRS-Scan Table - GE-UT-718

Channel	Probe ID	Cable	Skew		Scan Offset	Index		Freq. (MHz)
			Entry	Fixture		Entry	Fixture	
1-60° LKCC NV/Z1	~	1 (P1)	180°	335.1°	0.0	-4.1°	-1.5	1.0
2-60° LKCC NV	~	2 (P2)	180°	331.5°	0.0	-12.3°	-4.5	1.0
3-60° LKCW NV/Z1	~	4 (P3)	180°	24.9°	0.0	4.1°	1.5	1.0
4-60° LKCW NV	~	5 (P4)	180°	28.5°	0.0	12.3°	4.5	1.0

Circumferential N/V IRS-Scans

Index Start: -5°
 Index Stop: 365°
 Max. Index Increment: ≤ 1.3°

Scanner Start: Onset of liftoff
 Scanner Stop: MAX
 Max. Scanner Resolution: ≤ .25 in.
 Max. Scanner Velocity: ≤ 3.9

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Detection

NIR, PDR, DR, Rev3

MANUAL / AUTOMATED DETECTION								
NOZZLE INNER RADIUS AND BORE INSPECTION REQUIREMENTS								
PLANT		Dresden 2						
PREPARED BY		S.C. MORTENSON			DATE 10/28/07			
NOZZLE EXAM ZONE	SCAN SURFACE	SCAN AREA	BEAM ANGLE	OFFSET	ROTATION ANGLE	WEDGE RADIUS	MAX MP	FREQ
RECIRC INLET								
N/V Weld (M)	PLATE	0 - 5.5"	60.0°	-	± 30° - 60°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 9.0"	70.0°	-	± 30°	FLAT	24.6"	1 MHz
Zone 2a (M)	ODBR	55° - 90°	67.5°	-	18.1°	3.3"	12.0"	1 MHz
FEEDWATER								
N/V Weld	PLATE	0 - 8.0"	60.0°	1.5"	48.2° [43.7°]	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 8.0"	60.0°	4.5"	38.9° [23.2°]	FLAT	14.0"	1 MHz
N/V Weld / Zone 1	ODBR	50° - 90°	43.8°	2.5"	40.3° [31.8°]	3.5"	14.5"	1 MHz
Zone 2a	ODBR	50° - 90°	67.5°	2.5"	21.7° [13.2°]	3.5"	12.5"	1 MHz
Zone 2b	NOZOD	ALL	28.0°	2.5"	68.0°	FLAT	8.7"	2 MHz
Zone 3	NOZOD	ALL	20.0°	2.5"	90°	FLAT	7.4"	2 MHz
FEEDWATER								
N/V Weld (M)	PLATE	0 - 6.0"	60.0°	-	35° - 55°	FLAT	14.0"	1 MHz
N/V Weld / Zone 1-2A (M)	ODBR	50° - 90°	43.8°	-	40.3°	3.5"	14.5"	1 MHz
Zone 2A (M)	ODBR	50° - 90°	67.5°	-	21.7°	3.5"	12.5"	1 MHz
Zone 2b (M)	NOZOD	ALL	28.0°	-	68.0°	FLAT	8.7"	2 MHz
Zone 3 (M)	NOZOD	ALL	20.0°	-	90°	FLAT	7.4"	2 MHz
CORE SPRAY								
N/V Weld/Zone 1	PLATE	0 - 8.0"	60.0°	1.5"	31.1° [24.9°]	FLAT	14.0"	1 MHz
N/V Weld	PLATE	0 - 10.0"	60.0°	4.5"	45.9° [28.5°]	FLAT	14.0"	1 MHz
Zone 1	PLATE	0 - 10.0"	65.0°	4.5"	23.0° [5.7°]	FLAT	17.5"	1 MHz
Zone 1	PLATE	0 - 10.0"	70.0°	1.5"	12.3° [8.5°]	FLAT	22.2"	1 MHz
Zone 2A	ODBR	55° - 90°	66.3°	2.5"	16.7° [5.1°]	3.1"	10.8"	1 MHz
CORE SPRAY								
N/V Weld/Zone 1 (M)	PLATE	0 - 7.0"	60.0°	-	± 15° - 55°	FLAT	14.0"	1 MHz
Zone 1 (M)	PLATE	0 - 6.0"	70.0°	-	± 23°	FLAT	19.6"	1 MHz
Zone 2A (M)	ODBR	55° - 90°	66.3°	-	16.7°	3.1"	10.6"	1 MHz

W-025, W-026

W-027, W-028
W-029, W-030

W-027, W-028
W-029, W-030

W-031, W-032

W-031, W-032

NOTES: (M) MANUAL
 (X)X° (DOL) WEDGE / (FIXTURE) ROTATION ANGLE

Questions on this NIR requirements sheet shall be directed to S.C. Mortenson @ 704 577-3770

Chris Minor
 SME Review / Date

Agriel III 11-9-07
 Site Review / Date

SP2000 OD Examination Scan Files Data Sheet

Project : Dresden Unit-2
Component : N19A-2
Procedure No.: GE-UT-716 V1
 GE-UT-718 V0

Revision N/A
Revision N/A

Calibration Report No.: CAL-01
DRR No.: N/A
DRR No.: 07-07

File Name	Date	Drive Start (deg)	Drive Stop (deg)	Drive Direction	Drive Distance (deg)	Start Time	Stop Time
n19a_t1_01	11/4/07	79	245	CCW	194	1244	1314
n19a_t1_02	11/4/07	65	268	CCW	157	1810	1825
n19a_p_01	11/4/07	79	245	CCW	194	1601	1624
n19a_nv/z1_01	11/4/07	79	245	CCW	194	1533	1550

COMMENTS: * Rotation angles per the SP2000 scan plan.

SEARCH UNIT DATA:			Angle/			
No.	Mfg	S/N	Mode	Size	Freq.	Rotation
1	RTD	07-189	0°L	1.0"	2.25	*
2	RTD	07-1645	45°S	32 x 22 mm	1.0	*
3	RTD	07-192	80°L	30 x 25 mm	2.0	*
4	RTD	07-1651	70°L	2(12 x 25)mm	2.0	*
1	RTD	07-782	45°S	32 x 22 mm	1.0	*
2	RTD	07-1649	70°L	2(12 x 25)mm	2.0	*
3	RTD	07-783	45°S	32 x 22 mm	1.0	*
4	RTD	07-1650	70°L	2(12 x 25)mm	2.0	*
1	KBA	01LW0V	80°S	0.5 x 1.0"	1.0	*
2	KBA	01LW0W	80°S	0.5 x 1.0"	1.0	*
3	KBA	01LW0X	80°S	0.5 x 1.0"	1.0	*
4	KBA	01LW0Y	80°S	0.5 x 1.0"	1.0	*

Software Revision: 2.2Q14
Couplant: Water
Thermometer S/N: 255152
Vessel Temp.(°F) 92°

OPERATORS: Jonathan Guillote Lv. II
 Clint Gauthier Lv. II
 Mark Hilbom Lv. III

DRESDEN UNIT 2, B2010

PAGE 15 OF 15

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	HITACHI	Examination Summary Sheet	Report No.: D3R22-017
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Site: Dresden Unit 3	Component ID: 3-SC3B	Configuration: Shell 3 Vert Weld	
Outage: D3R22	ASME Cat: B-A	ASME Item: B1.12	Aug. Requirements: N/A
System: RPV			

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12

Comments:

Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° Shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated scanning was performed on the left and right side of the weld simultaneously.

Automated scanning was restricted due to the proximity of the Shroud Repair Tie Rod and Core Spray Piping Bracket.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.




No flaw indications were recorded.

The Auto coverage was calculated to be 66.0%.

Previous data was reviewed with no changes.

The examination results were compared with data report 000800 from D3R17 outage with	<input checked="" type="checkbox"/> No Change
These examinations were performed under Work Order: 01391209-02	<input type="checkbox"/> Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

 Prepared By:	Level:	Date: 11-25-12	 Utility Review By:	Date: 11-26-12
 ANI Reviewed By:				Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

**SP2000 RPV Examination
Coverage Calculation Sheet**

Report No.: D3R22-017

**Dresden Unit-3, D3R22
Weld 3-SC3B (Shell Course 3)**

Report D3R22-017

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A/B	8.1	8.1	0.1	79.50	2.3%
70° T-Scan CCW (S4 NS)	A/B	8.1	8.1	0.1	79.50	2.3%
45° T-Scan (S6 FV)	A/B	44.6	44.6	0.8	79.50	25.3%
70° P-Scan UP (S4 NS)	A/B	8.1	8.1	0.1	79.50	2.3%
70° P-Scan DN (S4 NS)	A/B	8.1	8.1	0.1	79.50	2.3%
45° P-Scan (S6 FV)	A/B	44.6	44.6	0.8	79.50	25.3%
<hr/>						
70° T-Scan CW (S4 NS)	C	8.1	7.4	0.1	5.25	0.1%
70° T-Scan CCW (S4 NS)	C	8.1	8.1	0.1	5.25	0.2%
45° T-Scan (S6 FV)	C	44.6	44.6	0.8	5.25	1.7%
70° P-Scan UP (S4 NS)	C	8.1	8.1	0.1	5.25	0.2%
70° P-Scan DN (S4 NS)	C	8.1	8.1	0.1	5.25	0.2%
45° P-Scan (S6 FV)	C	44.6	44.6	0.8	5.25	1.7%
<hr/>						
70° T-Scan CW (S4 NS)	D	8.1	5.6	0.1	9.00	0.2%
70° T-Scan CCW (S4 NS)	D	8.1	0.0	0.0	9.00	0.0%
45° T-Scan (S6 FV)	D	44.6	12.0	0.2	9.00	0.8%
70° P-Scan UP (S4 NS)	D	8.1	0.0	0.0	9.00	0.0%
70° P-Scan DN (S4 NS)	D	8.1	3.2	0.0	9.00	0.1%
45° P-Scan (S6 FV)	D	44.6	18.6	0.4	9.00	1.2%

% Total Composite Coverage = 65.0%

Comments: A/B - Automated scanning was not restricted. Scanner head facing up and facing down.
C - Automated scanning was restricted due to the proximity of the core spray piping bracket. Scanner head facing up.
D - Automated scanning was restricted due to the proximity of the shroud repair tie rod. Scanner head facing down.

Rev: G 9/23/05

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

Page 3 of 12

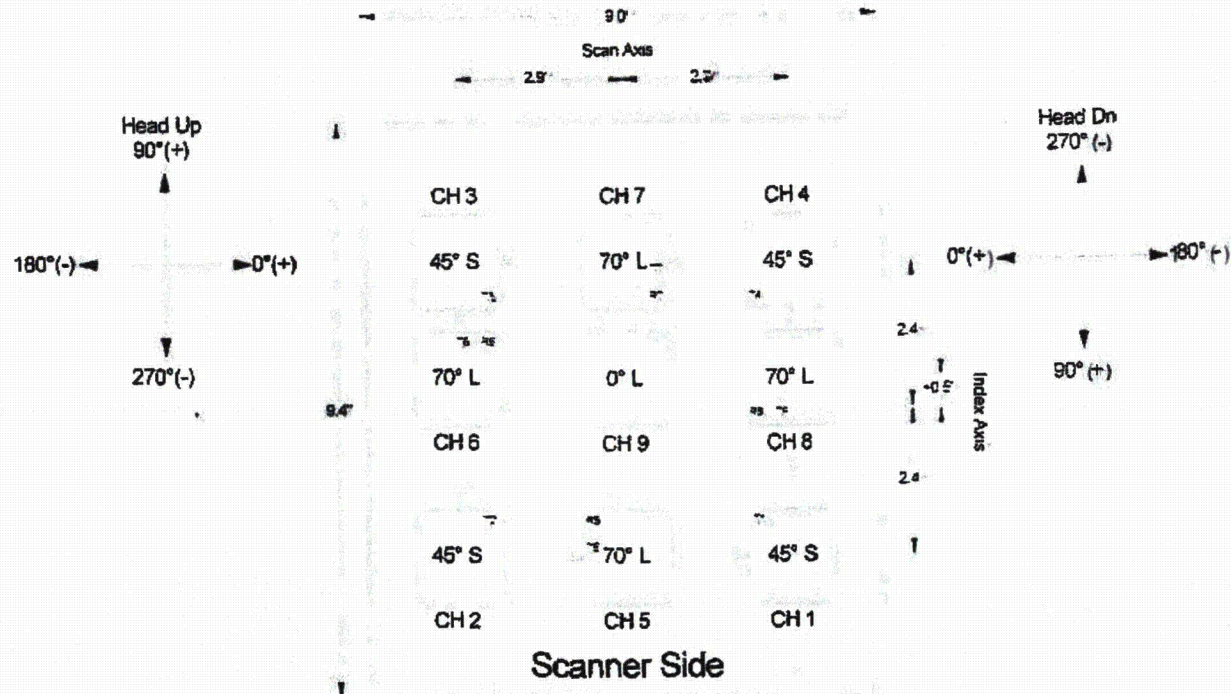


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Dresden Unit 3 Reference Drawings

Report D3R22-017

Viewed from Back Side of Package



T and R are the UT system connectors.
 Scanner Side

Page 5 of 12

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

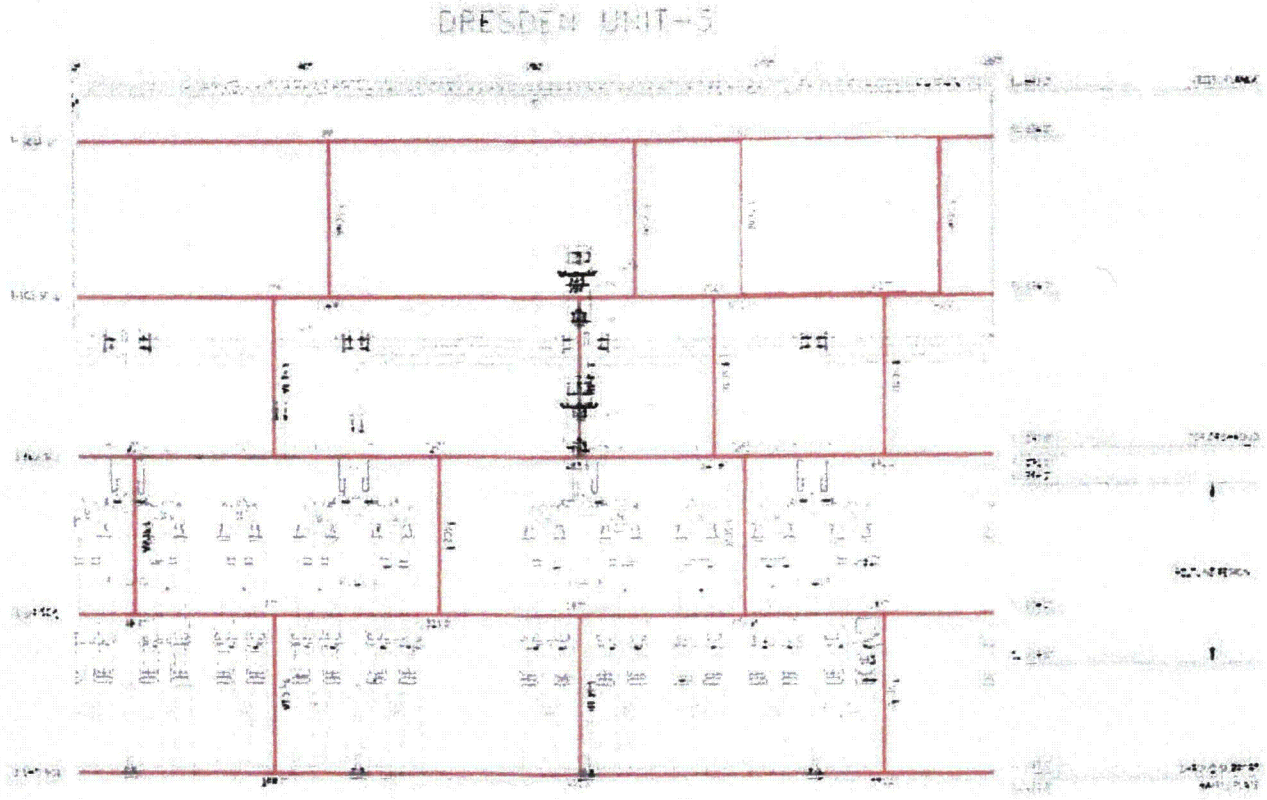


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Dresden Unit 3 Reference Drawings

Report DAR22-017

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY
 DRESDEN UNIT-3
 VESSEL ID ROLLOUT
 SCALE: NONE
 DWG. DRESDEN-01 REV. 3

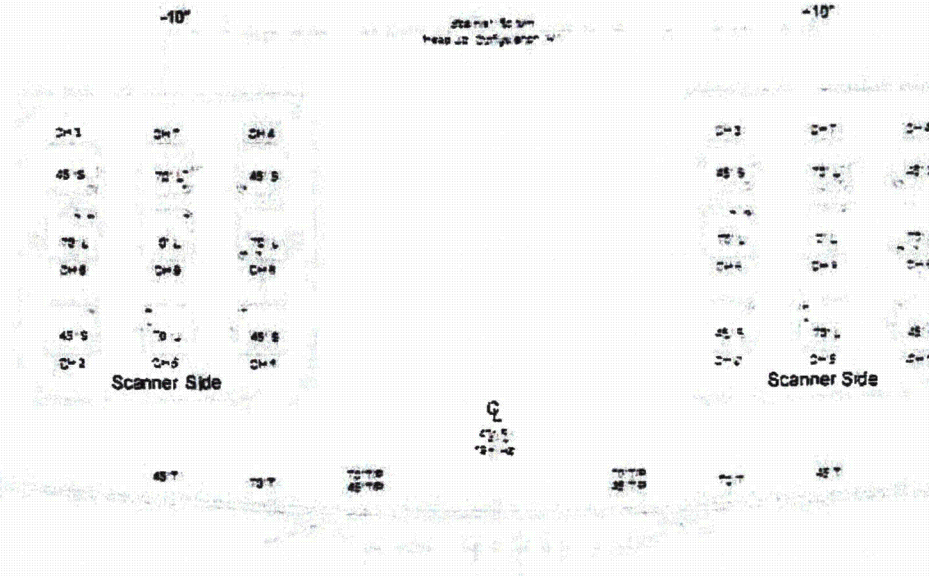
Vessel Location Map



HITACHI

Dresden Unit 3
 Reference Drawings

Report D3R22-017



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.6 Sq. In.

S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.6 Sq. In.
 S6 P-Scan Achieved = 44.6 Sq. In.

Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuths = 2.19 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 0.38 inches

Page 7 of 12

GE-HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC3B EXAM VOLUME

SCALE: NONE

DWG. DR3-20-12-11

REV. 0

Cross Section of Achieved Coverage "A"

ATTACHMENT 2

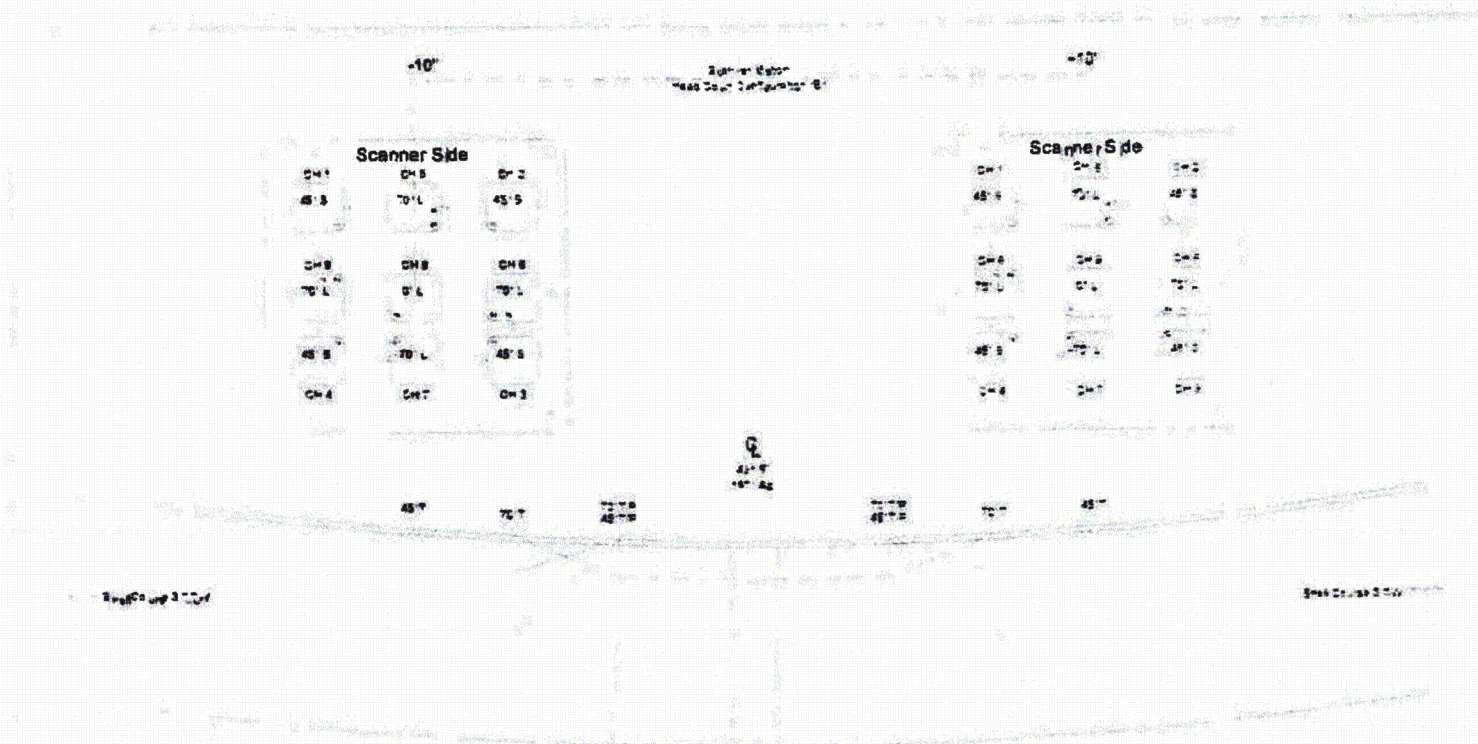
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

Dresden Unit 3
Reference Drawings

Report D3R22-017



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.6 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.6 Sq. In.
 S6 P-Scan Achieved = 44.6 Sq. In.

Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuths = 2.19 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 6.38 inches

Page 8 of 12

GE-HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC3B EXAM VOLUME

SCALE: NONE

DWG. DR3-2012-11

REV. 0

Cross Section of Achieved Coverage "B"

ATTACHMENT 2

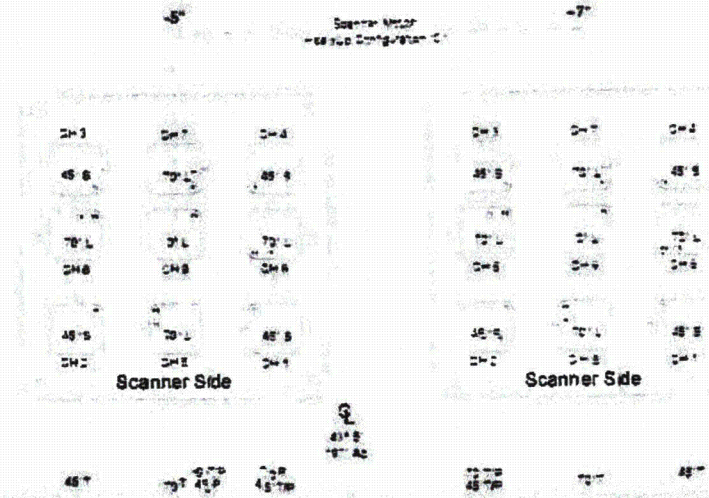
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

Dresden Unit 3
Reference Drawings

Report DARZZ-017



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.6 Sq. In.
 S4 T-Scan Achieved = 7.7 Sq. In.
 S4 P-Scan Achieved = 7.2 Sq. In.
 S6 T-Scan Achieved = 44.6 Sq. In.
 S6 P-Scan Achieved = 44.6 Sq. In.

Vessel Diameter at Flange = 251.376 Inches
 Vessel Azimuths = 2.19 inches/degree
 Nominal Clad T = 0.18 inches
 Nominal Shell T = 6.38 inches

Page 9 of 12

GE-HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC3B EXAM VOLUME

SCALE: NONE

DWG. DR3-20 12-11

REV 0

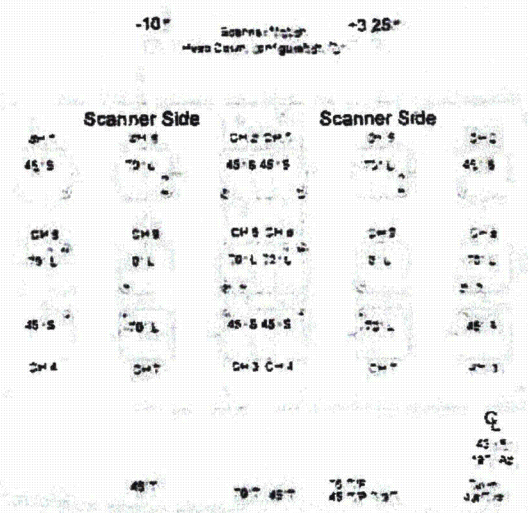
Cross Section of Achieved Coverage "C"



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-017



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 5 Exam Volume = 44.6 Sq. In.
 S4 T-Scan Achieved = 2.8 Sq. In.
 S4 P-Scan Achieved = 1.0 Sq. In.
 S6 T-Scan Achieved = 12.0 Sq. In.
 S6 P-Scan Achieved = 18.6 Sq. In.

Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuths = 2.10 inches/degree
 Nominal Clad T = 0.10 inches
 Nominal Shell T = 0.30 inches

Page 10 of 12

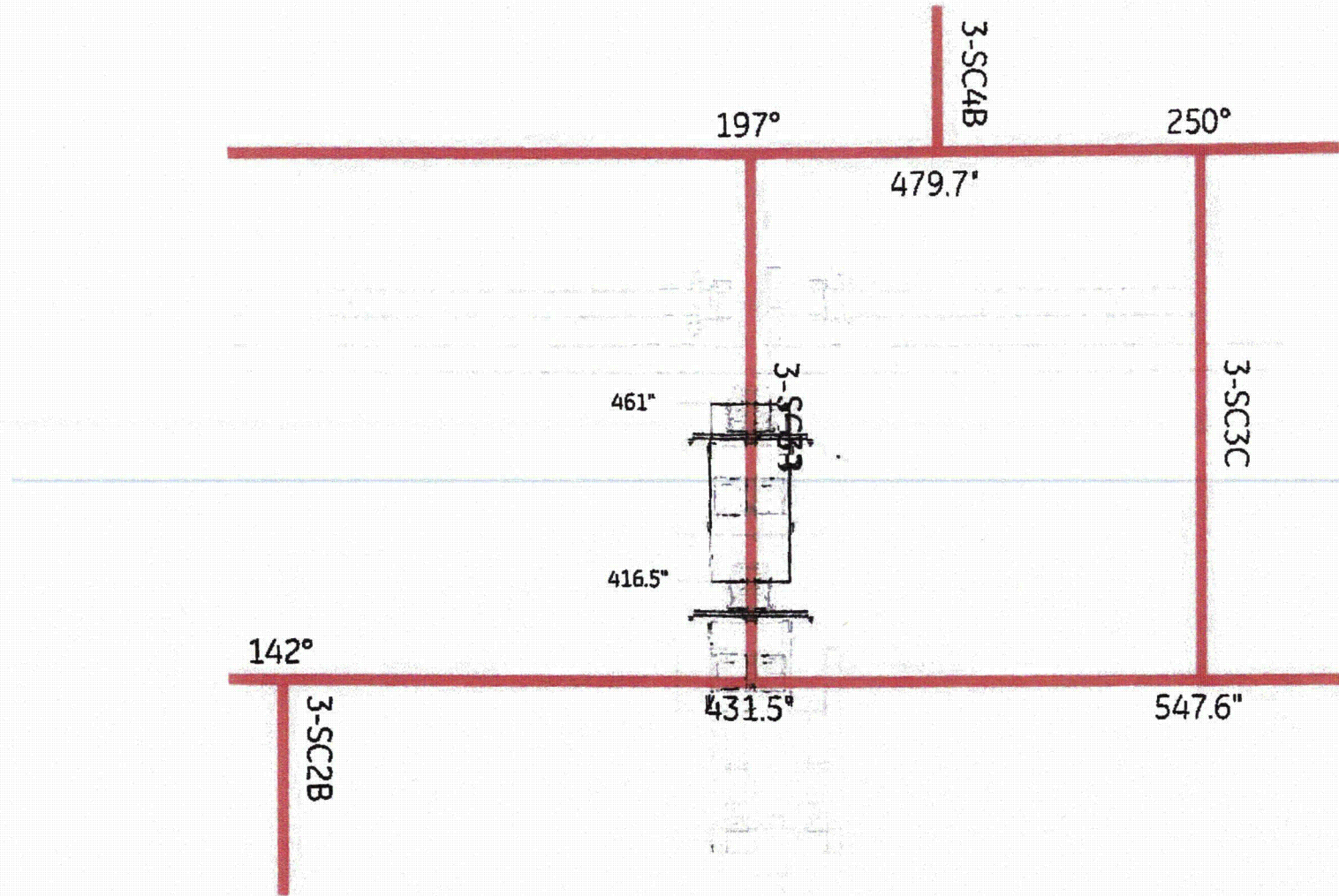
Cross Section of Achieved Coverage "D"



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-017



Page 11 of 12

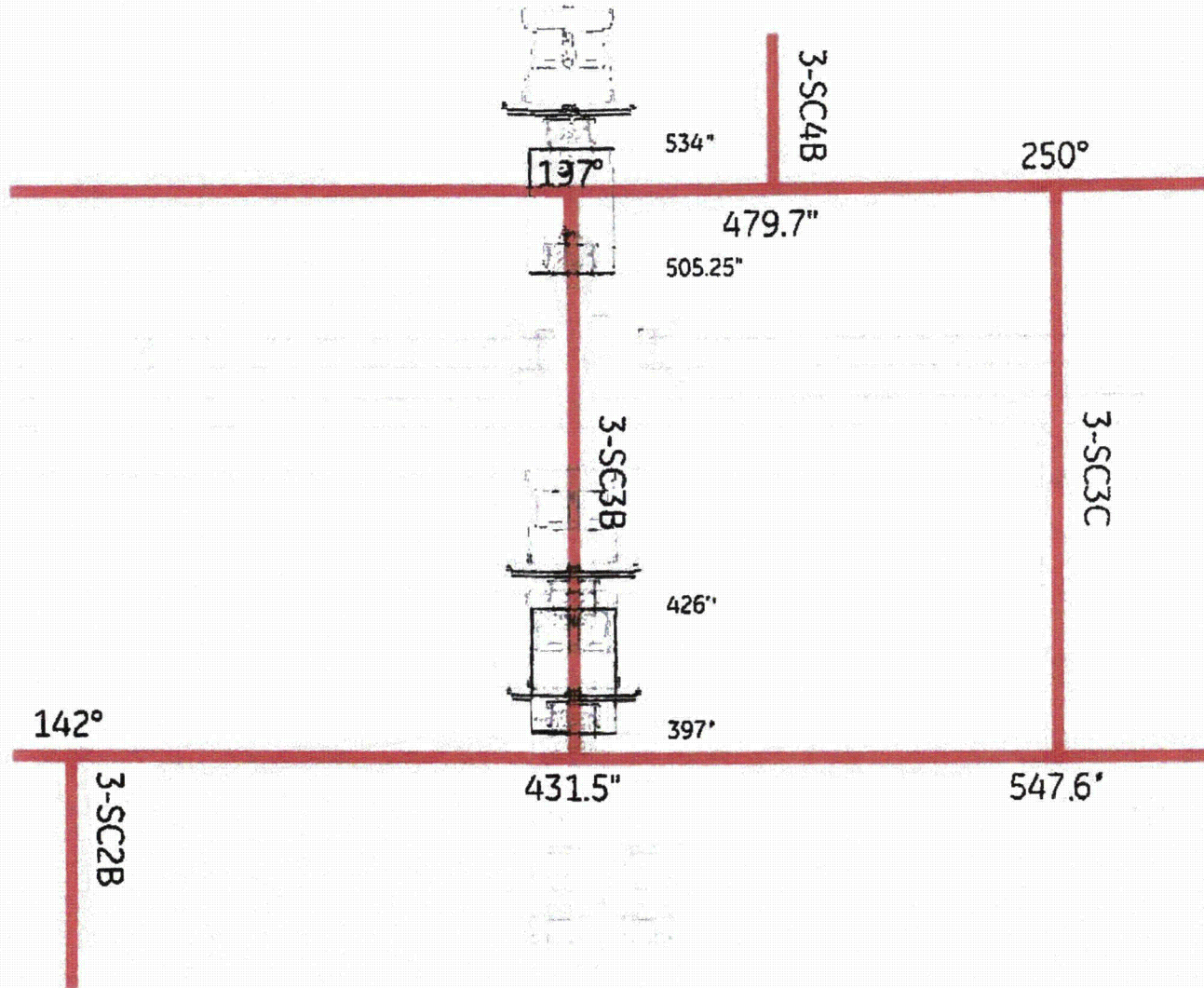
Scanned Patches Facing Up



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-017




Page 12 of 12

Scanned Patches Facing Down

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	<h1 style="margin:0;">HITACHI Examination Summary Sheet</h1>	Report No.: D3R22-018
---	--	-----------------------

Site: Dresden Unit 3	Component ID: 3-5C3C	Configuration: Shell 3 Vert Weld	
Outage: D3R22	ASME Cat: B-A	ASME Item: B1.12	Aug. Requirements: N/A
System: RPV			

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/22/12

Comments:
 Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° Shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated scanning was performed on the left and right side of the weld simultaneously.

Automated scanning was restricted due to the proximity of the Core Spray Piping, Feedwater Sparger and Specimen Bracket.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.



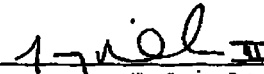
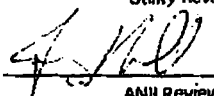
One (1) acceptable flaw indication was recorded.

The Auto coverage was calculated to be 55.7%.

Previous data was reviewed with no changes.

The examination results were compared with data report 000900 from D3R16 outage with No Change
 These examinations were performed under Work Order: 01391209-02 Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

			11-25-12		11-25-12
Prepared By:		Level:	Date:	Utility Review By:	Date:
					11-25-12
				ANI Reviewed By:	Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

**SP2000 RPV Examination
Coverage Calculation Sheet**

Report No.: D3R22-G17

Dresden Unit-3, D3R22
Weld 3-SC3C (Shell Course 3)

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	28.00	8.9%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	28.00	0.8%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	28.00	8.9%
70° T-Scan CW (S4 NS)	B	8.1	4.0	0.0	10.00	0.1%
70° T-Scan CCW (S4 NS)	B	8.1	4.0	0.0	10.00	0.1%
45° T-Scan (S6 FV)	B	44.6	22.6	0.4	10.00	1.6%
70° P-Scan UP (S4 NS)	B	8.1	4.0	0.0	10.00	0.1%
70° P-Scan DN (S4 NS)	B	8.1	4.0	0.0	10.00	0.1%
45° P-Scan (S6 FV)	B	44.6	22.6	0.4	10.00	1.6%
70° T-Scan CW (S4 NS)	C	8.1	8.1	0.1	41.00	1.2%
70° T-Scan CCW (S4 NS)	C	8.1	8.1	0.1	41.00	1.2%
45° T-Scan (S6 FV)	C	44.6	44.6	0.8	41.00	13.0%
70° P-Scan UP (S4 NS)	C	8.1	8.1	0.1	41.00	1.2%
70° P-Scan DN (S4 NS)	C	8.1	8.1	0.1	41.00	1.2%
45° P-Scan (S6 FV)	C	44.6	44.6	0.8	41.00	13.0%

% Total Composite Coverage = 55.7%

Comments: A - Automated scanning was restricted due to the proximity of the core spray piping. Scanner head facing up.
B - Automated scanning was restricted due to the proximity of the specimen bracket. Scanner head facing down.
C - Automated scanning was restricted due to the feedwater sparger. Scanner head facing down.

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

D3R22-018

Page 3 of 13

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

**Reactor Pressure Vessel
Flaw Evaluation Sheet**

Project : Dresden Unit-3, D3R22
Weld ID : 3-SC3C

Indication : 1
Report : D3R22-018

	<u>Measured</u>	<u>Rounded</u>		<u>Measured</u>	<u>Rounded</u>
Flaw Through Wall =	0.075	0.1	"T" nominal =	6.38	6.4
Flaw Length "T" =	1.30	1.3	"T" measured =	N/A	N/A
Surface Separation "S" =	1.70	1.7			

ASME Section XI, 1995 Edition, with the 1996 Addenda
TABLE IWB-3510-1 for 4" to 12"

a/t	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.9	2.0	1.98	2.15 Y
0.05	2.0	2.2	-	-
0.10	2.2	2.5	-	-
0.15	2.5	2.9	-	-
0.20	2.8	3.3	-	-
0.25	3.3	3.8	-	-
0.30	3.8	4.4	-	-
0.35	4.4	5.1	-	-
0.40	5.0	5.8	-	-
0.45	5.1	6.7	-	-
0.50	5.2	7.6	-	-
			Allowed	Allowed
			1.98	2.15

a = 0.050
a/t value = 0.038
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.2%
a/t = 0.8%

Flaw is acceptable by Table IWB-3510-1.

Revised: 1/21/85

Comments: ASME Section XI rounding performed in accordance with IWA-3200 and ASTM E29.

This indication had no determinable through wall dimension. The 0.075" dimension is an assigned value for evaluation purposes only.

Evaluation by: Mark Hilborn Level III

Reviewed by: Brad Dummer Level III

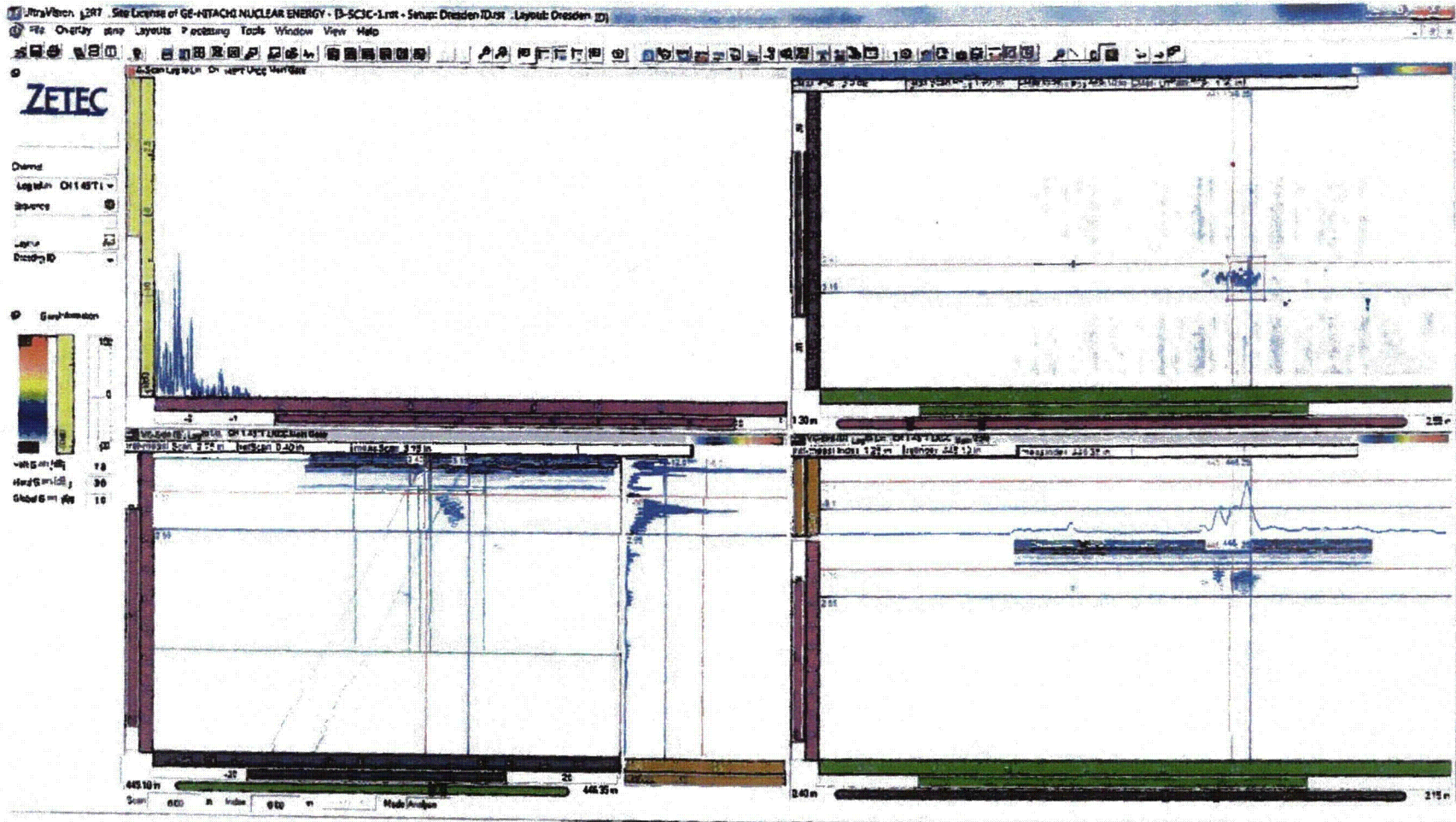
Utility Reviewed by: *[Signature]* III 11-25-12



HITACHI

Dresden Unit 3 Indication Screen Prints

D3R22-018



Indication #1

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

D3R22-018



HITACHI

**SP2000 RPV Examination
Scan Files Data Sheet**

Project: Dresden Unit-3 D3R22
Component: 3-SC3C
Report No.: D3R22-018

Procedure No.: GEH-UT-717
Revision: 3
DRR No.: 11-20 R1

Scan File	Date	Drive Start	Drive Stop	Drive Direction	Drive Distance	Start Time	Stop Time
3-SC3C-1	11/18/12	461	433	Head Up	-28	0151	0214
3-SC3C-2	11/18/12	461	433	Head Up	-28	0251	0320
3-SC3C-3	11/18/12	410	438	Head Down	28	0400	0420
3-SC3C-4	-	-	-	-	-	-	-
3-SC3C-5	-	-	-	-	-	-	-
3-SC3C-6	11/22/12	496	505	Head Down	9	1454	1534
3-SC3C-7	11/22/12	534	505	Head Down	-29	1608	1634
3-SC3C-8	11/22/12	534	497	Head Down	-37	1656	1725

Comments: Rotation angles specified are for the head down configuration.

Scan files 3-SC3C-4 and 3-SC3C-5 are void.

The symbol - indicates "No entry required" or "Not Applicable".

Thermometer S/N: Control Room
Vessel Temp. (°F): 100°F

Software Rev.: V1.2R7
Couplant: Water

Operators: Clint Gauthier Level II
Jonathan Guillote Level II

SEARCH UNIT DATA:			Angle			
No.	Mfg.	S/N	Mode	Size	Freq.	Rotation
1	GEIT	025WYD	45°S	23 x 25 mm	2.25	0°
2	GEIT	025WYC	45°S	23 x 25 mm	2.25	270°
3	GEIT	01V5NH	45°S	23 x 25 mm	2.25	180°
4	GEIT	01V5NF	45°S	23 x 25 mm	2.25	90°
5	GEIT	024MF3	70°RL	2(12 x 25) mm	2.25	0°
6	GEIT	01RKRT	70°RL	2(12 x 25) mm	2.25	270°
7	GEIT	016HFB	70°RL	2(12 x 25) mm	2.25	180°
8	GEIT	024MF4	70°RL	2(12 x 25) mm	2.25	90°

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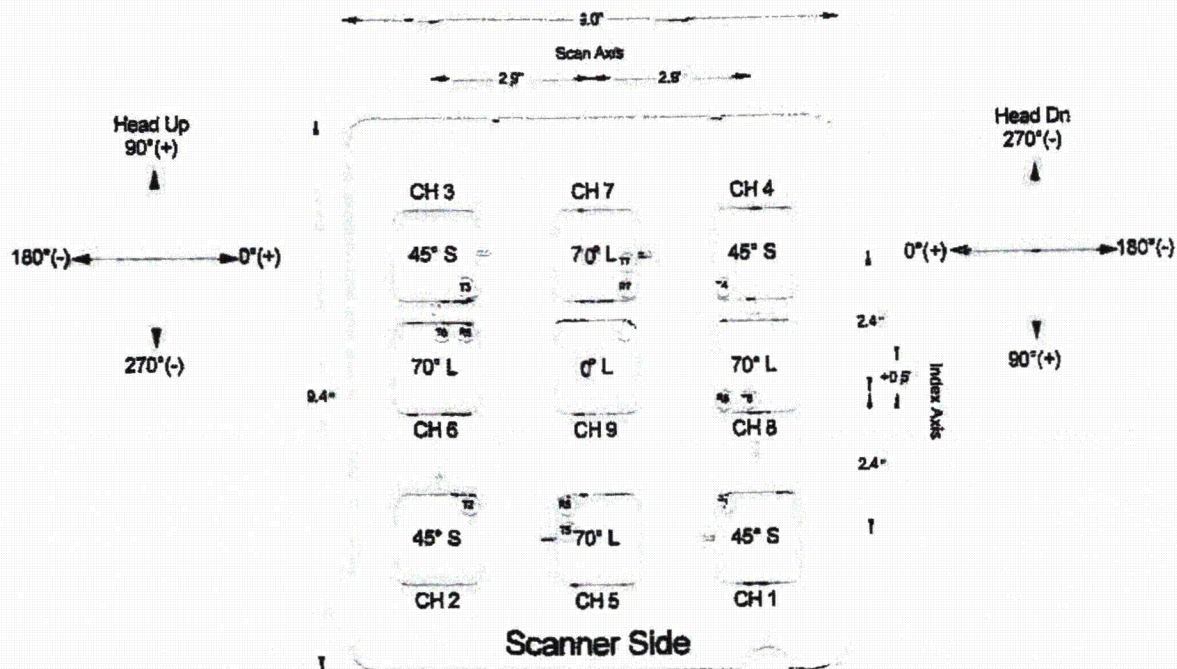


HITACHI

Dresden Unit 3 Reference Drawings

D3R22-016

Viewed from Back Side of Package



T and R are the UT system connectors.
 Scanner Side

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE: NONE DWG.DN3-2012-02 REV. 0

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

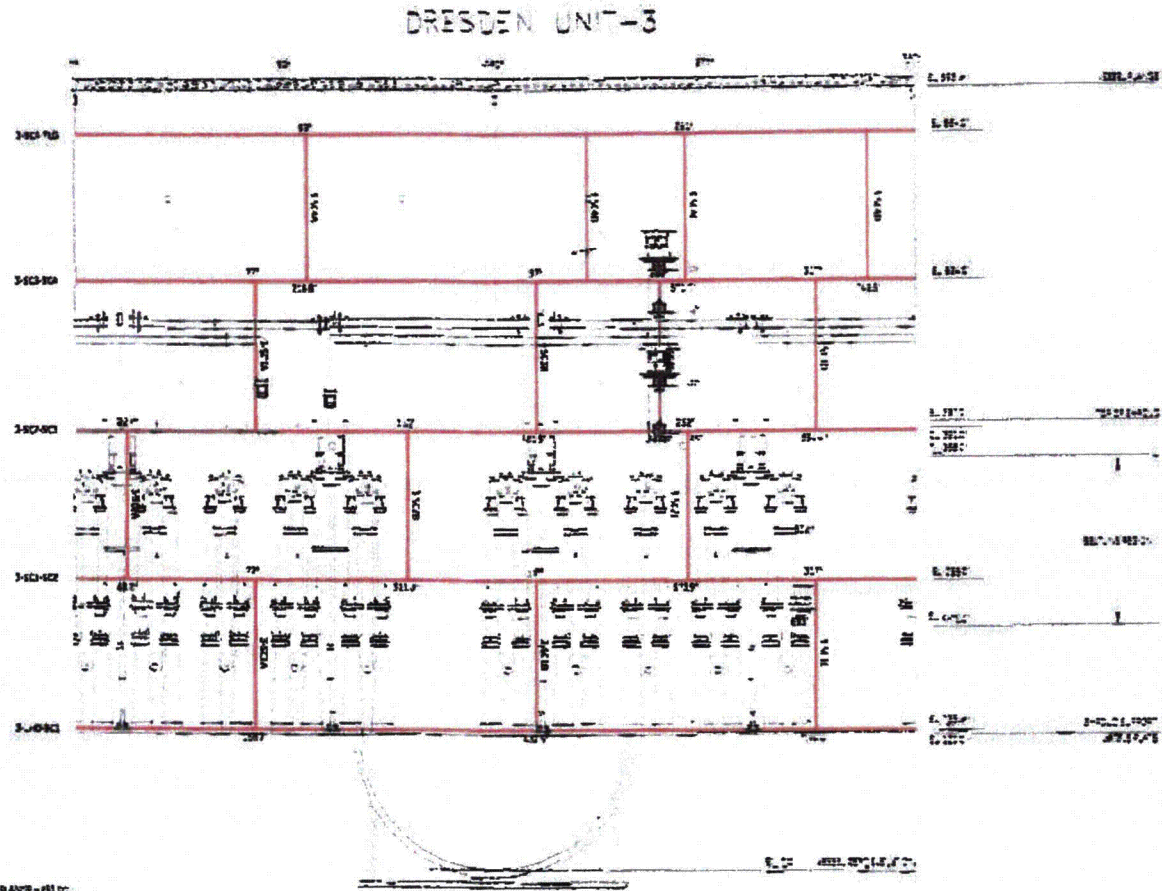
Page 8 of 13



HITACHI

Dresden Unit 3 Reference Drawings

D3R22-018



1:5000 SCALE
DATE: 11/11/03

GE NUCLEAR ENERGY DRESDEN UNIT-3 VESSEL ID ROLLOUT SCALE: NONE DWG. 20-3-2012-01 REV. 0

Vessel Location Map

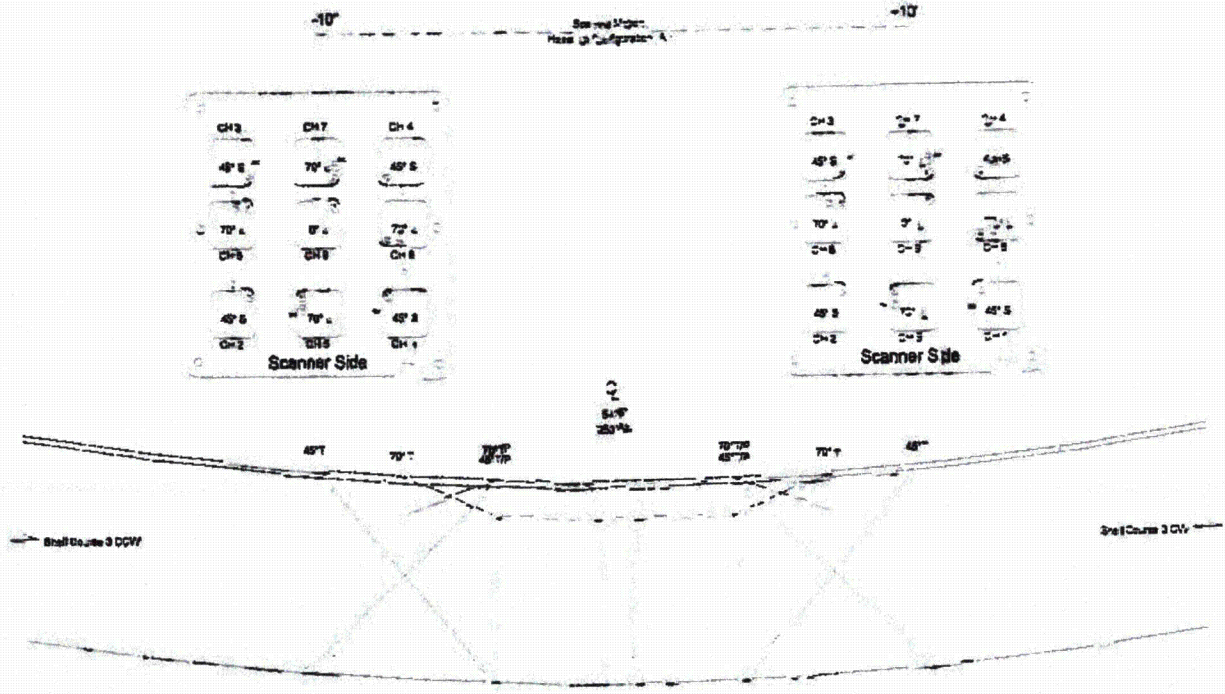
Page 9 of 13



HITACHI

Dresden Unit 3
Reference Drawings

DRR22-018



Supplement 4 Exam Volume = 8.1 Sq. In.
Supplement 6 Exam Volume = 44.8 Sq. In.

S4 T-Scan Achieved = 8.1 Sq. In.
S4 P-Scan Achieved = 8.1 Sq. In.
S6 T-Scan Achieved = 44.8 Sq. In.
S6 P-Scan Achieved = 44.8 Sq. In.

Vessel Diameter at Flange = 251.375 inches
Vessel Azimuths = 2.19 inches/degree
Nominal Cled T = 0.19 inches
Nominal Shell T = 6.38 inches

GE- HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC3C EXAM VOLUME

SCALE: NONE

DWG. DR3-2012-12

REV. 0

Cross Section of Achieved Coverage "A"

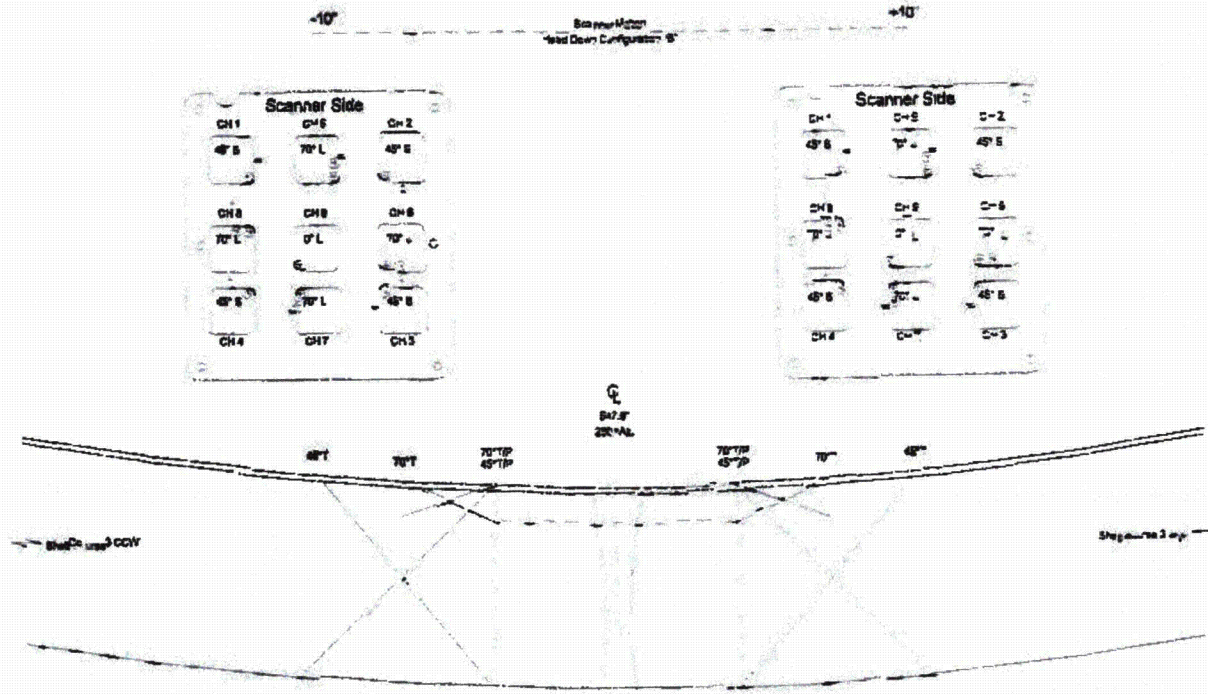
Page 10 of 13



HITACHI

Dresden Unit 3 Reference Drawings

D3R22-018



Supplement 4 Exam Volume = 8.1 Sq. in.
 Supplement 8 Exam Volume = 44.8 Sq. in.
 S4 T-Scan Achieved = 8.1 Sq. in.
 S4 P-Scan Achieved = 8.1 Sq. in.
 S6 T-Scan Achieved = 44.8 Sq. in.
 S6 P-Scan Achieved = 44.8 Sq. in.

 Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuth = 2.18 inches/degree
 Nominal Clad T = 0.18 inches
 Nominal Shell T = 6.38 inches

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 WELD 3-SC3C EXAM VOLUME SCALE: NONE DWG. DR3-2012-12 REV. 0

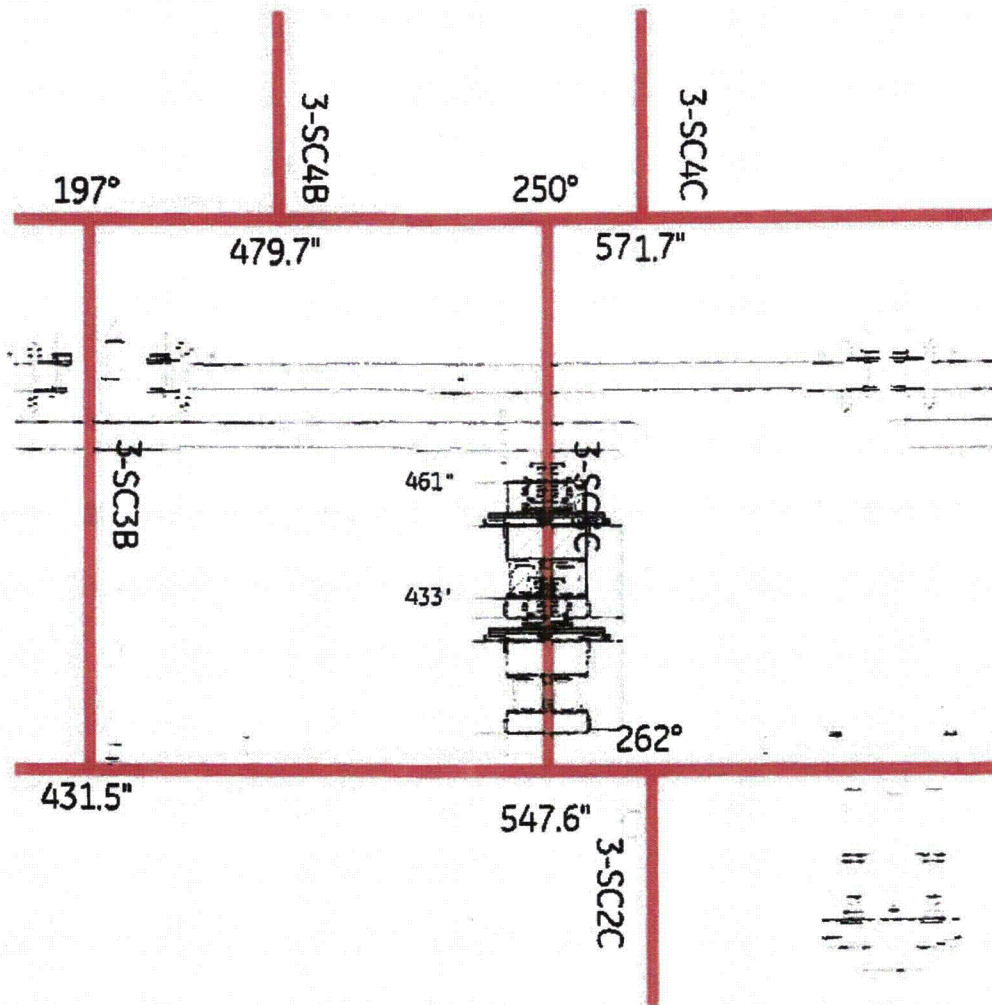
Cross Section of Achieved Coverage "B"

Page 11 of 13



HITACHI

Dresden Unit 3 Reference Drawings



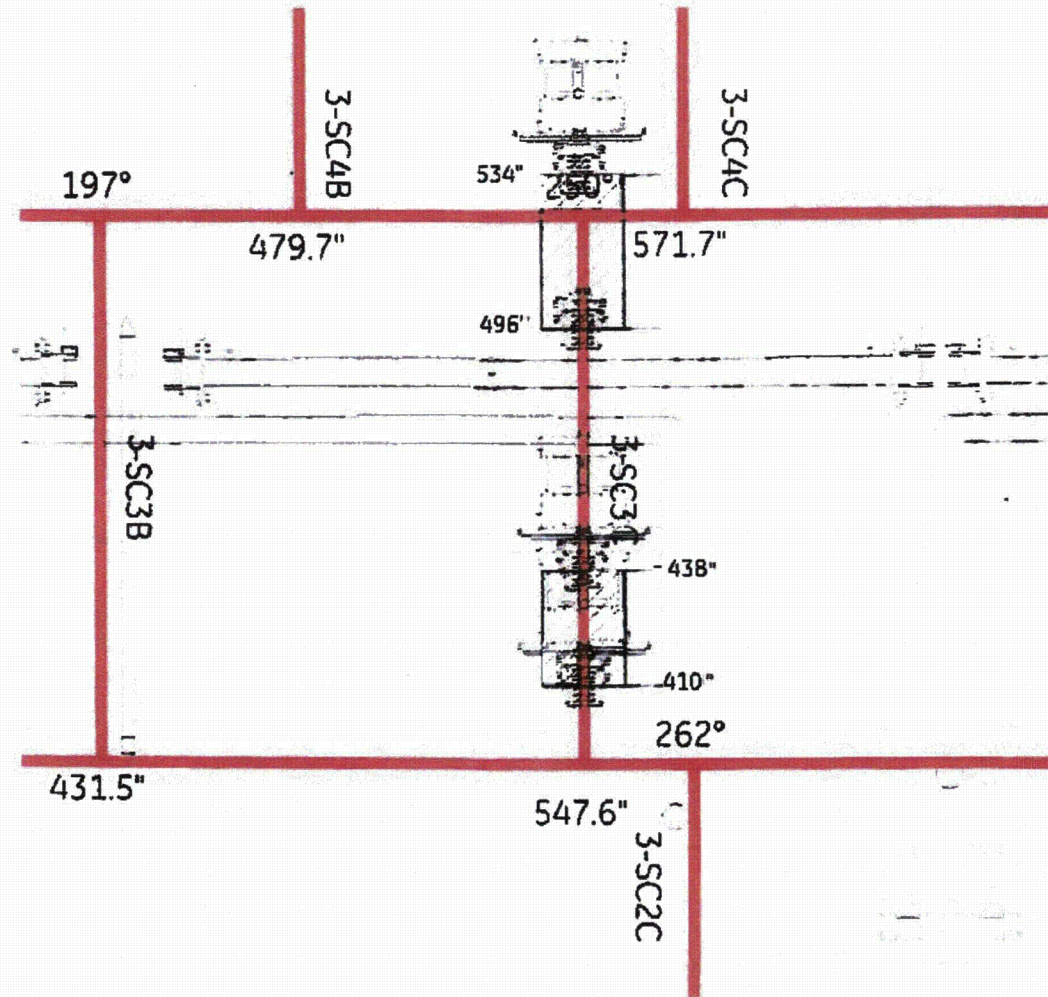
Scanned Patches Facing Up



HITACHI

Dresden Unit 3 Reference Drawings

D3R22-016




Scanned Patches Facing Down

Page 13 of 13

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	HITACHI	Examination Summary Sheet	Report No: D3R22-019
---	---------	---------------------------	----------------------

Site: Dresden Unit 3	Component ID: 3-SC 3D	Configuration: Shell 3 Vert Weld	
Outage: D3R22	ASME Cat: B-A	ASME Item: B1.12	Aug. Requirements: N/A
System: RPV			

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/17/12

Comments:
 Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated Transverse and parallel scans were performed in accordance with procedure GE-UT-717V3, DRR-11-20 R1, using 45° Shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated scanning was performed on the left and right side of the weld simultaneously.

Automated scanning was restricted due to the proximity of the core spray piping and the feedwater sparger.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.



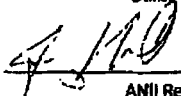
No flaw indications were recorded.

The Auto coverage was calculated to be 71.8%.

Previous data was reviewed with no changes.

The examination results were compared with data report 001000 from D3R16 outage with No Change
 These examinations were performed under Work Order: 01391209-02 Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

 Prepared By:	III Level:	11-21-12 Date:	 Utility Review By:	11-21-12 Date:
 ANII Reviewed By:				11-21-12 Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

SP2000 RPV Examination
Coverage Calculation Sheet

Report No.: D3R22-019

Dresden, D3R22 (4th Interval 3rd Period)
Weld 3-SC3D (Shell Course 3)

Weld Length = Exam Volume =	133.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	47.00	1.4%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	47.00	1.4%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	47.00	15.0%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	47.00	1.4%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	47.00	1.4%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	47.00	15.0%
70° T-Scan CW (S4 NS)	B	8.1	8.1	0.1	23.00	0.7%
70° T-Scan CCW (S4 NS)	B	8.1	8.1	0.1	23.00	0.7%
45° T-Scan (S6 FV)	B	44.6	44.6	0.8	23.00	7.3%
70° P-Scan UP (S4 NS)	B	8.1	8.1	0.1	23.00	0.7%
70° P-Scan DN (S4 NS)	B	8.1	8.1	0.1	23.00	0.7%
45° P-Scan (S6 FV)	B	44.6	44.6	0.8	23.00	7.3%
70° T-Scan CW (S4 NS)	C	8.1	8.1	0.1	25.50	0.7%
70° T-Scan CCW (S4 NS)	C	8.1	8.1	0.1	25.50	0.7%
45° T-Scan (S6 FV)	C	44.6	44.6	0.8	25.50	8.1%
70° P-Scan UP (S4 NS)	C	8.1	8.1	0.1	25.50	0.7%
70° P-Scan DN (S4 NS)	C	8.1	8.1	0.1	25.50	0.7%
45° P-Scan (S6 FV)	C	44.6	44.6	0.8	25.50	8.1%

% Total Composite Coverage = 71.8%

22.0 3/13/05

Comments: A - Automated scanning was restricted due to the proximity of the core spray piping. Scanner head facing up.
 B - Automated scanning was not restricted. Scanner head facing down.
 C - Automated scanning was restricted due to the proximity of the feedwater sparger. Scanner head facing down.

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

Report D3R22-019

Page 3 of 11

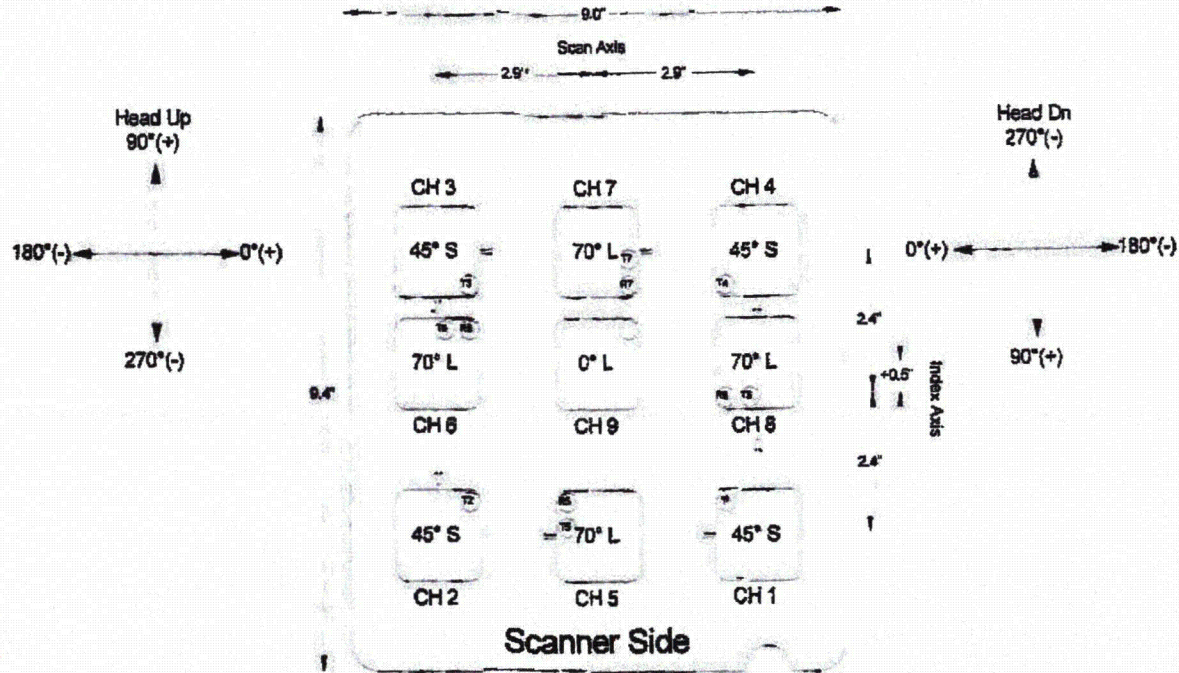


HITACHI

Dresden Unit 3 Reference Drawings

Report DSR22-019

Viewed from Back Side of Package



T and R are the UT system connectors.
 Scanner Side

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE: NONE DWG.DN3-2012-02 REV. 0

ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

Page 5 of 11



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-019

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



REV. 04/15/2012 - 01
INTERVAL - 4 (NDE)

GE NUCLEAR ENERGY

DRESDEN UNIT-3

VESSEL ID FOLLOWUP

SCALE: NONE DWG. D3R22-019 REV. 0

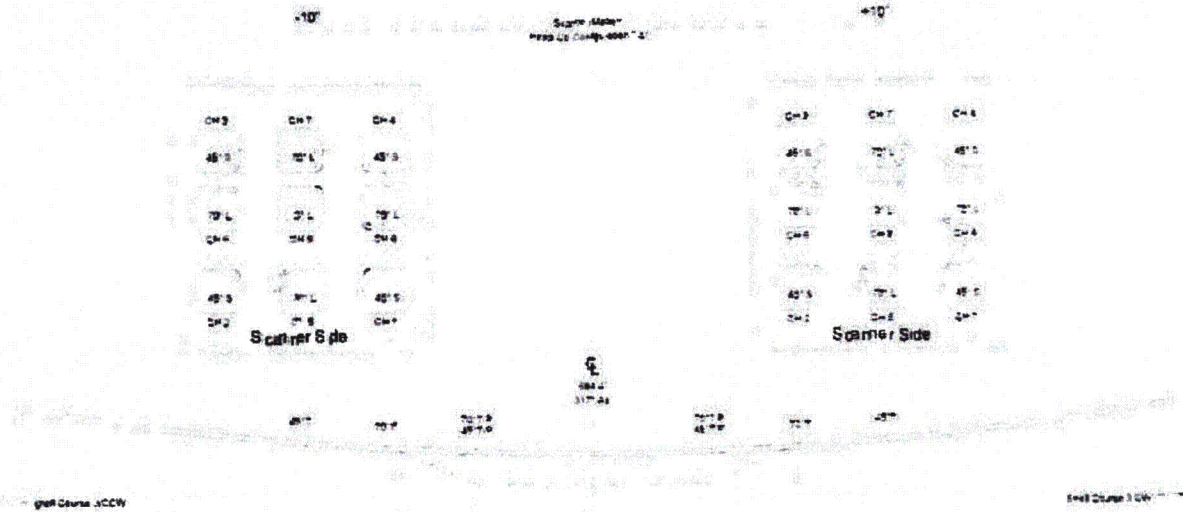
Vessel Location Map



HITACHI

Dresden Unit 3
 Reference Drawings

Report DSR22-019



Supplement 4 Exam Volume = 8.1 Sq. in.
 Supplement 6 Exam Volume = 44.6 Sq. in.
 S4 T-Scan Achieved = 8.1 Sq. in.
 S4 P-Scan Achieved = 8.1 Sq. in.
 S6 T-Scan Achieved = 44.6 Sq. in.
 S6 P-Scan Achieved = 44.6 Sq. in.
 Vessel Diameter at Flange = 251.375 inches
 Vessel Azimuth = 2.19 degrees/degree
 Nominal Clad T = 0.18 inches
 Nominal Shell T = 6.38 inches

GE- HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 WELD 3-SC3D EXAM VOLUME SCALE: NONE DWG. DR3-2012-12 REV. 0

Cross Section of Achieved Coverage "A"

Page 7 of 11

ATTACHMENT 2

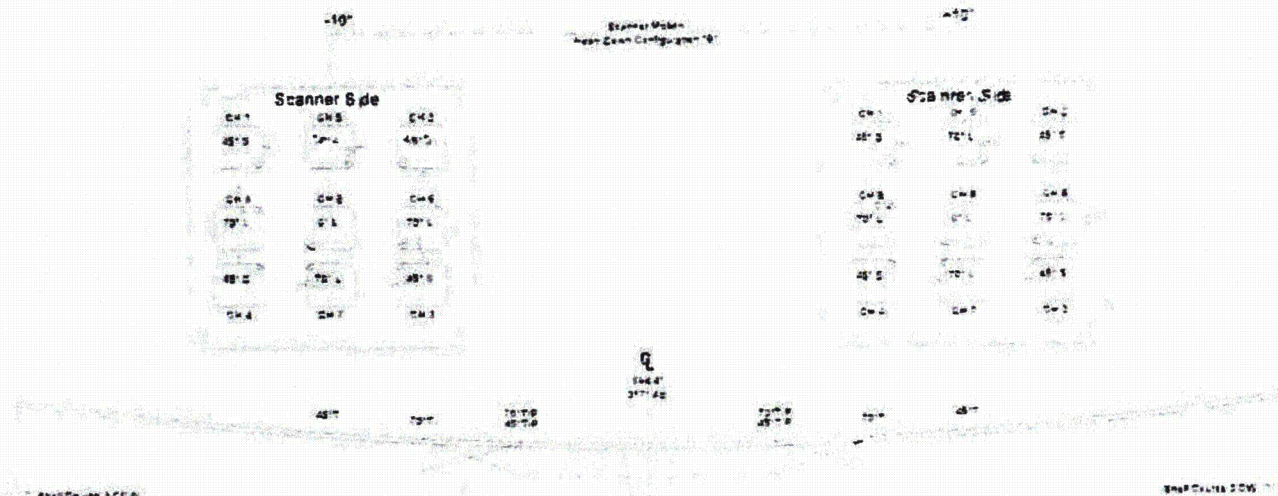
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



HITACHI

Dresden Unit 3
Reference Drawings

Report D3R22-019



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.8 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S6 T-Scan Achieved = 44.8 Sq. In.
 S6 P-Scan Achieved = 44.8 Sq. In.

Vessel Diameter at Flange = 251.375 inches
 Vessel AZimuths = 2.19 inches/degree
 Nominal Clad T = 0.19 inches
 Nominal Shell T = 0.38 inches

GE-HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 WELD 3-SC3D EXAM VOLUME SCALE NONE DWG. DR3-20-12-12 REV. 0

Cross Section of Achieved Coverage "B"

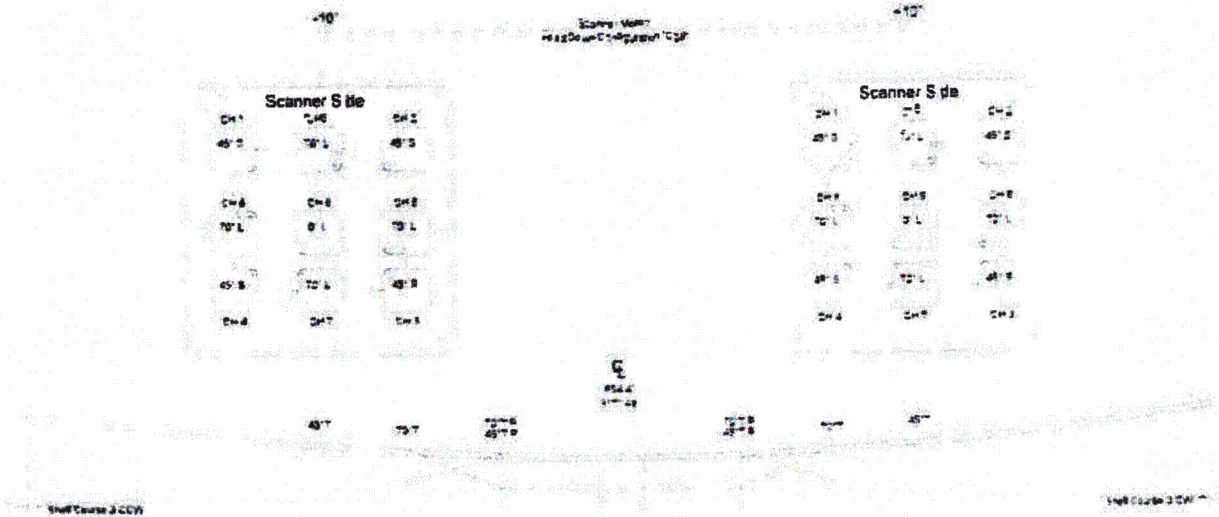
Page 8 of 11



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-019



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 6 Exam Volume = 44.8 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S8 T-Scan Achieved = 44.8 Sq. In.
 S8 P-Scan Achieved = 44.8 Sq. In.

Vessel Diameter at flange = 251.375 inches
 Vessel Azimuth = 2.19 inches degree
 Nominal Clad T = 0.10 inches
 Nominal Shell T = 0.36 inches

GE HITACHI NUCLEAR ENERGY

DRESDEN UNIT-3

WELD 3-SC3D EXAM VOLUME

SCALE: NONE

DWG. DR3-2012-12

REV. 0

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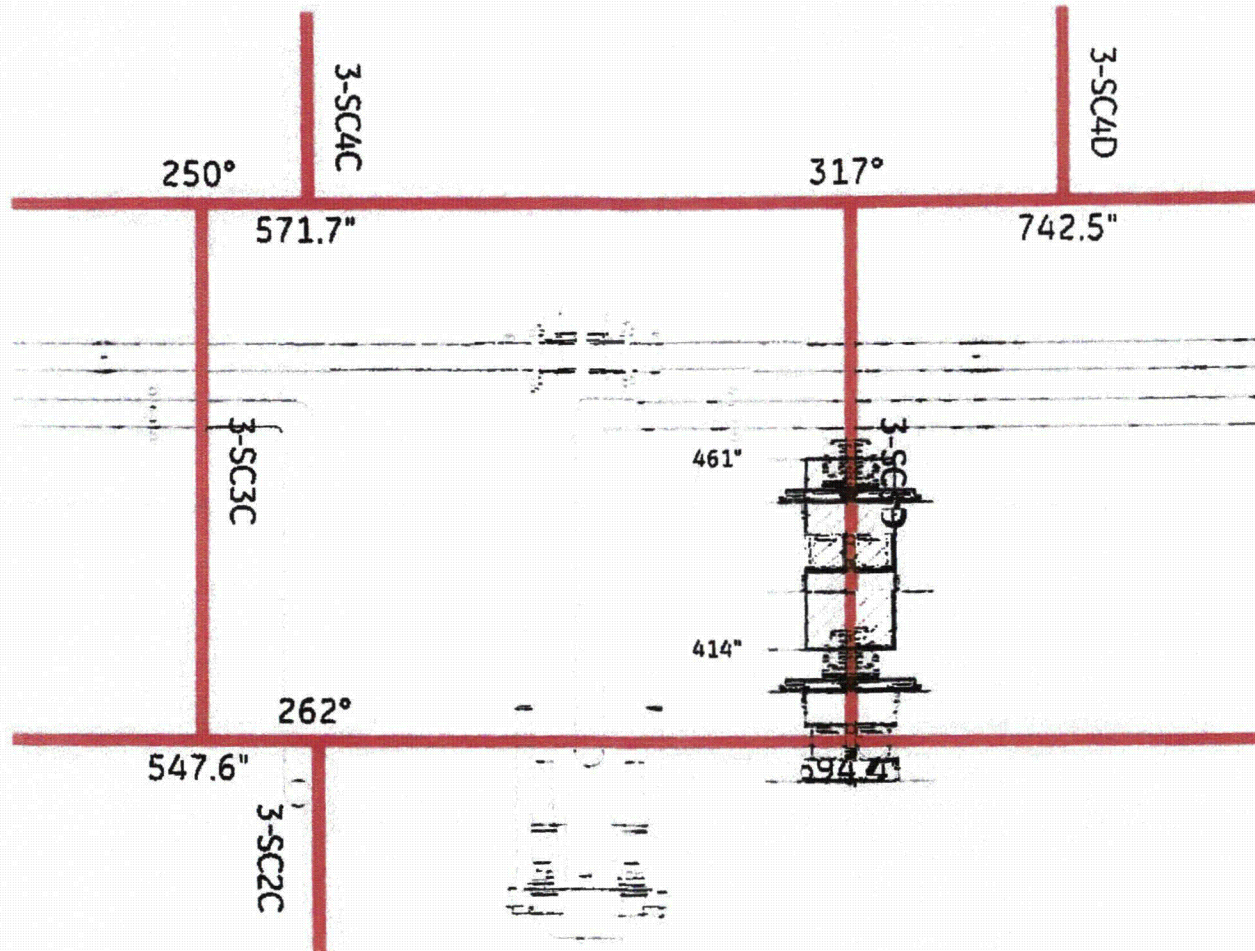
Cross Section of Achieved Coverage "C"



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-019



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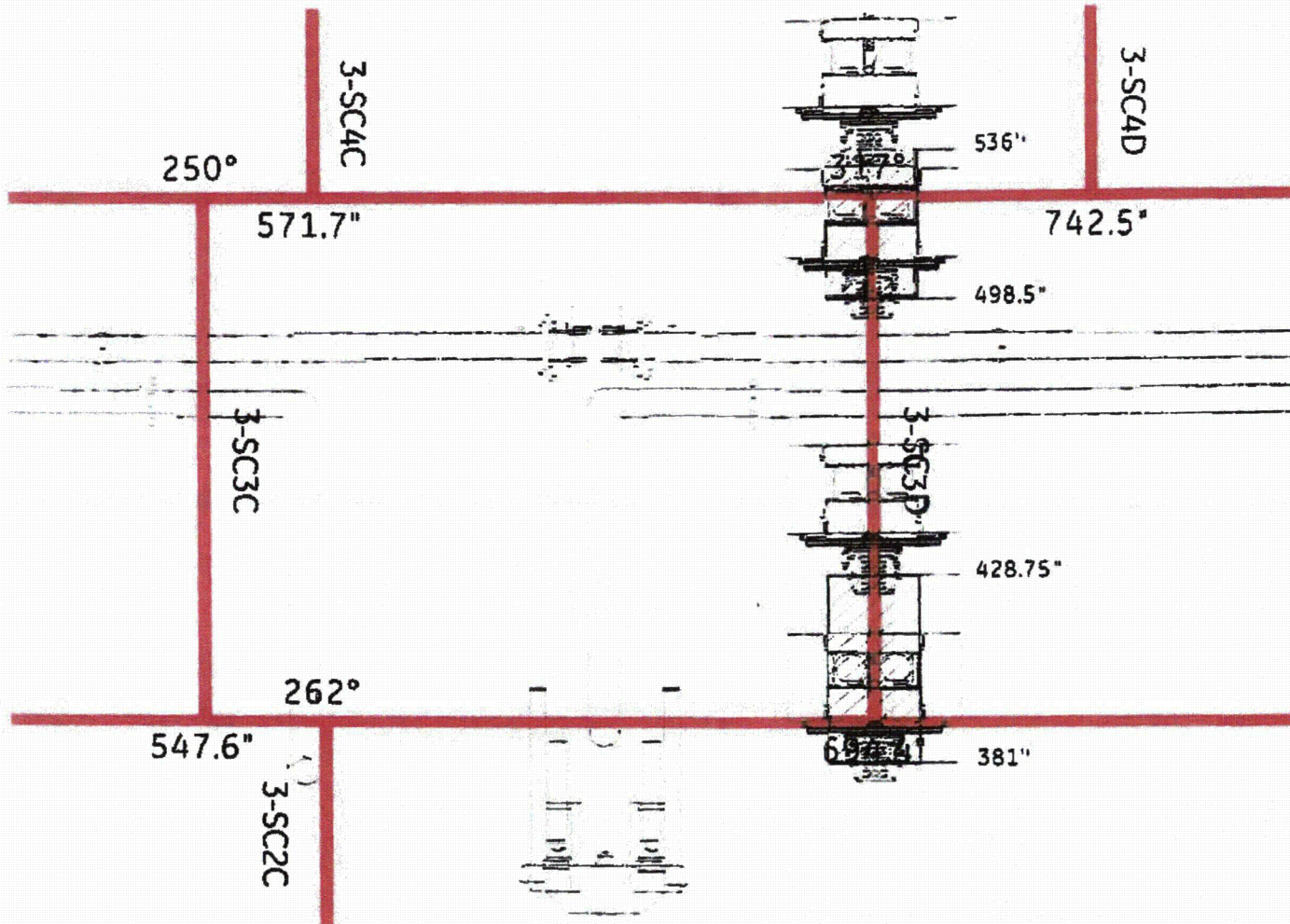
Scanned Patches Facing Up



HITACHI

Dresden Unit 3 Reference Drawings

Report D3R22-019




Scanned Patches Facing Down

Page 11 of 11

ATTACHMENT 2

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

	HITACHI	Examination Summary Sheet	Report No.: D3R22-021
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Site: Dresden Unit-3	Component ID: 3-5C4B	Configuration: Shell 4 Vert Weld	
Outage: D3R22	ASME Cat: B-A	ASME Item: B.1.12	Aug. Requirements: N/A
System: RPV			

Exams Performed:	Calibration Sheet(s):	Calibration Block:	Procedure:	Examination Personnel:	NDE Level:	Date:
45°S	RPV-ID-01	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12
45°S	RPV-ID-02	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12
45°S	RPV-ID-03	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12
45°S	RPV-ID-04	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12
70°RL	RPV-ID-05	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12
70°RL	RPV-ID-06	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12
70°RL	RPV-ID-07	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12
70°RL	RPV-ID-08	CAL-IIW2-013	GEH-UT-717 V3	C. Gauthier / J. Guillote	II / II	11/16/12

Comments:
 Ultrasonic examination results were acceptable to the requirements of ASME B&PV Code Section XI, 1995 Edition with the 1996 Addenda.

Automated transverse and parallel scans were performed in accordance with procedure GE-UT-717 V3, DRR-11-20 R1, using 45° Shear wave, and 70° RL search units. Automated UT scanning was performed from the vessel ID surface.

Automated Scanning was performed on the left and right sides of the weld simultaneously.

Automated scanning was restricted by the proximity of the dryer bracket and the mismatch between the RPV and flange for this examination.

For Auto RPV ID Calibrations refer to calibration report D3R22-029.

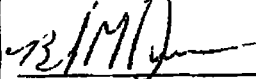

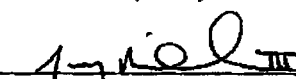

One acceptable flaw indication was recorded.

Coverage was calculated to be 80.2%.

Previous examination data was reviewed with no significant changes.

The examination results were compared with data report 001200 from D3R17 outage with No Change
 These examinations were performed under Work Order: 01391209-02 Change

This summary and the following data sheets have been reviewed and accepted by the following personnel:

		11-19-12		11-20-12
Prepared By:	Level:	Date:	Utility Review By:	Date:
				2/2/12
				Date:

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

Report D3R22-021



HITACHI

SP2000 RPV Examination Coverage Calculation Sheet

Report No.: D3R22-021

**Dresden Unit-3, D3R22
Weld 3-SC4B (Shell Course 4)**

Weld Length = Exam Volume =	130.00 52.70	CODE CROSS-SECTIONAL AREA		TOTAL CODE COVERAGE		
		Required Exam Area Sq. in.	Area Scanned Automated	Percent of Area Automated	Weld Length Automated	Percent Automated
70° T-Scan CW (S4 NS)	A	8.1	8.1	0.1	41.25	1.2%
70° T-Scan CCW (S4 NS)	A	8.1	8.1	0.1	41.25	1.2%
45° T-Scan (S6 FV)	A	44.6	44.6	0.8	41.25	13.4%
70° P-Scan UP (S4 NS)	A	8.1	8.1	0.1	41.25	1.2%
70° P-Scan DN (S4 NS)	A	8.1	8.1	0.1	41.25	1.2%
45° P-Scan (S6 FV)	A	44.6	44.6	0.8	41.25	13.4%
70° T-Scan CW (S4 NS)	B	8.1	8.1	0.1	63.00	1.9%
70° T-Scan CCW (S4 NS)	B	8.1	8.1	0.1	63.00	1.9%
45° T-Scan (S6 FV)	B	44.6	44.6	0.8	63.00	20.5%
70° P-Scan UP (S4 NS)	B	8.1	8.1	0.1	63.00	1.9%
70° P-Scan DN (S4 NS)	B	8.1	8.1	0.1	63.00	1.9%
45° P-Scan (S6 FV)	B	44.6	44.6	0.8	63.00	20.5%
70° T-Scan CW (S4 NS)						
70° T-Scan CCW (S4 NS)						
45° T-Scan (S6 FV)						
70° P-Scan UP (S4 NS)						
70° P-Scan DN (S4 NS)						
45° P-Scan (S6 FV)						

% Total Composite Coverage = 80.2%

Comments: A - Automated scanning was due to the proximity of the dryer bracket. Scanner head facing up.
B - Automated scanning was restricted due to the dryer bracket and the flange to RPV mismatch. Scanner head facing down.

Note - Rounding methods may affect calculated values. FV-Full volume, NS-Near Surface. Weld length in inches.

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HITACHI

Reactor Pressure Vessel
Flaw Evaluation Sheet

Project : Dresden Unit-3, D3R22
Weld ID : 3-5C4B

Indication : 1
Report : D3R22-021

	<u>Measured</u>	<u>Rounded</u>		<u>Measured</u>	<u>Rounded</u>
Flaw Through Wall =	0.075	0.1	"T" nominal =	6.38	6.4
Flaw Length "L" =	1.00	1.0	"T" measured =	N/A	N/A
Surface Separation "S" =	0.675	0.7			

ASME Section XI, 1995 Edition, with the 1996 Addenda
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.9	2.0	~	~
0.05	2.0	2.2	2.00	2.20 Y
0.10	2.2	2.5	~	~
0.15	2.5	2.9	~	~
0.20	2.8	3.3	~	~
0.25	3.3	3.8	~	~
0.30	3.8	4.4	~	~
0.35	4.4	5.1	~	~
0.40	5.0	5.8	~	~
0.45	5.1	6.7	~	~
0.50	5.2	7.6	~	~
			Allowed	Allowed
			2.00	2.20

a = 0.050
a/l value = 0.050
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.2%
a/t = 0.8%

Flaw is acceptable by Table IWB-3510-1.

Revised: 1/27/05

Comments: ASME Section XI rounding performed in accordance with IWA-3200 and ASTM E29.

This indication had no determinable through wall dimension. The 0.075" dimension is an assigned value for evaluation purposes only.

Evaluation by: Mark Hilborn Level III

Reviewed by: Brad Dummer Level III

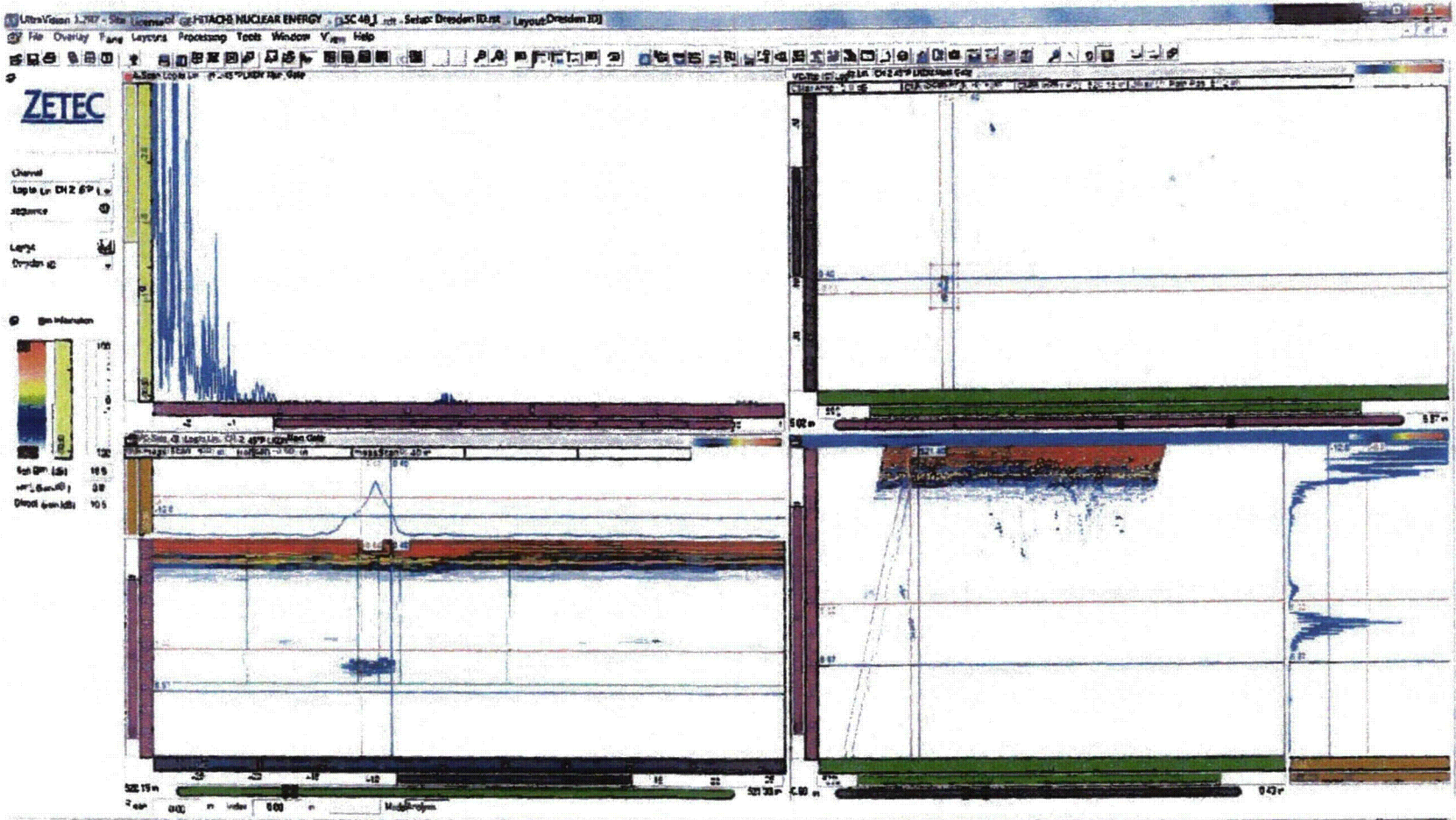
Utility Reviewed by: *[Signature]* III 11-20-12



HITACHI

Dresden Unit 3 Indication Screen Prints

Report D3R22-021



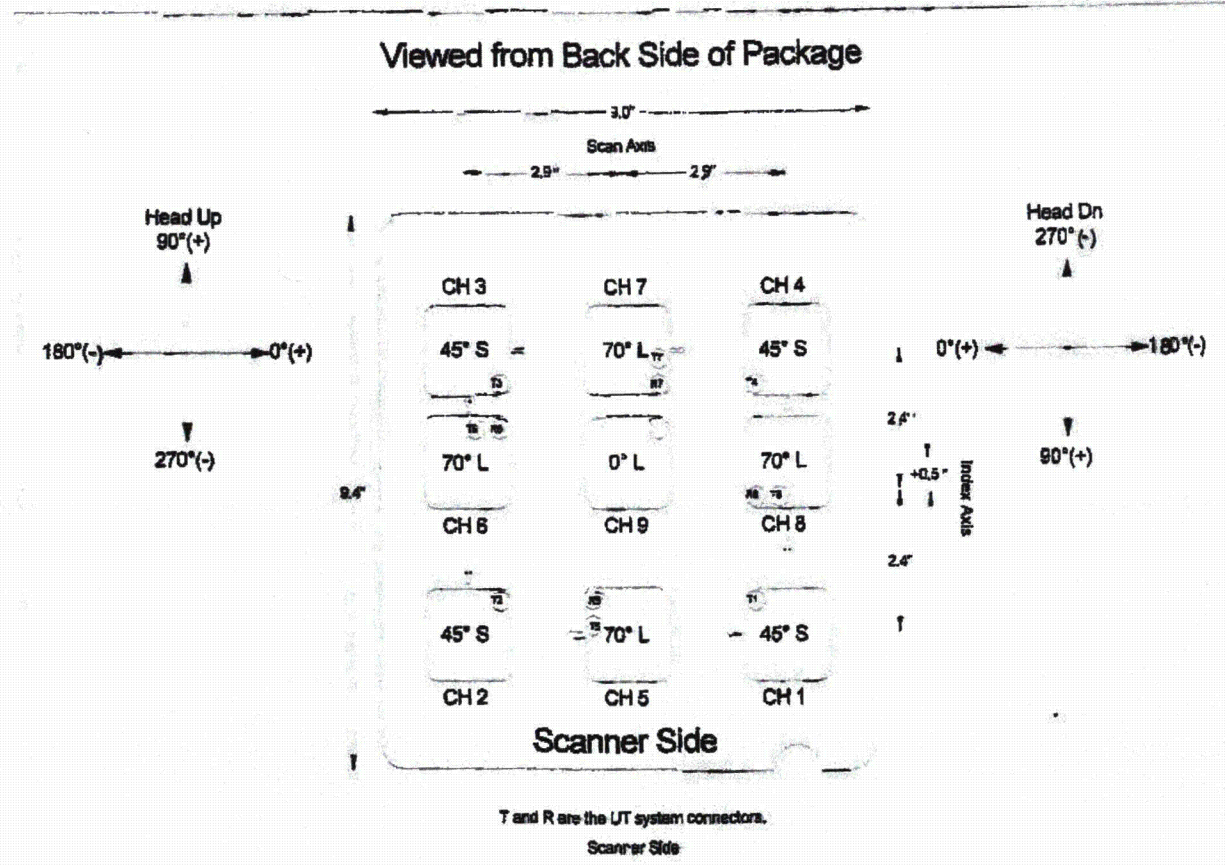
Indication #1



HITACHI

Dresden Unit 3 Reference Drawings

Report DNR22-021



GE- HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 ID RPV SCAN PACKAGE SCALE: NONE DWG.DN3-2012-02 REV. 0

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ID RPV Vessel Scanner Package Configuration for Vertical Welds Scans

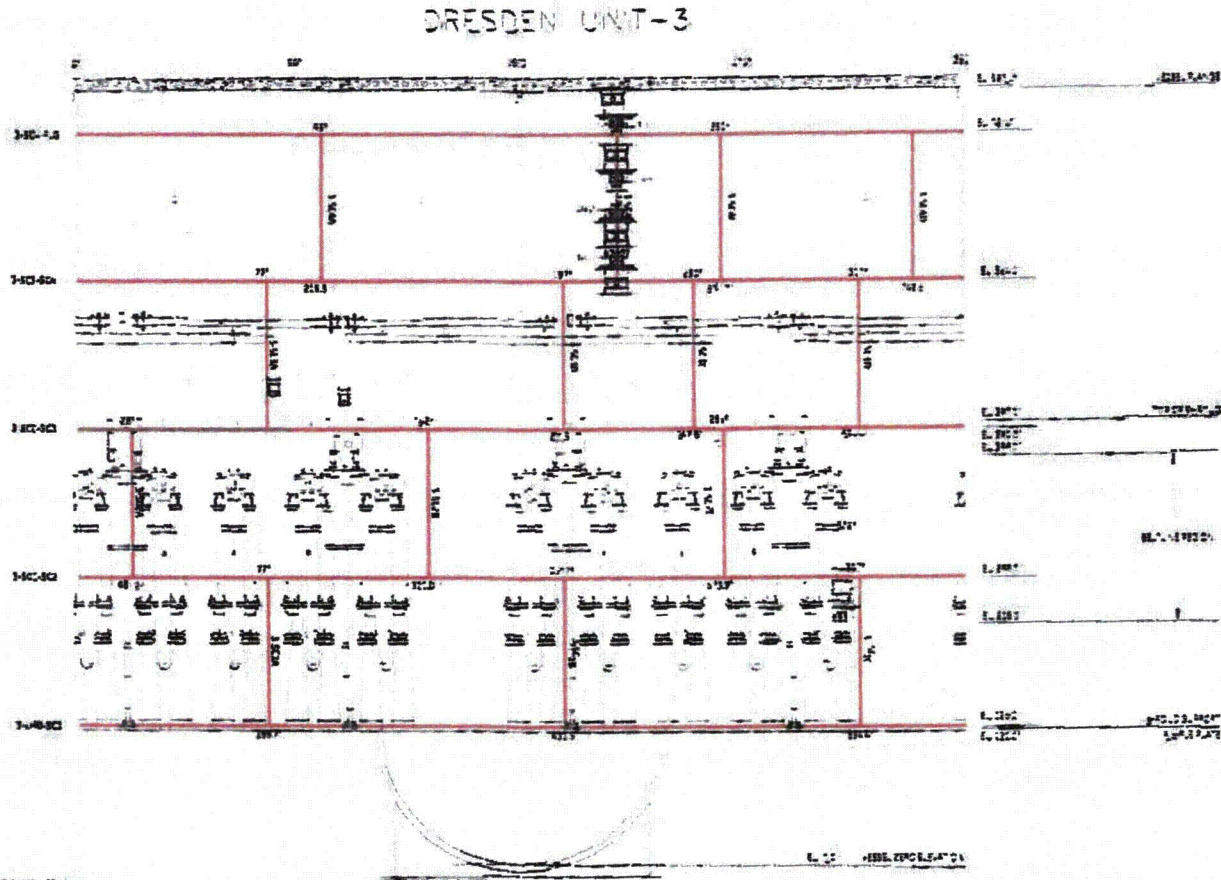


HITACHI

Dresden Unit 3 Reference Drawings

Report DSR22-021

ATTACHMENT 2
Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets



GE NUCLEAR ENERGY

DRESDEN UNIT-3

VESSEL ID ROLLOUT

SCALE: NONE

DWG. DNB-2012-01

REV. 0

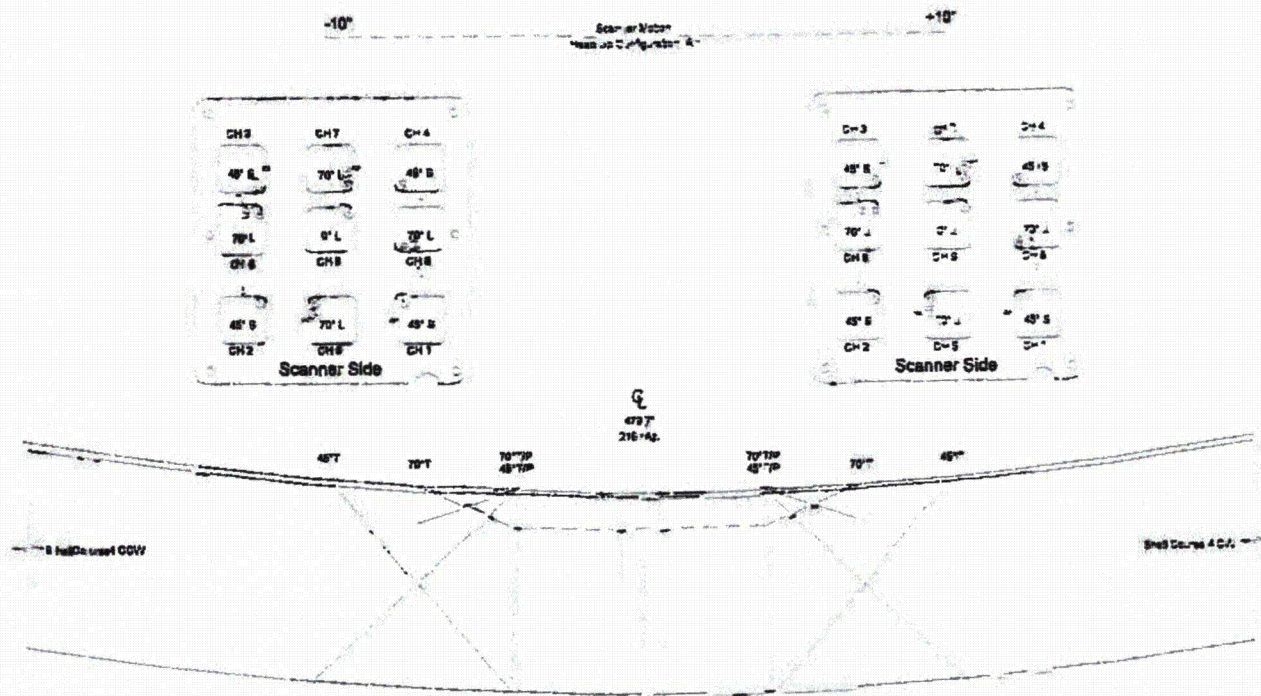
Vessel Location Map



HITACHI

Dresden Unit 3 Reference Drawings

Report DR22-021



Supplement 4 Exam Volume = 8.1 Sq. In.
 Supplement 8 Exam Volume = 44.8 Sq. In.
 S4 T-Scan Achieved = 8.1 Sq. In.
 S4 P-Scan Achieved = 8.1 Sq. In.
 S8 T-Scan Achieved = 44.8 Sq. In.
 S8 P-Scan Achieved = 44.8 Sq. In.

 Vessel Diameter at Flange = 251.375 Inches
 Vessel Azimuths = 2.19 inches/degree
 Nominal Clad T = 0.18 Inches
 Nominal Shell T = 0.38 Inches

GE- HITACHI NUCLEAR ENERGY DRESDEN UNIT-3 WELD 3-8C4B EXAM VOLUME SCALE: NONE DWG. DR3-2012-15 REV. 0

Cross Section of Achieved Coverage "A"

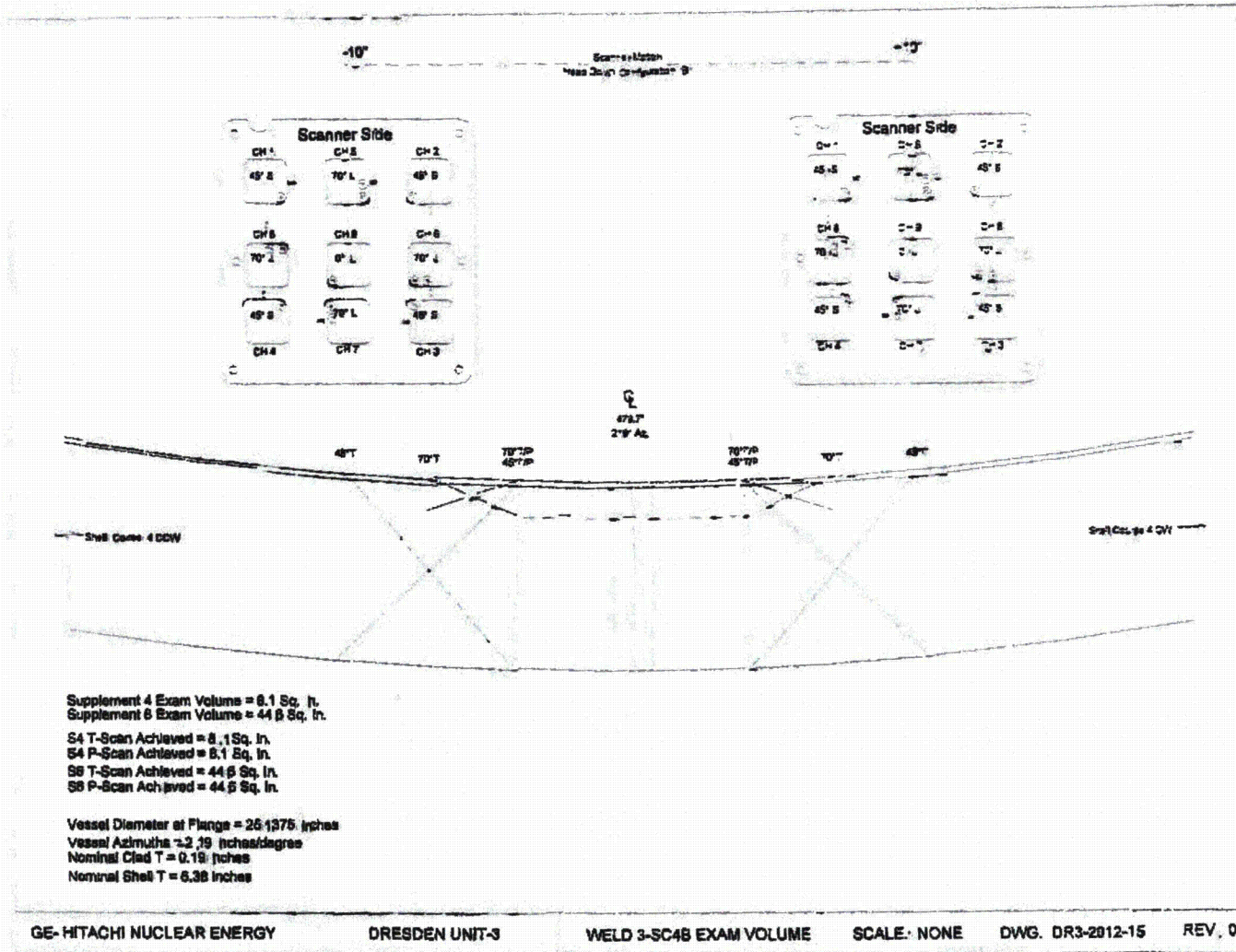
10 of 13



HITACHI

Dresden Unit 3
Reference Drawings

Report DR22-021



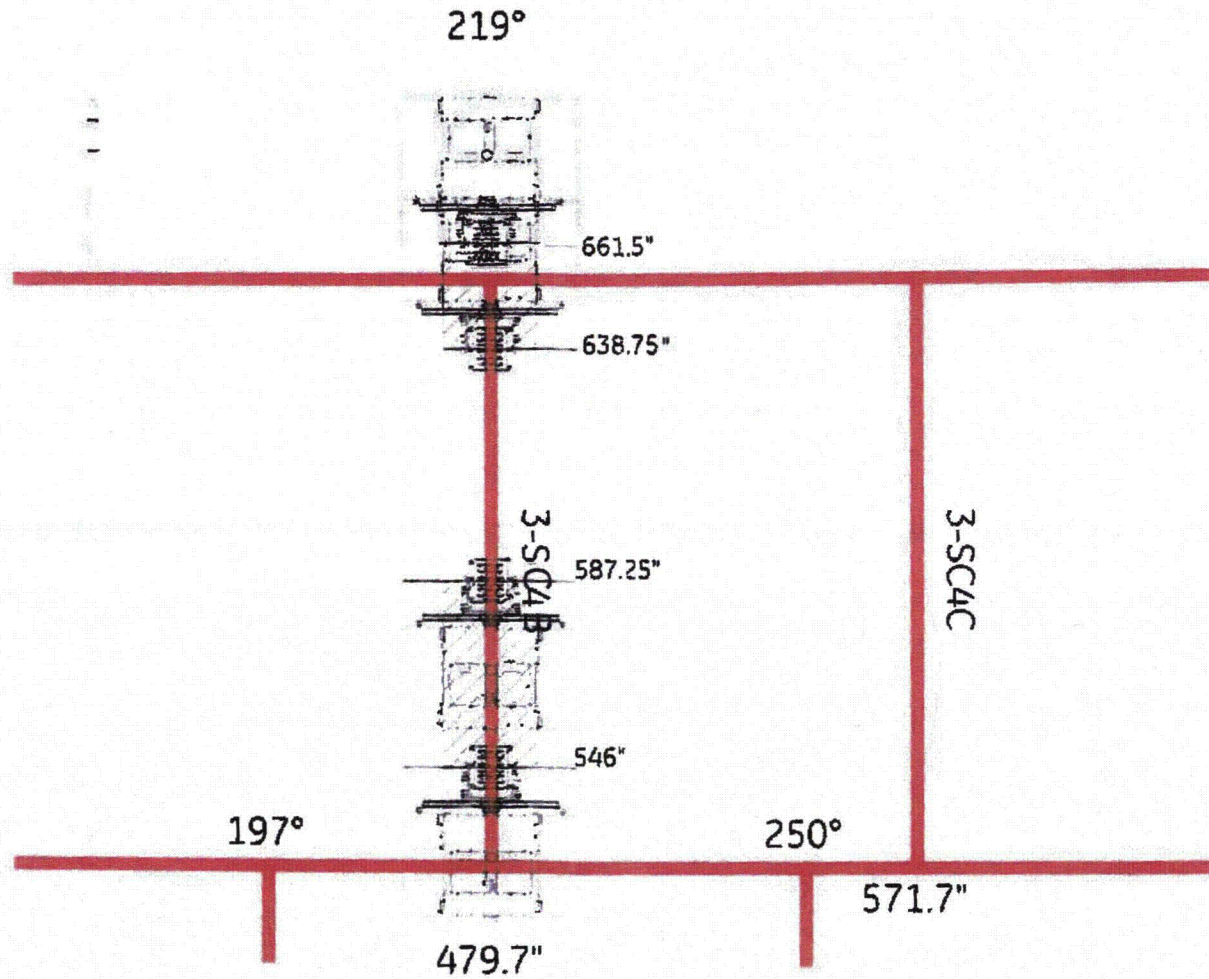
Cross Section of Achieved Coverage "B"

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HITACHI

Dresden Unit 3 Reference Drawings

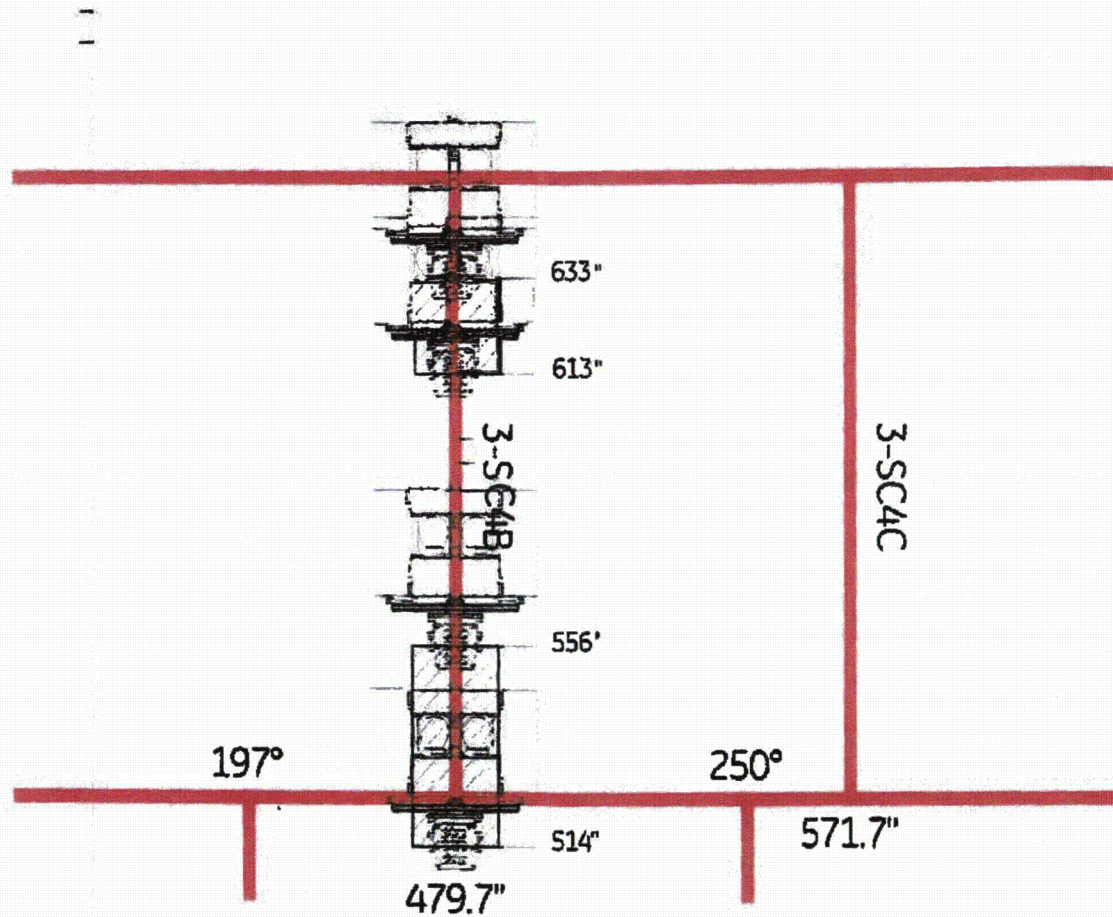


Scanned Patches Facing Up and Facing Down



HITACHI

Dresden Unit 3 Reference Drawings 219°



Scanned Patches Facing Down

Dresden Nuclear Power Station Fourth ISI Interval Limited Coverage NDE Summary Sheets

GE NUCLEAR ENERGY	EXAMINATION SUMMARY SHEET	Report No.: SR18-08
--------------------------	----------------------------------	------------------------

Site: Dresden **Component ID:** 311/RPV SHELL/N19B-2
Outage: D3R18 **Nozzle-RPV**
System: RPV **ASME Cat.:** B-D **ASME Item:** B3.90 **App Requirements:** Section XI

Exams Performed	Data Sheet	Cal Sheet	Procedure	Calibration Block	Examination Personnel	Cert Level	Date
60° Shear	UT-070	N/A	GE-UT-311	VESSHELL	Troy Huhe	II	11/2/2004
60° Long.	UT-071	N/A	GE-UT-300	CAL-IW2-045	Wallace Reid	II	11/2/2004
60° Long.	UT-072	N/A	GE-UT-300	CAL-IW2-045	Jack Reiszewitz	II	11/2/2004
60° Long.	UT-073	N/A	GE-UT-300	VESSHELL	Wallace Reid	II	11/2/2004
60° Long.	UT-074	N/A	GE-UT-300	VESSHELL	Jack Reiszewitz	II	11/2/2004

Examination Results:

During the manual ultrasonic examination of the above referenced component, no recordable indications were detected using 60° shear and 60° longitudinal wave search units.

Scanning was limited due to nozzle configuration and an insulation support ring.

35 % of the required examination volume was examined.

This examination meets the requirements of ASME B&PV Code Section XI 1995 edition with the 1996 Addenda as modified by the PDI program description and the Federal Register, Part II, Nuclear Regulatory Commission, 10CFR Part 50 for Category B-D Reactor Pressure Vessel (RPV) Assembly Welds.

Examination results were compared to data report D-121-123 from D3R18 outage with No Change

These examinations were performed under Work Order: 0066755306 Change

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

<u>CDM</u>	<u>JR</u>	<u>11/2/04</u>	<u>[Signature]</u>	<u>11-6-04</u>
Prepared By:	Level:	Date:	Utility Review:	Date:
			<u>[Signature]</u>	<u>11-9-04</u>
			APII Review:	Date:

GE NUCLEAR ENERGY **Ultrasonic Calibration and Examination Record**
Inner Radius Examinations

Sta/Unit: Dresden / 3 Data Report Number: 2R18-02 Linearity Sheet: L-008
 Outage: D3R18 Data Sheet Number: UT-070
 Procedure: GE-VT-311 Rev: V10 DRR: N/A

Calibration Data for Block: VESSELL

CS	Final	Z^o
Material	Size	Thickness
Initial Cal: <u>1418</u>		Exam Start: <u>1448</u>
Cal Check: <u>N/A</u>		Exam End: <u>1648</u>
Cal Check: <u>N/A</u>	<u>UT/Repal/1</u>	<u>02125</u>
Final Cal: <u>1621</u>	Couplant:	Batch
<u>238235</u>	<u>80° F</u>	<u>80° F</u>
Thermometer	Initial Cal Temp.	Final Cal Temp.

DAC Construction

Side	Depth	Gain @ 1X	Max Amp	"W" Dim.	Sweep	Screen Div.
ID	<u>Z8</u>	<u>1X</u>	<u>80%</u>	<u>11.2</u>	<u>13.2</u>	<u>Z4</u>
<u>N/A</u>	<u>N/A</u>	<u>1X</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

DAC @ 1X 47.2 dB

Sweep 0-10 18.0 Metal Path

Acceptable Linearity performed : 10/20/2004

Exam Data for Component: 311RPV SHELL/N19B-2

NOZ-RPV

Configuration:

QR	180° F				
Exam Surface:	Component Temp.				
Scan Area	Exam Angle	Rotation Angle	Wedge SN	Scan Recordable dB	Indications
<u>0° - 7.0°</u>	<u>90°</u>	<u>±90°</u>	<u>N/A</u>	<u>53.2</u>	<u>NRI</u>

Search Unit Data

KBA	00L322	0.50"x1.0"/Rect.
Manufacturer:	Serial No.:	Size/Shape:
<u>0.75 in.</u>	<u>80°</u>	<u>80°</u>
Incident Point:	Nominal Angle:	Measured Angle:
<u>1.0 MHz</u>	<u>113-281-400</u>	<u>Shear</u>
Frequency:	Model:	Mode:

Search Unit Cable

<u>RQ-174</u>	<u>12'</u>	<u>0</u>
Cable Type:	Length:	Connectors:

Instrument Settings

<u>Panasonic / Epoch 4</u>	<u>891574011</u>		
Manufacturer/Model:	Serial No.:		
<u>14.4 us</u>	<u>0.1233 in / us</u>	<u>0.8 - 3.0 MHz</u>	
Delay/Zero:	Velocity:	Narrowband Filter:	
<u>Auto</u>	<u>Fullerton</u>	<u>18.0 in.</u>	<u>Sn / Med</u>
Rep Rate:	Rectification:	Range:	Pulse/Energy
<u>400 Ohms</u>	<u>0%</u>	<u>1.0 MHz</u>	<u>PE</u>
Damping:	Reject:	Frequency:	Mode:
<u>0%</u>	<u>0%</u>	<u>0%</u>	<u>0%</u>
DAC:	TVG:	CSC:	DGS:

Calibration Verification

Field Simulator Block SN: N/A

Reflector	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Amplitude	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Gain (dB)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Sweep (SD)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Comments: Cal/Exam Date is the date of initial calibration. See coverage sheet for limitations.

Calibration for nozzle to vessel weld (NA). Examined CW/CCW 360°. Exams performed to maintain a 20 - 30% FSN clad roll. Cal Sweep = 18.0° MP. Exam Range = 18.0° MP.

<u>TH</u>	<u>0</u>	<u>11/02/04</u>	<u>Mullen</u>	<u>11-6-04</u>
Initials: Examiner:	Level:	Cal/Exam Date:	Utility Reviewed By:	Date:
<u>CPA</u>	<u>TH</u>	<u>11/4/04</u>	<u>Mullen</u>	<u>11-8-04</u>
GE Reviewed By:	Level:	Date:	AND Reviewed By:	Date: