

VIRGINIA ELECTRIC AND POWER COMPANY RICHMOND, VIRGINIA 23261

April 21, 2014

United States Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 20555

Serial No. NAPS/JHL Docket No.

License No.

14-050

R0

50-339 NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION) **NORTH ANNA POWER STATION UNIT 2** ASME SECTION XI INSERVICE INSPECTION PROGRAM **RELIEF REQUEST N2-14-LMT-002 - FOURTH INTERVAL** PERIOD 1 LIMITED EXAMINATIONS

Pursuant to 10 CFR 50.55a(g)(5)(iii), Virginia Electric and Power Company (Dominion) requests relief for limited examination coverage (i.e., less than 90% weld coverage achieved, due to physical interferences that prohibited attaining full weld coverage) obtained during the inservice inspection (ISI) examinations at North Anna Power Station Unit 2 during the first period of the fourth ten-year ISI interval. These examinations were performed to meet the requirements of the 2004 Edition of ASME Section XI with No Addenda and the Risk-Informed/Safety-Based Inservice Inspection (RIS B) Program Plan based on Code Case N-716.

Relief Request N2-I4-LMT-002 is included in the attachment to this letter, and provides the basis for this request. The Facility Safety Review Committee has reviewed and approved the relief request.

If you have any questions or require additional information regarding the information provided in the attachment, please contact Mr. Thomas Shaub at (804) 273-2763.

Very truly yours,

M. D. Sartain

Vice President - Nuclear Engineering

Attachment:

ASME Section XI Inspection Program Relief Request N2-I4-LMT-002 Fourth Interval Period Limited Examinations

Commitments made in this letter: None



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ATTACHMENT

<u>N2-I4-LMT-002</u> <u>UNIT 2 FOURTH INTERVAL PERIOD 1 LIMITED EXAMS</u>

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNIT 2

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Relief Request in Accordance with 10 CFR 50.55a(g)(5)(iii)
-- Inservice Inspection Impracticality --

1.0 ASME CODE COMPONENT(S) AFFECTED

Refer to Table 1, Columns 1 and 2.

2.0 APPLICABLE CODE EDITION AND ADDENDA

North Anna Power Station Unit 2 (NAPS 2) applicable Code for the fourth 10-year inservice inspection (ISI) interval and the ISI program is the 2004 Edition of Section XI with no Addenda (Reference 1). NAPS 2 fourth interval started December 14, 2010 and ends December 13, 2020.

3.0 APPLICABLE CODE REQUIREMENT

Refer to Table 1, Column 3.

Components identified in this request require examination of essentially 100 percent of the weld length. "Essentially 100 percent" as clarified by ASME Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, is greater than 90 percent coverage of the examination volume, or surface area, as applicable.

The risk-informed welds described in this request are governed by the Risk-Informed / Safety-Based Inservice Inspection (RI-ISI) Program Plan that was approved by the NRC for North Anna Power Station Unit 2 in a letter dated January 21, 2011. The welds are assigned category R-A, Item R1.11 or R1.20, and require ultrasonic examination. The North Anna Unit 2 RI-ISI Program, in accordance with Request For Alternative N2-I4-RI-001, applies the requirements of ASME Code Case N-716, "Alternative Piping Classification and Examination Requirements." The Item R1.11 elements are considered subject to Thermal Fatigue as the most likely degradation mechanism. The Item R1.20 elements are considered not subject to a degradation mechanism. Limited examinations in this request are in accordance with section 3.3.2 of approved request N2-I4 RI-001, approved by NRC letter dated January 21, 2011 (TAC No. ME3450).

REQUEST NUMBER	1. ASME CODE COMPONENT	2. COMPONENT ID NO.	3. APPLICABLE CODE REQUIREMENT	4. IMPRACTICALITY OF COMPLIANCE	5. BURDEN CAUSED BY COMPLIANCE	6. PROPOSED ALTERNATIVE AND BASIS FOR	7. DURATION OF PROPOSED ALTERNATIVE
A1	Pressurizer Nozzie-To- Vessel Welds		Exam Category B-D Item No. B3.110	See Paragraph 4.A1	See Paragraph 5.A1	See Paragraph 6.A1	See Paragraph 7
		12050-WMKS-RC-E-2 / 10		56.6% Volumetric Coverage			
		12050-WMKS-RC-E-2 / 14		56.7% Volumetric Coverage			
B1	Head Circumferential Welds		Exam Category C-A Item No. C1.20	See Paragraph 4.B1	See Paragraph 5.81	See Paragraph 6.B1	See Paragraph 7
		12050-WMKS-SI-TK-2 / 2-SI-TK-2 / 1		87.6% Volume Coverage			
B2	Nozzle-to-Shell Weld		Exam Calegory C-B Item No. C2.21	See Paragraph 4.82	See Paragraph 5.B2	See Paragraph 6.B2	See Paragraph 7
		12050-WMKS-SI-TK-2 / 2-SI-TK-2 / 3		27.4% Volume Coverage			
R1	Elements Subject to Thermal Fatigue		Exam Category R-A Item No. R1.11	See Paragraph 4.R1	See Paragraph 5.R1	See Paragraph 6.R1	See Paragraph 7
		12050-WMKS-0103BN / 6-RC-420 / 2B		75% Volume Coverage			
		12050-WMKS-0103CB / 3-RC-615 / 7		50% Volume Coverage			
R2	Elements Not Subject to a Degradation Mechanism		Exam Calegory R-A Item No. R1.20	See Paragraph 4.R2	See Paragraph 5.R2	See Paragraph 6.R2	See Paragraph 7
		12050-WMKS-0101A-4 / 32-SHP-459 / SW-5 (BPL 343)		75% Volume Coverage			
		12050-WMKS-0103AG / 6-RC-416 / 4		75% Volume Coverage			
		12050-WMKS-0111W / 3-CH-814 / 6A		42.3% Volume Coverage			

Table 1 (Page 1 of 1)

Repetitive/Duplicative Requests

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A1. Pressurizer Nozzle-To-Vessel Welds

4.A1 IMPRACTICALITY OF COMPLIANCE

In accordance with 10CFR50.55a(g)(5)(iii), relief is requested from the "essentially 100 percent" volumetric examination coverage requirement for the identified Pressurizer Nozzle-To-Vessel Welds, ASME Section XI Category B-D, Item No. B3.110. This requirement is considered impractical due to the pressurizer to nozzle weld configuration.

Ultrasonic examination of the following pressurizer nozzle-to-vessel welds are limited in coverage due to the pressurizer to nozzle weld configuration as shown in the attached enclosures. Examination was performed to the extent possible using qualified equipment, and no further coverage is possible with existing technology.

Mark/Weld#	Line #	Scan Coverage %	Enclosure
10	2-RC-E-2	56.6%	A1-1
14	2-RC-E-2	56.7%	A1-2

Weld 10, a safety valve nozzle, is limited to 56.6% due to nozzle geometry and because the cladding prevents extended V-path. Refer to Enclosure A1-1 for coverage details of the limitations experienced. Third interval relief for weld 10 was granted per Request N2-I3-PRT-002-A5 at 56.6% coverage. Second interval relief for weld 10 exam limitations was granted in Request NDE-19 at 72% coverage (different NDE guidelines for coverage calculations).

Weld 14, the spray nozzle, is limited to 56.7% due to the weld location in relation to the nozzle. Refer to Enclosure A1-2 for coverage details of the limitations experienced. Third interval relief for weld 14 was granted per Request N2-I3-PRT-002-A5 at 56.7% coverage. Second interval relief for weld 14 exam limitations was granted in Request NDE-20 at 56.6% coverage.

The subject pressurizer nozzle-to-vessel welds are constructed of SA-508 Class 2, a P-Number 3, Group Number 3 carbon steel material, with austenitic stainless steel inside diameter cladding and stainless steel inserts. The welds extend the full thickness of the pressurizer vessel. Pressurizer upper and lower heads are fabricated from SA-533 Grade A, Class 2 carbon steel. The existing nozzle to pressurizer upper and lower heads are welded with low alloy steel filler, essentially the same as the nozzle material. The subject pressurizer nozzles have a minimum thickness of 2.5 inches with 0.19 inch cladding. These nozzles are of the "set-in" design which essentially makes the welds concentric rings aligned parallel with the nozzle axes in the through-wall direction of the pressurizer vessel. This design geometry limits ASME Code-required UT angle beam examinations to be performed primarily from the vessel side of the welds.

Although UT scans were primarily limited to the vessel side only, studies have found that inspections conducted through carbon steel are equally effective whether the ultrasonic waves have only to propagate through the base metal, or have to also propagate through the carbon steel weldment. Therefore, due to the fine-grained carbon steel microstructures, it is expected that the UT techniques employed would have detected structurally significant flaws that may have occurred on either side of the subject welds.

Although Dominion considers it is impractical to meet the ASME Code-required 100% volumetric examination coverage for the subject pressurizer nozzle-to-vessel welds due to nozzle configuration, it is believed that the coverage obtained would have identified significant service-induced degradation. The examinations performed also provide a reasonable assurance of structural integrity of the subject welds.

5.A1 BURDEN CAUSED BY COMPLIANCE

The ASME Code requires that the volumetric examination be conducted from both sides of these pressure retaining welds, however, the design configurations limit access for UT scanning primarily to the vessel side of the welds. In order to effectively increase the examination coverage, the nozzle-to-vessel welds would require design modifications or replacement. This is considered a burden making the ASME Code volumetric examination requirements impractical, which is contrary to the intent of the Code.

6.A1 PROPOSED ALTERNATIVE AND BASIS

It is proposed that the examinations already completed at the reduced coverage be accepted as meeting the Code requirements. Alternative components could not be substituted for examination due to the mandatory selection requirements of the Code. The limited volumetric examination performed should detect any general patterns of degradation that may occur in the areas covered, therefore providing reasonable assurance of the continued structural integrity of the subject weld.

UT examinations were conducted using ASME Code, Section V, Article 4, techniques and included 0-degree longitudinal, and 45- and 60- degree shear waves from the vessel side. The examination volumes included the weld and base materials near the inside surface of the weld joint, which are typically the highest regions of stress, and where the expected degradation sources to be manifested should they occur. Manual scanning was performed for these examinations. The configuration of the nozzle to shell weld limits the effective examination of the required examination volume. The nozzle's close proximity to the weld limits scanning due to the nozzle bend radius causing lift-off of the search unit during scanning. No recordable indications were identified during these examinations. The physical configuration of each nozzle limits the effectiveness of alternative or advanced technologies from increasing the examination coverage for this configuration.

Enclosures A1-1 and A1-2 include the complete Ultrasonic Examination Data Records for each Category B-D, Item B3.110, examination included in this request. Each report includes details of the UT scanning parameters, including transducer size, frequency and angle. Also included are coverage plots for each of the examinations showing the nozzle configuration and percent coverage for each individual scan.

The A1 Enclosures include search unit details, wave modality, and insonification angles used for all examinations, including the results of each scan. The examinations were performed with 45 degree shear wave, 60 degree shear wave, and 0 degree longitudinal wave search units (as identified in the reports).

UT Calibration/Examination

Domi	inion	Site/Uni	t: N	IAPS	1		2				Proce	edure:	ER-	AA-NDE-UT-7	702		Outage	No.:	N2R22
	Si	ummary No	u.	N2	.B3.11	0.001				Pro	ocedure	Rev.:		4	*		Report	No.: L	T-13-009
		Workscope	»:		ISI		,			Wo	ork Orde	r No.!	591025	32605/NDER	13-079		p;	age: 1	of 3
Code:		200	04 Edition				С	at./Ite	m:	В-:	D/B3.11	10		Location:			PZR 291		
Drawing No.:		1	2050-WMI	KS-RC-E-	-2				Description	: Noz	zle to \	/essel weld							
System ID:	RC																		
Component ID	12050-	WMKS-RC-	E-2 / 2-RC	:-E-2 / 10									Size/l	_ength: 2	.0" / 45.0	*	Thickness/Di	ameter:	3.29" / 8.0"
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M'ti Cal/Vel:	.2333 in/		Pulser: _	Square	B E	Exam A	ngle:	0	Squint An	gle: _	N/A	Inter. Cal. Final Cal.	0810 1041	4/13/2013 4/13/2013	———	IT	55	5.8	2.914"
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Filter:	.8 - 3.0		Mode:	Fullway	/e (Config.:	5ir	gle	Focus:	N	I/A	Cal. Batch:	***************************************	07220			erential Orient		n Unit
Voltage:	Medium	<u></u>	Other: _	N/A	—	Shape:	Rou	nd	Contour:	N	/A	Type:		dSafe	Calib:		Signal Amplitude %	Sweep Division	Sound Path
						Wedge :	Style:		N/A	*		Mfg.:	SONO	TECH	N				
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	Cali	bration Bid	ock					-	Coverage			Mfg.:	SONO	TECH					
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Thickness	4.0"	Dia.:		0		-	v 🛂		CCW 🕢 Sci			Serial No.:	0	5-6998	Gain dB	Reflect	Signal or Amplitude 9	Sweep 6 Division	Sound Path
Cal. Blk. Temp	o. <u>73</u> T	emp. Tool:	107	OBGCY	— E	Exam Si			OD			Type: C	S Rom	pus Block	1.0	FSDH	50	1.5	.719"
Comp. Temp.	71 T	emp. Tool:	107	OBGCY			Conditio	n:	Ground		th			'	N/A				
Recordable in	ndication(s): Y	es 🗍	No 🔽	(If	Yes, Re	et. Attach	ed U	trasonic Indi	cation	Report	.)			<u></u>	<u></u>		<u> </u>	<u> </u>
Results:	NRI	\mathbf{Z}	RI 🗌	C	Geom								Со		ifer to pre verage c		ata report #107 ns.	'7 dated 5/9	1/04 fo r
Percent Of Co	verage Ob	tained > 90	%:	No		Review	ed Previo	ous D	eta:	Yes									
Examiner	Leve	l jį		7 ,	Sign	ature				Date	Revie	wer				Sign	alusay		Date
Vanruler, Chr	ris			Isi	1 <u>- 1</u>				4/13/	2013		THE MAS			7	14	1		4.15.13
Examiner	Leve	l IIL		1/11	Signa	ature				Date	Site R	eview	١,	6	1	L Sign	efure .	11.	Date
Hacker, Jona			(PWE	\triangle				4/13/			bent L	-hvi	es 🏴	over		ares		6/13
Other N/A	Leve	l N/A	0	• •	Signa	ature				Date	ANII F	Review		m	14	:Sign سر	ature	•	/ Date

ENCLOSURE A1-1

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Domini	ion Site/Unit:	N/	APS /	1	2		Proc	edure:	ER-	AA-NDE-UT-7	02	_	Outage N	ło.:	N2R22
	Summary No.:		N2.B3	1.110.001			Procedure	Rev.:		4		_	Report N	10.: U	T-13-009
	Workscope:			ISI			Work Orde	r No.:	591025	32605/NDER1	3-079	_	Pa	ge: 2	of 3
Code:	2004	Edition			Cat	./Item:	B-D/B3.1	10		Location:			PZR 291		
Drawing No.:	12	050-WMH	(S-RC-E-2			Description	: Nozzle to \	/essel weld							
System ID:	RC														
Component ID:	12050-WMKS-RC-E	-2 / 2-RC	-E-2 / 10					-	Size/l	ength: 2.	0" / 45.0	*	Thickness/Dia	meter:	3.29" / 8.0"
Limitations:	Limited due to noz	zie confi	guration.					Andrew Control of the		Start '	Time:	D812	Finish	Time:	0832
	Instrument Settir	ngs			5	earch Unit		Cal.	Time	Date		Axia	l Orientated S	earch Unit	
Serial No.:	0916	39803		Serial N	lo.:	00Y5K7		Checks			Calibi	ation	Signal	Sweep	Sound Path
Manufacturer:	1- /	netrics		Manufac	_	КВА		Initial Cal.	0636 0812	4/13/2013 4/13/2013	Refle	ctor /	Amplitude %	Division	Sound Pant
Model: EPO(13-006		.5" X 1.0			Inter. Cal.	N/A	4/13/2013	1/4		80	1.9	1.398"
		Range: _	7.4"		2.25 MHZ	-		Inter. Cal.	0832	4/13/2013	3/4		50 35	3.8 5.7	2.795" 4.215"
	····	Pulser: _	Square	Exam A		5 Squint An	-	Final Cal.	1042	4/13/2013	IDN		15	8.7	6.422"
Rep. Rate:		Reject: _	0% 2.0 MHz	_	ed Angle:	Mode:	Shear	•	Couplai	nt	5/4		20	9,5	7.020"
Filter:	.8 - 3.0	Freq.: _ Mode:	Fullwave	Exit Poi				Cal. Batch:		07220		Circumfe	rential Orienta	ted Search	Unit
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Ax. Gain (dB):	24.0 Circ. (Gain (dB):	N/A	Wedge		8WS		Exam Batc	h:	07220	N/	A		 	
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Screen bly	Calibration Bio			_ Type: _		Length: 12' N	a. Gom <u>v</u>	Mfg.:	SONO	TECH		- 			
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Thickness	4.0" Dia.:		0		v [✔] [✔] Dow	nstream [☑] Sc. CCW [☑] Sc.	***************************************	Serial No.:		5-6998	Gain	D. 4.	Signal	Sweep	Sound Path
· —	73 Temp. Tool:	1070	BGCY			00		Type: C			24.0	FSDH	r Amplitude %	Division 1.5	1.085"
	71 Temp. Tool:		BGCY	- Exam S	urrace: _ Condition:						N/A	10011	 	1	1.000
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Results:	NRI 🔽	RI 🗌		m 🗀				7	Co	mments: No	ne				
Percent Of Cover	rage Obtained > 90%	6 :	No	Review	ed Previou	s Data:	Yes								
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esset.				į	JT Calibrati	on/Exar	ninatio	n						
Domin	ion* Site/Uni	t: NA	APS /	/ 2		Proce	edure:	ER-	AA-NDE-UT-7	02		Outage N	o.:	N2R22
	Summary No	.:	N2,B3	3.110,001		Procedure	Rev.;		4		_	Report N	o.: U	T-13-009
	Workscope	a:		ISI		Work Orde	or No.:	591025	32605/NDER1	13-079		Pag	ge: 3	of 3
Code:	200	04 Edition			Cat/Item:	B-D/B3.11	10		Location:			PZR 291		
Drawing No.:	1	2050-WMK	.8-RC-E-2	 .	Description	n: Nozzle to \	essel weld							
System ID:	RC													
Component ID:	12050-WMKS-RC-	E-2 / 2-RC-	-E-2 / 10					Size/L	.ength: 2.	.0" / 45.0	.,	Thickness/Dia	meter: :	3.29" / 8.0"
Limitations:	Limited due to no	zzle config	juration.						Start	Time:	0834	Finlsh	Time:	0850
<u></u>	Instrument Sett	ings	<u></u>		Search Unit		Cal.	Time	Date	戸草	Axia	ol Orientated Se	earch Unit	
Serial No.:	091	639803		Serial No.:	00Y5K8		Checks		Date	Calibr		Signal	Sweep	T
Manufacturer: _	Pana	metrics		Manufacturer	: KBA	<u> </u>	Initial Cal.	0640	4/13/2013	Refle		Amplitude %	Division	Sound Path
Model: EPO	CH 4 Linearity	: <u>L-1</u>	13-006	Size;5"	X 1.0" Model:	Comp-G	Inter, Cal.	0834 N/A	4/13/2013	1/4	ıτ	80	1,9	1.934"
· —	15.12 us	Range:	10.1"	Freq.: 2.25	MHZ Center Freq.	.: N/A	Inter, Cal.	0850	4/13/2013	1/2		40	3.9	3.979"
M'tl Cal/Vel:1	1268 in/us	Pulser:	Square	Exam Angle:	60 Squint Ar	ngle; N/A	Final Cal.	1043	4/13/2013		IT.	30	5.9	5.940"
Damping:4	100 Ohms	Reject: _	0%	_ Measured An	gle: 60 Mode:	Shear				ID N		13	8.7	8.746*
Rep. Rate:	Auto	Freq.:	2.0 MHz	Exit Point	.7" # of Eler	ments: 1		Couplar		5/4		10	9.8	9.877*
Filter:	.8 - 3.0	Mode:	Fullwave	_ Config.:	Single Focus:	N/A	Cal, Batch:		07220			rential Oriental		Unit
Voltage:	Medium	Olher:	N/A		tangular Contour:	N/A	Type: Mig.:	Sound		Calibr Refle		Signal Amplitude %	Sweep Division	Sound Path
				Wedge Style	SWS	i	· —			N/	/A			
Ax. Gain (dB):	30.0 Circ.	Gain (dB):	N/A	-	Search Unit Cable		Exam Batc		07220					
10 Screen Di	iv. = 10.1 in. of	Soun	d Path	Type: RG 1	74 Length: 12' N	lo. Conn.: 0	Type:	Sound			1 .			
	Calibration Blo	ock			Scan Coverage		Mfg.:	SONO	TEGN					<u> </u>
Cal. Block No.	Vo	3B-21		_ Upstream 🕡	Downstream 🗸 So	an dB: 44.0	Refe	erence E	Block		Ref	ference/Simula		
Thickness	4.0™ Dia.:		0	_ CW 🔽		an dB: 48.0	Serial No.:	0	5-6998	Gain dB	Reflecto	Signal or Amplitude %	Sweep Division	Sound Path
Cal. Blk. Temp.	73 Temp. Tool:	1070	BGCY	- Exam Surfac	e: OD	<u></u>	Type:C	S Rom	ous Block	30.0	FSDH		1.5	1.479"
Comp. Temp.	71 Temp. Tool:	1070	BGCY	- Surface Cond		Smooth				N/A				
Recordable Ind	lication(s):	/es 🗍	No 🗸		tached Ultrasonic Ind		- !.)							
Results:	NRI 💆	RI 🗀	Geo	m 🗆			•	Co	mments: No	ne				
Percent Of Cave	erage Obtained > 90)%:	No	Reviewed Pr	evious Data:	Yes								
Examiner	Level II		→ S	ignature		Date Revie	wer	······································			Signe	aluro 20		Date
Vanruler, Chris	•	(261	ひれる	4/13	/2013 NL	Thomas				-			4.15.13
Examiner	Level (IL		/) //s	Ignature			Review			()	Signa	ture /		Date
Hacker, Jonath	ion		XX		4/13			T. 5t	ack l	Kays	17	Stock		5/1/13
Other	Level N/A		/ s	ignature		Date ANIL	Review			ألدما	Signa	iture /		Date

N/A

Interval: 3

Dominion Ultrasonic Examination Data Record

UTRNO	Station Unit Drawing			Station Unit Drawing			NDER	
1077	NAPS	2		12050-WMKS	S-RC-E-2	2-RC-E-2	03-201	
uplant	CalCheck	1 Ca	lCheck2	CalCheck3	WO / DCP	Procedure	Rev	
01220						NDB-UT-703	3	

Thermometer SerNo: PT-12

				Exam Data					
UTRNO	RECTAG	mark/weld	Scan dB	Exam Area	Surface Condition	Temp	Partial	Single Side	Results
1077	5953	14	*	ATTACH. 7	GROUND	73	Yes	No	NRI
1077	5949	10	*	ATTACH, 7	GROUND	73	Yes	No	NRI

Comments:

* SCANNING SENSITIVITY FOR THE 0 DEG EXAM WAS 4.5 dB FOR THE BASE METAL EXAM AND 6.0 dB FOR THE WELD METAL EXAM. SCANNING SENSITIVITY FOR THE 45 DEG AND 60 DEG EXAMS WAS REFERENCE +14dB.

UTRNO	4	·	Signature	Level	Method	Date	Activity
1077	Examined By:	DAVID	TUCKER	П	UT	05/09/2004	11/10/2004
	6//2.1/1/1/14	- har-	•				

Reviewed By: Land 9 Stack

Level:

Date: 5-17-04

Initial D Final E HSB-CT



PERCENT VOLUME BY SCAN DIRECTION

DRAWING 12050-WMKS-RC-E-Z WELD # 10

ANGLE	SCAN AREA	. DIRECTION	SCAN %
0°	WED + BASE META	0	59
45°	Worn	2	15
45.	6/000	5	81
45°	Ween	7	63
45°	Ween	8	63
60	Were	2 :	. 9 .
60°	Word	5	89
60	WELD	7	78
. 60	Wew	8	78
45+60	BASE METAL	2	28
4580.	BASE METAL	. مى	85
45"+60"	BASE PLETAL	7	4.4
45.+60.	BASE METAL	8	44
	TOTAL		56.6%

Virginia Cower NDE Level III 5-17-04

Date

ANII 10 Date 5/22/09
Initial D Final D
HSB-CT

Dominion UT Partial Record

1077 5949		Drawing	Line	Mark/	weld Pro	cedure	Rev
		12050-WMKS-RC-B-2	2-RC-E-2	10	NDI	NDE-UT-703	
CalNo .	Weld Width	Exam Angle	SU Length	SU Width	SU Nose	Pe	rcent
549	2,5"	0	N/A	N/A	N/A	57	%%
			Area Not E	kamined			

Reason

LIMITED EXAM DUE TO NOZZLE BLEND RADIUS

Comments

56.6% OF THE TOTAL CODE REQUIRED VOLUME COVED. SEE COVERAGE WORKSHEET FOR SPECIFIC SCAN PERCENTAGES.

Cross Section Sketch

Dews: 12050-LMKS-RC-E-E

O' LIMITATION SKETCH

Evaluation

The weld volume and adjacent base metal was examined from the Pressurizer side only. Geometry precludes examination from the nozzle side. The weld was examined to the maximum extent possible. See the attached Percent Volume by Scan Direction" sheet for the covered by each scan.

Signature Level DATE

Davis K. Tucker II 5/9/04

Reviewed By:

Date: 5-17-04

ANII Dete 5/22/09

HSB-CT

Dominion UT Partial Record

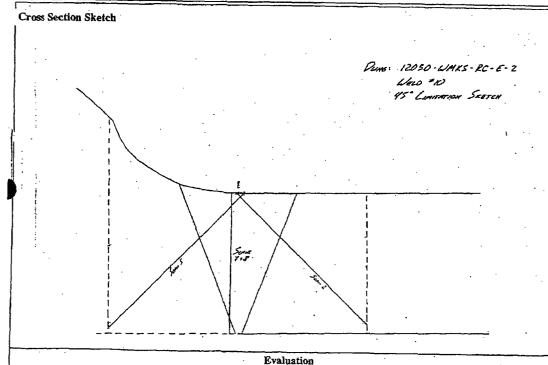
RECTAG	Drawing	Line	Mark/w	veld Pro	Procedure		
5949	12050-WMKS-RC-E-2	KS-RC-E-2 2-RC-E-2 10				Rev 3	
Weld Width	Exam Angle	SU Length	SU Width	SU Nose	Pe	rcent	
2.5"	45	1,4	1.6	.75		7%	
		Area Not I	Examined				
	5949 Weld Width	5949 12050-WMKS-RC-E-2 Weld Width Exam Angle	5949 12050-WMKS-RC-E-2 2-RC-E-2 Weld Width Exam Angle SU Length 2.5" 45 1.4	5949 12050-WMKS-RC-E-2 2-RC-E-2 10 Weld Width Exam Angle SU Length SU Width	5949 12050-WMKS-RC-E-2 2-RC-E-2 10 NDE Weld Width Exam Angle SU Length SU Width SU Nose 2.5" 45 1.4 1.6 .75	5949 12050-WMKS-RC-E-2 2-RC-E-2 10 NDE-UI-703 Weld Width Exam Angle SU Length SU Width SU Nose Pe 2.5" 45 1.4 1.6 .75 2	

LIMITED EXAM DUE TO NOZZLE BLEND RADIUS

Comments

Reason

56.6% OF THE TOTAL CODE REQUIRED VOLUME COVED, SEE COVERAGE WORKSHEET FOR SPECIFIC SCAN PERCENTAGES.



The weld volume and adjacent base metal was examined from the Pressurizer side only. Geometry precludes examination from the nozzle side. The weld was examined to the maximum extent possible. See the attached Percent Volume by Scan Direction" sheet for the covered by each scan.

DAVID K. TUCKER Heist Tucker II 5/9/04

Reviewed By:

Level:

Date: 5-17-04

ANII Date 5/22/04
Initial D Final D
HSB-CT

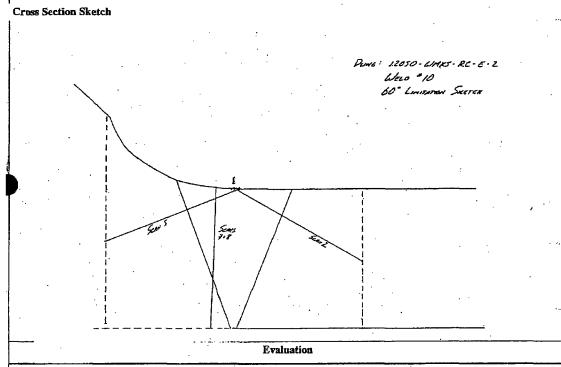
Dominion UT Partial Record

UTRNO RECTAG		Drawing	Line	Mark/	weld F	Procedure	
1077	5949	12050-WMKS-RC-E-2	2-RC-E-2	10	N	NDE-UT-703	
CalNo	Weld Width	Ezam Angle	SU Length	SU Width	SU Nose	P	ercent
103	2.5"	60	1.5	1.55	.65		57 %
			Area Not E	xamined			
		SEE S	KETCH BELOW FOR VO	OLUME NOT EXAMINE	D.	:	
			Reas	NA		-	

LIMITED EXAM DUE TO NOZZLE BLEND RADIUS

Comments

56,6% OF THE TOTAL CODE REQUIRED YOLUME COVED, SEE COVERAGE WORKSHEET FOR SPECIFIC SCAN PERCENTAGES.



The weld volume and adjacent base metal was examined from the Pressurizer side only. Geometry precludes examination from the nozzle side. The weld was examined to the maximum extent possible. See the attached Percent Volume by Scan Direction" sheet for the covered by each scan.

Signature Level DATE

DAVID K. TUCKER II 5/9/04

Reviewed By:

Level

Date: 5/12/04

ANII ANII Date 5/22/04
Initial D Final B
HSB-CT

ENC

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 17 of 86

Domini	on Site/Un	it: N	APS .	1	2		Proce	edure:	ER-	AA-NDE-UT-7	702		Outage l	No.:	N2R22
	Summary No).: 	N2.B	3.110.005		_	Procedure	Rev.:		4			Report	No.: L	IT-13-003
	Workscop	e:		ISI		- -	Work Orde	r No.:	591025	32605/NDER	13-079	_	P	age: 1	of 3
Code:	200	04 Edition			Cat./	Item:	B-D/B3.11	0		Location:			PZR 291		
Drawing No.:	1	2050-WM	(S-RC-E-2			Description:	Nozzle to V	essel Weld							
System ID:	RC							······································							
Component ID:	12050-WMKS-RC	-E-2 / 2-RC	-E-2 / 14			************	**		Size/I	Length: 2	.0" / 45.0	,	Thickness/Di	ameler:	3.29" / B.0"
Limitations:	Limited due to no	zzle confi	guration.							Start	Time:	0856	Finis	h Time:	0904
-	Instrument Seti	-				earch Unit		Cal.	Time	Date		Axia	Orientated S	Search Uni	
Serial No.:		639803		_ Serial No		M18206SP		Checks Initial Cal.	0627	4/13/2013	Calibr		Signal	Sweep	Sound Path
Manufacturer: Model: EPOC		ametrics	13-006	_ Menufeci Size:	0.75"	KBA Model:	Gamma	Inter. Cal.	0856	4/13/2013	Refle		Amplitude %	Division	0/91
	.412 us	Range:	5.0"			Center Freq.:	N/A	Inter, Cal.	N/A		1/4		80 80	3.9	.912" 1.921"
· —	333 in/us	Pulser:	Square	- -	2.25 MHz rale: 0	•		Inter. Cal.	0904	4/13/2013	3/4		55	5.8	2.914"
	00 Ohms	Reject:	0%	_ Exam An	J			Final Cal.	1041	4/13/2013	B/		100 +	8.5	4.264"
Rep. Rate:	Auto	Freq.:	2.0 MHz		d Angle:		Long.	ı	Couplai	nt	N/	A			
	.8 - 3.0	Mode:	Fullwave	– Exit Poln				Cal. Batch:	:	07220		Circumfe	ential Orlent	ated Searc	h Unit
Voltage: N	Aedium	Other:	N/A	- Config.:	N/A	Focus:	N/A	Type:	Soun	dSafe	Calibr		Signal	Sweep	Sound Path
				Shape:	Round		N/A	Mfg.:	SONO	TECH	Refle	ctor /	Amplitude %	Division	Sourio Fatti
Ax. Gain (dB):	1.0 Circ.	Gain (dB):	N/A	Wedge S	·	N/A		Exam Bato	:h:	07220	N/	Α			
10 Screen Div	. = 5.0 in. of	Sou	nd Path	- 		ch Unit Cabia		Type:	Soun	dSafe	 				
	Calibration BI			Type: F		ength: 12' No	i. Conn.: 1	Mfg.:	SONO	TECH			<u>-</u>		+
Cal. Block No.		GB-21				n Coverage		n. 1		DI1-	—	Ref	erence/Simul	ator Block	
	4.0" Dia.:		0	 Upstream 	Down	stream 🔽 Sca			erence l		Gain	1,127	Signal	Sweep	Sound Path
	73 Temp. Tool:		OBGCY	– cw		CCW 🔽 Sca	n dB: ' 19.0	Serial No.:		5-6998	dB.		r Amplitude ^c		ļ
• •	71 Temp. Tool:		BGCY	– Exam Su	rface:	QD		Type:C	S Kom	pus Block	1.0	F8DH	50	1.5	.719"
Comp. remp.	71 Temp. Tool.		0000	 Surface (Condition:	Ground S	mooth				N/A				
Recordable Indi	cation(s):	Yes 🗌	No 🔽	(If Yes, Re	f. Attached	Ultrasonic India	ation Report	-)	_						
Results:	NRI 🔽	RI □	Geo	om 🔲					Çc			vious dat ilculation	a report#107 5.	/ dated b/s	aru4 tor
Percent Of Cover	rage Obtained > 90	0%:	No	Reviewe	d Previous	Data:	Yes								
Examiner	Level II			ignature		[Date Revie	wer				Signa	ture		Date
Vanruler, Chris		C_{ℓ}	-4-0			4/13/2	013 11. 7	UDALI							4.15.43
Examiner	Level IIL	//	//// s	ignature		•	1 ()	eview C		I _	Posto	Figne	ture .		/ / Date
Hacker, Jonatho	on	()	~ JUI~			4/13/2	1,0	bert L)avi	62	1500	4 6	revilo		16/13
Other	Level N/A		S CI	Signature		ſ	Date ANII F	Review			K	Sipha	ture		Date
N/A	· · · · · · · · · · · · · · · · · · ·										111	A	<u>-е</u>	4/26	45
UT Calibration/Ex	amination	_												5/2	113

UT Calibration/Examination

	Site/Unit	- N	APS .	,	2	oun Diane	Proce	dure:	FR.	AA-NDE-UT-	702		Outage N	٠.	N2R22
Dominio	•••			3.110.005			Procedure			4		_	Report N		
	Summary No. Workscope			ISI	····		Wark Orde		601026	32605/NDER	13.070	_	•		of 3
	Wilkscope	<u> </u>		131		-			351023	32003/NDER	13-079		Pag	Je:	0 3
Code:	200	4 Edition			Cat	:/item:	B-D/B3.11	0	_	Location:			PZR 291		
Drawing No.:	1:	2050-WMI	K8-RC-E-2			Description:	Nozzle to V	essel Weld							
System ID: R	С														
Component ID: 12	2050-WMK8-RC-	E-2 / 2-RC	-E-2 / 14						Size/l	ength: 2	2.0" / 45.0		Thickness/Dia	meter:	3.29" / 8.0"
Limitations: L	imited due to no	zzle confi	guration.							Start	Time:	906	Finish	Time:	0924
	Instrument Setti	ngs			5	Search Unit		Cal.	Time	Date		Axial	Orientated Se	arch Unit	
Serial No.:	0910	39803	<i>:</i>	Serial No	o.:	00Y5K7		Checks	111116	Date .	Calibr		Signal	Sweep	<u> </u>
Manufacturer:	Pana	metrics		Manufac	turer:	КВА		Initial Cal.	0636	4/13/2013	Refle		mplitude %	Division	Sound Path
Model: EPOCH	14 Linearity:	<u>L-</u>	13-006	_ Size:	.5" X 1.0	Model:	Comp-G	Inter. Cal.	0906 N/A	4/13/2013	1/4		80	1.9	1.398"
Delay:11	.94 us	Range: _	7.4"	Freq.: _:	2.25 MHz	Center Freq.:	N/A	Inter. Cal.	0924	4/13/2013	1/2	·	50	3.8	2.795"
M'tl Cal/Vel:121	88 in/us	Pulser: _	Square	Exam Ar	igle:4	5 Squint Ang	le: N/A	Final Cal.	1042	4/13/2013	3/4		35	5.7	4.215"
·) Ohms	Reject:	0%	Measure	d Angle:	45	Shear		Couplai		ID No.		20	8.7 9.5	6.422" 7.020"
	Auto	Freq.:	2.0 MHz	Exit Poln	1 .6	# of Elem	ents:1	Cal. Batch:	•	07220			ential Oriental		
	3 - 3.0	Mode:	Fullwave	Config.:	Sing	le Focus:	N/A	Type:	Soun		Calibr		Signal	Sweep	1
Voltage: M	edium	Other:	N/A	- Shape:	Rectang	ular Contour:	N/A	Mfg.:		TECH	Refle		mplitude %	Division	Sound Path
Au Caia (dD).	24.0 Cl-	Cala (dD)	. 17/4	Wedge 8	Style:	sws		Exam Bato	h.	07220	N/	Α			
Ax. Gain (dB):	24.0 Circ.	Gain (dB)		-		rch Unit Cable		Type:		dSafe	ļ				
10 Screen Div.	= 7.4 in. of	Sou	nd Path	Type: 1	RG 174	Length: 12' No	. Conn.: <u>0</u>	Mfg.:	SONO						
	Calibration Blo				8c	an Coverage						D-f-	rence/Simula	tas Black	J.,
Cal. Block No.		B-21		_ Upstream	Dow	mstream 🔽 Sca			erence l		Gain	Kele	Signal	Sweep	T
	.0" Dia.:		0	- CM	<i>√</i>	CCW 🗸 Sca	n dB: 38.0	Serial No.:	<u>-</u>	5-6998	dB	Reflector	Amplitude %	Division	Sound Path
Cal. Blk. Temp.	·		OBGCY	- Exam Su	rface:	OD		Type:	S Rom	pus Block	24.0	FSDH	40	1.5	1.085"
-	71 Temp. Tool:		OBGCY		Condition:						N/A		 	-	
Recordable Indica		'es 🗍	No 📝	•	f. Attache	d Ultrasonic Indic	ation Report.	.)	Ce	mments: No		L	<u> </u>	<u> </u>	!
Results:	NRI 🗾	RI 🗀	Geo	m 🗀						minetines in	J11 0				
Percent Of Covera	ge Obtained > 90	%:	No	Reviewe	ed Previou	ıs Data:	Yes					-			
Examiner	Level		~ .	ignature			Date Revie	wer				Signal	ure		Date
Vanruler, Chris			-64	<u>-1<-</u>		4/13/2	W.C.,	Typnas			7)		<u>z</u>		4.15.13
Examiner	Level IIL			ignature /I		4/13/2	Date Site R	eview pert r)avie	_	Vale	Signal	ure	11	Date
Hacker, Jonathor Other			44 W	ianatura				Review	AVIE	<u>. </u>	rove	Signat	avez		Date
N/A	Level N/A		, 5	ignature		•	AIN AIN	W 11W 17			,	MI H	7		Les Les M

ENCLOSURE A1-2

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 18 of 86

UT Calibration/Examination

20 2				•	or Calibi	ation	LAGII	IIIIauo	••						
Domini	ion Site/Unit:	NAPS	1	2			Proce	dure:	ER-	AA-NDE-UT-7	02		Outage I	Va.:	N2R22
	Summary No.:		N2.B3.	110.005		Pro	ocedure l	Rev.:		4			Report I	Vo.: U	T-13-003
	Workscope:		1	SI		Wo	ork Order	r No.:	591025	32605/NDER1	3-079		Pa	ge: 3	of 3
Code;	2004 E	dition			Cat./Item:	B-	-D/B3.11	0		Location:			PZR 291		
Drawing No.:	12050	D-WMKS-R	C-E-2		Desc	ription: Noz	zzle to V	essel Weld							
System ID:	RÇ														
Component ID:	12050-WMKS-RC-E-2	/ 2-RC-E-2	/ 14						Size/L	.ength: 2.	0" / 45.0	•	Thickness/Dia	meter:	3.29" / 8.0"
Limitations:	Limited due to nozzle	configurat	ion.							Start	Time:	0925	Finisi	ı Time:	0947
	Instrument Settings				Search Un	it		Cal.	Time	Date		Δvis	I Orientated S	earch Unit	
Serial No.:	0916398	303		Serial No.:	00	Y5K6		Checks	TIME		Calibr		Signal	Sweep	
Manufacturer: _	Panamet	rics		Manufacturer		КВА		Initial Cal.	0640	4/13/2013	Refle		Amplitude %	Division	Sound Path
Model: EPOC	CH 4 Linearity:	L-13-00		Size:5"]	K 1.0" Mo	del: <u>Con</u>	mp-G	Inter. Cal.	0925 N/A	4/13/2103	1/4	Т	80	1.9	1.934"
).1"	Freq.: 2.25	MHz Center	Freq.:	N/A	Inter. Cal.	0947	4/13/2013	1/2		40	3.9	3.979"
			uare	Exam Angle:	\$qu	int Angle:	N/A	Final Cal.	1043	4/13/2013	3/4 ID N		30 13	5.9 8.7	5.940" 8.746"
			%	Measured An			hear		Couplar	nt	5/4		10	9.8	9.877"
Rep. Rate:		· 	Wave	Exit Point		if Elements:		Cal. Batch:	•	07220		Circumfe	rential Orienta	ted Search	Unit
***************************************			/A	· -			N/A	Туре:	Soun	dSafe	Callbr	ation	Signal	Sweep	
,				`	tangular Cont		WA	Mfg.:	SONO	TECH	Refle	ctor	Amplitude %	Division	Sound Path
Ax. Gain (dB):	30.0 Circ. Galo	n (dB):	N/A	Wedge Style:		SWS		Exam Batcl	1:	07220	N/	A			
10 Screen Div		Sound Pa	ıth	Tuest DO 4	Search Unit C		na. A	Туре:	Soun	dSafe	 -			······································	
	Calibration Block			type: RG 1	74 Length: 1		nn.; <u>U</u>	Mfg.:	SONO	TECH					.
Cal. Block No.	VGB-2	14			Scan Cover	•		Pofe	rence l	Block		Re	ference/Simula	tor Block	<u> </u>
_	4.0" Dia.:	0			Downstream 3	ScandB		Serial No.:		5-6998	Gain		Signal	Sweep	Sound Path
	73 Temp. Tool:	1070BGC		cw ⊋	_	OD OD	40.0			us Block	dB 30.0	Reflecto FSDH		Division 1.5	1,479"
Comp. Temp.	71 Temp. Tool:	1070BGC	Y	Exam Surface Surface Cond		ound Smoo				· · · · · · · · · · · · · · · · · · ·	N/A	1 0011	 	1	1,770
Recordable Indi	cation(s): Yes	□ No			ached Ultrason)							
Results:	NRI 🕢 R	_ "	Geom					,	Co	mments: No	ne		_		
Parcent Of Cover	rage Obtained > 90%:	— No		Reviewed Pr	evious Data:	Yes									
Examiner	Level II			nature		Date	Reviev	ver				Signa	ature		Date
Vanruler, Chris	20101 11		しに	772		4/13/2013	WL TH	_				-//			41513
Exeminer	Level IIL		// Sjg	nature	· · · · · · · · · · · · · · · · · · ·	Date	Site Re	1	$\overline{\Lambda}$		-11	0 Sign	ature	-	Date
Hacker, Jonatho	on		KII	h		<i>4/</i> 13/2013		Kobert	<u> </u>	avies	14	beit	Davre	<u> 2</u> 4	16/13
Other	Level N/A	0	Şig	nature		Date	ÁNII R	leview				Signa ور اس	ature	/ الايد	Date
N/A							<u></u>					[P] A	بع	The 12	<u> </u>
UT Calibration/E	xamination													57	2/13

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 19 of 86

Dominion Ultrasonic Examination Data Record

UTRNO	Station	Unit		Drawing			Line	NDER	
1077	NAPS	2	,	12050-WM	KS-RC-E-2		2-RC-E-2	03-201	
uplant	CalCheck	1 Ca	lCheck2	CalCheck3	WO / DCP		Procedure	Rev	
01220							NDB-UT-703	3	

Thermometer SerNo: PT-12 Exam Data UTRNO RECTAG mark/weld Scan dB Exam Area Surface Condition Temp Partial Single Side Results GROUND 1077 5953 14 ATTACH. 7 73 Yes NRI 1077 10 ATTACH. 7 GROUND No NRI 5949 Yes

Comments:

* SCANNING SENSITIVITY FOR THE 0 DEG EXAM WAS 4.5 dB FOR THE BASE METAL EXAM AND 6.0 dB FOR THE WELD METAL EXAM. SCANNING SENSITIVITY FOR THE 45 DEG AND 60 DEG EXAMS WAS REFERENCE +14dB.

UTRNO	Signature	Level	Method	Date	Activity
1077 Examined By:	DAVID TUCKER	11	UT	05/09/2004	11/10/2004

Reviewed By: Land Thank

Level:

Date: 5-17-04

NII Date 5721/09
Initial D Final D
HSB-CT



PERCENT VOLUME BY SCAN DIRECTION

DRAWING 12050-LMKS-RC-E-ZWELD	#	14
-------------------------------	---	----

ANGLE	SCAN AREA	DIRECTION	SCAN %
0°	WELD & BASE MUTAL	0	60
45°	Woro	· Z	80
45"	Were	5	5
450.	Wors	7	74
45°	Woro	8	74
60°	Word	Z	95
60°	Woro	5	2
60.	Woro	7	74
60°	Wero	8	74
45°+60°	Base Mome	Z	88
45.+80.	BASE MOTHE	5	1.1
450-600	BASE METAL	7	50
45.+60.	BASE MEMIL	8	50
	Torne		56.7%

Virginia Power NDE Level III 5-/7-04

Date

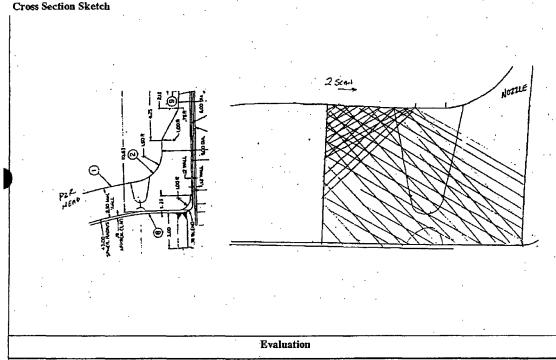
ANII M Date 5/22/04
Initial C Final C HSB-CT

Dominion UT Partial Record

UTRNO	RECTAG	Drawing	Line	Mark/s	weld Pro	cedure	Re
1077	5953	12050-WMKS-RC-E-2	2-RC-E-2	14	NDE	-UT-703	3
CalNo	Weld Width	Exam Angle	SU Length	SU Width	SU Nose	Per	
549	1.5" 0		N/A	N/A	N/A	5	7%
			Area Not Ex	kamined			
		SEE SI	KETCH BELOW FOR VO	DLUME NOT EXAMINE	D.		
			Reaso	71			

Comments

CODE REQUIRED VOLUME COVERAGE CALCULATIONS TAKEN FROM PREVIOUS DATA (9-16-93 / NDER #93-299)



The weld volume and adjacent base metal was examined from the Pressurizer side only. Geometry precludes examination from the nozzle side. The weld was examined to the maximum extent possible. See the attached Percent Volume by Scan Direction" sheet for the covered by each scan.

Signature Level DATE

David K. Tucker Main Klack II 5/9/04

Reviewed By: Level: Date: 5-17-04

ANII Date 5/22/04
Initial D Final E
HSB-CT

Dominion UT Partial Record

UTRNO	RNORECTAG Drawing		Line		Mark/	weld	Procedure		Rev	
1077	5953	12050-WMKS-RC-E-2	2-RC-E-2	· .	14	·	NDE-U	. 3		
CalNo	Weld Width	Exam Angle	SU Length	SU	Width	SUN	lose	Pe	rcent	
104	1.5" 45		1.4		1.6	.75		5	7%	

Area Not Examined

SEE SKETCH BELOW FOR VOLUME NOT EXAMINED.

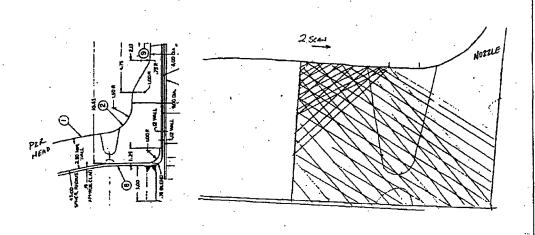
Reason

LIMITED EXAM DUE TO NOZZLE BLEND RADIUS

Comments

CODE REQUIRED VOLUME COVERAGE CALCULATIONS TAKEN FROM PREVIOUS DATA (9-16-93 / NDER #93-299)

Cross Section Sketch



Evaluation

The weld volume and adjacent base metal was examined from the Pressurizer side only. Geometry precludes examination from the nozzle side. The weld was examined to the maximum extent possible. See the attached Percent Volume by Scan Direction" sheet for the covered by each scan.

Reviewed By:

Level

Date: - 17-066

ANII Anitial I

ate JELIO

HSB-CT

Dominion UT Partial Record

UTRN	ORECTAG	Drawing	Line	Mark	weld	Procedu	re	Rev
1077	5953	12050-WMKS-RC-B-2	2-RC-E-2	14	14			. 3
CalNo	Weld Width	Exam Angle	SU Length	SU Width	SUN	ose	Pe	rcent
103	1.5"	60	1.5	1.55	.65		. 5	7 %

Area Not Examined

SEE SKETCH BELOW FOR VOLUME NOT EXAMINED.

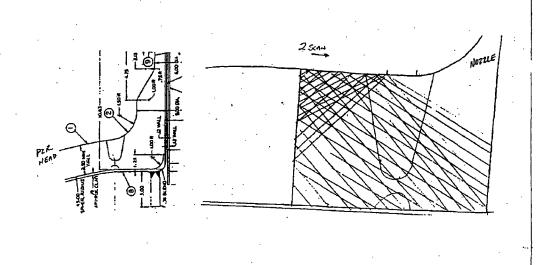
Reason

LIMITED EXAM DUE TO NOZZLE BLEND RADIUS

Comments

CODE REQUIRED VOLUME COVERAGE CALCULATIONS TAKEN FROM PREVIOUS DATA (9-16-93 / NDER #93-299)

Cross Section Sketch



Evaluation

The weld volume and adjacent base metal was examined from the Pressurizer side only. Geometry precludes examination from the nozzle side. The weld was examined to the maximum extent possible. See the attached Percent Volume by Scan Direction" sheet for the covered by each scan.

> Level DATE 5/9/04 DAVID K. TUCKO

Reviewed By:

										rument Se									
TRNO	MemLoc	CafNo		CAL BLK	RE	JECT	dB	REF d	B RANG	E VELOC	TTY	ZERC	DEL.	AY F	REQ	FILTER	ENERGY		DAMPING
	VRA2760	103		VRA-27		0%	27,2	+0	.623	0.125	-	16.58			.27	.8-3,0	MAX		400
	VRA2745	104	ļ	VRA-27		0%	18.1	+0.0		0.126		10.86			.27	.8-3.0	MAX		400
1077	VRA270	549		VRA-27		95	0.0	+ 0.0d				0.491 τ	15 N/2	4 1 2	2.27	.8-3.0	MEDIUM		400
		<u> </u>				_				Xducer Da	ita				T		971 1 971		
UTRN		-نا-	rialNo		anuf		Model		Size	Frequency	ļ	Angle		edge Type	Wed	ge Length	Wedge W	idth	Wedge Nose
1077	103		37349		ETRICS		NTAC		5" X 1.0"	2.25 MHZ	 	60		SWS		1.5	1,55	$-\!\!+\!\!$.65
1077	104 549		7350 82075P		ROTECH		MTAC AMMA		5" X 1.0"	2.25 MHZ 2.25 MHZ	+	45 0		SWS N/A		1.4 N/A	1,6 N/A		.75 N/A
10//	349	IVII	BZUISE	KB-ACI	COLECT	1	MATIATA	<u> </u>		ical Beam	Snro			INIA		N/A	IV/A	L	IN/A
UTRNO) CalN	0 1/4	Depth	1/2Depth	3/4Depth	1/4	SPF	1/45PM			_==	SPM	1/2SPB	3/4SPF	3/4SPM	3/4SPB	Beam Spre	Led	Angle
1077	103		0.62	1.24	1.87		85	1.1	1,35		<u> </u>	2.3	2,83	2.84	3,46	4.17			1044423352
1077	103		0.62	1.24	1.87		55	0.69	0.82			34	1.5	1.64	1.9	2.19			15592496167
			0.02					4.07		1 1112			1.5				10,7003322	3013 43.	3,72,7010.
				Instru					_						libratio		······································		<u> </u>
UTRN	SHA	C	Inst. S	erial	Inst. Mode	l	Inst. M	anuf	CalNo	UTRNO	Call	o Dir	ection ·	CaLType	Polnt	Reflector	Position	Amplitud	іс буюсер
1077	153		04018		EPOCH 4			HINST.	549	1077	103			DET	1	1/4TSDH	1.15"	60%	2,0
1077	153		04018		EPOCH 4			INST.	103	1077	103			DET	2	1/2TSDH	2,25"	50%	4.0
1077	153		04018	2503	EPOCH 4	<u>R.</u>).TECH	H INST.	104	1077	103			DET	3 4	3/4TSDH ID NOTCH	3,35" 4,15"	38% 18%	7.9
										1077	103			DET	5	5/4TSDH	N/A	19%	10.0
										1077	104			DET	1	1/4TSDH	0.70"	80%	2,0
									•	1077	104			DET	2	1/2TSDH	1.35"	61%	4.0
										1077	104			DET	3	3/4TSDH	1.90"	48%	6.0
				•	•					1077	104			DET	4	ID NOTCH	2.40"	20%	8.1
								-		1077	104			DET	5	5/4TSDH	N/A	24%	10,0
										1077	549 549			DEL	1 2	1/4TSDH	N/A N/A	78% 85%	2.0
										L	345	INA	<u>`</u>	ופת		1/21500	IN/A	83%	4.0
UTRN	0								Signat						Level	Method	Date		ctivity
1077	Cali	ibrated	Ву		Jairi)	AL.		/	DAVID	TUCKER					п	UT	05/09/200	4 11/	07/2004
		•		A	/acres	14	uch		- -								ANII /	y K	Date 3
																	init	iel 🗆	Final
														•		.:	4.4.4	HS	Date Final
				7		1										:			
:Rev	iewed By:	//		10	Flow	-//-				Lev	'el:	711	-	•		Date!	5-17-	24	1
			ade		- Mar	60							·			<u>G</u>	- / (- /	

Dominion Power Ultrasonic Libration Data Record

CaLIn

9:45

Couplant

01220

CaLOut

16:32

CalBlock

VRA-27

CalBlock2

CBLKTKS

2,479"TX10.057"LX6.0

CBLKTKS2

CBL KTemp

75 CBLkTemp2

Rev Sizing Procedure Rev

NDE-UT-N/A

AmpSwp

CalDate

05/09/2004

Interval: 3

Unit

Station

NAPS

CLbType CLbLngth #Counect

12'

Procedure

NDE-UT-703

Simulator

UTRNO

1077

RG-58

	•						
Signature			Level	Method	Date	Activity	
DAVID TUCKER		:	П	UT	05/09/2004	11/07/2004	•

DET

3/4TSDII

75%

>100%

N/A

Reviewed By:

Interval: 3

Dominion Power Ultrasonic Calibration Data Record

Calibrated By

UTRNO

B1. Head Circumferential Welds

4.B1 IMPRACTICALITY OF COMPLIANCE

In accordance with 10CFR50.55a(g)(5)(iii), relief is requested from the "essentially 100 percent" volumetric examination coverage requirement for the identified vessel to head circumferential weld. This requirement is considered impractical due to weld configuration, including supports, thermocouples, and weld profile.

Ultrasonic examination of the full 165 inches of weld length of the lower head circumferential weld on the boron injection tank is limited to 87.6 percent due to four supports obstructing eight inches of weld length each, two installed thermocouples obstructing 1.8 inches each, and 0.9 inches obstructed by the weld profile. Refer to Enclosure B1-1 for coverage details for the vessel to head circumferential weld (weld # 1). Examination was performed to the extent possible.

5.B1 BURDEN CAUSED BY COMPLIANCE

Destruction of the component, including removal of welded supports and thermocouples, would be necessary to perform 100% of the Code required examination as written in the 2004 ASME Section XI Code with No Addenda and is contrary to the intent of the Code.

6.B1 PROPOSED ALTERNATIVE AND BASIS

It is proposed that the examinations already completed in the fourth interval at reduced coverage be accepted as meeting the Code requirements. The limited volumetric examination performed should detect any general patterns of degradation that may occur in the areas covered, therefore providing reasonable assurance of the continued structural integrity of the subject weld.

One other component in category C-A, Item No. C1.20, on the boron injection tank, is scheduled for examination during the current interval.

The examinations were performed using standard ASME Section V, Article 4 UT techniques. Manual scanning was performed for these examinations.

Enclosure B1-1 includes the complete Ultrasonic Examination Data Record for the Category C-A, Item C1.20, examination included in this request. The report includes details of the UT scanning apparatus, including transducer size, frequency and angle. Also included are scan plots for the examination showing limitation locations. The wave modality and insonification angles are also included. No recordable indications were identified during the examination.

The Boron Injection Tank head is ASTM A-516 Grade 70 carbon steel with 0.125" weld deposit clad ASTM A-240 Type 304L. Tank head design thickness is a minimum of 2.00".

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 28 of 86

Domir	nion Site/Unit:	NAPS /	2		Proce	edure:	ER-	AA-NDE-UT-7	02	_	Outage N	Vo.:	N2R22
	Summary No.:	N2.C1	.20.010		Procedura	Rev.:		4			Report N	10.: U	T-13-010
	Workscope:		SI		Work Orde	r No.:	591025	32605/NDER1	3-079	_	Pa	ıye: 1	of 10
Code:	2004 Editio	n		Cat./Item:	C-A/C1.2	0		Location:			AUX 244		
Drawing No.:	12050-WI	/KS-S1-TK-2		Description:	Head to Sh	ell Weld							
System ID:	SI												
Component ID:	12050-WMKS-SI-TK-2 / 2-5	SI-TK-2 / 1					Size/	Length: 2.	.3" / 165'		Thickness/Dia	meter: 2	.6" / 52.75"
Limitations:	See Attached							Start	Time:	13:00	Finish	Time:	13:26
	instrument Settings			Search Unit		Cal.	1		T	Avial	Orientated S	sarch Unit	
Serial No.:	040186603		Serial No.:	M18207SP		Checks	Time	Date	Calibi		Signal	Sweep	
Manufacturer:	Panametrics		Manufacturer:	КВА		Initial Cal.	0840	4/12/2013	Refle		mplitude %	Division	Sound Path
Model: EPO		13-011	Size: 0.7	5" Model:	Gamma	Inter. Cal.	1300	4/12/2013	1/4	Т	70	1.8	.556"
Delay:	1.377 Range:		Freq.: 2.25 M	Hz Center Freq.:	N/A	Inter, Cal.	N/A 1328	4/12/2013		2 T	80	4.0	1.180"
M'll Cal/Vel:	.2329 Pulser:		Exam Angle:	0 Squint Angl	e: N/A	Final Cal.	1650	4/12/2013		T	70	6.0	1.805"
Damping:	400 Reject		Measured Angl	e: N/A Mode:	Long.		Couplai	·	B	VV	100+	8.2	2.480
Rep. Rate:	Auto Freq.:		Exit Point	N/A # of Elem	ents: <u>1</u>	Cai, Batch:	•	07220	 	Circumfer	ential Orienta	ted Search	Linit
Voltage:	Low Other		Config.: S	ingle Focus:	N/A	Type:		dSafe	Calibi		Signal	Sweep	
V Sittage,			Shape: Ro	und Contour:	N/A	Mfg.:		TECH	Refle		mplitude %	Division	Sound Path
Ax. Gain (dB):	5.8 Circ. Gain (di	3): N/A	Wedge Style:	N/A		Exam Bato	h.	07220	N.	A			
10 Screen Di		und Path	_	Search Unit Cable		Type:		dSafe					ļ
Screen Di			Type: RG 17	4 Length: 12' No	. Conn.: 0	Mfg.:		TECH	ļ				
Cal. Block No.	Calibration Block VRA-27			Scan Coverage					 	Pot	rence/Simula	stor Block	 -{
	2.478" Dia.:	0		Downstream 📝 Scar			erence l		Gain	1 1010	Signal	Sweep	Sound Path
		79BGCY	cw 🗀	CCW Scal	dB: N/A	Serial No.:		5-6998	dB		Amplitude %		
Comp. Temp.		79BGCY	Exam Surface:	OD		Type:C	o Kom	bria pinck	5.8 N/A	.75" SDF	52	2.4	.723*
	<u> </u>		Surface Conditi						NIA	 	 	1	
Recordable Ind	lication(s): Yes	No 📝	(If Yes, Ref. Alta	ched Ultrasonic Indic	ation Report	.)	Co	mments: No	ne		<u> </u>		
Results:	NRI 🔀 RI 🗀	Geor	n 🗀				-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,				
Percent Of Cove	erage Obtained > 90%:	No	Reviewed Prev	vious Data:	íes								
Examiner	Level II-DDI	7 SI	gnature	C	ate Revie	wer				Signat	ure		Date /
Currao, Jeffrey		m	<u>-</u>	4/12/2	IW C	HOMAS							4/29/13
Examiner	Level AIA	Si	gnature		ate Site R	//(1		Some	10.5	Signal	yre)		Dale
N/A	laud					VISK SIRIC Review	KUHU	3 x you	my (Signal	UTP .	3	Date
Other N/A	Level N/A	51	gnature	L	ate AMILE	/OAIGM			M	Left Brighter	ران سنر مید	la la	Date
1117								6/	-//		<u> </u>	4115	

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 29 of 86

Domir	nion	Site/Unit:	N.	APS	1	2			Р	rocedure:		ER-	AA-NDE-UT	702		c	outage N	lo.:	Ť	N2R22	
	Sumn	nary No.:		N2.	.C1,20.010				Proced	lure Rev.:			4			ı	Report N	io.;	UT	-13-01	0
	Wo	orkscope:			· ISI				Work C	order No.:		591025	32605/NDEF	13-079	_		Pag	je:	2	of	10
Code:		2004	Edition			-	Cat./Item	1:	C-A/C	1.20			Location:			ΑU	X 244				
Drawing No.:		120	50-WMH	(S-SI-TK-2	:	_	[Description	: Head to	Shell We	eld	_	_							******	
System ID:	SI		_																		
Component ID:	12050-WM	KS-SI-TK-	2 / 2-51-	-TK-2 / 1						•		Size/L	ength:	2.3" / 165	77	Thickn	ness/Dia	meter:	2.	6" / 52.	75"
Limitations:	See Attach	ned											Star	Time:	13:27	7	Finish	Time:		14:27	
	Instrume	nt Setting	js		W. W.		Searc	h Unit		С	al.	Time	Date	II -	Ax	iai Orien	tated S	earch I	Init		
Serial No.:		04018	6603		Serial	No.:		00Y5K7		Chi	scks	111116	Date	Call	ration	Slan		Swee			
Manufacturer:		Panam			Manuf	facturer:		KBA		— 	I Cal.	0841	4/12/2013		ector	Amplitu		Divisio		Sound	Path
Model: EPO	CH4 L	Inearity: _	<u>L-</u>	13-011	Size:	.5" X	1.0"	Model: _	Comp-G		Cel.	1327	4/12/2013	1/	4 T	80		2.0		.85	9"
Delay:	12.25	<u>.</u> R	Range: _	4.371"	Freq.:	2.25 M	Hz Ce	enter Freq.:	N/A		. Cal.	N/A 1427	4/12/2013	·	2 T	70		4.0		1.74	
M'tl Cal/Vel:	.1277	P	ulser: _	Square	Exam	Angle:	45	Sguint An	gle: N//	Δ	Cai.	1651	4/12/2013	}	4 T	50		6.0		2.61	_
Damping;	400	- F	Reject: _	0%	_	ired Angl	e: <u>47</u>	Mode:	Shear			Couplar			lotch 4 T	40 35		8.0 10.0		3.48 N/	
Rep. Rate:	Auto	-	Freq.: _		FXII.	oint	.7"	# of Elen	nents:		: Batch:	•	n 07220		Circumf						
Filter:	.8 - 3.0	-	-	Fullwave	Config	.: <u>5</u>	Ingle	_ Focus:	N/A	— Туре		Sound			ration	Sign		Swee	-	T	
Voltage:	Max	- '	Other: _	N/A	Shape	: Recta	ıngular	Contour:	N/A	Mfg.:		SONO			ector	Amplitu		Division		Sound	Path
					Wedg	e Słyle:		SWS		_				·	/A		\neg				
Ax. Gain (dB):	23.5	Circ. Ga	ain (dB):	N/A		S	earch U	nit Cable			ı Batc		07220	· 🗀							
10 Screen Di	iv. = 4.371	in. of _	Soul	nd Path	Type:	RG 174	1 Lengi	th: <u>12'</u> N	o. Conn.:	o Type Mig.:		Sound		·							
	Calibra	tion Block	t				Scan Co	verage		wig		30110	1ECH	·						L	
Cal. Block No.	·	VRA	-27		Upstre	am 🗸 D	Jownstre	am 🗸 Sci	an dB: 37	.5	Refe	erence E	Block	<u> </u>	Ri	eference					
Thickness	2.478"	Dia.:		0	(CW 🔽	CC	CW 📝 Sca	andB: 37	.5 Serie	l No.:	0	5-8998	Gain dB	Reflect	tor Amp	lignal litude %	Swe		Sound	Path
Cal. Blk. Temp.	89 Tem	p. Tool: _	1079	9BGCY	Exam	Surface:		OD		Туре	:0	S Rom	us Block	23.5	.75" SI	DH	52	2.6	<u>; </u>	1.13	6"
Comp. Temp.	85 Temp	p, Tool: _	1079	BGCY	— Surfac	e Conditi	on:	Contour	Ground					N/A					\dashv		
Recordable Ind	lication(s):	Yes	· 🗆	No 🔽	(If Yes,	Ref. Attac	ched Ultr.	asonic Indi	cation Rep	oort.)				L	<u> </u>	L		<u></u>	ᆜ		
Results:	nri 🗸		RI 🗌	Ge	eom 🗌							Co	mments: N	one							
Percent Of Cove	erage Obtain	ed > 90%:		No	Revie	wed Prev	ious Dat	a:	Yes			_									
Examiner	Level	II-PDI			Signature				Date Re	viewer.					Sign	ature					Date
Currao, Jeffrey	/ T							4/12/		AYNE -	3100	<u>,,5</u>				<u>_</u>					27.13
Examiner	Level	N/A	-		Signature				Date Sit	e Review)c		\mathcal{L}	.) X Sign	90re /	()				Date
N/A									_ 0	anhizk		RICKL	and C	mui 1	Jui	104	∠			511	
Other N/A	Level	N/A			Signature				Date An	III Review				m) Jign	ature '		/2/	/17		Date

NAP'S Unit 2 4" Interval 1st Period Limited Exam	
1 Period Limited Exam	Docket No. 50-33

					UT	Calibratic	n/Exan	ninatio	n							
Domini	ion Site/U	nit: 1	NAPS	1	2		Proce	edure:	ER-	AA-NDE-UT-7	02		/ Outage	No.:	N2R22	
	Summary N	lo.;	N:	2.C1.20.010			Procedure	Rev.:		4	·	-	Report	No.: U	T-13-010	-
	Worksco	pe:		ISI			Work Orde	r No.:	591025	32605/NDER1	3-079		Pa	age: 3	ol 1	ā
Code:	2	004 Edition	1		Cat	/item:	C-A/C1.20	0		Location:			AUX 244			=
Drawing No.:		12050-WM	KS-SI-TK-	2	-	Description:	Head to Sh	eli Weld	_							_
System ID:	SI															-
Component ID:	12050-WMKS-SI	-TK-2 / 2-S	I-TK-2/1						Size/L	.ength: 2.	3" / 165'		Thickness/DI	ameter: 2	.6" / 52.75	
•	See Attached									Start 1		14:28		h Time:	15:36	-
	Instrument Se	ttings			S	earch Unit		Cal.			===					=
Serial No.:	04	0186603		Serial N	lo.:	00Y5K6		Checks	Time	Date	0-15		Orientated 5			_
Manufacturer:	Pai	nametrics		Manufa		KBA		Initial Cal.	0842	4/12/2013	Calibi Refle		Signal Amplitude %	Sweep Division	Sound Pa	ati
Model: EPOC	H4 Lineari	ly: L	-13-011	Size:	.5" X 1.0	' Model:	Camp-G	Inter. Cal.	1428	4/12/2013	1/4	I T	80	2.0	1.152"	_
Delay:	15.55	Range:	5.948"	Freq.:	2.25 MHz	Center Freq.:	N/A	inter, Cal.	N/A		1/2	2 T	45	4.0	2.360"	_
Mtl Cal/Vel:	.1275	Pulser:	Square	Exam A	ngle: 6	0 Squint Angl	e: N/A	Inter. Cal.	1536	4/12/2013	3/4	I T	27	6.0	3.546	
Damping:	400	Reject	0%	Measuri	ed Angle:	60 Mode:	Shear	Final Cal.	1652	4/12/2013	ID N	atch	21	8.0	4.755"	
Rep. Rate;	Auto	Freq.	2.0 MHz	_					Couplar	ıt	5/4	FT	15	10.0	N/A	_
Filter:	.8 - 3.0	Mode:	Fullway					Cal. Batch:		07220		Circumfe	ential Orienta	ated Search	Unit	
Voltage:	Max	Other:	N/A	_			N/A	Туре:	Soun	dSafe	Caliba		Signal	Sweep	Sound Pa	٠
· —				-		lar Contour:	N/A	Mfg.:	SONO	TECH	Refle	ector /	Amplitude %	Division	Sound FE	
Ax. Galn (dB):	27.2 Cir	c. Gain (dB	1: N/A	Wedge	· —	SWS		Exam Batc	h:	07220	N _i	/A			<u> </u>	_
•		_	und Path			ch Unit Cable		Туре:	Soun	dSafe					 	_
10 Screen Div.			illu ratti	Type: _	RG 174	Length: 12' No	. Conn.: 0	Mfg.:	SONO	TECH					 	_
	Calibration B				Sca	ın Coverage			<u> </u>		ļ			-ion Dissi		-
Cal. Block No.		VRA-27		Upstrea	m 🕢 Down	nstream 📝 Scar	n dB: 41.2	Refe	arence E	Block	Gain	Nei:	erence/Simul Signal	Sweep	ſ	_
	.478" Dia		0	CV	N 📝	CCW Scar	n dB: 41.2			5-6998	dB	Reflecto	Amplitude 9		Sound Pa	111
Cal. Blk. Temp.			9BGCY	Exam S	urface:	OD		Type:C	S Rom	ous Block	27.2	.75" SDI	1 37	2.5	1.483"	_
Comp. Temp.	85 Temp. Too	l: <u>107</u>	PBGCY	Surface	Condition:	Contour C	Ground				N/A	<u> </u>				
Recordable India	cation(s):	Yes 🗍	No 🔽	(If Yes, Re	ef. Attached	Ultrasonic Indic	ation Report.	.}			L	L	J		L	
Results:	NRI 🔀	RI 🗌	G	Geom []					Co	mments: Nor	ne					
Percent Of Cover	age Obtained > 9	90%:	No	Review	ed Previou	s Data:	Yes				-				·	
Examiner	Level II-PDI	1//)	Signature		C	ate Revie	wer				Signa	ture		Dal	e
Currao, Jeffrey 1	r <i>Q</i>	MAC	nen	<i>_</i>		4/12/2	ر با لاہا (⁰¹³	THomas							04/29/	Ľ
Examinar	Level NA	7		Signature,		Ć	ate Site R			Δ	/) Signal	1972		Dal	
N/A							DENN	WP. STRI	CKLAN	o YOM	wint	Mel	12/2		5.1.200	5
Other	Level N/A			Signature		C	ate ANII R				K. A	Signal		/ ,	Dat	9
N/A							1				111 1	1	. ~/	olia		

UT Calibration/Examination

Domini	ion Site/Unit	it: P	NAPS	1	2		Proce	edure:	ER-J	AA-NDE-UT-7	'02		Outage I	No.:	N2R22
	Summary No.	٠.: 	N2.1	C1.20.010			Procedure	Rev.:		4		_	Report I	No.: U	T-13-010
	Workscope	a:		151			Work Orde	er No.:	591025	32605/NDER1	3-079		Pi	nge: 4	of 10
Code:	201	04 Edition	1		CE	et./Item:	C-A/C1.20	0	1	Location:		<u> </u>	AUX 244		
Drawing No.:	1	2050-WM	KS-SI-TK-2			Description:	Head to Sh	rell Weld	_						
System ID:	SI														
Component ID:	12050-WMKS-SI-T	FK-2 / 2-SI	i-TK-2 / 1						Size/L	ength: 2.	.3" / 165"		Thickness/Dia	ameter: 2	.6" / 52.75"
Limitations:	See Attached									Start 1	Time:	08:50) Finis	h Time:	09:30
	Instrument Setti	lings			- Vin	Search Unit		Cal,	T 7				ial Orientated S	Carab Unit	
Serial No.:	•	186603		Serial No	o.:	G06268		Checks	Time	Date	Calibr			Sweep	T
Manufacturer:	Pana	emetrics		Manufact	turer:	КВА		Initial Cal.	0610	4/15/2013	Refle		Signal Amplitude %	aweep Division	Sound Path
Model: EPOC	CH 4 Linearlly:	:L	-13-011	Size:	0.375	" Model:	Gamma	Inter, Cal.	0850	4/15/2013	7/4	T	80	1.9	.58
Delay:	1.27	Range:	3.0	Freq.: 2	2.25 MHz	Z Center Freq.:	N/A	Inter- Cal.	N/A	*44 E10040	1/2	T	40	3.9	1.18
M'ti Cal/Vel:	.2329	Pulser:	Square	Exam An	ngle:	0 Squint Ang	gie: N/A	Inter. Cal.	+	4/15/2013	3/4		21	6.D	1.81
Damping:	400	Reject:	0%	Measure	d Angla:	N/A Mode:	Long	Final Cal.		4/15/2013	BV	N	60	8.2	2.48
Rep. Rate:	Auto	Freq.:	2.0	Exit Point	·	V/A # of Elem			Couplan	ıt					<u></u>
Filter:	.B-3.0	Mode:	Fullwave				N/A	Cal. Batch:		07220		Circumfe	erential Orlanta	ated Search	Unit
Voltage:	High	Other:	N/A	Shape:	Rour	 -	N/A	Туре:	Sound		Calibr Refle		Signal Amplitude %	Sweep Division	Sound Path
				Wedge S		N/A		- Mfg.:	SONO	TECH	N/		Ampinese is	ÇIVIO.	
Ax. Gain (dB):	11 Circ.	. Gain (dB):): <u>N/A</u>		` —	arch Unit Cable		Exam Bato		07220	, 70.	~			
10 Screen Div	v. ≈ 3.0 in. of	Sou	and Path	Туре: !		Length: 6' No	o. Conn.: 0	Туре:	Sound						<u> </u>
	Calibration Blo	ock				can Coverage	. —	Mfg.:	SONO	TECH					
Cal. Block No.	VI	RA-27		_ Upstream		wnstream 🔽 Sca	an dB: 17	Ref	lerence B	3lock		Re	eference/Simul		, .,
Thickness 2	2.478" Dia.:		0	-	v:□	CCW[] Sca		Serial No.:	a	5-5560	Galn dB	Reflect	Signal for Amplitude 9	Sweep Division	Sound Path
Cal. Blk. Temp.	74 Temp. Tool:	107	74BGCY	— Exam Su	—	OD	· 	Туре:С	CS Romp	ıus Block	11	.7 SDI		2.4	.72
Comp. Temp.	81 Temp. Tool:	107	74BGCY	- Surface (-		Ground '				N/A				
Recordable India	cation(s): Y	Yes 🗍	No 🕡			ed Ultrasonic India	cation Report)						<u></u>	L
Results:	NRI 🗹	RI 🗌	Ge	iom []					Cor	mments: Usi	ed to ma	ximiza c	overage.		
Percent Of Cover	rage Obtained > 90	1%:	No	Reviews	ed Prevlo	ous Date:	Yes								
Examiner	Level II-PDI	$\overline{\bigcirc}$ "		Signature	*		Date Review	wer				Sign	ature		Date
Currao, Jeffrey		11/19				4/15/2	11.7149 1	JE TUOM	<u>15</u>			74.2	$\stackrel{\leftarrow}{\longrightarrow}$		4.29.13
Examiner N/A	Level N/A	7 /	5	Signature		(Date Site R	110	IYKLAM	· Don	mir f.	\mathcal{S}_{n}	alue /		Date 5 . /, 2013
Other	Level N/A			Signature			Date ANII F		YCGAM	i) Ulm	uw r.	Sign	ation		Date
N/A	Level N/A			រាជិរទេពេទ		. •	Tare No.	CONCH					1	0/1	1.
iur.							ı					1/ 3/	-	4/2/	7 <i>5</i> I

ENCLOSURE B1-1

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 31 of 86

UT Calibration/Examination

Domini	ion Sit	e/Unit: I	NAPS_	1	2		Proce	edure:	ER-	AA-NDE-UT-7	02		Outage I	No.:	N2R22	
	Summa	ry No.:	N2.	C1,20,010			Procedure	Rev.:		4			Report f	Vo.: U	T-13-010	
	Work	scope:		ISI			Work Orde	er No.:	591025	32805/NDER1	3-079	_	Pá	ige: 5	of 10	_
Code:		2004 Edition	1		Cat.	/Item:	C-A/C1.2	0	_	Location:			AUX 244		·	
Drawing No.:		12050-WW	KS-SI-TK-2			Description	: Head to Sh	eli Weld								
System ID:	SI										_					
Component ID:	12050-WMK	S-SI-TK-2 / 2-S	I-TK-2/1	·····					Size/	Length: 2.	.3" / 165'		Thickness/Dia	ameter:	.6" / 52.75	_
Limitations:	See Attached	.								Start	Time:	09:31	Finisi	h Time:	10:28	_
	Instrument	Settings			S	earch Unit		Cal.	Time	Date		Axia	Orientated S	earch Unit		ラ
Serial No.:		040186603		Serial N	o.;	00H45N		Checks	1 0016	UZIS	Callbi		Signal	Sweep		\dashv
Manufacturer:		Panametrics		Manufac	cturer:	KBA		Initial Cal.	0611	4/15/2013	Refle		Amplitude %	Division	Sound Pa	m
Model: EPOC	H 4 Line	earity:L	-13-011	_ Size: _	0.50	Model: _	Comp-G	Inter, Cal.	0931	4/15/2013	1/4	T	80	2.0	,819	
Delay:	6.420	Range:	4.133	_ Freq.:	2,25 MHZ	Center Freq.	: N/A	Inter. Cal.	N/.A	A(4 E/2042	1/2		60	4.0	1.688	╝
M'tl Cal/Vel;	.1280	Pulser:	Square	_ Exam A	ngle: 4!	5 _ Squint An	gle: N/A	Inter. Cal. Final Cal.	1028	4/15/2013	3/4		40	6.0	2.497	_
Damping:	400	Reject:	0%	Measuri	ed Angle:	45 Mode:	Shear	<u></u>		الحسينسيط	IDN		30	B.4	3.464	4
Rep, Rate:	Auto	Freq.:	2.0	_ Exit Poi	nt .35	# of Eler	nents: Single		Coupla		5/4		20	10.0	N/A	4
Filter:	.8-3.0	Mode:	Fullwave	Config.:	Singl	e Focus:	N/A	Cal. Batch:		07220	ļ		ential Orienta		n Unit	4
Voltaga:	High	Other:	N/A	_ Shape:	Round	Contour:	N/A	Type:		dSafe	Calibr Refle		Signal Amplitude %	Sweep Division	Sound Pa	th
				Wedge	Style:	MSWC	C	Mfg.:	SUNC	DTECH	N.		mypmond 70		 	ᅱ
Ax, Gain (dB):	15	Circ. Gain (dB): N/A	_		ch Unit Cable		Exam Bato	:h:	07220	134				 -	ㅓ
10 Screen Div	, = 4.133	in. of So	und Path	Type:		Length: 6' N	lo. Conn.: 0	Туре:		dSafe	ļ —					寸
	Calibratio			,,,,,,		n Coverage	_	Mfg.;	SONO	TECH						
Cal. Block No.		VRA-27		Unetreur		nstream 🕢 Sc	en dR: 29	Ref	егепсе	Block		Ref	erence/Simul	ator Block		\Box
	.478"	Dia.:	0	-	ν. Σ Ι <u>20.</u>	4-1	an dB: 29	Serial No.:	(75-5560	Gain dB	Reflecto	Signal Amplituda 9	Sweep 6 Division	Sound Pa	h
Cal. Bik, Temp.	74 Temp.	Tool: 10	74BGCY	- Exam S		00			S Rom	pus Block	15	.7 SHD	64	2.5	1.03	┪
Comp. Temp.	81 Temp.	Tool: 10	74BGCY		Condition:						N/A					
- Recordable Indi	cation(s):	Yes 🗍	No 🔽			Ultrasonic Ind		A								\Box
Results:	NRI 🗾	RJ 🗍	-	om []					Co	omments: Us	ed to ma	ximize co	verage.			
Percent Of Cover	rage Obtained	1 > 90%:	No	Review	ed Pravious	s Data:	Yes									
Examiner	Level II-	PDL	10	Signature			Date Revie	wer				Signa	ure.		Oat	•
Currao, Jeffrey	T	J.MI	Can					NE TUO	m/15			234			4.29.13	4
Examiner	Level N/	K		Signature			Date Site R	- D(2		. \ \	[]	Signa	%		Dat	
N/A							TIXM		(KLAN	D WILL	llu t	my	K-J-/	:	5.1.2013	
Other	Level N/	A	;	Signature			Date ANII F	Review			m	Signa		11	Dat	3
N/A							ı				////	///	ر بھے۔	12/13		1

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 32 of 86

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 33 of 86

Domin	ion Site/Unit	: <u>NA</u>	PS /		2		Proce	edure:	ER-	AA-NDE-UT-	702	_	Outage l	No.:	N2R22	
	Summary No.	:	NZ.C	1.20.010			Procedure	Rev.:		4		_	Report I	No.: U	T-13-01	0
	Workscope	:		isi			Work Orde	r No.:	5910253	2605/NDER	13-079		Pa	age: 6	of	10
Code:	200	4 Edition			Cat./li	em:	C-A/C1.20	0		Location:			AUX 244			
Drawing No.:	12	2050-WMKS	S-SI-TK-2			Description:	Head to Sh	ell Weld								
System ID:	SI .						-									
Component ID:	12050-WMKS-SI-T	K-2 / 2-SI-T	K-2/1						Size/L	ength:	2.3" / 185°	'	Thickness/Dia	ameter:	2.6" / 52	.75"
Limitations:	Yes									Start	Time:	10:29	Finis	h Time:	11:09)
	instrument Setti	ngs			Sea	rch Unil	10/01/02	Cal.	Time	Date		Axi	al Orientated S	earch Unit		
Serial No.:	0401	86603		Serial No.	:	00F1DL		Checks	 		Calibi		Signal	Sweep		
Manufacturer:	Pana	metrics		Manufacti	ner:	KBA		Initial Cal.	0612	4/15/2013	Refle		Amplitude %	Division	Sound	d Path
Model: EPO	CH 4 Linearity:	L-1:	3-011	Size:	0.50"	_ Model: _	Comp-G	Inter, Cal.	1029	4/15/2013	1/4	Т	80	2.0	1.1	75
Delay:	8.199	Range:	5.81	Freq.: 2	.25 MHZ	Center Freq.:	N/A	Inter, Cal.	N/A 1109	4/15/2013	1/2		40	4.0	2.3	
M'ti Cal/Vel:	.1273	Pulser:	Square	Exam Ang	jie: 60	Squint Ang	le: N/A	Final Cal.	12:12	4/15/2013	ID N		13	8.3	3.4	
Damping:	400	Reject:	0%	Measured	Angle:	Mode:	Shear		Couplan	+	5/4		11	10.0	N/	
Rep. Rate:	Auto	Freq.:	2.0	Exit Point	.35"	# of Elem	ents: Single	Cal. Batch	•	7220			rential Orienta			
Filter:	.8-3.0		Fullwave	Config.:	Single	Focus:	N/A	Type:	Sound		Calibi		Signal	Sweep	T -	
Voltage:	High	Other:	N/A	Shape:	Round	_ Contour:	N/A	Mfg.:	SONO		Refle		Amplitude %	Division	Sound	i Path
Av. Coin (dB):	21.5 Circ.	Cain (dR)	N/A	Wedge SI	yle:	MSWQ	<u> </u>	Exam Bato	·h·	07220	N.	'A				
Ax. Gain (dB):		: Gain (dB)		•		Unit Cable		Type:	Sound		·					
10 Screen Di	v. = 5.81 in. of		d Path	Type: R	G 174 La	ngth: 6' No	o. Conn.: 0	Mfg.:	SONO		·				+	
	Calibration Blo					Coverage					· 	l	ference/Simul	ator Block		
Cal. Block No.		LA-27		•	ىك	ream 📝 Sca			erence E		Gain	<u>```</u>	Signal	Sweep	Sound	. Dath
	2.478" Dla.: 74 Temp. Tool:		BGCY	. CW	Z	CCW 🔽 Sca	in dB: 35.5			5-5560	dB		or Amplitude %			
-	81 Temp. Tool:		BGCY	Exam Sur		OD		Type:	29 Kump	DIS GIOCK	21.5 N/A	.7 SDI	1 31	2.4	1.4	12
	<u> </u>		—	Surface C	-	Contour					N/A	 		+		
Recordable Ind				(If Yes, Ref. ⊓ [Allached L	litrasonic India	ation Report	.)	Co	nments: U:	sed to ma	ximize c	overage		.	
Results:	NRI 🗹	RI 🗌	350	" <u>L</u>												
Percent Of Cove	erage Obtained > 90%	%:	No	Reviewed	Previous D	ala:	Yes									
Exeminer	Level II-PDI	1/12	Si	gnature			Date Review					Sign	ature		,	Date
Currao, Jeffrey	T ()	flore					1013 W.L. T				<u></u>	7/1			04/2	4
Examiner	Level NIA	•	SI	gnature		ľ	Date Site R	<i>)) (</i>	7		(A			ļ	5.1.2	Date
N/A Other	Level N/A		0:	gnature			Date ANII F		BICKL.	APU U	sulle]	Sign	atura			Date
N/A	Level N/A		31	Augroi &		L	Jace ANII I	CHOM			M	4		la la		Jak

Supplemental Report

nion ^e			-		Re	eport No.:	ហ	T-13-0	10
N2.C1.20.010 Currao, Jeffrey T N/A N/A		Level: N/A	Site Review:	Demists		Page:	Date:	04.; 5·1·	2013
nts:			Lli					7	
oto:	WELD 1				snell heard	1		- Advisor - Advi	
	N2.C1.20.010 Currao, Jeffrey T N/A N/A nts:	N2.C1.20.010 Currao, Jeffrey T J Manuary N/A N/A N/A oto:	N2.C1.20.010 Currao, Jeffrey T	N2.C1.20.010 Currao, Jeffrey T Level: II-PDI Reviewer: N/A Level: N/A Site Review. N/A Level: N/A ANII Review. Discrepance	N2.C1.20.010 Currao, Jeffrey T J Level: II-PDI Reviewer: WIL TWO MANUS P.S. N/A Level: N/A Site Review: WALL TWO MANUS P.S. N/A ANII Review: MIL TWO MANUS P.S. LIMITATION 360° DL WELD 1	N2.C1.20.010 Currao, Jeffrey T J Level: II-PDi Reviewer: WIL TRIDUCA: N/A Level: N/A Site Review: CANIS STRUCTORNO N/A ANII Review: (a) Thermal Couples 1 shell oto:	N2.C1.20.010 Currao, Jeffrey T J M Level: III-PDI Reviewer: NA Site Review: CANAIS STRICLA MO B N/A Level: N/A ANII Review: MA ANII Review: Maintain of the same	N2.C1.20.010 Currao, Jeffrey T J Manual Level: III-PDI Reviewer: Will Thomas Date: N/A Level: N/A Site Review: Chall Structor Date: N/A Level: N/A ANII Review: Date: Limitation 360° Dut TO Wild Profile 0.9" Wildth (2) Thermal Couples 1.6" shertleton each strell bto:	N2.C1.20.010 Currao, Jeffrey T

8 SQ. IN. X 165" TOTAL WELD LENGTH = 1,320 CUBIC IN.

TOTAL REQUIRED EXAMINATION VOLUME = 1,320 CUBIC INCHES

0° IS LIMITED FOR 1.16 SQ. IN, X 165" LENGTH = 191.4 CUBIC IN, DUE TO CONFIGURATION. TOTAL LIMITATION FOR 0°= 191.4 CUBIC IN. / 1,320 = 0.145 X 100 = 14.5%, EXAMINED 85.5%.

CIRC SCAN EXAMINATION OF WELD METAL = 100%
4.24 SQ, IN. REQUIRED FOR BASE METAL CIRC SCAN EXAMINATION X 165" LENGTH = 699.6 CUBIC IN.
TOTAL REQUIRED CIRC EXAM BASE METAL = 699.6 CUBIC IN.

NO EXAM FOR 32" DUE TO SUPPORTS X 1.16 SQ. IN = 37.1 CUBIC IN.

37.1 / 699.6 = 0.053 X 100 = 5.3%. TOTAL CIRC SCAN BASE METAL EXAMINED = 94.7%

4.24 SQ. IN. REQUIRED FOR BASE METAL AX SCAN EXAMINATION X 165" LENGTH - 699.6 CUBIC IN.

NO EXAM BASE METAL AX DIRECTION 0.11 SQ. IN. X 129.4" LENGTH DUE TO CONFIGURATION = 14.23 CUBIC IN. NO EXAM BASE METAL AX DIR. 0.32 SQ. IN. X 35.6" LENGTH DUE TO SUPPORTS AND THERMAL COUPLES = 11.4 CUBIC IN. $14.23 + 11.4 = 25.63 / 699.6 = 0.037 \times 100 = 3.7\%. \text{ TOTAL EXAMINED BASE METAL AX SCAN = 96.3%}$

TOTAL REQUIRED WELD METAL = 3.76 SQ. IN X 165" LENGTH = 620.4 CUBIC IN.

Supplemental Report

Domin	ian [:]					Report No.:	UT	-13-010	<u>) </u>
						Page:	8	of	10
Summary No.:	N2.C1.20.010			•		~277			
Examiner:	Currao, Jeffrey T	OMC Level	II-PDI	Reviewer:	WL. THOMAS	M.	Date:	04/27	1/13
Examiner:	N/A	Level:	N/A	Site Review:	DENMS P. STRILLA	un APS	Date:	5-1-2	<u> </u>
Other:	N/A	Level:	N/A	ANII Review:	MH		Date:	5/2/	13

Comments:

Sketch or Photo:

TOTAL REQUIRED EXAMINATION VOLUME FOR 45/60 DEG WELD METAL SHELL SIDE = 620.4 CUBIC IN. EXAMINED 2.34 SQ. IN. X 129.4* LENGTH = 302.8 CUBIC IN. DUE TO CONFIGURATION EXAMINED 1.43 SQ. IN X 35.6" LENGTH = 50.9 CUBIC IN. DUF TO SUPPORTS AND THERMAL COUPLES TOTAL AREA EXAMINED = 353.7 / 620.4 = 0.57 \times 100 = 57%, SHELL SIDE 45°.

EXAMINED 2.74 SQ. IN, X 129.4 LENGTH = 354.6 CUBIC IN. DUE TO CONFIGURATION

EXAMINED .89 SQ. IN, X 35.6° LENGTH = 31.7 CUBIC IN. DUE TO SUPPORTS AND THERMAL COUPLES

TOTAL AREA EXAMINED = 386.3 / 620.4 = 0.622 X 100 = 62.2% SHELL SIDE 60°.

EXAMINED 3.6 SQ.IN. X 165" LENGTH = 594 CUBIC IN. DUE TO CONFIGURATION. TOTAL AREA EXAMINED = $594 / 620.4 = 0.957 \times 100 = 95.7\%$ HEAD SIDE 45° .

EXAMINED 3.64 SQ. IN. X 165" LENGTH = 600.6 CUBIC IN. DUE CONFIGURATION. TOTAL AREA EXAMINED = $600.6 / 620.4 = 0.968 \times 100 = 96.8\%$ HEAD SIDE 60° .

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ENCLOSURE B1-1

Supplemental Report

Domin	nion '							Report No.;	UT-1	13
Summon, No.	NO 04 00 040							Page:	9	0
	N2.C1.20.010		Loveli	II DDI	Douinwan	بسيد ده	<i>===</i>	M	Data: 1	
	Currao, Jeffrey T		Level: II-PE			N. Thom		Dar	Date: _&	
Examiner:					Site Review:		(AN)	10/2	Date:	
Other:	N/A		Level.	N/A	ANII Review:				کے Date:	_
Comme	nts:									
		İ		2	,	О		2		
Sketch or Pho	oto:	'				FLOW	. •		l	
		SHEL	<u>-</u>			CL				
				·					HEAD	
			_	-==		0.50 in) 	.		
		SHELL	•		a som	CL			HEAD	
						6 DEG EINI	TATION			
		SHE!	L.	· (-	0.90 in	CL			HEAD	
						60 DEG LIA	HITATIÓN			

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 37 of 86

ENCLOSURE B1-1



Report No: UT-13-010 Summary # N2.C1.20.010

Pg. 10 of 10

Prepared by: W. Thomas

Date: 4/29/2013

Weld Number Thickness

1 2.6" - .175" CLAD Weld Width Weld Length 2.3" 165"

COVERAGE TABLE								
ANGLE	SCAN AREA	DIRECTION	% COVERAGE					
0	BASE AND WELD METAL	HEAD/SHELL	85.5					
45,60	BASE METAL	CW/CCW	94.7					
45,60	BASE METAL	HEAD/SHELL	96.3					
45	WELD METAL	HEAD	95.7					
45	WELD METAL	SHELL	57					
45	WELD METAL	cw/ccw	100					
60	WELD METAL	HEAD	96.8					
60	WELD METAL	SHELL	62.2					
60	WELD METAL	CW/CCW	100					

TOTAL 788.2 / 9 = 87.6%

ANI / ANII /// A HSB GS/ Reviewed 5/2/17

olume Dimensions -	Height	2.425"	Length	165"	Width	3.3"
	Cover	age Summa	iry			
Required Scans (e	ach has a	weighing fa	ctor of 100	for compl	ete coverage	e)
UpSt-Ax	UpSt-(Circ	DnSt-A	x	DnSt-0	Circ
	···					
			Code	Coverage	Total	87.6%
		Best Effort (Coverage (N	1ax 25%)	Total	N/A
	Required Scans (e	Cover Required Scans (each has a UpSt-Ax UpSt-G	Coverage Summa Required Scans (each has a weighing fa UpSt-Ax UpSt-Circ	Coverage Summary Required Scans (each has a weighing factor of 100 to UpSt-Ax UpSt-Circ DnSt-A Code	Coverage Summary Required Scans (each has a weighing factor of 100 for compl UpSt-Ax UpSt-Circ DnSt-Ax Code Coverage	Coverage Summary Required Scans (each has a weighing factor of 100 for complete coverage

Notes:

- 1) Code Coverage refers to the maximum percentage of the required examination volume that is effectively examined with the qualified examination procedure.
- 2) Best Effort Coverage refers to the required examination volume past the weld centerline that is examined in the axial beam direction with an Appendix VIII demonstrated procedure for single sided coverage.

5.1.2015

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B2. Nozzie-to-Shell Welds

4.B2 IMPRACTICALITY OF COMPLIANCE

In accordance with 10CFR50.55a(g)(5)(iii), relief is requested from the "essentially 100 percent" volumetric examination coverage requirement for the identified Nozzle-to-Vessel welds. This requirement is considered impractical due to single-sided access.

Ultrasonic examination of the identified nozzle-to-vessel weld on the boron injection tank is limited to 27.4% volume coverage because of single-sided access due to nozzle to shell weld configuration. It was not possible to scan over the weld with any angle. Refer to Enclosure B2-1 for coverage details for weld # 3. Examination was performed to the extent possible.

5.B2 BURDEN CAUSED BY COMPLIANCE

Destruction of the component, requiring a completely different design, would be necessary to perform 100% of the Code required examination as written in the 2004 ASME Section XI Code with No Addenda and is contrary to the intent of the Code.

6.B2 PROPOSED ALTERNATIVE AND BASIS

It is proposed that the examinations already completed at the reduced coverage be accepted as meeting the Code requirements. The limited volumetric examination performed should detect any general patterns of degradation that may occur in the areas covered, therefore providing reasonable assurance of the continued structural integrity of the subject weld. 100 percent magnetic particle examination coverage was obtained with no reported recordable indications.

Two other components are scheduled to be examined in Category C-B, Item No. C2.21, in the fourth ISI inspection interval on similar nozzle welds. Previous examinations at these locations obtained full coverage. Third interval relief for the examination of weld #3 was granted in request N2-I3-PRT-002, Section B1, for essentially the same examination coverage of 30.5%.

The examinations were performed using standard ASME Section V, Article 4 UT techniques. Manual scanning was performed for these examinations. The configuration of the nozzle to shell weld limits the effective examination of the required examination volume. The nozzle's close proximity to the weld limits scanning due to the nozzle blend radius causing lift-off of the search unit during scanning. The physical limitation of each nozzle limits the effectiveness of alternative or advanced technologies from increasing the examination coverage for this configuration.

Enclosure B2-1 includes the complete Ultrasonic Examination Data Record for the Category C-B, Item C2.21, examination included in this request. The report includes details of the UT scanning apparatus, including transducer size, frequency and angle. Also included are scan plots for the examination showing the nozzle configuration and percent coverage for each individual scan. The wave modality and insonification angles are also included. No recordable indications were identified during the examination.

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Magnetic Particle Examination (MT) was performed for the subject weld included in this request, and the exam was a full ASME Code examination (>90% coverage). There were no recordable indications detected. The complete MT Examination report is included in Enclosure B2-1.

The Boron Injection Tank head is ASTM A-516 Grade 70 carbon steel with 0.125" weld deposit clad ASTM A-240 Type 304L. Tank head design thickness is a minimum of 2.00". The nozzles are ASTM A-508 Class 1, and are just over 5" thick. The nozzles are also clad with ASTM A-240 Type 304L.

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et en						UT C	alibratio	n/Exar	ninatio	n						
Domin	ion	Site/Unit:	NAPS	s /	2			Proce	edure:	ER-	AA-NDE-UT-70	02		Outage I	lo.:	N2R22
		mary No.:		N2.C2	.21.007		- •	Procedure	Rev.:		4	, , , , , , , , , , , , , , , , , , ,	_	Report I	No.: U	T-13-011
	· w	orkscope:		Į:	SI		_	Work Orde	er No.:	591025	32605/NDER1	3-079	_	Pŧ	ige: 1	of 5
Code:	<u></u>	2004 Edit	ion			Cat./I	tem:	C-B/C2.2	1		Location:			AUX 244		
Drawing No.:		12050-W	MKS-S	51-TK-2			Description:	Nozzle to \	/essel	_	-					
System ID:	SI															
Component ID:	12050-WN	IKS-SI-TK-2 / 2	-SI-TK-	2/3			·	·		Size/l	_ength: 1.	.25" / 33"		Thickness/Dia	meter:	2.13" / 10"
Limitations:	Limited D	ue to Configur	ation	·							Start 7	Time:	10:25	Finial	n Time:	10:39
	Instrum	ent Settings				Se	arch Unit		Cal.	Time	Date		Axia	l Orientated S	earch Unit	
Serial No.:		040186603			Serlal No.:		M18207SP		Checks			Calibr	· · · · · · · · · · · · · · · · · · ·	Signal	Sweep	Т
Manufacturer: _		Panametric			Manufactu	rer:	КВА		Initial Cal.	08:40	4/12/2013	Refle		∧mplitude %	Division	Sound Path
		Linearity:	L-13-0		Size:	0.75"	:leboM	Gamma	Inter, Cal.	10:25 N/A	4/12/2013	1/4		70	1.8	.556™
Delay:	1.377	Rang		3.0"	Freq.: 2.2	25 MHz	Center Freq.:	N/A	Inter. Cal.	10:39	4/12/2013	1/2		80	4.0	1.180"
M'tl Cal/Vel:	.2329	Pulse		quare	Exam Angl	e: <u>0°</u>	Squint Angl	e: N/A	Final Cal.	14:00	4/12/2013	3/4 Bt		70 100+	6.0 8.3	1.805" 2.493"
Damping:	400Ω	_ Rejec		0%	Measured a	Angle: _	N/A Mode:	Long.		Coupla	nt	<u> </u>	+	1007	0.3	2.493
Rep. Rate:	Auto	- Fred		0 MHz	Exit Point	N/A	# of Elem	ants:1	Cul. Batch:	•	07220	 	L	rential Orienta	ted Search	. Unit
Filter: Voltage:	.8 - 3.0 Low	Mod Olhs		IIIwave N/A	Config.:	Single	Focus:	N/A	Type:		dSafe	Calibr		Signal	Sweep	T
, one etc.		_	··· —-		Shape:	Round	Contour:	N/A	Mfg.:		TECH	Refle		Amplitude %	Division	Sound Path
Ax. Gain (dB):	5.8	Circ, Gain (d	4 0 1.	N/A	Wedge Sty	/le:	N/A		Exem Batc	.h.	07220	N/	/A			
		_ :	Sound I			Searc	h Unit Cable		Type:		dSafe					
10 Screen Di		_ '''. ''	, cana i	atri	Type: RC	3 174 L	ength: 12' No	. Conn.: 0	Mfg.:		TECH					
	Calibra	ation Block				Scar	n Coverage		······			 				<u> </u>
Cal, Block No.		VRA-27			Upstream [Down:	stream 🧻 Sca	ndB: 11.8	Ref	erence l	Block	Gain	Rei	erence/Simul Signal	Sweep	
	2.478"	Dia.:	0		CW [CCW Scal	ndB: N/A	Serial No.:		5-6998	dB	Reflecto	r Amplitude 9		Sound Path
Cal. Blk. Temp.		•	1073BG		Exam Surf	ace:	OD		Туре:С	S Rom	pus Block	5.8	,75" SD	H 52	2.4	.723"
Comp. Temp.	94 Tem	ip. Tool;	1073BG	icy	Surface Co	ondition:	As We	ded	•			N/A			-	
Recordable Ind	lication(s):	Yes 📋	No	o ⊽ ((If Yes, Ref.	Altached	Ultrasonic Indic	ation Report	i)		ļ	L	<u> </u>		1	<u> </u>
Results:	nri 🔽	RI [_	Geon	n					Co	imments: Noi	ne				
Percent Of Cove	erage Obtal	ned > 90%:	N	0	Reviewed	Previous	Data:	Yes								
Examiner	Levol	II-PDL /	//	Sig	nature		C	ate Revie	wer				Signa	lure		Date
Currao, Jeffrey	T			(-3-3-3			4/12/2	14000	HOMAS .	·	<u> </u>		<u> </u>	·		4.22.13
Examiner	Level	M/A		Sig	gnature				Review		ત	All	Signa مکلات	lure	4	/23/13
N/A							4/12/2	7-4-7	Co dec	yar.	<u> </u>	24	Signa	<u> </u>		Date
Other N/A	Level	N/A		Sig	nalure		L	Pate ANII F	Review	Por	1 //	1	Julia	iule Line		Date
IVA										111	1		4126	1/5		

UT Calibration/Examination

Dominic	ogs Site/Un	nitN	NAPS	<u></u>	2		Proce	edure:	ER-#	AA-NDE-UT-7	702		Outage N	lo.:	N2R22	
	Summary No	io.:	N2.	.C2.21.007		•	Procedure	Rev.:		4		_	Report N	lo.: U	IT-13-011	
	Workscop	ре:		ISI		, 	Work Orde	л No.:	5910253	32605/NDER	13-079		Pag	ge: 2	of :	5
Code:	20	004 Edition	1		Cat./Ite	em:	C-B/C2.2	1	1	Location:			AUX 244		`	
Drawing No.:		12050-WM	KS-SI-TK-2			Description:	Nozzie to V	/essel								
System ID: S	SI															
Component ID: 1	2050-WMKS-SI	-TK-2 / 2-SI	I-TK-2/3						Size/L	ength: 1	1.25" / 33"	, ,	Thickness/Dia	meter:	2.13" / 10"	
Limitations: L	imited Due to C	Configuration	on							Start	Time:	10:40	Finish	Time:	10:54	_
	Instrument Set	ttings			Sea	arch Unit		Cal.	Time	Date		Axial	Orientated Se	earch Unit		=
Serial No.:	D4f	0186603		Serial N	io.:	00Y5K7		Checks	1		Calibr		Signal	Sweep	T	_
Manufacturer:		nametrics			cturer:	КВА	<u> </u>	Initial Cal.	+*****	4/12/2013	Refle		mplitude %	Division	Sound Pa	ath
Model: EPOCI		<i>'</i>	-13-011		.5" X 1.0"			Inter. Cal.		4/12/2013	1/4		80	2.0	.859"	
	12.25	Range:	4.371"		2.25 MHz	Center Freq.:	N/A	Inter, Cal. Inter, Cal.		4/12/2013	1/2	 -}	70	4.0	1.745"	-
·	.1277	Pulser: -	Square	Exam Ai	Angle: 45°	Squint Ang	le: N/A	Final Cal.	+ + + + + + + + + + + + + + + + + + + +	4/12/2013	3/4		50	6.0	2.617"	
· - —	400Ω	Reject:	0%		ed Angla: _4	45° Mode:	Shear	<u> </u>	Couplan		1D No		40 35	8.0 10.0	3.488" N/A	
	Auto	Freq.:	2.0 MHz	G-XIL F-UII	int7™	# of Elem	ents:1_		•				ential Oriental			\dashv
	8 - 3.0	-	Fullwave	Config.:	Single	Focus:	N/A	Cal. Batch Type:	Sound	07220	——				T	-
Voltage:	Max	Other:	N/A	Shape:	Rectangula	ır Contour:	N/A	· Mfg.:	SONO		Calibr Refle		Signal mplitude %	Sweep Division	Sound Pa	ath
				Wedge !	Style:	sws		-		·····	. N/	A		· · · · · · · · · · · · · · · · · · ·		-
Ax. Gain (dB):	23.5 Circ	c. Gain (dB)): <u>N/A</u>	_	Search	n Unit Cable		Exem Bate		07220						
10 Screen Div.	= 4.371 in. o	of Sou	und Path	Туре:	RG 174 Le	ength: <u>12'</u> No	o. Conn.: 0	Type:	Sound							
	Calibration Bl	lock			Scan	Coverage	<u>-</u>	Mfg.:	SONO	IEUH						
Cal. Block No.	v	VRA-27		Upstrear	m 🕡 Downst	tream Sca	in dB: 37.5	Ref	ference B	łlock	ļ	Refer	rence/Simula		 	
Thickness 2.4	478" Dia.		0	C\	w <u>~</u>	CCW Sca	ın dB: 37.5	Serial No.:	: 0:	5-699B	Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Pa	alh
Cal. Bik. Temp			73BGCY	Exam Si	iurface:	O D		Туре:	CS Romp	ius Block	23.5	.75" SDH	52	2.6	1.058"	
Comp. Temp.	94 Temp. Tool	l: <u>107</u>	73BGCY	- Surface	Condition:	As We	Ided				N/A		Ţ			
Recordable Indic	ation(s):	Yes [No 🗸	(If Yes, Ro	ef. Attached L	Jitrasonic indic	cation Report)				<u> </u>	<u> </u>		l	
Results:	NRI 🔽	RI 🗌	Ge	eom []					Cor	mments: No	ne					
Percent Of Covera	ige Obtained > 9)0%:	No	Review	ved Previous D	Jata:	Yes									_
Examiner	Level II-PDI	$\overline{\mathcal{O}}$	1	Signature			Date Review					Signatu	34		Da	te
Currao, Jeffrey T		SMA	<u>U</u>			4/12/2		THOMAS		<u>-</u>		311	2		4.22.	
Examiner	Level N/A	71		Signature		_	Date Site R		j		1.11	Signatu	ITE.	£.	Da 7/02/2	te
N/A .							2013 10 (-(jard		4001	Od 1		<u> </u>	1/23/13	4
Other	Level N/A		,	Signalure		L	Date ANII R	(eview			130	Signatu	ir o	. 1.	Da	le
N/A												H	عجيه	4/26	113	- (

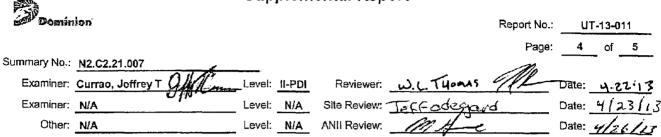
ENCLOSURE B2-1

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 42 of 86

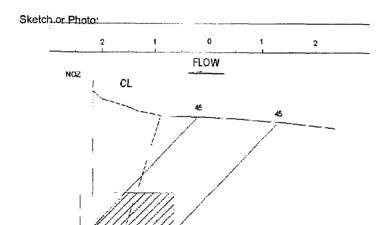
Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 43 of 86

Domis	aina:	Site/Unit:	N.A	APS	,	2		Proc	edure:	ER-	AA-NDE-UT-	702		Outage N	lo.:	N2R22
Dy Wolling		nary No.:		N2.C	2.21.007			Procedure	Rev.:		4		_	Report N		T-13-011
		orkscope:			ISI			Work Orde		591025	32605/NDER	13-079	_	Pa		of 5
Çode:		2004	Edition	*****		Cat.	/Item:	Ç-B/C2.2	1		Location:			AUX 244		
Drawing No.:		120	50-WMK	S-SI-TK-2			Description:	Nozzle to	/essel	_						
System ID:	SI						•									
Component ID:	12050-WM	KS-SI-TK-	2 / 2-SI-	TK-2/3						Size/l	ength:	1.25" / 33"	'	Thickness/Dia	meter:	2.13" / 10"
Limitations:	Limited Du	ue to Confi	iguratio	n							Start	Time:	10:55	Finish	Time:	11:16
	Instrume	ent Setting	s			S	iearch Unit		Cul.	T	Sats.		Δyla	Orientated S	aarch I Init	
Scrial No.:		040186	603		_ Serial No	o.:	00Y5K6		Checks	Time	Date	Calibr		Signal	Sweep	· · · · · · · · · · · · · · · · · · ·
Manufacturer:		Paname	etrics		_ Manufaç	turer:	KBA		Initial Cal.	08:42	4/12/2013	Refle		Amplitude %	Division	Sound Path
Model: EPO	CH4 L	.inearity: _	L-1	13-011	_ Size:	.5" X 1.0	Model:	Comp-G	Inter, Cal.	10:55	4/12/2013	1/4	Т	80	2.0	1.152"
Delay:	15.55	_ R	ange: _	5.948"	_ Freq.: _	2.25 MHz	Center Freq.:	N/A	Inter, Cal.	N/A 11:16	4/12/2013	1/2		45	4.0	2.360"
M'ti Cal/Vel:	.1275	- P	ulser: _	Square	_ Exam Ar	igle: 61	0° Squint Ang	le: N/A	Final Cal.		4/12/2013	3/4		27	6.0	3.546"
Damping:	400Ω	-	eject: _	0%	_ Measure	d Angle:	_60° Mode:	Shear		Couplar		ID N:		15	8.0 10.0	4.755" N/A
Rep. Rate:	Auto	-	Freq.: _	2.0 MHz	Exit Poln	it65	# of Elem	ents: 1	Cal. Batch	•	07220			rential Orienta		
Filler:	.8 - 3.0	-		Fullwave	_ Config.:	Sing	le Focus:	N/A	Type:	Soun		Calibr		Signal	Sweep	T
Voltage:	Max	•	Other:	N/A	_ Shape:	Rectange	ular Contour:	N/A	- Mfg.:	SONO		Refle		Amplitude %	Division	Sound Path
A 0.1.415)		G: 6	- / APO-	B1/4	Wedge S	Style:	SWS		Exam Bate		07220	N/	Α			
Ax. Gain (dB):	27.2	- Circ. Ga		N/A	-	Sear	ch Unit Cable		Type:		dSafe					<u> </u>
10 Screen D	iv. = 5.948	in. of	Sour	nd Path	Туре:	RG 174	Length: 12' No	Conn.: 0	Mfg.:		TECH					ļ
	Calibra	tion Block				Sci	an Coverage							(C:1	I Die el-	<u> </u>
Cal. Block No.		VRA-			_ Upstreen	Dow	nstream 🗍 Sca			erence l		Gain	Kei	erence/Simula Signal	Swoep	
	2.478"	Dia.: —	-	0	_ CV	√	CCW 📝 Sca	n dB: 41.2			5-6998	dB	Reflecto	r Amplitude %		Sound Path
Cal. Blk. Temp.	<u> </u>			IBGCY IBGCY	Exam Sι	ırface:	QD		Тура: (S Rom	pus Block	27.2	.75" SDI	1 37	2.5	1.483"
Comp. Temp.		• -				Condition:			•_			N/A			 -	
Recordable Ind	• *	Yes		No ☑	• .	f. Attached	d Ultrasonic India	ation Report	l.)	Co	mments: No	· I	L			L
Results:	NRI 🔽		RI 🗀	Ged	ım 📋					CU	minence. M	Jile				
Percent Of Cove	erage Obtain	red > 90%:		No	Reviewe	d Previou	s Data:	Yes								
Examiner	Level	II-RDI	//	7 8	Signature	,		Dale Revis					Signa			Date
Currao, Jeffrey		11/11	16	2-2	·			1013 WL					74			4.2213
Examiner	Level	N/A	-	8	Signature				leview سر میرامر م	0	Telle		Signa	ture	L	Date //12 / .1
N/A							4/12/2		Review		Jerr 6	XIII.	Signa	· · · · · · · · · · · · · · · · · · ·		/ /3/ /3 Date
Other N/A	Level	N/A		*	lignature		1	Date ANII I	ZGNIĠM			KAN.	r f	uit .		/ / /

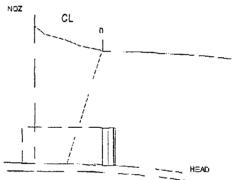
Supplemental Report



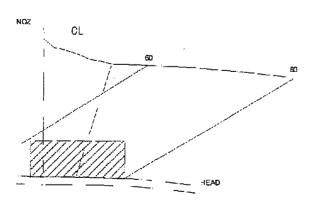
Comments:



2.65° HT \times 1.75° WIDTH = 1.16 SQ, IN. TOTAL REQUIRED VOLUME CVAMINED 233 SQ. IN. US SIDE 45 AX .335 / 1.16 = 0.28 \times 100 \approx 28% (IMITATION, EXAMINED 72% US SIDE 45 AX



EXAMINED 0.17 SQ. IN. 0.DEG. .17 / 1.15 = 0.16 x 100 = 15%



EXAMINED 100% OF THE REQUIRED VOLUME US SIDE AX DIRECTION

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 45 of 86

ENCLOSURE B2-1



Report No: UT-13-011 Summary # N2.C2.21.007

Pg. 5 of 5

Prepared by: W. Thomas

Date: 4/22/2013

Weld Number

Thickness

2.13" - 0.15" (CLAD)

Weld Width

Weld Length

ANGLE	SCAN DIRECTION	SCAN %
- 0°	AXIAL	15
45°	AXIAL	72
45°	AXIAL	۵
45°	CIRC	15
45°	CIRC	15
60°	AXIAL	100
60°	AXIAL	0
60°	CIRC	15
60°	CIRC	15

247 TOTAL 247 / 9 = 27.4%

Examination	Volume Dimensions -	Height	0.66"	Length	33"	Width	1./5"
		Cover	age Summa	ery			
	Required Scans (e	each has a	weighing fa	ctor of 100	for compl	ete coverag	;e)
ANGLE	UpSt-Ax	UpSt-0	lirc	DnSt-A	x	DnSt-	Circ
SEE ABOVE							
				Code	Coverage	Total	27.4%
			Best Effort	Coverage (N	1ax 25%)	Total	N/A

Notes:

- 1) Code Coverage refers to the maximum percentage of the required examination volume that is effectively examined with the qualified examination procedure.
- 2) Best Effort Coverage refers to the required examination volume past the weld . centerline that is examined in the axial beam direction with an Appendix VIII demonstrated procedure for single sided coverage.

Magnetic Particle Examination

Dom:	ोक्कां ट रा										
Site/	Unit: N	APS /	2		Procedure	э: <u> </u>	ER-AA-NDE-	MT-200	Outage No.:	N2R22	
Summary	No.:	N2.C	2.21.007		Procedure Rev	'.:	4		Report No.:	MT-13-00)1
Workso	ope:		ISI		Work Order No	.: 59	102532605/N	DER13-079	Page: _	1 of _	1
Code:	200	4 Edition		Cat./lt	em: C-B/C2	.21	Location:		AUX 244		
Drawing No.:	12	2050-WMI	(S-SI-TK-2		Description: 1	Vozzl	e to Vessel				
System ID:	SI										
Component II	D: 12050	-WMKS-S	I-TK-2 / 2-5	SI-TK-2/	3				fat./Thickness:	CS / 2.13	. .
Limitations:	None										
Light Meter	Mfg.:	AE	MC Instrun	nents	Serial No).: 	1044HMC	Υ	Illumination:	227 fc	
Temp. Tool	Mfg.:	AE	MC instrun	nents	Serial No).: <u> </u>	1066BGC	Υ	Surface Temp.:	101	°F
Resolution:			Not Use	d							
Lift Block S	erial No.:		M	T-34		Surfac	e Condition;		As Welder	1	
Lo/Wo Loc	ation:		N/A	١	· .	Field	Orientation:		Perpendicular &	Parallel	
Magnetic F					Wet			:			
Brand:			JX		Dry	\checkmark	Mixed:	Yes 🗌	Applied By:	Dusting	g 🔽
Type:		8A Red			Visible			No 🗹		Spraying	g 🗌
Batch No.:		10004	4	_	Fluorescent		With:			Flooding	g 🗆
Equipment				PARKER	B310				o.:3	228	
Head Shot			N/A	Ampere	s	Fix	ed Spacing	\Box	A	C M DC	
Adj. Spacin	ıg 🔻	4	1 - 8	inches		En	circling Coils		N/A Tu	ms	
Prods. Spa	cing		N/A	inches		Cu	rrent (machin	e setting)	□ N/A	Amp	eres
Indication	Loc	Loc	Diameter	Length	Туре				Remarks		
No.	L	w	1		R/L						
N/A											
			1			\vdash	• •				
		+				-					
						-					
<u> </u>		<u></u>	<u> </u>								
Comments: None	•										
Results:	N	IRI 	RI]		Eval 🗀 _						
Percent Of	Coverage	Obtained	1 > 90%:	100%	Reviewed	Previ	ious Data:	Yes	Exam Time:	1515	
Examiner	Level	1)	/ Sign	afure 7	Date	Revie	ewer		Signature		Date
Wertman,	lustin		10	Toh	4/11/2013	WK	.THOMAS		ll	L	1.22.13
Examiner	Level	11	Sign	áture	Date		Review	1	Signature	1 1.1	Date
Hacker, Jo		EU/A	1/4/	alure	4/11/2013		ff odes Review	ald	fell of	912	3/3
Other N/A	Level	N/A	y siyn	ature	Date	AIVII	LICAICM (MI	Signature	Perles	Date
Magnetic Pari	ticle Exami	nation								-1111	

R1. Risk-Informed Piping Welds Subject to Thermal Fatigue

4.R1 IMPRACTICALITY OF COMPLIANCE

In accordance with 10CFR50.55a(g)(5)(iii), relief is requested from the "essentially 100 percent" volumetric examination coverage requirement for the identified piping welds. This requirement is considered impractical primarily due to single-sided access and configuration for these components.

Weld	Line #	Scan Coverage %	Enclosure	Exam Note 1	Exam Date	Page	Angle	Mode	Frequency	
2B	6"-RC-420	75%	R1-1	Up/CW/CCW	9/26/2011	50	45°	Shear	2.25MHZ	
		+ 4% BE		Up/CW/CCW		51	60°	Shear	2.25MHZ	
				Dwn		52	60°	Longitudinal	2.0MHZ	
7	3"-RC-615	50%	R1-2	Up/CW/CCW	4/13/2013	55	45°	Shear	5.0MHZ	
		+ 9% BE		Up/CW/CCW		56	60°	Shear	5.0MHZ	
				Up		57	70°	Shear	5.0MHZ	
				Down		58	70°	Shear	2.25MHZ	
NOTES	<u>ii</u>	Axial scan on the upstream side of weld								
	Dwn		exial scan on the downstream side of weld							
	CW	Circumferen	Circumferential scan in the clock-wise direction							
	ccw	Circumferen	tial scan in th	ne counter clock-wise	direction					

These examinations were performed manually using advanced ASME Section XI, Appendix VIII demonstrated procedures and techniques in accordance with the performance demonstration requirements. Based on access and physical limitations of these welds, alternative or other advanced technologies would not have provided complete coverage of the examination volume at the time of these examinations.

The attached enclosures include the complete Ultrasonic Examination Data Records for each Category R-A, Item R1.11, examination included in this request. Each report includes details of the UT scanning apparatus, including transducer size, frequency, angle, wave modality and insonification angles. Also included are scan plots for each of the examinations showing the piping configuration and percent coverage for each individual scan. No recordable indications were identified for any of these examinations.

Weld 2B (6"-RC-420), Reactor Coolant System Class 1, was a single-sided examination due to the nozzle to pipe configuration, limiting upstream scans. The weld is at the nozzle from Low Head Safety Injection into the Reactor Coolant cold leg (27 ½"-RC-409). Additional "Best Effort" (non-Code) scan with a 60 degree Longitudinal search unit obtained additional 4% total coverage of the downstream side of the weld. Additionally, liquid penetrant examination (LP) was performed with no identified indications. Weld 2B in Line# 6"-RC-420, is 1,500 lb., Type 316 seamless stainless steel piping, with welding filler metal SFA 5.4 E316L-16, SFA 5.9 ER316L, and or SFA 5.30 1N316L procured with 8-20 FN delta ferrite and 75ksi minimum tensile strength.

Weld 7 (3"-RC-615), Reactor Coolant System Class 1, was a single-sided examination due to the pipe to valve configuration, limiting upstream scans. The weld is on the Reactor Coolant drain line off the crossover leg at valve 2-RC-HCV-2557A. Additional "Best Effort" (non-Code) scan with a 70 degree shear search unit obtained additional 9%

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total coverage of the downstream side of the weld. Weld 7 in Line# 3"-RC-615, is 1,500 lb., Type 316 seamless stainless steel piping, with welding filler metal SFA 5.4 E316L-16, SFA 5.9 ER316L, and or SFA 5.30 1N316L procured with 8-20 FN delta ferrite and 75ksi minimum tensile strength.

The NAPS 2 Risk-Informed ISI Program is based on ASME Code Case N-716 as identified in approved request N2-I4-RI-001. These limitations have been evaluated as acceptable, with no impact on risk analysis, and no further actions necessary to provide reasonable assurance of pressure boundary leak tightness. Both of these welds are included in the Class 1 pressure boundary, receiving visual examinations at the beginning of each refueling outage as part of the Boric Acid Corrosion Control Program and VT-2 visual examinations at the end of the refueling outage once operating pressure and temperature is achieved before unit startup.

Both of these weld examinations were single-sided, but additional non-Code coverage was obtained (Best Effort Coverage) on the critical inside surface volume of both the weld and heat-affected area. These are additional measures that provide reasonable assurance that these welds are structurally sound. An effective examination program must include selections from different piping configurations, as well as selections from piping configurations categorized with different degradation mechanisms.

5.R1 BURDEN CAUSED BY COMPLIANCE

The physical configuration of these welds, nozzle to pipe and pipe to valve, confines inspection capabilities. Detailed sketches of the limitations and inspection areas achieved have been provided. No further actions can enable better examination coverage without destroying the component.

6.R1 PROPOSED ALTERNATIVE AND BASIS

These welds were selected as they are determined High Safety Significant with possible active degradation mechanisms. Selections were made based on plant specific operating experience or history of examination, weld repairs, random selection across different pipe sizes and configurations, and radiation concerns. These welds were selected, in part, because previous Section XI examination history exists. Comparison of examination results over time is critical to detect service induced degradation. Inspection of these particular welds are considered the best choice for meaningful examination results.

It is proposed that the examinations already completed at the reduced coverage be accepted for meeting the Code requirements. 100% of the pipe to valve welds were volumetrically examined from one side. No indications were discovered. The limited volumetric examinations performed should detect any general patterns of degradation that may occur in the areas covered, therefore providing reasonable assurance of the continued structural integrity of the subject weld. In addition, these welds receive a visual examination during the system leakage test. Therefore, any pattern of degradation should be detected by these examinations ensuring reasonable assurance of operational readiness.

The purpose of the inservice inspection (ISI) program is to assure the structural and pressure-retaining integrity of safety-related nuclear power plant components in

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accordance with the rules of the ASME Section XI Code and the requirements of 10 CFR 50.55a. Although Dominion could select only weld locations where greater than 90% examination coverage is possible (when available based on selection criteria), meeting the purpose of the Code requires selecting a mix of not only piping-to-piping welds (where essentially 100% coverage is more likely), but also piping-to-valve welds, piping-to-pump welds, piping-to-vessel welds, socket welds, nozzle-to-pipe welds, etc. The ASME Code allows only 50% Code coverage for single-sided examinations, and in cases other than most piping-to-piping welds, the majority of weld examinations are considered single-sided examinations.

NAPS Unit 2 4" Interval 1" Period Limited Exams Page 50 of 86	
Period Limited Exams	Serial No. 14-050
Page 50 of 86	Docket No. 50-339

Communication of the Communica	UT Calibratio	n/Examinatio	n		- V - 1.		· ·
Dominion Site/Unit: NAPS	1 2	Procedure:	ER-AA-NDE-UT-80	 2	Outage N	lo.:	N2R21
A CO. S ASSESSMENT OF SALE	.R1.11.267	Procedure Rev.:	1	-	Report N	lo.: U	T-11-046
Workscope:	ISI	Work Order No.:	59102346793		Pa	ge: 1	; of4
Code: 2004 Edition	Cat/Item:	R-A/R1.11	Location:		C loop		
Drawing No.: 12050-WMKS-0103B	N Description:	Elbow to Branch Conr	nection .		,		
System ID: RC							· .
Component ID: 12050-WMKS-0103BN / 6-RC-420 / 28	l .	! - ?	Size/Length: 1.10	0" / 21.0"	Thickness/Dia	meter: 0	.718" / 6.0"
Limitations: Single side exam due to configuration	n,	a'	Start T	ime:	1350 Finish	Time:	1410
Instrument Settings	Search Unit	Cal.	Time Date		Axial Orientated S	earch Unit	
Serial No.: 040182503	Serial No.: 00VJBX	Checks		Calibratio		Sweep	Sound Path
Manufacturer: Panametrics	Manufacturer: KBA	Initial Cal.	0710 09/26/2011 1350 09/26/2011	Reflecto		Division	
Model: EPOCH 4 Linearity: L-11-015	- ' · 	Inter Cel	1410 09/26/2011	1.0" Note		8.0	1.440"
Delay: 5.605 µs Range: 1.800" M'tl Cal/Vel: 0.1234 In/us Pulser: Square	Freq.: 2.25 Mhz. Center Freq.:	Inter Cal.	N/A	N/A		·	
M'il Cal/Vel: 0.1234 in/µs Pulser: Square Damping: 400 Ohms Reject: 0%	Example 45 Odunt Augr	e: N/A Final Cal.	1550 09/26/2011		 		
Rep. Rate: Auto. Freq.: 2.0 Mhz	Measured Angle:46*_ Mode: _	Shear	Couplant				1
Filter: 0.8 - 3.0 Mode: Fullway	Exit Point: 0.25" # of Eleme	ents: 1 Cal. Batch:	· · · · · · · · · · · · · · · · · · ·	Circ	cumferential Orienta	ted Search	Unit
Voltage: Mex. Other: N/A	Config.: Single: Focus:	N/A Type:	SoundSafe	Calibratio	n Signal	Sweep	<u> </u>
	Shape: Round Contour:	N/A Mfg.:	SONOTECH	Reflecto		Division	Sound Path
Ax. Gain (dB): 8.2 Circ. Gain (dB): N/A	Wedge Style: MSWQC	Exam Bato	:h: 07220	N/A	- !		
10 Screen Div. = 1.800 In. of Sound Path	Search Unit Cable	Type:	SoundSafe				
OCIOSII DIV. D	Type: RG 174 Length: 6' No.	. Čohn.: <u>0.</u> Mfg.: —	SONOTECH			<u> </u>	
Calibration Block	· Scan Coverage					. 54)	ــــــــــــــــــــــــــــــــــــــ
Cal. Block No.: 10876 Thickness: 2.25" Dia.: Flat	— Upstream 🛃 Downstream 🔲 Scar	n dB: 20.2 Ref	erence Block	Gain	Reference/Simul	Sweep	
	CW ✓ CCW ✓ Scar	n dB: ∀26.2 Serial No.:	05-8258		eflector Amplitude 9		Sound Path
Cal. Blk. Temp:: 71° Temp. Tool: 07	Exam Surface: OD		SS Rompus Block	8.2	FSDH 20%	5.9	1.060
Comp. Temp.: 82° Temp. Tool: 07	Surface Condition: Contour C	Ground		N/A		<u> </u>	
Recordable Indication(s): Yes No	(If Yes, Ref. Attached Ultrasonic Indic	ation Report.)	· · ·		<u> </u>	1	ـــــنــــنـــــنـــــــنـــــــــــــ
Results: Accept ✓ Reject ☐ C	Geom 🗀				rformed on Upst. an C see previous data		
Percent Of Coverage Obtained > 90%: No	Reviewed Previous Data:	res		J. 10. 1 L	· · · · · · · · · · · · · · · · · · ·	· ·	1-00-000.
Examiner Level 11-PD1	Signature C	Pate Reviewer	:		Signature		Date
Knott, Brian D. Shank L. Kno	09/26/2	OIT W.L. Tiloma	<u> </u>	•			10-12.11
Examiner Level II-PM	4 3	Site Review		1	Signature !		Date
Zollner, Brian D	09/26/2	3077 -017	gand 2	All a	<u>-i</u>	/0	13/11
Other Level N/A	Signature D	Date ANII Review	M	11	Signature		Date
N/A	•			1	- /0//	111	

ENCLOSURE

R1-1

	NAP	
	VAPS Unit 24"	
	ⁿ Interval	
-	4 th Interval 1 st Period Limited Ex	Dock
7	imited Ex	Docket No. 50

UT Calibration/Examination ER-AA-NDE-UT-802 Procedure: N2R21 Site/Unit: NAPS Outage No.: UT-11-046 Summary No.: N2.R1.11.287 Procedure Rev.: Report No. Workscope: ISI Work Order No.: 59102346793 Page: 2 Ć loop Code: 2004 Edition Cat/Item: R-A/R1.11 Location: Drawing No.: 12050-WMKS-0103BN Description: Elbow to Branch Connection System ID: 12050-WMKS-0103BN / 6-RC-420 / 2B 1.10" / 21.0" Thickness/Diameter: 0.718" / 6.0" Component ID: Size/Length: Limitations: Start Time: 1411 1437 Single side exam due to configuration. Finish Time: Instrument Settings Search Unit Cal. Axial Orientated Search Unit Time Date Serial No.: 01CLN0 040182503 Serial No .: Checks Calibration Signal Sweep Sound Path Initial Cal. 0728 09/28/2011 Manufacturer: **Panametrics** Manufacturer. **KBA** Reflector Amplitude % Division 08/26/2011 Inter. Cal. 1411 **EPOCH 4** Model: Unearity: L-11-015 Size: 0.375" Model: Comp-G 1.0" Notch 80% 8.0 1.743" Inter, Cal. 1437 09/26/2011 Delay: 7,195 µz Range: 2.180" Center Freq.: N/A N/A Freq.: 2.25 Mhz. Inter. Cal. N/A M'tl Cal/Vel: 0.1265 ln/µs Pulser. Square N/A 80° Squint Angle: Exam Angle: Final Cal. 1558 09/26/2011 400 Ohms Damping: Reject: .0% Messured Angle: 59* Mode: Shear Couplant Rep. Rate: 2.0 Mhz. Auto. Freq.: Exit Point: 0.25 # of Elements: Circumferential Orientated Search Unit Cal. Batch: 07220 0.8 - 3.0Filter: Mode: Fullwave Config.: Single Focus: Type: SoundSafe Calibration Signal Sweep .Voltage: Max. Other: N/A Sound Path Shape: Round Contour: N/A Reflector Amplitude % Division SONOTECH Mfg.: Wedge Style: **MSWQC** N/A Ax. Gain (dB); 24.0 Circ. Gain (dB): N/A Exam Batch: 07220 Search Unit Cable Týpe: SoundSafe Sound Path .10 - Screen Div. = 2.180 Type: RG 174 Length: 6' No. Conn.: SONOTECH Calibration Block Scan Coverage Reference/Simulator Block Cal. Block No.: 10876 Upstream Downstream Scan dB: 36.0 Reference Block Gain Signal Sweep Thickness: 2,25" Flat Sound Path Serial No.: 05-8258 CW 🔽 CCW Scan dB: 42.0 ₫B Reflector Amplitude % Division Cal. Blk. Temp.: 71° Temp. Tool; 07 SS Rompus Block Type: OD 24.0 FSDH 45% 6.7 1.458" Exam Surface: Comp. Temp.: 82° Temp. Tool: 07 N/A Surface Condition: Contour Ground Recordable Indication(s): Yes 🔲 No 🔽 (If Yes, Ref. Attached Ultrasonic Indication Report.) Results: Comments: Effective coverage using the 60° search unit has been Accept 🔽 Reject [Geom 🗍 verified by the presence of the weld root response Percent Of Coverage Obtained > 90%: Nσ Reviewed Previous Data: during the required scans, Circ. Scans performed Upst. Yes Examiner Signature -Date Reviewer Date II-PDI Knott, Brian D 09/26/2011 JL. ILLUMA Signature Examiner Level Site Review Signature Date Date Zoliner, Brian D 09/26/2011 Jeff Odeclard Other Signature Date **ANII Review** Date N/A Signature N/A

	NAPS Unit 2 4 th Interval 1 st Period Limited Exams	;	
Page 52 of 86	Period Limited Exams	Docket No. 50-339	Serial No. 14-050

			•	U	T Calibratio	n/Exan	ninatio	n					•	
Domi	nion Site/Ur	nit: NAPS	1	2		Proce	dure:	ER-A	A-NDE-UT-80)2		Outage N	o.;	N2R21
,	Summary N	o.:	N2.R1.1	1.267	-	Procedure	Rev.:		1		- .	, Report N	o.: U	T-11-048
	Workscop	DB:	ISI		<u> </u>	Work Orde	r No.:	59	102346793		_	Pa	ge: 3	of 4
Code:	20	04 Edition			Cat./Item:	R-A/R1.11	1	. • 1	ocation:		, i 'm,, ;	C toop		
Drawing No.:		12050-WMKS-01	D3BN		Description:	Elbow to B	ranch Conn	— ieċtlon	-			N		
System ID:	RC	· · · · · · · · · · · · · · · · · · ·										1		
Component ID:	: 12050-WMKS-01	03BN / 6-RC-420	/ 2B		······································			Size/L	ength: 1,1	0" /.21.0		Thickness/Dia	meter: 0	.718" / 6.0"
Limitations:	Single side exan	n due to configu	ration.						Start 7	ime:	1439	Finish	Time:	1444
	Instrument Set	tings			Search Unit		Cal.	Time	Date		Axial	Orientated Sc	arch Unit	
Serial No.:		0182503		Serial No.:	06-108		Checks			Calibra	ation ·	Signal	Sweep	Sound Path
Manufacturer:		ametrics		Manufacturer:	RTD	:	Initial Cal.	_	09/26/2011	Refle	ctor A	mplitude %	Division	Storio Faul
	OCH 4 Linearit	· 				RL2-AUST	Inter. Cal.	_	09/26/2011	1.0" N		80%	8.0	1.935
Delay:	8.935 µs	· —		req.: 2.0 M	hz. Center Freq.:	N/A	Inter. Cal.	N/A	30/20/2317	, NJ.	A -		· ·	
	0.2323 (n/µs			Exam Angle:	60° Squint Ang	le: <u>3°</u>	Final Cal.	 	09/26/2011		}		•	+ ` · · ·
Damping:	400 Ohms			Measured Ang	le: 59° Mode: L	ongitudinal		Couplan				1		
Rep. Rate:	Auto.	· · · · · · · · · · · · · · · · · · ·		Exit Point:	0.35" # of Elem	ents: 2	Cal. Batch:	•	7220	<u> </u>	liccumfor	ential Orienta	ted Search	linit
	0.8 - 3.0 Mhz			Config.:	O-SBS Focus:	FD.0.6"	Type:	Sound		Calibr		Signal	Sweep	1
Voltage:	Max.	Other: N	<u>//A</u>	Shape: Reta	engutar Contour:	Flat	Mfg.:	SONO		Refle		Amplitude %	Division	Sound Path
				Wedge Style:	Integra	·				N/	A	4		1
Ax. Gain (dB):	42.3 Cin	· · · · · · · · · · · · · · · · · · ·	N/A	1	Search Unit Cable	• •	Exam Bato		07220			:		
10 Screen C	Div. = <u>2.420</u> in. c	Sound P	ith ·	Type: RG 17	4 Length: 6' No	o. Cann.: 0	Type:	Sound						
	Calibration B	lock			Scan Coverage		Mfg.:	SUNU	·				,	
Cal. Block No.;	;	10876	<u> </u>	Jostream 🗀 ,	Downstream Sca	n dB: 42.3	Ref	erençe B	liock .	<u> </u>	Refe	rence/Simula	·	····
Thickness:	2.25" Dia	.; Flat		cw□	CCW∏ Sca	m dB: N/A	Serial No.:	. 0	5-8258	Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
Cal. Blk. Temp	.: <u>71°</u> Temp. Too	l: <u>07</u>		Exam Surface	: oó	. —	Type:S	3S Romp	us Block	37.9	FSDH	80%	6.0	1.456"
Comp. Temp.:	82° Temp. Too	i: <u>.07</u>		Surface Condi	tion: Contour	Ground			•	N/A	, i	i		
Recordable In	rdication(s):	Yes No	☑ · (If	Yes, Ref. Atta	ched Ultrasonic Indic	cation Report	.)							. ,
Results:	Accept 🗸	Reject 🗌	Geom				-	, Co	mments: Util	lized for	coverage	on nozzle sid	e of weld.	
Percent Of Cov	verage Obtained > 9	90%: No		Reviewed Pre	vious Data:	Yes								
Examiner	Level 711-PDI		, Sign	ature	1	Date Revie	wer		· ·		Signat	פיע		Date
Knott, Brian D		in X	nott		09/26/2	2011 W.L.	Tyoms	•		11.7	AL		i	10.12.11
Examiner	CLEVEL II-DI	2- ~	Sigr	ature			Review			-	Signat	ure	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Date
Zollner, Brian	םו	The sold)		09/26/2	2011 Jef	<u> 6 ode</u>	Dan	<u> ජ</u>		1/10		26	13/11
Other	Level N/A	0	Sigr	ature	1	Date ANII I	Review	-	DOL	1 4	Signa	ure	/	Date
N/A						1			19110			.	/ /	_



Report No: UT-11-046 Summary # N2.R1.11.267

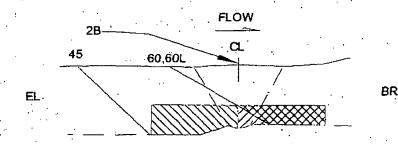
Pq. 4 of 4

Prepared By: W.L. Thomas

Date:

10/12/2011

Weld Number 2B ...Thickness----724" Weld Length 21" Weld Width 1.1"



WIDTH X .241" HT = .25 SQ. IN. = REQUIRED VOLUME US SIDE EXAMINED 100% OF THE REQUIRED VOLUME US SIDE.

EXAMINED .04 SQ IN. OF THE REQUIRED .25 SQ. IN. DS SIDE AX DIR BEST EFFORT. .04 / .25 = 0.16 X 100 = 16%. BEST EFFORT BRANCH SIDE AX DIRECTION.

NO EXAM 21 SQ IN. OR 84% AX DIRECTION DS SIDE CIRC EXAM DS SIDE WAS NOT LIMITED.

Initial C HSB-CT

Examination Volume Dimensions - Height

0.241 Length

21"

Width

2.1"

			e Summary	·	
	Required Sc	ans (each has a weighir	ng factor of 100 for co	mplete coverage) .
ANGLE	UpSt-Ax	UpSt-Circ	DnSt-Ax	DnSt-C	irc
45/60	100%	100%		100%	
60L			*16%		
	1		Code Co	overage Total	75%
		* Bes	t Effort Coverage (Ma	x 25%) Total	4%

Notes:

- 1) Code Coverage refers to the maximum percentage of the required examination volume that is effectively examined with the qualified examination procedure.
- 2) Best Effort Coverage refers to the required examination volume past the weld centerline that is examined in the axial beam direction with an Appendix VIII demonstrated procedure for single sided coverage.

Liquid Penetrant Examination

Don Don	บทรงก										
· Site/U	nit: N	APS'	1 2		Procedur	e: <u>E</u>	R-AA-NDE-PT-300	<u>)</u> Ou	itage No.: _	N2	R21
Summary N	lo.:	N2.R	1.11.267		Procedure Rev	/:: <u>/ </u>	6	R	eport No.: _	PT-1	1-029
.Workscop	pe:	0	WN ··		Work Order No); <u>5</u>	59102358434		Page:	1	of <u>. 1</u>
ode:	200	4 Edition	T.	Cat/	tem: R-A/R1	.11	Location:		C loop		a a supplicar
rawing No.	12	050-WM	KS-0103BI	V	Description: E	lbow to	Branch Connect	ion			
System ID:	RC	•									•
component l	D: 12050	-WMKS-0	0103BN / 6	-RC-420 /	2B	7.5		Siz	e/Length:	3/4"	/ 20.8
imitations:											
Light Meter	Mfg.:	Æ	MC Instru	nents	Serial No.		AEMC-4	Illumina	tion:	144 fe	G .
Temp. Tool							1071BGCY	Su	rface Temp	s. <u>8</u>	2°F
Comparato	r Block Tei	mp.: =8	Side A:N	<u>//A</u> °F	Side B: N/A	*F.	Resolution:		Not Us	eď	
Lo/Wo Loc	•			l/A			ce Condition:		ontour Gro	und	
-,		Cleaner	Nos.		Penetrant		Remover		, De	evelope	<u> </u>
Brand	M	AGNAFL	UX .	ñ	MAGNAFLUX	15.7	MAGNAFLU	x	. MAC	SNAFLI	אנ
Туре		SKC-S			SKL-SP1		SKC-S		S	KD-\$2	
Batch No.		09L08K			09J07K		09L08K		0	6C05K	
Time	Evap.	3 Mil	nutes	Dwell	10 Minutes	E	vap. 0 Minu	tes	Develop	10 N	Inutes
	Time Exa	ım Starte	d:	0251	·	Tin	ne Exam Complete	ed: (0333		
Indication	. Loc	Loc	Diameter	Length	Туре			Remarks	(•	<u> </u>
No.	L	w			. R/L		· · · · · · · · · · · · · · · · · · ·				
N/A							• **				
					1.						,
				•							
	·								· · · · · ·		·········
Comments	<u>. </u>	<u> </u>	اـــــــــــــــــــــــــــــــــ					• • • • • • • • • • • • • • • • • • • •			
Flashlight	used for i	lluminat	ion.								
				•					·		•
Results:	-	ept 🗸	Reject	_	Eval 🗍		11-170				
Percent Of	Coverage	Obtained	1 > 90%:		es	Reviev	wed Previous Data		N/A	-	
Examiner	Level	li	Sign	ature	Date Page Pa	Reviewe	r .	\$	ignature		Date
Mix, Bridge Examiner	Level]]	and	ature		NA Site Rev	ievA C	(\ s	inneture /		,Date
Porter III, F	Robert E.	R	2/3		9/20/2011	Denni	St. STRICKLAN	a hui	mil	19	21/4
Other N/A	Level	N/A	Sign	ature	Date	ANII Rev	NA NA	S	ignature	-7	Date
					t		[V f./				

Liquid Penetrant Examination

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 55 of 86

				UIC	andiano	III/ L.Xai	matio	11						
Dominio	n Site/Unit:	NAPS	<i>I</i>	2		Proce	dure:	ER-	AA-NDE-UT-8	02	_	Outage N	o.:	N2R22
	Summary No.:	N	2.R1,11.437			Procedure	Rev.:		2			Report N	o.: U	T-13-016
	Workscope:		ISI			Work Orde	r No.:				_	Pag	ge: 1	of 6
Code:	2004 E	dition		Cat./Ite	əm:	R-A/R1.11		_	Location:			A loop		
Drawing No.:	1205	0-WMKS-01030	В		Description:	Pipe-to-val	V 0							
System ID: RO	3												_	
Component ID: 12	050-WMKS-0103CI	B/3-RC-615/7						Size/l	ength: 0.9	90" / 11.0		Thickness/Dia	meler: 0	.438" / 3.0"
Limitations: Sin	ngle sided exam d	ue to downstre	am valve 2-RC-	HCV-2557A	•				Start "	Time:	0132	Finish	Time:	0145
	Instrument Setting	5	, 	Sea	rch Unit		Cal.				Avial	Orientated Se	aarch Hait	
Serial No.:	<u>0</u> 1XK	03	Serial No.	.:	01CP6Y		Checks	Time	Date	Calibr		Signel	Sweep	T
Manufacturer:	Krautkri	amer	Manufact	лет:	KBA		Initial Cal.	2050	4/12/2013	Refle		mplitude %	Division	Sound Path
Model: USN 60 S		L-13-009	Size:	0.25"	Model:	Comp-G	Inter, Cal.	0132 N/A	4/13/2013	0.5" N	lotch	80%	5.8	0.718"
· ——		ange: 1.250		i.0 MHZ	Center Freq.:	N/A	Inter. Cal.	N/A		<u> </u>				<u> </u>
	11 in/µs Pulser Pulser R		Exam Ang	le: <u>45°</u>	_ Squint Angl	B: N/A	Final Cal.	0306	4/13/2013	}				ļ
, , ,		oject: <u>0%</u> Freq.; 5.0 MF	— Measured	Angle: _4	Mode: _	Shear		Couplar	nt	 	-+			
		ectify: Fullwa	—— Exit Point ve		# of Eleme		Cal. Batch:	-	07220		Circumfer	ential Orienta	led Search	Unit
· · · —	I50 Puise V	Vidth: 100	Config.:	Single	Focus: _	N/A	Type:	Soun	dSafe	Calibr	ation	Signal	Sweep	C D-11
	 _		Shape.	Round	_ Contour:	N/A	Míg.:	SONO	TECH	Refle	ctor A	mplitude %	Division	Sound Path
Ax, Gain (dB):	18.5 Circ. Ga	in (dB): N/A	Wedge Si	·	MSWQC	·	Exam Bato	h:	07220	N/	Α			
10 Screen Div. =	1.250 in. of	Sound Path	Tuno- B		Unit Cable	Conn : 0	Type:	Soun	dSafe					
	Calibration Block		туре		ngth: 6.0' No.	. 00///0	Mfg.:	SONO	TECH					
Cal. Block No.	1087		U sekssesses		Coverage	- 4D. 2C.E	Refe	erencs E	Block		Refe	rence/Simula	tor Block	
Thickness 2.2	25" Dia.:	0	— CW		ream		Serial No.:		5-6533	Gain dB	D-81	Signal Amplitude %	Sweep	Sound Path
Cal. Blk. Temp. 7	1° Temp. Tool:	07	Exam Sur		OD OD	1 u.b. 36.5			ous Block	18.5	SDH	70%	8.4	1.046"
Comp. Temp. 67	7° Temp. Tool:	07	Surface C		Grou	nd		······································		- 10.0		1		
Recordable Indica	tion(s): Yes	No [✓]		· -	litrasonic Indic		Y							
			Geom ["]			•	•	Co	mments: No	ne				
		™ ∟) No		i Previous D	Notes	N/A								
Percent Of Coverage		INO		i Previous L							Signat		110-4	Date
Examiner Zoliner, Brian D	Level II-PDI	- 201	Signature 7		4/13/2	1	Mongs				Signa			
	Level N/A	- XIII	Signature			ate Site R					Signate	11ピック		4 · 22 · 13 Date
N/A	INM	0			_	Jef	Fode	כונירי	4	The second	است		4/	29/13
Other	Level N/A	······································	Signøture		a	ate ANII F	leview			n	Signati	ıre	/ .	Dale
N/A										[[]]	<i>[</i>	e 41	30/13	[

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					0.0	dibianc	/II/ L. XQII	IIIIalio				•				
Bomin	ion Site/U	nit: N	APS	1	2		Proce	dure:	ER-	AA-NDE-UT-8	02 	· -	Outage N	lo.:	N2R22	
	Summary N	lo.:	N2.1	R1.11.437			Procedure	Rev.:		2		_	Report N	lo.: <u>U</u>	T-13-01B	
	Worksco	pe:		ISI			Work Order	r No.:					Pa	ge: <u>2</u>	of <u>6</u>	
Code:	2	004 Edition			Cat./I	lem:	R-A/R1.11		_	Location:			A loop			_
Drawing No.:		12050-WM	(S-0103CB		` .	Description:	Pipe-to-valv	ve								
System ID:	RC															_
Component ID:	12050-WMKS-01	103CB / 3-R	C-615 / 7						Size/L	ength: 0.9	00" / 11.0	"	Thickness/Dis	metor: 0	.438" / 3.0'	
Limitations:	Single sided ex	am due to d	lownstream	valve 2-R0	C-HCV-2557	Α				Start '	Time:	0146	Finish	Time:	0155	
	Instrument Se	ttings			Se	arch Unit		Cal.	Time	Date		Axia	I Orientated S	earch Unit		
Serial No.:	(1XK03		Serial N	o.:	01CP6X		Checks			Callbr		Signal	Sweep	Ī	_
Manufacturer:		autkramer		Manufac		КВА		Initial Cal.	2112	4/12/2013	Refle	ctor	Amplitude %	Division	Sound Pa	ın
Model: USN 8			-13-009	- Size: _	0.25"		Comp-G	inter, Cal. Inter, Cal.	0146 N/A	4/13/2013	0.5" N	lotch	80%	5.4	0.940"	_
· ——	.2169 µs	Range:	1.750"		5.0 MHZ	Center Freq.:	N/A	Inter. Cal.	N/A		ļ				<u> </u>	\dashv
		alser Type:	Square 0%	Exam A				Final Cal.	0307	4/13/2013		-			 	\dashv
	00 Ohms uto High	Reject: SU Freq.:	5.0 MHZ	-		61° Mode: _	Shear		Couplar	nt			·			
	5.0 MHz	Rectify:	Fullwave	_ Exit Poir				Cal. Batch:		07220	(Circumfe	rential Orienta	ted Search	Unit	
Voltage:		ılse Width:	100	Config.: Shape:	Single	Focus: Contour:	N/A N/A	Туре:	Soun	dSafe	Calibr		Signal	Sweep	Sound Pa	th
		• •	···	— Gliape: Wedge:		Contour		Mfg.:	SONO	TECH	Refle	 }-	Amplitude %	Division		_
Ax. Gain (dB):	35.0 Cir	c. Gain (dB)	: N/A	- wedge		h Unit Cable	<u></u>	Exam Bato	h:	07220	N/	A			<u> </u>	-
10 Screen Div	v,= 1.750 in.	of So u	nd Path	Type:		ength: 6.0' No	. Conn.: 0	Туре:	Soun							٦
	Calibration E	Block				n Coverage	_	Mfg.:	SONO	TECH						
Cal. Block No.		10873		Upstrear	n 🗸 Downs	stream ∏ Sca	n dB; 47.0	Refe	erence E	Block		Re	ference/Simula			_
Thickness	2.25" Dia	ı.:	0	CV	v ☑	CCW ✓ Sca	n dB: 47.0	Serial No.:	0	5-6533	Gain dB	Reflecto	Signal or Amplitude %	Sweep Division	Sound Pa	I h
Cal. Blk. Temp.	71° Temp. Too	ol:	07	_ Exam S	urface:	OD		Type: S	S Rom	ous Block	35.0	SDH	45%	8.6	1.499"	
Comp. Temp.	67° Temp. Too		07	- Surface	Condition:	Grou	nd							 		4
Recordable Indi	ication(s):	Yes 🗌	No 🔽		ef. Altached	Ultrasonic Indic	ation Report.)								_
Results:	NRI 🕢	RI 🗌	Ge	om 🗌					Со				ising the 60° sence of the wel			
Percent Of Cove	roge Obtained > 1	90%:	No	Review	ed Previous	Data:	N/A			du	ring the r	equired	scans,	_		_
Examiner	Level II-Bet	7		Signature			Date Review	wer				Sign	aluro		Dat	e
Zollner, Brian D)	St. S	000-	. <i>'</i>	<u></u>	4/13/2	<u> </u>	HOMAS				11			1.22.13	╛
Examiner	Level N/A		.!	Signature			Date Site R	- 1		,	A	ير Signa سيريهمس	ature	/ 	Dat	۱۹
N/A	Lourd Acc			Signature			Date ANII R	F Od CC	DCU/4	<u> </u>		Signe	dura	7/	77/13 Dat	
Other N/A	Level N/A		•	oifi iaini a			Zaid Filli	10 115 17		•			1	al.	12/17	1
.,							1					101	<u>/</u>	<u>~~~ 7/ v</u>	(1) "	

UT Calibration/Examination

Dominic	site/Unit:	NAPS	/ 2		iatio	Proce			AA-NDE-UT-8	02		Outage N	0.:	N2R22	!
	Summary No.:	N2	2.R1.11.437			Procedure	Rev.:		2		_	Report N	o.: U	T-13-01	16
	Workscope:		isi			Work Orde	r No.:				_	Pag	ge: 3	of	6
Code:	2004 E	dition		Cat./Item:		R-WR1.11		_	Location:			A loop			
Drawing No.:	12050	-WMKS-0103C	В	Desc	ription:	Pipe-to-val	ve								
System ID: R	C														
Component ID: 12	050-WMKS-0103CB	/ 3-RC-615 / 7						Size/L	ength: 0.9	90" / 11.0	u	Thickness/Dia	meter: I	.438" /	3.0"
Limitations: Si	ngle sided exam du	e to downstrea	m valve 2-RC-H	CV-2557A.					Start 1	Time:	0156	Finish	Time:	020	4
	Instrument Settings		6-111-	Search U			Cal.	Time	Date		Axia	Orientated Se	arch Unit		
Serial No.: Manufacturer:	01XK0 Krautkra		Serial No.: Manufactur		KBA		Checks Initial Cal.	2126	4/12/2013	Callbr Refle		Signal Amplitude %	Sweep Division	Soun	d Path
Model: USN 60	SW Linearity:	L-13-009	Size:	0.25" Mo	odel: (Comp-G	Inter, Cal.	0156	4/13/2013	0.5" N	lotch	80%	5.7	1.4	45"
Delay: 6.4	231 µs Ra	nge: 2.560"	Freq.: _5.0	MHZ Center	r Freq.:	N/A	Inter, Cal.	N/A							
M'ti Cal/Vel:0.12	41 In/μs Pulser T	ype: Square	Exam Anglo	e: 70º Squ	uint Angle	o: N/A	Inter, Cal. Final Cal.	0309	4/13/2013					<u> </u>	
Damping: 500	Ohms Re	ject: 0%	Measured A	Angle: 70° I	Mode:	Shear								<u> </u>	
PRF: Aut	o High SUF	req.: 5.0 MH	Z Exit Point	0.30" #	of Eleme	nts: 1		Couplar		<u> </u>		1.10.1.1.1		11.46	
Frequency: 5.0	MHz Rei	ctify: Fullway	e Config.:	Single F	ocus:	N/A	Cal, Batch:		07220	 		ential Orlenta		Unit	
Voltage:	450 Pulse W	idlh:100	Shape:	Round Cor	ntour:	N/A	Type:		dSafe	Calibr Refle		Signal mplitude %	Sweep Division	Soun	d Path
			Wedge Sty	le:	MSWQC		Mfg.:		TECH	N/				+	······
Ax. Gain (dB):	46.0 Circ. Gai	n (dB):N/A		Search Unit	Cable		Exam Bato		07220						
10 Screen Div.	= 2.560 in. of	Sound Path	Type: RG	-174 Length:	6.0° No.	Conn.: 0	Type:		dSafe						
	Calibration Block			Scan Cover	age		Mfg.:	SONO	TECH					<u> </u>	
Cal. Block No.	1087	3 .	Upstream [Downstream)	 Scan	dB: 46.0	Ref	orence l	Block		Ref	erence/Simula		r	
Thickness 2.3	25" Dia.:	0	cw F	d ccwi	Scan	dB: N/A	Serial No.:	0	5-6533	Gain dB	Reflecto	Signal Amplitude %	Sweep Division	Soun	d Path
Cal. Blk. Temp. 7	1° Temp. Tool:	07	Exam Surfe	_	OD		Type:S	S Rom	pus Block	46.0	SDH	85%	3.7	0.9	44"
Comp. Temp. 6	7° Temp. Tool:	'07	- Surface Co		Groun	nd									
Recordable Indica	ıtlon(s): Yes			Attached Ultraso	nlc Indica	ation Report	.)				<u> </u>	<u></u>		<u> </u>	
Results:	NRI 🗾 🛛 F	u 🗍 💢	Geom []					Co	mments: No	ne					
Percent Of Covere	ge Obtained > 90%;	No	Reviewed	Previous Date:	N	I/A									
Examiner	Level II-PP	~	Signature			ate Review					Signa				Date
Zollner, Brian D		- 200c			4/13/20	113 W.L.	HU MAS				40			4.27	
Examiner	Level N/A	\mathcal{O}	Signature		Da	ate Site R			(1	Signa' میر سرسده	ture //		/ /	Date
N/A							Fod	<u>دیء</u>	NG	(P)	م موجب	7/100	41.	(1/1	3
	Level N/A		Signature		Da	ate ANII F	leview			/	Signa:	ure	/	/	Date
N/A						1					11 11	- 4	LI FORM	110	

ENCLOSURE R1-2

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Domin	aion Site/U	Jnit: N	IAPS	1	2		Proce	edure:	ER-	AA-NDE-UT-8	02		Outage N	۷o.:	N2R22
	Summary N	lo.:	N2.	R1,11.437			Procedure	Rev.:		2		_	Report N	10.: U	T-13-016
	Warksco	фе;		ISI			Work Orde	r No.:				-	Pa	nge: 4	of 6
Code:	2	2004 Edition			Cat	I/Item:	R-A/R1.1	1		Location: \			A loop		
Drawing No.:		12050-WM	KS-0103CB			Description:	: Pipe-to-val	ve							
System ID:	RC											•			
Component ID:	12050-WMKS-01	103CB / 3-R	C-615 / 7						Size/l	Longth: 0.9	90" / 11.0	•	Thickness/Dia	ımeter: 0	.438" / 3.0"
Limitations:	Single sided ex	am due to d	iownstrear	n valve 2-R	C-HCV-255	57A.				Start	Time:	0205	Finist	ı Time:	0211
	Instrument Se	ttings			8	Bearch Unit		Cal.	7			Δvial	Orientated S	earch Unit	
Serial No.:		01XK03		Serial N	ło.:	01CWK5		Checks	Time	Date	Calibr		Signal	Sweep	
Manufacturer:	Kra	autkramer		Manufa	clurer:	КВА		Initial Cal.	2152	4/12/2013	Refle		Amplitude %	Division	Sound Path
Model: USN 6	60 SW Lineari	ty; L-	-13-009	Size: _	0.25"	Model:	Comp-G	Inter, Cal.	0205	4/13/2013	0.5" N	lotch	B0%	5.3	1.352"
Delay:	6.3834 µs	Range:	2.560"	Freq.: ,	2.25 MHZ	Center Freq.:	: <u>N/A</u>	Inter, Cal.	N/A						
M'ti Cal/Vel: 0).1241 ln/s Pu	ulser Type: _	Square	Exam A	ingle:7	0° Squint Ang	gle: N/A	Final Cal.	0311	4/13/2013	<u> </u>				ļ
	500 Ohms	Reject:	0%		ed Angle:	68° Mode:	Shear		Coupler	<u> </u>					 -
	Auto High	` -	2.25 MHZ	- LAKEON	int 0.2	20" # of Elem	nents: 1	Cal. Batch:	• .	07220	 		ential Orienta	Lod Sparot	· flait
· · —	2.25 MHz	Rectify:	Fullwave	Config.:	Sìng	le Focus:	N/A	· Type:		o/220 idSafe					T
Vollage:	450 Pt	ulse Width: _	220	Shape:	Round	d Contour:	N/A	· Mfg.:		OTECH	Calibra Refle		Signal Amplitude %	Sweep Division	Sound Path
				Wedge	Style:	MSWQ	C	·			· N/	Α		-	<u> </u>
Ax. Gain (dB):	48.0 Cir	rc. Gain (dB):): <u>N/A</u>		Sear	rch Unit Cable		Exam Batcl		07220					
10 Screen Di	iv. = 2.56 (n. c	of Sou	and Path	Туре:	RG-174	Length: 6.0' No	o. Conn.: 0	Type:		odSafe					
	Calibration E	3lo c k			Sc	an Coverage	*	Mfg.:	SUNU	OTECH	<u></u>	1_			1
Cal. Block No.		21588		Upstream	m 🔲 Dow	vnstream 🕡 Sca	an dB: 48.0	Refe	erence (Block	L	Refe	erence/Simula		
Thickness	3" Dia	1.:	0		w 🗌	CCW Sca		Serial No.:	0	5-6533	Gain dB	Reflector	Signal r Amplitude %	Sweep Division	Sound Path
Cal. Blk, Temp.	71° Temp. Too	ol:	07	- Exam S		OD		Type: S	S Rom	pus Block	38.0	SDH	50%	3.2	0.816"
Comp. Temp.	67° Temp. Too	ol:	D7:		Condition:	Grou	und	-							
Recordable Ind	lication(s):	Yes 🗍	No 🔽			d Ultrasonic Indi		.)		,			<u> </u>	<u> </u>	<u></u>
Results:	NRI 🗹	RI 🗌	Ge	eom 🗌		•	-		Co	omments: Util (va		best effor of the we		the down	stream
Percent Of Cove	erage Obtained > !	90%:	No	Review	ved Previou	ıs Date:	N/A			· · · · · · · · · · · · · · · · · · ·					
Examiner	Level II-PD		$\overline{}$	Signature			Date Revie	wer		<u></u>		Signat	nl. A		Date
Zollner, Brian I	•	Bi	1000s			4/13/2	<u> </u>	Homas				712		<u>_</u> _	1-22-13
Examiner	Level N/A		0	Signature			Date Site R	Review	,	,	1	Signal و میررید	ure	/	Date
N/A							<u>Je f</u>		حجام	<u>ina</u>	- Comme	1		4/2	19/13
Other	Level N/A			Signature		İ	Date ANII F	Review	~~		1	Signat	ure	1	Date i
N/A											1//	1		4/30	15

Supplemental Report

nine C	ion				Report No.:		T-13-01	
		Level: II-PDI Level: N/A Level: N/A		WL. THOMAS Jeff odego	Page:	Date:		.13
Commer	nts: T+C		FL	·				
		.	.448 [~]	.501"	7			
		Pipe		-	VALVE			

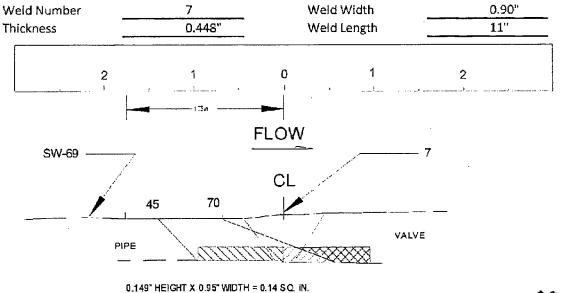


Report No: UT-13-016 Summary # N2.R1.11.437

Pg. 6 of 6

Prepared by: W. Thomas

Date: 4/22/2013



TOTAL REQUIRED VOLUME = 0.14 SQ. IN.

VEXAMINED 100% OF THE REQUIRED VOLUME US SIDE

ANI / ANII _______ HSB GS / Reviewed _______4/_30/13

Midth

EXAMINED 0.05 SQ. IN. BEST EFFORT

.05 / .14 = 0.36 X 100 = 36% BEST EFFORT DS SIDE AX DIRECTION

🔀 NO EXAMINATION DS SIDE AX DIRECTION = 64%

Examination	volume Dimensions -	Height	U.149	Lengu	7.7	widen	1.5
		Covera	ge Summa	ary			
	Required Scans (e	each has a w	eighing fa	ctor of 100	or compl	ete coverag	ge)
ANGLE	UpSt-Ax	UpSt-Ci	rc	DnSt-A	x	DnSt-	Circ
45/60		100%				0%	
70	100%						
70 2.25 Mhz				*36%			
				.:			
_				Code	Coverage	e Total	50%
100+100+0+	36=236/4=59	*	Best Effort	t Coverage (Max 25%) Total	9%
• • • • • • • • • • • • • • • • • • • •							

Notes:

- 1) Code Coverage refers to the maximum percentage of the required examination volume that is effectively examined with the qualified examination procedure.
- 2) Best Effort Coverage refers to the required examination volume past the weld centerline that is examined in the axial beam direction with an Appendix VIII demonstrated procedure for single sided coverage.

R2. Risk-Informed Piping Welds Not Subject To A Degradation Mechanism

4.R2 IMPRACTICALITY OF COMPLIANCE

In accordance with 10CFR50.55a(g)(5)(iii), relief is requested from the "essentially 100 percent" volumetric examination coverage requirement for the identified piping welds. This requirement is considered impractical primarily due to single-sided access for these components.

Weld	Line #	Scan Coverage %	Enclosure	Exam Note 1	Exam Date	Page	Angle	Mode	Frequency
\$W- 5									
(BPL 343)	32"-SHP-459	75%	R2-1	Up/CW/CCW	9/24/2011	64	45°	Shear	2.25MHZ
		. 1		Up/CW/CCW		65	60°	Shear	2.25MHZ
_				Up		66	70°	Shear	2.25MHZ
4	6"-RC-416	75%	R2-2	Up/CW/CCW	9/21/2011	74	45°	Shear	2.25MHZ
***************************************		+ 5% BE	**	Up/CW/CCW		75	60°	Shear	2.25MHZ
				Up		7 6	70°	Shear	2.25MHZ
				Down		77	60°	Longitudinal	2.0MHZ
6A	3"-CH-814	42.3%	R2-3	Down/CW/CCW	4/18/2013	80	45°	Shear	2.25MHZ
		+ 1.5% BE		Down/CW/CCW		81	60°	Shear	2.25MHZ
		.		Down		82	70°	Shear	2.25MHZ
",				Up		83	60°	Longitudinal	2.0MHZ
NOTES:				:					
1	Up	Axial scan o	n the upstrea	am side of weld				· · · · · · · · · · · · · · · · · · ·	
*	Dwn	Axial scan o	n the downst	ream side of weld					
	cw	Circumferer	itial scan in t	ne clock-wise direction	1				
	CCW	Circumferer	itial scan in t	ne counter clock-wise	direction .				

These examinations were performed manually using advanced ASME Section XI, Appendix VIII demonstrated procedures and techniques in accordance with the performance demonstration requirements. Based on access and physical limitations of these welds, alternative or other advanced technologies would not have provided complete coverage of the examination volume at the time of these examinations.

The attached enclosures include the complete Ultrasonic Examination Data Records for each Category R-A, Item R1.20, examination included in this request. Each report includes details of the UT scanning apparatus, including transducer size, frequency, angle, wave modality and insonification angles. Also included are scan plots for each of the examinations showing the piping configuration and percent coverage for each individual scan.

Weld SW-5 (32"-SHP-459), Main Steam System Non-Classed, is a Main Steam pipe to header weld. The configuration is a mitered shop weld from 32-inch piping to the horizontal 40-inch Main Steam header. The 32-inch piping is carbon steel, A155EFW, CLI, CMS 75, and the 40-inch header is carbon steel, A155EFW, CLI, KC 70. Full coverage was obtained at the tops and bottoms of the welds, but limitations existed at the sides where the angle between the pipe and the header is at right angles. This weld is a non-class weld included as a high safety significant, break exclusion region, RIS_B location requiring >90% coverage per request N2-I4-RI-001, and as such is included in this request. The UT examination identified two recordable indications: 1) The first indication evaluated as acceptable per ASME Section XI Table IWB-3514-1, and 2) The

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second identified as Inner Diameter Geometry. Beam plots, profiles, along with UT signals were used to characterize the geometrical condition of weld SW-5. The indications were evaluated using the Indication Classification guidance of the Appendix VIII qualified procedure utilized for the examination. Augmented magnetic particle examination was also performed at this location with no reportable indications identified.

Weld 4 (6"-RC-416), Reactor Coolant System Class 1, 45 degree elbow to branch connection weldolet, is a seamless stainless steel elbow to stainless steel weldolet. This weld is 1,500 lb., A-403-WP316 Schedule 160 seamless stainless steel fitting, with welding filler metal SFA 5.4 E316L-16, SFA 5.9 ER316L, and or SFA 5.30 1N316L procured with 8-20 FN delta ferrite and 75ksi minimum tensile strength, and the weldolet is A-403-WP316 stainless steel. Coverage is limited because of the pipe to weldolet configuration, limiting the examination mostly to the upstream side. The cast nozzle configuration permits a weldolet side circumferential scan. Seventy-five percent Code coverage was obtained. An additional 15 percent Best Effort (non-Code) coverage was obtained with a 60 degree longitudinal search unit from the downstream (valve) side.

Weld 6A (3"-CH-814), Chemical and Volume Control System Class 1, is a 3-inch check valve to elbow weld in the pressurizer auxiliary spray piping. This weld connects A403-WP316 Sch 160 components, with welding filler metal SFA 5.4 E316L-16, SFA 5.9 ER316L, and or SFA 5.30 1N316L procured with 8-20 FN delta ferrite and 75ksi minimum tensile strength. Coverage is limited because of the single-sided weld to a valve and the configuration of the adjacent elbow, permitting only downstream examination. Allowable Code coverage is limited to no more than 50 percent.

The NAPS 2 Risk-Informed ISI Program is based on ASME Code Case N-716 as identified in approved request N2-I4-RI-001. These limitations have been evaluated as acceptable, with no impact on risk analysis, and no further actions necessary to provide reasonable assurance of pressure boundary leak tightness. Welds 4 and 6A are included in the Class 1 pressure boundary, receiving visual examinations at the beginning of each refueling outage as part of the Boric Acid Corrosion Control Program and VT-2 visual examinations at the end of the refueling outage once operating pressure and temperature is achieved before unit startup. The Main Steam System weld received complete surface examination (magnetic particle) as it is included in the augmented inspection program for Main Steam System Postulated Break Locations and the associated line is regularly walked down during normal operator rounds.

These weld examinations were limited due to configuration, but additional non-Code coverage was obtained (Best Effort Coverage) on the critical inside surface volume of both the weld and heat-affected area. These additional measures provide reasonable assurance that these welds are structurally sound. An effective examination program must include selections from different piping configurations, as well as selections from piping configurations categorized with different degradation mechanisms.

5.R2 BURDEN CAUSED BY COMPLIANCE

The purpose of nondestructive examination (NDE) is to perform inspections without destroying the component. The physical configuration of these welds, pipe to header, elbow to weldolet, and valve to elbow, limits inspection capabilities. Detailed sketches of the limitations and inspection areas achieved have been provided. No further actions can enable better examination coverage.

6.R2 PROPOSED ALTERNATIVE AND BASIS

These welds were selected as part of the High Safety Significant population; however, no active degradation mechanism has been identified for them. Selections were made based on plant specific operating experience or history of examination, weld repairs, random selection across different pipe sizes and configurations, and radiation concerns. Welds were selected, in part, because previous Section XI examination history exists in some cases. Comparison of examination results over time is critical to detect service induced degradation. Inspection of these particular welds are considered the best choices for meaningful examination results.

It is proposed that the examinations already completed at the reduced coverage be accepted for meeting the Code requirements. 100% of the pipe to valve welds were volumetrically examined from one side. Although two recordable indications were identified, no unacceptable indications were discovered. The limited volumetric examinations performed should detect any general patterns of degradation that may occur in the areas covered, therefore providing reasonable assurance of the continued structural integrity of the subject weld. In addition, these welds receive a visual examination during the system leakage test. Therefore, any pattern of degradation should be detected by these examinations ensuring reasonable assurance of operational readiness.

The purpose of the inservice inspection (ISI) program is to assure the structural and pressure-retaining integrity of safety-related nuclear power plant components in accordance with the rules of the ASME Section XI Code and the requirements of 10 CFR 50.55a. Although Dominion could select only weld locations where greater than 90% examination coverage is possible (when available based on selection criteria), meeting the purpose of the Code requires selecting a mix of not only piping-to-piping welds (where essentially 100% coverage is more likely), but also piping-to-valve welds, piping-to-pump welds, piping-to-vessel welds, socket welds, nozzle-to-pipe welds, etc. The ASME Code allows only 50% Code coverage for single-sided examinations, and in cases other than most piping-to-piping welds, the majority of weld examinations are considered single-sided examinations.

	NAPS Unit 2 4th Interv	:
	4 th Interval 1 st Period Limited Exar	Docket No. 50-3
7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	ted Exar	No. 50-3

Domli	Site/Unit:	NAPS /	2		Proce	dure:	ER-	AA-NDE-UT-8	0,1		Outage I	vo.:	N2R21
	Summary No.:	N2.R1.	20.0020 · ·	_ Pr	ocedure	Rev.:	·	2	· ,	•	Report I	√o.: · U	T-11-034
•	Workscope:	, I	SI :	_ w	ork Order	No.:	5	9102346793		•	.i Pa	ge: 1	of . 7
Code:	ASME 200	4 Ed.	Cat./i	tem: R	-A/R1.20		_	Location:	٠.	•	MER-2		
Drawing No.:	12050-V	WMKS-0101A-4		Description: Pip	e to Hea	der					1		
System ID:	SHP									,			
Component ID:	12050-WMKS-0101A-4/	32'-SHP-459 / SV	V-5 (BPL 343)				Size/l	Length: 1.	.8" / 108°	٠,	Thickness/Dia	ameter:	1.195"/32"
Limitations:	Single sided exam due	to Pipe to Header	configuration.					Start	Time:	1503	Finis	n Time:	1620
	Instrument Settings		•	arch Unit		Cal.	Time	Date		Axia	i Orientated S	earch Unit	
Serial No.: Manufacturer:	08162421 Panametri		Serial No.:	01CXBJ KBA		Checks Initial Cal.	1428	09/24/2011	Calibra Reflec		Signal Amplitude %	Sweep Division	Sound Path
	OCH 4 Linearity:	L-11-014	Size: 0.5		np-G	Inter. Cal.	1503	09/24/2011	1.5" No		180%	6.4	2.129"
Delay:	6.165 us Rang	ge: 3.366"	Freq.: 2.25 Mhz		N/A	Inter. Cal.	N/A		NIA				
M'ti Cal/Vel: 0	.1271 in/us Puls	ser: Square	Exam Angle: 45	Squint Angle:	.N/A	Inter. Cal.	N/A						
Damping:	400 Ohms Reje	ect: 0%	Measured Angle:		hear	Final Cal.	1732	09/24/2011			Ĭ	··· , · ·	
Rep. Rate:	Auto Fre	eq.:2.0 Mhz	Exit Point: 0.5"				Coupla	nt				·	<u></u>
Filter:	0.8-3.0 Mo	de: Fullwave	Config.: Single		N/A	Cal. Batch:	:	07220	C	ircumfe	rențial Orient	ated Search	Unit
Voltage:	Max Oth	ner: N/A	Shape: Round	 · · 	N/A	Type:		dŞafe	Calibra Reflec		Şignal Amplitude %	Sweep Division	Sound Path
			Wedge Style:	MSWQC	٠.	Mfg.:		DTECH	N//		4.		1
Ax. Gain (dB):	2.3 Circ. Gain	· · · · · · · · · · · · · · · · · · ·	Searc	h Unit Cable		Exam Batc		07220					
10 Screen D	liv. = 3.366 In. of	Sound Path	Type: RG 174 L	ength: 6' Na. Ca	ınn.:. 0	Type:		dSafe			i .		
	Calibration Block	• :	Sca	n Coverage	· —	Mfg.:	SONO	TECH			١.		
Cel. Block No.:	10874		Upstream 🕡 Down		1: 20.3≤	Ref	erence l	Block		Re	forence/Simul	ator Block	
Thickness:	2.25" Dla.:	. 0	cw 🔁	CCW ☑ Scan dE		Serial No.:	. (05-6998	Gain dB	Reflecto	Signal or Amplitude 9	Sweep 6 Division	Sound Path
Cal. Blk. Temp.	.: <u>72</u> Temp. Tool:	1066BGCY	Exam Surface:	OD OD		Туре: С	S Rom	pus Block	2.3	SDH	, 20%	3.2	1.073"
Comp. Temp.:	75° Temp. Tool:	1066BGCY	Surface Condition:	Contour Gro	und .	-		i	N/A		1		
Recordable in	dication(s): Yes □	No 📝	(If Yes, Ref. Attached			v 100	•				1		
	· · · · · · · · · · · · · · · · · · ·	_ E		Old a solino in Glocalio	·	,	Co	omments. No	пе	•	i	•	* *
Results:	Accept Reject	. Geor			-	•	· .			• •	; 1		
Percent Of Cov	/erage Obtained > 90%:	<u>No</u>	Reviewed Previous	Data: Yes	· .	··	``			_ : .	<u> </u>		
Examiner	Level II-PDI	8	gnature	Date	1 .	_			,	Signa	ature !		Date
Kilpela, Jamle	<u></u>	Smile	Tele	09/24/2011		THOMAS				<u> </u>	: : //		09.30.11
Examiner Espana, Leon	Level IIL	/ 7	gnature	Date 09/24/2011	1 n .	eview.	< tax	r 11	und	Signa		. 10	Date 4 #
Other	Level N/A		gnature	Date		Review		An I	J	Signa	ature	/	Date
N/A					<u> </u>		//			<u>ٺ</u>	10/11	//	•

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 65 of 86

Ü	T Calibration/Exa	amination			4		
Deminion Site/Unit: NAPS / 2	Pr	ocedure:	ER-AA-NDE-UT-80	H	Outage No	ute I	N2R21
Summary No.: N2.R1.20.0020	Proced	ure Rev.:	2	• •	Report No	· 	T-11-034
Workscope: ISI		rder No.:	59102346793	•	Pag	e: 2	of 7
Code: ASME 2004 Ed.	Cat/item: R-A/R1	.20	Location:		MER-2		
Drawing No.: 12050-WMKS-0101A-4	Description: Pipe to 1	Header			1	,	
System ID: SHP					3.		• • • •
Component ID: 12050-WMKS-0101A-4 / 32 -SHP-459 / SW-5 (BPL 343)	··································		Size/Length: 1.6	B" / 10B"	Thickness/Dian	neter: 1	1,195"/32"-
Limitations: Single eided exam due to Pipe to Header configuration			Start T	ime: (_ 0839	Time:	1008
Instrument Settings	Search Unit	Cal. T	Ime Date		Axial Orientated Se	arch Unit	
Serial No.: 081624211 Serial No.: Manufacturer: Panametrics Manufacturer:	01CXBN KBA	Checks Initial Cal. (0700 09/25/2011	Calibratio Reflector		Sweep Division	Sound Path
	.5" Model: Comp-G	— 	0839 09/25/2011	1.5" Note		5,7	2.703"
Delay: 8.378 us Range: 4.76" Freq.: 2.25		Inter. Cal.	N/A	N/A	1. 1070	017	1 2
M'il Cal/Vel: 0.1276 In/us Pulser: Square Exam Angle:	60° Squint Angle: N/A	Inter. Cal.	N/A				
Damping: 400 Ohms Reject: 0% Measured Ang		Final Cal.	1211 09/25/2011		· Į .		
Rep. Rate: Auto Freq.: 2.00 Mhz Exit Point:	0.5" # of Elements: 1	Cò	ouplant				
Filter: 0.9.3.0 Made: Fullyane	Single Focus: N/A	Cal. Batch:	07220	Circ	cumferential Orientat	ad Search	Unit
Voltage May Other N/A	lound Contour: N/A		SoundSafe SONOTECH	Calibratio Reflecto		Sweep Division	Sound Path
Wedge Style:	MSWQC	· · · · · · · · · · · · · · · · · · ·		N/A		-	
Ax. Gain (dB): 21.0 Circ. Gain (dB): 21.0	Search Unit Cable	Exam Batch:	07220		i	· · ·	1.
10 Screen Div. = 4.76 In. of Sound Path Type: RG 17	74 Length: 6 No. Conn.:	0 —	SoundSafe		2	•	
Calibration Block	Scan Coverage	— Mfg.: s	SONOTECH				
Cal. Block No.: 10874 Upstream	Downstream Scan dB: 33	.0 Refere	ence Block		Reference/Simulat		<u>.</u>
Thickness: 2.25" Dia.: 0 CW V	. CCW ✓ Scan dB: 33	.o Serial No.:	05-6998	Gain dB R	Signal eflector Amplitude %	Sweep Division	Sound Path
Cal. Blk. Temp.: 72° Temp. Tool: 1066BGCY Exam Surface			Rompus Block		SDH 85%	3,2	1.491"
Comp. Temp.: 75° Temp. Tool: 1066BGCY Surface Condi	lition; Contour Ground		:	N/A	1		
	ached Ultrasonic Indication Rep	oort.)					
Results: Accept ☑ Reject ☐ Geom ☐					age using the 60° se presence of the weld		
Percent Of Coverage Obtained > 90%: No Reviewed Pre	evious Data: Yes	-	dur	ing the requ	uired scans.		
Examiner Level II-PDI Signature	Date Re	viewer			Signature	-	Date
Klipela, Jamie	O9/25/2011 WI	-THOMAS	:			······································	9.30.11
Examiner Level III.	م ا	e Review			Signature		Date
Espana, Leonel de Copu			Strek 1	Cun	Stark		10/4/11
Other Level N/A Signature	Date Al	M Review			Signature	/	Date

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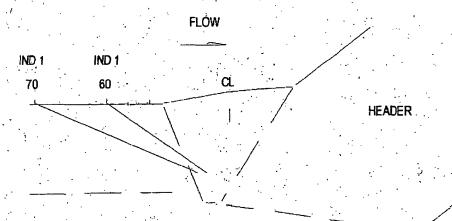
1	Unit 2 4 th Interval
	Serial No. 14-050 Docket No. 50-339 Unit 2 4 th Interval 1 st Period Limited Exams Page 66 of 86

Dominton Site/Unit: NAPS	/ 2	Procedure	e:	ER-A	A-NDE-UT-80	1		Outage N	lo.:i	N2R21
Summary No.: N2.R	1.20.0020	Procedure Rev	/:: ·		2 ,			Report N	io.:	r-11-034
Workscope:	ISI	Work Order No).:	5	9102346793			Pa	ge: 3	of . 7
Code: ASME 2004 Ed.	Cat./Item:	R-A/R1,20			Location:			MER-2	·	
Drawing No.: 12050-WMKS-0101A-4	Description:	Pipe to Header						1	· .	
System ID: SHP							-	1		
Component ID: 12050-WMKS-0101A-4 / 32 -SHP-459 / 5	W-5 (BPL 343)			Size/L	ength: 1.6	3" / 108"		hickness/Dia	meter: - '	1,195"/32"
Limitations: Single sided exam due to Pipe to Head	er configuration.			·	Start T	ime:	1010	Finish	Time:	1118
Instrument Settings	Search Unit		Cal.	(ime	Date		Axial (orientated S	earch Unit	
Serial No.: 081624211	Serial No.: 00F1DF		hecks			Calibra		Signal	Sweep	Sound Path
Manufacturer: Panametrics	Manufacturer: KBA				09/25/2011	Reflec		nplitude %	Division	
Model: EPOCH 4 Linearity: L-11-014 Delay: 9.573 vs Renge: 6.959"	-	Joint Joseph	ter. Cal.	N/A	0012012011	1.5" No	-	380%	7.0	4.867
Delay: 9.573 us Range: 6.959" M'6 Cel/Vel: 0.1272 in/us Pulser: Square	Freq.: 2.25 Mhz Center Freq.:	- Ini	ter. Cal.	N/A		IN/A	· ·	1	· ·	
Damping: 400 Ohms Reject: 0%	Exam Angle: 70° Squint Angle	[Fi	nal Cal.	1213	09/25/2011			† 		
Rep. Rate: Auto Freq.: 2.00 Mhz	_ Measured Angle: Mode:	Shear	Co	ouplan	n [i		
Filter: 0.8-3.0 Mode: Fullwave	Exit Point: 0.53" # of Eleme		l. Batch:	. (07220	Ċ	ircumfere	nțiai Orienta	ted Search	Unit
Voltage: Max Other: N/A	Config. Single Focus: Shape: Round Contour:	N/A Tyl		Sound		Calibra Reflec		Signal mplitude %	Sweep Division	Sound Path
A. C (10)	Wedge Style: MSWQC		ĭ. —	· .		N/A				
Ax. Gain (dB): 32.0 Circ. Gain (dB): N/A	- Search Unit Cable		am Batch:. pe:	Sound	07220 45060					
10 Screen Div. = 6.959 in. of Sound Path	Type: RG 174 Length: 6' No.	Conn.: 0	·	SONO	 	• •		<u> </u>	· · ···	<u> </u>
Calibration Block	Scan Coverage		•" —			·	خليــــ			ـــــــــــــــــــــــــــــــــــــ
Cal. Block No.: 10874	_ Upstream 🔽 Downstream 🔲 Scan	dB: 38.0	Refer	епсе Е	Block	Gain	Kete	rence/Simula	Sweep	
Thickness: 2.25" Dia.: 0	_ CW CCW Scar		nal No.:		5-6998	₫B	Reflector	Amplitude %		Sound Path
Cal. Blk. Temp.: 72° Temp. Tool: 1086BGCY Comp. Temp.: 75° Temp. Tool: 1086BGCY	Exam Surface: OD	Ту	pe: <u>CŞ</u>	Rom	ous Block	26	NSDH	40%	1.5	1.013"
	- Surface Condition: Contour C	·	400	,		N/A	·	. 1	+	
	(If Yes, Ref. Attached Ultrasonic Indica om	ation Report.)		Co	umments: 70°			d for best eff	ort Interro	gation of
Percent Of Coverage Obtained > 90%: No No	Reviewed Previous Data: Y	'es			tar e	side of w	eia, 	i i		· •
Examiner Level II-PDI	Signature D	ate Reviewer					Signatu	ITE i		Date
Kilpela, Jamle	09/25/20	100.00.12	OM AS		•		1			9.30.11
	Signature D	ate Site Revie	ew .		1/	\supset :	Signal	P //		/ Date:
Espana, Leonel	Office 09/25/21	//\/VVVV		Stac	K-110	and	ZAL	reld		4/11
Other Level N/A N/A	Signature / D	ete ANI Revi	ew		MI	9	Signate	ıre	/1	Date

				Suppler	nental Rep	oort				•
١.	Domin	ion			· · · · · · · · · · · · · · · · · · ·		Report No.:	ַ	r-11-03	14
٠					-		Page:	4	of _	7
S	ummary No.:	N2.R1.20.0020		•		` ·	100			
	Examiner	Kilpela, Jamie	Low to	Level: 11-PD	Reviewer.	WILTHOMAS	1111	Date:	09.30	>11
	Examiner.	Espana, Leone	100 600	Level: IIL	Site Review:	RAYMOND T	Stack Rody	Date:	10/4	[1]
ı	Other:	N/A		Level: N/A	ANII Review:	MA		Date:	10/2	<u> </u>
							and the second of the second of the second			

Comments:

Sketch or Photo:



Supplemental Report

	•		•						
Dominion	ė .				Report No.:	UT-11-034			
To a series with the	; ,					Page:	5	of	7
Summary No.: N2	.R1.20.0020		<u>. </u>					-	
Examiner: Kil	pela, Jamie	and hell	Level: II-PDI	Reviewer:	WL. THOMS		Date:	09.3	10.11
Examiner: Es	pana, Legnel //	eo Exima	Level: IIL	Site Review:	RAYAMOT SI	rek Rtd	Date:	10/4	1/11
Other: N/	Α		Level: N/A	ANII Review:	1 20 .1	ė	Date:	101	7/4
	-				· — · · ·		_ ث		41. 7

Comments: 10 GEO 360 INT

Sketch or Photo:

IND 2 IND 2 70 60 CL HEADER



Report No: UT-11-034 Summary # N2.R1.20 0020

Pg. 6 of 7

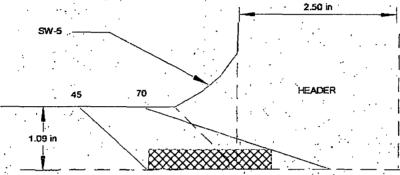
Prepared By: W.L. Thomas

Date:

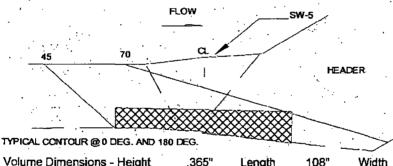
9/30/2011

	vveic	N	umbe	Į.
•	Thic	cne	ess	
	Weld	He	ength	•
•	Weld	١W	/idth	

	SW-5	
	1.09"	_
 A	108"	-
	1.8"	



TYPICAL CONTOUR @ 90 DEG. AND 270 DEG.



Examination Volume Dimensions - Height

Length

108"

Width

2.8"

.* ,		Coverage	Summary	•	
	Required Sc	ans (each has a weighin	g factor of 100 for com	iplete coverage)
ANGLE	UpSt-Ax	UpSt-Circ	DnSt-Ax	DnSt-C	ire
45/60	· · · · · · · · · · · · · · · · · · ·	100%		0%	
45/60/70	100%		100%		
•					
			Code Cov	erage Total	75%
		Best	Effort Coverage (Max	25%) Total	N/A

Notes:

- Code Coverage refers to the maximum percentage of the required examination volume that is effectively examined with the qualified examination procedure.
- 2) Best Effort Coverage refers to the required examination volume past the weld centerline that is examined in the axial beam direction with an Appendix VIII demonstrated procedure for single sided coverage.

Ultrasonic Indication Report

Site/Unit:

Procedure: ER-AA-NDE-UT-801

	Summary No.:			N2.1	R1.20.00	20		Procedure Rev.:			. 2		Re	Report No.:		UT-11-034	
Workscope:			-,	ISI			_ Work Order No.: _			59102346793		Page:		7 of	7		
Sea	arch Unit Ar Wo Loca Lo Loca	tion: We	60/70 Id Cent	eriine	•				ping Wel emitic Ves ther					-	Wo CL	Wmax W1 W2	
MP RBR L		Path ning Back F ce From Da		n	Wr W1 W2	ı D	istance f	From Wo	-	Of	num Res Max (Fo Max (Ba	rward)		I Long		DATUM Lo W1 Winax W2	
Angle	Indication No.	% Of		N Nax	Fo	rward Of Max		kward Of Max	L1 Of	, L Max	L2 Of	RBR Amp.			Remarks		
		DAC	W	MP	W1	MP	W2	MP	Max	,	Max	<u> </u>		. <u>.</u>			
60°	2	80%FSH 80%FSH	1.77"	1.63" 2.117"		├			53.13"	54.0° 50.0°	54.25"		See flaw evaluation report UT-11-055. * I.D. Geometry seen 380° Intermittently.				
70°	1	100%FSH	2.8"	2.117		100	· ·		53.13"	53.5"	54.0"	· .	Same as 60° Ind No. 1. See report UT-11-055,				
70°	2	250%REF	2.2"	4.57"				<u> </u>	*	93.25"	-		* I.D. Geometry seen 360° Intermittently.				
<u> </u>	 	100,000				 						<u> </u>		,	<u> </u>		
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	<u> </u>				-	 	-	 					· · · · · · · · · · · · · · · · · · ·		1		
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Examiner Kilpela,		II-PDI	· fire			Signature		09/24/2011						Signa		Date 9:30-71	
Examiner		IIL			Signatu	re,			Date Site	Review	J- 01			Signa	tyrre	Date	
Other N/A	Level	N/A		RES	Signatu	ester in the second		U9/24/2	2011 RA	I Review		1 J	- Carl	Signa	ture / 7/	/0/4/// Date	

ENCLOSURE R2-1

N2R21,

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 70 of 86

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	Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4 th Interval 1 st Period Limited Exams Page 71 of 86	
3	Serial No. 14-050 Docket No. 50-339 st Period Limited Exams Page 71 of 86	

Name		UT Calibration/Exam	ination		$\frac{1}{2} \frac{3}{2} \left(\frac{1}{2} + \frac{1}{2} \frac{1}{2} + \frac{1}{2} \frac{1}{2} \right) = \frac{1}{2} \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \frac{1}{2} + \frac{1}{2} \frac{1}{2} \right)$	Francisco de la compansión de la compans
Summary No. N2.R1.20.0020	Dominion: Site/Unit: NAPS /	2 Proced	ure: ER-AA-NDE-UT-80	ı3 <u>.</u> '	Outage No.:	N2R21
Code: ASME 2804 Ed. Call/flem: R.A/R1.20 Location: MER.2		0 Procedure R	lev.: 1	<u>- ·</u>	Report No.: U	T-11-055
Description: 12050-WMIKS-0191A-4 Description: Pipe to Header	Workscope: ISI	AV6-) Work Order I	No.: 59102346793		Page: 1	of 2
Drawing No. 1285 WMKS-1910-14-1/32 SHP-489 / SW-5 (3PL 343) Size Length 1.8" / 108.0" Thickness (Diameter 1.095" / 132.0" Thickness (Diameter 1.095" /	Code: ASME 2004 Ed.	Cat/Item: R-A/R1.20	Location:		MER-2	
Component Dit 12030-W/MKS-0101A-4 / 32*SHP-499 / SW-5 (BPL 343) Size Size Limitations None	Drawing No.: 12050-WMKS-0101A-4	Description: Pipe to Head	er		·	
Limitations None	System ID: SHP		, , , , , , , , , , , , , , , , , , , ,		1	
Serial No.	Component ID: 12050-WMKS-0101A-4 / 32'-SHP-459 / SW-5 (BP	'L 343)	Size/Length: 1.8	" / 108.0"	Thickness/Diameter: 1.	095" / 32.0"
Serial No.:	Limitations: None		Start T	ime: 1200.	Finish Time:	1210
Sorial No:	Instrument Settings	, Search Unit	Cal. Time Date	Avial	Orientated Search Linit	·
Manufacturer: Panametrics Manufacturer: KBA	Serial No.: 040186603 Serial	No.: 00H304				
Delay: 6.347 us		- NOA				Depth
Milicative 0.1289 Infuse Pulser Square Exam Angle 60° Squint Angle NiA Infer Call		V.313 Model. Gollip-O		0.75" Hole		
March Marc	,	: 3.0 mnz. Center Freq.: N/A -			50% 5.0	1.0"
Damping Sub Orlins Reject Orlins Reject Orlins Orlin	- CXAM	Angle: 60° Squint Angle: N/A 🕨		N/A	1	
Filter: 3.0-6.0 Mode: Fullwave Config.: Single Focus: N/A Type: SoundSafe Reflector Amplitude % Division Depth Ax. Gain (dB): 28.0 Circ. Gain (dB): N/A Ax. Gain (dB): 28.0 Circ. Gain (dB): N/A Cal. Blatch: 07220 Mig.: SONOTECH Wedge Style: MSWGC Search Unit Cable Search Unit Cable Search Unit Cable Type: RG 174 Length: 6' No. Conn.: in Mig.: SONOTECH Type: SoundSafe Mig.: SONOTECH Mig.: SONOTECH Mig.: SONOTECH N/A Cal. Blatch: 07220 Calibration, Signal Reflector Amplitude % Division Depth Type: RG 174 Length: 6' No. Conn.: in Mig.: SONOTECH Cal. Block No.: 22158 Upstraim V Downstream Scan dB: 28.0 Reference Block Thickness: 3" Dia.: 0 CW CCW Scan dB: N/A Senal No.: 08-3560 Cal. Blik. Temp.: 75" Temp. Tool: 1068BGCY Comp. Temp.: 75" Temp. Tool: 1068BGCY Comp. Temp.: 75" Temp. Tool: 1068BGCY Resoults: Accept Reject Geom Geom Geom Geom Geom Geom Geom Geom	Measi					 `
Voltage: Max, Other: N/A Config: Single Focus: N/A Type: Sound3afe Shape: Round Contour: N/A Mig: SONOTECH Ax. Gain (dB): 28.0 Circ. Gain (dB): N/A Ax. Gain (dB): 28.0 Circ. Gain (dB): N/A Calibration Block Calibration Mig: SONOTECH N/A N/A N/A N/A Calibration Reference Block N/A N/A Calibration Reference Block N/A N/A Calibration Reference Block Reference Bloc	Exit P		·	<u> </u>		. 11=14
Shape: Round Contur: N/A Mfg.: SONOTECH Reflector Amplitude % Division Dapth	Confic	g.: Single Focus: N/A	-		· · · · · · · · · · · · · · · · · · ·	TURIT
Ax. Gain (dB): 28.0 Circ. Gain (dB): NIA 10 Screen Div. = 2.0 in. of Depth Call Black No.: 22158 Cal. Block No.: 22158 Thickness: 3* Dia.: 0 Cal. Blix. Temp.: 75° Temp. Tool: 1068BGCY Comp. Temp.: 75° Temp. Tool: 1068BGCY Recordable Indication(s): Yes No (If Yes, Ref. Attached Ultrasonic Indication Report.) Results: Accept Reject Geom Geom Geom Geom Geom Geom Geom Geom		e: Round Confour: N/A				Depth
AX. Gain (aB): 28.0 Cit. Gain (ab): NA Search Unit Cable Type: RG 174 Length: 6' No. Conn.: 0 Type: SoundSafe Callbration Block Reference Block Reference Block Reference Block Reference Block Reference Block Reference Block Reference Block Reference	Wedg	ge Style: MSWQC			·	
Type: RG 174 Length: 6 No. Conn. 0 Mig.: SONOTECH Cal. Block No.: 22158 Cal. Block No.: 22158 Thickness: 3" Dia.: 0 CW CCW Scan dB: N/A Serial No.: 05-5560 Cal. Blik. Temp.: 75° Temp. Tool: 1066BGCY Comp. Temp.: 75° Temp. Tool: 1066BGCY Comp. Temp.: 75° Temp. Tool: 1066BGCY Recordable Indication(s): Yes ✓ No (If Yes, Ref. Attached Ultrasonic Indication Report.) Results: Accept ✓ Reject ☐ Geom ☐ Comments: Yes Indication Report.) Results: Accept ✓ Reject ☐ Geom ☐ Comments: Yes Indication Report.) Examiner Level IIIPDI Signature Date Reviewer Signature Date N/A N/A Signature Date AlVI Review Signature Date N/A Signature Date N/A N/A Signature Date N/A Signature Date N/A Signature Date N/A Signature Date N/A N/A Signature Date N/A Signature Date N/A Signature Date N/A Signature Date N/A Signature Date N/A N/A Signature Date N/A Signature Date N/A Signature Date N/A Signature Date N/A Signature Date N/A Signature Date N/A Signature Date Signature Date Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A Signature Date N/A N/A N/A N/A N/A N/A Signature Date N/A N/A N/A N/A N/A N/A N/A Signature Date N/A N/A N/A N/A N/A N/A N/A N/A Signature Date N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A		Search Unit Cable			i	
Cal. Block No.: 22158	Screen Div. = 2.0 In. of Depth Type:	: MG 174 Length: 15' No. Conn.: U	·			
Cal. Block No.: 22158	Calibration Block	Scan Coverage	Mfg.: SONOTECH		į.]
Thickness: 3" Dia.: 0 CW CCW ScandB: N/A Senat No.: 05-5560 dB Reflector Amplitude % Division Depth Cal. Bik. Temp.: 75° Temp. Tool: 1066BGCY Comp. Temp.: 75° Temp. Tool: 1066BGCY Surface Condition: Ground Smooth Recordable Indication(s): Yes No (if Yes, Ref. Attached Ultrasonic Indication Report.) Results: Accept Reject Geom Geom Geom Signature Percent Of Coverage Obtained > 90%: N/A Reviewed Previous Data: Yes Examiner Level III-PDI Signature Thomas, Wayne L. Examiner Level N/A Signature O9/277/2011 Other Level N/A Signature Date AMI Review AMI Review Division Depth Comments: Procedure ER-AA-NDE-803 sizing techniques were used as a guide to obtain a thru wail dimension of the indication to enable iWB-3300 evaluation. Examiner Level N/A Signature O9/277/2011 Other Level N/A Signature Date AMI Review Signature Date AMI Review Signature Date Ohate AMI Review Signature Date Ohate	Cal. Block No.: 22158 Uostre		Reference Block	Refe	refice/Simulator Block	
Call, Bik, Temp.: 75° Temp. Tool: 1066BGCY Comp. Temp.: 75° Temp. Tool: 1066BGCY Surface Condition: Ground Smooth Recordable Indication(s): Yes No (If Yes, Ref. Attached Ultrasonic Indication Report.) Results: Accept Reject Geom Services Procedure ER-AA-NDE-B03 stzing techniques were used as a guide to obtain a thru wait dimension of the indication to enable IWB-3500 evaluation. Examiner Level III-PDI Signature Date Reviewer Signature Date Site Review Signature Date N/A Examiner Level N/A Signature Date Site Review Signature Date N/A Other Level N/A Signature Date AN/I Review Signature Date N/A Signature Signature Date N/A Signature Date N/A Signature Signature Signature Date N/A Signature Si	Thickness: 3" Dia.: 0	<u> </u>	Senal No.: 05-5560			Depth
Comp. Temp.: 75° Temp. Tool: 1066BGCY Surface Condition: Ground Smooth Recordable Indication(s): Yes V No (If Yes, Ref. Attached Ultrasonic Indication Report.) Results: Accept Reject Geom December Reviewed Previous Data: Yes Examiner Level III-PDI Signature Date Reviewer Signature Date Thomas, Wayne L. Examiner Level N/A Signature Date Site Review Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Signature Date Reviewer Reviewer Signature Date Reviewer Signature Date Reviewer Reviewer Signature Date Reviewer Reviewer Signature Date Reviewer Reviewer Signature Date Reviewer Reviewer Reviewer Signature Date Reviewer Reviewer Reviewer Signature Date Reviewer Review	Cal. Blk. Temp.: 75° Temp. Tool: 1066BGCY	<u> </u>	Type: CS Rompus Block		Ampirade /er bivision	
Recordable Indication(s): Yes V No (If Yes, Ref. Attached Ultrasonic Indication Report.) Results: Accept Reject Geom Geom Geom Geom Geom Geom Geom Geom	Comp. Temp.: 75° Temp. Tool: 1066BGCY					
Results: Accept Reject Geom December Reject December Reject December Reject December						
Percent Of Coverage Obtained > 90%: N/A Reviewed Previous Data: Yes Indication to enable IWB-3500 evaluation. Examiner Level III-PDI Signature Date Thomas, Wayne L. 09/27/2011 N/A		Trong a managed of the about the point of	Comments: Pro	cedure ER-AA-ND1	E-803 sizing techniques	were used
Examiner Level III-PDI Signature Date O9/27/2011 N/A Examiner Level N/A Signature Date Site Review Signature O9/27/2011 N/A Other Level N/A Signature Date ANII Review Signature Date N/A Other Level N/A Signature Date ANII Review Signature Date N/A						the
Thomas, Wayne L. Examiner Level N/A Signature Date Site Review N/A Other Level N/A Signature Date ANN Review N/A Date ANN Review Signature Date ANN Review Other Level N/A Signature Date ANN Review		awed Previous Data: Yes	ind	ication to enable it	Weight of the second of the se	
Examiner Level N/A Signature Date Site Review Signature Oate N/A Other Level N/A Signature Date ANI Review Signature O/4/// Date N/A	1 """	7/	er	Signati	ure	Date
N/A Other Level N/A Signature Date AMI Review Comparison Compa	72		<u> </u>	-	A	····
Other Level N/A Signature Date ANN Review Signature Date N/A	1	Date Site Re		Signati	ure //	Date
NIA // / / / / / / / / / / / / / / / / /	<u> </u>			reament/	NAUE !	0/4/11
	100	Date AMIRe	eview //// L	Signati	ure //	Date
	UT Calibration/Examination		1101 /	- 10	/ <i>T///</i>	

Supplemental Report

Demin	ijon		·			Repor	t No.:	U	T-11-0
	·					i	Page:	2	_ of
Summary No.:	N2.R1.20.0020								
Examiner.	Thomas, Wayne L.	Level:	III-PDI	Reviewer.	N/A.			Date:	
Examiner	N/A	Level:	N/A -> S	ite Review:	RAYMINA	J. SMak	PH)	Date:	100
Other:	N/A	Level:	N/A · A	NII Review:	M	1-e		Date:	101
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. + 44				- : - : - : : : : - : -	4 004				
Comme	nts: .Flaw evaluation of indic	ation # 1 tro	m "U i " re	:poπ # U1-1 /	1-0.54.				
	**	AW EVALU	ATION			,		٠.	
				# LIT 11_02					•
	INDICATION #	T PKOMI OT	KEPORT	# () 1-TT-03			•		٠.
Sketch or Phi	oto:		•		•				
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INDICATIO	351 # 1 not num		AISHEIC LICA	LIENT DOES N	T ADDIV			•	
INDICATIO	ON # 1 LMAX = 50", SWEE ED T = 1.15"	EP = 4 DIV. NEW	Alianao ciox	MEIA! DOCT IA	DI MEY MI	•			
	ED = 1.15 ED ANGLE: 60°				5.4	•		٠.	
LENGTH:			••		DEPTH				
2a: 0.07	IND IS SUBSURFACE.	· • M	NIMUM		0.76"				
•	/ 1.125 = .03 = a/l		AXIMUM	. •	0.83"				
-	.83 = 0.32	•	TAL		0.070"	· ·			
3 - 1.13		1 / t				•			
•	· · · · · · · · · · · · · · · · · · ·		.030 x 100) = 3% actu	al thru wall	1.			
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.03 = asp	ect ratio	A	CTUAL = 3	%			•	٠.	•
.,	•	AL	LOW =	10.8%		. ••			
						•		-:	

INDICATION # 1 IS ACCEPTABLE PER ASME SECTION XI TABLE IWB-3514-1.

NOTE: THE MOST CONSERVATIVE % WAS USED. NO LINEAR INTERPOLATION WAS REQUIRED. NO SIGNIFICANT CHANGE NOTED IN LENGTH OR AMPLITUDE SINCE THE PREVIOUS TWO EXAMS IN 1989 OR 2002.
INDICATION PRESENCE WAS VERIFIED WITH 0 DEGREE PROBE.

Magnetic Particle Examination

Dom!	inion"		•									
Site/	Unit: ၂	NAPS /	2		Procedur	e: ER-AA	-NDE-MT-200	Outage	a No.:	N2	R21	
Summary	No.:	N2.R1	20.0020		Procedure Rev	/.:	4.	Repor	t No.:	MT-	11-00	3
Workso	ope:		UG		Work Order No	o.: 591	02346793		Page:	1	of _	1
Code: .	ASI	1E 2004 E	J.	Cat./lt	em: R-A/R1	.20 Loca	ation:	N	IER-2			·
Drawing No.:	1:	2050-WMK	S-0101A-	4	Description: I	Pipe to Head	er	· · · · · · · · · · · · · · · · · · ·	•			
System ID:	SHP.					and the second second second		س دره خنیس				
Component ID): 12050	-WMKS-0	101A-4/3	2`-\$HP-4:	59 / SW-5 (BPL	343)		Mat/Thickne	ess:	CIS	1.25	
Limitations:	None			·				•		•		•
Light Meter	Mfg.:		N/A	;	Serial No	out"	N/A	Illuminatio	n:	N.	Α	
Temp. Tool	Mfg.:		N/A		Serial No).:	N/A	Surface Te	mp.:	N	/A	°F
Resolution:		0.04	4" Charac	ter Card			· •	• •	•			÷ .
Lift Block Se	erial No.:	<u> </u>		IT-34		Surface Cond	ition:	Grout	nd Smoo	th	•	
Lo/Wo Loca	ation: 🚊	<u> </u>	N/.	<u> </u>	:	Field Orienta	ition.	0/90° Fie	d Orien	tation	. • •	<u></u>
Magnetic P	article l	laterial				•	137		•		21 j	:
Brand:	N	LAGNAFLU	JX	_ '.	Wet 🗌	Mixed:	Yes 🗌	Applie	ed By:	D	usting	
Type:	·	BA Red	<u> </u>		Dry 🗹		No 🗹			Sp	raying	; 🗆
Batch No.:		09F05	6	Fic	uorescent 🗌	With:	N/A	<u> </u>	•	Flo	oding	, 🗆
Equipment:		·		PARK	ER		Serial	No.:	178	68		
Head Shot	. 🗀	<u> </u>	N/A	Ampere	s	Fixed Space	ing 🗌		,AC	~	DC	
Adj. Spacing	9 🗹	3.0	0-8.0	Inches	• . • •	Encircling (Coils 📋	N/A	Turn	s		
Prods. Spac	cing [N/A	inches		Current (ma	achine setting	a) 🗆	N/A	· ·	Ampe	eres
indication	Loc	Loc	Diameter	Length	Туре		ł	Remarks				
No.	L	w	} .		R/L			•	·	•		
N/A											٠	
		+	 	· ·	:				-			
		<u> </u>						·				
			·					<u>.</u>				
Comments:						:	· · · · · · · · · · · · · · · · · · ·					
Character (Card # D	OM-2009-0	300.		•			٠.				
Results:	Acc	ept 🗹	Reject [□ .	Eval 🗌	;						
Percent-Of (Coverage	e Obtained	> 90%:	Yes	Reviewed	Previous Data	a: N/A	Exam Ti	me:	1300	-132	8
Examiner	Level	II . j	Sign	ature		Reviewer		Sign	nature			Date
Espana, Leo		de	0 5 p	5	09/24/2011	W.L. Tilon	<u> 45</u>		<u> </u>		9.	30 · //
Examiner N/A	Level	N/A	ຮເgn	ature	· · Date	Site Review	Santa. (11	nature	91	4,/	Date
Other	Level	N/A	Sign	ature	Date	Nohert L ANII Review	lavies t	Sigr	rature	- /	1	/ Date
N/A							NF	<u> </u>				

Magnetic Particle Examination

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 74 of 86

Date

UT Calibration/Examination N2R21 Procedure: ER-AA-NDE-UT-802 Site/Unit: Outage No. Report No. UT-11-028 N2.R1.20.0039 Summary No.: Procedure Rev. of -ISI Work Order No.: 59102346793 Page: Workscope: **ASMÉ 2004 Ed.** Cat./Item: R-A/R1.20 A Loop Code: Location: 12050-WMKS-0103AG Drawing No.: Description: 45 degree elbow to branch connection System ID: RC Thickness/Diameter. 12050-WMKS-0103AG / 8-RC-416 / 4 Size/Length: 1.30" / 20.8" 0.718" / 6.0" Component ID: 1517 Finish Time: 1525 Limitations: Start Time: Single side exam due to configuration. Instrument Settings Search Unit **Axial Orientated Search Unit** Cal. Time Date Serial No.: 040182503 Serial No.: 00VJBX Checks Calibration Signal Sweep Sound Path initial Cal 0935 09/21/2011 Manufacturer: **Panametrics** KBA Division Manufacturer: Reflector Amplitude % 1453 09/21/2011 **EPOCH 4** Inter. Cal. Model: Linearity: L-08-006 0.375 Model: Comp-G 1.0" Notch .80% 1.423" 7.0 Inter, Cal. N/A Delay: 5.605 มัธิ Range; 2.040 N/A 2.25 Mhz. Center Freq : N/A Inter. Cal. N/A M'tl Cal/Vel: 0.1234 in/µs Square Pulser: Souint Angle: N/A 1722 09/21/201 Final Cal. Damping 400 Ohms Reject: 0% Mode: Measured Angle: Shear Couplant Rep. Rate: 2.0 Mhz. Auto. Freq.: # of Elements: Circumferential Orientated Search Unit Fullwave Filter: 0.8 - 3.0 Mhz Mode: Cal. Batch: 07220 Single Config.: Focus: N/A Voltage: Other: SoundSafe Signal Calibration Sweep Sound Path Shape: Round Contour: N/A Reflector Amplitude % Division SONOTECH Wedge Style: MSWQC Ax. Gain (dB): Circ. Gain (dB): 8.2 N/A Exam Balch: 07220 Search Unit Cable Sound Path 10 Screen Div. = 2.040 SoundSafe Type: RG 174 Length: 6' No. Conn.: SONOTECH Calibration Block Scan Coverage: Cal. Block No.: Reference/Simulator Block 10876 Reference Block Upstream → Downstream → Scan dB: 26.2 { Signal Sweep Gain Thickness: 2.25 Flat Sound Path 05-6535 CCW Scan dB: 26.2 CW 🔽 Reflector Amplitude % Division dB Cal. Blk. Temp.: 70° Temp. Tool: 07 SS Rompus Block 20% 8.2 **FSDH** 5.1 1.035" Exam Surface: 07 .. 78° Temp. Tool: Comp. Temp.: N/A Surface Condition: Contour Ground (If Yes, Ref. Attached Ultrasonic Indication Report, Recordable Indication(s): Yes 🗀 No [✓ Comments: No Axial exams were performed on the Downstream side Results: Geom -Accept 🔽 Reject | of the weld. Percent Of Coverage Obtained > 90%: Reviewed Previous Data: Yes Examiner Leve / II-bDI Signature Date Reviewer Signature Date Knott, Brian D 09/21/2011 9-24.11 W.L. TYOMA Date Examinar Signature Date Site Review Signature Zollner, Brian D 09/21/201

Date

Signature

ANII Review

N/A

Other

N/A

NCLOSURE 22

Unit 2 4" Interval 1st Period Limited Exams Page 75 of 86	F
1 st Period Limited Exams Page 75 of 86	Serial No. 14-050 Docket No. 50-339
Exams of 86	14-050 50-339

NAPS

UT Calibration/Examination Procedure: ER-AA-NDE-UT-802 Dömlidən Site/Unit: NAPS Outage No.: N2R21 Summary No.: N2.R1,20.0039 Procedure Rev.: Report No.: UT-11-028 Workscope: ISI . . . Work Order No.: 59102346793 2 of Code: ASME 2004 Ed. Cat./Item: R-A/R1.20 Location: A Loop Drawing No.: 12050-WMKS-0103AG Description: 45 degree elbow to branch connection RC System ID: Component ID: 12050-WMKS-0103AG / 6-RC-418 / 4 Size/Length: 1.30" / 20.8" Trickness/Diameter: 0.718" / 6.0" Limitations: Single side exam due to configuration. Start Time: 1549 Finish Time: 1556 Instrument Settings Search Unit Cal. **Axial Orientated Search Unit** Time Date Serial No.: Serial No.: 01CLN0 040182503 Checks Calibration Sweep \$igna1 Sound Path initial Cal 0946 09/21/2011 Manufacturer: **Panametrics** Manufacturer: KBA Reflector Amplitude % Division 1528 09/21/2011 **EPOCH 4** Linearity: Inter. Çal Model: L-11-015 0.375" Model: Comp-G Size: 1.0" Notch 80% 1.805** 7.0 inter. Cal. N/A Delay: 7.195 µs Range: N/A 2.580 Freq.: 2.25 Mhz. Center Freq.: inter. Cal. N/A M'tl Cal/Vel: 0.1265 ln/µs Pulser: Square 60° Squint Angle: N/A Exam Angle: Final Cal. 1723 09/21/2011 400 Ohms Damping: 0% Reject: Mode: Shear Measured Angle: Couplant Rep. Rate: 2.0 Mhz. Auto. Freq.: # of Elements: Cal. Batch: 07220 Circumferential Orientated Search Unit Filter: 0.8 - 3.0 Mhz Mode: **Fullwave** 5ingle Focus: N/A SoundSafe Signal Calibration Sweep Voltage: Max, Other: N/A Sound Path Shape: Round Contour: N/A Reflector Amplitude % Division SONOTECH Wedge Style: MSWQC 1 N/A Exam Batch: Ax. Gain (dB): 24.8 Circ. Gain (dB): N/A 07220 Search Unit Cable Type: SoundSafe Sound Path 10 Screen Div. = 2.580 Type: RG 174 Length: 6' No. Conn.: 0 SONOTECH Calibration Block Scan Coverage Reference/Simulator Block Cal. Block No.: 10876 Reference Block Upstream ☐ Downstream ☐ Scan dB: 30.8 Gain Signal Sweep 2.25" Thickness: Dla.: Flat Sound Path CW 🗸 CCW S Scan dB: 30.8 Serial No.: 05-6535 Amplitude % Division dΒ Reflector . 07 Cal. Blk. Temp.: 70° Temp. Tool: SS Rampus Block 24.8 **F\$DH** 1 54% 5.6 1.450" Exam Surface: Comp. Temp.: 78° Temp. Tool: 07 N/A Surface Condition: Contour Ground No 🔽 Recordable Indication(s): Yes 🗀 (If Yes, Ref. Attached Ultrasonic Indication Report.) Comments: Effective coverage using the 60° serach unit has been Results: Accept 🗸 Reject 🗌 Geom verified by the presence of the weld root response during the required scans! No Ax. Scans on the DNST

Percent Of Coverage Obtained > 90%:

Reviewed Previous Data:

	• •									
Examiner	Leyely	II-PDI	/ .	Signature	Date	Reviewer		Signature	:	Dat
Knott, Brian I	D. /K/	rian V.	Knott		09/21/2011	WL. THOMAS		M		9.24.1
Examiner	Lovel	KEPDI	\sim	Signature	Date		· /	Signature		Dat
Zoliner, Brian	1 D	5	- stelle		09/21/2011	RCF odego	ve Allo	1	/9/	13/11
Other	Level	N/A	0	Signature	Date		May H	Signature		Dat
N/A	_						11/1/		10/16/11	/

STA N			UI Ga	ilibration/Exan	ninatio	n .			•			i
Domli	Site/Unit:	NAPS /	2	Proce	dure:	ER-A	A-NDE-UT-8	102	_	Outage N	lo.:	12R21
	Summary No.:	N2.R1.	20.0039	Procedure	Rev.:		1			Report	lo.: U1	-11-028
	Workscope.	, ; ।	SI .	Work Order	r No.:	5	9102346793		-	Pa	ge: <u>3</u>	of 6
Code:	ASME 2	2004 Ed.	Cat./ite	m: R-A/R1.20)		Location:			i A Loop		
Drawing No.:	1205	0-WMKS-0103AG		Description: 45 degree e	ibow to bra	inch cor	nection		:	[<u>:</u>	
System ID:	RC					• .				₹ :		
Component ID:	12050-WMKS-0103A	G / 6-RC-416 / 4				Size/L	ength: 1.	30" / 20.8"	<u> </u>	Thickness/Dia	meter: 0.	718" / 6.0"
Limitations:	Single side exam du	e to configuration.					Start	Time:	1557	Finish	Time:	1604
	Instrument Setting	18	Sear	ch Unit	Cal.	Time	Date		Axia	I Or entated 8	earch Unit	
Serial No.:	040182	· · · · · · · · ·	Serial No.:	00VBBK	Checks	<u> </u>		Calibra		Signal	Sweep	Sound Path
Manufacturer:	Panamo		Manufacturer:	КВА	Initial Cal.		09/21/2011	Refle	`	Amplitude %	Division .	
	CH 4 Linearity:	L-11-015	Size: 0.375"	Model: Comp-G	Inter. Cal.	N/A	05/21/2011	1.0 ⁻ N		80%	7.0	3.080"
Delay:		lange: 4,400"	· · · ——	Center Freq.: N/A	Inter. Cal.	N/A		N/A	^			
_		viser: Square	Exam Angle: 70°	Squint Angle: N/A	Final Cal.		09/21/2011	 		1		
,		leject: 0%	Measured Angle: 71	1° Mode: Shear		Couplan	ıt			1		
Rep. Rate:		Freq.: 2.0 Mhz.	Exit Point: 0.35"	# of Elements:	Cal. Batch:	•	07220		ircumie	rential Orienta	ted Search	Unit
,		Mode: Fullwave Other: N/A	. Config.: Single	Focus: N/A	Type:	Sound		Calibra	'	Signal	Sweep	1.
Voltage:	Max.	Other: N/A	Shape: Round	Contour: N/A	Mfg.:	SONO	TECH	Refle		Amplitude %	Division	Sound Path
Avi Colo /dD\	30.4 Cim G	ain (dB): N/A	Wedge Style:	MSWQC	Exam Batc	h-	07220	N/a	A			, 3, 145
Ax. Gain (dB):				Unit Cable	Type:	Sound						<u> </u>
10 Screen D	iv. = <u>4.400</u> in. of	Sound Path	Type: - RG 174 - Ler	igth: 6' No. Conn.: 0	Mfg.:	SONO				·		
	Calibration Block	(.	Scan (Coverage	<u> </u>	00110		<u> </u>			-	1
Cal. Block No.:	- 108	76	Upstream 📝 Downstr	ream Scan dB: 36.4	. Refe	erence É	3lọ c k	0010	Re	ference/Simul		
Thickness:	2.25" Dia.:	Flat	. cw 🗆 o	CCW Scan dB: N/A	Serial No.:	0	5-6535	Gain dB	Reflect	Signal or Amplitude 9	Sweep 6 Division	Sound Path
Cal. Blk. Temp.	.: _70° Temp. Tool:	07	- Exam Surface:	OD	Type:	SS Romp	us Block	25.9	NSDH	80%	. 2,2	0.960"
Comp. Temp.:	78° Temp. Tool:	07	- Surface Condition:	Contour Ground				N/A				
Recordable in	dication(s): Yes	No 🗹	(If Yes, Ref. Attached U	Itrasonic Indication Report	4)				<u> </u>	<u>. l :</u>		
Results:	Accept 🗹 Rej	ect 🗌 Geo	m 🗌		5	Co	mments: No	one		e		
Percent Of Cov	verage Obtained > 90%	: No	Reviewed Previous D	ate: Yes	• •							•
Examiner	Leye) II-PDI	, / S	ignature	Date Revie	wėr				Sign	Blue		Date [*]
Knott, Brian D	- Krian &). Knott		09/21/2011 いんし・	THOMAS		<u>. </u>		R			9.24.17
Examiner	Level II-ROI	, <u> </u>	ignature	Date Site R	leview			.18	Sign	ature		Date
Zoliner, Brian		i solle	· · · · · · · · · · · · · · · · · · ·	09/21/2011 Je	F Ode		1	fle	10-		. /c	(13/11
Other	Level N/A	<i>(</i>) s	ignature	Date ANII S	Review		ha	1 1	Sign	ature	. /	Date
I N/Δ			4.				1881			- · .	- /	7

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 76 of 86

1.4

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 77 of 86

Dominion'	Site/Unit: NAPS	/ 2				AA-NDE-UT-8	02	_	Outage	No.:	N2R21
Sumn	nery No.: N	2.R1.20.0039	Procedure	Rev.:		1	· ,	<i>;:</i>	Report I	No.: U	T-11-028
Wo	rkscope:	ISI	Work Order	No.:		9102346793		_	Pa	ige: 4	of 6
Code:	ASME 2004 Ed.	Cat./ite	m: R-A/R1.20)	-	Location:	, ,		A Loop		
Drawing No.:	12050-WMKS-0103	AG	Description: 45 degree e	lbow to bra	inch co	nnection			· ·		
System ID: RC	:		•		.,				1.		
Component ID: 12050-WM	KS-0103AG / 6-RC-416 /				Size/i	Length: 1.3	0" / 20.8	<u>.</u>	Thickness/Di	ameter: 0	.718" / 6.0"
Limitations: Single side	exam due to configurat	lon.		•		Start 1	lime:	1608.	Finis	h Time:	1612
	nt Settings		ch Unit	Cal.	Time	Date		Axia	I Orientated S	earch Unit	fat es
Serial No.: Manufacturer:	040182503 Panametrics	Serial No.: Manufacturer:	06-108 RTD	Initial Cal.	1041	09/21/2011	Calibr Refle		Signal . Amplitude %	Sweep Division	Sound Patr
Model: EPOCH 4 L	Inearity: L-11-015	Size: 2(8X14)	Model: TRL2-AUST	Inter. Cal.	1805	09/21/2011	1.0"		80%	7.0	1.981"
Delay: 9.085 μs	Range: 2.830	Freq.: 2.0 Mhz.	Center Freq.: N/A	Inter. Cal.	N/A		, N/.	A	i		
M'tl Cal/Vel: 0.2331 In/µs	Pulser: Squ a	re Exam Angle: 60°	Squint Angle: 3"	Inter. Cal.	. N/A				[-		
Damping: 400 Ohms	Reject: 0%	Measured Angle: 6	1° Mode: Longitudinal	Final Cal.	•	09/21/2011					<u> </u>
Rep. Rate: Auto.	Freq.: 2.0 MI	nz. Exit Point: 0.35"	# of Elements: 2	• (Coupla		<u> </u>	1.			<u> </u>
Filter: 0.8 -3.0 Mhz	Mode: Fullwa	Config.: D-\$B\$	Focus: FD.0.6"	Cal. Batch:		07220		Circumfe	rential Orient	ated Search	Unit
Voltage: Max.	Other: N/A	Shape: Retangular	Contour: FLAT	Type:		dSafe TECH	Calibr Refle		Signal Amplitude %	Sweep Division	Sound Path
A : 00-1-110\		Wedge Style: -	Integral				N/.	A			7.
Ax. Gain (dB): 38.3	Circ. Gain (dB): N/	Search	Unit Cable	Exam Batc		07220 dSafe					
10 Screen Div. = 2.830	in. of Sound Path	Type: RG 174 Le	ngth: 6' No. Corin.: 0	Type:	`	TECH	: .		. 1	· · ·	<u> </u>
	tion Block	Scan	Coveräge	g			<u> </u>	<u> </u>			
Cal. Block No.:	21588	Upstream Downst	ream 🕢 Scan dB: 38.3	Ref	erence i	Block	Gain	Ref	ference/Simul	Sweep	· · · ·
Thickness: 3"	Dia.: Flat	cw 🗆	CCW Scan dB: N/A	Serial No.:)5-6535	dB	Reflecto	or Amplitude		Sound Pat
Cal. Blk. Temp.: 70° Tem	· ———	Exam Surface:	OD	Type:8	S Rom	pus Block	32.7	FSDH	80%	5.4	1.523"
Comp. Temp.: 78° Tem		Surface Condition:	Contour Ground	· . ·	•		N/A			<u> </u>	
Recordable Indication(s):		(If Yes, Ref. Attached U	Itrasonic Indication Report.)		C-		<u> </u>	<u></u>		
Results: Accept	Reject 🔲	Geom [∵ Co	omments: Utl	lized for	coverage	on nozzie si	de of weld,	
Percent Of Coverage Obtain	ned > 90%: No	Reviewed Previous D	eta: Yes			_:					
Examiner Level	II-PDI	Signature	Date Review	wer		······································	············	Signa	ature		Date
Knott, Brian D.	ia V. Kus	t	09/21/2011 W.L.	THOMAS						· .	9.24.1
		Signature	Date Site R	eview			l.	Signa	-		Date: _ / _ /
Zollner, Brian D	5- Jall	01	09/21/2011		<u> 40</u>	wd	100	Charles			113/11
Olher Level N/A	N/A U	Signature	Date ANII F	Review ?	٠,	M	M	Signa	aturė	/ /	Date
N/A		•	1 '		10	11 Jo		æ.	101	16/1	

Supplemental Report

Page: 5 of 6

Summary No.: N2.R1.20.0039

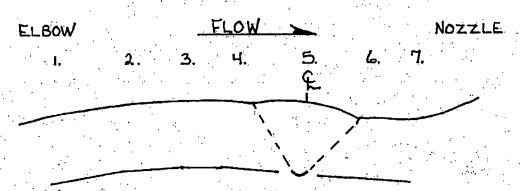
Examiner: Knott, Brian D. Level: II-PDI Reviewer: WL Date: 9.24 II

Examiner: Zolliner, Brian D. Level: II-PDI Site Review: Left Coloqued Jpo Date: 10/17/1/

Other: N/A Level: N/A ANII Review: Date: 10/10/1/

Comments:

Sketch or Photo:



- 1. 0835" WCW= 1.3" WL = 21.375
- 2.0.930"
- 3. 0.820"
- 4. 0.800"
- 5. 4880" Y
- L. 0.785"
- 7. 0.785"



Report No: UT-11-028 Summary # N2.R1.20.0039

Pg. 6 of 6

Prepared By. W.L. Thomas

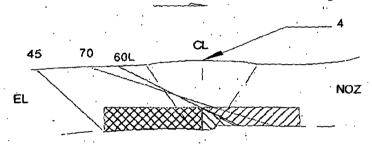
Date:

9/24/2011

Weld Number Thickness. Weld Length Weld Width

.832 20.8 1.3"

FLOW





EXAMINED 100% REQUIRED VOLUME US SIDE



EXAMINED .06 SQ. IN. OF THE REQUIRED .32 SQ IN. VOLUME .06 / .32 = .187 X 100 = 19% BEST EFFORT DS SIDE



NO EXAM .26 SQ IN. DS SIDE

AXIAL DIRECTION .26 / .32 = 81% NO EXAM

Initial Final 🖾 HSB-CT

Examination Volume Dimensions - Height

.277"

Width

2.3"

			e Summary		
	Required Sc	ans (each has a weighir	g factor of 100 for co	mplete coverage)
ANGLE	UpSt-Ax	UpSt-Circ	DnSt-Ax	DnSt-C	irc
45/60/70	100%	100%		100%	
60L			*19%		
·					
				overage Total	75%
		* Bes	Effort Coverage (Ma	x 25%) Total	5%

Notes:

- 1) Code Coverage refers to the maximum percentage of the required examination volume that is effectively examined with the qualified examination procedure.
- 2) Best Effort Coverage refers to the required examination volume past the weld centerline that is examined in the axial beam direction with an Appendix VIII demonstrated procedure for single sided coverage.

UT Calibration/Examination

Domin	ion	Site/Unii	t: N	IAPS	1	2		Prod	edure:	ER	-AA-NDE-UT-	802		Outage	No.:	N2R22	
	Sumn	nary No.	:	N2.I	R1.20.0818			Procedure	 Rev.:		2			Report	No.:	JT-13-025	
	Wo	rkscope	:		ISI			Work Ord	er No.:	591025	32605/NDER	13-079			age: 1	of 6	_
Code:		200	4 Edition			Cat	/Item:	R-A/R1.2	10		Location:			PZR 262		-	=
Drawing No.:		1;	2050-WM	KS-0111W			Description	Valve to E	lbow	_			.,,				
System ID:	ĊН													***			_
Component ID:	12050-WMI	KS-0111	IW / 3-CH	I-814 / 6A						Size/	Length:	1.2" / 13"		Thickness/Dia	ameter:	.620" / 3"	
Limitations:	Limitations	s due to	config.			*					Start	Time:	10:25	Finisi	h Time:	10:33	
	Instrume	nt Setti	ngs			S	earch Unit		Cal.	T			Avis	10-1-1-1	ن ا ا مامست. ن ا ا ا مامست.		Ē
Serial No.:		0401	86603		Serial No	ı.:	01CWK4		Checks	Time	Date	Calib		Orientated 8		<u> </u>	4
Manufacturer: _		Panai	metrics		Manufact	urer:	КВА		Initial Cal.	07:00	4/18/2013	Calib		Signal Amplitude %	Sweep Division	Sound Pa	ih
Model: EPOC		inearity:		13-011	_ Size:	0.25"	Model:	Comp-G	Inter. Cal.	10:25	4/18/2013	1.0"	Notch	80	8.0	1.399	ᅦ
Delay:	4.483		Range:	1.75"	Freq.: _2	.25 MHZ	Center Freq.:	N/A	Inter, Cal.	10:33	4/18/2013	N.	Α				٦
M'll Cal/Vel:	.1232		Pulser:	Square	_ Exam An	gle:45	Squint Ang	ie: N/A	Inter. Cal.	N/A	4/4 0/2042						_
Damping:	400Ω		Reject:	0%	- Measured	d Angle:	45° Mode:	Shear	Final Cal.	12:01		L					╝
Rep. Rate:	Auto		Freq.:	2.0 Mhz	- Exit Point	.17!	 5" # of Elem	ents: 1	•	Couplai	ıt	<u></u>				l	_
Filter:	.8-3.0		Mode:	fullwave	- Config.:	Singl	e Focus:	N/A	Cal. Batch:		07220		Circumfe	rential Orienta	ted Search	h Unit	
Vullage:	Max		Other:	N/A	— Shape:	Round		N/A	Type:	Soun		Calibr		Signal	Sweep	Sound Pa	\prod_{i}
					Wedge S	lvie:	MSWQ	······································	Mfg.:	SONO	TECH	Refle		Amplitude %	Division		4
Ax. Gain (dB): _	13.8	. Circ. (Gain (dB):			· —	ch Unit Cable		Exam Bato	h:	07220	N/	A			 	┨
10 Screen Div.	. = 1.75	in, of	Sou	nd Path	- Type: R		Length: 6' No	. Conn.: 0	Type:	Soun	dSafe						┨
	Calibrati	ion Blo	ck		/		n Coverage		Mfg.:	SONO	TECH					 	┪
Cal. Block No.		10	873		Unstraam		in Coverage istream ∵ Sca	a dDi ine n	Refe	erence E	Block	-	Ref	erence/Simula	tor Black	·	┪
Thickness 2	2.25"	Dia.:		0			CCW ✓ Sca				5-6535	Gain		Signal	Sweep	Sound Par	1
Cal. Blk. Temp.	74° Temp	. Tool:	1070	BBGCY	- cw			n ob: 25.8	Type: \$	A		dB		Amplitude %	Division	Sourid Par	"
Comp. Temp.	79° Temp	. Tool:	1070	BGCY	Exam Su		OD	·	туре	o Rom	/us block	25.8	.7 SDH	75	6.0	1.045	4
Recordable India		v.		N- C	Surface C							N/A			 	 	┨
recordable mai: Results:	• • •		es [No 🗹		. Attached	Ultrasonic India	ation Report	-)	Co	mmente: lin	nited Sea	n 2"in the	introdose of	albam An	L	Ļ
	NRI 😿		RI 🗌	Ge	om 🗌					Ou		.scans	2 111 1316	IIIIIOUOSE QI	SIDOM AX	ano	
Percent Of Covera	age Obtaine	≇d > 90%	<u>ሬ:</u>	No	Reviewed	d Previous	Data:	N/A									
Examiner	Level	-PDI	<u>/</u>	{	Signature			ate Revie	wer				Signa	yrg,		Date	Ī
Currao, Jeffrey 1	- J-11	107 C	~~~			*******	4/18/2	013 WLT	Homes							4.27.13	
Examiner	Level 'N	VA.			Signature		[Date Site R	eview		ivi	A)	Signal	ure_ / /	7	Date	,7
N/A	-,-,-							Kay	Inend .	T. 5	tack	11 Car	2/1/	Stack	5.	11/13	
Other N/A	Level N	I/A			Signature		[Date ANII	Review -			إلا	Signal	ure	1	Date	1
MA														- 57	2/13		

ENCL

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 81 of 86

Domini	ion Sile/L	Jnit: N	IAPS	İ	2		Proce	edure:	ER-	AA-NDE-UT-8	02		Outage	No.:	N2R22	
	Summary	No.:	N2.F	R1.20.081B		•	Procedure	Rev.:		2		_	Report	No.: U	UT-13-025	
	Worksco	ope:		ISI			Work Orde	r No.:	591025	32605/NDER1	3-079		Pa	ige: 2	of 6	
Code:	7	2004 Edition			Cat./Ite	em:	R-A/R1.2	0		Location:			PZR 262			
Drawing No.:		12050-WM	K8-0111W			Description:	Valve to Ei	bow								
System ID:	СН															
Component ID:	12050-WMKS-0	111W / 3-CH	-814 / 6A						Size/L	Length: 1	.2" / 13"		Thickness/Dia	ameter:	.620" / 3"	
Limitations:	Limitations due	to config.								Start	Time:	10:34	Finlsl	n Time:	10:40	
· · · · · · · · · · · · · · · · · · ·	Instrument So	ettings			Sea	rch Unit		Cal.	Time	Date		Axial	Orientated S	earch Unit		
Serial No.:	0-	40186603	····	Serial No	o.:	01CWK3		Checks	Time		Calibr	etion	Signal	Sweep	Sound Path	
Manufacturer:		nametrics		Manufac		KBA		Initial Cal.	07:01	4/18/2013	Refle	ctor A	mplitude %	Division	Sound Patri	
Model: EPOC	 -	·	13-011	Size:	0.25"	_ Model:	Comp-G	Inter. Cal.	10:34 10:40	4/18/2013	1.0"		80	6.8	1.706"	
Delay:	5.455	Range:	2.5"	_ Freq.:	2.25 MHZ	Center Freq.:	N/A	Inter, Cal.	N/A	4710/2013	N/	A			ļ	
M'tl Cal/Vel:	.1232	Pulser:	Square	Exam Ar	ngle:60°	Squint Ang	le: N/A	Final Cal.	12:02	4/18/2013					1	
Damping:	400Ω	Reject:	0%	_ Measure	d Angle: 6	0° Mode: _	Shear		Couplar	nt						
Rep. Rate:	Auto	Freq.:	2.0 Mhz	_ Exit Poin	it2"	# of Elem	ents: <u>1</u>	Cal. Batch:	•	07220	-	Circumfere	Intial Orienta	ted Search	Unit	
Filter:	.8-3.0	Mode: _ Other:	Shear N/A	_ Config.:	Single	Focus: _	N/A_	Type:		dSafe	Callbr		Signal	Sweep		
Voltage:	Max	Other.	N/A	_ Shape:	Round	_ Contour:	N/A	Mfg.:		TECH	Refle		mplitude %	Division	Sound Path	
Ax, Gain (dB):	30.3 Ci	rc. Gain (dB)	: N/A	Wedge 9	Style:	MSWQC	:	Exam Bato	h.	07220	N/	A				
`					Search	Unit Cable		Type:		dSafe	ļ					
10 Screen Div		··	nd Path	Type:	RG-174 Ler	ngth: 6' No	. Conn.: <u>0</u>	Mfg.:		TECH	<u></u>				-	
Oal Black Nat	Calibration E				Scan	Coverage						<u>_</u>	rence/Simula	-tos Blook		
Cal. Block No.	2.25" Dia	10873			1	ream 🔽 Sca			arance f		Gain	Rele	Signal	Sweep		
Thickness 2 Cal. Blk. Temp.		·	0 6BGCY	CA	√ ∑	CCW 🔽 Scar	n dB: 36.3	Serial No.:		5-6535	dB	Reflector	Amplitude %		Sound Path	
· -	79° Temp. Tot		6BGCY	- Exam Si	urface:	OD		Type: S	S Romp	pus Block	30.3	.7 SDH	45	6.0	1.484"	
` · ·					Condition:	Contour					N/A		 	<u> </u>		
Recordable indic	• •	Yes 🗌	No 🔽	•	f. Attached U	trasonic Indic	ation Report	.)	_							
Results:	NRI 🔽	RI 🗀	Ge	om 📋					Co	mments: Lin Eff			ose 2" both . ing the 60° s			
Percent Of Cover	age Obtained >	90%:	No	Reviewe	ed Previous D	ata:	N/A			ver	ified by t	he presen	ca of the we	d root resp	onse	
Examiner	Level IJ-PD	1/2		Signature			ate Revie	wer				Signatu	321		Date	
Currao, Jeffrey	201161	<u></u>				4/18/2	013 W.L.	THOMAS				1 1	2		4.27.13	
Examiner	Level N/A			Signature			ate Site R	eview		tack L	الإجلادا	Signatu	In IL	1	Date	
N/A	1					4/18/2	1/24	mond	7:5	Tack	1/4	unt/	NHUC)	4 5	5/1/13	
Other N/A	Level N/A		;	Signature			Date ANI / F	Weive				Signatu	n de	-//	Date	
NIM												1/4		5/2/1	3	

UT Calibration/Examination

Domin	nion' Site/	Unit: N	IAPS	1 2			Proce	edure:	ER-	AA-NDE-UT-	902		Outage I	Vo.:	N2R22
	Summary	No.:	N2.R1	1.20.0818			Procedure	Rev.:		2			Report I	40.: U	T-13-025
	Workso	ope:		ISI			Work Orde	r No.:	591025	32605/NDER	13-079		Pe	ige: 3	of 6
Cade:		2004 Edition			Cat./Item	1:	R-A/R1.20)		Location:			PZR 262		
Drawing No.:		12050-WM	KS-0111W		C	Description:	Valve to Eli	bow	-						
System ID:	СН														
Component ID:	12050-WMK8-0	111W / 3-CH	-814 / 6A	· · · · · · · · · · · · · · · · · · ·					Size/l	ength:	1.2" / 13"		Thickness/Dia	meler:	.620" / 3"
Limitations:	Limited Due to	Config.								Start	Time:	10:41	Finish	Time:	10:47
	Instrument S	ettings		**************************************	Searci	h Uni t		Cal.	T:	Date	F	Αγία	Orientated S	earch Linit	
Serial No.:		40186603		Serial No.:		01CWK2		Checks	Time	Date	Calibr		Signal	Sweep	1
Manufacturer:	P	anametrics		Manufacturer:		КВА		Initial Cal.	07:03	4/18/2013	Refle		mplitude %	Division	Sound Path
Model: EPO	CH 4 Linea	rity:L	13-011	Size: 0.3	25"	Model:	Comp-G	Inter. Cal.	10:41	4/18/2013	1.0"	Notch	80	8.3	2.569*
Delay:	7.008	Range:	3.1"	Freq.: 2.25 N	HZ Ce	inter Freq.:	N/A	Inter. Cal.	10:47	4/18/2013	N/	Α			
M'tl Cal/Vel:	.1232	Pulser:	Square	Exam Angle:	70°	Squint Ang	le: N/A	Inter, Cal. Final Cal.	N/A 12:03	4/18/2013					
Damping:	400Ω	Reject:	0%	Measured Ang	le: 67°	_ Made:	Shear	·			<u> </u>				
Rep. Rate:	Auto	Freq.:	2.0	Exit Point	.4"	# of Elem-	ents: Single		Couplar						<u> </u>
Filter:	.8-3.0	Mode:	Fullwave	. Config.:	ingle	Focus:	N/A	Cal. Batch:		07220	ļ		ential Orienta	ted Search	Unit
Voilage:	Max	Other:	N/A	Shape: Ro	ound	Contour:	N/A	Type:	Sound		Calibr Refle		Signal mplitude %	Sweep Division	Sound Path
				Wedge Style:		MSWQC	;	Mfg.:	SONO	TECH	N/		inplicade 70	Division	
Ax. Gain (dB):	39.4 C	irc. Gain (dB)	N/A		Search U	nit Cable		Exam Batc	h:	07220	19/	^-			
10 Screen Di	iv. = 3.1 (n.	of Sou	nd Path	Type: RG-17	4 Lengt	lh: 6' N o	. Conn.: 0	Type:	Soun						
	Calibration	Block		-	 Scan Co			Mfg :	SONO	TECH					
Cal. Block No.		10873		_ Upstream ∏ I			n dB: 39.4	Refe	arence E	Block		Refe	rence/Simula	tor Block	
Thickness	2,25" Di	a.:	0	. CW[n dB: N/A	Serial No.:	0	5-6535	Gain dB	Deficien	Signal	Sweep	Sound Path
Cal. Blk. Temp.	74° Temp. To	ol: 107	BGCY	- Exam Surface:		OD		Type: S		ous Block	27.4	.3" SDH	Amplitude %	Division 2.8	.859"
Comp. Temp.	79° Temp. To	ol: 107	6BGCY	- Surface Condi		Contour (N/A	.0 GIN		7.0	.008
Recordable ind	lication(s):	Yes 🗍	No ▽	(If Yes, Ref. Atta				١			- NATE			\vdash	
Results:	NRI 🙀	RI		m 🔲	Olieg Gime	asorne majo	attori Naport.	,	Co	mments: lim	ited for 2	" in the in	tradose for th	e Ax Scan.	
Percent Of Cove	erage Obtained >	90%:	No	Reviewed Pre	vious Data	a: <u> </u>	N/A								
Examiner	Level II-PD	1/0	Si	ignature			ate Review	ver				Signatu	ı(te		Date
Currao, Jeffrey	T Jall	Can				4/18/2	013 4.76	MOMAS				THE			4.27.13
Examiner	Level N/A		Si	gnature						/	uth/	Signat	ire //	1	Date
N/A						4/18/2	013 Rays	nond.	T. 5	tack	1/1	on It	1 Sta	1 5	7/1/13
Other	Level N/A		Sí	gnature		C	ate ANKR	evlew				Signati	ire		Date
N/A							1							- 5-1	1/17

ENCLOSURE R2-3

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ENCLO

Serial No. 14-050 Docket No. 50-339 NAPS Unit 2 4th Interval 1st Period Limited Exams Page 83 of 86

Domin	nion Site	Unit:1	NAP5	/ 2		Proc	edure:	ER-	AA-NDE-UT-8	102	_	Outage	No.:	N2R22
	Summary	No.:	N2.F	R1.20.0818		Procedure	Rev.:		. 2		_	Report	No.: L	T-13-025
	Workso	юре:		ISI		Work Ord	er No.:	591025	32605/NDER1	3-079		P	age; 4	of 6
Code:		2004 Edition	1		Cat./ilem:	R-A/R1.2	0		Location:			PZR 262		
Drawing No.:		12050-WM	IKS-0111W		Description	: Valve to E	lbow							
System ID:	CH													
Component ID:	12050-WMKS-0	1111W / 3-CI	1-814 / 6A					Size/I	Length: 1	.2" / 13"		Thickness/Di	ameter:	.620" / 3"
Limitations:	Limited due to	Config.							Start	Time:	10:48	Finis	h Time:	10:53
	Instrument S	ettings			Search Unit		Cal.	Time	Date	<u> </u>	Avial	Orientated S	Search Unit	
Serial No.:		40186603		Serial No.:	22K0-1000	01	Checks	Time	Date	Calib		Signal	Sweep	
Manufacturer:		anametrics		Manufacturer:	Sigma	<u> </u>	Initial Cal.	07"04	4/18/2013	Refle		mplitude %	Division	Sound Path
	OCH 4 Linea		-13-011	Size:2(14	x8) Model:	SDA2	Inter. Cal.	10:48	4/18/2013	.75"	SDH	80	6.0	1.496"
Delay:	5.855	Range;	2.5"	Freq.: 2.0 Mi	HZ Center Freq.	1.990	Inter. Cal.	10:53 N/A	4/18/2013	N,	/A			
M'tl Cal/Vel:	.2488	Pulser:	Square		60° Squint An		Final Cal.	-	4/18/2013					
Damping:	400Ω	Reject	0%	Measured Angl	e: 60° Mode;	Longitudina		Couplan		<u> </u>				
Rep. Rate:	Auto .8-3.0	Freq.: , Mode:	2.0	Exit Point	0.375 # of Elei	ments: 2	Cal. Balch	•	07220		Circumtere	ntial Oriente	ted Search	L I I I I I I I I I I I I I I I I I I I
Voltage:	.6-3.0 Max	Other:	Fullwave N/A		-SBS Focus:	FD.54"	Type:		dSafe	Calibi		Signal	Sweep	
	IIIA	Other.	N/A	Shape: Recta	ingular Contour:	RA2.0"	Mfg.:		TECH	Refle		mplitude %	Division	Sound Path
Ax. Gain (dB):	37.3 C	irc. Gain (dB)	· NiA	Wedge Style:	Integr	al	Exam Bato	· Hi-	07220	N	/A			
		_	ind Path		learch Unit Cable		Type:		dSafe					
10 Screen Di		·	ind ratii	Type: RG-174	4 Length: 6' N	lo. Conn.: 0	Mfg.:	SONO						
Cal. Block No.	Calibration	ыоск 26446			Scan Coverage					<u> </u>			4	J <u>. </u>
-	3.0905" Di	a.:	4.5	Upstream 🛂 D				erence l		Gain	Reie	rence/Simul Signal	Sweep	
-	72° Temp. To		6BGCY	cw [CCW 🗀 Sc	an dB: N/A			26446	dB	Reflector	Amplitude 9		Sound Path
	79° Temp. To		6BGCY	- Exam Surface:			Type: lia F	Radius C	Cal Blk (liW-	37.3	.75"SDH	80	6.0	1.496"
Recordable Ind		Yes 🗍	No 🗸	- Surface Conditi			· .			N/A		 	 	
Results:	NRI 🔽	RI 🔲	_	(II Yes, Ref. Attac om ☐	ched Ultrasonic Ind	Ication Report	.)	Со	mments: Lin	ited 4" i	n Intrados	e of Elbow.		L
Percent Of Cove	erage Obtained >	90%:	No	Reviewed Prev	rious Date:	N/A								
Examiner	Level Jupo	1//		Signature		Date Revie	wer				Signati	ire,		Date
Currao, Jeffrey	T JAM	<u>Linner</u>			4/18/	2013 WL	ToTomis					<i>**</i>		4.21.13
Examiner	Level N/A			Signature		Date Site F	Neive	1		111 EF	Signatu	rely /	11	Date
N/A					4/18/	2013 Rai	IMONO	17:	Stack		lages	1 Sto	cf .	5/1/13
Other N/A	Level N/A		;	Signature	_	Date ANII	Review				Signalı	l e	1.	Date
IV/A				····						_//	1/1	ع برس	12/13	

Supplemental Report

Domin	ion'					Report No.:	U	JT-13-0	25
						Page:	5	of	6
Summary No.:	N2.R1.20.0818					211			
Examiner:	Currao, Jeffrey T	Level:	II-PDI		W.L. Tuomas	911-	Date:	04-27	7.13
Examiner:	N/A	Level:	N/A	Site Review:	Raymond T-	Stack RH	Date:	5/1	1/13
Other:	N/A	Level:	N/A	ANII Review:	MA		Date:	5/2	113
Commer		٠	.72		, 95°				
					JALVE				

ELBOW



Report No: UT-13-025 Summary # N2.R1.20.0818

Pg. 6 of 6

Prepared by: W. Thomas

Date: 4/27/2013

RSS 5/1/B

Weld Number		6A		eld Width	1.2"		
Thickness		0.620"		eld Length	13"		
	2	1	0	1	2	:	

FLOW CL 60L VALVE EL

.207" HT X 1.1" WIDTH = 0.228 SQ. IN, X 13" LENGTH = 2.96 CU. IN,

2.96 CU, IN. REQUIRED VOLUME US AND DS SIDES EXAMINED 0.02 SQ. IN. US SIDE AX DIRECTION FOR 9" 50 0.02 X 9" LENGTH = 0.18 CUBIC IN BEST EFFORT US SIDE $.18 / 2.96 = 0.06 \times 100 = 6\%$



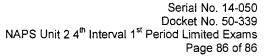
NO EXAM 94% US SIDE AX DIRECTION

EXAMINED 11" DS SIDE AX AND CIRC DIRECTION 11 / 13 = 0.846 X 100 84.6%

Examination Volume Dimensions -Height 0.207" Length Width 2.2" Coverage Summary Required Scans (each has a weighing factor of 100 for complete coverage) ANGLE UpSt-Ax UpSt-Circ DnSt-Ax **DnSt-Circ** 45/60 84.6% 0% 70 0% 84.6% *6% 60L Code Coverage Total 42.3% 84.6+84.6+0+6=175.2/4=43.8 *Best Effort Coverage (Max 25%) Total 1.5%

Notes:

- 1) Code Coverage refers to the maximum percentage of the required examination volume that is effectively examined with the qualified examination procedure.
- 2) Best Effort Coverage refers to the required examination volume past the weld centerline that is examined in the axial beam direction with an Appendix VIII demonstrated procedure for single sided coverage.



7.0 DURATION OF PROPOSED ALTERNATIVE

The proposed alternatives in this request if approved will be applicable for the fourth 10 year ISI interval for NAPS 2 which ends December 13, 2020.

8.0 PRECEDENTS

Similar relief was granted in the Third Inservice Inspection (ISI) Interval, as follows:

- 1. Request N2-I3-PRT-002-A5 granted for limited coverage for ASME Section XI Exam category B-D, Item No. B3.110 items.
- 2. Request N2-I3-PRT-002-B1 granted for limited coverage for ASME Section XI Exam category C-B, Item No. C2.21 items.
- 3. Request N2-I3-PRT-002-R1 granted for limited coverage for Risk-Informed examinations on weld 2B (6"-RC-420).

Although Fourth Interval Risk-Informed selections are different from those for the Third Interval, alternative requests were granted for examinations in similar locations with the same service conditions as identified in requests N1-I3-PRT-004-R1 and N2-I3-PRT-002-R1.

North Anna Power Station Unit 1 was granted similar alternative requests for Fourth Interval First Period Limitations in request N1-I4-LMT-001.

9.0 REFERENCES

- 1. ASME Code Section XI, 2004 Edition with No Addenda.
- 2. Request N1-I3-PRT-004, NRC Letter dated 1/7/2011 (TAC Nos. ME3333, ME5136, ME5137, ME5138, ME5139, ME5140, and ME5141)
- 3. Reguest N2-I3-PRT-002, NRC Letter dated 8/17/2012 (TAC No. ME7180)
- 4. Request N1-I4-LMT-001, NRC Letter dated 8/13/2013 (TAC No. ME9913)
- 5. ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds"