

Stephen A. Byrne
Senior Vice President, Nuclear Operations
803.345.4622



September 16, 2003
RC-03-0197

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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
RESUBMITTAL OF REQUEST TO USE ALTERNATIVES TO ASME
BOILER AND PRESSURE VESSEL CODE, SECTION XI (C-02-3202)
RR-II-9, RR-II-10, RR-II-11, RR-II-12

Reference: S.A. Byrne (SCE&G) letter to Document Control Desk (NRC) RC-02-0191,
dated October 30, 2002, Request To Use Alternatives To ASME Boiler and
Pressure Vessel Code, Section XI,
RR-II-8, RR-II-9, RR-II-10, RR-II-11, RR-II-12

In the referenced letter above, South Carolina Electric & Gas Company (SCE&G), submitted a request for relief from performing examination to the criteria of the American Society of Mechanical Engineers (ASME), Section XI.

A meeting between the V. C. Summer Nuclear Station (VCSNS) NRR Project Manager, the NRC technical reviewer, and SCE&G was held on August 8, 2003, at NRR offices. The technical reviewer discussed several issues with the requests submitted by SCE&G. SCE&G was requested to withdraw and resubmit RR-II-9, RR-II-10, RR-II-11, and RR-II-12. RR-II-8 was in the approval process.

This letter provides the resubmittal for RR-II-9, RR-II-10, RR-II-11, and RR-II-12.

SCE&G hereby resubmits the attached requests for using alternatives to the examination requirements of ASME Code, Section XI. SCE&G has determined that the proposed alternatives will provide an acceptable level of quality and safety.

Detailed descriptions of these proposed alternatives, including bases for relief, are included as attachments to this letter. SCE&G requests NRC review and approval of this request by October 1, 2003, so that appropriate changes to the VCSNS Examination Program can be completed to support implementation during refueling outage 14 (RF14), currently scheduled to start October 11, 2003.

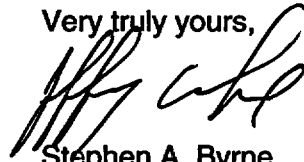
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Document Control Desk
0-C-02-3202
RC-03-0197
Page 2 of 2

SCE&G is submitting the attached relief requests in accordance with 10CFR50.55a(a)(3)(i).

Should you have any questions, please call Mr. Ron Clary at (803) 345-4757.

Very truly yours,


Stephen A. Byrne
PER DIRECTION
OF STEVE BYRNE
9/16/03

JWT/SAB/dr
Attachments (4)

c: N. O. Lorick
N. S. Carns
T. G. Eppink (w/o Attachments)
R. J. White
L. A. Reyes
K. R. Cotton
K. M. Sutton
A. R. Caban
NRC Resident Inspector
NSRC
RTS (0-C-02-3202)
File (810.19-2)
DMS (RC-03-0197)

**South Carolina Electric & Gas Co. (SCE&G)
Virgil C. Summer Nuclear Station (VCSNS)
Relief Request**

RR-II-09

Subject:

This relief request provides alternate requirements for the inspection of piping welds required by ASME Code, Section XI, 1989 Edition (henceforth Section XI).

Components:

ASME Code Class 1 & 2 piping system welds requiring ultrasonic examination.

Code Requirement:

Table IWX-2500-1 for Examination Categories B-F, B-J, C-F-1 and C-F-2 requires piping welds to be ultrasonically inspected each Interval. Each selected weld is required to be inspected essentially 100% of the required volume. ASME Code Case N-460 qualifies the ultrasonic examination when at least 91% of the required volume has been achieved.

Relief Request:

Relief is requested from achieving 91% of the required volume during performance of the ultrasonic examination when component design and geometric limitations preclude a complete exam.

Alternate Test:

To the extent practical, the weld required volume and base metal area, Figure IWB-2500-8 as an example, will be ultrasonically examined. Each weld with less than the allowed 91% coverage shall have a detailed description of the beam angles used and the extent of coverage achieved. For welds identified in the table presented in the following *Basis for Relief* that do not achieve the volumetric percentage specified, a relief request will be submitted.

Basis for Relief:

VCSNS is presently required to perform component inspections in accordance with the 1989 Edition of ASME Section XI. The general design of the component surfaces may have ultrasonic scan interference caused by inherent manufacturing geometry or obstructions that preclude access to the weld area. Examples of these piping configurations are valve bodies, pipe fitting transitions, nozzle radius transitions, nozzle reinforcing pads and non bolted obstructions. Each selected weld shall be examined to the maximum extent practical to include the use of multiple angles and beam paths.

Examination of all accessible areas of each selected component ensures the integrity of the component and provides an acceptable level of quality and safety. Specific welds, including the limitations identified through previous examinations, requiring relief are listed in the table below:

WELD ID	CATEGORY	ITEM	PERCENTAGE COMPLETE	LIMITATION
CGE-1-4100-29	B-J	B9.11	83%	Safe End Taper
CGE-1-4100-30	B-J	B9.11	83%	Safe End Taper
CGE-1-4100-31DM	B-F	B5.70	25%	Nozzle Contour, Safe End Taper
CGE-1-4100-32DM	B-F	B5.70	25%	Nozzle Contour, Safe End Taper
CGE-1-4102-7	B-J	B9.11	50%	Valve contour
CGE-1-4200-23BC	B-J	B9.31	81%	Branch Nozzle Contour
CGE-1-4200-26	B-J	B9.11	83%	Safe End Taper
CGE-1-4200-27	B-J	B9.11	83%	Safe End Taper
CGE-1-4200-28DM	B-F	B5.70	25%	Nozzle Contour, Safe End Taper
CGE-1-4200-29DM	B-F	B5.70	25%	Nozzle Contour, Safe End Taper
CGE-1-4300-27	B-J	B9.11	83%	Safe End Taper
CGE-1-4300-28	B-J	B9.11	83%	Safe End Taper
CGE-1-4300-29DM	B-F	B5.70	25%	Nozzle Contour, Safe End Taper
CGE-1-4300-30DM	B-F	B5.70	25%	Nozzle Contour, Safe End Taper
CGE-1-4502-13	B-J	B9.11	50%	Pipe to Tee
CGE-1-4503-46DM	B-F	B5.40	90.4%	Nozzle Contour
CGE-2-2554-5	C-F-1	C5.11	88%	Elbow to pipe
CGE-2-3010-15	C-F-1	C5.21	82%	Elbow to Valve, One sided Exam
CGE-2-3011-34	C-F-1	C5.21	81%	Elbow to Tee, One sided exam

The accompanying drawings, sketches, and previous examination results are provided as supplemental information for this request.

Implementation Schedule:

The proposed alternative is requested for the second 10-year inservice inspection interval. The second inservice inspection interval is scheduled to end on December 31, 2003 with the final inspection outage, Refuel Cycle 14, to be implemented starting on October 11, 2003.

**Sketches, Drawings, and Inspection Information
For
RR-II-9**

CGE-1-4100A

UT Data sheet VCSU-1394

Sketch 12148

UT Data Sheet VCSU-1403

CGE-1-4102A

Calibration Data Sheet UT-VCSU-RF13-2002-003

CGE-1-4200A

Calibration Data Sheet 99UT-013

Sketch 12150

UT Data Sheet VCSU-1404

CGE-1-4300A

Sketch 12149

UT Data Sheet VCSU-1395

CGR-1-4502

Calibration Data Sheet UT-VCSU-RF-13-2002-002

CGE-1-4503

Calibration Data Sheet 99UT-001

CGE-2-2554

Calibration Data Sheet 99UT-020

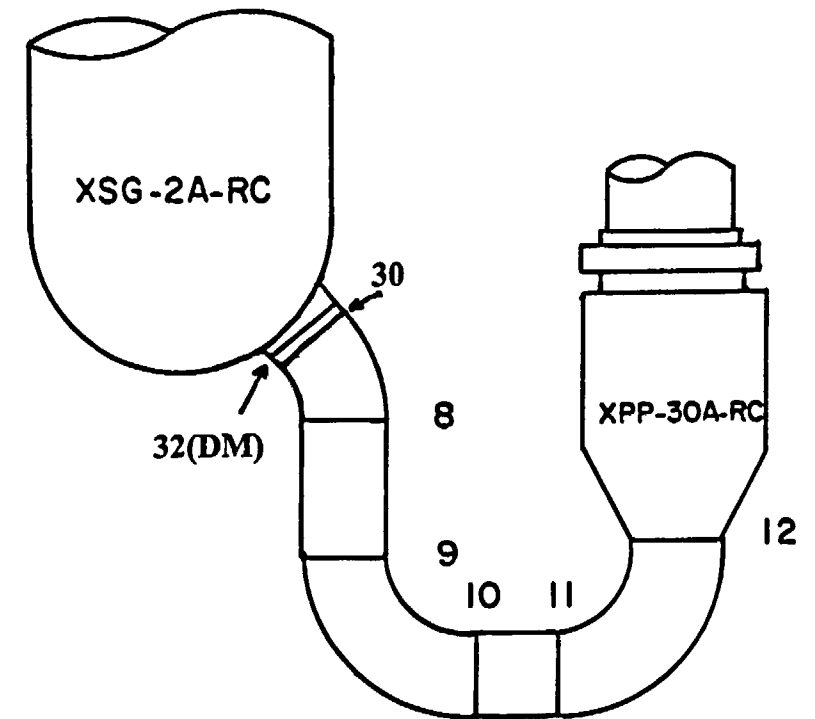
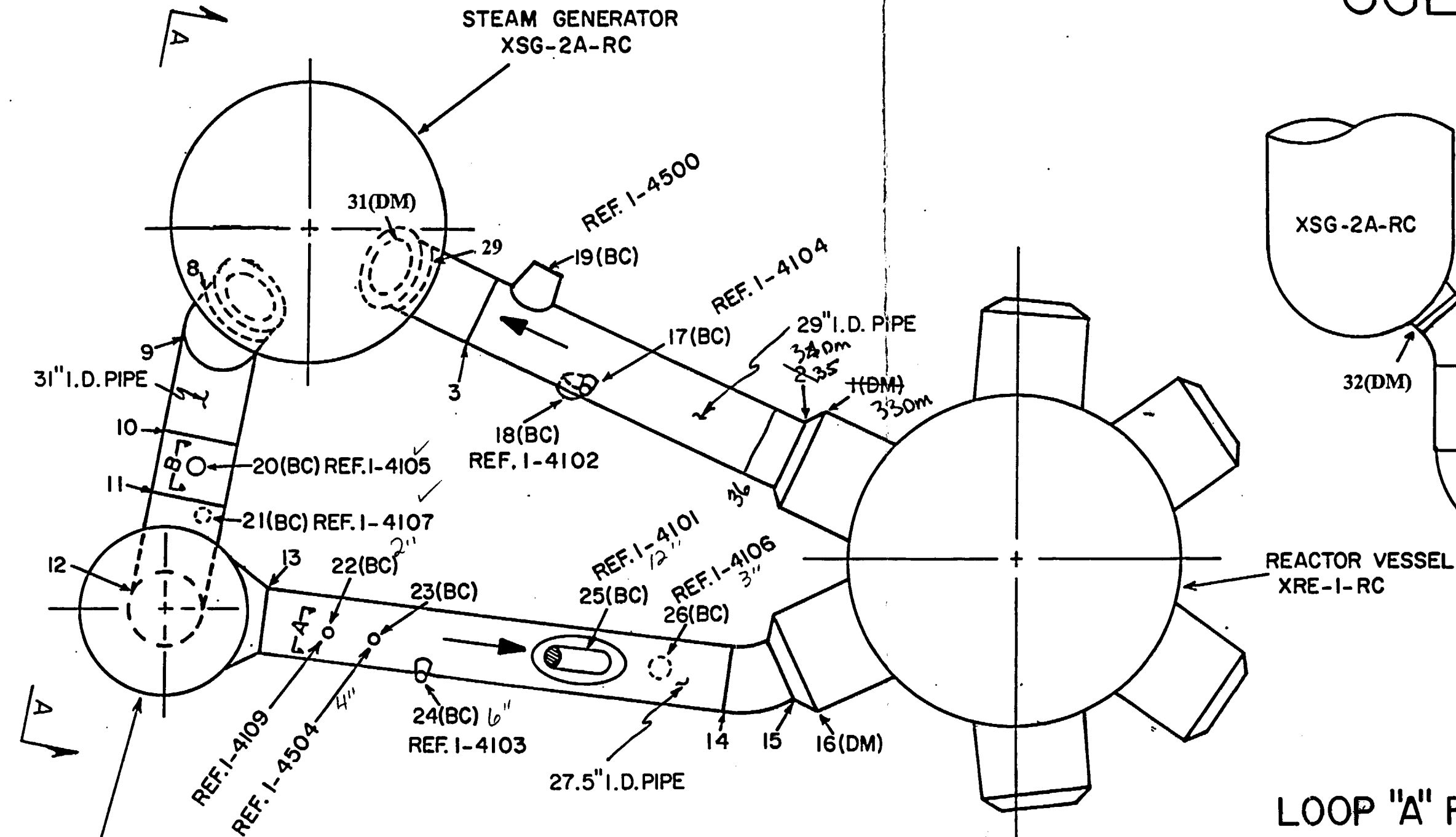
CGE-2-3010, Sheet A

Calibration Data Sheet 99UT-009

CGE-2-3011

Calibration Data Sheet 99UT-015

CGE-1-4100A



SECTION A-A

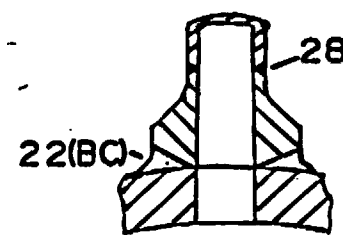
COPY

LOOP "A" R.C. PIPE

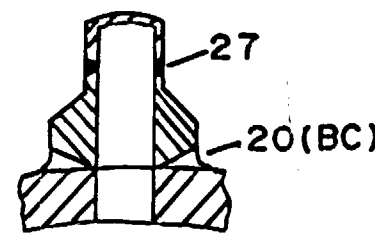
DE-RC-06A

12-8-99 ADDED WELDS 29, 30, 31(DM) & 32(DM) PER MRF-90,001

Changes per NEN



DETAIL "A"



DETAIL "B"

ADDED WELDS 27 & 28 PER MRF 21315

FOR PRESERVICE AND FIRST REFUELING SEE DWG. CGE-1-4100

DWG. NO. CGE-1-4100A			ROOM NO. "A" LOOP REACTOR BLDG.		
ORIG.	REVISION	4	PIPE SIZE	THICKNESS	MAT'L
DRN	CKD	APPD	27.5" I.D.	2.375"	SA-376
DATE	DATE	DATE	29" I.D.	2.500	SA-376
ARC	N/A	Acc	31" I.D.	2.625	SA-376
12-8-99	N/A	12-8-99			

PSI

COPY

6063A/1-90

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

PAGE 1 OF 1PROJECT V.C. SUMMER RFOB DATA SHEET NO. VCSCU-1394 DATE 10-7-94SYSTEM PC PROCEDURE SCG-UT-89-1 REV. 0

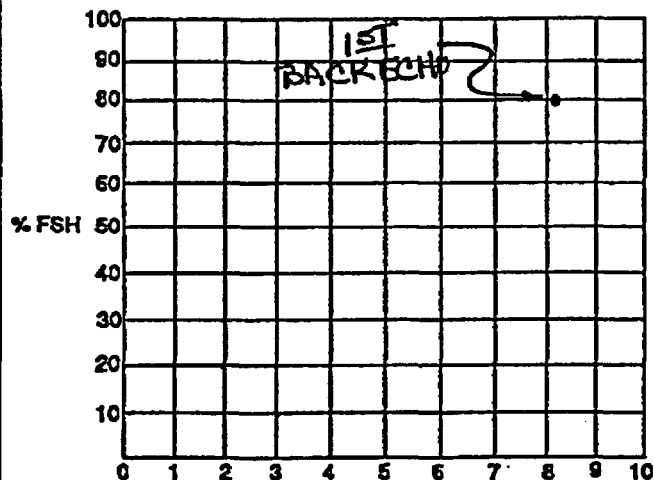
COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
STEAM GENERATOR "A" HOT & COLD LEG	64°F	130377	NR1
STEAM GENERATOR "B" HOT & COLD LEG	64°F	130377	NR1
STEAM GENERATOR "C" HOT & COLD LEG	64°F	130377	NR1
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
CAL BLOCK NO. <u>N/A</u> THK <u>N/A</u>	N/A	N/A	NOTCHES <u>N/A</u> SDH <u>N/A</u>

EXAM COVERAGE

☒ ID ☒ OD ☒ WHAZ ☒ BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER N/A

EQUIPMENT DATA

SEARCH UNIT	INSTRUMENT
Manufacturer <u>KBA</u>	Manufacturer <u>STAVELEY</u> Model <u>SONIC-136</u>
Style <u>GAMMA</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Serial No. <u>136-1082M</u> Cable Length <u>10' RG-57</u>
Serial No. <u>C14605</u>	Frequency <u>2.25</u> Reject <u>OFF</u>
Size(s) <u>.5" Ø</u> Freq <u>2.25</u>	Rep Rate <u>4KHz</u> Damping <u>500 Ω</u>
Angle <u>0°</u> Mode <u>LONGITUDINAL</u>	dB Gain: Coarse <u>N/A</u> Fine <u>72.3</u>
Couplant <u>UTRAGEL II</u> Batch No. <u>094051</u>	Primary Reference Response
	Amplitude - % Full Screen Height <u>1ST BACK ECHO @ 75%</u>

DAC PLOT-TIME 8:05 AM, PM

SWEEP
SCREEN SIZE: 6

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
<u>11:15</u>	<input checked="" type="checkbox"/>	<u>N/A</u>	<input checked="" type="checkbox"/>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

EXAMINER(S):

1. [Signature] TC-1A LEVEL III DATE 10-7-94
2. [Signature] TC-1A LEVEL II DATE 10-7-94

REVIEWED BY:

1. [Signature] DATE 10/19/94
2. N/A DATE N/A
ANII [Signature] DATE 11-7-94

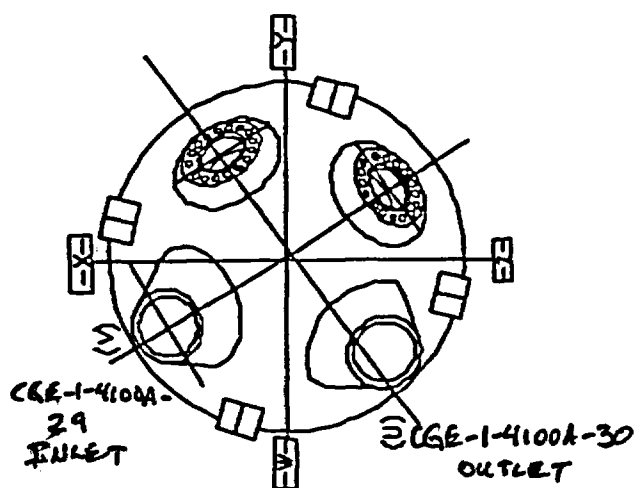
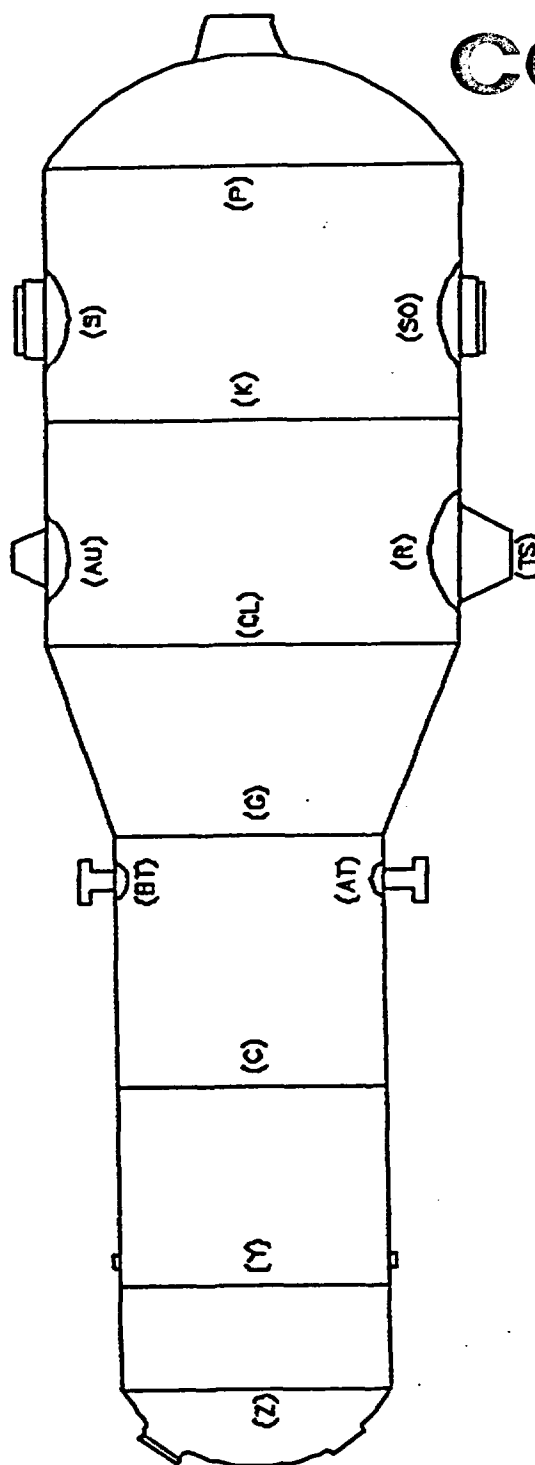
ADDITIONAL REMARKS

PERFORMED ZERO DEGREE SCAN ON HOT LEG AND COLD LEG SAFE ENDS FOR ALL NEW STEAM GENERATORS (A, B, C). SCANNING WAS FROM I.D. MAINTAINED 2. ECHO AT 50 TO 75% FSH. EXAMINATION WAS PERFORMED FROM O.D. IN AREAS OF RESTRICTION. HOT LEG ON A & B GENERATORS EXAMINATION IS LIMITED DUE TO ATTACHMENTS FOR WELDING. LIMITATION IS 4" FROM CL OF WELD. 1 1/2" ON EACH SIDE OF RT. MARKER 4.

137

V.C. SUMMER REPLACEMENT STEAM GENERATOR

COPY



U & V, NOZZLE TO SAFE END WELDS CGE-1-4100A-

U-IR & V-IR, NOZZLE INSIDE RADIUS

CGE-1-4100A

A Loop

XSG-0002A

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

PROFILE OF THE EXAMINATION VOLUME

Copy

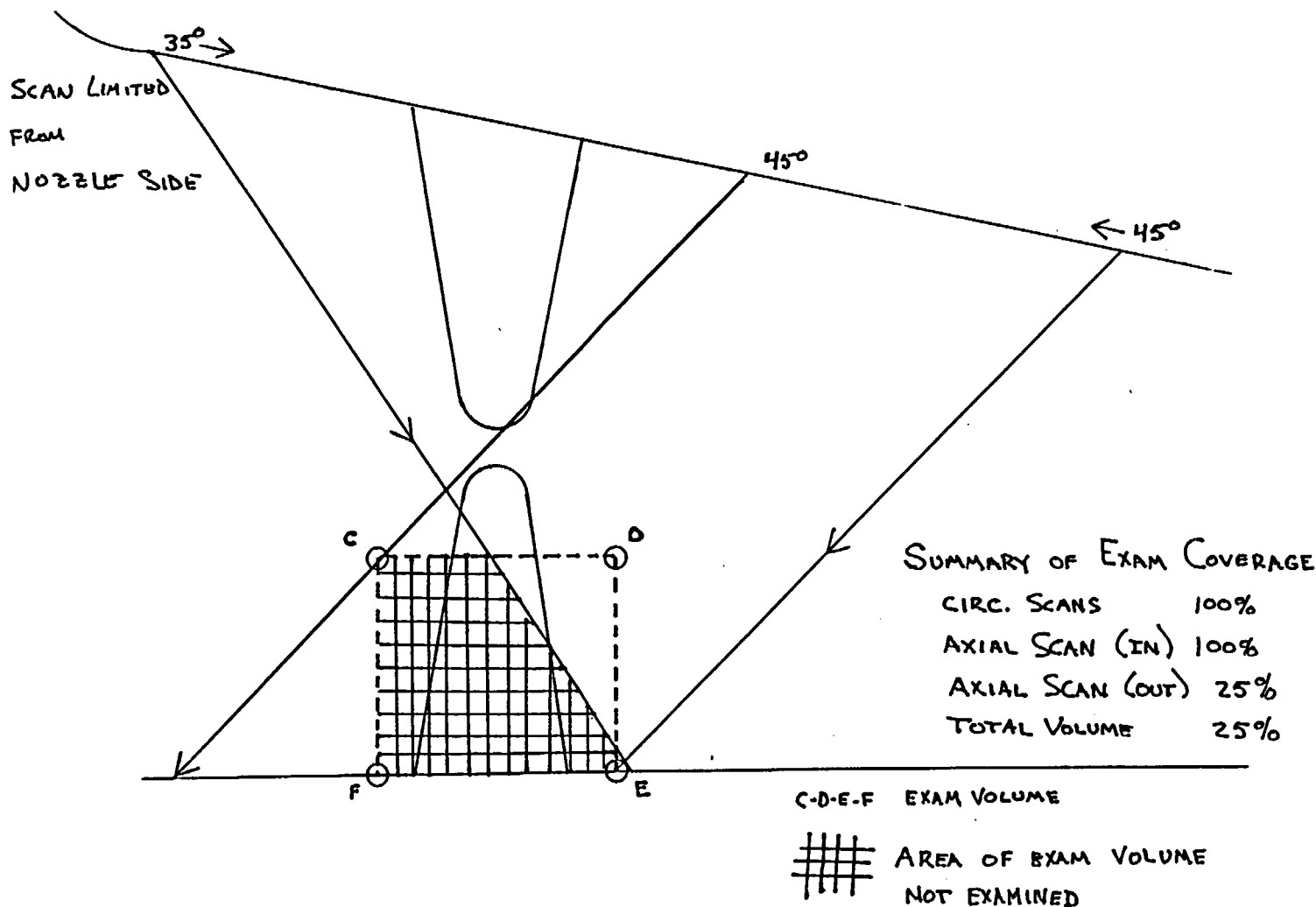
PLANT V.C. SUMMER

UNIT #1 SKETCH 12148

SYST./COMP. PRIMARY NOZZLE TO SAFE END BUTT WELD, HOTLEG / COLDLEG PROCEDURE SGE-1S1-250 REV. 0

EXAMINER SPR A S/G L III

DATE 7-17-94 IDENT. U/V



Equipment Module

Edit View Report Module Facility Utility Options

COPY
Help

Equipment : XSG0002A Alt Id : Owner : VCS
Name : STEAM GENERATOR A Dept... : 243
Type... : HTEXC HEAT EXCHANGERS, COND., C EPIX: Y Status...:
Group... : Criticality...:
Unit... : 1 PLANT 1 Maint Area... :
System... : RC REACTOR COOLANT Func Sys... : RC
Account... : 5300000 MAINT REACTOR PLANT Validation : U Unknown
Parent... : Building... : RB Floor...: 412
Rpr Spare? : N Cost Roll? : Room... :
Loc Desc : RB-412-290-32RB412-03-2
Description: VERTICAL U/TUBE INSTALL & REMOVE SCAFFOLDING Safety/ISO?:
: REMOVE/REPLACE INSULATION IN SUPPORT OF MWR-88M0
: 003 REF:CMP0100.009
:
:
Notebooks? : N BOM... :
Specs? : Y Vendor... : W120
Asset Num : Mfg... : W120
Make : Dwg? : Y Model : DELTA 75
Serial Num : 12148 Size : 4250MBH
Alternate Equipment Id.

A Loop COPY PSI

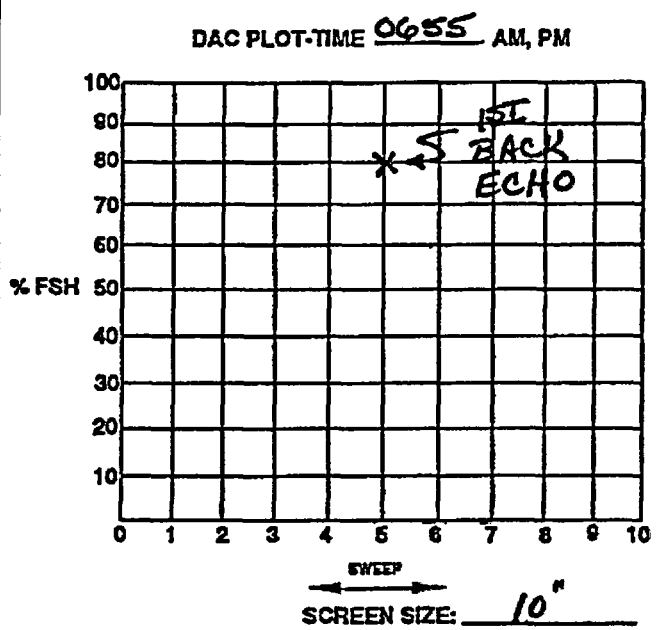
6063A/1-80 Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA
PROJECT V.C. SUMMER DATA SHEET NO. VCSU 1403 PAGE 1 OF 8
SYSTEM RC MWR# 9393130 PROCEDURE SEEG-UT-89-1 DATE 10-29-99
REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
<u>CGE-1-4100A-29</u>	<u>73°F</u>	<u>130333</u>	<u>NR1</u>
<u>CGE-1-4100A-30</u>	<u>73°F</u>	<u>130333</u>	<u>NR1</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
CAL BLOCK NO. <u>9741022</u> THK. <u>5.0"</u>	<u>68°F</u>	<u>130333</u>	NOTCHES <u>N/A</u> SDH <u>N/A</u>

EXAM COVERAGE
N/A AD N/A OD N/A WHAZ N/A BASE MATERIAL N/A AXIAL N/A CIRCUMFERENTIAL N/A SIZING N/A OTHER N/A

EQUIPMENT DATA

SEARCH UNIT	INSTRUMENT
Manufacturer <u>KBA</u>	Manufacturer <u>STAVELEY</u> Model <u>SONIC 136</u>
Style <u>GAMMA-HP</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Serial No. <u>136-5026</u> Cable Length <u>BNC-BNC 6' RG-58</u>
Serial No. <u>E04000</u>	Frequency <u>1 MHz</u> Reject <u>OFF</u>
Size(s) <u>.75" Ø</u> Freq. <u>1.0</u>	Rep Rate <u>4 KHz</u> Damping <u>500 Ω</u>
Angle <u>0°</u> Mode <u>LONG</u>	dB Gain: Coarse <u>N/A</u> Fine <u>*</u>
Couplant <u>ULTRAGEL II</u> Batch No. <u>094051</u>	Primary Reference Response Amplitude - % Full Screen Height <u>1ST BACK ECHO TO 80% FSH</u>



CALIBRATION CHECKS

TIME	AMPL: 20% (dB) OF INITIAL AMPL		SWEEP: 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
<u>1420</u>	<u>✓</u>	<u>N/A</u>	<u>✓</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

EXAMINER(S):
1. [Signature] TC-1A LEVEL III DATE 10/29/99
2. [Signature] TC-1A LEVEL III DATE 10-29-99

REVIEWED BY:
1. [Signature] DATE 11-1-99
2. N/A DATE N/A
ANII [Signature] DATE 11-4-99

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS * AS NEEDED TO MAINTAIN BACK REFLECTION AT 70% FSH
SCANNED ON ELBOW SIDE, WELD, AND IN AREA OF LIMITATION ON SAFE END.
REFERENCE DATA SHT # VCSU1394. SCAN ON ELBOW SIDE WAS PERFORMED
ON ELBOW LANDING (APPROX 4" BACK FROM WELD JOE).
0° MWR# 9393130

166

PS1

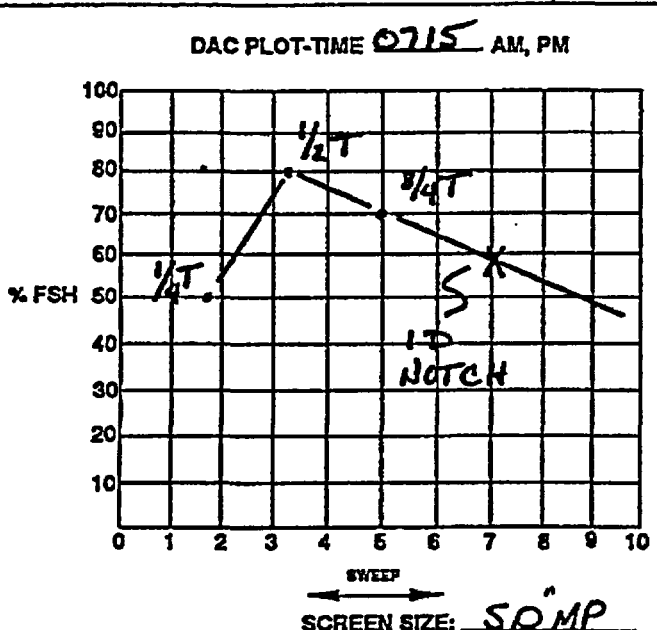
COPY

6063A/1-80 Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA
PROJECT V.C. SUMMER RFOB DATA SHEET NO. 10541403 PAGE 2 OF 8
SYSTEM R.C MWR# 9303130 PROCEDURE SCFG - UT - 89-1 DATE 10-29-94 REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CGE-1-4100A-29	73°F	130333	NR1
CGE-1-4100A-30	73°F	130333	NR1
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
CAL BLOCK NO. <u>UT-002</u> THK <u>2.60"</u>	70°F	130333	NOTCHES <input checked="" type="checkbox"/> SDH <input checked="" type="checkbox"/>

EXAM COVERAGE
1/4" ID ☒ OD ☒ 1/4" WHAZ ☒ 1/4" BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER ☒

EQUIPMENT DATA
SEARCH UNIT
Manufacturer KBA / PN 2910387
Style ALPHA ☒ Single ☒ Dual
Serial No. C12495 / C12496
Size(s) 1" (DUAL) Freq. 1.0
Angle 45° Mode LONG
Couplant ULTRAGEL II Batch No. 094051
INSTRUMENT
Manufacturer STAVELEY Model SONIC 136
Serial No. 136-502G Cable Length 6' RG-58
Frequency 1MHz Reject OFF
Rep Rate 4KHz Damping 100-Ω
dB Gain: Coarse N/A Fine 85.8 (Notch)
Primary Reference Response
Amplitude - % Full Screen Height 1D NOTCH TO DAC



CALIBRATION CHECKS

TIME	AMPL: 20% (dB) OF INITIAL AMPL		SWEEP: 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1443	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):
1. 11.1 TC-1A LEVEL III DATE 11/29/94
2. 11.1 TC-1A LEVEL III DATE 10-29-94

REVIEWED BY:
1. 11.1 DATE 11-1-94
2. 11.1 DATE 11-1-94
ANII 11.1 DATE 11-1-94

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS SAME CALIBRATION USED FOR AXIAL AND CIRC SCANS DUE TO NO EDH OR AXIAL NOTCH IN CALIBRATION BLOCK.
MAINTAINED NOISE LEVEL FROM 5-20% FSH.

45° DUAL EXAMINATION FROM ELBOW SIDE MWR 9303130

167

PS1

COPY

6063A/1-80

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

PAGE 3 OF 8

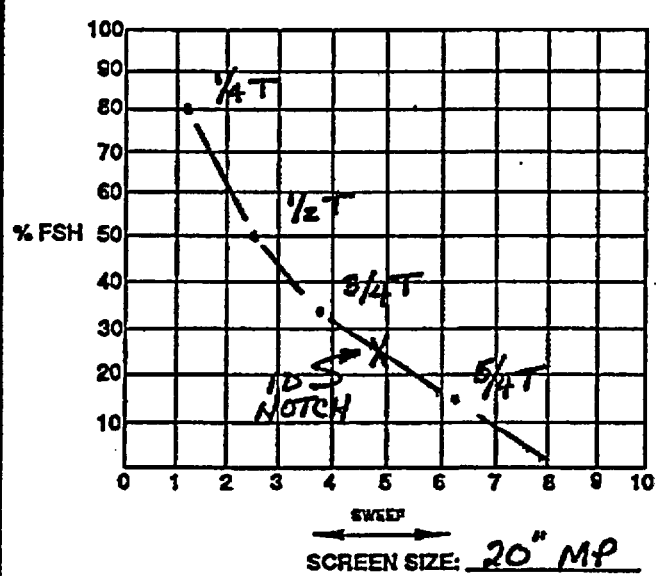
PROJECT V.C. SUMMER RFOB DATA SHEET NO. 10541403 DATE 10-29-94
SYSTEM RC MWP# 9303130 PROCEDURE SCEG-UT-89-1 REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
<u>CGE-1-4100A-29</u>	<u>73°F</u>	<u>130333</u>	<u>NR1</u>
<u>CGE-1-4100A-30</u>	<u>73°F</u>	<u>130333</u>	<u>NR1</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	<u>68°F</u>	<u>130333</u>	NOTCHES <input checked="" type="checkbox"/> SDHZ <input checked="" type="checkbox"/>

EXAM COVERAGE
ID ☒ OD ☒ WHAZ ☒ BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER N/A

SEARCH UNIT	INSTRUMENT
Manufacturer <u>KBA</u>	Manufacturer <u>STAVELEY</u> Model <u>SONIC 136</u>
Style <u>GAMMA</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Serial No. <u>136-502G</u> Cable Length <u>6' PG-69</u>
Serial No. <u>L20941</u>	Frequency <u>2.25</u> Reject <u>OFF</u>
Size(s) <u>1/2" x 1"</u> Freq. <u>2.25</u>	Rep Rate <u>4 KHZ</u> Damping <u>500 Ω</u>
Angle <u>58°</u> Mode <u>SHEAR</u>	dB Gain: Coarse <u>N/A</u> Fine <u>36.2 (NOTCH)</u>
Couplant <u>INTRAGEL II</u> Batch No. <u>094051</u>	Primary Reference Response Amplitude - % Full Screen Height <u>ID NOTCH TO DAC</u>

DAC PLOT-TIME 0700 AM, PM



CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
<u>1428</u>	<input checked="" type="checkbox"/>	<u>N/A</u>	<input checked="" type="checkbox"/>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

EXAMINER(S):
1. M. L. TC-1A LEVEL III DATE 10/29/94
2. M. J. S. TC-1A LEVEL III DATE 10-29-94

REVIEWED BY:
1. [Signature] DATE 11-1-94
2. N/A DATE N/A
ANII [Signature] DATE 11-4-94

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS

60° SHEAR 1/2 Y AX SCAN EXAMINATION FROM SAFE END SIDE ONLY.
MWP# 9303130

COPY PSI

6063A/1-80

Raytheon Engineers & Constructors MATERIALS TESTING AND EXAMINATION SERVICES ULTRASONIC CALIBRATION DATA

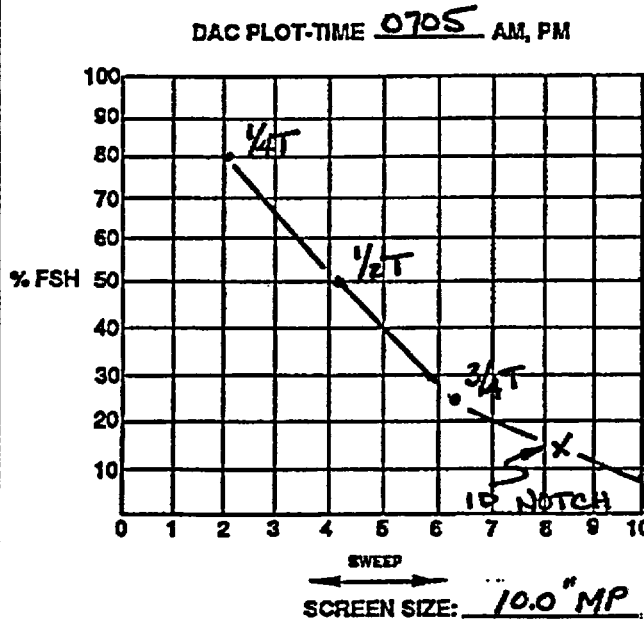
PAGE 4 OF 8
DATE 10-29-94

PROJECT V.C. SUMMER 2F08 DATA SHEET NO. VCSU1403
SYSTEM RC MWIR # 9303130 PROCEDURE SEEG-UT-89-1 REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CGE-1-4100A-29	73°F	130333	SEE ATTACHED
CGE-1-4100A-30	73°F	130333	NR1
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	<u>68°</u>	<u>130333</u>	NOTCHES <input checked="" type="checkbox"/> SDH <input checked="" type="checkbox"/>

EXAM COVERAGE
☒ END ☒ OD ☒ 1/4" WHAZ ☒ 1/4" BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER N/A

SEARCH UNIT		INSTRUMENT	
Manufacturer <u>HARISONIC</u>	Style <u>HDL</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Manufacturer <u>STAVELEY</u>	Model <u>SONIC 136</u>
Serial No. <u>K10261</u>	Size(s) <u>2 (5" x 1.0")</u> Freq. <u>6.5</u>	Serial No. <u>136-502 G</u>	Cable Length <u>6' 26-174 (DUAL)</u>
Angle <u>53°</u> Mode <u>LONG</u>	Couplant <u>UTRAGEL II</u> Batch No. <u>094051</u>	Frequency <u>1 MHZ</u>	Reject <u>OFF</u>
		Rep Rate <u>2 KHZ</u>	Damping <u>100 Ω</u>
		dB Gain: Coarse <u>N/A</u>	Fine <u>57.6 dB (NOTCH)</u>
		Primary Reference Response	Amplitude - % Full Screen Height <u>10 NOTCH TO DAC</u>



TIME	AMPL: 20% (dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1436	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):
 1. 17.0 TC-1A LEVEL III DATE 10-29-94
 2. [Signature] TC-1A LEVEL III DATE 10-29-94

REVIEWED BY:
 1. [Signature] DATE 11-1-94
 2. N/A DATE N/A
 ANII [Signature] DATE 11-4-94

ADDITIONAL REMARKS EXAMINATION PERFORMED FROM THICKER SAFE END TAPER ONLY.

53° L AX SCAN

PSI

6063A/1-90

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

COPY
PSU 1403

PAGE 5 OF 8
DATE 10-29-94

PROJECT V.C. SUMMER RFOB

DATA SHEET NO. PSU 1403

SYSTEM PC MWR 9303130

PROCEDURE SCG-UT-89-1

REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CGE-1-4100A-29	73°F	130333	SEE ATTACHED
CGE-1-4100A-30	73°F	130333	↓ ↓
N/A	N/A		N/A
N/A	N/A		
N/A	N/A		
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	<u>68°F</u>	<u>130333</u>	NOTCHES <input checked="" type="checkbox"/> SDH <input checked="" type="checkbox"/>

EXAM COVERAGE

☒ ID ☒ OD ☒ WHAZ ☒ BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER N/A

EQUIPMENT DATA

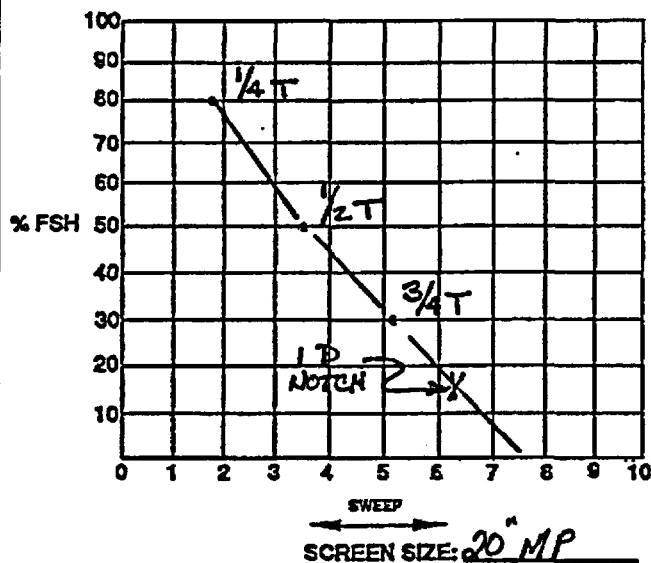
SEARCH UNIT

Manufacturer HARISONIC
Style HDL ☒ Single ☒ Dual
Serial No. K10259
Size(s) 2 (5" x 1") Freq. 1.5
Angle 67° Mode LONG
Couplant UTRASEL II Batch No. 094051

INSTRUMENT

Manufacturer STAVELEY Model SONIC 136
Serial No. 136-502G Cable Length 6' RG-774(DAL)
Frequency 1 MHz Reject OFF
Rep Rate 2 KHz Damping 100 Ω
dB Gain: Coarse N/A Fine 65.4 (NOTCH)
Primary Reference Response
Amplitude - % Full Screen Height ID NOTCH AT DAC

DAC PLOT-TIME 0650 AM, PM



CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1432	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):

1. TLQ TC-1A LEVEL III DATE 10/30/94
2. HSS TC-1A LEVEL II DATE 10-29-94

REVIEWED BY:

1. ADD DATE 11-1-94
2. N/A DATE N/A
ANII G. Halladass DATE 11-4-94

ADDITIONAL REMARKS EXAMINATION PERFORMED FROM SAFE END TAPER (NDM, 22°)
50-29-94 ADJACENT TO WELD TOE ONLY.

67°L AX SCAN

170

MATERIALS TESTING AND EXAMINATION SERVICES

ITEM IDENTIFICATION CGE-1-9100A-29

CALIBRATION DATA SHEET NO. _____

WELD # CGE-1-4100A-29 (HOT LEG "A" GENERATOR)

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON (ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING MP	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
ST. BEAM	CIRCUM-FERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	AXIAL (DISTANCE FROM WELD C) *	MINIMUM		MAXIMUM		INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
									SWEEP READING	S.U. POSITION	SWEEP READING	S.U. POSITION		
N/A	N/A	53°L	1	DS	25%	6.8"	105.5" CW	.45"	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	53°L	2***	DS	40%	8.6"	106" CW	.75"	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	67°L	3***	DS	110%	7.2"	9.5" CW	1.85"	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	67°L	4***	DS	25%	5.8"	8.5" CW	2.1"	N/A	N/A	N/A	N/A	N/A	N/A
N/A														

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% I		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
1	✓	N/A	360° INT	N/A	N/A	N/A	* FROM EDGE OF TAPER TO EXIT POINT
				N/A			** SHEAR COMPONENT
							INDICATIONS 1, 2, 3 & 4 ARE 360° INTERMITTENT

CONTINUATION ATTACHED - ☐ YES ☒ NO

EXAMINERS

1. TC-1A LEVEL III

2/10/11 TC-1A LEVEL #1

REVIEWED BY W. J. [Signature] DATE 11-1-88

12

PSI

Raytheon
Engineers & Constructors

COPY

VOSU 1403

BY SS DATE 10-29-94

SHEET 8 OF 8

CHKD. BY 110 DATE 10/29/94

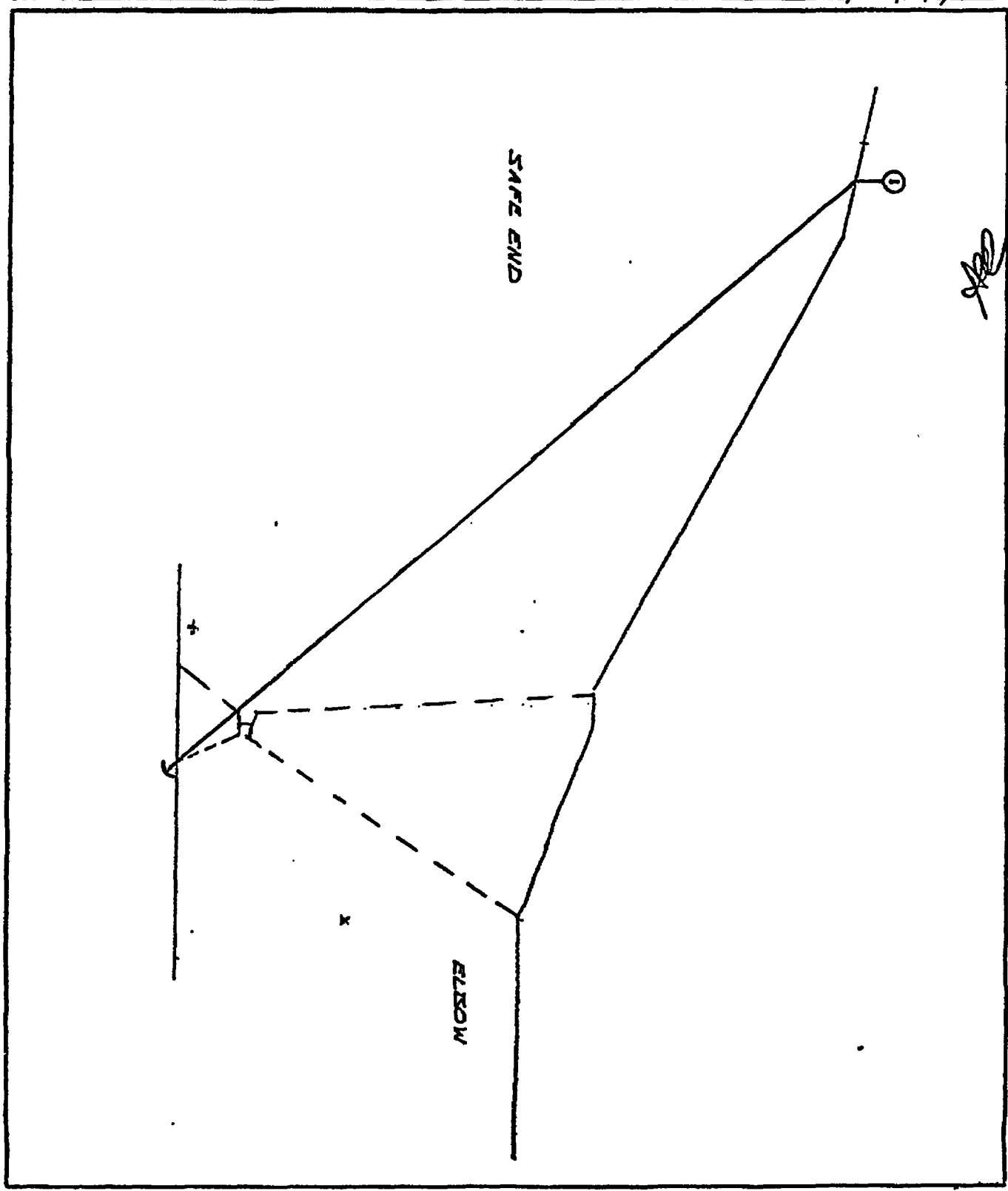
OFS NO. N/A DEPT. NO. N/A

CLIENT SCEG

PROJECT V.C. SUMMER RF-08

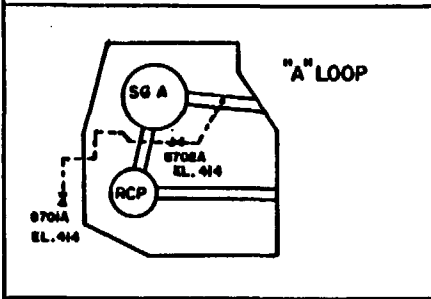
SUBJECT WELD[#] CGE-1-4100A-89

53 Plot for study

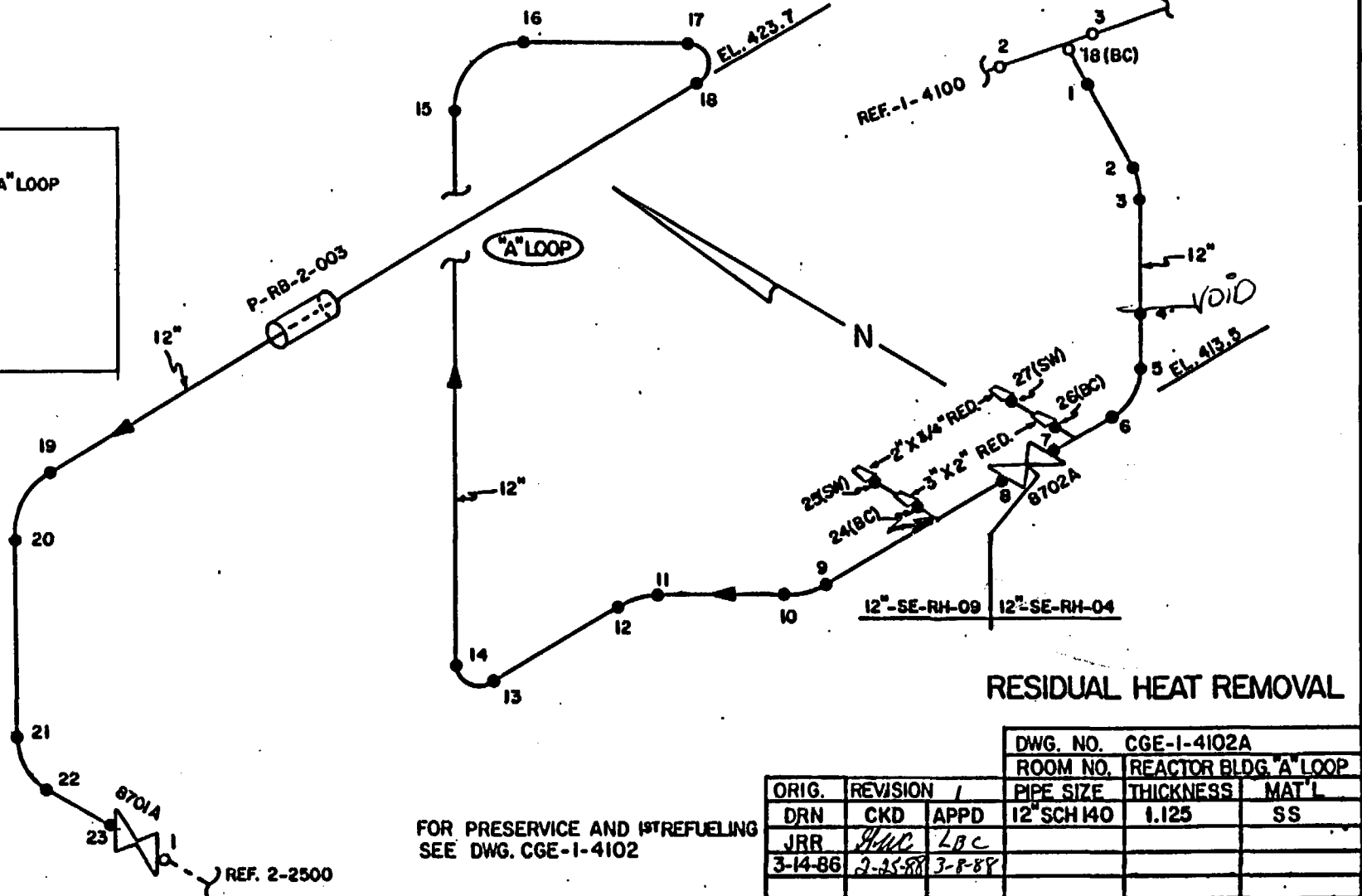


CGE-I-4102A

LOCATOR



"A" LOOP



RESIDUAL HEAT REMOVAL

FOR PRESERVICE AND 1ST REFUELING
SEE DWG. CGE-I-4102

DWG. NO. CGE-I-4102A			ROOM NO. REACTOR BLDG. "A" LOOP		
ORIG.	REVISION		PIPE SIZE	THICKNESS	MAT'L
DRN	CKD	APPD	12" SCH 140	1.125	SS
JRR	<i>JRR</i>	<i>LBC</i>			
3-14-86	2-25-88	3-8-88			

COPY

Washington

Group International

ORIGINAL

Calibration Data Sheet

COPY

Plant: V.C. SUMMERIsometric: CGE-1-4102AComponent/System: RESIDUAL HEAT REMOVAL / A-LOOP

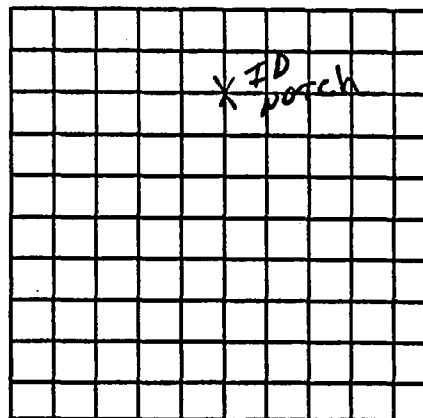
Instrument Settings

Manf./Model: STAEVELY / SONIC-136Scope Serial No.: 136P1106C031380Delay: .351" Range: 3.0"Velocity: .127 in/us Pulser: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 4 KHz Frequency: 2.25 MhzFilter: 2 Mode: P/ERef. Sens: Ax: 29.8 dB Circ: 29.8 dBExam Sens: Ax: * dB Circ: * dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: KBASerial No.: 00T53FSize: .375" Shape: ROUNDFrequency: 2.25 Mhz Style: COMP-GExam Angle: 45 DEG. Wave Mode: SHEARMeasured Angle: 43 DEG.Wedge Style: LUCITE

Couplant

Type: ULTRAGEL II Batch No.: 01225Each Major CRT Division = .30 "Page 1 of 5Data Sheet No.: UT-VCSU-RF13-2002-003Procedure No.: SCEG-UT-89-12Rev. No. 0 Add. No. N/ACal. Block No.: CGE-5Dia: 12.0" Mat'l: S/SCal Block "T": 1.078"Cal Block Temp: 74 °FThermometer SN: 221922Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Direction:

☒ Perp to Weld ☒ Parallel to Weld☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: SMOOTH

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Type: RG-174Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.Length: 6' Conn No.: 0

Search Unit Cable

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
I-4102A-2	PIPE/ELBOW	YES		X		80 °F	221922
I-4102A-5	PIPE/ELBOW	YES		X		80 °F	221922
I-4102A-7	PIPE/VALVE 8702A	YES		X		80 °F	221922

Remarks/Reasons for Incomplete Scan(s) * SCANNED AT 5% TO 20% ID ROLL.

Instrument Cal # 1

SCANNED FROM PIPE SIDE ONLY ON WELD # 1-4102A-7 DUE TO PIPE TO VALVE CONFIGURATION.

Simulator S/N: 801640Examiner: [Signature] Level: II Date: 5-6-02Examiner: [Signature] Level: II Date: 5-6-02Reviewers/Level: (WGI) Michael Robbina LVL III Date: 5/6/02 Reviewers: (Client) [Signature] Date: 5/15/02Reviewers: (ANII) [Signature] Date: 5/15/02 Further Evaluation Required ☐ Yes ☒ No

System Simulator Check

Amplitude: 25 % Gain: 29.8 dB'sSweep Position: 3.6

System verification when recalling stored calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	0908
Initial Calib. Date	5/6/2002
Intermediate	1102
Intermediate	1137
Final Calibration	1255
Final Calib. Date	5/6/2002

Washington

Group International

Calibration Data Sheet

Plant: V.C. SUMMERIsometric: CGE-1-4102AComponent/System: RESIDUAL HEAT REMOVAL / A-LOOP

ORIGINAL

COPY

Page 2 of 5Data Sheet No.: UT-VCSU-RF13-2002-003Procedure No.: SCEG-UT-89-12Rev. No. 0 Add. No. N/ACal. Block No.: CGE-5Dia.: 12.0" Mat'l: S/SCal Block "T": 1.078"Cal Block Temp: 74 °FThermometer SN: 221922Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Direction:

☒ Perp to Weld ☒ Parallel to Weld☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: SMOOTH

Instrument Settings

Manf./Model: STAEVELY / SONIC-136Scope Serial No.: 136P1106C031380Delay: .971" Range: 4.0"Velocity: .230 in/us Pulser: 250 nsDamping: 500 Ω Reject: OFFRep. Rate: 4 Khz Frequency: 2.25 MhzFilter: 2 Mode: DUALRef. Sens: Ax: 79.2 dB Circ: N/A dBExam Sens: Ax: * dB Circ: * dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: RTDSerial No.: 98-975Size: 2(8X14)mm Shape: RECT.Frequency: 2.0 Mhz Style: TRLAExam Angle: 60 DEG. Wave Mode: LONG.Measured Angle: 58 DEG.Wedge Style: INTREGAL

Couplant

Type: ULTRAGEL II Batch No.: 01225Each Major CRT Division = .40 "

Daily Linearity Verification

Search Unit Cable

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.Type: RG-174Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.Length: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
1-4102A-7	PIPE/VALVE 8702A	YES		X		80 °F	221922

Remarks/Reasons for Incomplete Scan(s) * SCANNED AT 5% TO 20% ID ROLL.

Instrument Cal # 8

SCANNED FROM PIPE SIDE ONLY DUE TO PIPE TO VALVE CONFIGURATION.

Simulator S/N: 801640Examiner: [Signature] Level: II Date: 5-6-02Examiner: [Signature] Level: II Date: 5-6-02Reviewers/Level: (WGI) Michael Robbins LVL III Date: 5/6/02 Reviewers: (Client) [Signature] Date: 5/15/02Reviewers: (ANII) R. Wallachsen Date: 5/15/02 Further Evaluation Required ☐ Yes ☒ No

System Simulator Check

Amplitude: 80 % Gain: 70.0 dB'sSweep Position: 3.5System verification when recalling stored
calibrations and/or after each examination:☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	0905
Initial Calib. Date	5/6/2002
Intermediate	1123
Intermediate	N/A
Final Calibration	1300
Final Calib. Date	5/6/2002

ORIGINAL

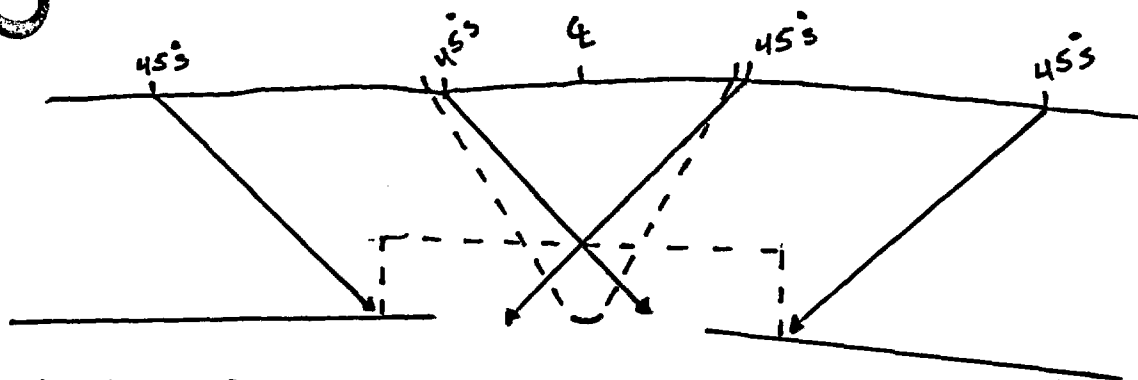
COMPONENT NO.: 1-4102A-2

COPY

PIPE

FLOW

ELBOW



100% CODE REQUIRED COVERAGE ACHIEVED
TAKEN AT OUTSIDE RADIUS OF ELBOW

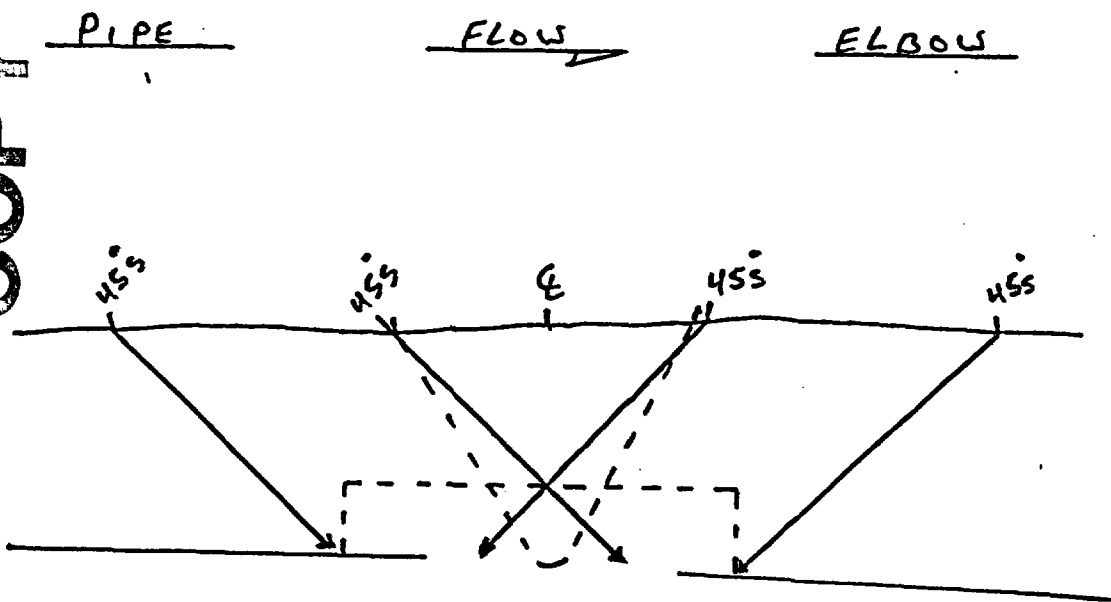
Comments: NONE

Examiner / Level

T → Hand LV-II Jerry Ng L-II Date 5/6/02
Don Slater R. Villadame 5/15/02

COMPONENT NO.: 1-4102A-5

COPY



100% CODE REQUIRED COVERAGE ACHIEVED.
TAKEN AT OUTSIDE RADII OF ELBOW

Comments: NONE

Examiner / Level

T. H. H.

LV-II

Jerry D.

LV-II

Date

5/6/02

Robert S. Sidor

RC Valladares 5/11/02

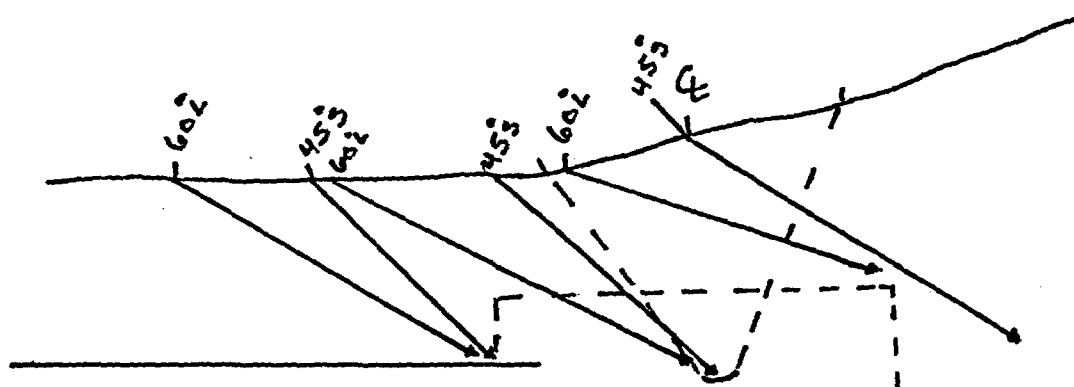
Washington
Group International

ORIGINAL

COMPONENT NO.: 1-4102A-7

COPY

PIPE FLOW → VALVE

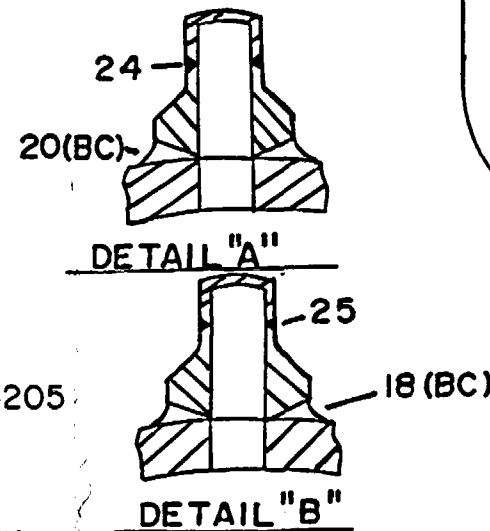
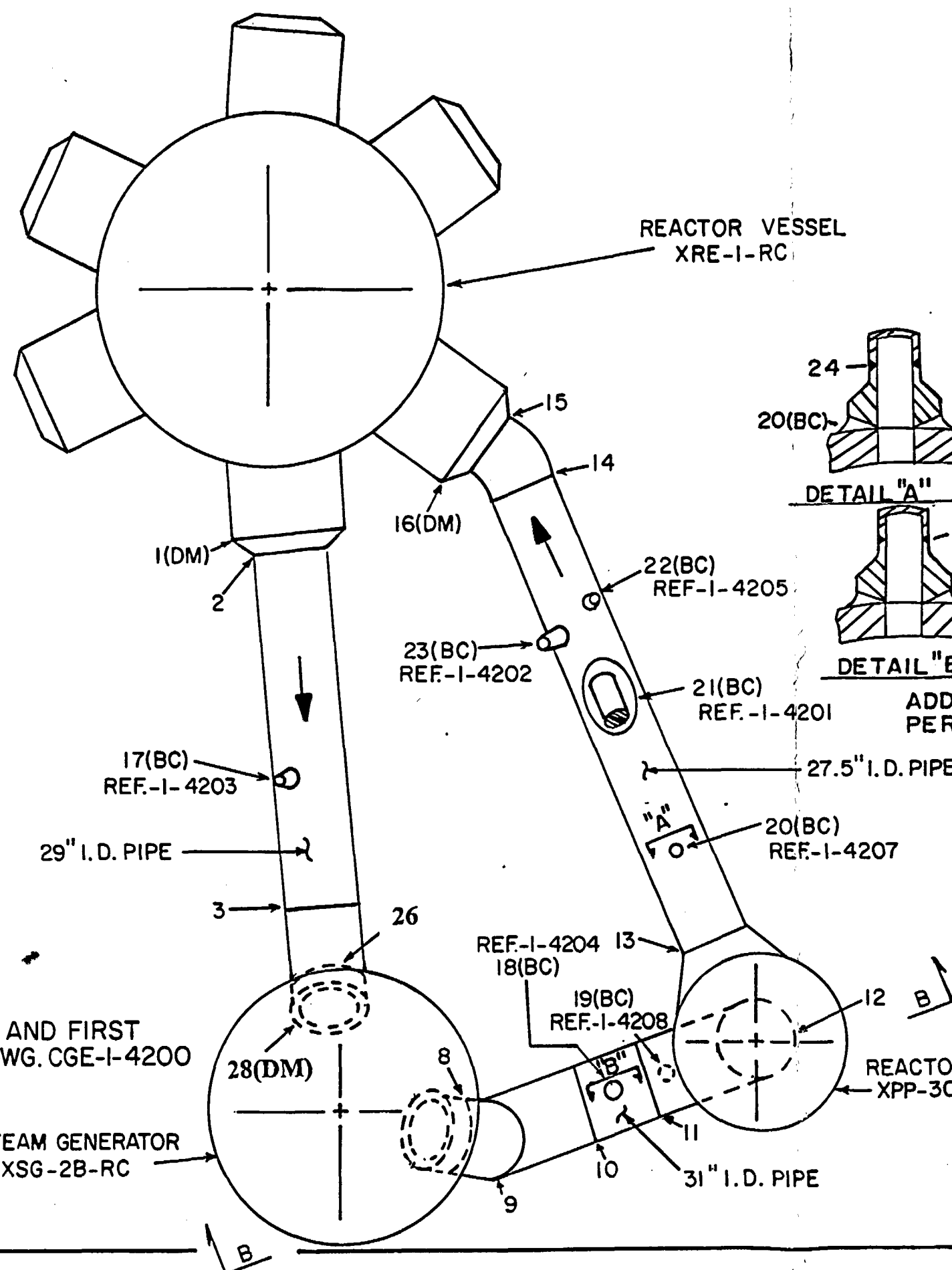


50% CODE REQUIRED COVERAGE ACHIEVED
TAKEN AT T.D.C

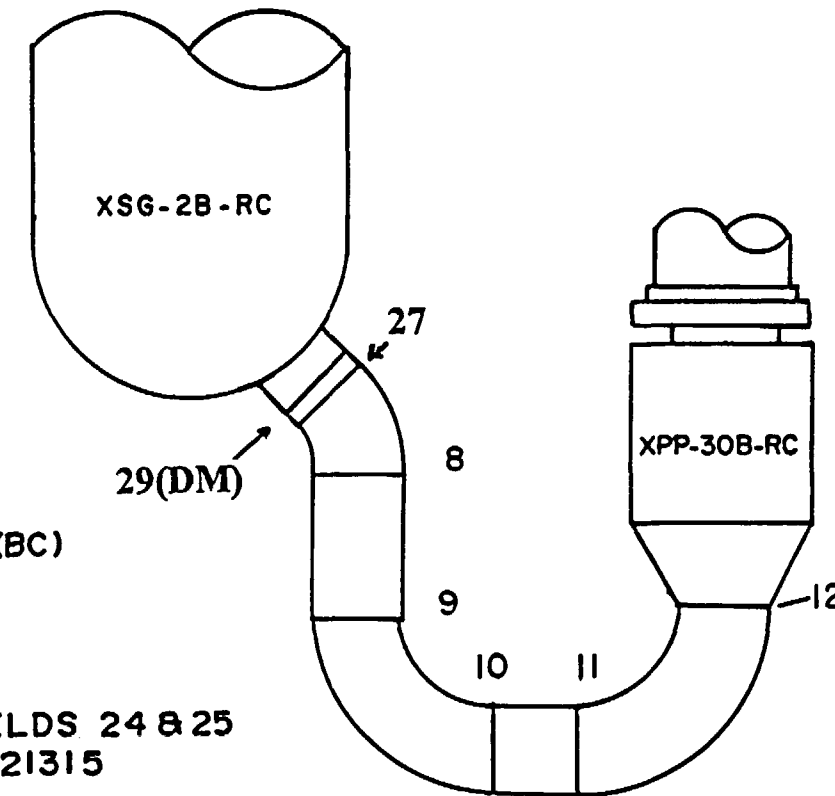
Comments: NONE

Examiner / Level Ty Huh LV-II Jerry L-II Date 5/6/02
Adrian 5/15/02 W. Madanes 5/15/02

CGE-I-4200A



ADDED WELDS 24 & 25
PER MRF 21315



SECTION B-B

COPY

LOOP "B" R.C. PIPE

12-8-99 ADDED WELDS 26, 27, 28(DM), & 29(DM) PER MRF-90,001

FOR PRESERVICE AND FIRST
REFUELING SEE DWG. CGE-I-4200

STEAM GENERATOR
XSG-2B-RC

REACTOR COOLANT PUMP
XPP-30B-RC

DWG. NO. CGE-I-4200A			ROOM NO. "B" LOOP REACTOR BLDG.		
ORIG.	REVISION	4	PIPE SIZE	THICKNESS	MAT'L
DRN	CKD	APPD	27.5" I.D.	2.375"	SA-376
DATE	DATE	DATE	29" I.D.	2.500	SA-376
ARC		<i>All</i>	31" I.D.	2.625	SA-376
12-8-99		12-8-99			

Raytheon

Engineers & Constructors

Calibration Data Sheet

ORIGINAL

COPY

Plant: V.C. SUMMERIsometric: CGE-1-4200AComponent/System: 6" BRANCH CONNECTION TO 27.5" PIPE

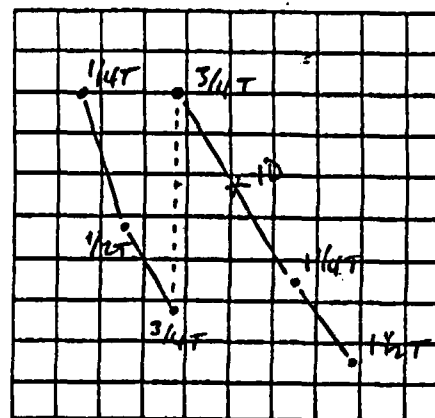
Instrument Settings

Manf./Model: STAVLEY/SONIC 136Scope Serial No.: 136-158Delay: .455" Range: 7.00"Velocity: .122 in/us Pulsar: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 2 KHz Frequency: 2.25 MHzFilter: 1 Mode: P.E.Ref Sens: Ax: 27.0 dB Circ: N/A dBExam Sens: Ax: 39.0 dB Circ: N/A dBSDH Sensitivity: 34.4/44.4 dB

Search Unit

Manufacturer: MEGASONICSSerial No.: K2251Size: .50" Shape: ROUNDFrequency: 2.25 MHz Style: MSTExam Angle: 45° Wave Mode: SHEARMeasured Angle: 45°/40°Wedge Style: MSW-OC

Couplant

Type: SONOTRACE Batch No.: 95325Each Major CRT Division = .7"

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.

Search Unit Cable

Type: RG 174/ULength: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
1-4200A-23BC	BRANCH CONN. TO PIPE	YES		<input checked="" type="checkbox"/>		77°F	194466
	N/A					°F	
						°F	
						°F	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 1

NO UPSTREAM SCAN DUE TO BRANCH CONNECTION CONFIGURATION

Examiner: [Signature] Level: II Date: 4-19-99Examiner: [Signature] Level: II Date: 4-19-99Reviewers: (Raytheon) Donald V. Swain Date: 4-20-99 Reviewers: (Client) [Signature] Date: 4/20/99Reviewers: (ANIT) [Signature] Date: 4/20/99 Further Evaluation Required ☒ Yes ☐ NoPage 1 of 4Data Sheet No.: 994T-013Procedure No.: SCEG-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-002Dia.: 27.5" Mat'l: 5/5Cal Block "T": 2.60"Cal Block Temp: 75 °FThermometer SN: 194466Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to W☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: GROUND FLUSH

System Simulator Check

Amplitude: 22% Gain: 27.0 dBSweep Position: 16

System verification when recalling stored calibrations and/or after each examination

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	0800
Initial Calib. Date	4-19-99
Intermediate	0945
Intermediate	N/A
Final Calibration	1215
Final Calib. Date	4-19-99

Raytheon

Engineers & Constructors

Calibration Data Sheet

ORIGINAL

COPY

Plant: V.C. SUMMERIsometric: CGE-1-4200AComponent/System: 6" BRANCH CONNECTION TO 27.5" PIPE

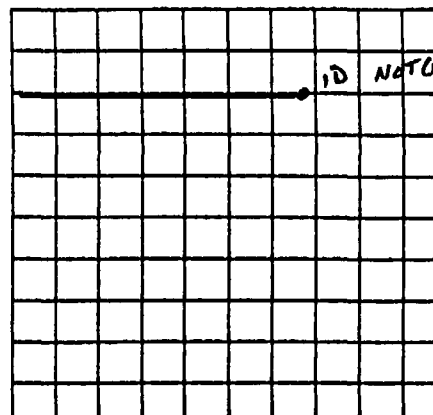
Instrument Settings

Manf./Model: STANLEY / SONIC 136Scope Serial No.: 136-158Delay: .455" Range: 5.00"Velocity: 122 in/ms Pulser: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 2 KHz Frequency: 2.25 MHzFilter: 1 Mode: P.E.Ref. Sens: Ax: N/A dB Circ: 29.4 dBExam Sens: Ax: N/A dB Circ: 41.4 dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: MEGASONICSSerial No.: K2251Size: .50" Shape: ROUNDFrequency: 2.25 MHz Style: MSTExam Angle: 45° Wave Mode: SHEARMeasured Angle: 45°/40°Wedge Style: MSW-QC

Couplant

Type: SONOTRACE Batch No.: 95325Each Major CRT Division = .5"

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.

Search Unit Cable

Type: RG 174/ULength: 6' Conn No.: D

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
1-4200 A-23 BC	BRANCH CONN TO PIPE	NO		✓		77°F	174466
						°F	
						°F	
						°F	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 2

NO SCAN ON UPSTREAM SIDE DUE TO BRANCH CONNECTION CONFIGURATION.

Examiner: [Signature] Level: II Date: 4-19-99Examiner: [Signature] Level: # Date: 4-19-99Reviewers: (Raytheon) Ronald V. Jarrin Date: 4-20-99 Reviewers: (Client) [Signature] Date: 4/20/99Reviewers: (ANIT) [Signature] Date: 4/20/99 Further Evaluation Required ☐ Yes ☒ NoPage 2 of 4Data Sheet No.: 99UT-013Procedure No.: SCG-47-89-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-002Dia: 27.5" Mnd'l: 3/5Cal Block "T": 2.60"Cal Block Temp: 75 °FThermometer SN: 194466Cal. Direction: ☐ Axial ☒ Circ☐ Both

Scan Direction:

☐ Perp to Weld ☒ Parallel to We☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: GROUND FLUSH

System Simulator Check

Amplitude: 27 % Gain: 27.4 dBSweep Position: 2.2

System verification when recalling stored calibrations and/or after each examination

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	0809
Initial Calib. Date	4-19-99
Intermediate	1050
Intermediate	N/A
Final Calibration	1220
Final Calib. Date	4-19-99

Raytheon

Engineers & Constructors

Calibration Data Sheet

COPY

Plant: Y.C. SUMNERIsometric: GGE-1-4200 AComponent/System: 6" BRANCH CONNECTION TO 27.5" PIPE

ORIGINAL

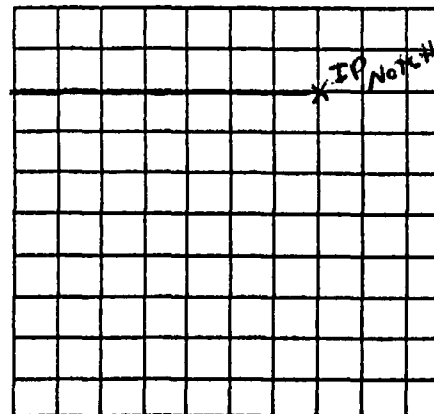
Instrument Settings

Mfr./Model: STAVELEY / SONIC 136Scope Serial No.: 136-158Delay: 1785 " Range: 5.00 "Velocity: 236 in/us Pulsar: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 4 KHZ Frequency: 2.25Filter: 2 Mode: DualRef. Sens: Ax: 59.2 dB Circ: N/A dBExam Sens: Ax: 65.2 dB Circ: N/A dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: MEGA SONICSSerial No.: A1012Size: 26.25 X .50 Shape: RECTANGLEFrequency: 2.0 Style: CGDExam Angle: 45° Wave Mode: LONGMeasured Angle: 45°Wedge Style: INTEGRAL

Couplant

Type: ULTRA GEL II Batch No.: 95325Each Major CRT Division = .50 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.

Search Unit Cable

Type: R6-174/ULength: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>1-4200 A - 23 BC</u>	<u>BRANCH CONN. TO PIPE</u>	<u>NO</u>	<u>N/A</u>	<u>✓</u>	<u>N/A</u>	<u>77 °F</u>	<u>194466</u>
	<u>N</u>					<u>° F</u>	
	<u>A</u>					<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 3NO SCAN ON UPSTREAM SIDE TO BRANCH CONNECTION CONFIGURATION.Examiner: [Signature]Level: II Date: 4-19-99Examiner: [Signature]Level: II Date: 4-19-99Reviewers: (Raytheon) [Signature]Date: 4-20-99Reviewers: (Client) [Signature]Date: 4/20/99Reviewers: (ANII) [Signature]Date: 4/26/99

Further Evaluation Required

☐ Yes ☒ NoPage 3 of 4Data Sheet No.: 99UT-013Procedure No.: SLEG-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: GGE-002Dia.: 27.5" Mfr'l: S/SCal Block "T": 2.60"Cal Block Temp: 75 °FThermometer SN: 194466Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to We☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ ID. ☒ O.D.Surface Condition: GROUND FLUSH

System Simulator Check

Amplitude: 80 % Gain: 50.6 dBSweep Position: 2.0

System verification when recalling stored calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>0800</u>
Initial Calib. Date	<u>4-19-99</u>
Intermediate	<u>1020</u>
Intermediate	<u>N/A</u>
Final Calibration	<u>1225</u>
Final Calib. Date	<u>4-19-99</u>

Raytheon Engineers & Constructors
Sketch Sheet

page 4 of 4

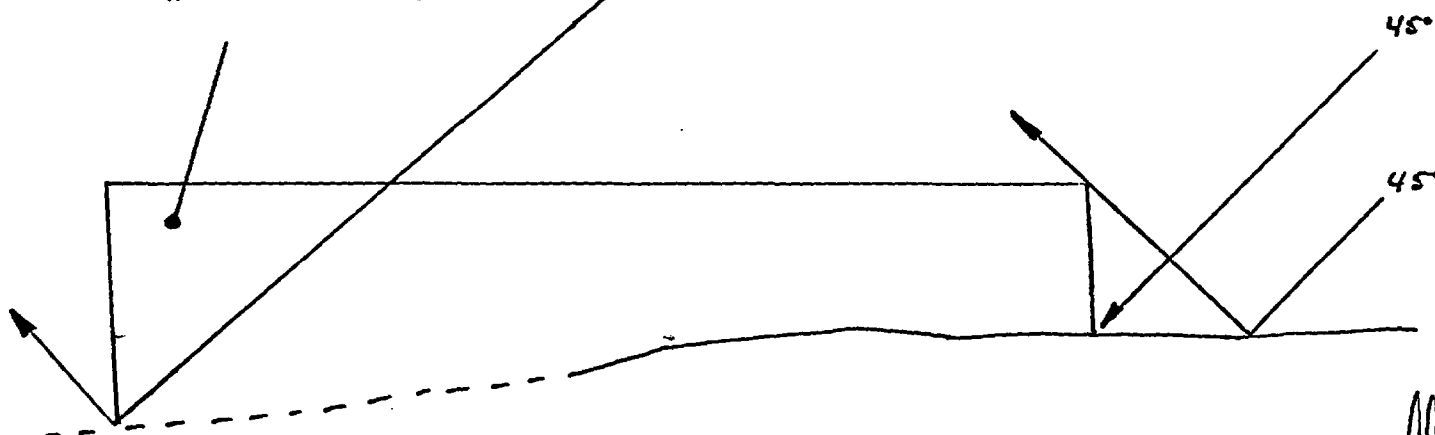
COPY ORIGINAL

Station/Unit VC SUMMER Project RF-11 Report No. 99UT-013
System RC Procedure SCG-UT-89-1 Rev. 1 Add. 1 Date 4/19/99
Line No. N/A Drawing No. CGE-1-4200A Rev. 3
Component I. D. 1-4200A-23BC Search Unit Angle 45° Mode SHEAR

COVERAGE PLOT

TOTAL AREA OF CRV - 4.75"
AREA NOT SCANNED IN TWO DIRECTIONS - .91"
% OF CRV ACHIEVED - 81%
SCANNED PIPE SIDE ONLY DUE TO CONFIGURATION
45° RL USED TO ENHANCE COVERAGE.

AREA NOT SCANNED
IN TWO DIRECTIONS

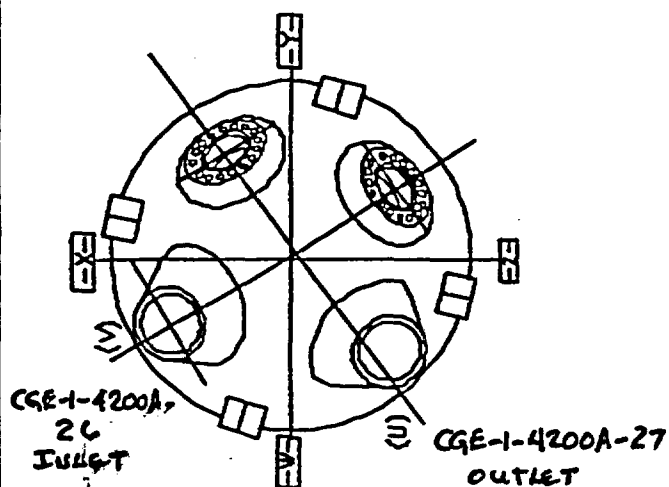
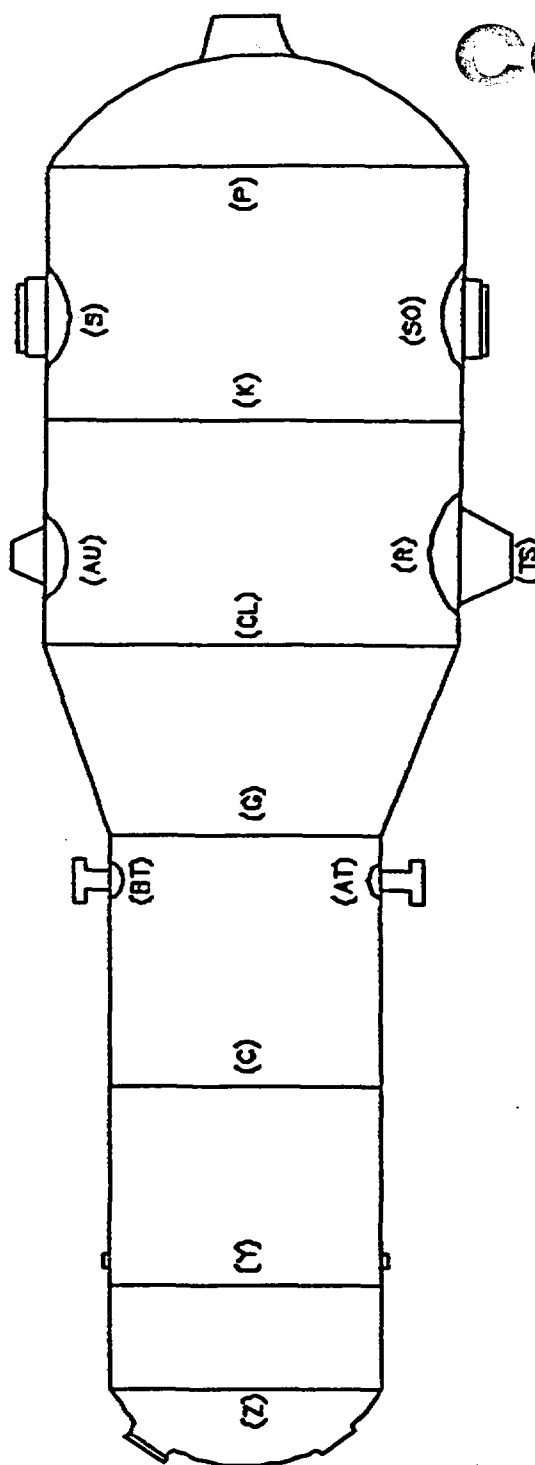


Prepared By [Signature] Level II Date 4-19-99
Reviewed By Ronald V. Swan Level III Date 4-20-99

NA Refer to attached Ultrasonic Indication Data Sheet

V.C. SUMMER REPLACEMENT STEAM GENERATOR

COPY



U & V, NOZZLE TO SAFE END WELDS

U-IR & V-IR, NOZZLE INSIDE RADIUS

CGE-1-4200A

B loop

XSG-0002B

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES

COPY

PROFILE OF THE EXAMINATION VOLUME

PLANT V.C. SUMMER

UNIT #1 SKETCH 12150

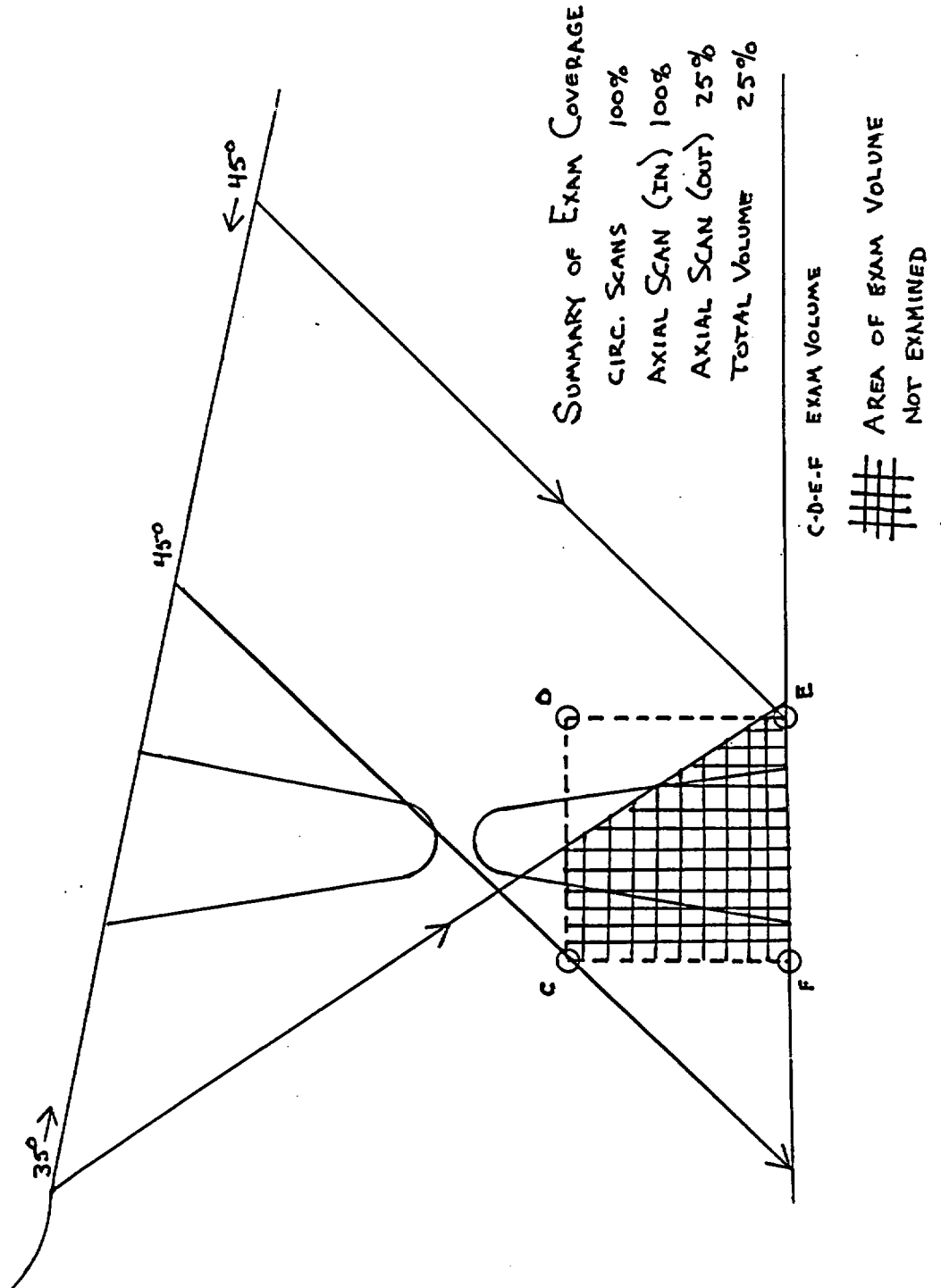
SYST./COMP. PRIMARY NOZZLE TO SAFE END BUTT WELD, HOTLEG / COLDLEG PROCEDURE SGE-ISI-250 REV. 0

EXAMINER

Steph A Sk

DATE 8-6-94

IDENT. U/V



COPY

Equipment Module

Edit View Report Module Facility Utility Options Help

Equipment : XSG0002B Alt Id : Owner : VCS
Name : STEAM GENERATOR B Dept... : 243
Type... : HTEXC HEAT EXCHANGERS, COND., C EPIX: Y Status...:
Group... : Criticality...:
Unit... : 1 PLANT 1 Maint Area... : N NON-TRAIN RELATED
System... : RC REACTOR COOLANT Func Sys... :
Account... : 5300000 MAINT REACTOR PLANT Validation : U Unknown
Parent... : Building... : RB Floor...: 412
Rpr Spare? : N Cost Roll? : Room... :
Loc Desc : RB-412-165-32RB412-08-2
Description: VERTICAL U/TUBE INSTALL & REMOVE SCAFFOLD EXTN Safety/ISO?:
: REMOVE/REPLACE MIRROR INS.IN SUPPORT OF
: MWR-88M0004
:
:
Notebooks? : N BOM... :
Specs? : Y Vendor... : W120
Asset Num : Mfg... : W120
Make : Dwg? : Y Model : DELTA 75
Serial Num : 12150 Size : 4250MBH
Alternate Equipment Id.

Bloop

COPY

S063A/1-90

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

PAGE 1 OF 1

PROJECT V.C. SUMMER RFOB DATA SHEET NO. VOSU 1104 DATE 10-31-94
SYSTEM R.C. MWR# 9303131 PROCEDURE SCEG-UT-89-1 REV. 0

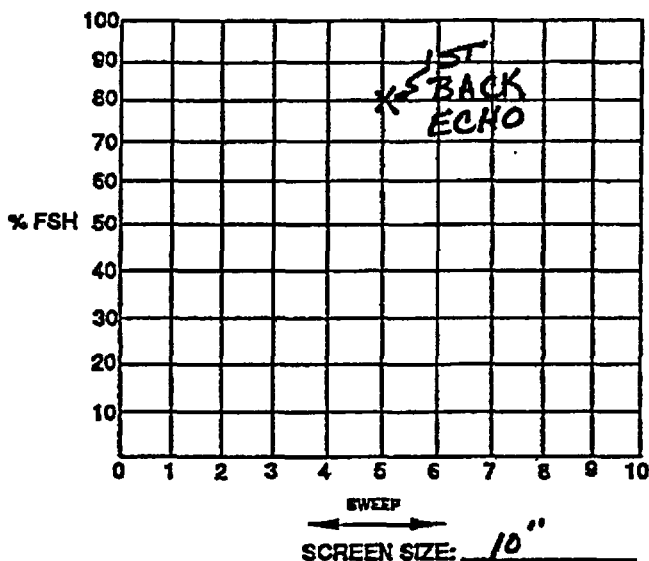
COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CGE-1-4200A-26	76°F	130333	NR1
CGE-1-4200A-27	76°F	130333	NR1
N/A	N/A		N/A
N/A	N/A		N/A
N/A	N/A		N/A
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	72°F	130333	NOTCHES <u>N/A</u> SDH <u>N/A</u>

EXAM COVERAGE

Weld ID W OD N/A WHAZ W BASE MATERIAL N/A AXIAL N/A CIRCUMFERENTIAL N/A SIZING N/A OTHER N/A

EQUIPMENT DATA

SEARCH UNIT	INSTRUMENT
Manufacturer <u>KBA</u>	Manufacturer <u>STAVELEY</u> Model <u>SONIC 136</u>
Style <u>GAMMA-HP</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Serial No. <u>136-502 G</u> Cable Length <u>6' RG-58</u>
Serial No. <u>E04000</u>	Frequency <u>1 MHz</u> Reject <u>OFF</u>
Size(s) <u>.75" Ø</u> Freq. <u>1.0</u>	Rep Rate <u>4 KHZ</u> Damping <u>500 Ω</u>
Angle <u>0°</u> Mode <u>LONG</u>	dB Gain: Coarse <u>N/A</u> Fine <u>*</u>
Couplant <u>ULTRASEL II</u> Batch No. <u>094051</u>	Primary Reference Response Amplitude - % Full Screen Height <u>1ST BACK ECHO TO 80% FSH</u>

DAC PLOT-TIME 1037 AM, PM

CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1336	✓	N/A	✓	N/A
1828	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):

1. M. O. TC-IA LEVEL IV DATE 10/31/94
2. H. K. S. TC-IA LEVEL III DATE 10-31-94

REVIEWED BY:

1. [Signature] DATE 11-1-94
2. N/A DATE N/A
ANII [Signature] DATE 11-1-94

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS *AS NEEDED TO MAINTAIN BACK REFLECTION AT 70% FSH
SCANNED ON ELBOW SIDE WELD, AND IN AREA OF LIMITATION ON SAFE END
REFERENCE DATA SHEET #VU1394. SCAN ON ELBOW SIDE WAS
PERFORMED ON ELBOW LANDINGS (APPROX. 4" BACK FROM WELD TOE)

0°

MWR # 9303131

174

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

COPY

PAGE 2 OF 11
DATE 10-31-94PROJECT V.C. SUMMER RFOBDATA SHEET NO. VCSU 1404SYSTEM RC MWR # 9303131PROCEDURE SEEG-VT-89-1REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
<u>CGE-1-4200A-26</u>	<u>76°F</u>	<u>130333</u>	<u>NR1</u>
<u>CGE-1-4200A-27</u>	<u>76°F</u>	<u>130333</u>	<u>SEE ATTACHED</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	<u>72°F</u>	<u>130333</u>	NOTCHES <input checked="" type="checkbox"/> SDH <input checked="" type="checkbox"/>

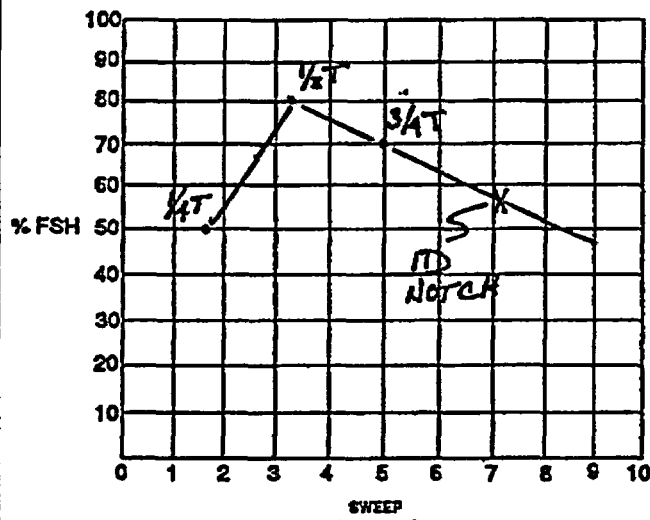
EXAM COVERAGE

☒ ID ☒ OD ☒ WHAZ ☒ BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER N/A

EQUIPMENT DATA

SEARCH UNIT
Manufacturer KBA /PN 1910387
Style ALPHA ☒ Single ☒ Dual
Serial No. C12495 / C12496
Size(s) 1" Ø DUAL Freq. 1.0
Angle 45° Mode LONG
Couplant UTRAGER II Batch No. 094051

INSTRUMENT
Manufacturer STAVELEY Model SONIC 136
Serial No. 136-502G Cable Length 6' B55B DUAL
Frequency 1MHz Reject OFF
Rep Rate 4 KHz Damping 100-Ω
dB Gain: Coarse N/A Fine 85.8 (NOTCH)
Primary Reference Response
Amplitude - % Full Screen Height 10 NOTCH TO DAC

DAC PLOT-TIME 1044 AM, PM

CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
<u>1328</u>	<input checked="" type="checkbox"/>	<u>N/A</u>	<input checked="" type="checkbox"/>	<u>N/A</u>
<u>1846</u>	<input checked="" type="checkbox"/>	<u>N/A</u>	<input checked="" type="checkbox"/>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

EXAMINER(S):

1. [Signature] TC-1A LEVEL III DATE 10/31/94
2. [Signature] TC-1A LEVEL III DATE 10-31-94

REVIEWED BY:

1. [Signature] DATE 10-1-94
2. NA DATE N/A
AN: [Signature] DATE 11-4-94

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS SAME CALIBRATION USED FOR AXIAL AND CIRC SCANS DUE TO NO SDH OR AXIAL NOTCH IN CALIBRATION BLOCK. MAINTAINED NOISE LEVEL FROM 5-20% FSH.

45° DUAL

EXAMINATION FROM ELBOW SIDE

MWR # 9303130

175

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

COPY

PAGE 3 OF 11

PROJECT V.C. SUMMER RFOSDATA SHEET NO. VPSU 1404DATE 10-31-94SYSTEM RC MWR# 9303131PROCEDURE SCG-UT-89-1REV. 0

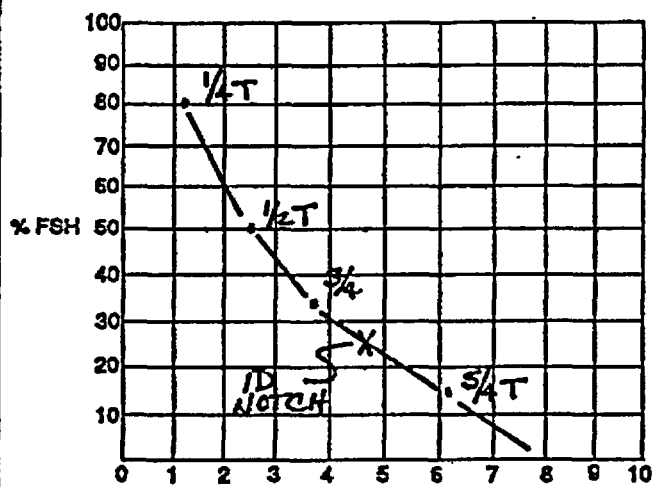
COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
<u>CGE-1-4200A-26</u>	<u>76°F</u>	<u>130333</u>	<u>NR1</u>
<u>CGE-1-4200A-27</u>	<u>76°F</u>	<u>130333</u>	<u>NR1</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	<u>72°F</u>	<u>130333</u>	NOTCHES <u>X</u> SDH <u>X</u>

EXAM COVERAGE

☒ ID ☒ OD ☒ WHAZ ☒ BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER N/A

EQUIPMENT DATA

SEARCH UNIT	INSTRUMENT
Manufacturer <u>KBA</u>	Manufacturer <u>STAVELEY</u> Model <u>SONIC 136</u>
Style <u>GAMMA</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Serial No. <u>136-5026</u> Cable Length <u>6' RG-59</u>
Serial No. <u>120941</u>	Frequency <u>2.25</u> Reject <u>OFF</u>
Size(s) <u>1/2" x 1"</u> Freq. <u>2.25</u>	Rep Rate <u>4 KHZ</u> Damping <u>500 Ω</u>
Angle <u>58°</u> Mode <u>SHEAR</u>	dB Gain: Coarse <u>N/A</u> Fine <u>36.0 dB (NOTCH)</u>
Couplant <u>ULTRAGEL II</u> Batch No. <u>094051</u>	Primary Reference Response Amplitude - % Full Screen Height <u>1D NOTCH TO DAC</u>

DAC PLOT-TIME 1054 AM, PM

SWEEP
SCREEN SIZE: 20" MP

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
<u>1334</u>	<input checked="" type="checkbox"/>	<u>N/A</u>	<input checked="" type="checkbox"/>	<u>N/A</u>
<u>1835</u>	<input checked="" type="checkbox"/>	<u>N/A</u>	<input checked="" type="checkbox"/>	<u>N/A</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

EXAMINER(S):

1. [Signature] TC-1A LEVEL III DATE 10/31/94
 2. [Signature] TC-1A LEVEL III DATE 10-31-94

REVIEWED BY:

1. [Signature] DATE 11-1-94
 2. [Signature] DATE 11-8-94
 ANII [Signature] DATE 11-8-94

ADDITIONAL REMARKS

60° SHEAR 1/2 V AX SCAN EXAMINATION FROM SAFE END SIDE ONLY

MWR# 9303131
10-31-94

(76)

13

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

COPY

PAGE 5 OF 11

PROJECT V.C. SUMMER RFOBDATA SHEET NO. 1404DATE 10-31-94SYSTEM RC MWR² 9303131PROCEDURE SCFG-UT-89-1REV. 0

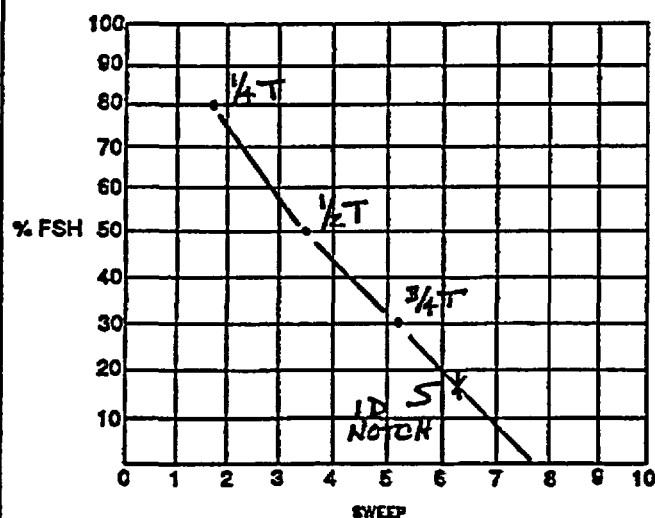
COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CGE-1-4200A-26	76°F	130333	SEE ATTACHED
CGE-1-4200A-27	76°F	130333	SEE ATTACHED
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	72°F	130333	NOTCHES <input checked="" type="checkbox"/> SDHE

EXAM COVERAGE

☒ ID ☒ OD ☒ WHAZ ☒ BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER N/A

EQUIPMENT DATA

SEARCH UNIT	INSTRUMENT
Manufacturer <u>HARISONIC</u>	Manufacturer <u>STAVELEY</u> Model <u>SONIC 136</u>
Style <u>HDL</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Serial No. <u>136-SD2G</u> Cable Length <u>3' 8" 47Y DUAL</u>
Serial No. <u>K10259</u>	Frequency <u>1 MHz</u> Reject <u>OFF</u>
Size(s) <u>2 (5" x 1")</u> Freq. <u>1.5</u>	Rep Rate <u>2 KHz</u> Damping <u>100-Ω</u>
Angle <u>67°</u> Mode <u>LONG</u>	dB Gain: Coarse <u>N/A</u> Fine <u>65.4 (NOTCH)</u>
Couplant <u>UTRAGEL II</u> Batch No. <u>094051</u>	Primary Reference Response
	Amplitude - % Full Screen Height <u>1D NOTCH AT DAC</u>

DAC PLOT-TIME 1105 AM, PM

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1345	✓	N/A	✓	N/A
1843	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):

1. 11.0 TC-1A LEVEL III DATE 10/31/94
 2. 11.1 TC-1A LEVEL III DATE 10-31-94

REVIEWED BY:

1. ASL DATE 11-1-94

2. N/A DATE N/A

ANII @Valladares DATE 11-4-94

ADDITIONAL REMARKS EXAMINATION PERFORMED FROM SAFE END TAPER
NOMINAL 22° TAPER

67°L AX SCAN

178

ARE ITEM IDENTIFICATION GE-1-4200A-20

WELD # CGE-1-4200A-26 (HOT LEG "B" GENERATOR)

[illegible]

EXAMINER(S)
1. 170 TC-1A LEVEL III
2. W. J. O'S TC-1A LEVEL III
REVIEWED BY Adrian DATE 11-1-24

CONTINUATION ATTACHED - ☐ YES ☒ NO

179

Raytheon
Engineers & Constructors

COPY

VC SU 1404

BY SC DATE 10-31-94

SHEET 7 OF 11

CHKD. BY MO DATE 10/31/94

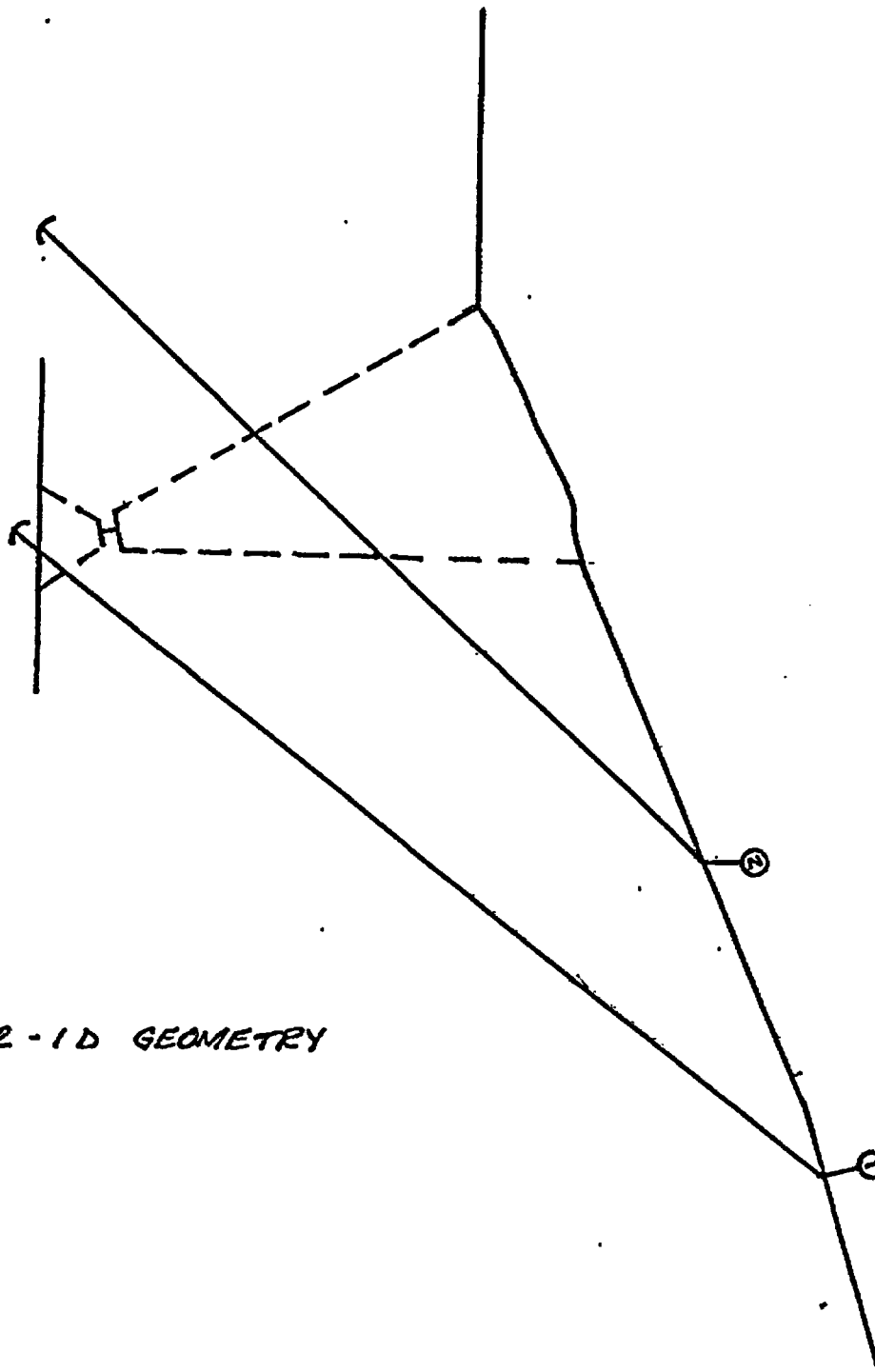
OFS NO. N/A DEPT. NO. N/A

CLIENT SCEG -

102

PROJECT V.C. SUMMER PFOB

SUBJECT CGE-1-4200A-26



Raytheon
Engineers & Constructors

BY WVS DATE 10-31-94

CHKD. BY M0 DATE 10/31/94

CLIENT SCEG

PROJECT V.C. SUMMER TFOB

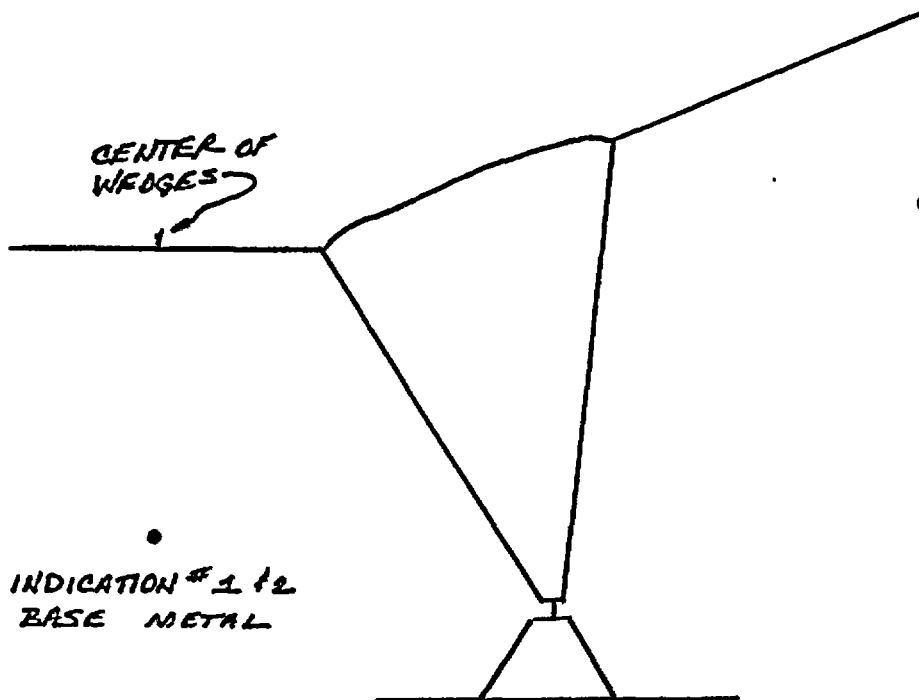
SUBJECT CAF-1-4200A-27

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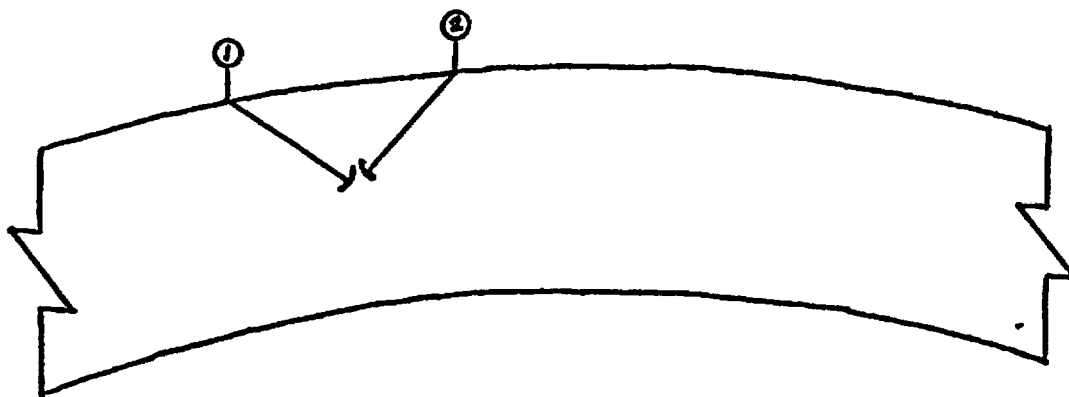
VCS4 404

SHEET 8 OF 11

OFFS NO. N/A DEPT. NO. N/A



INDICATION # 1 & 2
BASE METAL



SCALE 2:1

Raytheon
Engineers & Constructors

BY WJS DATE 10-31-94

CHKD. BY 110 DATE 10/31/94

CLIENT SCEG

PROJECT V.C. SUMMER RF08

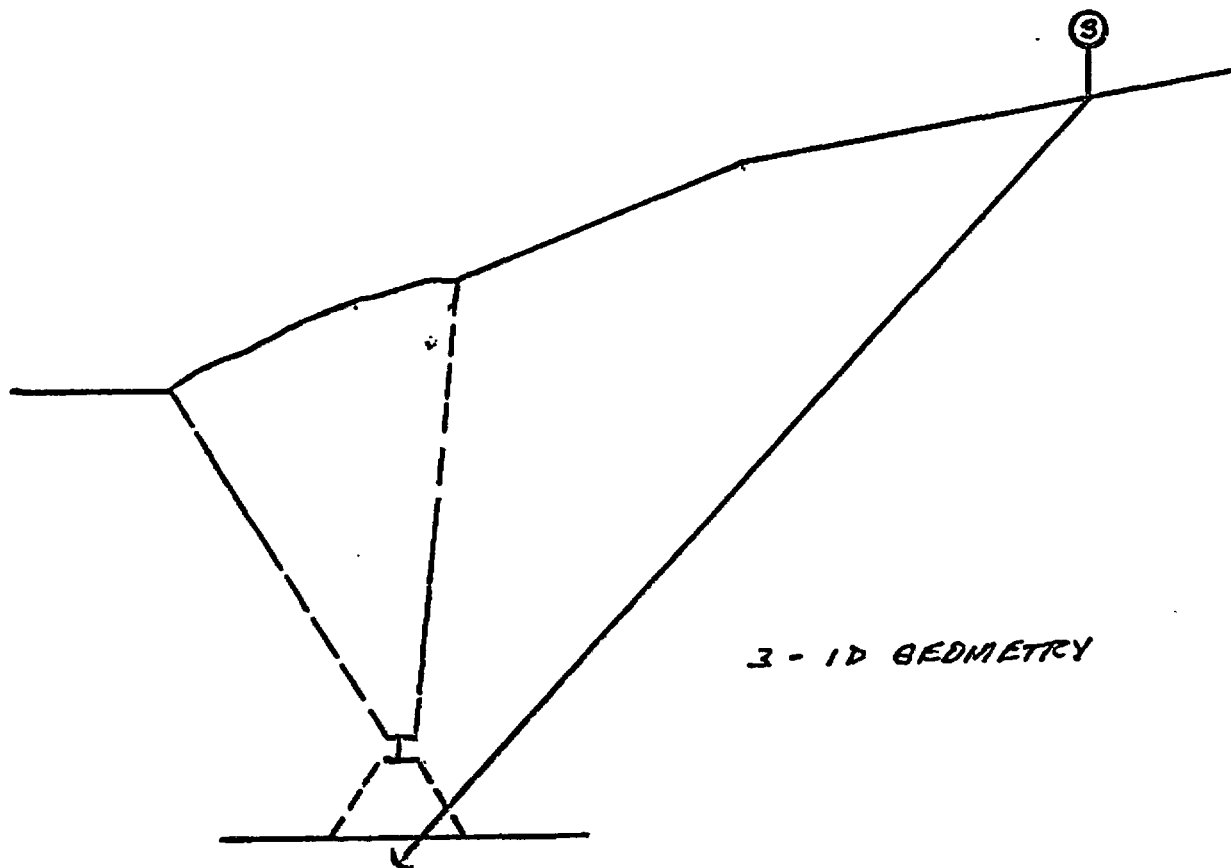
SUBJECT CGE-1-4200A-27

COPY

VCSU 1404

SHEET 9 OF 11

OFS NO. N/A DEPT. NO. N/A



Raytheon
Engineers & Constructors

COPY
COPY

VCSU 1104

SHEET 10 OF 11

MATERIALS TESTING AND EXAMINATION SERVICES

INDICATION DATA

ITEM IDENTIFICATION
CALIBRATION DATA SHEET NO.

WELD # CGE-1-4200A-27

(COLD LEG "B" GENERATOR)

DATA TABULATION

SCAN DIRECTION			INDICATION NO.	EXAM. ON (ADJ WELD) SIDE OF WELD	MAX % DAC	SWEEP READING MP	SEARCH UNIT EXIT POINT LOCATION		50% DAC OR HALF MAXIMUM AMPLITUDE				STRAIGHT BEAM (CAL ON BACK REFLECTION)	
ST. BEAM	CIRCUMFERENTIAL	AXIAL					CIRCUMFERENTIAL (DISTANCE CW OR CCW FROM REFERENCE LINE)	* AXIAL (DISTANCE FROM WELD C)	MINIMUM		MAXIMUM		INDICATION AMPLITUDE (% FSH)	BACK REFLECTION AMPLITUDE (% FSH)
N/A	45°L	N/A	1 ④	DS	50%	1.6"	16.1" CW	1.15" ③	1.35"	16.0" ②	1.9"	16.9" ②	N/A	N/A
N/A	45°L	N/A	2 ⑤	DS	25%	1.35"	13.7" CW	1.1" ①	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	53°L	3	US	40%	5.7"	31.5" CCW	2.0" ⑥	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	67°L	4 ⑦	US	200%	6.2"	13.1" CW	2.65" ⑥	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	67°L	5	US	80%	4.8"	13.1" CW	2.7" ⑥	N/A	N/A	N/A	N/A	N/A	N/A
④ SCAN LOOKING CCW ⑤ SCAN LOOKING CW ⑥ FROM TOP OF TAPER TO EXIT POINT ⑦ SHEAR COMPONENT														

INDICATIONS 3, 4 & 5 ARE INTERMITTENT 360°

INDICATION NO.	LOCATION OF INDICATION		LENGTH	%I		WIDTH (OF LAMINAR)	COMMENTS
	CIRC	AXIAL ③		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
1	N/A	1.15"	.35"	N/A	N/A	N/A	*① FROM DNST TOE TO CENTER OF TRANSDUCER
	N/A			N/A			② FORWARD AND BACK MOVEMENT IS IN CIRCUMFERENTIAL DIRECTION.
	N/A			N/A			③ INDICATION MAX AMPLITUDE IS WITH WEDGE AGAINST CROWN.

CONTINUATION ATTACHED - ☐ YES ☒ NO

EXAMINER(S)

1. [Signature]

2. [Signature]

REVIEWED BY

[Signature]

TC-1A LEVEL III

TC-1A LEVEL III

DATE 11-1-94

103

Raytheon
Engineers & Constructors

COPY

VCSU 1404

BY HKS DATE 10-31-94

SHEET 11 OF 11

CHKD. BY 110 DATE 10/31/94

OFS NO. N/A DEPT. NO. N/A

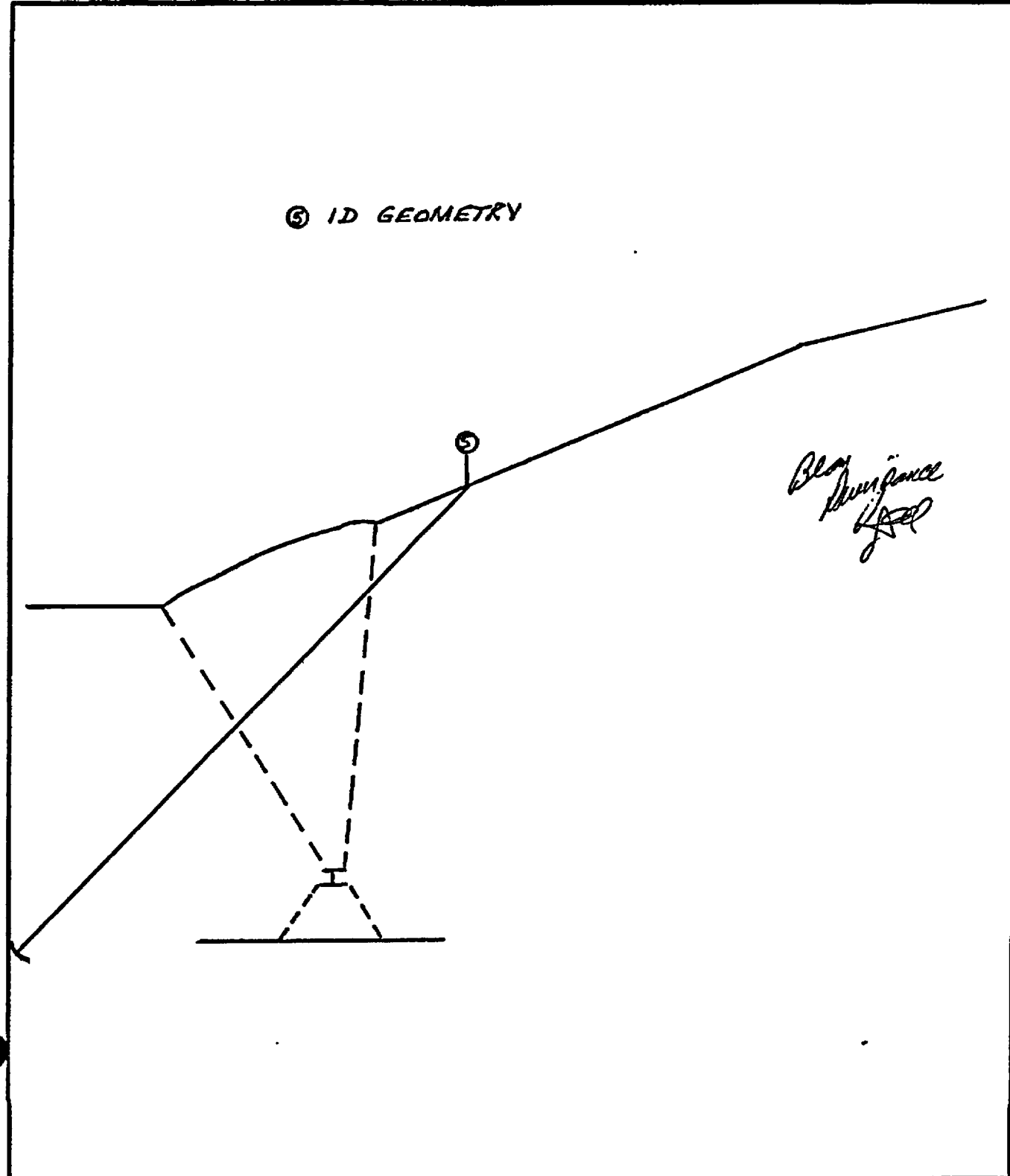
CLIENT SCEG-

PROJECT V.C. SUMMER ZFOB

SUBJECT CGE-1-4200A-27

⑤ 1D GEOMETRY

Blair
Humphreys
JEP



CGE-1-4300A

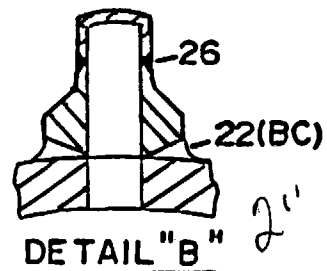
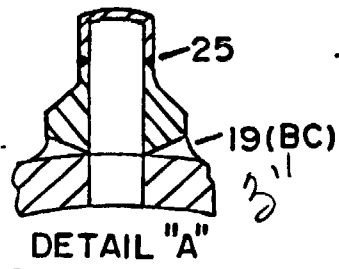


REACTOR COOLANT
PUMP XPP-30C-RC

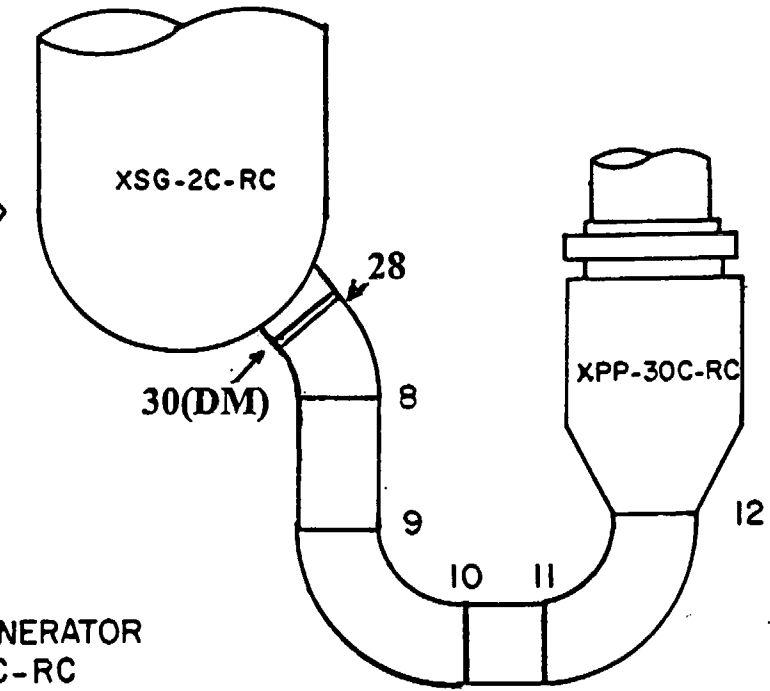
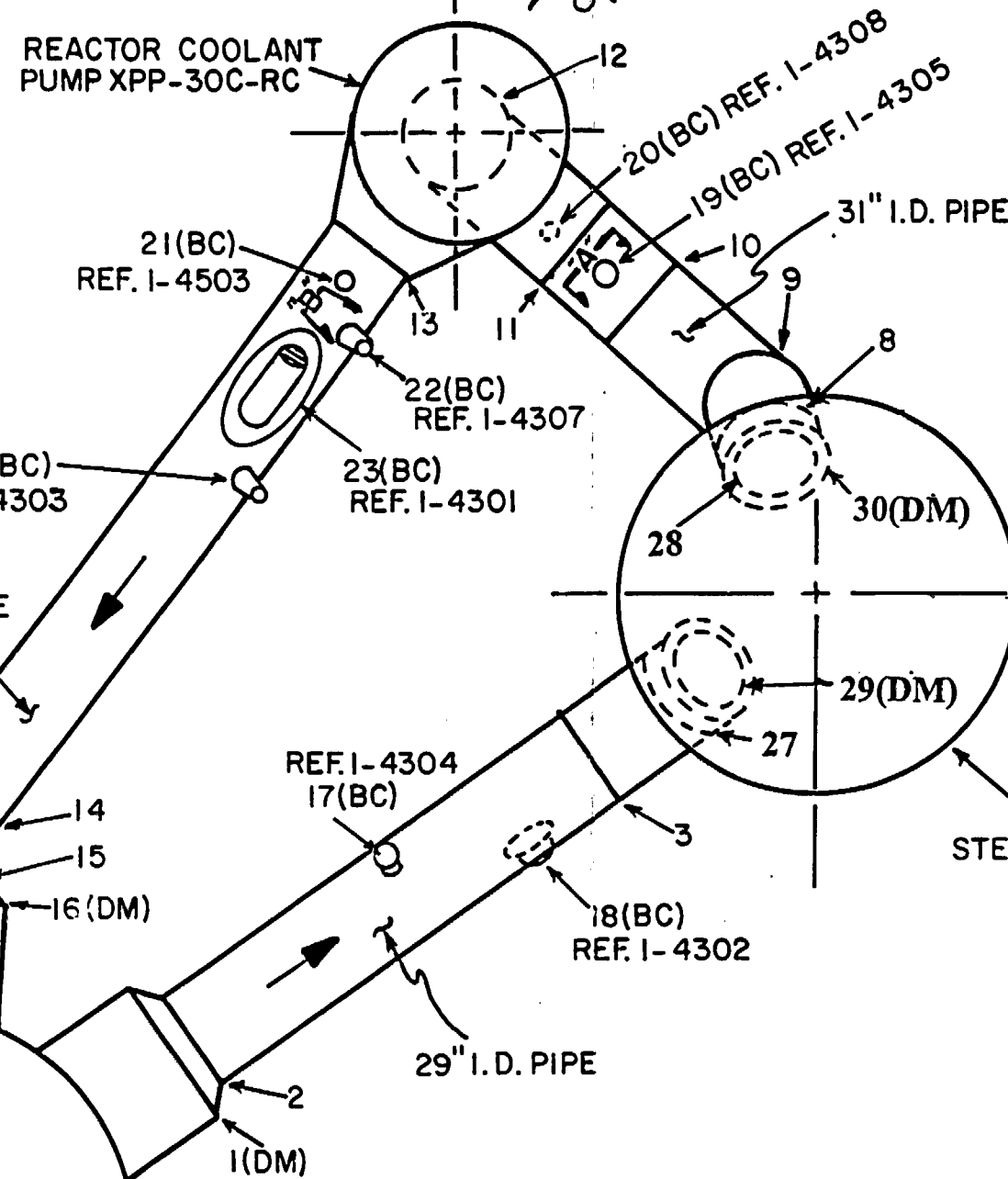
21(BC)
REF. I-4503

24(BC)
REF. I-4303

REACTOR VESSEL
XRE-1-RC



ADDED WELDS 25 & 26
PER MRF 21315



SECTION C-C

COPY

LOOP "C" R.C. PIPE

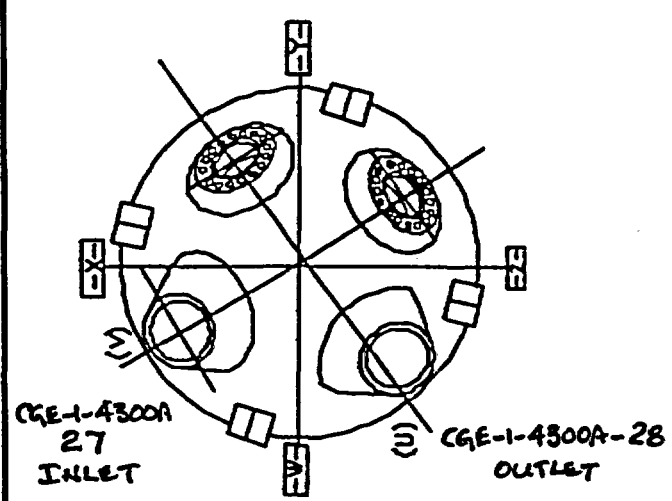
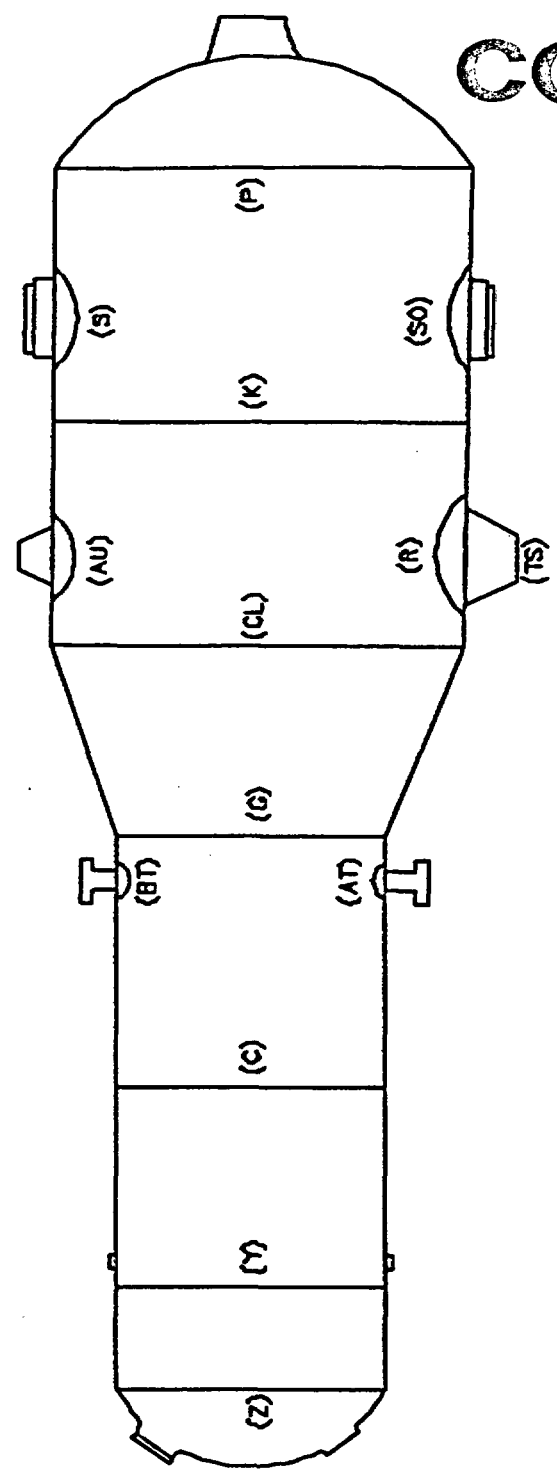
12-8-99 ADDED WELDS 27, 28, 29(DM), & 30(DM) PER MRF-90,001

FOR PRESERVICE AND FIRST REFUELING
SEE DWG. CGE-1-4300.

REV 3			DWG. NO. CGE-1-4300A		
DRN	CKD	APPD	ROOM NO.	"C" LOOP REACTOR BLDG	
DATE	DATE	DATE	PIPE SIZE	THICKNESS	MAT'L
ARC		See	27.5" I.D.	2.375"	SA-376
12-8-99		12-8-99	29" I.D.	2.500"	SA-376
			31" I.D.	2.625	SA-376

V.C. SUMMER REPLACEMENT STEAM GENERATOR

COPY



U & V, NOZZLE TO SAFE END WELDS
 U-IR & V-IR, NOZZLE INSIDE RADIUS

CGE-1-4300A
 C LOOP
 YSG-0002C

WESTINGHOUSE NUCLEAR SERVICE DIVISION
INSPECTION SERVICES
PROFILE OF THE EXAMINATION VOLUME

COPY

PLANT V.C. SUMNER

UNIT #1

SKETCH 12149

SYST./COMP. PRIMARY NOZZLE TO SAFE END BUTT WELD HOTLEG/COLLEG

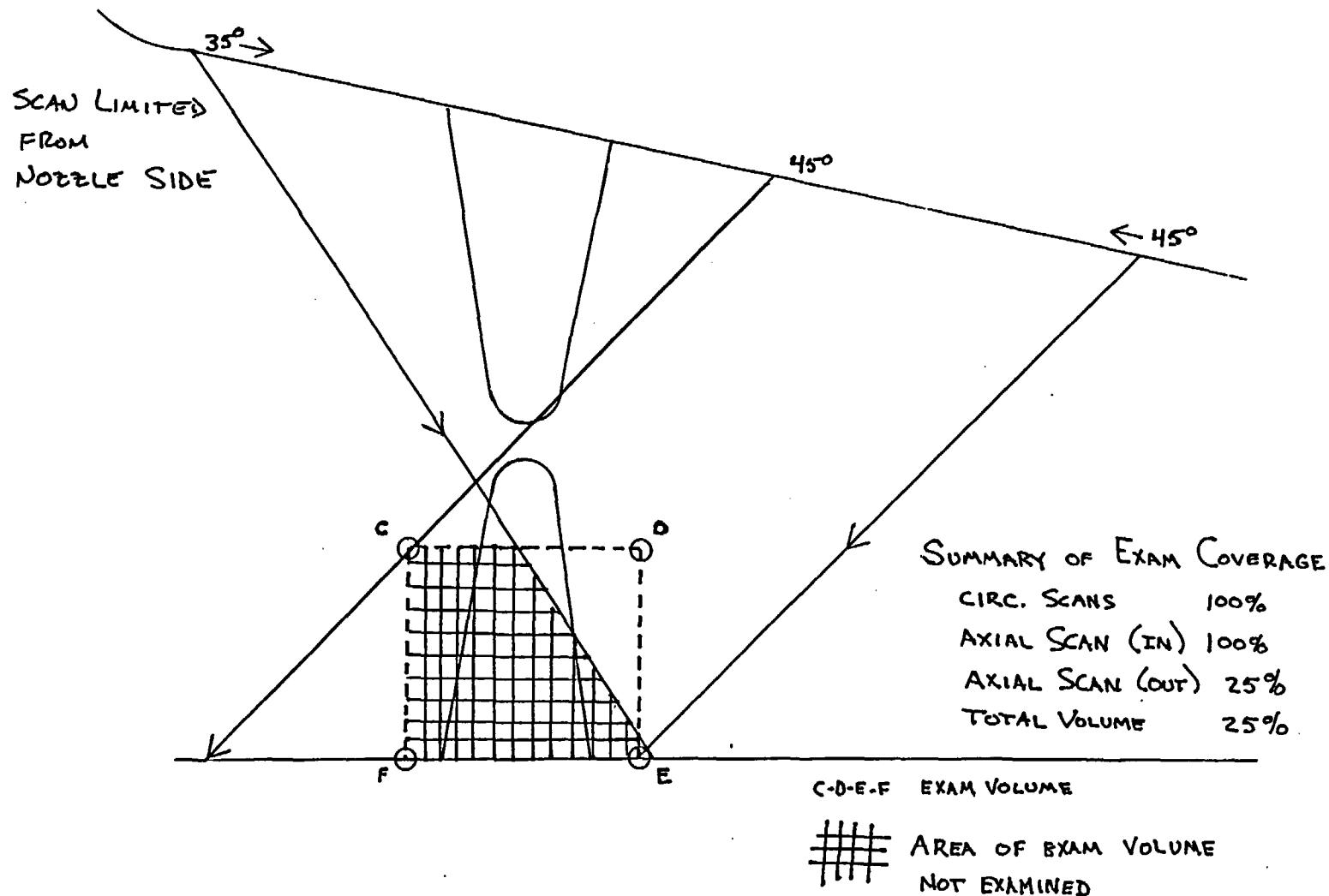
PROCEDURE SGE-ISI-250 Rev. 0

EXAMINER

Steve Sk L III

DATE 7-9-94 IDENT.

UN



COPY

Equipment Module

Edit View Report Module Facility Utility Options Help

Equipment : XSG0002C Alt Id : Owner : VCS
Name : STEAM GENERATOR C Dept... : 243
Type... : HTEXC HEAT EXCHANGERS, COND., C EPIX: Y Status...:
Group... : Criticality...:
Unit... : 1 PLANT 1 Maint Area... :
System... : RC REACTOR COOLANT Func Sys... :
Account... : 5300000 MAINT REACTOR PLANT Validation : U Unknown
Parent... : Building... : RB Floor...: 412
Rpr Spare? : N Cost Roll? : Room... :
Loc Desc : RB-412-075-32RB412-07-2
Description: VERTICAL U/TUBE Safety/ISO?:
: REMOVE/REPLACE MIRROR INS IN SUPPORT OF
: MWR-88M0005
: INSTALL AND REMOVE SCAFFOLD EXTENTION
:
Notebooks? : N BOM... :
Specs? : Y Vendor... : W120
Asset Num : Mfg... : W120
Make : Dwg? : Y Model : DELTA 75
Serial Num : 12149 Size : 4250MBH
Alternate Equipment Id.

C loop

COPY

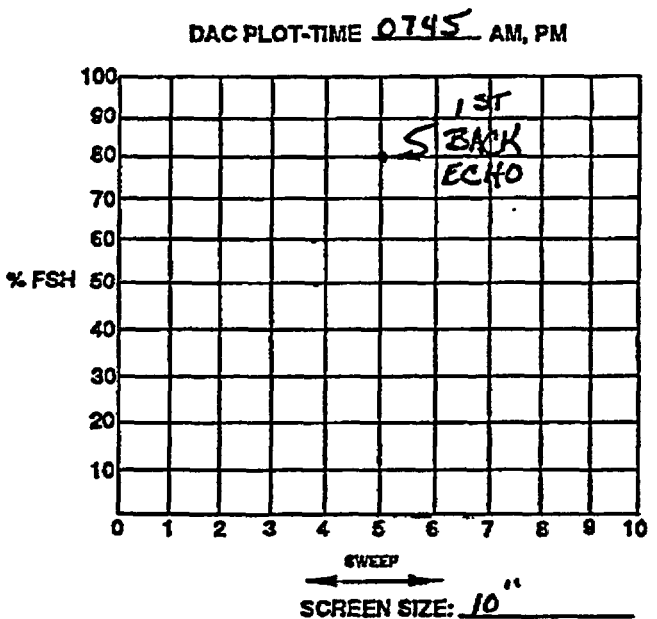
PSI

6063A/1-60 Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA
PROJECT V.C. SUMMER RFOB DATA SHEET NO. VCSU-1395 PAGE 1 OF 8
SYSTEM RC PROCEDURE SCG-UT-89-1 REV. 0 DATE 10-19-94

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CGE-1-4300A-27	84°F	130333	NR1
CGE-1-4300A-28	84°F	130333	NR1
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
CAL BLOCK NO. <u>9741D22</u> THK <u>5.0"</u>	70°F	130333	NOTCHES <u>N/A</u> SDH <u>N/A</u>

EXAM COVERAGE
ID N/A OD N/A WHAZ N/A BASE MATERIAL N/A AXIAL N/A CIRCUMFERENTIAL N/A SIZING N/A OTHER N/A

EQUIPMENT DATA
SEARCH UNIT
Manufacturer KBA
Style GAMMA R Single N/A Dual
Serial No. K23705
Size(s) .75" ϕ Freq 2.25
Angle 0° Mode LONG
Couplant ULTRAGEL II Batch No. 094051
INSTRUMENT
Manufacturer STAVELEY Model SONIC 136
Serial No. 136-5029 Cable Length 6' RG-58
Frequency 2.25 MHz Reject OFF
Rep Rate 4 KHZ Damping 500 Ω
dB Gain: Coarse N/A Fine X
Primary Reference Response
Amplitude - % Full Screen Height 1ST BACK ECHO TO 80% FSH



CALIBRATION CHECKS

TIME	AMPL \pm 20% (dB) OF INITIAL AMPL		SWEEP \pm 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1330	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):
1. [Signature] TC-1A LEVEL III DATE 10/19/94
2. [Signature] TC-1A LEVEL III DATE 10-19-94

REVIEWED BY:
1. [Signature] DATE 10/19/94
2. N/A DATE N/A
ANAL R. Villalobos DATE 11-4-94

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS X = AS NEEDED TO MAINTAIN BACK REFLECTION @ 70% FSH. SCANNED ON ELBOW SIDE & WELDS ONLY. SEE DATA SHEET # VCSU1394 FOR SCAN ON SAFE END SIDE. SCAN WAS PERFORMED ON ELBOW LANDING (APPROX. FROM WELD TOE TO 4" BACK).
0°
MWR # 93Q3132

134

PS1

COPY

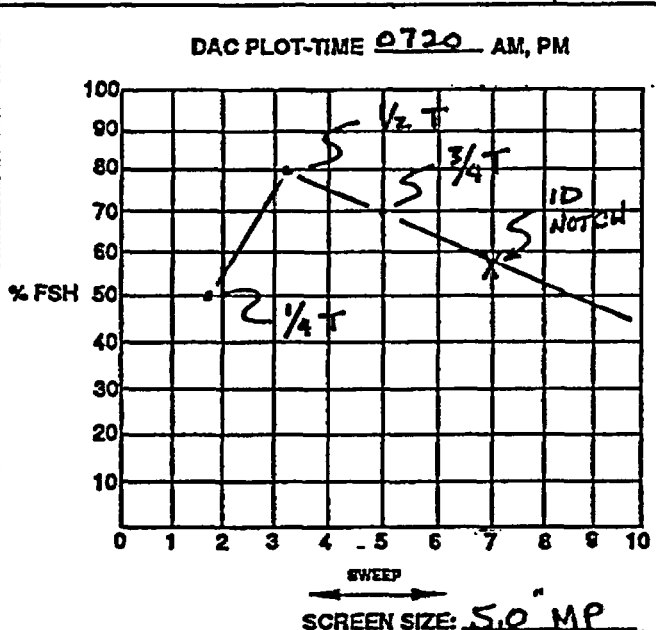
6063A1-60 Raytheon Engineers & Constructors
 MATERIALS TESTING AND EXAMINATION SERVICES
 ULTRASONIC CALIBRATION DATA
 PROJECT V.C. SUMMER RFOB DATA SHEET NO. VCSU-1395 PAGE 2 OF 8
 SYSTEM RC PROCEDURE SCG-UT-89-1 DATE 10-19-94
 REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CGE-1-4300A-27	84°F	130333	SEE ATTACHED.
CGE-1-4300A-28	84°F	130333	↓ ↓
N/A	N/A		N/A
N/A	N/A		N/A
N/A	N/A		N/A
CAL BLOCK NO. <u>UT-002</u> THK <u>2.60"</u>	71°F	130333	NOTCHES <input checked="" type="checkbox"/> SDH <input checked="" type="checkbox"/>

EXAM COVERAGE
 ID ☒ OD ☒ WHAZ ☒ BASE MATERIAL ☒ AXIAL ☒ CIRCUMFERENTIAL ☒ SIZING ☒ OTHER ☒ N/A

EQUIPMENT DATA

SEARCH UNIT	INSTRUMENT
Manufacturer <u>KBA / FN 8910387</u>	Manufacturer <u>STAVELEY</u> Model <u>SONIC 136</u>
Style <u>ALPHA</u> <input checked="" type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	Serial No. <u>136-502G</u> Cable Length <u>6' RG-58</u>
Serial No. <u>C12495 / C12496</u>	Frequency <u>1 MHz</u> Reject <u>OFF</u>
Size(s) <u>1"</u> <input checked="" type="checkbox"/> <u>5/8"</u> <input checked="" type="checkbox"/> Freq. <u>1.0</u>	Rep Rate <u>4 KHZ</u> Damping <u>100 Ω</u>
Angle <u>45°</u> Mode <u>SHEAR-WAVE</u>	dB Gain: Coarse <u>N/A</u> Fine <u>80.8 dB (NOTCH)</u>
Couplant <u>UTRAGEL II</u> Batch No. <u>094051</u>	Primary Reference Response
	Amplitude - % Full Screen Height <u>ID NOTCH TO DAC</u>



CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1330	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):
 1. [Signature] TC-1A LEVEL III DATE 10/19/94
 2. [Signature] TC-1A LEVEL III DATE 10-19-94

REVIEWED BY:
 1. [Signature] DATE 10/18/94
 2. NK DATE N/A
 ANI [Signature] DATE 11-7-94

ADDITIONAL REMARKS SAME CALIBRATION USED FOR AXIAL AND CIRC SCANS DUE TO NO EDM OR AXIAL NOTCH IN CALIBRATION BLOCK.
BASELINE NOISE VARIED FROM 5% TO 20% FSH.
SEE ATTACHED SKETCH FOR % COVERAGE OF CRV.
45° DUAL EXAMINATION FROM ELBOW SIDE MWR 9303132

135

051

6063A/1-60

Raytheon Engineers & Constructors
MATERIALS TESTING AND EXAMINATION SERVICES
ULTRASONIC CALIBRATION DATA

PAGE 3 OF 8PROJECT V.C. SUMMER RFOBDATA SHEET NO. VC511395DATE 10-19-94SYSTEM RCPROCEDURE SCES-UT-89-1REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
CCE-1-4300A-27	84°F	130333	NRI
CCE-1-4300A-28	84°F	130333	SEE ATTACHED. ^{NOT @ RECORDABLE} LEVEL.
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
CAL BLOCK NO. <u>9741D22</u>	THK. <u>5.0"</u>	70°F	130333
		NOTCHES <u>E</u>	SDHE

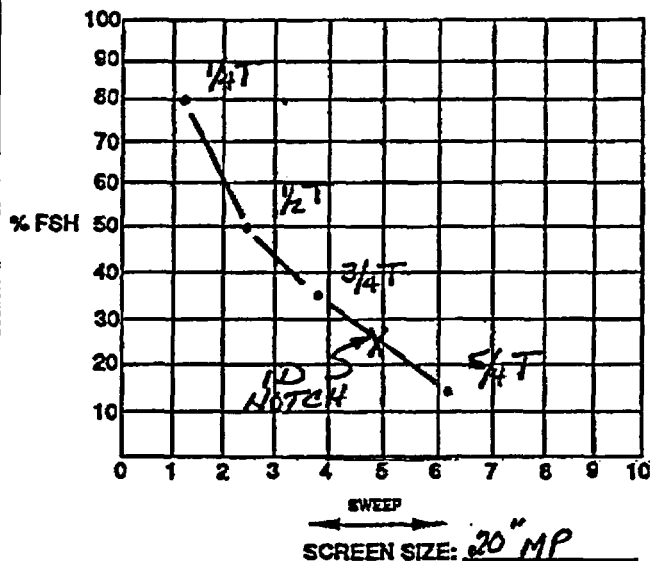
EXAM COVERAGE

ID 2 OD 1/4 WHAZ 1/4 BASE MATERIAL 2 AXIAL 1/4 CIRCUMFERENTIAL 1/4 SIZING 1/4 OTHER N/A

EQUIPMENT DATA

SEARCH UNIT
Manufacturer KBA
Style GAMMA E Single 1/4 Dual
Serial No. L 20941
Size(s) 1/2" x 1" Freq. 2.25
Angle 58° Mode SHEAR
Couplant ULTRASEL II Batch No. 094051

INSTRUMENT
Manufacturer STAVELEY Model SONIC 136
Serial No. 136-5026 Cable Length 6' RG-58
Frequency 2.25 Reject OFF
Rep Rate 4 KHZ Damping 500 Ω
dB Gain: Coarse N/A Fine 36.2 dB (NOTCH)
Primary Reference Response
Amplitude - % Full Screen Height 10 NOTCH TO DAC

DAC PLOT-TIME 0800 AM, PM

CALIBRATION CHECKS

TIME	AMPL ± 20% (dB) OF INITIAL AMPL		SWEEP ± 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1340	✓	N/A	✓	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

EXAMINER(S):

1. 17.0 TC-1A LEVEL III DATE 10/19/94
2. 11.0 TC-1A LEVEL II DATE 10-19-94

REVIEWED BY:

1. [Signature] DATE 10/19/94
2. NK DATE NK

ANII [Signature] DATE 11-4-94

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS THIS EXAMINATION WAS PERFORMED AT CLIENTS REQUEST.
SEE ATTACHED SKETCH FOR % COVERAGE OF CRV.

60° 1/2 V AX SCAN EXAMINATION FROM SAFE END SIDE ONLY
MWR# 9303132

136

45° R/L

WELD # CGE-1-4300A-27 CALIBRATION DATA SHEET NO.

[illegible]

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% I		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
1	✓	N/A	360°	N/A	N/A	N/A	ID GEOMETRY. * = FROM EDGE OF TAPER TO EXIT POINT.
			N/A				N/A

EXAMINER(S)

TC-1A LEVEL II

TC-1A LEVEL 211

REVIEWED BY APB DATE 10/19/99

CONTINUATION ATTACHED - ☐ YES ☒ NO

15

Raytheon
Engineers & Constructors

BY M. ORIHUELA Jr DATE 10/9/94
CHKD. BY SS DATE 10-19-94
CLIENT SCEG

COPY

PSI
VCSU-1395

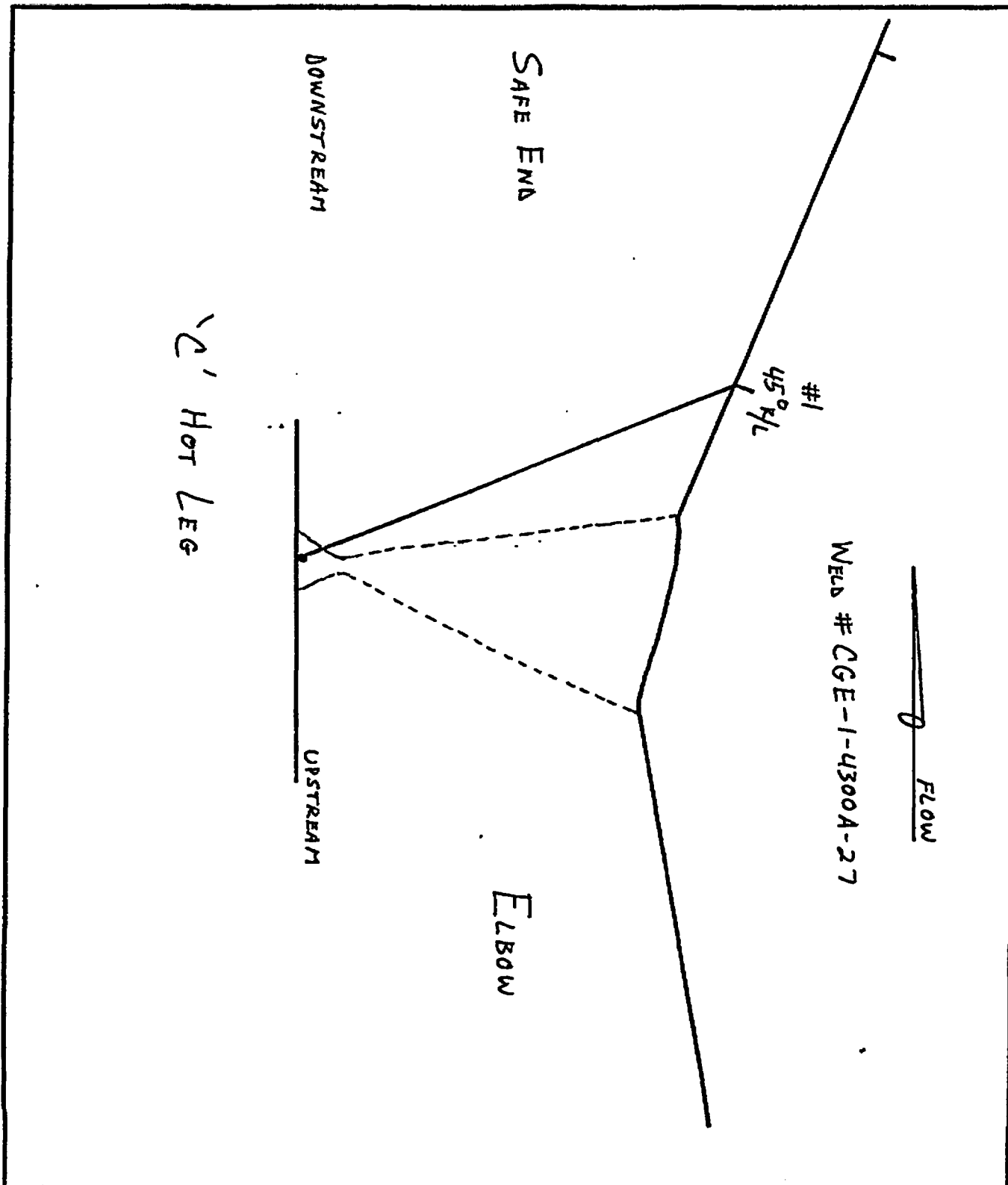
SHEET 5 OF 8

OFS NO.

DEPT.
NO.

10-10-94

PROJECT V.C. SUMMER RF-8 MO 10/19/94
SUBJECT REPLACEMENT GENERATOR SAFEND SAFE END - ELBOW WELD



[illegible]

INDICATION NO.	LOCATION OF INDICATION		LENGTH	% I		WIDTH (IF LAMINAR)	COMMENTS
	CIRC	AXIAL		DEPTH (IF PLANAR)	DISTANCE FROM SURFACE		
1	✓	N/A	360°	N/A	N/A	N/A	ID GEOMETRY.
2	✓	/A	360°INT	/A	/A	/A	" " NOT AT RECORDABLE LEVELS.
				N/A			* = FROM EDGE OF TAPER TO EXIT POINT.
				N/A			N/A

CONTINUATION ATTACHED - ☐ YES ☒ NO

EXAMINER(S)

TC-1A LEVEL III

2. [Signature] TC-1A LEVEL 111

REVIEWED BY [Signature] DATE 10/9/84

139

Raytheon
Engineers & Constructors

BY M. DEINDEL, JR. DATE 10/19/94

CHKD. BY SS DATE 10-19-94

CLIENT SCEG

PROJECT V.C. SUMMER RF-8

SUBJECT REPLACEMENT GENERATOR SAFE END - ELBOW WELD

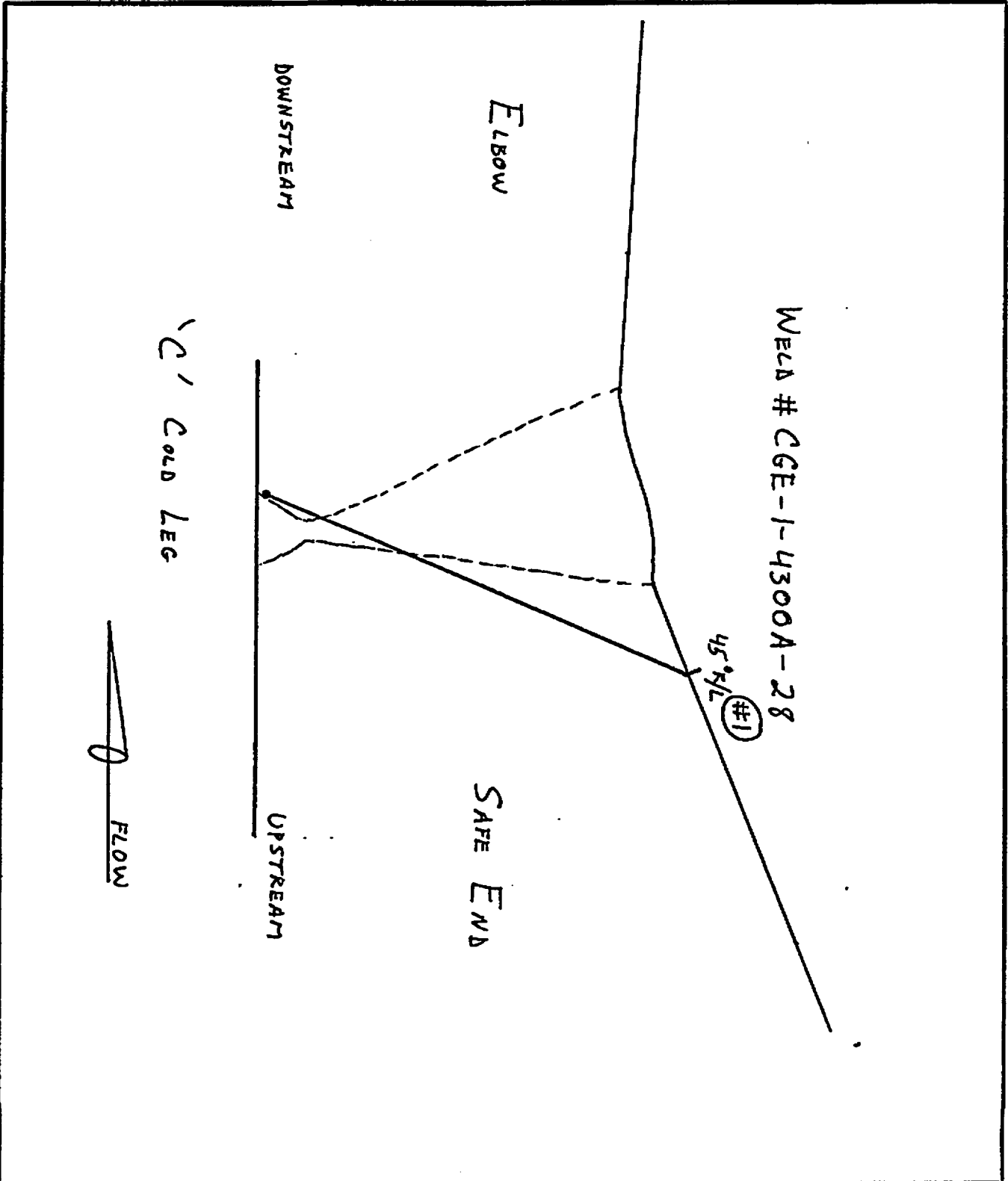
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SHEET 7 OF 8
DEPT. NO. 10-10-94

VPSU 1395

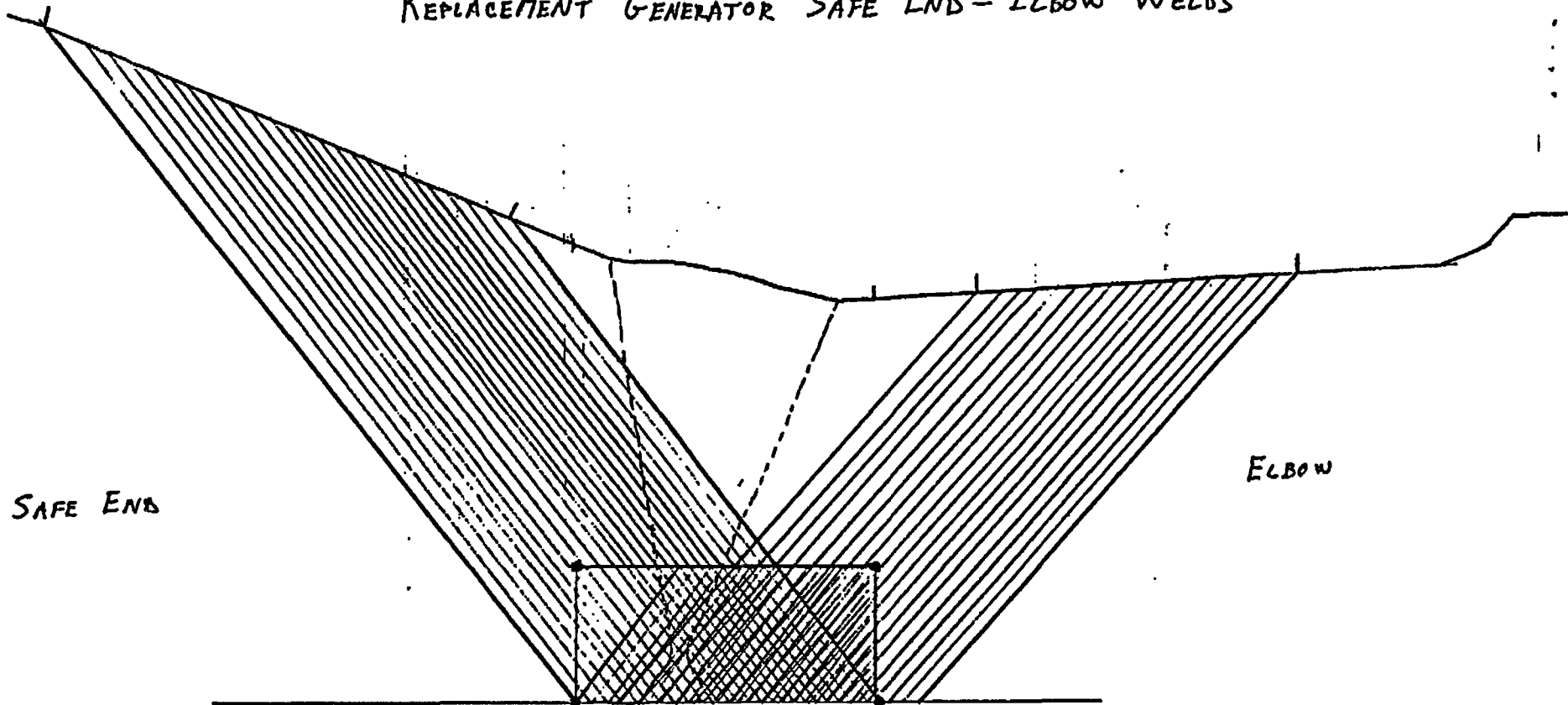
051

[Signature]



COPY

REPLACEMENT GENERATOR SAFE END - ELBOW WELDS



PLOT OF THEORETICAL COVERAGE; TYPICAL FOR ALL 6 WELDS (NOZZLES).
% VOLUME EXAMINED WITH ONE DIRECTION ULTRASOUND = 100%.
% " " " TWO " " = 83%.

AVG. % COVERAGE = 91.5 %.

M.O. _____
M. ORIHUELA, JR.

LV. III

10541395
848
Jed

WESTINGHOUSE ELECTRIC CORPORATION

CGE-I-4502

8" & 6" PRESSURIZER RELIEF

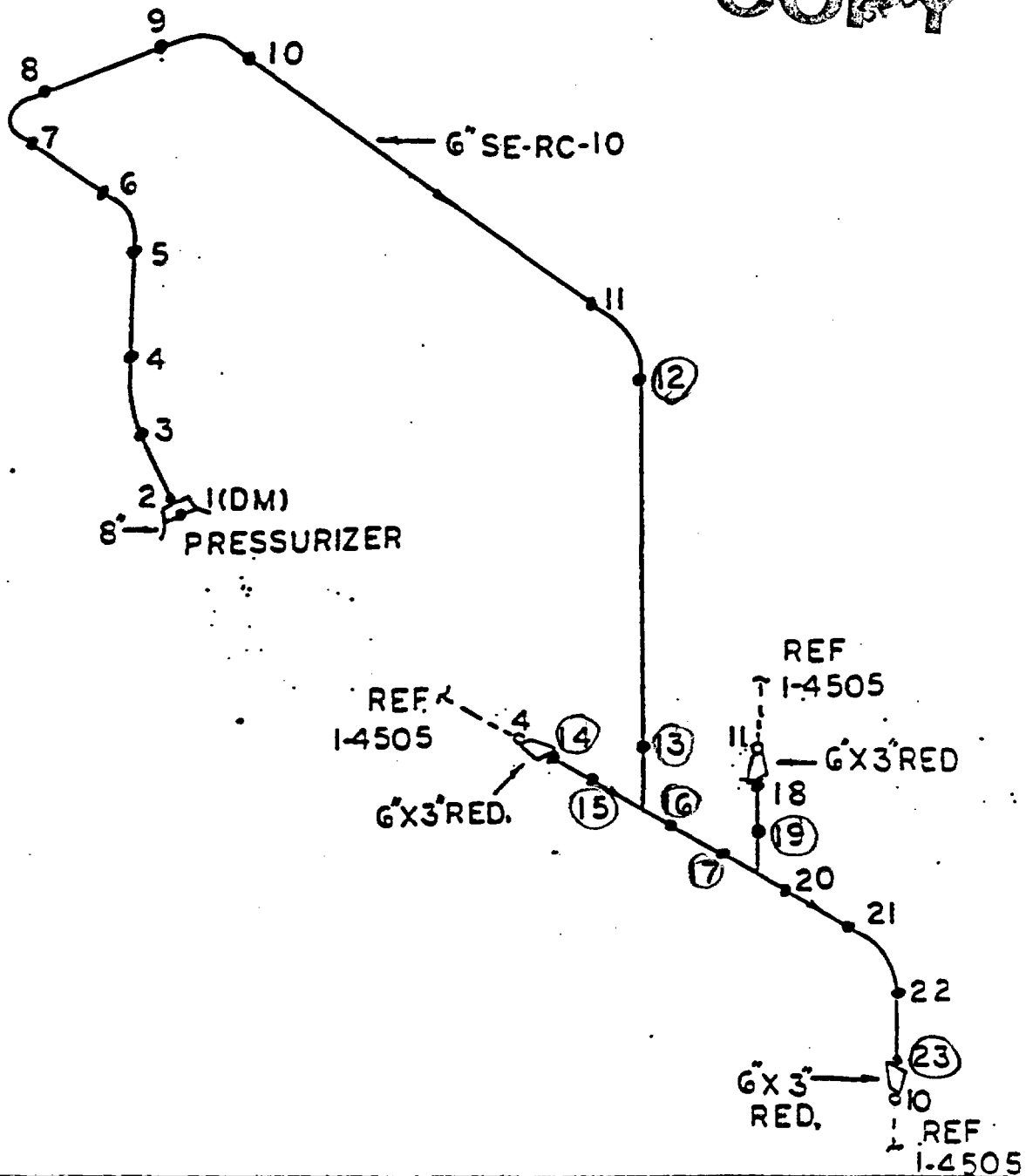
6" SCH-160 SS.

.719" T

8" SCH-160 SS

.906" T

COPY *REST*



Washington

Group International

Calibration Data Sheet

ORIGINAL

COPY

Plant: V.C. SUMMERIsometric: CGE-1-4502Component/System: REACTOR COOLANT

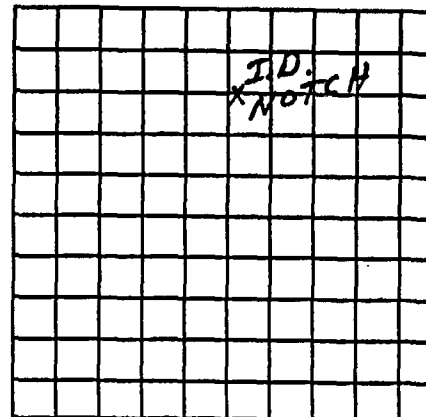
Instrument Settings

Manf./Model: STAEVELY / SONIC-136Scope Serial No.: 136P1106C031382Delay: .371" Range: 2.0"Velocity: .130 in/us Pulsar: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 4 Khz Frequency: 2.25 MhzFilter: 2 Mode: P/ERef. Sens: Ax: 30.4 dB Circ: 30.4 dBExam Sens: Ax: * dB Circ: * dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: KBASerial No.: 00T96XSize: .375" Shape: ROUNDFrequency: 2.25 Mhz Style: COMP-GExam Angle: 45 DEG. Wave Mode: SHEARMeasured Angle: 44 DEG.Wedge Style: LUCITE

Couplant

Type: ULTRAGEL II Batch No.: 01225Each Major CRT Division = .20 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: 0

Examination Area/Weld

Configuration/
AccessCRV Sketch
Attached

Recordable Indications

Yes No Geom.

Item
Temp.Thermometer
Serial No.

1-4502-12	ELBOW/PIPE	YES			X	82 °F	221441
1-4502-13	PIPE/TEE	YES		X		82 °F	221441
1-4502-19	TEE/PIPE	NO		X		82 °F	221441

Remarks/Reasons for Incomplete Scan(s) * SCANNED AT 5% TO 20% ID ROLL.

Instrument Cal # 1Simulator S/N: A02968Examiner: Mike Taylor Level: II Date: 5-2-02Examiner: Michael Kottner Level: II Date: 5-2-02Reviewers/Level: (WGI) Michael Kottner LVL III Date: 5/6/02 Reviewers: (Client) Bob Dan Date: 5/15/02Reviewers: (ANII) P. Walladana Date: 5/15/02 Further Evaluation Required ☐ Yes ☒ NoPage 1 of 7Data Sheet No.: UT-VCSU-RF13-2002-002Procedure No.: SCEG-UT-89-12Rev. No. 0 Add. No. N/ACal. Block No.: CGE-4Dia.: 6" Mat'l: S/SCal Block "T": .747"Cal Block Temp: 75 °FThermometer SN: 221441Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Direction:

☒ Perp to Weld ☒ Parallel to Weld☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: FLUSH/FLAT TOP

System Simulator Check

Amplitude: 80 % Gain: 45.2 dB'sSweep Position: 5.3

System verification when recalling stored calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	1230
Initial Calib. Date	5/2/2002
Intermediate	N/A
Intermediate	N/A
Final Calibration	1615
Final Calib. Date	5/2/2002

Washington

Group International

ORIGINAL

Calibration Data Sheet

Plant: V.C. SUMMERIsometric: CGE-1-4502Component/System: REACTOR COOLANT

Instrument Settings

Manf./Model: STAEVELY / SONIC-136Scope Serial No.: 136P1106C031382Delay: .508" Range: 2.0"Velocity: .127 in/us Pulsar: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 4 KHz Frequency: 2.25 MhzFilter: 2 Mode: P/ERef. Sens: Ax: 51.4 dB Circ: N/A dBExam Sens: Ax: * dB Circ: N/A dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: MEGASONICSerial No.: K2256Size: .375" Shape: ROUNDFrequency: 2.25 Mhz Style: MSTExam Angle: 60 DEG. Wave Mode: SHEARMeasured Angle: 57 DEG.Wedge Style: LUCITE

Couplant

Type: ULTRAGEL II Batch No.: 01225

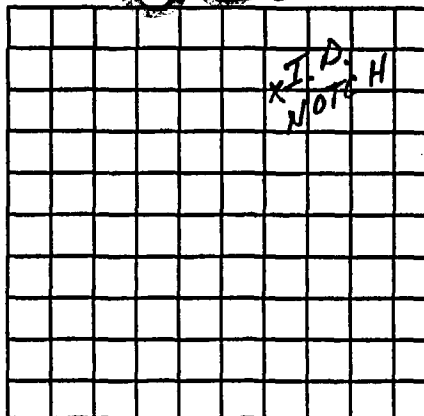
Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: 0

COPY

Each Major CRT Division = .20 "Page 2 of 7Data Sheet No.: UT-VCSU-RF13-2002-002Procedure No.: SCEG-UT-89-12Rev. No. 0 Add. No. N/ACal. Block No.: CGE-4Dia.: 6" Mat'l: S/SCal Block "T": .747"Cal Block Temp: 75 °FThermometer SN: 221441Cal. Direction: ☒ Axial ☐ Circ
☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to Weld
☐ WRV 0° ☐ Laminar 0°
☐ Inner Radius ☐ Other

CRT Calibration Is:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: FLUSH/FLAT TOP

System Simulator Check

Amplitude: 80 % Gain: 56.2 dB'sSweep Position: 7.1System verification when recalling stored
calibrations and/or after each examination:☒ Yes ☐ No ☐ NA

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
1-4502-19	TEE/PIPE	YES		X		82 °F	221441
1-4502-12	ELBOW/PIPE	YES		X		82 °F	221441

Remarks/Reasons for Incomplete Scan(s) * SCANNED AT 5% TO 20% ID ROLL.

Instrument Cal # 2

WELD # 1-4502-12, 60 DEG WAS USED IN THE AREA OF LIMITATION ON THE 45 DEG DUE TO ANGLE BEAM PIPE SUPPORT.

Simulator S/N: A02968Examiner: Mike Taylor Level: II Date: 5-2-02Examiner: Michael Robbins Level: II Date: 5-2-02Reviewers/Level: (WGI) Michael Robbins LVL III Date: 5/6/02 Reviewers: (Client) Medina Date: 5/15/02Reviewers: (ANII) R. Walladase Date: 5/15/02 Further Evaluation Required ☐ Yes ☒ No

Cal. Checks	Time
Initial Calibration	1235
Initial Calib. Date	5/2/2002
Intermediate	N/A
Intermediate	N/A
Final Calibration	1620
Final Calib. Date	5/2/2002

Washington

Group International

ORIGINAL

Calibration Data Sheet

COPY

Plant: V.C. SUMMERIsometric: CGE-1-4502Component/System: REACTOR COOLANT

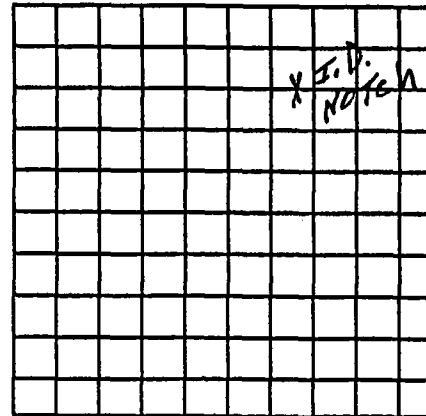
Instrument Settings

Manf./Model: STAEVELY / SONIC-136Scope Serial No.: 136P1106C031382Delay: .675" Range: 2.0"Velocity: .246 in/us Pulser: 100 nsDamping: 500 Ω Reject: OFFRep. Rate: 4 Khz Frequency: 5.0 MhzFilter: 1 Mode: DUALRef. Sens: Ax: 81.2 dB Circ: N/A dBExam Sens: Ax: * dB Circ: N/A dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: KBASerial No.: J23456Size: 2(.30" X .25") Shape: RECT.Frequency: 5.0 Mhz Style: SPDUExam Angle: 60 DEG. Wave Mode: LONG.Measured Angle: 55 DEG.Wedge Style: INTEGRAL

Couplant

Type: ULTRAGEL II Batch No.: 01225Each Major CRT Division = .20 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: 0

Examination Area/Weld

Configuration/
AccessCRV Sketch
AttachedRecordable Indications
Yes No Geom.Item
Temp.Thermometer
Serial No.

I-4592-13

PIPE/TEE

YES

X

82 °F

221441

Remarks/Reasons for Incomplete Scan(s) * SCANNED AT 5% TO 20% ID ROLL.

Instrument Cal # 9Simulator S/N: A02968Examiner: Mike Taylor Level: II Date: 5-2-02Examiner: Michael Robbins Level: II Date: 5-2-02Reviewers/Level: (WGI) Michael Robbins LVL III Date: 5/6/02 Reviewers: (Client) Slator Date: 5/15/02Reviewers: (ANII) W. Valladares Date: 5/15/02 Further Evaluation Required ☐ Yes ☒ NoPage 3 of 7Data Sheet No.: UT-VCSU-RF13-2002-002Procedure No.: SCEG-UT-89-12Rev. No. 0 Add. No. N/ACal. Block No.: CGE-4Dia.: 6" Mat'l: S/SCal Block "T": .747"Cal Block Temp: 75 °FThermometer SN: 221441Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to Weld☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: FLUSH

System Simulator Check

Amplitude: 90 % Gain: 81.8 dB'sSweep Position: 7.0System verification when recalling stored
calibrations and/or after each examination:☒ Yes ☐ No ☐ NA

Cal. Checks

Time

Initial Calibration	0900
Initial Calib. Date	5/3/2002
Intermediate	N/A
Intermediate	N/A
Final Calibration	1130
Final Calib. Date	5/3/2002

ORIGINAL

COPY

ULTRASONIC INDICATION DATA SHEET

Plant: V.C. SUMMER Examination Area/Weld: 1-4502-12 Data Sheet No.: UT-VCSU-RF13-2002-002

Examination Surface: ☐ I.D. ☒ O.D. Surface Condition: ☒ As found ☐ Wire brushed ☐ Other

Component Thickness: .747" Weld Crown Width: 1.4" Wo Location: CENTERLINE OF WELD Lo Location: OUTSIDE RADIUS OF US ELBOW

IND. NO.	Angle Used	Scan Direction Ax. or Circ.	Percent DAC	L-1 20%	L-1 50%	L-Max	L-2 50%	L-2 20%	Maximum Sound Path In Inches	Maximum "W" from Weld Centerline	Through-Wall Dimensions				Search Unit Location Upstream or Downstream	Straight Beam RBR Amplitude
											Forward		Backward			
											Sound Path	W-1 Position	Sound Path	W-2 Position		
1	45	Ax.	80%	*	*	15.25"	*	*	1.15"	.80"	N/A	N/A	N/A	N/A	US	N/A

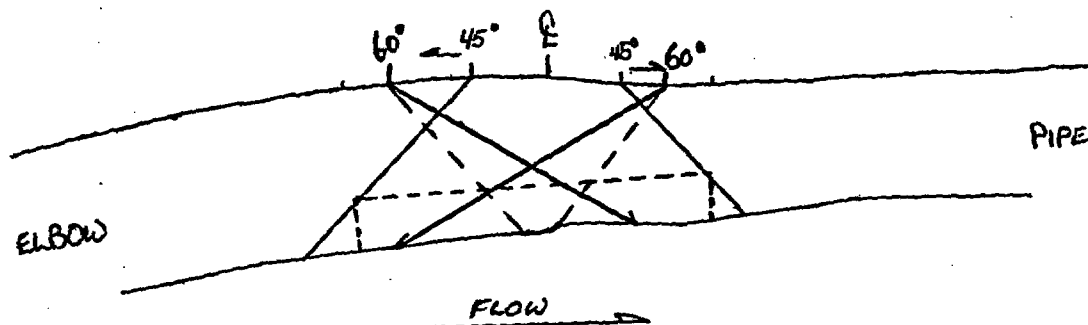
IND.	COMMENTS
1	ROOT GEOMETRY
	*ROOT GEOMETRY SEEN AT BELOW RECORDABLE AMPLITUDES 360 DEG. INTERMITTENTLY.

Examiner/Level/Date: [Signature] Lvl. II 5-2-02
 Examiner/Level/Date: [Signature] Lvl. II 5-2-02
 Review/Level (WGI)/Date: Michael Robbins LVL III 5/6/02
 Review (Client)/Date: [Signature] 5/15/02
 Review (ANII)/Date: W. Valladares 5/15/02

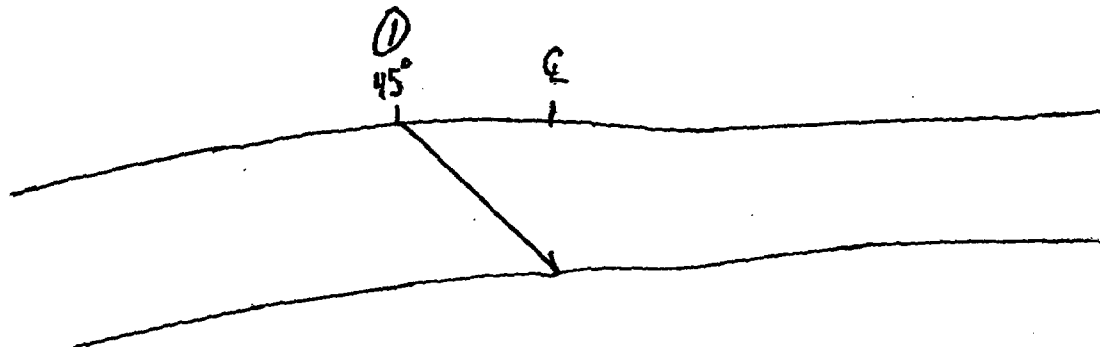
Further Evaluation Required:
 Yes ☐ No ☒

COPY

COMPONENT NO.: 1-4502-12



100% code required coverage achieved.



Comments:

Indication #1, Root Geometry

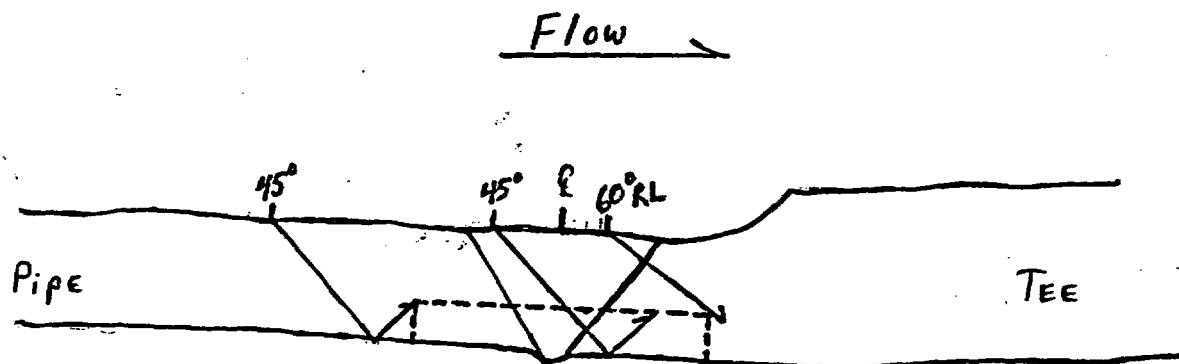
Examiner / Level PAUL JENSEN LV II

Date 05/03/02

John S. Lister RMallada 5/3/02

COPY

COMPONENT NO.: 1-4502-13



Comments: 50% code required coverage, due to single sided
EXAM.

Examiner / Level

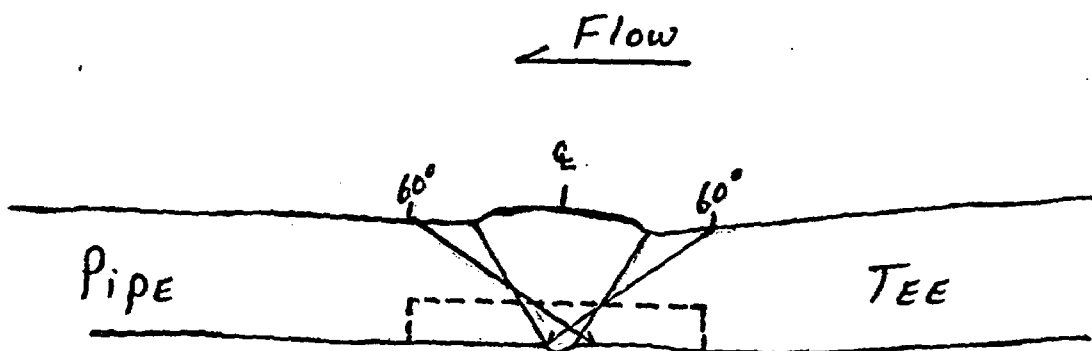
[Signature] Lvl. II

Date 5-2-02

[Signature] *[Signature]*

COPY

COMPONENT NO.: 1-4502-19



100% coded required coverage achieved.

Comments: NONE

Examiner / Level

[Signature]

Level II

Date 5-2-02

[Signature] S15102 *[Signature]* S15102

CGE-1-4503

6" & 4" PRESSURIZER SPRAY

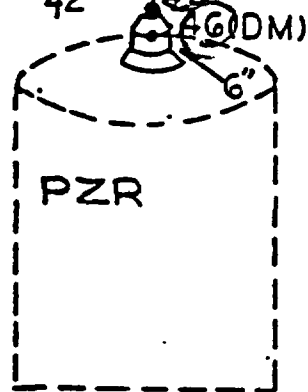
4" SCH-160 SS

.531" T

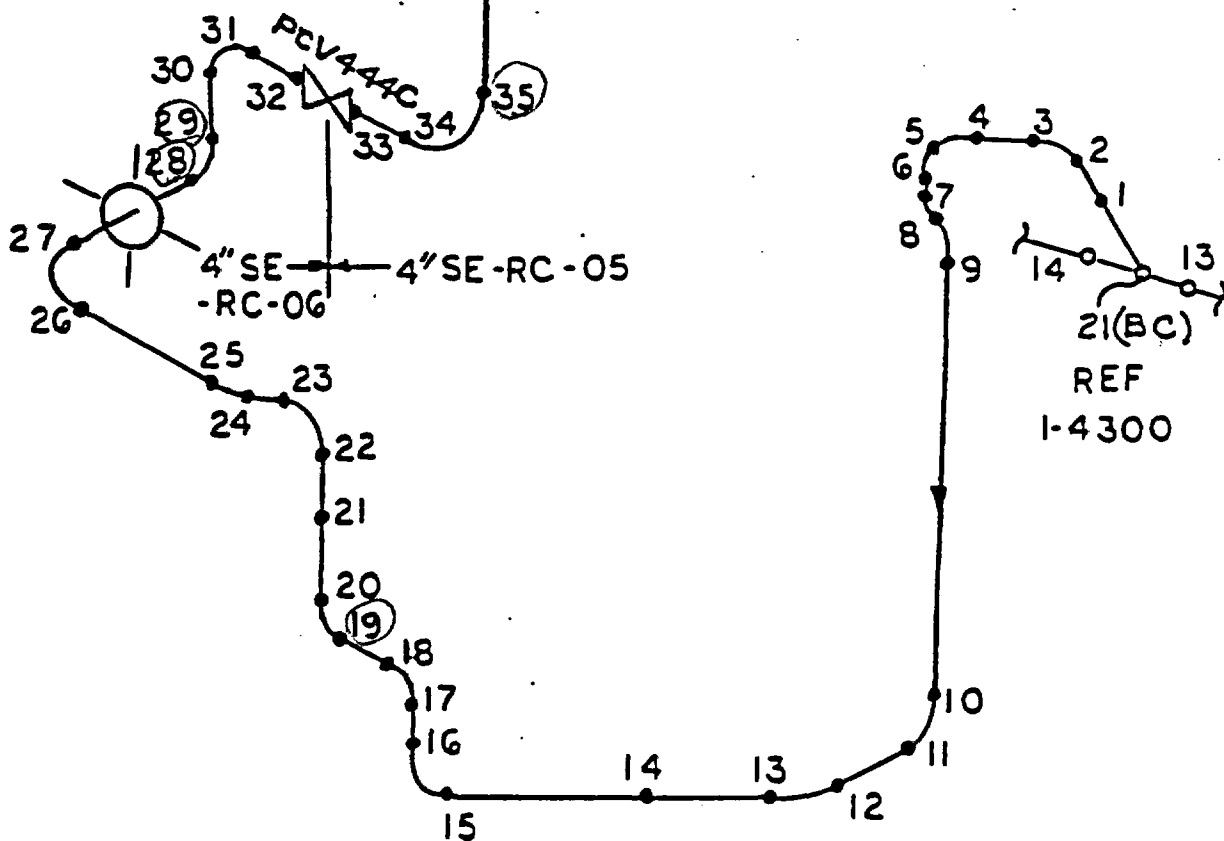
6" SCH-160 SS

.719" T

REF I-4504

REF
I-4506

COPY



Raytheon

Engineers & Constructors

Calibration Data Sheet

ORIGINAL

Plant: V.C. SUMMER

Isometric: C-314-601 SH-9 R-5

Component/System: R.C.

COPY

Instrument Settings

Manf./Model: STAVELEY/SONIC 136

Scope Serial No.: 136-158

Delay: .783 " Range: 1.5 "

Velocity: .229 in/us Pulsar: 222 ns

Damping: 500 Ω Reject: OFF

Rep. Rate: 4 KHZ Frequency: 2.25 MHz

Fiber: 2 Mode: DUAL

Ref. Sens: Ax: 64.8 dB Circ: N/A dB

Exam Sens: Ax: 75.8 dB Circ: N/A dB

SDH Sensitivity: N/A dB

Search Unit

Manufacturer: RTD

Serial No.: 98-978

Size: 2(7x10) in Shape: RECT.

Frequency: 2.0 MHz Style: DUAL

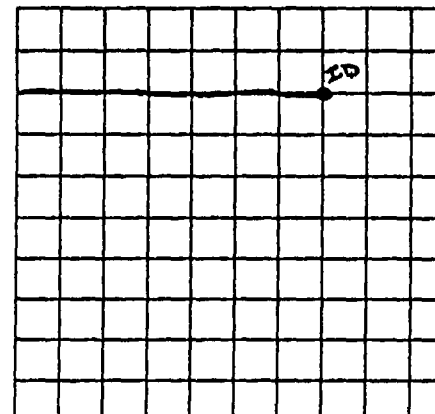
Exam Angle: 45° Wave Mode: LONG

Measured Angle: 46°

Wedge Style: INTEGRAL

Couplant

Type: ULTRAGEL Batch No.: 9092



Each Major CRT Division = .15 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept ☐ Unaccept.

Amplitude Control Linearity: ☒ Accept ☐ Unaccept.

Search Unit Cable

Type: BNC TO LEMO R6-174

Length: 6' Conn No.: 4

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>1-4503-46 (DM)</u>	<u>NOZZLE TO SAFE END</u>	<u>YES</u>		<u>X</u>		<u>85° F</u>	<u>115890</u>
	<u>N</u>	<u>A</u>				<u>° F</u>	
						<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

REF. MWR 9807232

Instrument Cal # 19

Page 1 of 6

Data Sheet No.: 99UT-001

Procedure No.: SC6G-UT-89-1

Rev. No. 1 Add. No. 1

Cal. Block No.: C6E-4

Dia: 6" Mat'l: SS

Cal Block "T": .747"

Cal Block Temp: 71 °F

Thermometer SN: 115890

Cal. Direction: ☒ Axial ☐ Circ

☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to Weld

☐ WRV 0° ☐ Laminar 0°

☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition: GROUND

System Simulator Check

Amplitude: 80 % Gain: 61.6 dB's

Sweep Position: 6.8

System verification when recalling stored calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>2010</u>
Initial Calib. Date	<u>4-08-99</u>
Intermediate	<u>2345</u>
Intermediate	<u>N/A</u>
Final Calibration	<u>0145</u>
Final Calib. Date	<u>4-9-99</u>

Examiner: P. Larson Level: II Date: 4-09-99

Examiner: J. Lunsford Level: II R Date: 4-09-99

Reviewers: (Raytheon) Ronald V. Swain Date: 4-10-99 Reviewers: (Client) [Signature] Date: 4/10/99

Reviewers: (ANII) [Signature] Date: 4-13-99 Further Evaluation Required ☐ Yes ☒ No

Raytheon

Engineers & Constructors

Plant: V.C. SUMMER

Isometric: C-314-601 SH 4 R-5

Component/System: RC

Calibration Data Sheet

COPY

ORIGINAL

Page 2 of 6

Data Sheet No.: 99UT-001

Procedure No.: SCE4-UT-89-1

Rev. No. 1 Add. No. 1

Cal. Block No.: UT-012

Dia.: 6" Mat'l: C.S.

Cal Block "T": .737"

Cal Block Temp: 71 °F

Thermometer SN: 115890

Cal. Direction: ☒ Axial ☐ Circ

☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to W.

☐ WRV 0° ☐ Laminar 0°

☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition:

Instrument Settings

Mat'l/Model: SONIC 136

Scope Serial No.: 136-158

Delay: .745 " Range: 1.5 "

Velocity: 235 in/us Pulsar: 222 ns

Damping: 500 Ω Reject: OFF

Rep. Rate: 4 KHZ Frequency: 225

Filter: 2 Mode: DUAL

Ref. Sens: Ax: 69 dB Circ: NA dB

Exam Sens: Ax: 75 dB Circ: NA dB

SDH Sensitivity: NA dB

Search Unit

Manufacturer: RTD

Serial No.: 98978

Size: 2(7x10)mm Shape: RECT.

Frequency: 2.0MHZ Style: DUAL

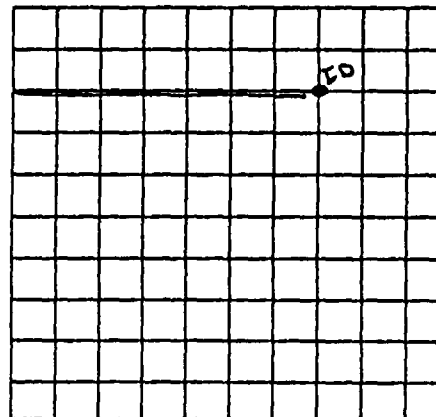
Exam Angle: 45° Wave Mode: LONg

Measured Angle: 46°

Wedge Style: INTEGRAL

Couplant

Type: ULTRAGEL Batch No.: 9092



Each Major CRT Division = .15 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept ☐ Unaccept.

Amplitude Control Linearity: ☒ Accept ☐ Unaccept.

Search Unit Cable

Type: BNCTO LEMO RG-174

Length: 6' Conn No.: 4

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>1-4503-46 (DM)</u>	<u>NOZZLE TO SAFE END</u>	<u>YES</u>		<u>X</u>		<u>85° F</u>	<u>115890</u>
						<u>° F</u>	
	<u>N</u>	<u>A</u>				<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

NOTE: REF. MWR. 9807232

Instrument Cal # 10

Examiner: P. Larson Level: II Date: 1-10-99

Examiner: J. Lunsford Level: II R Date: 4-10-99

Reviewers: (Raytheon) Ronald V. Swain Date: 4-10-99 Reviewers: (Client) [Signature] Date: 4/10/99

Reviewers: (AND) [Signature] Date: 7/13/99 Further Evaluation Required ☐ Yes ☒ No

System Simulator Check

Amplitude: 80 % Gain: 63.4 dB

Sweep Position: 5.6

System verification when recalling stored calibrations and/or after each examination

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>20 52</u>
Initial Calib. Date	<u>4-9-99</u>
Intermediate	<u>22 00</u>
Intermediate	<u>NA</u>
Final Calibration	<u>00 30</u>
Final Calib. Date	<u>4-10-99</u>

Raytheon

Engineers & Constructors

Plant: V.L. SUMMER

Isometric: C-314-6015H.4 R-5

Component/System: RL

Calibration Data Sheet

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ORIGINAL

Instrument Settings

Mat./Model: SONIC 136

Scope Serial No.: 136-158

Delay: 907 " Range: 2.0 "

Velocity: 229 in/us Pulsar: 222 ns

Damping: 500 Ω Reject: OFF ^{225 410-99}

Rep. Rate: 4 KHZ Frequency: 225 2.25

Filter: 2 Mode: DUAL

Ref. Sens: Ax: 73.6 dB Circ: NA dB

Exam Sens: Ax: 79.6 dB Circ: NA dB

SDH Sensitivity: NA dB

Search Unit

Manufacturer: RTD

Serial No.: 98-979

Size: 2(7 x 10) Shape: RECT.

Frequency: 2.0 MHz Style: DUAL

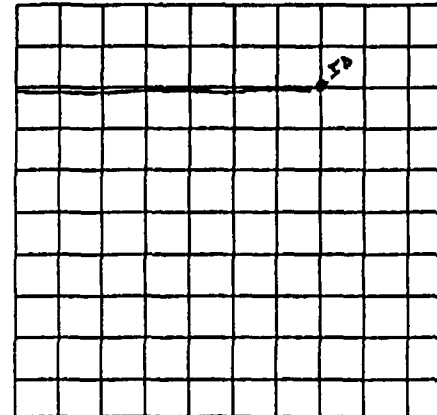
Exam Angle: 60° Wave Mode: LON.9

Measured Angle: 58°

Wedge Style: INTEGRAL

Couplant

Type: ULTRAGEL II Batch No.: 9092



Each Major CRT Division = 1.20 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept. ☐ Unaccept.

Amplitude Control Linearity: ☒ Accept. ☐ Unaccept.

Search Unit Cable

Type: BNC TO LEMO R4-174

Length: 6' Conn No.: 4

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>1-4503-46 (DM)</u>	<u>NOZZLE TO SAFE END</u>	<u>YES</u>		<u>X</u>		<u>85° F</u>	<u>115890</u>
	<u>N</u>					<u>° F</u>	
	<u>A</u>					<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

60° USED TO INCREASE COVERAGE

REF MWR. 9807232

Instrument Cal # 8

Page 3 of 6

Data Sheet No.: 99UT-001

Procedure No.: SCE4-UT-89-1

Rev. No. 1 Add No. 1

Cal. Block No.: C6E-4

Dia: 6" Mat'l: SS

Cal Block "T": .747"

Cal Block Temp: 71 °F

Thermometer SN: 115890

Cal. Direction: ☒ Axial ☐ Circ

☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to Weld

☐ WRV 0° ☐ Laminar 0°

☐ Inner Radius ☐ Other NA

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition: GROUND

System Simulator Check

Amplitude: 80% Gain: 62.2 dB's

Sweep Position: 3.4

System verification when recalling stored calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>2007</u>
Initial Calib. Date	<u>4-09-99</u>
Intermediate	<u>2230</u>
Intermediate	<u>NA</u>
Final Calibration	<u>0015</u>
Final Calib. Date	<u>4-10-99</u>

Examiner: P. Larson Level: II Date: 4-10-99

Examiner: J. Lumsford J. Lumsford Level: II R Date: 4-10-99

Reviewers: (Raytheon) Ronald V. Swain Date: 4-10-99 Reviewers: (Client) Salvador Date: 4/10/99

Reviewers: (ANII) W. J. Baker Date: 4/13/99 Further Evaluation Required ☐ Yes ☒ No

Raytheon

Engineers & Constructors

Calibration Data Sheet

Plant: V.C. SUMMERIsometric: C-314-601 SH-4 R-5Component/System: RC

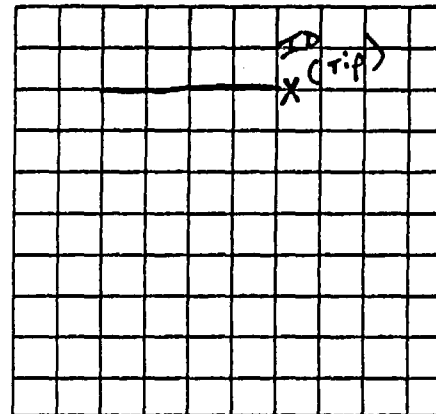
COPY

ORIGINAL

Instrument Settings

Mfr./Model: STAVELY/SONIC 136Scope Serial No.: 136-158Delay: 502 " Range: 1.5 "Velocity: 126 in/us Pulser: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 4K Frequency: 2.25Filter: 2 Mode: P.E.Ref. Sens: Ax: NA dB Circ: 40.2 dBExam Sens: Ax: NA dB Circ: 46.2 dBSDH Sensitivity: NA dB

Search Unit

Manufacturer: AEROTECHSerial No.: F24750Size: .250 Shape: ROUNDFrequency: 2.25 Style: GAMMAExam Angle: 45° Wave Mode: SHEARMeasured Angle: 45°Wedge Style: LUCITE MSWCouplant 9092Type: ULTRABEL II Batch No.: 45325 1/11
4-9-99Each Major CRT Division = .15 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept ☐ Unaccept.Amplitude Control Linearity: ☒ Accept ☐ Unaccept.

Search Unit Cable

Type: BNC TO MICRODOT RG-174Length: 6' Conn No.: 2

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>1-4503-46 (DM)</u>	<u>NOZZLE TO SAFE END</u>	<u>YES</u>		<u>X</u>		<u>85° F</u>	<u>115890</u>
						<u>° F</u>	
						<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

REF. MWR[®] 9807232Instrument Cal # 17Examiner: P. LarsonLevel: II Date: 4-09-99Examiner: J. LumsfordLevel: IIER Date: 4-09-99Reviewers: (Raytheon) Ronald V. SwainDate: 4-10-99 Reviewers: (Client) Dee Ann Date: 4/14/99Reviewers: (ANII) JP VillalobosDate: 4/13/99Further Evaluation Required ☐ Yes ☒ NoPage 4 of 6Data Sheet No.: 99UT-001Procedure No.: SCG-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: C6E-4Dia.: 6" Mat'l: SSCal Block "T": .747"Cal Block Temp: 71 °FThermometer SN: 115890Cal. Direction: ☐ Axial ☒ Circ☐ Both

Scan Direction:

☐ Perp to Weld ☒ Parallel to Weld☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other NA

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ LD. ☒ O.D.Surface Condition: GROUND

System Simulator Check

Amplitude: 40% Gain: REF dB'sSweep Position: 6.0System verification when recalling stored
calibrations and/or after each examination:☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>2024</u>
Initial Calib. Date	<u>4-08-99</u>
Intermediate	<u>2350</u>
Intermediate	<u>NA</u>
Final Calibration	<u>0143</u>
Final Calib. Date	<u>4-09-99</u>

Raytheon

Engineers & Constructors

Plant: V.C. SUMMER

Isometric: C-314-601 SH-4 R-5

Component/System: RL

Calibration Data Sheet

ORIGINAL

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Instrument Settings

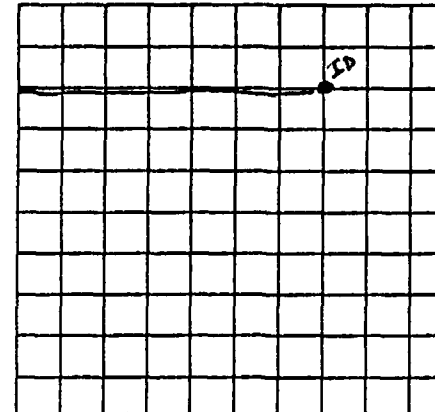
Mmf./Model: SONIC 134
 Scope Serial No.: 136-158
 Delay: 783 " Range: 1.5 "
 Velocity: 229 in/us Pulsar: 222 ns
 Damping: 500 Ω Reject: OFF
 Rep. Rate: 4 KHZ Frequency: 2.25 MHz.
 Filter: 2 Mode: DUAL
 Ref. Sens: Ax: NA dB Circ: 69.2 dB
 Exam Sens: Ax: NA dB Circ: 70.2 dB
 SDH Sensitivity: NA dB

Search Unit

Manufacturer: RTD
 Serial No.: 98978
 Size: 2(7X10)mm Shape: RECT.
 Frequency: 2.0mhz Style: DUAL
 Exam Angle: 45° Wave Mode: LONG
 Measured Angle: 46°
 Wedge Style: INTEGRAL

Couplant

Type: ULTRABOND II Batch No.: 9092



Each Major CRT Division = .15 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept ☐ Unaccept.
 Amplitude Control Linearity: ☒ Accept ☐ Unaccept.

Search Unit Cable

Type: BNC TO LEMO RG-174
 Length: 6' Conn No.: 4

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>1-4503-46(Dm)</u>	<u>NOZZLE TO SAFE END</u>	<u>YES</u>		<u>X</u>		<u>85° F</u>	<u>115890</u>
						<u>° F</u>	
						<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

REF. MWR 9807232
45 RL USED AS A SUPPLEMENT TO THE 45° SHEAR CIRC SCAN.

Instrument Cal # 6

Page 5 of 6

Data Sheet No.: 99UT-001

Procedure No.: SCEG-UT-89-1

Rev. No. 1 Add. No. 1

Cal. Block No.: C6E-4

Dia: 6" Mnt'l: SS

Cal Block "T": 747 "

Cal Block Temp: 71 °F

Thermometer SN: 115890

Cal. Direction: ☐ Axial ☒ Circ
☐ Both

Scan Direction:

☐ Perp to Weld ☒ Parallel to Weld
☐ WRV 0° ☐ Laminar 0°
☐ Inner Radius ☐ Other NA

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition: GROUND

System Simulator Check

Amplitude: 80 % Gain: 60.8 dB's

Sweep Position: 6.4

System verification when recalling stored
 calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>1950</u>
Initial Calib. Date	<u>4.9.99</u>
Intermediate	<u>2210</u>
Intermediate	<u>NA</u>
Final Calibration	<u>0020</u>
Final Calib. Date	<u>4.10.99</u>

Examiner: P. Larson Level: II Date: 9-10-99

Examiner: J. Lunsford J. Lunsford Level: II R Date: 4-10-99

Reviewers: (Raytheon) Ronald V. Swain Date: 4-10-99 Reviewers: (Client) Deakin Date: 4/10/99

Reviewers: (ANII) APM/Blackman Date: 4/13/99 Further Evaluation Required ☐ Yes ☒ No

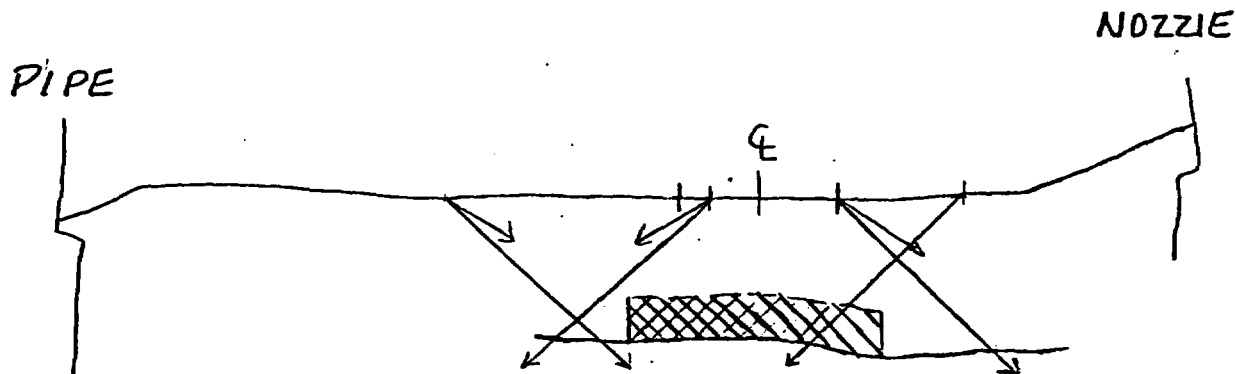
Sketch Sheet

COPY

Station/Unit V.C. SUMMER Project RF-11 Report No. 99UT-001
 System R.L. Procedure SLEG-UT-89-1 Rev. 1 Add. 1 Date 4/8/99
 Line No. 1-4503-46 (DM) Drawing No. C-314-601 SH-4 REVS Rev. 5
 Component I. D. PRZ. SPRAY NOZZIE TO SAFE Search Unit Angle 45° Mode RL
END 60° RL

ORIGINAL

WELD 1-4503-46 (DM)
 60° & 45° RL COVERAGE PLOT



Limited coverage = 90.38% CRV

NOTE: PROFILE TAKEN AT C OF MANWAY

$T = .719''$ WELD CROW WIDTH = .80''

Prepared By DL P. Larson Level II Date 4-10-99

Reviewed By Ronald V. Swain Level III Date 4-10-99

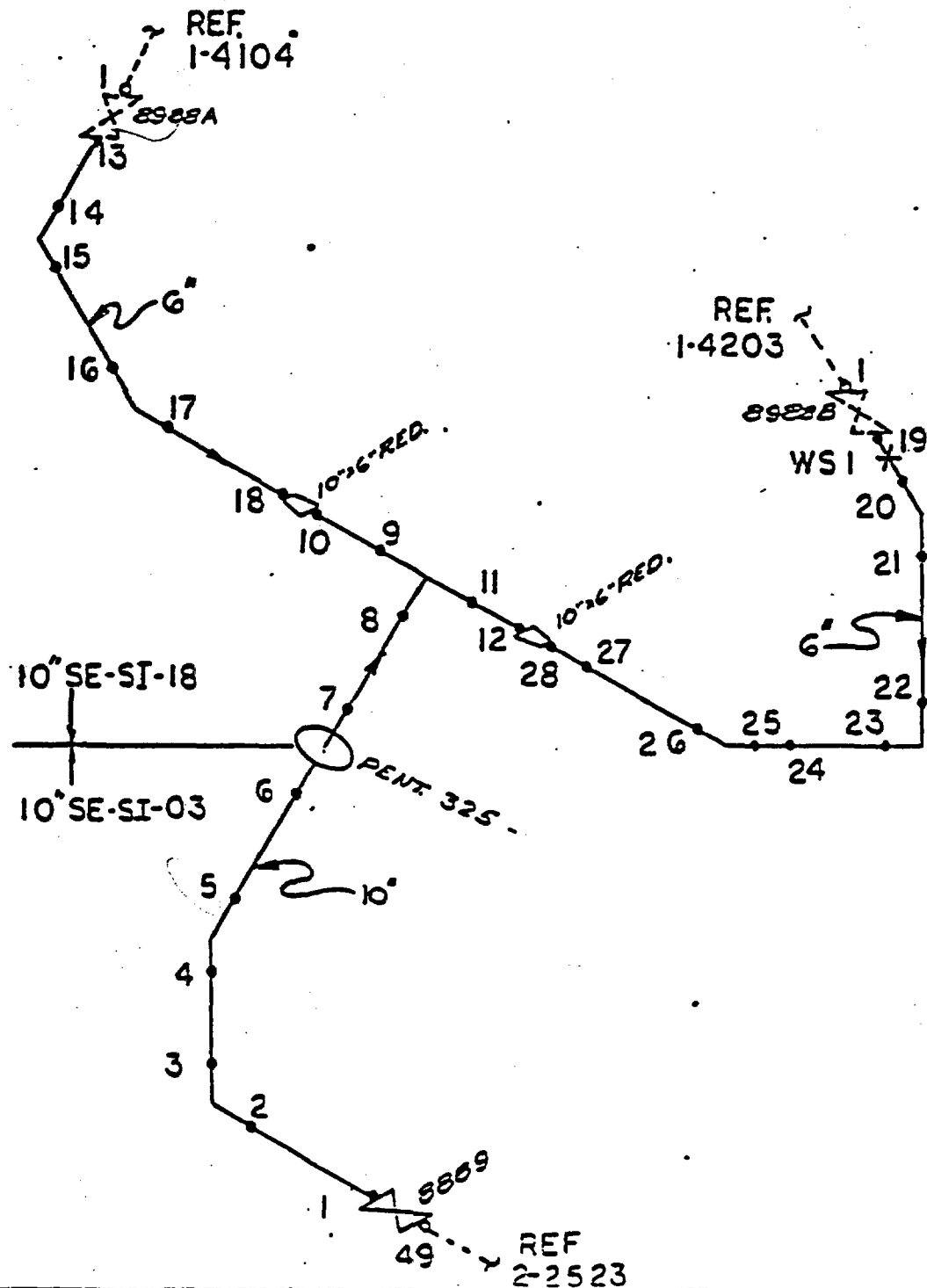
14/1 Refer to attached Ultrasonic Indication Data Sheet

4/10/99

SAFETY INJECTION

CGE-2-2554

6" SCH-160 .719" T SS
10" SCH-140 1.00" T SS



1-6 in 302-693
7-11 in 302-691

Raytheon

Engineers & Constructors

Calibration Data Sheet

COPY

Plant: VLC SUMMER 1Isometric: LGE-2-2554Component/System: ELBOW TO PIPE S. I.

Instrument Settings

Mfr./Model: STAVELEY SENC 136Scope Serial No.: 136-7022Delay: .323 " Range: 2.5 "Velocity: 127 in/us Pulser: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 4K Frequency: 2.25Filter: 2 Mode: P.E.Ref. Sens: Ax: N/A dB Circ: 38.6 dBExam Sens: Ax: 1A dB Circ: 52.6 dBSDH Sensitivity: N/A dB

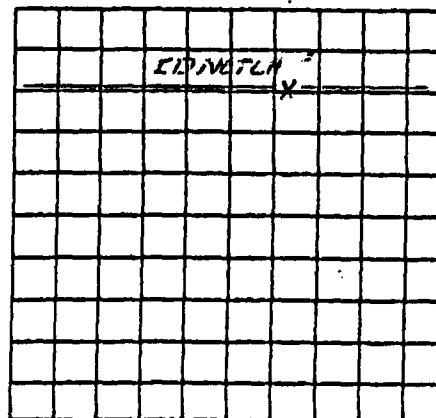
Search Unit

Manufacturer: MELASONICSSerial No.: K 2256Size: .375 " Shape: ROUNDFrequency: 2.25 Style: INSTExam Angle: 45° Wave Mode: SHEARMeasured Angle: 45°Wedge Style: SSWIDC

Couplant

Type: ULTRAGEL II Batch No.: 95325

ORIGINAL

Each Major CRT Division = .25 "Page 1 of 7
Data Sheet No.: 99UT-020Procedure No.: SC66-05-A7-1Rev. No. 1 Add. No. 1Cal. Block No.: LGE-16Dia.: 10 " Mfr'l: 5/5Cal Block "T": 1.053 "Cal Block Temp: 72 °FThermometer SN: 115870Cal. Direction: ☐ Axial ☒ Circ☐ Both

Scan Direction:

☐ Perp to Weld ☒ Parallel to We☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: CLEAN

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept. ☐ Unaccept.Amplitude Control Linearity: ☒ Accept. ☐ Unaccept.

Search Unit Cable

Type: R6-174Length: 6' Conn No.: -0-

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>2-2554-5</u>	<u>ELBOW TO PIPE</u>	<u>NO</u>	<u>N/A</u>	<u>X</u>	<u>N/A</u>	<u>85</u> °F	<u>115870</u>
						°F	
		<u>N/A</u>				°F	
						°F	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 3

System Simulator Check

Amplitude: 40 % Gain: 38.6 dBSweep Position: 4.2System verification when recalling stored
calibrations and/or after each examination☒ Yes ☐ No ☐ NAExaminer: David M. Griesel Level: II Date: 4-24-99Examiner: [Signature] Level: II Date: 4-24-99Reviewers: (Raytheon) Ronald V. Swain Date: 4-26-99 Reviewers: (Client) [Signature] Date: 4/27/99Reviewers: (ANII) [Signature] Date: 4/27/99 Further Evaluation Required ☐ Yes ☒ No

Cal. Checks	Time
Initial Calibration	<u>09:10</u>
Initial Calib. Date	<u>4-24-99</u>
Intermediate	<u>12:00</u>
Intermediate	<u>N/A</u>
Final Calibration	<u>15:50</u>
Final Calib. Date	<u>4-24-99</u>

Calibration Data Sheet

COPY
ORIGINALPlant: V.C. SUMMER 1Isometric: CGE-Z-2554Component/System: ELBOW TO PIPE

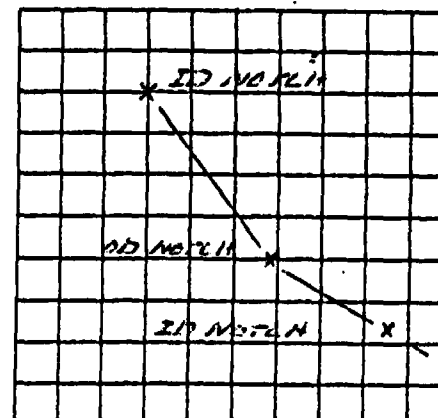
Instrument Settings

Mfr./Model: STAVELEY SONIC 136Scope Serial No.: 136-7021Delay: .30S Range: 5.0Velocity: .127 in/in Pulsar: 222 nsDamping: 500 Ω Reject: OFFRep. Rate: 4K Frequency: 225Fiber: 2 Mode: P.ERef. Sens: Ax: 34.0 dB Circ: N/A dBExam Sens: Ax: 48.0 dB Circ: A dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: MEGASONICSSerial No.: K2256Size: .375" Shape: ROUNDFrequency: 2.25 Style: MSTExam Angle: 45° Wave Mode: SHEARMeasured Angle: 45° 42" IN PARTWedge Style: SSWQC

Couplant

Type: ULTRAFILIT Batch No.: 95325Each Major CRT Division = .5"Page 2 of 4Data Sheet No.: 99UT-020Procedure No.: SCG-UT-87-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-16Dia.: 10" Mfr.: 5/5Cal. Block "T": 1.055"Cal. Block Temp.: 72 °FThermometer SN: 115870Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to W☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: CLEAN

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept. ☐ Unaccept.Amplitude Control Linearity: ☒ Accept. ☐ Unaccept.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: -0-

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>Z-2554-5</u>	<u>ELBOW TO PIPE</u>	<u>YES</u>	<u>N/A</u>	<u>X</u>	<u>N/A</u>	<u>85</u> °F	<u>115870</u>
						<u>0</u> °F	
		<u>N/A</u>				<u>0</u> °F	
						<u>0</u> °F	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 2Examiner: DAVID M. GENEVE Level: II Date: 4-24-99Examiner: DAVID M. GENEVE Level: II Date: 4-24-99Reviewers: (Raytheon) Donald V. Swain Date: 4/26/99 Reviewers: (Client) Don Swain Date: 4/27/99Reviewers: (ANIT) W. Hollidance Date: 4/27/99 Further Evaluation Required ☐ Yes ☒ No

System Simulator Check

Amplitude: 28 % Gain: 34.0 dBSweep Position: 2.1

System verification when recalling stored calibrations and/or after each examination

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>09:30</u>
Initial Calib. Date	<u>4-24-99</u>
Intermediate	<u>12:30</u>
Intermediate	<u>N/A</u>
Final Calibration	<u>15:40</u>
Final Calib. Date	<u>4-24-99</u>

Raycon

Engineers & Constructors

Calibration Data Sheet

COPY
ORIGINAL

Page 3 of 4

Plant: V.L. SOMMER 1Isometric: CGE-2-2554Component/System: ELBOW TO PIPE S.I

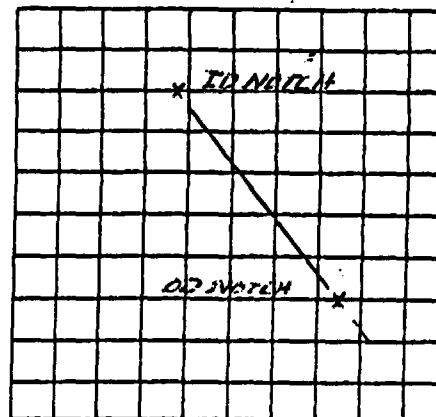
Instrument Settings

Mfr./Model: STAVELEY SONIC 136Scope Serial No.: 136-7021Delay: .393 " Range: 5.0 "Velocity: .126 in/us Pulsar: 2.22 nsDamping: 500 Ω Reject: OFFRep. Rate: 4K Frequency: 2.25Filter: 2 Mode: P.E.Ref. Sens: Ax: 45.5 dB Circ: N/A dBExam Sens: Ax: 62.8 dB Circ: 1/A dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: MEGASCANSerial No.: 60271Size: .375" Shape: ROUNDFrequency: 2.25 Style: MSTExam Angle: 60° Wave Mode: SHEARMeasured Angle: 58 59 IN PARTWedge Style: SSWOL

Couplant

Type: ULTRACEL II Batch No.: 95325Each Major CRT Division = .5 "Data Sheet No.: 99UT-020Procedure No.: SC.26 UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-16Dia.: 10 Mfr'l: S/SCal Block "T": 1.053Cal Block Temp: 72 °FThermometer SN: 115890Cal. Direction: ☒ Axial ☐ Circ
☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to W.
☐ WRV 0° ☐ Laminar 0°
☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: CLEAN

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Accept ☐ Unaccept.Amplitude Control Linearity: ☒ Accept ☐ Unaccept.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: -0-

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>2-2554-5</u>	<u>ELBOW TO PIPE</u>	<u>YES</u>	<u>N/A</u>	<u>X</u>	<u>N/A</u>	<u>85</u> °F	<u>115890</u>
						°F	
		<u>N/A</u>				°F	
						°F	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 4

System Simulator Check

Amplitude: 40 % Gain: 48.85 dBSweep Position: 2.8System verification when recalling stored
calibrations and/or after each examination☒ Yes ☐ No ☐ NAExaminer: DAVID M. EXTRELLLevel: IIDate: 4-24-99Examiner: [Signature]Level: IIDate: 4-24-99Reviewers: (Raytheon) Ronald V. SwanDate: 4-26-99Reviewers: (Client) [Signature]Date: 4/27/99Reviewers: (ANTI) [Signature]Date: 4/27/99Further Evaluation Required ☐ Yes ☒ No

Cal. Checks	Time
Initial Calibration	<u>09:45</u>
Initial Calib. Date	<u>4-24-99</u>
Intermediate	<u>13:00</u>
Intermediates	<u>N/A</u>
Final Calibration	<u>15:45</u>
Final Calib. Date	<u>4-24-99</u>

Raytheon Engineers & Constructors

Sketch Sheet

COPY

page 4 of 4

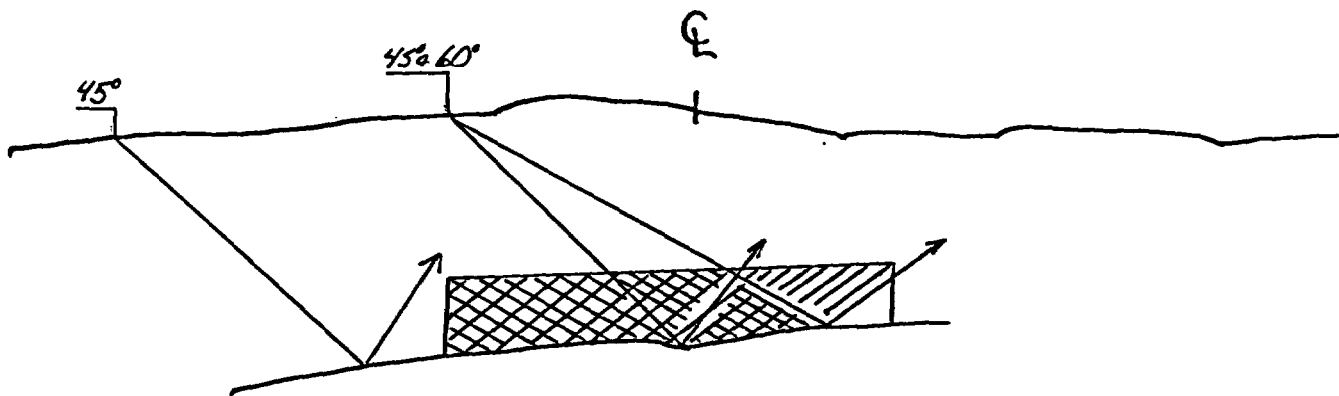
Station/Unit V.C. SUMMER 1 Project RF-11 Report No. 99UT-020
System S.I. Procedure SCEG-UT-89-1 Rev. 1 Add. 1 Date 4/24/99
Line No. N/A Drawing No. CGE-Z-2554 Rev. N/A
Component I. D. 2-2554-5 Search Unit Angle 45° Mode SHEAR

ORIGINAL

ELBOW

FLOW 

PIPE



COVERAGE PLOT

80.8% = COVERAGE IN TWO DIRECTIONS
15.8% = COVERAGE IN ONE DIRECTION ONLY
4.0% = NO COVERAGE

88.7% = OF C.R.V. COVERAGE SUCCESSFULLY ACHIEVED.



Prepared By DAVID M. GRIEDEL Level II Date 4-24-99

Reviewed By Donald V. Swain Level III Date 4-26-99

1/1 Refer to attached Ultrasonic Indication Data Sheet

Raytheon

Engineers & Constructors

Calibration Data Sheet

Plant: VC SUMMERIsometric: CGE-2-3010 SHUT A. R.O.Component/System: C.V.C. FROM CHARGING PUMPS DIS. TO DIS. HDR.

ORIGINAL

COPY

Page 1 of 8Data Sheet No.: 99UT-009Procedure No.: SCEG-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: COMPONENTDia.: 3" Mat'l: SSCal Block "T": N/ACal Block Temp: N/A °FThermometer SN: N/ACal. Direction: ☐ Axial ☐ Circ☐ Both

Scan Direction:

☐ Perp to Weld ☐ Parallel to Weld☐ WRV 0° ☒ Laminar 0°☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: GROUND

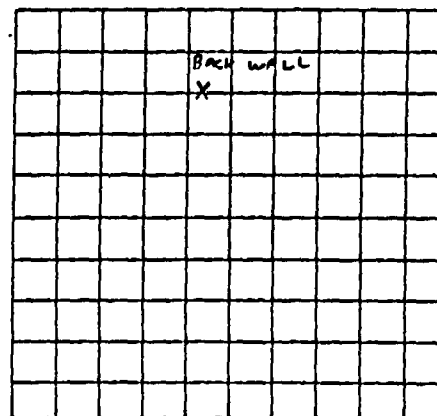
Instrument Settings

Mfr./Model: STAVELEY / SONIC 136Scope Serial No.: 136-1083MDelay: 1.01 " Range: 1.0 "Velocity: 228 in/us Pulsar: 100 nsDamping: 500 Ω Reject: OFFRep. Rate: 4 K Frequency: 5Filter: 1 Mode: DUALRef. Sens: Ax: * dB Circ: * dBExam Sens: Ax: * dB Circ: * dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: K B AEROTECHSerial No.: 12416Size: 2(3.5 x 10mm) Shape: ROUNDFrequency: 4 MHz Style: MSEB-4Exam Angle: 0° Wave Mode: LONGMeasured Angle: N/AWedge Style: N/A

Couplant

Type: SONOTECH Batch No.: 95325Each Major CRT Division = 0.1 "

* MAINTAINED BACK-WALL @ 80% FSH

Daily Linearity Verification

Search Unit Cable

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.Type: RG-174Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.Length: 6' Conn No.: Ø

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>2 - 3010 - 15</u>	<u>ELBOW → TEE</u>	<u>YES</u>		<u>/</u>		<u>80 °F</u>	<u>173109</u>
						°F	
						°F	
						°F	

Remarks/Reasons for Incomplete Scan(s)

* NO EXAM ON DS SIDE DUE TO OD CONFIGURATION

Instrument Cal # 10Examiner: Simon Crothers Level: II Date: 4-16-99Examiner: Wandy L. Hastings Level: II Date: 4-16-99Reviewers: (Raytheon) Ronald V. Parain Date: 4-19-99 Reviewers: (Client) [Signature] Date: 4/20/99Reviewers: (AND) [Signature] Date: 4/20/99 Further Evaluation Required ☐ Yes ☒ No

System Simulator Check

Amplitude: N/A % Gain: N/A dB'sSweep Position: N/ASystem verification when recalling stored
calibrations and/or after each examination:☐ Yes ☐ No ☒ NA

Cal. Checks	Time
Initial Calibration	<u>1310</u>
Initial Calib. Date	<u>4-16-99</u>
Intermedinte	<u>N/A</u>
Intermedinte	<u>/A</u>
Final Calibration	<u>1730</u>
Final Calib. Date	<u>4-16-99</u>

Raytheon

Engineers & Constructors

Calibration Data Sheet

Plant: V C SUMMERIsometric: CGE-2-3010 SHY A. R.O.Component/System: C.V.C. FROM CHARGING PUMPS DIS. TO DIS. HDR.

ORIGINAL

COPY

Page 2 of 8Data Sheet No.: 99UT-009Procedure No.: SCEG-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-2Dia.: 3" Mat'l: SSCal Block "T": 0.445"Cal Block Temp: 73 °FThermometer SN: 173109Cal. Direction: ☐ Axial ☒ Circ
☐ Both

Scan Direction:

☐ Perp to Weld ☒ Parallel to Weld
☐ WRV 0° ☐ Laminar 0°
☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: GROUND

Instrument Settings

Search Unit

Mfr./Model: STAVELEY / SONIC 136Manufacturer: K B AEROTECHScope Serial No.: 136-1083 MSerial No.: G 18476Delay: .504 " Range: 1.25 "Size: 2(.25x.3) Shape: RECTVelocity: .230 in/us Pulsar: 100 nsFrequency: 5MHz Style: 389-011-180Damping: 500 Ω Reject: OFFExam Angle: 45° Wave Mode: LONGRep. Rate: 4 K Frequency: 5Measured Angle: 44°Filter: 1 Mode: DUALWedge Style: N/A INTEGRAL
RJS
4-19-99Ref Sens: Ax: N/A dB Circ: 73 dBExam Sens: Ax: N/A dB Circ: 79 dBSDH Sensitivity: N/A dB

Couplant

Type: SONOTECH Batch No.: 95325Each Major CRT Division = .125 "

Daily Linearity Verification

Search Unit Cable

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Type: RG-174Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.Length: 6' Conn No.: Ø

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>2 - 3010 - 15</u>	<u>ELBOW → TEE</u>	<u>YES</u>		<input checked="" type="checkbox"/>		<u>80 °F</u>	<u>173109</u>
						<u>° F</u>	
						<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 11Examiner: Simon Crothas Level: II Date: 4-16-99Examiner: Brandy L. Thornton Level: II Date: 4-16-99Reviewers: (Raytheon) Ronald V. Parin Date: 4-19-99 Reviewers: (Client) Bellevue Date: 4/10/99Reviewers: (ANII) Ellen K. Reser Date: 4/26/99 Further Evaluation Required ☐ Yes ☒ No

System Simulator Check

Amplitude: 80 % Gain: 68 dB'sSweep Position: 7.8System verification when recalling stored
calibrations and/or after each examination:☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>1137</u>
Initial Calib. Date	<u>4-16-99</u>
Intermediate	<u>1325</u>
Intermediate	<u>1500</u>
Final Calibration	<u>1750</u>
Final Calib. Date	<u>4-16-99</u>

Raytheon

Engineers & Constructors

Plant: VC SUMMER

Isometric: CGE-2-3010 SHY A. R.O.

Component/System: C.V.C. FROM CHARGING PUMPS DIS. TO DIS. HDR.

Calibration Data Sheet

ORIGINAL

COPY

Instrument Settings

Mfr./Model: STAVELEY / SONIC 136

Scope Serial No.: 136-1083 M

Delay: .620 " Range: 1.25 "

Velocity: .229 in/ms Pulsar: 100 ns

Damping: 500 Ω Reject: OFF

Rep. Rate: 4 k Frequency: 5

Filter: 1 Mode: DUAL

Ref. Sens: Ax: 86 dB Circ: N/A dB

Exam Sens: Ax: 92 dB Circ: N/A dB

SDH Sensitivity: N/A dB

Search Unit

Manufacturer: K B AEROTECH

Serial No.: J23456

Size: 2(.25x.3) Shape: RECT

Frequency: 5 MHz Style: 389-011-190

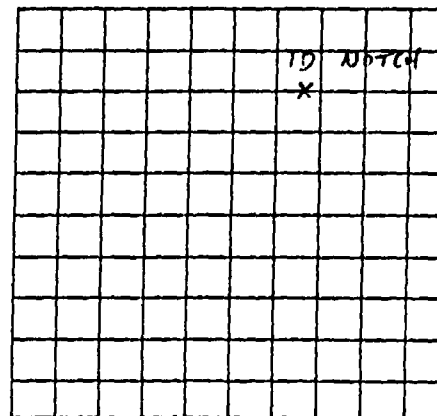
Exam Angle: 60 Wave Mode: LONG

Measured Angle: 58°

Wedge Style: HA integral
KUS
8-19-99

Couplant

Type: SONOTECH Batch No.: 95325



Each Major CRT Division = .125 "

Page 3 of 8

Data Sheet No.: 99UT-009

Procedure No.: SCEG-UT-89-1

Rev. No. 1 Add. No. 1

Cal. Block No.: CGE-2

Dia.: 3 " Mfr.: SS

Cal Block "T": 0.445 "

Cal Block Temp: 73 °F

Thermometer SN: 173109

Cal. Direction: ☒ Axial ☐ Circ

☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to Weld

☐ WRV 0° ☐ Laminar 0°

☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition: GROUND

System Simulator Check

Amplitude: 80 % Gain: 70 dB's

Sweep Position: 5.0

System verification when recalling stored calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Daily Linearity Verification

Search Unit Cable

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.

Type: RG-174

Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.

Length: 6' Conn No.: Ø

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>2 - 3010 - 15</u>	<u>ELBOW → TEE</u>	<u>YES</u>			<input checked="" type="checkbox"/>	<u>80 °F</u>	<u>173109</u>
						<u>°F</u>	
						<u>°F</u>	
						<u>°F</u>	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 12

* NO EXAM FROM DS SIDE DUE TO OD GEOMETRY

Examiner: Simon Crothers Level: II Date: 4-16-99

Examiner: Randy L. T. Hartman Level: II Date: 4-16-99

Reviewers: (Raytheon) Donald V. J. Wain Date: 4-19-99 Reviewers: (Client) Adrian Date: 4-20-99

Reviewers: (ANII) Michael J. Wain Date: 4-20-99 Further Evaluation Required ☐ Yes ☒ No

Cal. Checks	Time
Initial Calibration	<u>1200</u>
Initial Calib. Date	<u>4-16-99</u>
Intermediate	<u>1340</u>
Intermediate	<u>1355</u>
Final Calibration	<u>1752</u>
Final Calib. Date	<u>4-16-99</u>

Raytheon

Engineers & Constructors

Plant: VC SUMMER

Isometric: CGE - 2 - 3010 SHT A. R.O

Component/System: C.V.C. FROM CHARGING PUMPS DIS. TO DIS. HDR.

Calibration Data Sheet

ORIGINAL

COPY

Page 4 of 8

Data Sheet No.: 99UT-009

Procedure No.: SCGE-UT-89-1

Rev. No. 1 Add. No. 1

Cal. Block No.: CGE - 2

Dia.: 3" Mat'l: SS

Cal Block "T": 0.445"

Cal Block Temp: 73 °F

Thermometer SN: 173109

Cal. Direction: ☒ Axial ☐ Circ
☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to Weld
☐ WRV 0° ☐ Laminar 0°
☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition: GROUND

Instrument Settings

Mfr./Model: STAVELEY / SONIC 136

Scope Serial No.: 136-1083M

Delay: .250 " Range: 2.0 "

Velocity: .123 in/us Pulsar: 222 ns

Damping: 500 Ω Reject: OFF

Rep. Rate: 4 K Frequency: 2.25

Filter: 2 Mode: P/E

Ref Sens: Ax: 52 dB Circ: N/A dB

Exam Sens: Ax: 59 dB Circ: N/A dB

SDH Sensitivity: N/A dB

Search Unit

Manufacturer: KB AEROTECH

Serial No.: H12310

Size: .25" Shape: ROUND

Frequency: 2.25 Style: GAMMA

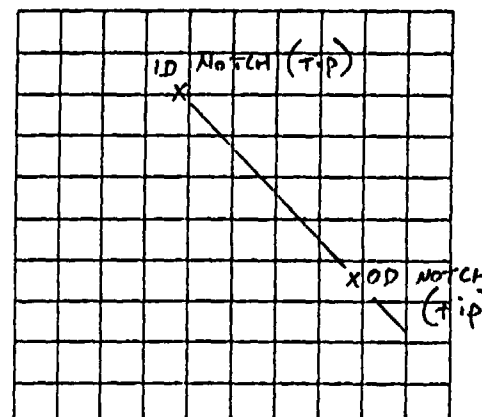
Exam Angle: 60° Wave Mode: SHEAR

Measured Angle: 58°

Wedge Style: MSW

Couplant

Type: SONOTECH Batch No.: 95325



Each Major CRT Division = 0.2 "

Daily Linearity Verification

Search Unit Cable

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.

Type: RG-174

Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.

Length: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Circm.		
<u>2-3010-15</u>	<u>ELBOW → TEE</u>	<u>YES</u>			<input checked="" type="checkbox"/>	<u>80 °F</u>	<u>173109</u>
						<u>° F</u>	
						<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 13

• USED 60° PRIMARY EXAM ANGLE DUE TO LIMITED EFFECTIVENESS OF 45° BASED ON COMPONENT THICKNESS AND WELD CROWN.

• NO EXAM FROM DS SIDE DUE TO OD GEOMETRY

Examiner: Simon Crothers

Level: II

Date: 4-16-99

Examiner: Randy L. T. Hastings

Level: II

Date: 4-16-99

Reviewers: (Raytheon) Ronald V. Juran

Date: 4-19-99

Reviewers: (Client) Joe John

Date: 4/16/99

Reviewers: (ANII) Ed McKeown

Date: 4/26/99

Further Evaluation Required

☐ Yes ☒ No

System Simulator Check

Amplitude: 48 % Gain: 52 dB's

Sweep Position: 6.6

System verification when recalling stored calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>1208</u>
Initial Calib. Date	<u>4-16-99</u>
Intermediate	<u>1410</u>
Intermediate	<u>1520</u>
Final Calibration	<u>1755</u>
Final Calib. Date	<u>4-16-99</u>

Raytheon

Engineers & Constructors

Calibration Data Sheet

Plant: VC SUMMER

Isometric: CGE - 2 - 3010 SHT A. R.O

Component/System: C.V.C. FROM CHARGING PUMPS DIS. TO DIS. HDR.

ORIGINAL COPY

Page 5 of 8

Data Sheet No.: 99UT-009

Procedure No.: SCGE-UT-89-1

Rev. No. 1 Add. No. 1

Cnl. Block No.: CGE - 2

Dia: 3" Mtl: SS

Cal Block "T": 0.445"

Cal Block Temp: 73 °F

Thermometer SN: 173109

Cal. Direction: ☒ Axial ☐ Circ
☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to Weld
☐ WRV 0° ☐ Laminar 0°
☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition: GROUND

Instrument Settings

Mfr./Model: STAVELEY / SONIC 136

Scope Serial No.: 136 - 1083M

Delay: .280 " Range: 2.5 "

Velocity: 123 in/us Pulsar: 222 ns

Damping: 500 Ω Reject: OFF

Rep. Rate: 4 K Frequency: 2.25

Filter: 2 Mode: P/E

Ref. Sens: Ax: 62 dB Circ: N/A dB

Exam Sens: Ax: 68 dB Circ: N/A dB

SDH Sensitivity: N/A dB

Search Unit

Manufacturer: KB AEROTECH

Serial No.: F 24759

Size: .25" Shape: ROUND

Frequency: 2.25 Style: GAMMA

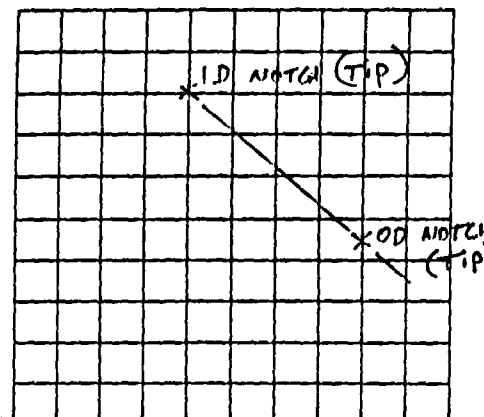
Exam Angle: 70° Wave Mode: SHEAR

Measured Angle: 68°

Wedge Style: MSW

Couplant

Type: SONOTECH Batch No.: 95325



Each Major CRT Division = .25 "

Daily Linearity Verification

Search Unit Cable

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.

Type: RG-174

Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.

Length: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
2-3010-15	ELBOW → TEE	YES			✓	80 °F	173109
						° F	
						° F	
						° F	

Remarks/Reasons for Incomplete Scan(s)

- SUPPLEMENTAL EXAM TO ASSURE ADEQUATE COVERAGE
- NO EXAM FROM DS SIDE DUE TO OD GEOMETRY

Instrument Cal # 14

Examiner: Simon Crothers

Level: II

Date: 4-16-99

Examiner: Donald V. Swan

Level: II

Date: 4-16-99

Reviewers: (Raytheon) Donald V. Swan

Date: 4-19-99

Reviewers: (Client) Joe Blum

Date: 4/20/99

Reviewers: (AND) Simon Crothers

Date: 4/20/99

Further Evaluation Required

☐ Yes ☒ No

System Simulator Check

Amplitude: 80 % Gain: 58 dB's

Sweep Position: 3.3

System verification when recalling stored
calibrations and/or after each examination:

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	1215
Initial Calib. Date	4-16-99
Intermediate	1435
Intermediate	1550
Final Calibration	1800
Final Calib. Date	4-16-99

ORIGINAL

ULTRASONIC INDICATION DATA SHEET

COPY

Plant: VC SUMMERExamination Area/Weld: 2-3010-15Data Sheet No.: 99UT-009Examination Surface: ☐ I.D. ☒ O.D.Surface Condition: ☐ As found ☐ Wire brushed ☒ Other GROUNDComponent Thickness: 0.5" Weld Crown Width: 0.7" Wo Location: WELD E Lo Location: EXTRA DDS

IND. NO.	Angle Used	Scan Direction Ax. or Circ.	Percent DAC	L-1 20%	L-1 50%	L-Max	L-2 50%	L-2 20%	Maximum Sound Path In Inches	Maximum "W" from Weld Centerline	Through-Wall Dimensions				Search Unit Location Upstream or Downstream	Straight Beam RBR Amplitude
											Forward		Backward			
											Sound Path	W-1 Position	Sound Path	W-2 Position		
1	60 S	AX	90%	N	/	4" CCW	N	/	0.92"	0.55"		N	/		US	/
2	70 S	AX	110%	/	A	4" CCW	/	A	0.98"	0.65"		/	/		US	N / A
3	60 RL	AX	170%	/	/	4" CCW	/	/	0.80"	0.50"	/	/	A	/	US	/

IND.	COMMENTS
12+3	ROOT GEOMETRY SEEN INTERMITTENT 360°

Examiner/Level/Date: Simon Crothers Lev II 4-16-99Examiner/Level/Date: Randy L. Harting LEV II 4-16-99Review (Raytheon)/Date: Ronald V. Swain 4-19-99Review (Client)/Date: 4/20/99Review (ANII)/Date: 4/20/99

Further Evaluation Required:

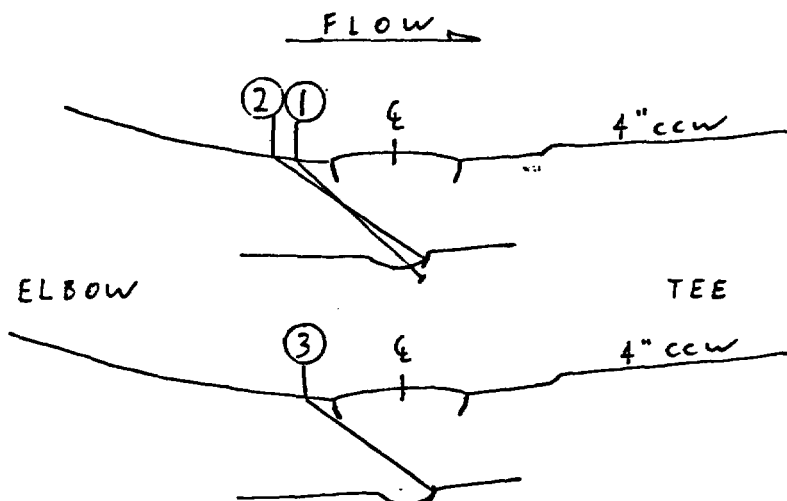
Yes ☐ No ☒

Sketch Sheet

COPY ORIGINAL

Station/Unit V C SUMMER Project RF-11 Report No. 99UT-009
 System C. V. C. Procedure SCEG-UT-89-1 Rev. 1 Add. 1 Date 4/16/99
 Line No. N/A Drawing No. CCE-2-3010 SHT A. Rev. 0
 Component I. D. 2-3010-15 Search Unit Angle * ° Mode *
* VARIOUS

INDICATION SKETCH



- ① 52° S (NOM 60°) ROOT GEOMETRY SEEN INTERMITTENT 360° - UNABLE TO MAXIMIZE INDICATION DUE TO WELD CROWN.
- ② 62° S (NOM 70°) ROOT GEOMETRY SEEN INTERMITTENT 360°
- ③ 58° RL (NOM 60°) ROOT GEOMETRY SEEN INTERMITTENT 360°

* ANGLES MEASURED IN CODE CALIBRATION BLOCK.

Prepared By Simon Crothas Level II Date 4-16-99

Reviewed By Ronald V. Swain Level III Date 4-19-99

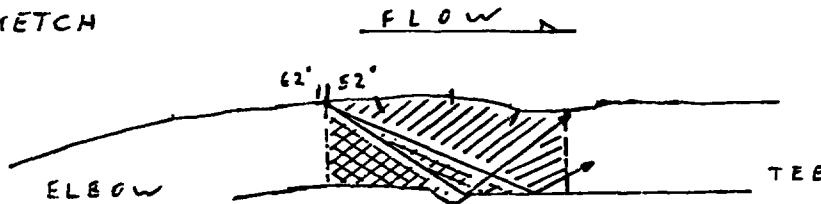
Refer to attached Ultrasonic Indication Data Sheet

Sketch Sheet

COPY ORIGINAL

Station/Unit V C SUMMER Project RF-11 Report No. 99UT-009
 System C. V. C. Procedure SCG-UT-89-1 Rev. 1 Add. 1 Date 4/16/99
 Line No. N/A Drawing No. CGE-2-3010 SHT A. Rev. 0
 Component I. D. 2-3010-15 Search Unit Angle 60/70° Mode SHEAR

COVERAGE SKETCH



AXIAL EXAM

- EXAM AREA = $1.2' \times 0.45' = 0.54 \text{ in}^2$
- TWO DIRECTIONAL COVERAGE = $.5(1' \times .45') = 0.23 \text{ in}^2$
 $.23 \text{ OF } .54 = 43\%$
- NO COVERAGE = $.5(.1' \times .2') = .01 \text{ in}^2$
 $.01 \text{ OF } .54 = 2\%$
- ONE DIRECTIONAL COVERAGE = $100\% - 43\% - 2\% = 55\%$
- AXIAL COVERAGE = $43\% + .5(55\%) = 70.5\%$

CIRC EXAM

- EXAM SURFACE = $.5' + \text{CROWN} + .5' = 1.7'$
- AREA EXAMINED = $.5' + \text{CROWN} + .4' = 1.6'$
- $1.6 \text{ OF } 1.7 = 94\%$

CRV COVERAGE

- $(A + C)/2 = (70.5 + 94)/2 = 82\%$

Prepared By Simon Crothers Level II Date 4-16-99Reviewed By Ronald V. Swain Level III Date 4-19-99

Refer to attached Ultrasonic Indication Data Sheet

Raytheon

Engineers & Constructors

Calibration Data Sheet

Pwrd: VC SUMMERIsometric: CGE-2-3011 R.OComponent/System: SAFETY INJECTIONCOPY
ORIGINALPage 1 of 10
Data Sheet No.: 99UT-015
Procedure No.: SEEG-WT-89Rev. No. 1 Add. No. 1Cal. Block No.: COMPONENTDia.: 14.0" Mat'l: SSCal Block "T": N/ACal Block Temp: N/AThermometer SN: N/ACal. Direction: ☐ Axial ☐ Circ
☐ Both

Scan Direction:

☐ Perp to Weld ☐ Parallel to
☐ WRV 0° ☒ Laminar 0°
☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: GROUNDED

Instrument Settings

Mfr./Model: STAVELEY/SONTECHScope Serial No.: 136-1083MDelay: 1.0 " Range: 1.0 "Velocity: 228 in/ms Pulsar: 100 nsDamping: 500 Ω Reject: OFFRep. Rate: 4KHz Frequency: 5MHzFilter: 1 Mode: DUALRef Sens: Ax: * dB Circ: * dBExam Sens: Ax: * dB Circ: * dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: KB AEROTECHSerial No.: 12416Size: 2(3.5x10mm) Shape: ROUNDFrequency: 4MHz Style: MSEB-4Exam Angle: 0° Wave Mode: LONGMeasured Angle: N/AWedge Style: N/A

Couplant

Type: SONOTECH Batch No.: 95325Each Major CRT Division = .10 "

* MAINTAINED BACKWALL @ 80% F.S.H.

Daily Linearity Verification

Search Unit Cable

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Type: RG-174Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.Length: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
2-3011-33	PIPE → ELBOW	NO		✓		73°F	173109
2-3011-34	ELBOW → VALVE	YES		✓		73°F	173109
						°F	
						°F	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 10

- 2-3011-34 NO EXAM ON DS SIDE DUE TO OD CONFIGURATION.

Examiner: Simon Crothers Level: II Date: 4-21-99Examiner: Randy J. Hartman Level: III Date: 4-21-99Reviewers: (Raytheon) Ronald V. Jordan Date: 4-22-99 Reviewers: (Client) MA Date: 4-23-99Reviewers: (AND) Dr. Walter Smith Date: 4/26/99 Further Evaluation Required ☐ Yes ☒ No

System Simulator Check

Amplitude: N/A % Gain: N/ASweep Position: N/A

System verification when recalling and/or after each examination

☐ Yes ☐ No ☒ NA

Cal. Checks	Time
Initial Calibration	<u>1100</u>
Initial Calib. Date	<u>4-21-99</u>
Intermediate	<u>N/A</u>
Intermediate	<u>N/A</u>
Final Calibration	<u>1300</u>
Final Calib. Date	<u>4-21-99</u>

Raytheon

Engineers & Constructors

Plant: VC SUMMERInconetric: CGE-2-3011 R.OComponent/System: SAFETY INJECTIONCalibration Data Sheet **COPY**
ORIGINAL

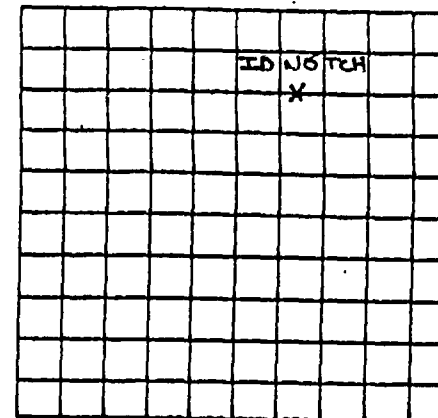
Instrument Settings

Mnf./Model: STAVELEY/SONIC 136Scope Serial No.: 136-1083 MDelay: .504 " Range: 1.0 "Velocity: .230 in/ms Pulsar: 100 nsDamping: 5000 Reject: OFFRep. Rate: 4 KHz Frequency: 5 MHzFilter: 1 Mode: DUALRef Sens: Ax: N/A dB Circ: 72 dBExam Sens: Ax: N/A dB Circ: 78 dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: KB AEROTECHSerial No.: G18476Size: 2(25x.30") Shape: RECTFrequency: 5 MHz Style: 389-011-130Exam Angle: 45° Wave Mode: LONGMeasured Angle: 44°Wedge Style: INTEGRAL

Couplant

Type: SONOTECH Batch No.: 95325Each Major CRT Division = .10 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
<u>2-3011-33</u>	<u>PIPE → ELBOW</u>	<u>NO</u>		<input checked="" type="checkbox"/>		<u>73 °F</u>	<u>173109</u>
<u>2-3011-34</u>	<u>ELBOW → VALVE</u>	<u>YES</u>		<input checked="" type="checkbox"/>		<u>73 °F</u>	<u>173109</u>
						<u>° F</u>	
						<u>° F</u>	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 11Examiner: Simon G. G. G.Level: IIDate: 4-21-99Examiner: Anthony L. T. T.Level: IIDate: 4-21-99Reviewers: (Raytheon) Ronald V. SwainDate: 4-22-99Reviewers: (Client) PaulDate: 4-23-99Reviewers: (ANTI) W. W. W.Date: 4-26-99Further Evaluation Required ☐ Yes ☒ NoPage 2 of 10Data Sheet No.: 99UT-015Procedure No.: SCGE-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-15Dia.: 14.0 " Mnt'l: SSCal Block "T": .449 "Cal Block Temp: 73 °FThermometer SN: 173109Cal. Direction: ☐ Axial ☒ Circ☐ Both

Scan Direction:

☐ Perp to Weld ☒ Parallel to V☐ WRVO ☐ Laminar 0°☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: GRADED

System Simulator Check

Amplitude: 80 % Gain: 6.8Sweep Position: 9.8

System verification when recalling stored calibrations and/or after each examination

☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	<u>0925</u>
Initial Calib. Date	<u>4-21-99</u>
Intermediate	<u>1120</u>
Intermediate	<u>1200</u>
Final Calibration	<u>1350</u>
Final Calib. Date	<u>4-21-99</u>

Raytheon

Engineers & Constructors

Calibration Data Sheet

COPY
ORIGINALPage 3 of 10Data Sheet No.: 99UT-015Procedure No.: SEEG-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-15Dia: 14.0" Mat'l: SSCal Block "T": .449"Cal Block Temp: 73 °FThermometer SN: 173109Cal. Direction: ☒ Axial ☐ Circ☐ Both

Scan Directions:

☒ Perp to Weld ☐ Parallel to V☐ WRV 0° ☐ Laminar 0°☐ Inner Radius ☐ Other 1/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surfaces:

☐ I.D. ☒ O.D.Surface Condition: GROUND

System Simulator Check

Amplitude: 80 % Gain: 70Sweep Position: 5.0

System verification when recalling store calibrations and/or after each examination

☒ Yes ☐ No ☐ NAPlant: VC SUMMERInstrument: CGE-2-3011 R.OComponent/System: SAFETY INJECTION

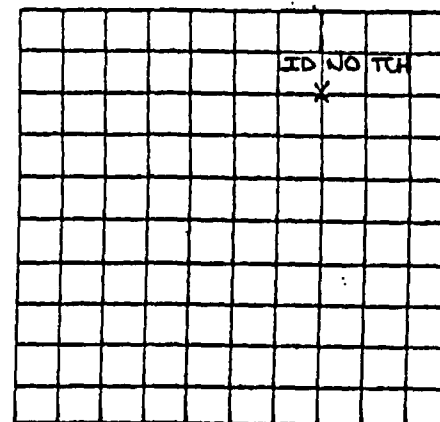
Instrument Settings

Mfr./Model: STAVELEY/SONIC 136Scope Serial No.: 136-1083MDelay: .620 " Range: 1.25 "Velocity: .229 in/in Pulsar: 100 nsDamping: 500Ω Reject: OFFRep. Rate: 4KHz Frequency: 5MHzFilter: 1 Mode: DUALRef Sens: Ax: 81 dB Circ: N/A dBExam Sens: Ax: 87 dB Circ: N/A dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: KB AEROTECHSerial No.: J23456Size: 2.25 x .30" Shape: RECTFrequency: 5MHz Style: 389-011-190Exam Angle: 60° Wave Mode: LONGMeasured Angle: 58°Wedge Style: INTEGRAL

Couplant

Type: SONOTECH Batch No.: 95325Each Major CRT Division = .125 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: Ø

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Comm.		
2-3011-34	ELBOW → VALVE	YES			✓	73 °F	173109
						° F	
						° F	
						° F	

Remarks/Reasons for Incomplete Scan(s)

Instrument Cal # 12

NO EXAM FROM D & SIDE DUE TO OD GEOMETRY

Examiner: Simon Crocker Level: II Date: 4-21-99Examiner: Randy L. T. Harting Level: II Date: 4-21-99Reviewers: (Raytheon) Ronald V. Swain Date: 4-22-99 Reviewers: (Client) [Signature] Date: 4-23-99Reviewers: (ANTI) [Signature] Date: 4/26/99 Further Evaluation Required ☐ Yes ☒ No

Cal. Checks	Time
Initial Calibration	<u>0933</u>
Initial Calib. Date	<u>04-21-99</u>
Intermediate	<u>1130</u>
Intermediate	<u>1145</u>
Final Calibration	<u>1352</u>
Final Calib. Date	<u>4-21-99</u>

Raytheon

Engineers & Constructors

Calibration Data Sheet

COPY
ORIGINALPlwr: VC SUMMERInconetric: CGE-2-3011 R.OComponent/System: SAFETY INJECTION

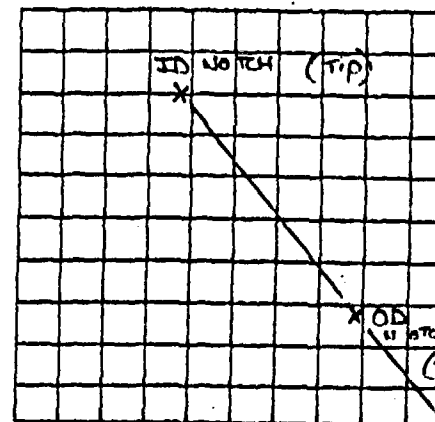
Instrument Settings

Mnf./Model: STAVELEY/SONIC 13LScope Serial No.: 136-1083MDelay: 250 " Range: 2.0 "Velocity: 123 in/hr Pulser: 222 nsDamping: 5000 Reject: OFFRep. Rate: 4KHz Frequency: 2.25MHzFilter: 2 Mode: P/ERef Sens: Ax: 49 dB Circ: N/A dBExam Sens: Ax: 55 dB Circ: N/A dBSDH Sensitivity: N/A dB

Search Unit

Manufacturer: KB AEROTECHSerial No.: H12310Size: .25" Shape: ROUNDFrequency: 2.25MHz Style: GAMMAExam Angle: 60° Wave Mode: SHEARMeasured Angle: 58°Wedge Style: MSW

Couplant

Type: SONOTECH Batch No.: 95325Each Major CRT Division = .20 "

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacpt.Amplitude Control Linearity: ☒ Acpt. ☐ Unacpt.

Search Unit Cable

Type: RG-174Length: 6' Conn No.: 0Page 4 of 10Data Sheet No.: 99UT-01Procedure No.: SEEG-UT-89-1Rev. No. 1 Add. No. 1Cal. Block No.: CGE-15Dia.: 14.0" Mnd'l: ESCal Block "T": .449Cal Block Temp: 73 °FThermometer SN: 173109Cal. Direction: ☒ Axial ☐ Circ
☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to
☐ WRV 0° ☐ Laminar II
☐ Inner Radius ☐ Other AI

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.Surface Condition: GROUND

System Simulator Check

Amplitude: 48 % Gain: 52Sweep Position: 6.6System verification when recalling at
calibrations and/or after each exam:☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	0940
Initial Calib. Date	04-21-99
Intermediate	1146
Intermediate	1215
Final Calibration	1354
Final Calib. Date	4-21-99

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Clean.		
2-3011-33	PIPE → ELBOW	NO			✓	73°F	173109
2-3011-34	ELBOW → VALVE	YES			✓	73°F	173109
						"	"
						"	"

Remarks/Reasons for Incomplete Scan(s)

- 2-3011-34 NO EXAM ON DS SIDE DUE TO OD CONFIGURATION.
- USED 60° PRIMARY EXAM ANGLE DUE TO LIMITED EFFECTIVENESS OF 45° BASED ON COMPONENT THICKNESS AND WELD CROWN.

Instrument Cal # 13Examiner: Simon Crothers Level: II Date: 4-21-99Examiner: Brenda L. Dwyer Level: III Date: 4-21-99Reviewers: (Raytheon) Ronald V. Jari Date: 4-22-99 Reviewers: (Client) Allen Date: 4-23-99Reviewers: (ANTI) Mark Date: 4-21-99 Further Evaluation Required ☐ Yes ☒ No

Raytheon

Engineers & Constructors

Calibration Data Sheet

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Page 5 of 10

Data Sheet No.: 99UT-015

Procedure No.: SCEG-UT-89-

Rev. No. 1 Add. No. 1

Cal. Block No.: CGE-15

Dia.: 14.0" Mat'l: SS

Cal Block "T": 449"

Cal Block Temp: 73

Thermometer SN: 173109

Cal. Direction: ☒ Axial ☐ Circ
☐ Both

Scan Direction:

☒ Perp to Weld ☐ Parallel to
☐ WRV 0° ☐ Laminar
☐ Inner Radius ☐ Other N/A

CRT Calibration In:

☒ Sound Path ☐ Depth

Examination Surface:

☐ I.D. ☒ O.D.

Surface Condition: GROUND

System Simulator Check

Amplitude: 80 % Gain: 58

Sweep Position: 3.3

System verification when recalling at
calibrations and/or after each exam☒ Yes ☐ No ☐ NA

Cal. Checks	Time
Initial Calibration	0956
Initial Calib. Date	04-21-
Intermediate	1230
Intermediate	1250
Final Calibration	1356
Final Calib. Date	4-21-9

Plant: VC SUMMER

Isometric: CGE-2-3011 R.O

Component/System: SAFETY INJECTION

Instrument Settings

Mnf./Model: STAVELEY/SONIC 136

Scope Serial No.: 136-1083M

Delay: .280" Range: 2.5"

Velocity: .123 in/in Pulse: 222 ns

Damping: 500 Ω Reject: OFF

Rep. Rate: 4KHZ Frequency: 2.25KHZ

Filter: 2 Mode: P/E

Ref Sens: Ax: 60 dB Circ: N/A dB

Exam Sens: Ax: 60 dB Circ: N/A dB

SDH Sensitivity: N/A dB

Search Unit

Manufacturer: KB-AEOTECH

Serial No.: F24759

Size: .25" Shape: ROUND

Frequency: 2.25MHz Style: GAMMA

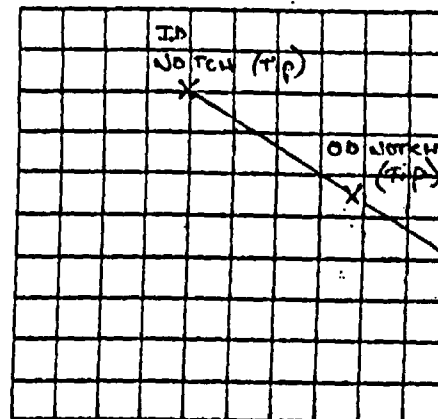
Exam Angle: 70° Wave Mode: SHEAR

Measured Angle: 68°

Wedge Style: MSW

Couplant

Type: SONOTECH Batch No.: 95325



Each Major CRT Division = .25"

Daily Linearity Verification

Instrument Vertical Linearity: ☒ Acpt. ☐ Unacct.Amplitude Control Linearity: ☒ Acpt. ☐ Unacct.

Search Unit Cable

Type: AG-174

Length: 6' Conn No.: 0

Examination Area/Weld	Configuration/ Access	CRV Sketch Attached	Recordable Indications			Item Temp.	Thermometer Serial No.
			Yes	No	Geom.		
2-3011-33	PIPE → ELBOW	NO			✓	73°F	173109
2-3011-34	ELBOW → VALVE	YES			✓	73°F	173109
						° F	
						° F	

Remarks/Reasons for Incomplete Scan(s)

• 2-3011-34 NO EXAM ON D & SIDE DUE TO OD CONFIGURATION.

Instrument Cal # 14

• SUPPLEMENTAL EXAM TO ASSURE ADEQUATE COVERAGE.

Examiner: Simon Crothers Level: II Date: 4-21-99

Examiner: Randy L. Tidgeling Level: II Date: 4-21-99

Reviewers: (Raytheon) Ronald V. Swain Date: 4-22-99 Reviewers: (Client) Date: 4-23-99

Reviewers: (ANTI) Date: 4/26/99 Further Evaluation Required ☐ Yes ☒ No

COPY ORIGINAL

ULTRASONIC INDICATION DATA SHEET

Plant: V.C. SUMMERExamination Area/Weld: 2-3011-33Data Sheet No.: 99UT-015Examination Surface: ☐ I.D. ☒ O.D.Surface Condition: ☐ As found☐ Wire brushed ☒ Other GROUNDComponent Thickness: 0.38"Weld Crown Width: 0.55"Wo Location: ELo Location: EXTRADOS

IND. NO.	Angle Used	Scan Direction Ax. or Circ.	Percent DAC	L-1 20%	L-1 50%	L-Max	L-2 50%	L-2 20%	Maximum Sound Path In Inches	Maximum "W" from Weld Centerline	Through-Wall Dimensions				Search Unit Location Upstream or Downstream	Straight Beam RBR Amplitude
											Forward		Backward			
											Sound Path	W-1 Position	Sound Path	W-2 Position		
1	60°S	AX	100%		/	11" ccw		/	0.86"	0.6"			/	US	/	
2	60°S	AX	50%	N	/	10.6" ccw	N	/	0.82"	0.6"		N	/	DS	N	
3	70°S	AX	120%	/	A	11" ccw	/	A	0.95"	0.7"		/	A	US	A	
4	70°S	AX	70%	/	/	10.6" ccw	/	/	0.95"	0.7"		/	/	DS	/	

IND.	COMMENTS
1,2,3,4	ROOT GEOMETRY SEEN INTERMITTENT 360°

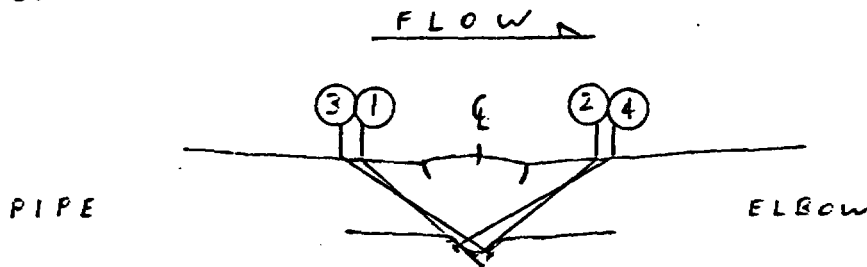
Examiner/Level/Date: Simon Crothers Lev II 4-21-99Examiner/Level/Date: Randy L. Harting LEV II 4-21-99Review (Raytheon)/Date: Ronald V. Jaramila 4-22-99Review (Client)/Date: [Signature] 4-23-99Review (ANII)/Date: [Signature] 4/26/99

Further Evaluation Required:

Yes ☐ No ☒

Station/Unit V.C. SUMMER Project RF-11 Report No. 99UT-015
System S.I. Procedure SCG-UT-E9-1 Rev. 1 Add. 1 Date 4/21/99
Line No. N/A Drawing No. CGE-2-3011 Rev. 0
Component I. D. 2-3011-33 Search Unit Angle 60/70° Mode SHEAR

INDICATION SKETCH



①② 53°S (NOM 60°) ROOT GEOMETRY SEEN INTERMITTENT 360°

③④ 62°S (NOM 70°) ROOT GEOMETRY SEEN INTERMITTENT 360°

• ANGLES MEASURED IN CODE CALIBRATION BLOCK.

Prepared By Simon Crothers Level II Date 4-21-99

Reviewed By Ronald V. Swain Level III Date 4-22-99

Refer to attached Ultrasonic Indication Data Sheet

COPY ORIGINAL

ULTRASONIC INDICATION DATA SHEET

Plant: V C SUMMER Examination Area/Weld: 2-3011-34 Data Sheet No.: 99UT-015Examination Surface: ☐ I.D. ☒ O.D. Surface Condition: ☐ As found ☐ Wire brushed ☒ Other GROUNDComponent Thickness: 0.42" Weld Crown Width: 0.6" Wo Location: E Lo Location: EXTRADOS

IND. NO.	Angle Used	Scan Direction Ax. or Circ.	Percent DAC	L-1 20%	L-1 50%	L-Max	L-2 50%	L-2 20%	Maximum Sound Path In Inches	Maximum "W" from Weld Centerline	Through-Wall Dimensions				Search Unit Location Upstream or Downstream	Straight Beam RRR Amplitude
											Forward		Backward			
											Sound Path	W-1 Position	Sound Path	W-2 Position		
1	60°S	AX	60%	N	/	7"ccw	N	/	0.84"	0.55"		N	/		US	N
2	70°S	AX	100%	/	/	7"ccw	/	/	0.98"	0.75"		/	/		US	/
3	60°RL	AX	200%	/	A	7"ccw	/	A	0.75"	0.50"	/		A		US	A

IND.	COMMENTS
1,2+3	ROOT GEOMETRY SEEN INTERMITTENT 360°

Examiner/Level/Date: Simon Crothers Lev II 4-21-99

Examiner/Level/Date: Randy L. Hastings LEV II 4-21-99

Review (Raytheon)/Date: Ronald V. J. 4-22-99

Review (Client)/Date: 4-23-99

Review (ANII)/Date: 4/24/99

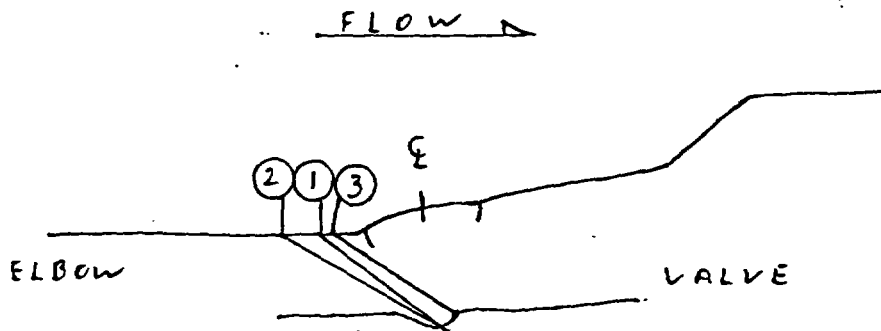
Further Evaluation Required:

Yes ☐ No ☒

Station/Unit V.C. SUMMER Project RF-11 Report No. 99UT-015
 System S.I. Procedure SCG-UT-89-1 Rev. 1 Add. 1 Date 4/21/99
 Line No. N/A Drawing No. CGE-2-3011 Rev. 0
 Component I. D. 2-3011-34 Search Unit Angle # ° Mode #
VARIOUS

INDICATION SKETCH

ORIGINAL



- ① 53° S (Nom. 60°) ROOT GEOMETRY SEEN INTERMITTENT 360°
- ② 62° S (Nom. 70°) ROOT GEOMETRY SEEN INTERMITTENT 360°
- ③ 58° RL (Nom 60°) ROOT GEOMETRY SEEN INTERMITTENT 360°

* ANGLES MEASURED IN CODE CALIBRATION BLOCK.

[Handwritten signature]

Prepared By Simon Crothers Level II Date 4-21-99

Reviewed By Ronald V. Jarvis Level III Date 4-22-99

Refer to attached Ultrasonic Indication Data Sheet

Raytheon Engineers & Constructors

page 10 of 10

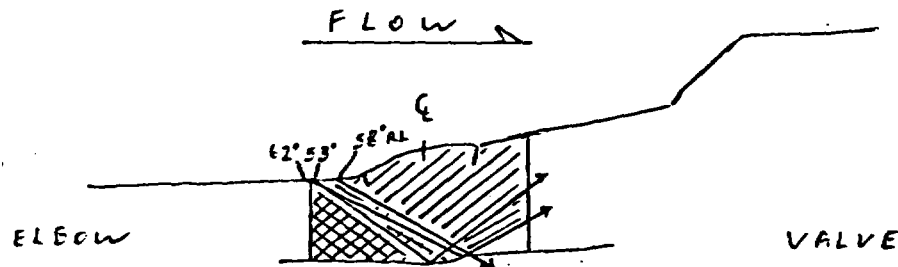
Sketch Sheet

COPY

Station/Unit VC SUMMER Project RF-11 Report No. 99UT-015
 System S.I. Procedure SEG-UT-E9-1 Rev. 1 Add. 1 Date 4/21/99
 Line No. N/A Drawing No. CGE-2-3011 Rev. 0
 Component I. D. 2-3011-34 Search Unit Angle * ° Mode * °
* VARIOUS

COVERAGE SKETCH

ORIGINAL



AXIAL EXAM

- EXAM AREA = $1.1" \times .5" = 0.55 \text{ in}^2$
- TWO DIRECTIONAL COVERAGE = $.5 (.4" \times .8") = 0.16 \text{ in}^2$
- $.16$ OF $.55" = 29\%$
- NO COVERAGE = $.5 (.2" \times .3") = .03 \text{ in}^2$
- $.03$ OF $.55" = 5\%$
- ONE DIRECTIONAL COVERAGE = $100\% - 29\% - 5\% = 66\%$
- AXIAL COVERAGE = $29\% + .5(66\%) = 62\%$

CIRC EXAM

- COVERAGE = 100%

COVERAGE

$$(A+C)/2 = (62\% + 100\%)/2 = \underline{81\% \text{ CRV}}$$

[Handwritten signature]

Prepared By Simon Crothers Level II Date 4-21-99

Reviewed By Ronald V. Swain Level III Date 4-22-99

14/1A Refer to attached Ultrasonic Indication Data Sheet

**South Carolina Electric & Gas Co. (SCE&G)
Virgil C. Summer Nuclear Station (VCSNS)
Relief Request**

RR-II-010

Subject:

This relief request provides the alternate requirements to Examination Categories C-A and C-B as qualified by Code Case N-460 of ASME Code, Section XI, 1989 Edition (henceforth Section XI).

Components:

ASME Code Class 2 welds in pressure vessels requiring ultrasonic examination.

Code Requirement:

Table IWC-2500-1 for Examination Categories C-A and C-B requires pressure vessel welds to be ultrasonically inspected each Interval. Each selected weld is required to be inspected essentially 100% of the required volume. ASME Code Case N-460 qualifies the ultrasonic examination when at least 91% of the required volume has been achieved.

Relief Request:

Relief is requested from achieving 91% of the required volume during performance of the ultrasonic examination when component design and geometric limitations preclude a complete exam.

Alternate Test:

To the extent practical, the weld required volume and base metal area, Figure IWC-2500-1 as an example, will be ultrasonically examined. Each weld with less than the allowed 91% coverage shall have a detailed description of the beam angles used and the extent of coverage achieved. For welds identified in the table presented in the following Basis for Relief that do not achieve the volumetric percentage specified, a relief request will be submitted.

Basis for Relief:

VCSNS is presently required to perform component inspections in accordance with the 1989 Edition of ASME Section XI. The general design of the component surfaces may have ultrasonic scan interference caused by inherent manufacturing geometry or obstructions that preclude access to the weld area. Examples of these vessel configurations are nozzle reinforcing pad interferences, vessel head transitions, nozzle radius transitions, and non bolted obstructions. Examination of all accessible areas of each selected component ensures the integrity of the component and provides an acceptable level of quality and safety. Each selected weld shall be examined to the maximum extent practical to include the use of multiple angles and beam paths. Specific welds requiring relief are listed below:

WELD ID	CATEGORY	ITEM	PERCENTAGE COMPLETE	LIMITATION
CGE-2-1110-1B-1	C-A	C1.10	83%	Nozzle Reinforcing Pad
CGE-2-1110-1B-2	C-B	C1.20	83%	Nozzle Reinforcing Pad

The accompanying drawings and data are provided as supplemental information for this request.

Implementation Schedule:

The proposed alternative is requested for the second 10-year inservice inspection interval. The second inservice inspection interval is scheduled to end on December 31, 2003 with the final inspection outage, Refuel Cycle 14, to be implemented starting on October 11, 2003.

Document Control Desk
Attachment II
0-C-02-3202
RC-03-0197
Page 3 of 3

**Sketches, Drawings, and Inspection Information
For
RR-II-10**

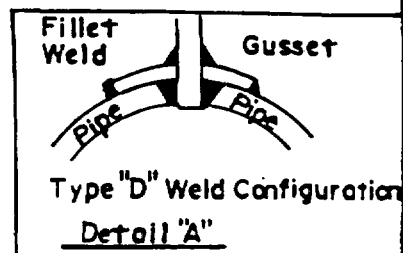
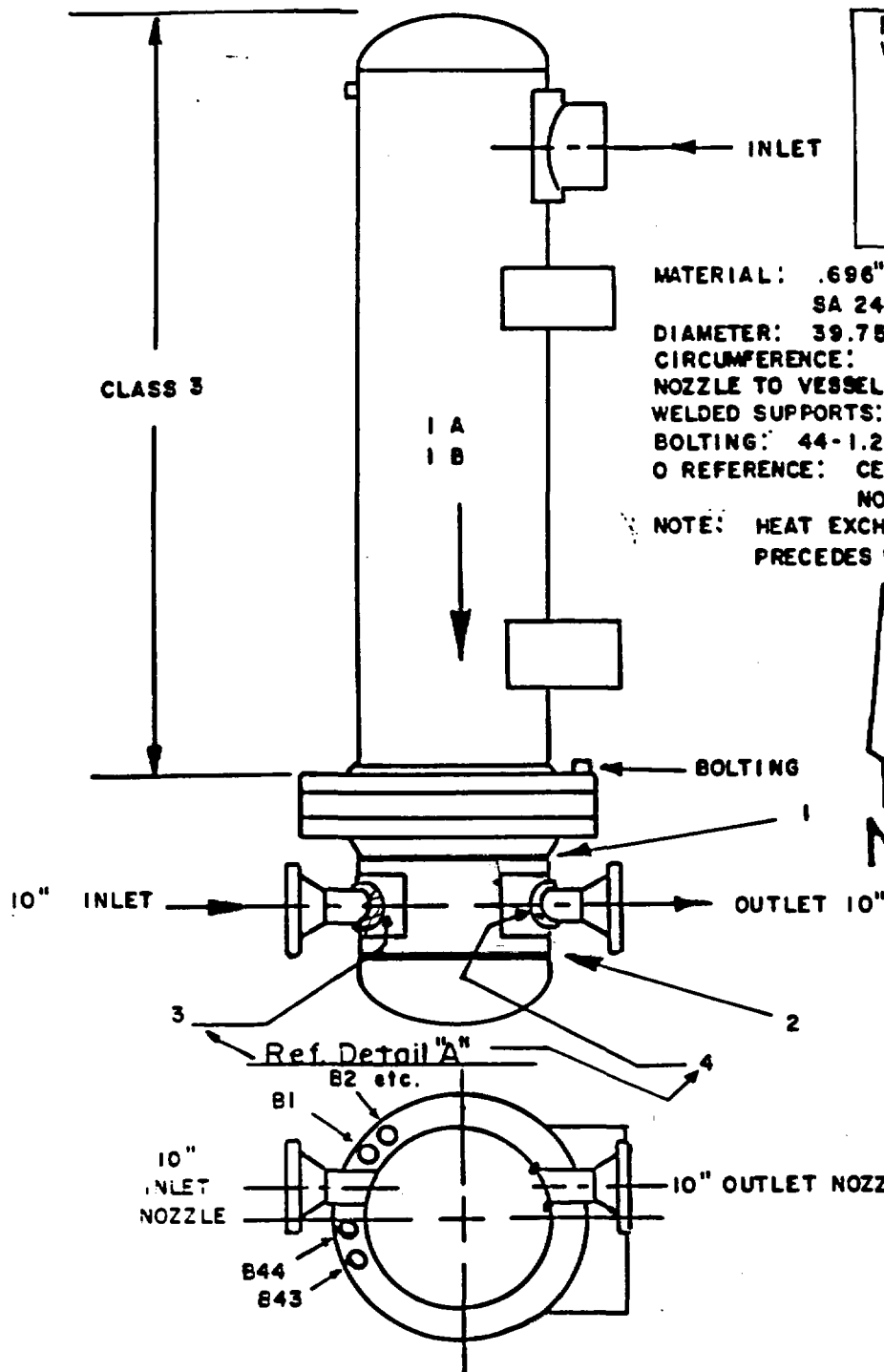
CGE-2-1110
UT Data Sheet VCSU-1267

HORIZONTAL RHR HEAT EXCHANGERS (2)

CGE-2-1110

ILLUSTRATIVE ONLY

Equipment I.D. XHE-5A/5B



MATERIAL: .696" MIN. 'T'
SA 240TP304SS

DIAMETER: 39.75"

CIRCUMFERENCE: 124.876"

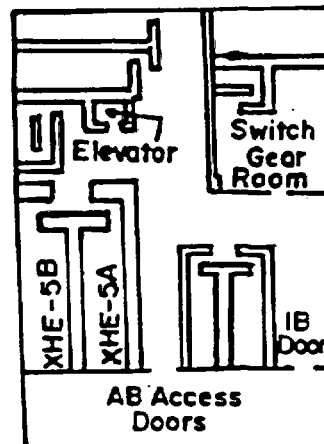
NOZZLE TO VESSEL WELDS: 10" DIAMETER

WELDED SUPPORTS: NOT APPLICABLE

BOLTING: 44-1.25" DIAMETER

O REFERENCE: CENTERLINE OF 10" INLET
NOZZLE

NOTE: HEAT EXCHANGER IDENTIFICATION
PRECEDES WELD AND BOLT



Plant Location
AB-412

COPY

FOR PRESERVICE SEE REV.0

REVISION 1		
DRN	CKD	APPD
DATE	DATE	DATE
APS	BEM	JRW
9-11-91	9-11-91	9-13-91

XHE-5A + 5B

RHR

302 641-B-07

ORIGINAL

MATERIALS TESTING AND EXAMINATION
ULTRASONIC CALIBRATION DATA

COPY 9303104

1 of 3

PROJECT V.C. SUMMER RF-8

DATA SHEET NO.

VCSU-1267DATE 9-2-94SYSTEM RHRPROCEDURE SCG-UT-89-1REV. 0

COMPONENT OR WELD IDENTIFICATION	TEMP	GAUGE ID	RECORDABLE INDICATION
<u>2-1110-1B-1</u>	<u>82°</u>	<u>130453</u>	<u>*</u>
<u>2-1110-1B-2</u>	<u>82°</u>	<u>130453</u>	<u>*</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
* I.D. GEOMETRY RECORDED DURING PREVIOUS EXAMINATION WAS VERIFIED AT SIMILAR LOCATIONS AND AMPLITUDES.			
CAL BLOCK NO. <u>CGE-31</u> THK <u>.753</u>	<u>72°</u>	<u>130453</u>	NOTCHES <u>✓</u> SDH <u>N/A</u>

EXAM COVERAGE

$\frac{1}{4}$ ID N/A OD N/A WHAZ N/A BASE MATERIAL ✓ AXIAL ✓ CIRCUMFERENTIAL N/A SIZING N/A OTHER N/A

EQUIPMENT DATA

SEARCH UNIT

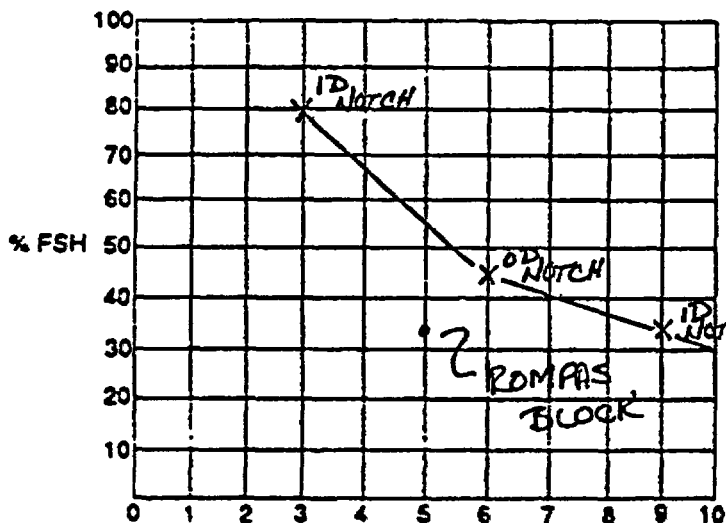
Manufacturer KBA
 Style GAMMA ☒ Single N/A Dual
 Serial No. D30174
 Size(s) 1/2" ϕ Freq. 2.25MHz
 Angle 45° Mode SHEAR
 Couplant SONOTRAX II Batch No. 094051
9-2-94

INSTRUMENT

Manufacturer SONIC Model 136
 Serial No. 136-502G Cable Length 6' RG-174U
 Frequency 2.25MHz Reject OFF
 Rep Rate 4 KHz Damping 500 Ω
 dB Gain: Coarse N/A Fine 38.6 dB
 Primary Reference Response
 Amplitude - % Full Screen Height 80% FSH FOR ID NOTCH

DAC PLOT-TIME 730 AM PM

CALIBRATION CHECKS



TIME	AMPL: 20% (dB) OF INITIAL AMPL		SWEEP + 10% OF INITIAL LOCATION	
	YES	NO	YES	NO
1045	✓	N/A	✓	N/A
		N/A		

EXAMINER(S):

1. [Signature] TC-1A LEVEL III DATE 9-2-94
 2. N/A TC-1A LEVEL N/A DATE N/A

REVIEWED BY:

1. [Signature] DATE 9-2-94
 2. N/A DATE N/A
 ANII [Signature] DATE 9/2/94

NOTE: When performing examinations where no DAC is required, indicate reference reflector location and amplitude above.

ADDITIONAL REMARKS: SCAN LIMITATIONS: WELD #1 - NO EXAMINATION FROM FLANGE SIDE DUE TO GEOMETRY. NO AXIAL EXAMS PERFORMED IN AREA OF SADDLES. SEE SKETCH. WELD #2 - NO AXIAL EXAM PERFORMED FROM FLANGE SIDE DUE TO SADDLES. SEE SKETCH.

83.2% [Signature]

ORIGINAL

PAGE 2 OF 3
VCSU-1267

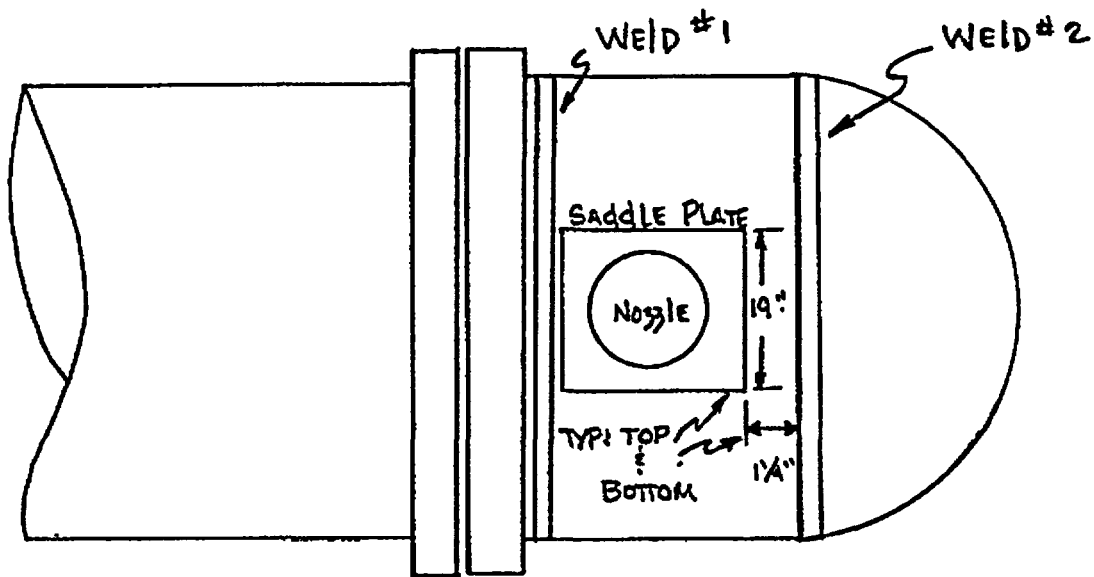
RHR HEAT EXCHANGER

Weld# 2-1110-1B (1 & 2)

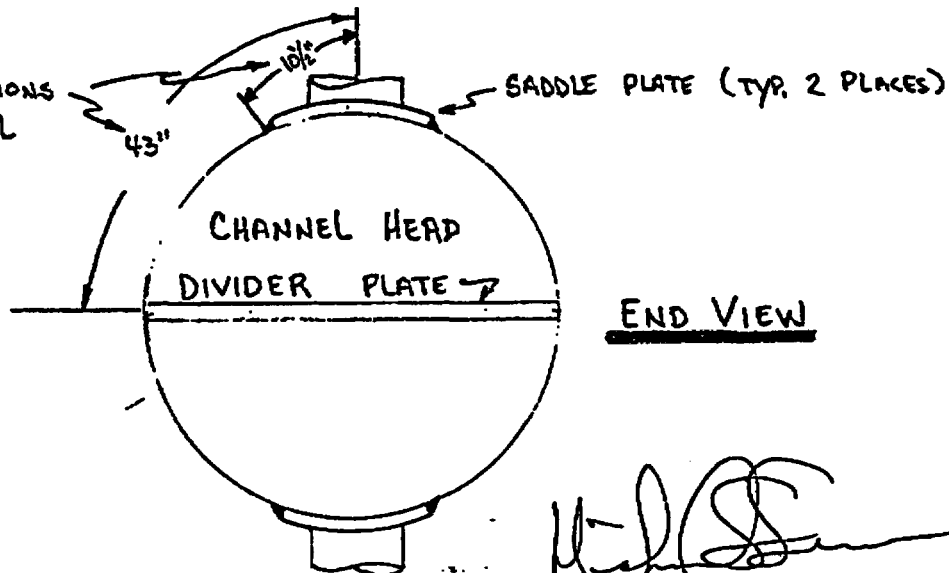
COPY

U.T. SCAN LIMITATIONS

TOP VIEW



DIMENSIONS
ARE TYPICAL
4 PLACES.



NTS

Drawn By: J.S. Busby
4-2-94

410

ORIGINAL

UT INSTRUMENT PERFORMANCE

PAGE 3 OF 3

COPY VCSU 1267

SONIC 136		V. C. SUMMER RF-8	
SERIAL NO	PROCEDURE	REV NO	BLOCK
136-502G	SCEG-UT-89-1 R-0	0	ROMPAS A05603
	SCEG-UT-CP-2 R-0	0	

AMPLITUDE (SCREEN HEIGHT) LINEARITY

ACCEPTABLE LIMITS

SCREEN HEIGHT
LARGER INDICATIONSCREEN HEIGHT
SMALLER INDICATION*

100	50
90	45
80	40
70	35
60	30
50	25
40	20
30	15
20	10
10	5

Ngh	low
55	45
50	40
45	35
40	30
35	25
30	20
25	15
20	10
10	5
5	0

* Must be 50% of the Larger Amplitude, within +5% of Full Screen Height

INDICATION SET AT % FSH	dB CONTROL CHANGE	AMPLITUDE CONTROL LINEARITY INDICATION LIMITS % FSH	ACTUAL % FSH
80	-6dB	32 to 48	40
80	-12dB	16 to 24	40
40	+6dB	64 to 96	80
20	+12dB	64 to 96	82

INDICATION SET AT % FSH	GAIN START COARSE/2dB	CHANGE TO COARSE/2dB	ACTUAL % FSH
80	60/10	40/30	N/A
80	40/10	20/30	N/A
80	20/10	0/30	A

ACCEPTABLE	
YES	NO
✓	N/A
✓	N/A

EXAMINER (LEVEL)

V. C. Summer

DATE

9-2-94

411

**South Carolina Electric & Gas Co. (SCE&G)
Virgil C. Summer Nuclear Station (VCSNS)
Relief Request**

RR-II-011

Subject:

This relief request provides the alternate requirements to examination requirements of Tables IWB-2412-1, IWC-2412-1, and IWD-2412-1 of ASME Code, Section XI, 1989 Edition (henceforth Section XI).

Components:

ASME Code Class 1, 2, and 3 Inservice Examination components.

Code Requirement:

The 1989 Edition of ASME Code, Section XI, Tables IWB-2412-1, IWC-2412-1, and IWD-2412-1 detail the Interval selection percentages for those components subject to examination.

Relief Request:

Relief is requested from the maximum percentages of examinations credited for each period.

Alternate Test:

SCE&G proposes the use of ASME Code Case N-598 for the maximum percentages of examinations credited for each period. The schedule for the inspection periods, minimum and maximum examinations credited shall be in accordance with Code Case N-598.

Basis for Relief:

VCSNS is presently required to perform component inspections in accordance with the 1989 Edition of ASME Section XI. Tables IWB-2412-1, IWC-2412-1, and IWD-2412-1 of the 1989 Edition limit the components in an examination category that can be inspected during a particular inspection period. Examination categories that have small numbers of components, essentially less than 20 components selected for examination throughout the interval, are difficult to schedule along with other components in consideration of the ALARA concept. Examination schedules are optimized in many cases to perform a number of inspections in one area to reduce the radiation exposure of inspection and support personnel. Relief from the restrictive percentage requirements of the 1989 Edition in accordance with Code Case N-598 will directly aid in the reduction of personnel radiation exposure. The proposed alternative in accordance with ASME Code Case N-598 provides an acceptable level of quality and safety while reducing the overall exposure.

Implementation Schedule:

The proposed alternatives are requested for the second 10-year inservice inspection interval. The second inservice inspection interval is scheduled to end on December 31, 2003 with the final inspection outage, Refuel Cycle 14, to be implemented starting on October 11, 2003.

CASE
N-598

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: March 2, 1998
*See Numeric Index for expiration
and any reaffirmation dates.*

Case N-598
Alternative Requirements to Required Percentages
of Examinations
Section XI, Division 1

Inquiry: What alternatives to the requirements of Tables IWB-2412-1, IWC-2412-1, IWD-2412-1, IWE-2412-1, and, starting with the 1990 Addenda, IWF-2410-2 may be used in selecting the maximum percentages of examinations credited for each period?

Reply: It is the opinion of the Committee that, as an alternative to the requirements of Tables IWB-2412-1, IWC-2412-1, IWD-2412-1, IWE-2412-1, and IWF-2410-2, the following table may be used for the maximum percentages of examinations credited for each period.

Inspection Interval	Inspection Period, Calendar Years of Plant Service Within the Interval	Minimum Examinations Completed, %	Maximum Examinations Credited, %
All	3	16	50
	7	50 ¹	75
	10	100	100

NOTE:

- (1) If the first period completion percentage for any examination category exceeds 34%, at least 16% of the required examinations shall be performed on the second period.

Document Control Desk
Attachment IV
0-C-02-3202
RC-03-0197
Page 1 of 6

**South Carolina Electric & Gas Co. (SCE&G)
Virgil C. Summer Nuclear Station (VCSNS)
Relief Request**

RR-II-012

Subject:

This relief request provides alternate requirements for bolting inspections as required by Table IWB-2500-1 of ASME Code, Section XI, 1989 Edition (henceforth Section XI).

Components:

ASME Code Class 1 bolting requiring examination.

Code Requirement:

Table IWB-2500-1 for Examination Category B-G-1 requires ASME Class 1 bolting to be ultrasonic, surface and/or visually inspected each interval.

Relief Request:

Relief is requested from the following items:

- a) Table IWB-2500-1 disallowing the deferral for Item B6.10 "Reactor Vessel Closure Head Nuts", Item B6.20 "Reactor Vessel Closure Studs, in Place", Item B6.40 "Reactor Vessel Threads in Flange", Item B6.50 "Reactor Vessel Closure Washers, Bushings" and Item B6.180 "Pump Bolts and Studs".
- b) Table IWB-2500-1 Item B6.10 "Reactor Vessel Closure Nuts" required surface examination.
- c) Item B6.20 "Reactor Vessel Closure Studs, in Place", Item B6.30 "Reactor Vessel Closure Studs, when Removed", and Item B6.180 "Pump Bolts and Studs" examination volume as defined by Figure IWB-2500-12.

Alternate Test:

SCE&G proposes the following alternatives:

- a) Performance of the ASME Code Class 1 Closure Bolting examinations had been deferred to the end of the interval in the previous interval. Performance of the current interval examinations are scheduled for the final outage of the interval, essentially the same as for the first interval. Because of maintaining a repetitive schedule for the examinations, those examinations required by Items B6.10, B6.20, B6.30, B6.40, B6.50 along with Item B6.180 will be performed concurrently at the end of the interval.

- b) The application of ASME Code Case N-627 is requested to perform a VT-1 examination of the Reactor Vessel Closure Head Nut threaded surfaces in lieu of the surface examination.
- c) The application of ASME Code Case N-307-3 for the reduced examination volume and performance of a VT-1 examination in lieu of the surface examination.

Similar requests have been granted by the NRC through TAC NOs MB6352, MB6353, MB6354, MB6355, MB6356, and MB6357 on April 2, 2003 and by TAC NOs MB3060 and MB3061 on July 2, 2002.

Basis for Relief:

VCSNS is presently required to perform component inspections in accordance with the 1989 Edition of ASME Section XI. Later Editions of the Code along with Code Cases have addressed the required examinations with alternatives and scheduling options. The particular justifications are as follows:

- a) The 1995 ASME Section XI with the 1996 Addenda have allowed for the deferral of Category B-G-1 examinations until the end of an interval. Table IWB-2500-1 of the 1989 Edition does not allow for deferrals. Adoption of the 1995/1996-deferral option for category B-G-1 will provide an opportunity to examine the components whenever they are removed. Examination upon removal greatly reduces the personnel radiation exposure and allows for in depth analysis of any reportable indications in an uncontaminated environment.
- b) In ASME Code Case N-627, the required surface examination of the Reactor Closure Nuts can be replaced by a VT-1 Examination. The interior surfaces on the closure nuts are difficult to clean for the wet magnetic particle test. Improper cleaning may lead to false or masked indications. The extensive cleaning also creates additional radioactive waste products and an undue manpower burden with no discernable increase in the quality of inspection of that detailed in Code Case N-627. Performance of the VT-1 examination will reduce the radioactive waste generated during the cleaning process without reducing the level of quality or safety of the component.
- c) In ASME Code Case N-307-3, the required surface examination of the Category B-G-1 bolting can be replaced by a VT-1 examination. The cleaning of the threaded surfaces is labor intensive and creates substantial radioactive waste materials. Performance of the alternative VT-1 examination will reduce the radioactive waste generated during the cleaning process without reducing the level of quality or safety of the component. Code Case N-307-3 also reduces the required inspection volume to the higher stress area of the bolting. The requirements of ASME Section XI, Appendix VIII will be implemented through qualified personnel, procedures and equipment systems via the Performance Demonstration Initiative (PDI) program. This stringent examination requirement

provides a higher level of qualification for an increased level of quality and safety in the component.

Implementation Schedule:

The proposed alternatives are requested for the second 10-year inservice inspection interval. The second inservice inspection interval is scheduled to end on December 31, 2003 with the final inspection outage, Refuel Cycle 14, to be implemented starting on October 11, 2003.

CASE
N-627

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: May 7, 1999
*See Numeric Index for expiration
and any reaffirmation dates.*

Case N-627
VT-1 Visual Examination in Lieu of Surface
Examination for RPV Closure Nuts
Section XI, Division 1

Inquiry: What alternative examination method may be used to examine RPV closure head nuts in lieu of the surface examination required by Table IWB-2500-1, Examination Category B-G-1, Item B6.10?

Reply: It is the opinion of the Committee that a VT-1 visual examination may be used as an alternative to the surface examination required by Table IWB-2500-1, Examination Category B-G-1, Item B6.10.

**CASE
N-307-3**

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: March 28, 2001
*See Numeric Index for expiration
and any reaffirmation dates.*

Case N-307-3
Ultrasonic Examination of Class 1 Bolting, Table
IWB-2500-1, Examination Category B-G-1
Section XI, Division 1

***Inquiry:** When ultrasonic examinations are conducted from the end of the bolt or stud or from the center-drilled hole of bolts or studs to satisfy the examination requirements of Table IWB-2500-1, Examination Category B-G-1, may the examination volume be limited to the cylindrical region defined by A-B-C-D-E-F-A in Fig. 1, and may the surface examination requirement of Table IWB-2500-1, Examination Category B-G-1, Item No. B6.30, Reactor Closure Studs when removed be eliminated?*

***Reply:** It is the opinion of the Committee that, when conducting ultrasonic examinations from the end of the bolt or stud or from the center-drilled hole of bolts or studs to satisfy the examination requirements of Table IWB-2500-1, Examination Category B-G-1, the examination volume may be limited to the cylindrical region defined by A-B-C-D-E-F-A in Fig. 1. The surface examination requirement of Table IWB-2500-1, Examination Category B-G-1, Item No. B6.30, Reactor Vessel Closure Studs when removed, may be eliminated.*

CASE (continued)
N-307-3

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

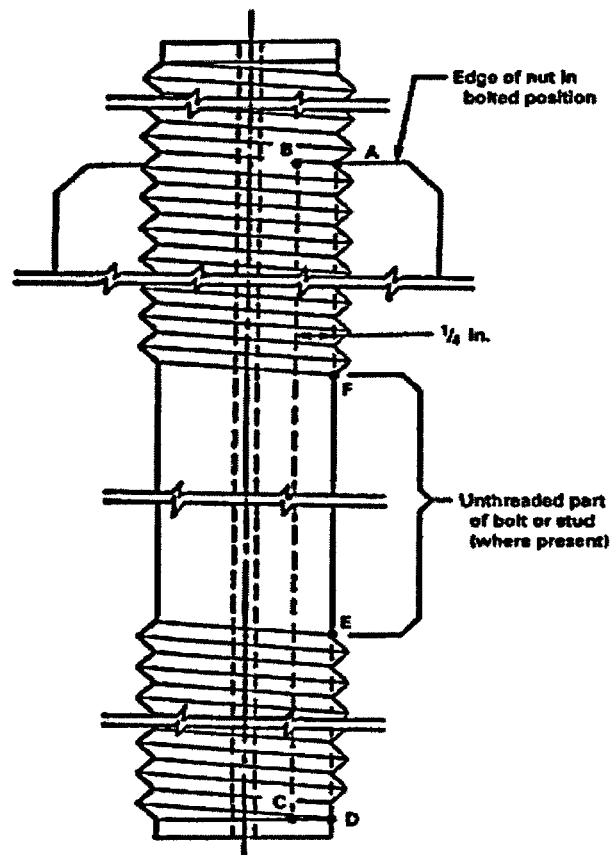


FIG. 1 REVISED EXAMINATION VOLUME