



May 6, 2013  
RC-13-0068

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

Dear Sir or Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION UNIT 1 (VCSNS)  
DOCKET NO. 50-395  
OPERATING LICENSE NO. NPF-12  
REQUEST RELIEF FROM ASME CODE REQUIREMENTS IN VCSNS  
3RD TEN YEAR INSERVICE INSPECTION INTERVAL  
(RR-III-10) Limited Pressurizer Surge Nozzle-to-Vessel Examination

Pursuant to 10CFR50.4, South Carolina Electric & Gas Company (SCE&G), acting for itself and as an agent for South Carolina Public Service Authority, hereby submits the attached relief request. Pursuant to 10CFR50.55a(g)(5)(iii), relief is requested from the "essentially 100 percent" volumetric examination coverage requirement for the identified Pressurizer Nozzle-to-Vessel Welds, ASME Section XI Category B-D, Item No. B3.110. This requirement is considered impractical due to the pressurizer shell to surge nozzle weld configuration. The plant specific information supporting this proposed alternative is provided in Enclosure 1.

No new regulatory commitments are being made to the NRC by this letter. If you should have any questions, please contact Mr. Bruce L. Thompson at (803) 931-5042.

Very truly yours,

Thomas D. Gatlin

JMG/TDG/ts

Enclosure: RR-III-10, Limited Pressurizer Nozzle-to-Vessel Examination

c: K. B. Marsh	E. A. Brown
S. A. Byrne	NRC Resident Inspector
J. B. Archie	K. M. Sutton
N. S. Carns	NSRC
J. H. Hamilton	RTS (CR-12-05348)
J. W. Williams	File (810.19-2)
W. M. Cherry	PRSF (RC-13-0068)
V. M. McCree	

A047  
NR

**SOUTH CAROLINA ELECTRIC & GAS CO. (SCE&G)**  
**VIRGIL C. SUMMER NUCLEAR STATION UNIT 1 (VCSNS)**  
**Relief Request RR-III-10**  
**Limited Pressurizer Nozzle-to-Vessel Examination**

**1. ASME Code Component(s) Affected**

The affected component is the V. C. Summer Unit 1 Pressurizer. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI (Reference 1) examination category and item number is from IWB-2500 and Table IWB-2500-1 of the ASME BPV Code, Section XI.

Category B-D welds is defined as "Full Penetration Welded Nozzles in Vessels" and for VCSNS Pressurizer Shell to Surge Nozzle weld is represented by Examination Requirements Figure Number IWB-2500-7(b) Nozzle in Shell or Head (see Figure 1 of this enclosure).

**Examination**

<b>Category</b>	<b>Item No.</b>	<b>Weld Number</b>	<b>Description</b>
B-D	B3.110	1-2100A-8	Pressurizer Surge Nozzle-to-Vessel

**2. Applicable Code Edition and Addenda**

ASME Code Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1998 Edition through 2000 Addenda.

**3. Applicable Code Requirement**

IWB-2412, Inspection Program B, requires volumetric examination of essentially 100% of pressure-retaining welds identified in Table IWB-2500-1 once each ten-year interval. The V. C. Summer Unit 1 third 10-year inservice inspection (ISI) interval ends December 31, 2013.

Table IWB-2500-1, Examination Category B-D requires volumetric examination of Item B3.110 (Pressurizer Nozzle-to-Vessel welds). Figure IWB-2500-7(b) (provided as Figure 1 of attachment 1) depicts the required examination volume (A-B-C-D-E-F-G-H) which includes the actual circumferential weld and adjacent base metal on either side of the weld extending to a distance of one-half the thickness of the wall from the extremities of the weld crown.

NRC Information Notice 98-42, "Implementation of 10CFR50.55a(g) Inservice Inspection Requirements," termed the reduction in coverage of less than 10% to be "essentially 100 percent." Information Notice 98-42 states in part, "The NRC has adopted and further refined the definition of 'essentially 100 percent' to mean 'greater than 90 percent' ... which has been applied to all examinations of welds or other areas required by ASME Section XI."

#### **4. Reason for Request**

In accordance with 10CFR50.55a(g)(5)(iii), relief is requested for the Pressurizer Surge Nozzle-to-Vessel Weld, ASME Section XI Category B-D, Item Number B3.110 from the "essentially 100 percent" volumetric examination coverage requirement. During refuel 20, VCSNS was limited in the amount of code coverage obtainable. VCSNS was successful in coverage of 75.5 percent with no recordable indications. The essentially 100 percent code coverage (90 percent minimum) requirement is considered impractical due to the pressurizer shell to surge nozzle weld configuration. Ultrasonic examination of the pressurizer surge nozzle to vessel weld is limited in coverage due to the configuration and interference with the pressurizer heater penetration ring and insulation. VCSNS is declaring that the examination was performed to the extent practical using qualified equipment and personnel.

#### **5. Proposed Alternative and Basis for Use**

SCE&G proposes that the examinations completed during the last refueling, at the reduced coverage, be accepted as meeting the Code requirements to the extent practical. Alternative components could not be substituted for examination due to the mandatory selection requirements of the Code. The limited volumetric examination should detect any general patterns of degradation that may occur in the areas covered, therefore providing reasonable assurance of the continued structural integrity of the subject weld.

The pressurizer is a vertical, cylindrical vessel that provides a point in the Reactor Coolant System where liquid and vapor can be maintained in equilibrium under saturated conditions for pressure control purposes. The vessel is constructed in accordance with ASME Boiler and Pressure Vessel Code Section III, Class 1 Nuclear Vessels. The pressurizer has a hemispherical top and bottom head (provided as Figure 2 of attachment 1) constructed of SA-533 Grade A Class 2 carbon steel that has a minimal wall thickness of 2.55 inches that includes a 0.19 inch cladding. All vessel surfaces exposed to reactor coolant are lined with austenitic stainless steel cladding. The surge line and electrical heaters are installed through the bottom head of the vessel (provided as Figures 2, 3, and 4 of attachment 1). The nozzle forging for the surge line was constructed with SA-508 Class 2 and has a 24.5 inch diameter at the nozzle to

vessel interface which is automatic subarc welded with P1 material to conform to Westinghouse PDS-10365BS. There are 78 electrical immersion heaters installed in bottom head orientated in three concentric rings with approximately 10 inch spacing (provided as Figure 2 of attachment 1). The rings exclude an 18 inch section for clearance of the 14 inch diameter surge pipe. The inner ring is located on a 34 inch diameter with 20 immersion heaters that are approximately 1.75 inches in diameter and pitched every 4.5 inches.

The weld is the Pressurizer Surge Nozzle-To-Vessel Weld (VCSNS weld number 1-2100A-8), ASME Section XI Category B-D, Item Number B3.110 which is the P1 material utilized to conform to Westinghouse PDS-10365BS (provided as Detail-E of Figure 4 of this enclosure). The details of the weld and weld material are located on Westinghouse (Proprietary) drawings: 3453C54, "Wire and Flux Qualification Drawing" and 1097J92, "Lower Head Assembly Drawing."

Wesdyne International, a Westinghouse Electric Company, performed the inspection with Procedure SDI-STD-1010 Revision 3, "Manual Ultrasonic Procedure for the Examination of Pressure Vessel Welds > [Greater Than] 2" [Inches] in Thickness, Including Non-PDI Reactor Vessels and Heads" dated August 9, 2012. The complete Ultrasonic Examination Data Records for the Category B-D, Item B3.110 examination included as attachment 2. The report includes details of the UT scanning parameters, including the transducer size, frequency and angle. The examinations were performed on the outside surface with a 45 degree shear wave, 60 degree shear wave, and 0 degree longitudinal wave search units. Also included are coverage plots for each of the examinations showing the nozzle configuration and percent coverage for the scans. As reported, the two level three inspectors were able to obtain 100 percent of the linear weld in the clockwise and counter clockwise direction but were only able to obtain 51 percent for both the axial directions from the head side and from the nozzle side. Based on the coverage, the level three inspector declared a total of 75.5 percent weld required volume coverage was obtained. This is less than the code allowable of 90 percent therefore this requirement is impractical due to the pressurizer to surge nozzle weld configuration.

During the refuel 20 inspection, station personnel received approximately 1 Rem with 44 mili-Rem received during the inspection by qualified personnel.

## **6. Duration of Proposed Alternative**

This request is applicable to the V. C. Summer Unit 1 inservice inspection program for the third 10-year ISI interval that ends December 31, 2013.

## **7. Precedents**

On October 8, 2012 Braidwood Station submitted a similar request that was issued under Accession Number ML12283A084. Braidwood also sought relief due to impracticality of a similar weld type (Pressurizer Nozzle-To-Vessel) due to limited coverage of the safety valve nozzle and spray nozzle.

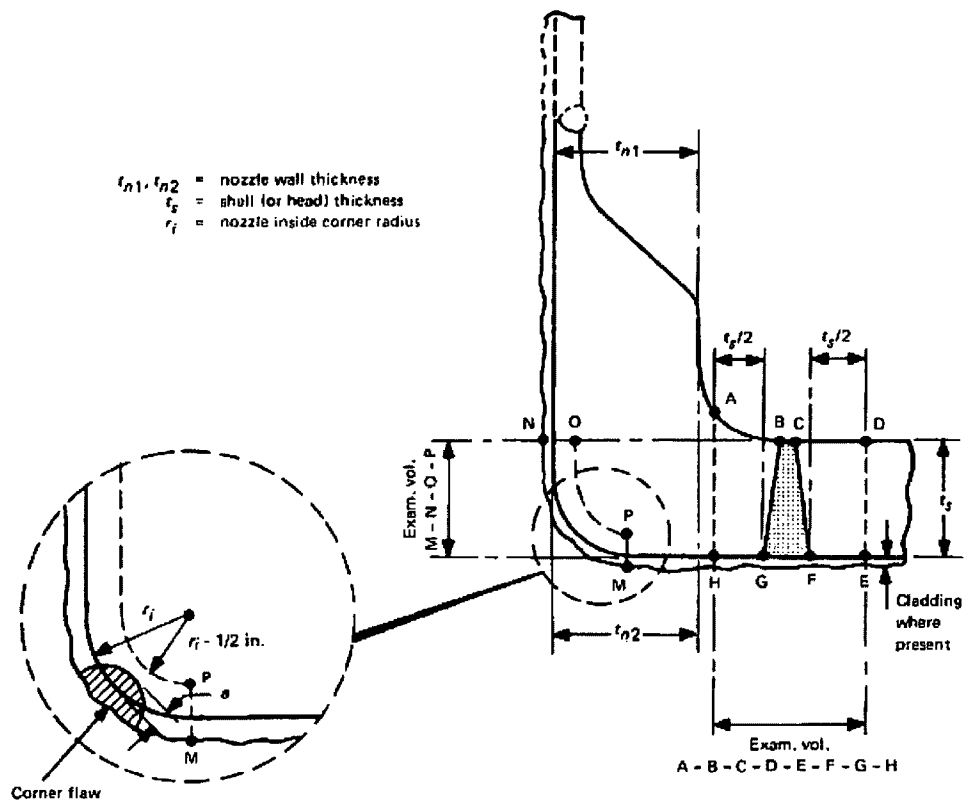
On April 5, 2007 Watts Bar submitted and on August 29, 2007 was granted relief for a similar request that was issued under Accession Number ML072280088. Watts Bar was seeking relief due to impracticality of a similar weld type (Pressurizer Nozzle-To-Vessel ) due to limited coverage of the safety valve nozzle and spray nozzle. The average of these scan volumes resulted in approximately 55 percent of the code required volume being scanned.

## **8. References**

1. ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through 2000 Addenda, American Society of Mechanical Engineers, New York.
2. NRC Information Notice 98-42, "Implementation of 10CFR50.55a(g) Inservice Inspection Requirements," termed the reduction in coverage of less than 10% to be "essentially 100 percent."
3. Westinghouse (Proprietary) drawings 3453C54, "Wire and Flux Qualification Drawing."
4. Westinghouse (Proprietary) drawings 1097J92, "Lower Head Assembly Drawing."

Fig. IWB-2500-7(b)

1998 SECTION XI — DIVISION 1



EXAMINATION REGION [Note (1)]

Shell (or head) adjoining region  
 Attachment weld region  
 Nozzle cylinder region  
 Nozzle inside corner region

EXAMINATION VOLUME [Note (2)]

C-D-E-F  
 B-C-F-G  
 A-B-G-H  
 M-N-O-P

NOTES:

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in IWB-3512.
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

Figure 1, FIG. IWB-2500-7(b) NOZZLE IN SHELL OR HEAD  
(Examination Zones in Flange Type Nozzles Joined by Full Penetration Butt Welds)



## Pressurizer Outline

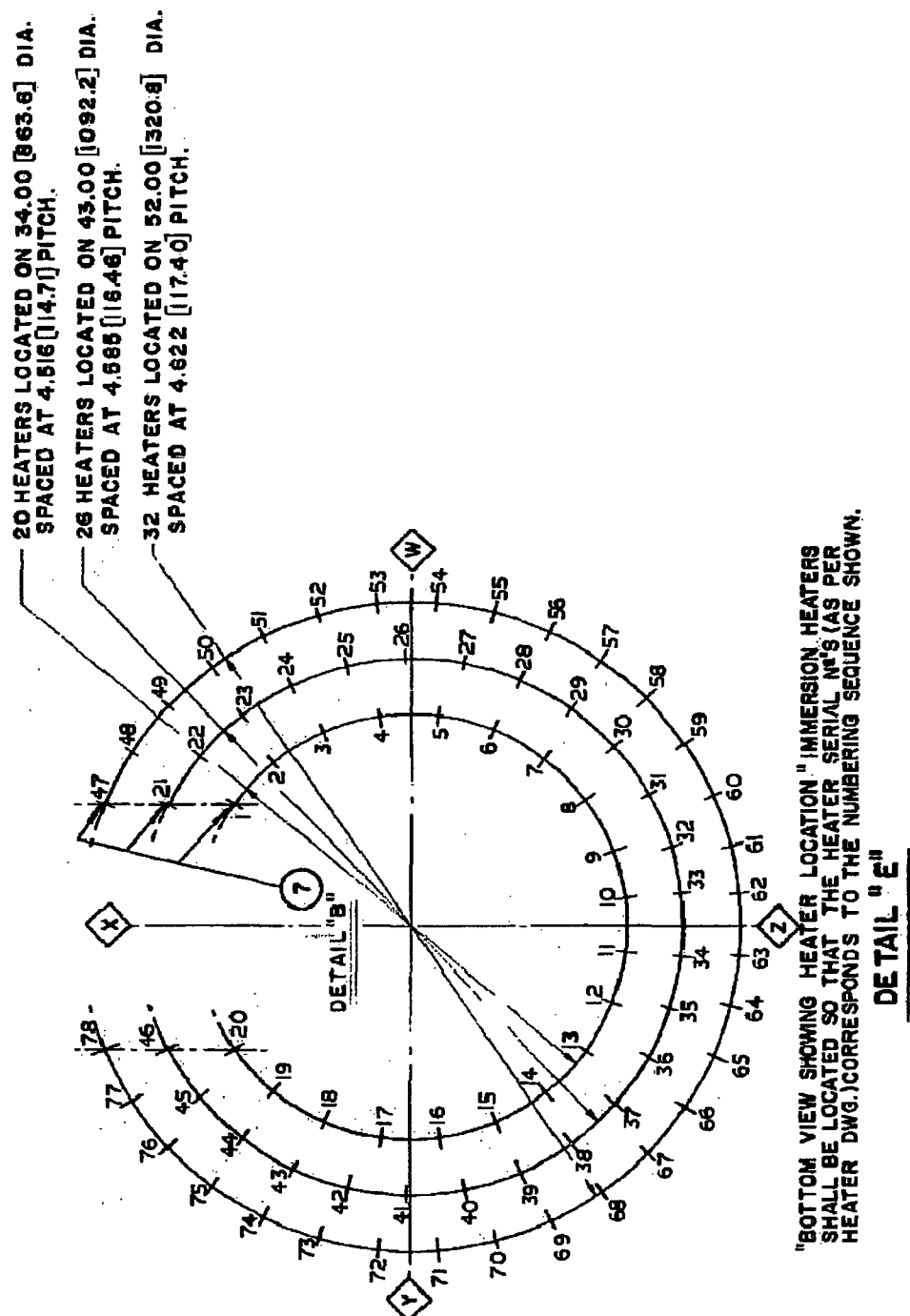
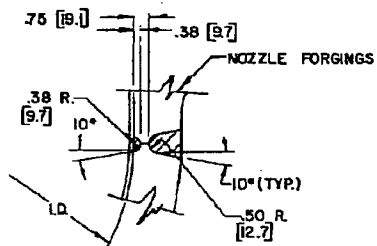
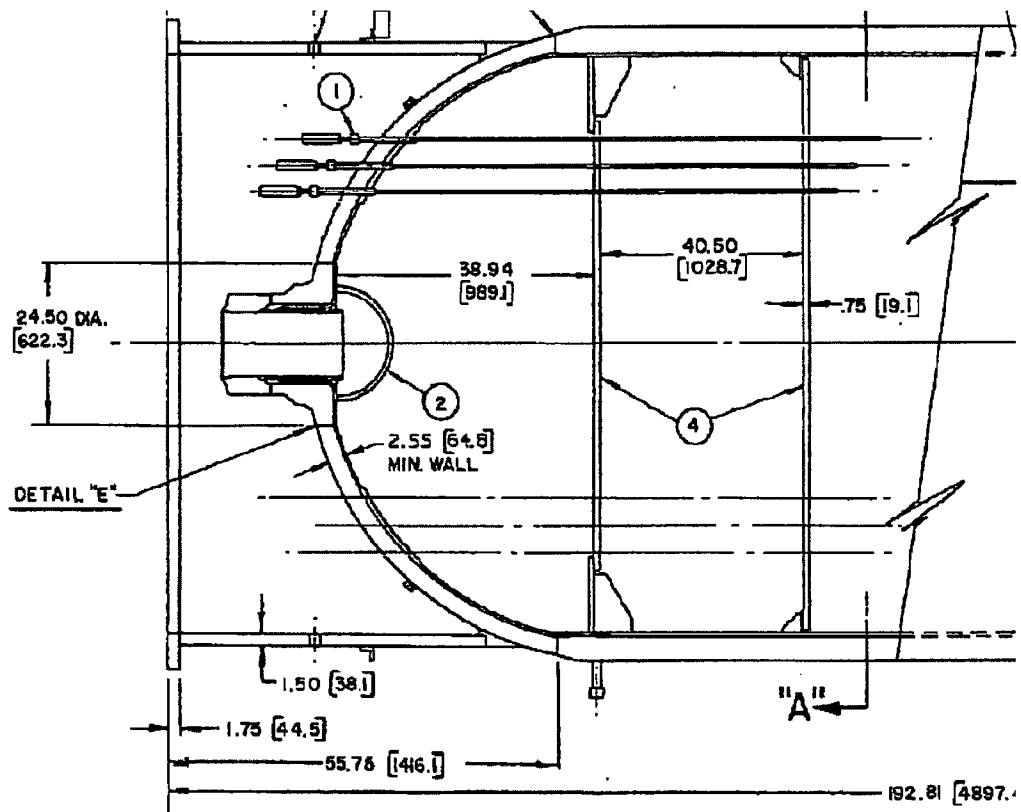


Figure 3, Partial VCSNS Drawing 1MS-07-0117  
Pressurizer Outline – Detail "E" Immersion Heater Details





DETAIL "E"

Figure 4, Partial VCSNS Drawing 1MS-07-0118  
Pressurizer General Arrangement



# ULTRASONIC EXAMINATION REPORT # NIR-02

1200466004

Data Pkg # VCS-R20-013-02

Page 1 of 2

Plant: <u>V.C. Summer</u>		Unit: <u>1</u>	Procedure No.: <u>WDI-STD-013</u>		Rev.: <u>2</u>
Comp/ System: <u>PZR/RC</u>		Cal. Blk. # <u>CGE-24</u>	Ref. Blk. # <u>102465</u>	"T" Nom. <u>3.4"</u>	Nom. Noz Ø <u>19"</u>
Isometric Dwg # <u>CGE-1-2100A</u>		Thermometer S/N: <u>30006396</u>		Block / Comp Temp: <u>67 °F</u> / <u>89 °F</u>	

<b>SEARCH UNIT</b>			<b>INSTRUMENT SETTINGS</b>		
Scan Angle: <u>55°</u>	Mode: <u>Shear</u>	Examination Surface <input checked="" type="checkbox"/> OD <input type="checkbox"/> ID	Mfr/Model No. <u>KrautKramer USN 52R</u>		
Serial No.: <u>010YLJ</u>	Mfr. <u>KBA</u>	Material Type <input checked="" type="checkbox"/> CS <input type="checkbox"/> SS <input type="checkbox"/> Other	Serial No.: <u>102249</u>		
Fixturing: <u>Non-Integral</u>	Model: <u>Comp G</u>		Pulser: <input checked="" type="checkbox"/> Single <input type="checkbox"/> Dual		
Size: <u>0.50"</u>	Shape: <u>Round</u>		Damping: <u>1000</u> Reject: <u>0%</u>		
Frequency: <u>2.25 MHz</u>	# Elem: <u>1</u>		Freq.: <input type="checkbox"/> 4-10 <input checked="" type="checkbox"/> 2-8 Rectify: <u>Full Wave</u>		
Measured Angle: <u>N/A</u>	Exit Pnt. <u>0.65</u>		PRF: <u>High</u> Volt: <u>N/A</u> Jack: <u>T</u>		
Couplant Type/Batch #: <u>UltraGel II / 12H028</u>		Range: <u>10.0"</u> Velocity: <u>0.1280</u> Swp Delay: <u>0.00</u> Zero: <u>8.449</u>			

Contoured Wedge <input checked="" type="checkbox"/> Convex <input checked="" type="checkbox"/> CW <input type="checkbox"/> CCW	Skew Ang <u>-45°</u>	Wedge ID <u>364-003-532</u>
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<b>SCAN AREA</b>		<b>CAL CHECKS</b>		<b>TIME</b>	
0° WRV	<input type="checkbox"/>	Initial Cal.	<u>0835</u>		
0° BM	<input type="checkbox"/>	Intermediate	<u>1101</u>		
⊥ To Weld	<input type="checkbox"/>	Intermediate	<u>N/A</u>		
To Weld	<input checked="" type="checkbox"/>	Intermediate	<u>N/A</u>		
		Final Cal.	<u>1239</u>		

DAC			
Reflector ID	% FSH	Swp Pos	dB
ID Notch	80	6.4	43.4
Rompus FSDH	50	1.4	31.4

EXAMINATION WELD/AREA		
<b>1-2100A-8IR</b>		
Recordable Indications	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Scan Limitations	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO

Remarks: <u>Scanned tangentially CW on the blended radius</u>	
Per WDI-PJF-1307102-EPP-001 Rev. 0	
Code Coverage Achieved	<u>100 %</u>

Exam is Acceptable <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
--

Examiner <u>Paul S. Blecha</u> Lv. <u>III</u> Date: <u>10/29/2012</u>	Reviewer: <u>[Signature]</u> Date: <u>10/30/12</u>
Examiner <u>Kenneth R. Smith</u> Lv. <u>III</u> Date: <u>10/29/2012</u>	Reviewer: <u>[Signature]</u> Date: <u>11/6/12</u>

Authorized Inspection Agency ELMOSANA EKOWI 11/6/12

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# ULTRASONIC EXAMINATION REPORT # NIR-02

1200466004

Data Pkg #

VCS-R20-013-02

Page 2 of 2

Plant: <u>V.C. Summer</u>		Unit: <u>1</u>	Procedure No.: <u>WDI-STD-013</u>		Rev.: <u>2</u>
Comp/ System: <u>PZR/RC</u>		Cal. Blk. # <u>CGE-24</u>	Ref. Blk. # <u>102465</u>	FCN # <u>N/A</u>	"T" Nom. <u>3.4"</u> Nom. Noz Ø <u>19"</u>
Isometric Dwg # <u>CGE-1-2100A</u>		Thermometer S/N: <u>30006396</u>		Block / Comp Temp: <u>67</u> °F / <u>89</u> °F	

<b>SEARCH UNIT</b>			<b>INSTRUMENT SETTINGS</b>		
Scan Angle: <u>55°</u>	Mode: <u>Shear</u>	Examination Surface <input checked="" type="checkbox"/> OD <input type="checkbox"/> ID	Mfr/Model No. <u>KrautKramer USN 52R</u>		
Serial No.: <u>010YLJ</u>	Mfr. <u>KBA</u>	Material Type <input checked="" type="checkbox"/> CS <input type="checkbox"/> SS <input type="checkbox"/> Other	Serial No.: <u>102249</u>		
Fixturing: <u>Non-Integral</u>	Model: <u>Comp G</u>		Pulser: <input checked="" type="checkbox"/> Single <input type="checkbox"/> Dual		
Size: <u>0.50"</u>	Shape: <u>Round</u>		Damping: <u>1000</u> Reject: <u>0%</u>		
Frequency: <u>2.25 MHz</u>	# Elem: <u>1</u>		Freq.: <input type="checkbox"/> 4-10 <input checked="" type="checkbox"/> 2-8 Rectify: <u>Full Wave</u>		
Measured Angle: <u>N/A</u>	Exit Pnt. <u>0.65</u>		PRF: <u>High</u> Volt: <u>N/A</u> Jack: <u>T</u>		
Couplant Type/Batch #: <u>UltraGel II / 12H028</u>		Range: <u>10.0"</u> Velocity: <u>0.1280</u>			
Cable / Length / # Conn: <u>RG- 174 / 6' / 0</u>		Swp Delay: <u>0.00</u> Zero: <u>8.449</u>			

Contoured Wedge <input checked="" type="checkbox"/> Convex <input type="checkbox"/> CW <input checked="" type="checkbox"/> CCW		0 1 2 3 4 5 6 7 8 9 10	
Skew Ang <u>+45°</u>	Wedge ID <u>364-003-531</u>	Screen Divisions, 10 = <u>10</u>	

SCAN AREA		CAL CHECKS		TIME
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0° BM	<input type="checkbox"/>	Intermediate		1101
⊥ To Weld	<input type="checkbox"/>	Intermediate		N/A
To Weld	<input checked="" type="checkbox"/>	Intermediate		N/A
		Final Cal.		1238

DAC			
Reflector ID	% FSH	Swp Pos	dB
ID Notch	80	6.4	43.4
Rompus FSDH	50	1.4	31.4

EXAMINATION WELD/AREA	
<b>1-2100A-8IR</b>	
Recordable Indications	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Scan Limitations	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Remarks: <u>Scanned tangentially CCW on the blended radius</u>	
Per WDI-PJF-1307102-EPP-001 Rev. 0	
Code Coverage Achieved	<b>100 %</b>

Exam is Acceptable <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
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Examiner <u>Paul S Blecha</u> Lv. <u>III</u> Date: <u>10/29/2012</u>	Reviewer: <u>AMOSTAFA ELKOURW</u> Date: <u>10/30/12</u>
Print <u>Paul Blecha</u>	
Examiner <u>Kenneth R. Smith</u> Lv. <u>III</u> Date: <u>10/29/2012</u>	
Print <u>Kenneth Smith</u>	

Reviewer: Paul Blecha Date: 10/29/12

Authorized Inspection Agency AMOSTAFA ELKOURW 11/4/12

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# ULTRASONIC EXAMINATION REPORT

# PZR-01

1200466004

Data Pkg #

VCS-R20-1010-03

Page 1 of 4

Plant: <u>V.C. Summer</u>		Unit: <u>1</u>	Procedure No.: <u>WDI-STD-1010</u>		Rev.: <u>3</u>
Comp/ System: <u>PZR / RC</u>		Cal. Blk. # <u>CGE-24</u>	Ref. Blk. # <u>102465</u>	FCN # <u>01</u>	"T" Nom. <u>3.4"</u> Nom. Pipe Ø <u>23.7"</u>
Isometric Dwg # <u>CGE-1-2100A</u>		Thermometer S/N: <u>30006396</u>		Block / Comp Temp: <u>67</u> °F / <u>89</u> °F	

<b>SEARCH UNIT</b>		<b>OD Surface Condition</b>	<b>Ground Flush</b>	<b>INSTRUMENT SETTINGS</b>													
Scan Angle: <u>0°</u>	Mode: <u>Long</u>	Material Type <input checked="" type="checkbox"/> CS <input type="checkbox"/> SS <input type="checkbox"/> DM		Mfr/Model No. <u>KrautKramer USN 52R</u>													
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Fixturing: <u>Non-Integral</u>	Model: <u>Gamma</u>			Pulser: <input checked="" type="checkbox"/> Single <input type="checkbox"/> Dual													
Size: <u>1.0"</u>	Shape: <u>Round</u>			Damping: <u>1000</u>	Reject: <u>0%</u>												
Frequency: <u>2.25 MHz</u>	# Elem: <u>1</u>			Freq.: <input type="checkbox"/> 4-10 <input checked="" type="checkbox"/> 2-8 Rectify: <u>Full Wave</u>													
Measured Angle: <u>N/A</u>	Exit Point <u>N/A</u>			PRF: <u>High</u> Volt: <u>N/A</u> Jack: <u>T</u>													
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Cable / Length / # Conn: <u>RG- 174 / 6' / 0</u>																	
Contoured Wedge <input checked="" type="checkbox"/> <u>N/A</u> <input type="checkbox"/> Ax <input type="checkbox"/> Circ		0 1 2 3 4 5 6 7 8 9 10 Screen Divisions, 10 = <u>4.0</u>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;"><b>Cal</b></td> <td style="text-align: center;"><b>Scan</b></td> <td></td> </tr> <tr> <td>Gain 0° or ⊥</td> <td style="text-align: center;">13.0</td> <td style="text-align: center;">37</td> <td style="text-align: center;">dB</td> </tr> <tr> <td>Gain   </td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">dB</td> </tr> </table>			<b>Cal</b>	<b>Scan</b>		Gain 0° or ⊥	13.0	37	dB	Gain	N/A	N/A	dB
	<b>Cal</b>	<b>Scan</b>															
Gain 0° or ⊥	13.0	37	dB														
Gain	N/A	N/A	dB														

<b>SCAN AREA</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>0° WRV</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>0° BM</td> <td><input type="checkbox"/></td> </tr> <tr> <td>⊥ To Weld</td> <td><input type="checkbox"/></td> </tr> <tr> <td>   To Weld</td> <td><input type="checkbox"/></td> </tr> </table>	0° WRV	<input checked="" type="checkbox"/>	0° BM	<input type="checkbox"/>	⊥ To Weld	<input type="checkbox"/>	To Weld	<input type="checkbox"/>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>CAL CHECKS</th> <th>TIME</th> </tr> <tr> <td>Initial Cal.</td> <td>0900</td> </tr> <tr> <td>Intermediate</td> <td>1045</td> </tr> <tr> <td>Intermediate</td> <td>N/A</td> </tr> <tr> <td>Intermediate</td> <td>N/A</td> </tr> <tr> <td>Final Cal.</td> <td>1238</td> </tr> </table>	CAL CHECKS	TIME	Initial Cal.	0900	Intermediate	1045	Intermediate	N/A	Intermediate	N/A	Final Cal.	1238	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5">DAC</th> </tr> <tr> <th>Reflector ID</th> <th>% FSH</th> <th>Swp Pos</th> <th colspan="2">dB</th> </tr> <tr> <td>1/4T</td> <td>80</td> <td>2.0</td> <td colspan="2">13.0</td> </tr> <tr> <td>1/2T</td> <td>80</td> <td>4.1</td> <td colspan="2">13.0</td> </tr> <tr> <td>3/4T</td> <td>80</td> <td>6.3</td> <td colspan="2">13.0</td> </tr> <tr> <td>BW Reflection</td> <td>100+</td> <td>8.9</td> <td colspan="2">13.0</td> </tr> <tr> <td>Rompus</td> <td>80</td> <td>2.5</td> <td colspan="2">7.0</td> </tr> </table>	DAC					Reflector ID	% FSH	Swp Pos	dB		1/4T	80	2.0	13.0		1/2T	80	4.1	13.0		3/4T	80	6.3	13.0		BW Reflection	100+	8.9	13.0		Rompus	80	2.5	7.0	
0° WRV	<input checked="" type="checkbox"/>																																																								
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Intermediate	N/A																																																								
Final Cal.	1238																																																								
DAC																																																									
Reflector ID	% FSH	Swp Pos	dB																																																						
1/4T	80	2.0	13.0																																																						
1/2T	80	4.1	13.0																																																						
3/4T	80	6.3	13.0																																																						
BW Reflection	100+	8.9	13.0																																																						
Rompus	80	2.5	7.0																																																						

Scanned || on Weld : ☒ YES ☐ NO

Examiner <u>Paul S Blecha</u>	Lv. <u>III</u> Date: <u>10/29/2012</u>
Print <u>Paul Blecha</u>	
Examiner <u>Kenneth R. Smith</u>	Lv. <u>III</u> Date: <u>10/29/2012</u>
Print <u>Kenneth Smith</u>	

Reviewer: Zamir L. Smith Date: 10/29/12 Reviewer: X.M.C. Date: 10/30/12

Authorized Inspection Agency ALMOSTAF AROU 11/4/12

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## ULTRASONIC EXAMINATION REPORT

# PZR-01

Data Pkg #

VCS-R20-1010-03

1200466004

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Plant:	V.C. Summer	Unit:	1	Procedure No.:	WDI-STD-1010	Rev.:	3			
Comp/ System:	PZR / RC	Cal. Blk. #	CGE-24	Ref. Blk. #	102465	"T" Nom.	3.4"	Nom. Pipe Ø	23.7"	
Isometric Dwg #	CGE-1-2100A	Thermometer S/N:	30006396	Block / Comp Temp:	67 °F / 89 °F					
<b>SEARCH UNIT</b>				<b>OD Surface Condition</b>		<b>Ground Flush</b>		<b>INSTRUMENT SETTINGS</b>		
Scan Angle:	45°	Mode:	Shear	Material Type	<input checked="" type="checkbox"/> CS <input type="checkbox"/> SS <input type="checkbox"/> DM	Mfr/Model No.	KrautKramer USN 52R			
Serial No.:	0098JL	Mfr.	KBA			Serial No.:	102249			
Fixturing:	Non-Integral	Model:	Gamma			Pulser:	<input checked="" type="checkbox"/> Single <input type="checkbox"/> Dual			
Size:	0.5" x 1.0"	Shape:	Rectangle			Damping:	1000	Reject:	0%	
Frequency:	2.25 MHz	# Elem:	1			Freq.:	<input type="checkbox"/> .4-10 <input checked="" type="checkbox"/> 2-8	Rectify:	Full Wave	
Measured Angle:	44°	Exit Point	0.70			PRF:	High	Volt:	N/A	Jack:
RL Focal Point Verified	<input checked="" type="checkbox"/> N/A	~ FS / FD				Range:	7.0"	Velocity	0.1280	
Couplant Type/Batch #:	UltraGel II / 12H028					Swp Delay:	0.000	Zero:	12.896	
Cable / Length / # Conn:	RG- 174 / 6' / 0									
Contoured Wedge	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Ax <input type="checkbox"/> Crc			0 1 2 3 4 5 6 7 8 9 10		Cal		Scan		
				Screen Divisions, 10 = 7.0		Gain 0° or ⊥		36	60 dB	
						Gain		36	60 dB	
<b>SCAN AREA</b>		<b>CAL CHECKS</b>		<b>DAC</b>		<b>EXAMINATION WELD/AREA</b>				
0° WRV	<input type="checkbox"/>	Initial Cal.	0855	Reflector ID	% FSH	Swp Pos	dB	1-2100A-8 / NOZZLE TO SHELL		
0° BM	<input type="checkbox"/>	Intermediate	1120	1/4T	80	1.6	36	Recordable Indications <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
⊥ To Weld	<input checked="" type="checkbox"/>	Intermediate	N/A	1/2T	55	3.3	36	Scan Limitations <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
To Weld	<input checked="" type="checkbox"/>	Intermediate	N/A	3/4T	35	5.1	36	Remarks: 3db Difference between 3/4 and 5/4 from clad side.		
		Final Cal.	1240	ID Notch	30	7.2	36	Limited scan area, see attached sketch		
				5/4T	25	8.7	36	Code Coverage Achieved <b>75.5 %</b>		
				Rompus FSDH	40	1.5	36	Risk Informed <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO C'Bore <input type="checkbox"/> Y <input checked="" type="checkbox"/> N		
Scanned    on Weld:	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO							Exam is Acceptable <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
Examiner	Paul Blecha	Lv.	III	Date:	10/29/2012	Reviewer: <i>[Signature]</i> Date: 10/30/12				
Print	Paul Blecha					Authorized Inspection Agency <i>[Signature]</i> 11/6/12				
Examiner	Kenneth R. Smith	Lv.	III	Date:	10/29/2012					
Print	Kenneth Smith									
Reviewer:	<i>[Signature]</i> Lv. III	Date:	10/29/12							
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Document Control Desk  
Attachment 2  
CR-12-05348  
RC-13-0068  
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## ULTRASONIC EXAMINATION REPORT

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VCS-R20-1010-03

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Document Control Desk  
Attachment 2  
CR-12-05348  
RC-13-0068  
Page 5 of 6

Plant:	V.C. Summer	Unit:	1	Procedure No.:	WDI-STD-1010	Rev.:	3				
Comp/ System:	PZE / RC	Cal. Blk. #	CGE-24	Ref. Blk. #	102465	"T" Nom.	3.4"	Nom. Pipe Ø	23.7"		
Isometric Dwg #	CGE-1-2100A	Thermometer S/N:	30006396	Block / Comp Temp:	67 °F / 89 °F						
<b>SEARCH UNIT</b>		<b>OD Surface Condition</b>		<b>Ground Flush</b>		<b>INSTRUMENT SETTINGS</b>					
Scan Angle:	60°	Mode:	Shear	Material Type	<input checked="" type="checkbox"/> CS <input type="checkbox"/> SS <input type="checkbox"/> DM	Mfr/Model No.	KrautKramer USN 52R				
Serial No.:	00008W	Mfr.	KBA			Serial No.:	102249				
Fixturing:	Non-Integral	Model:	Gamma			Pulser:	<input checked="" type="checkbox"/> Single <input type="checkbox"/> Dual				
Size:	0.5" x 1.0"	Shape:	Rectangle			Damping:	1000	Reject:	0%		
Frequency:	2.25 MHz	# Elem:	1			Freq.:	<input type="checkbox"/> .4-10 <input checked="" type="checkbox"/> 2-8	Rectify:	Full Wave		
Measured Angle:	62°	Exit Point	0.85			PRF:	High	Volt:	N/A	Jack:	T
RL Focal Point Verified	<input checked="" type="checkbox"/>	N/A	~ FS / FD			Range:	10.0"	Velocity	0.1273		
Couplant Type/Batch #:	UltraGel II / 12H028					Swp Delay:	0.000	Zero:	15.269		
Cable / Length / # Conn:	RG- 174 / 6' / 0										
Contoured Wedge	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/> Ax <input type="checkbox"/> Circ								
<b>SCAN AREA</b>		<b>CAL CHECKS</b>		<b>DAC</b>		<b>Cal</b>		<b>Scan</b>			
0° WRV	<input type="checkbox"/>	Initial Cal.	0850	Reflector ID	% FSH	Swp Pos	dB	Gain 0° or ⊥	45	67	dB
0° BM	<input type="checkbox"/>	Intermediate	1137	1/4T	80	1.7	45	Gain	45	67	dB
⊥ To Weld	<input checked="" type="checkbox"/>	Intermediate	N/A	1/2T	45	3.6	45	<b>EXAMINATION WELD/AREA</b>			
To Weld	<input checked="" type="checkbox"/>	Intermediate	N/A	3/4T	30	5.5	45	1-2100A-8 / NOZZLE TO SHELL			
		Final Cal.	1241	ID Notch	25	7.3	45	Recordable Indications <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
				5/4T	08	8.6	45	Scan Limitations <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
				Rompus FSDH	50	1.5	45	Remarks: 9db Difference between 3/4 and 5/4 from clad side.			
Scanned    on Weld: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO								Limited scan area. See attached sketch			
Examiner <u>Paul Blecha</u> Lv. III Date: 10/29/2012								Code Coverage Achieved <u>75.5 %</u>			
Print Paul Blecha								Risk Informed <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO C'Bore <input type="checkbox"/> Y <input checked="" type="checkbox"/> N			
Examiner <u>Kenneth R. Smith</u> Lv. III Date: 10/29/2012								Exam is Acceptable <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
Print Kenneth Smith											
Reviewer: <u>[Signature]</u> Date: 10/29/12								Reviewer: <u>[Signature]</u> Date: 10/30/12			
								Authorized Inspection Agency <u>AMOSTA AKOWU</u> 11/4/12			
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# ULTRASONIC EXAMINATION SKETCH SHEET

Report # PZR-01

1200466004

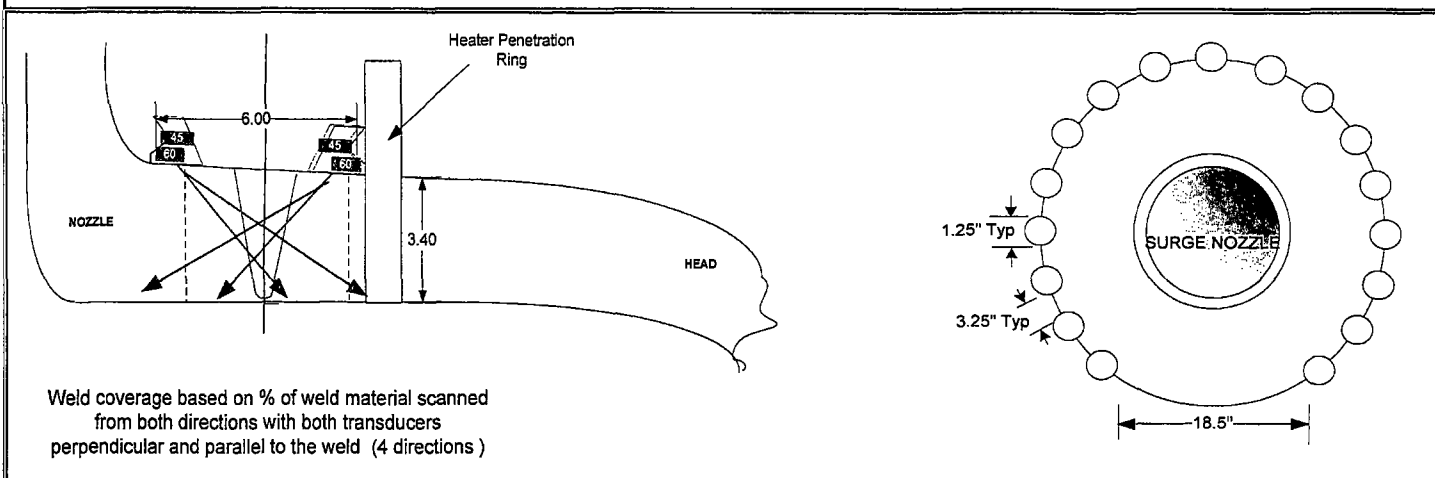
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Plant/Unit: V.C. Summer / 1

Comp/System: PZR / RC

Weld / Component ID Number: 1-2100A-8

Crown Height:	Flush
Crown Width:	2.00"
Diameter:	N/A
Weld Length:	74.5"



COMMENTS: Weld material coverage calculated as : CW = 100%, CCW = 100%, Ax Hd = 51%, Ax Nz = 51% TOTAL = 302%  
302% / 4 = 75.5% Weld Volume Coverage

EXAMINER: Paul S Blecha Lv. III Date 10/29/2012  
Print Paul Blecha

EXAMINER: Kenneth R. Smith Lv. III Date 10/29/2012  
Print Kenneth Smith

REVIEWER: [Signature] Lv. II DATE 10/29/12

REVIEWER: [Signature] Lv. III DATE: 10/30/12

Authorized Inspection Agency El Mostafa El Yousfi DATE 11/4/12

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