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10 CFR 50.55a

NLS2005105
December 8, 2005

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

Subject: Response to U.S. Nuclear Regulatory Commission Request for Additional Information Regarding Inservice Inspection Relief Requests RI-21, Revision 2, and RI-36
Cooper Nuclear Station, Docket No. 50-298, DPR-46

References:

1. Letter from Brian Benney, U.S. Nuclear Regulatory Commission, to Randall K. Edington, Nebraska Public Power District, dated November 21, 2005, "Cooper Nuclear Station – Request for Additional Information. RE: Relief Requests RI-21, Revision 2, and RI-36 (TAC No. MC8512)"

2. Letter from Randall K. Edington, Nebraska Public Power District, to U.S. Nuclear Regulatory Commission, dated September 28, 2005, "Inservice Inspection Relief Requests RI-21, Revision 2, and RI-36 and Withdrawal of Relief Request RI-20"

The purpose of this letter is to submit the Nebraska Public Power District's response to the Nuclear Regulatory Commission's Request for Additional Information (Reference 1) regarding Inservice Inspection Relief Requests RI-21, Revision 2, and RI-36 (Reference 2). The response is attached. Per your request, drawings for Welds RVD-BJ-17 and RVD-BJ-18 pertaining to Relief Request RI-36 are provided on the enclosed data sheets.

Should you have any questions concerning this matter, please contact Paul Fleming, Licensing Manager, at (402) 825-2774.

Sincerely,

Randall K. Edington
Vice President – Nuclear and
Chief Nuclear Officer

A047

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/sl

Attachment
Enclosure

cc: U.S. Nuclear Regulatory Commission w/attachment/enclosure
Regional Office - Region IV

Senior Project Manager w/attachment/enclosure
USNRC – NRR Project Directorate IV-1

Senior Resident Inspector w/attachment/enclosure
USNRC - CNS

NPG Distribution w/attachment/enclosure

CNS Records w/attachment/enclosure

Attachment

Response to NRC Request for Additional Information Regarding Inservice Inspection Relief Requests RI-21, Revision 2, and RI-36

Nebraska Public Power District
Cooper Nuclear Station

References: Letter from Brian Benney, U.S. Nuclear Regulatory Commission, to Randall K. Edington, Nebraska Public Power District, dated November 21, 2005, "Cooper Nuclear Station – Request for Additional Information. RE: Relief Requests RI-21, Revision 2, and RI-36 (TAC No. MC8512)"

Letter from Randall K. Edington, Nebraska Public Power District, to U.S. Nuclear Regulatory Commission, dated September 28, 2005, "Inservice Inspection Relief Requests RI-21, Revision 2, and RI-36 and Withdrawal of Relief Request RI-20"

Relief Request Number RI-21, Revision 2

NRC Question No. 1

Confirm that nozzles NVE-BD-N9 and NVE-BD-N4A&C are the only two components that are affected under Relief Request RI-21, Revision 2. There are 28 nozzles listed in this relief request; however, in the "Basis for Relief" section, the discussion focuses only on nozzles NVE-BD-N4A&C and NVE-BD-N9.

NPPD Response

Yes, nozzles NVE-BD-N9 and NVE-BD-N4A&C are the only two components affected under Relief Request RI-21, Revision 2. The following relief was requested:

1. Request a reduction in coverage associated with the N9 nozzle-to-shell weld from 70% to 40%.

2. Remove the reference to the inner radius examination coverage for N9 [% examined is specified as 70% in Relief Request Table RI-21-1, Revision 1, approved by the NRC on October 23, 1997 (TAC No. M94000)].

3. Revise the access limitations for NVE-BD-N4A&C. The access limitations for N4A&C were revised to include limitations from adjacent nozzles. This information was provided for completeness and does not alter the basis of relief as approved by the Nuclear Regulatory Commission (NRC) in Revision 1 of this relief request.

NRC Question No. 2

The licensee stated that the total volumetric examination coverage of nozzle NVE-BD-N9 was 40 percent. The figure in the attachment to the September 28, 2005, letter does not provide sufficient information regarding how the 40 percent coverage was achieved. Please demonstrate the 40 percent coverage by calculations and diagrams.

NPPD Response

The ultrasonic examination volume includes the outer 85 percent thickness and the inner 15 percent thickness as measured from the inside diameter surface. The 60 degree RL scans were used to examine the entire weld volume with the exception of the lower 15 percent in the circumferential direction. The EPRI Model parameters were used to inspect the lower 15 percent of the examination volume using the required shear wave scans.

The 60 degree RL/Zone –1 and the 60 degree RL/Zone –2 scans, along with the combined model scans were used to calculate the total examination coverage and limited/no scan area not covered by these techniques. The examination limitations are shown in square inches in order to simplify calculations.

Required Examination Area = Upper 85% + Lower 15% = 45.10 in^2 + 6.56 in^2

Required Examination Area = 51.66 in^2

Upper 85% Scan Area Examined = 26.87 in^2
Lower 15% Scan Area Examined = 6.56 in^2

Upper 85% Limited Scan Area = 18.23 in^2
Lower 15% Limited Scan Area = 0.00 in^2

No scan coverage in limited area due to adjacent insulation ring = 23.72%

Model and 60 degree RL Percentages:

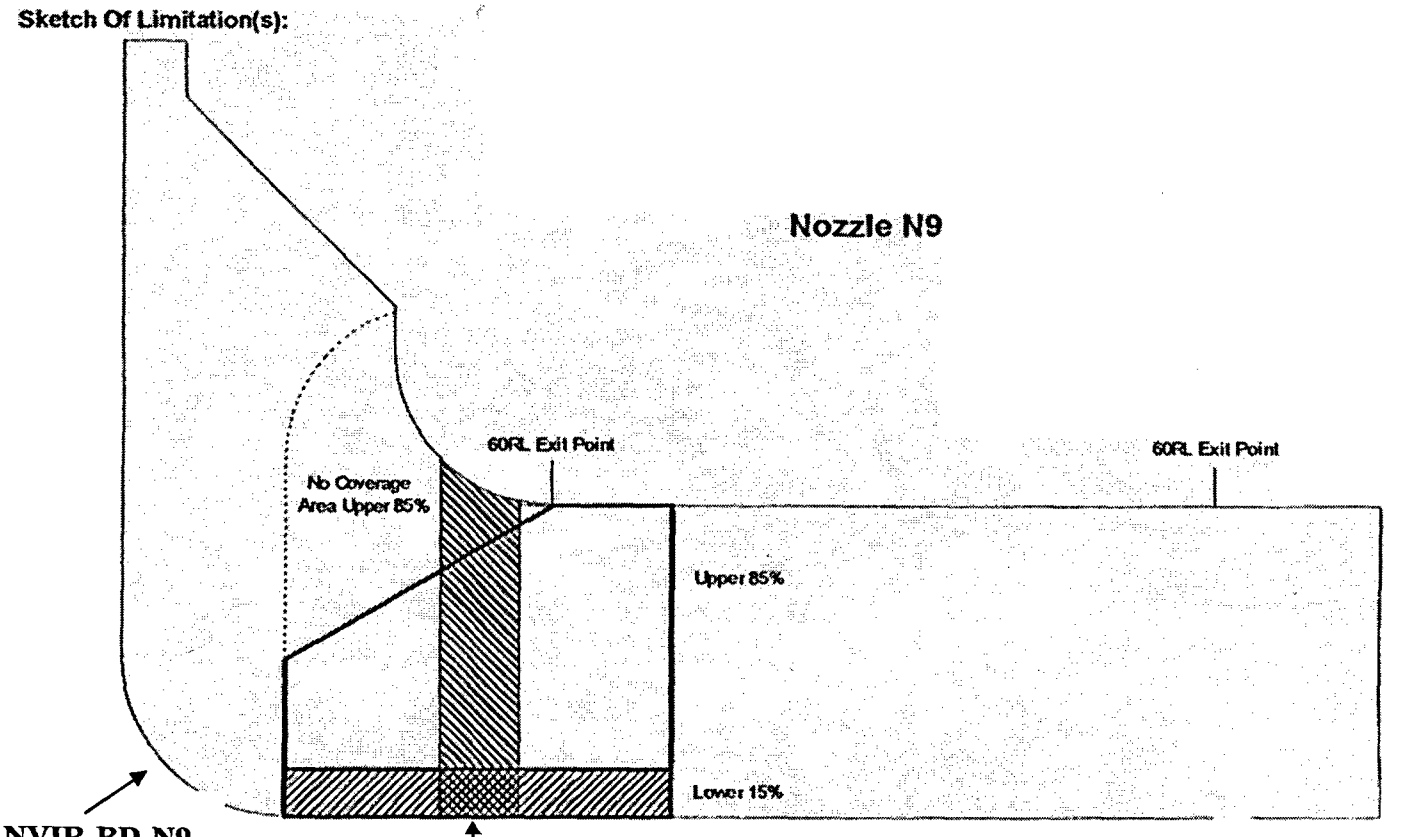
Total Weld Coverage = (Upper 85% + Lower 15%) - (No Scan Coverage Area)

Total Weld Coverage = [(26.87 in^2 + 6.56 in^2) ÷ 51.66 in^2] X 100 - 23.72%

Total Weld Coverage: 64.71% - 23.72% = 40.99%

Total Weld Coverage = 40.99%

The figure below shows the examination volume limitations to the applicable examination zones as required per ASME Section XI, Figure IWB-2500-7(a).



NVIR-BD-N9
(RPV Nozzle to Shell – Nozzle Inner Radius Section)
100% coverage achieved.
Previous exam achieved 70%.

NVE-BD-N9
RPV Nozzle to Shell Weld Lower 15% (i.e., inner 15%) received 100% volume coverage.

NRC Question No. 3

The submittal stated that the inner radius examination of nozzle NVE-BD-N9 in the third interval achieved 100 percent of the required examination volume. It also stated that the inner 15 percent of the nozzle received 100 percent coverage. Discuss why the volumetric examination can achieve 100 percent coverage in the inner radius region, but only 40 percent coverage was achieved.

NPPD Response

The nozzle is divided into two distinct examination zones: the nozzle-to-shell weld zone (ASME Code Item B3.90) and the inner radius zone (ASME Code Item B3.100). Each zone for the N9 nozzle has two distinctive component identifiers in the Cooper Nuclear Station (CNS) Inservice Inspection (ISI) Program. The nozzle-to-shell weld is identified as NVE-BD-N9, and the inner radius zone is identified as NVIR-BD-N9. The nozzle-to-shell weld zone and also the inner radius zone each have their own respective code volumes that are required to receive a volumetric examination. Figure IWB-2500-7(a), "Nozzle in Shell or Head," illustrates the most applicable examination zones for CNS. Zone M-N-O-P is the inner radius zone, and Zone A-B-G-H-I is the nozzle-to-shell weld zone.

Revision 1 of the relief request originally listed the coverages for both zones on N9 as 70 percent (i.e., 70 percent for nozzle-to-shell weld zone and 70 percent for inner radius zone). All the other nozzles listed in Relief Request Table RI-21-1 only referred to the nozzle-to-shell weld zones and did not include the inner radius zone as N9 did. All the other examinations for the nozzle inner radius zones achieved the required inner coverage. Therefore, their respective coverages were not listed.

The 40 percent coverage stated in the relief request only applies to the nozzle-to-shell weld zone NVE-BD-N9. Within the required examination volume associated with NVE-BD-N9, that zone or volume is divided into the lower 15 percent region and upper 85 percent region of the nozzle-to-shell weld examination volume. The relief request stated that 100 percent coverage was achieved for the lower 15 percent region, which is the region of most concern for flaw initiation. The upper (outer) 85 percent region is less of a concern.

The figure on Page 3 of this attachment shows the exam volume associated with NVE-BD-N9 and NVIR-BD-N9. The inner radius zone (NVIR-BD-N9) is a different exam volume than the inner 15 percent region shown as the cross-hatched area in the figure. The area to the left of the cross-hatched area is the inner radius zone that is examined under a different technique and reported on a different data sheet. With our most recent examination, we achieved 100 percent of the inner radius zone compared to 70 percent in Interval 2 (1995). Since we achieved 100 percent code-required volume for the inner radius zone, we revised the table in the relief request to remove the inner radius zone coverage of 70 percent that was previously approved by the NRC in Revision 1 of the relief request.

NRC Question No. 4(A)

The submittal stated that "Based on EPRI [Electric Power Research Institute] modeling of the examination volume...a higher quality of examination was achieved even though less overall coverage was achieved...." Discuss how does the EPRI modeling of the examination volume lead to a higher quality of examination.

NPPD Response

The relief request should have stated that a more reliable examination was performed based on the EPRI Modeling and Performance Demonstration Initiative (PDI) techniques that were utilized. The EPRI modeling provides the geometric inputs and parameters so the PDI-qualified examiner can more reliably perform the examination and have more confidence that any flaw present would be detected.

NRC Question No. 4(B)

The submittal also stated that "...the requirement to use only Performance Demonstration Initiative (PDI)-qualified transducers limited the examination to coverage and contributed to a reduction of coverage compared to previous examinations in the outer 85% volume." Discuss whether an approach based on less coverage with a higher quality examination (as opposed to more coverage with a lower quality examination) is appropriate in terms of detecting flaws in the nozzles in the Cooper Nuclear Station.

NPPD Response

Since 10 CFR 50.55a requires the use of ASME XI Appendix VIII in detecting flaws in the nozzles in CNS, only qualified PDI procedures and specific qualified transducers may be used for this examination. Previous examinations may have reported additional coverage, but since the previous examiners and equipment were not qualified by performance demonstration, the coverage reported back then cannot be considered as reliable as today. Nozzle modeling in conjunction with PDI examination methods maximizes the coverage that can be "reliably" obtained, even though PDI-qualified transducers and associated procedures limit how much coverage an examiner is able to attain.

NRC Question No. 4(C)

Discuss the results of previous examinations of nozzle NVE-BD-N9.

NPPD Response

Examination of NVE-BD-N9 was first performed in Interval 1 in 1985 with no coverage percentage reported. Examination of NVE-BD-9 was next performed in Interval 2 in 1993 with a 70% coverage obtained. Both examinations predate the requirement to use PDI techniques. No recordable indications were detected in the weld.

NRC Question No. 5

In a letter dated October 23, 1997, the NRC staff approved Relief Request RI-21, Revision 1. In the NRC staff's safety evaluation contained in that letter, the staff discussed a visual examination, VT-2, associated with inservice inspection of nozzle NVE-BD-N9. Discuss whether the visual examination, VT-2, has been conducted and will be performed for nozzle NVE-BD-N9 in conjunction with the required volumetric examinations.

NPPD Response

Yes, the VT-2 examination of this nozzle is performed every refueling outage in accordance with the vessel pressure test per Category BP of ASME Section XI. It was last performed in Refueling Outage 22 (2005) with no visible leakage detected.

Relief Request Number RI-36

NRC Question No. 6

Provide a drawing of the subject welds RVD-BJ-17 and RVD-BJ-18, including the volume that were volumetrically examined, angle and trace of transmitting and receiving signals, and examination interferences.

NPPD Response

The drawings of the welds are provided on the enclosed Ultrasonic Examination Scan Limitation Sheets (page 5 of 5 for each data set) for Welds RVD-BJ-17 and RVD-BJ-18.

The examination was performed manually; therefore, only the beam angle is provided. Since an automated examination was not performed, a trace of transmitting and receiving signals cannot be provided.

The limitation was due to the "as welded" crown. (See the enclosed Ultrasonic Examination Scan Limitation Sheets, page 5 of 5 for each data set.) Conditioning the crown may have achieved more examination volume coverage; however, the inadvertent removal of weld metal below code minimum on a thin material may have occurred on one or both of the segments and, therefore, was not performed. There were no other interferences identified.

NRC Question No. 7

Identify the piping system with which subject welds RVD-BJ-17 and RVD-BJ-18 are associated. Discuss results of the previous volumetric examination of RVD-BJ-17 and RVD-BJ-18.

NPPD Response

The piping welds are located on the Reactor Recirculation System.

Volumetric examinations of these two welds were first examined in Refueling Outage 22 (2005), with no recordable indications. Prior to the application of Risk-Informed ISI, volumetric examination of these welds was not required. These welds were recently added to the population of welds to be scheduled for volumetric examinations with the implementation of Risk-Informed ISI.

NRC Question No. 8

The submittal stated that alternate angles were used; however, due to high signal-to-noise ratios additional coverage could not be achieved. Identify the original transducer angles and alternate angles used. Discuss whether the original angles used in the examination result in high signal-to-noise ratio and whether the examination results were not distorted by the signal-to-noise ratio.

NPPD Response

45-degree and 60-degree transducers were used with acceptable signal-to-noise ratios. The signal-to-noise ratio for the 70-degree transducer was not acceptable; therefore, it was not used. (See the enclosed examination summary data sheets for RVD-BJ-17 and RVD-BJ-18.)

NRC Question No. 9

The submittal stated that the affected welds in Relief Request RI-36 were selected to be included in risk-informed inservice inspection. Discuss how does Relief Request RI-36 satisfy the relief request guidelines in EPRI TR-112657, Revision B-A, "Revised Risk-Informed Inservice Inspection Evaluation Procedure (PWRMRP-05)," Final Report, December 1999.

NPPD Response

In accordance with EPRI TR-112657, Revision B-A, Section 6.4, if greater than 90% coverage cannot be obtained for the selected welds, and none of the other welds in that segment would yield better coverage, the utility is directed to submit a relief request. RVD-BJ-17 and RVD-BJ-18 were selected because they gave the best access for examination. These welds are located in two-inch small bore piping. These two welds are grouped with 15 other small bore welds that are either butt welded or socket welded. These welds are classified as risk Category 4 with a risk characterization ranking of medium, consequence ranking of high, and failure potential ranking of low. The reduction in coverage from the required 90% to slightly greater then 84% has little or no impact to the overall risk contribution.

NLS2005105
Enclosure

Enclosure

Areva Examination Summaries for the Cooper Nuclear Station

Summary No. B9.21.0032.R1
System/Component ID NBDR/RVD-BJ-17
Data Package CNSDP072-RFO22
January 26, 2005 (Approved February 2, 2005)
Pages 1 - 3 & 5 and Attachment

Summary No. B9.21.0033.R1
System/Component ID NBDR/RVD-BJ-18
Data Package CNSDP071-RFO22
January 26, 2005 (Approved February 8, 2005)
Pages 1 - 3 & 5 and Attachment

AREVA

EXAMINATION SUMMARY

Summary No.: B9.21.0032.R1	Data Package: CNSDP072-RFO22	Exam Date: 01-26-2005

Customer: Cooper Nuclear Station, NPPD	Examination Methods: UT
System / Component ID: NBDR / RVD-BJ-17	Examination Procedures: 54-ISI-836-08
Component Description: PIPE TO ELBOW	Calibration Sheets No(s): CNS-05-061 & CNS-05-062
Examination Category: R-A	Examination Results: ☒ No Reportable Indications ☐ Reportable Indications ☐ Geometric
ISO / Drawing: X-2512-200	

Summary:
This examination was done to ASME section XI appendix VIII, 1995 edition with editions and addenda through 2000.

The 45° shear and the 60° shear were used for optimum flaw detection. A 70° shear was not used due to high signal to noise ratio.

No recordable indication noted with either 45° or 60° shear.

84.21% code required volume achieved using the 45° and 60° transducers, due to the as welded crown height.

SEE ATTACHED AREVA X-REF FOR APPLICABLE SEARCH UNIT DB #'s.
REF W.O. 4334690
TPM 2/2/05 TPM 2-8-05

RELIEF REQUEST REQUIRED.

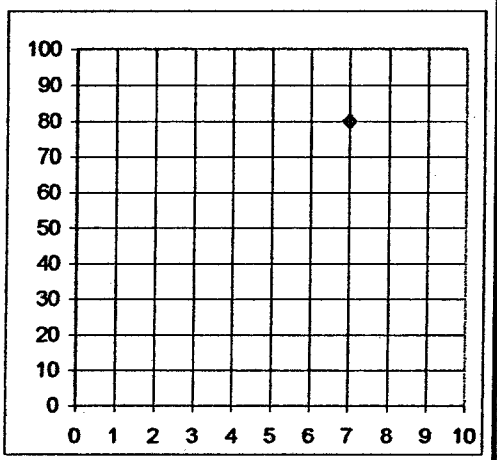
Prepared By: Terry Kobernusz	Date: 1/26/05	Reviewed By:	Date: 2-1-05 / 1-31-05
Sign:		Sign:	
Customer:	Date:		
Sign: Tim McClure / Tim McClure	2/2/05		

AREVA

UT CALIBRATION DATA SHEET

Customer: Cooper Nuclear Station, NPPD	Exam Date: 01/26/2005	Summary No.: B9.21.0032.R1
System / Component I.D.: NBDR / RVD-BJ-17		Calibration No.: CNS-05-061
Component Description: 2.0" PIPE TO ELBOW WELD		
ISO / Drawing No.: X-2512-200	Procedure No. / Rev.: 54-ISI-836-08	Code / Accept. Criteria: IWB-3514
Material: STAINLESS STEEL	Diameter: 2.0"	Thickness: .218"

INSTRUMENT SETTINGS		SEARCH UNIT	CALIBRATION STANDARD
Mfg: KBA	Model: USN 58L	DB / Serial No.: 34570	Cal. Block No.: 7500285
Serial / MT&E #: VH-9074		Size: .25"	Cal. Block Thickness (in): .50"
Mat. Cal. / Velocity: 0.1212		Freq. (MHz): 2.25 MHZ	Cal. Block Dia. (in): N/A
Delay: 0.000	Zero Offset: 6.588	Long / Shear / Single / Dual: SHEAR / SINGLE	Temp (F) Block: 74° Comp.: 84°
Each Major Screen Div. #: .1"		Nominal Angle: 45° Measured: 45°	Therm. No.: VH-8043
Channel #: N/A		Fixture / Size: MSWQC	Couplant Type: EXOSEN 30
Range: 1.0"	Freq (MHz): 2.25	Cable Type & Length: RG-174	Couplant Batch No.: 32104301
Damping: 1000Ω	Reject: OFF	No. of Connectors: 0	CALIBRATION STD. SIMULATOR
Rep. Rate:AUTOHIGH	Pulse: HIGH	DAC PLOT	Serial No.: N/A
Gate: N/A	Display: FULLWAVE		Sweep Position / Depth: N/A
Mode: P.E.	Jack: T		Signal Amp. (%): N/A
Ref. Sensitivity: 31.0 dB			Gain DB (dB): N/A
Scan Sensitivity: 37.0 dB			EXAM DATA
(Amt. DB to bring Notch to DAC)			Scan Direction to Weld:90TOWELD;=TOWELD
Notch dB (Piping): N/A			(0 to WRV; 0 to Material; 90 to Weld; = to Weld)
Notch dB (Vessels): N/A			Recordable Geometry (Yes / No): NO



CALIBRATION CHECK			
	Time	OK	Initials
Initial Cal:	0300	OK	TLK
Init. Sim. Cal:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Final Cal.:	0505	OK	TLK

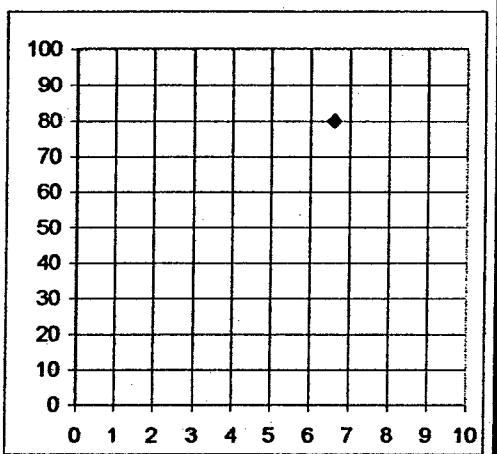
Amplitude vs. Range			Recordable Indications (Yes / No): NO
Signal to Noise Ratio: 8 : 1			Limited Exam (Yes / No): YES
			Percent Scan Completed: 84.21%
			Percent Exam Completed: 84.21%
			0 DEG. WELD THICKNESS ONLY
			Comp.: N/A
			BM : N/A HAZ: N/A
			C/L Weld: N/A
			Comp: N/A
			BM: N/A HAZ: N/A
Scan Direction on Cal. Block	0 Deg.	Axial	Circ
			Crown HT.: N/A

AREVA

UT CALIBRATION DATA SHEET

Customer: Cooper Nuclear Station, NPPD	Exam Date: 01/26/2005	Summary No.: B9.21.0032.R1
System / Component I.D.: NBDR / RVD-BJ-17		Calibration No.: CNS-05-062
Component Description: 2.0" PIPE TO ELBOW WELD		
ISO / Drawing No.: X-2512-200	Procedure No. / Rev.: 54-ISI-836-08	Code / Accept. Criteria: IWB-3514
Material: STAINLESS STEEL	Diameter: 2.0"	Thickness: .218"

INSTRUMENT SETTINGS		SEARCH UNIT	CALIBRATION STANDARD	
Mfg: KBA	Model: USN 58L	DB / Serial No.: 34790	Cal. Block No.: 7500285	
Serial / MT&E #: VH-9074		Size: .25"	Cal. Block Thickness (in): .50"	
Mat. Cal. / Velocity: 0.1247		Freq. (MHz): 2.25 MHZ	Cal. Block Dia. (in): N/A	
Delay: 0.000	Zero Offset: 8.5269	Long / Shear / Single / Dual: SHEAR / SINGLE	Temp (F) Block: 74°	Comp.: 84°
Each Major Screen Div. #: .15"		Nominal Angle: 60° Measured: 60°	Therm. No.: VH-8043	
Channel #: N/A		Fixture / Size: MSWQC	Couplant Type: EXOSEN 30	
Range: 1.5"	Freq (MHz): 2.25	Cable Type & Length: RG-174 / 12'	Couplant Batch No.: 32104301	
Damping: 1000Ω	Reject: OFF	No. of Connectors: 0	CALIBRATION STD. SIMULATOR	
Rep. Rate:AUTOHIGH	Pulse: HIGH	DAC PLOT	Serial No.: 7500772	
Gate: N/A	Display: FULLWAVE		Sweep Position / Depth: 7.0	
Mode: P.E.	Jack: T		Signal Amp. (%): 40%	
Ref. Sensitivity: 53.0 dB			Gain DB (dB): 34.0 dB	
Scan Sensitivity: 53.0 dB			EXAM DATA	
(Amt. DB to bring Notch to DAC)			Scan Direction to Weld:90 TO WELD	
Notch dB (Piping): N/A			(0 to WRV; 0 to Material; 90 to Weld; = to Weld)	
Notch dB (Vessels): N/A			Recordable Geometry (Yes / No): NO	
			Recordable Indications (Yes / No): NO	
			Limited Exam (Yes / No): YES	
			Percent Scan Completed: 84.21%	
			Percent Exam Completed: 84.21%	



CALIBRATION CHECK			
	Time	OK	Initials
Initial Cal:	0310	OK	TLK
Init. Sim. Cal:	0312	OK	TLK
Intermediate:	0320	OK	TLK
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Final Cal.:	0510	OK	TLK

Amplitude vs. Range

Signal to Noise Ratio: 8 TO 1

0 DEG. WELD THICKNESS ONLY

Comp.: N/A

BM: N/A HAZ: N/A

C/L Weld: N/A

Comp: N/A

BM: N/A HAZ: N/A

Crown HT.: N/A

Weld Width: N/A

Scan Direction on Cal. Block	0 Deg.	Axial	Circ
(Yes / No)	NO	YES	NO

Reflector	NOTCH	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sweep Pos. / Depth in Inches	6.6 / .50"	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Amplitude in %	80%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gain in dB	53.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Performed a 60° shear, axial (perpendicular to weld) examination of Pipe to Elbow Weld (RVD-BJ-17).
No recordable indications were noted. Limited exam due to weld crown height, 84.21% code volume achieved.
"NCD"
ID roll 20% @ 3.0 sweep divisions.

Examiner: Terry Kobernusz Sign:	Level: II	Date: 01/26/05	Examiner: N/A Sign:	Level: N/A	Date: N/A
Reviewed: Sign:	Level: 1-31-05	Date:	ANII Review: Sign:		Date: 2/9/05
Customer: Sign:		Date: 2/2/05			

AREVA

ULTRASONIC EXAMINATION SCAN LIMITATION REPORT

Customer: Cooper Nuclear Station, NPPD	Component: 2" PIPE TO ELBOW	Summary No.: B9.21.0032.R1

Weld No.: RVD-BJ-17			
Reference Point N/A			
1) Interfering Condition	AS WELDED WELD CROWN		
Distance From Centerline	N/A	To	N/A
Distance From Ref. Point	N/A	To	N/A
2) Interfering Condition	N/A		
Distance From Centerline	N/A	To	N/A
Distance From Ref. Point	N/A	To	N/A
3) Interfering Condition	N/A		
Distance From Centerline	N/A	To	N/A
Distance From Ref. Point	N/A	To	N/A
(For All Measurements Indicate: US, DS, CW, CCW)			

Percent Of Exam Completed
(Calculations Or Comments Below)

84.21% code volume achieved.

Total coverage missing .015"²

.095"² total area of lower ⅓ =

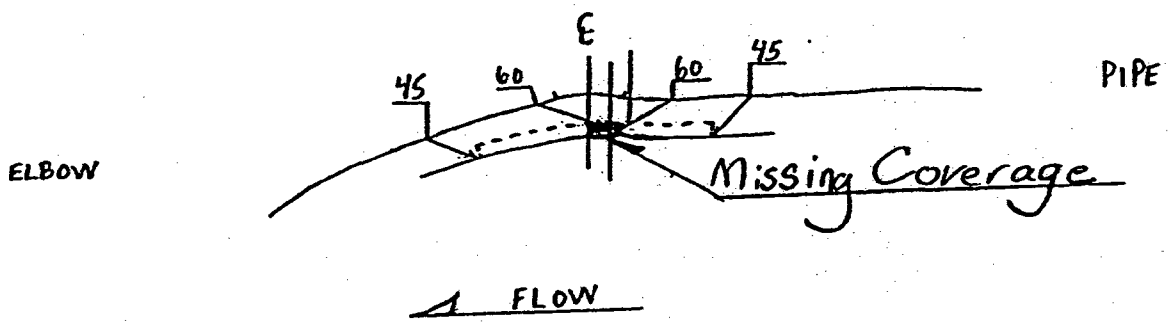
.095"² - .015"² = .080"²

.080"² ÷ .095"² = 0.8421

0.8421 × 100 = 84.21% total coverage obtained

Sketch Of Limitation(s):

Limited exam due to weld crown height.



2-1-05

(INCLUDED THE EXTENT OF % COMPLETED OF EXAM AND REASON FOR LIMITED REPORT, AND SKETCH SHOWING AREA OF LIMITATION.)

Level III: Date: 1-31-05	Examiner: Terry Kobernusz Date: 1/26/05
Reviewer:	Date:
Customer:	Date:

AREVA

Areva CR # 2005-497

NPPD CR # CR-CNS-2005-01191
TOM
2-7-05

Table of search units used for examinations referenced by above CR's. This table will be attached to each data report affected by these CR's.

Data Base #	Manufacturer	Model	Shape	Manu. Serial #
N/A	RTD	TRLA	RECT	00-737
34570	KBA	COMP-G	ROUND	M16422
34639	RTD	TRLA	RECT	98-272
34735	KBA	COMP-G	ROUND	00CR3D
34739	KBA	COMP-G	ROUND	00CRF5
34784	KBA	COMP-G	ROUND	A10524
34785	KBA	COMP-G	ROUND	A10535
34790	KBA	COMP-G	ROUND	007R5M
35000	KBA	COMP-G	ROUND	00PVX1
35265	RTD	TRLA	RECT	03-334
35394	KBA	COMP-G	ROUND	00XR3V
35398	KBA	COMP-G	ROUND	00XWKC
35487	RTD	TRLA	RECT	03-843
35488	RTD	TRLA	RECT	03-844

Areva Level III — Date: 2-7-05

CNS Level III (M. F. Sheldon) — Date: 2-7-05

CNS ISI Engineer (Tim McClure) — Date: 2-7-05

Authorized Nuclear Inservice Inspector — Date: 2/7/05

AREVA

EXAMINATION SUMMARY

Summary No.: B9.21.0033.R1	**Data Package:** CNSDP071-RFO22	**Exam Date:** 01-26-2005

Customer: Cooper Nuclear Station, NPPD	**Examination Methods:** UT
System / Component ID: NBDR / RVD-BJ-18	**Examination Procedures:** 54-ISI-836-08
Component Description: ELBOW TO PIPE	**Calibration Sheets No(s):** CNS-05-059 & CNS-05-060
Examination Category: R-A	**Examination Results:** ☒ No Reportable Indications
ISO / Drawing: X-2512-200	☐ Reportable Indications ☐ Geometric

Summary:

This examination was done to ASME section XI appendix VIII, 1995 edition with editions and addenda through 2000.

The 45° shear and the 60° shear were used for optimum flaw detection. A 70° shear was not used due to high signal to noise ratio.

No recordable indication noted with either 45° or 60° shear.

84.85% code required volume achieved using the 45° and 60° transducers, due to the as welded weld crown height.

Ref W.O. 4334690.

SEE ATTACHED AREVA X-Ref LIST FOR SEARCH UNIT DB No.'s.

TPM
2-8-05

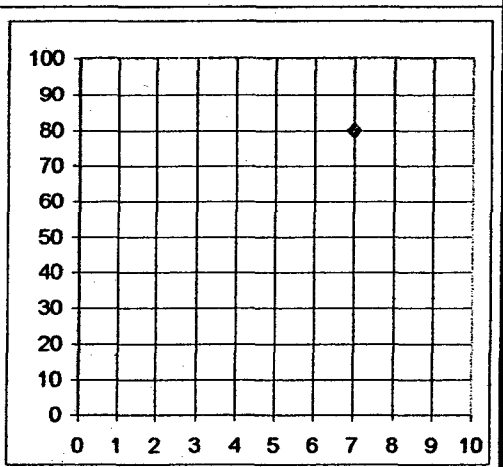
Prepared By: Terry Kobernusz	Date: 1/26/05	Reviewed By:	Date:
Sign:		Sign:	1-31-05
Customer:	Date:		
Sign: Tim McClure	2-8-05		

AREVA

UT CALIBRATION DATA SHEET

Customer: Cooper Nuclear Station, NPPD	Exam Date: 01/26/2005	Summary No.: B9.21.0033.R1
System / Component I.D.: NBDR / RVD-BJ-18		Calibration No.: CNS-05-059
Component Description: 2.0" ELBOW TO PIPE WELD		
ISO / Drawing No.: X-2512-200	Procedure No. / Rev.: 54-ISI-836-08	Code / Accept. Criteria: IWB-3514
Material: STAINLESS STEEL	Diameter: 2.0"	Thickness: .218"

INSTRUMENT SETTINGS		SEARCH UNIT	CALIBRATION STANDARD	
Mfg: KBA	Model: USN 58L	DB / Serial No.: 34570	Cal. Block No.: 7500285	
Serial / MT&E #: VH-9074		Size: .25"	Cal. Block Thickness (in): .50"	
Mat. Cal. / Velocity: 0.1212		Freq. (MHz): 2.25 MHZ	Cal. Block Dia. (in): N/A	
Delay: 0.000	Zero Offset: 6.588	Long / Shear / Single / Dual: SHEAR / SINGLE	Temp (F) Block: 74°	Comp.: 84°
Each Major Screen Div. #: .1"		Nominal Angle: 45° Measured: 45°	Therm. No.: VH-8043	
Channel #: N/A		Fixture / Size: MSWQC	Couplant Type: EXOSEN 30	
Range: 1.0"	Freq (MHz): 2.25	Cable Type & Length: RG-174	Couplant Batch No.: 32104301	
Damping: 1000Ω	Reject: OFF	No. of Connectors: 0	CALIBRATION STD. SIMULATOR	
Rep. Rate:AUTOHIGH	Pulse: HIGH	DAC PLOT	Serial No.: N/A	
Gate: N/A	Display: FULLWAVE		Sweep Position / Depth: N/A	
Mode: P.E.	Jack: T		Signal Amp. (%): N/A	
Ref. Sensitivity: 31.0 dB			Gain DB (dB): N/A	
Scan Sensitivity: 37.0 dB			EXAM DATA	
(Amt. DB to bring Notch to DAC)			Scan Direction to Weld:90TOWELD;=TOWELD	
Notch dB (Piping): N/A			(0 to WRV; 0 to Material; 90 to Weld; = to Weld)	
Notch dB (Vessels): N/A			Recordable Geometry (Yes / No): NO	



CALIBRATION CHECK			
	Time	OK	Initials
Initial Cal:	0300	OK	TLK
Init. Sim. Cal:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Final Cal.:	0505	OK	TLK

Amplitude vs. Range	
Signal to Noise Ratio: 8 TO 1	

Recordable Indications (Yes / No): NO			
Limited Exam (Yes / No): YES			
Percent Scan Completed: 84.85%			
Percent Exam Completed: 84.85%			
0 DEG. WELD THICKNESS ONLY			
Comp.: N/A			
BM : N/A		HAZ: N/A	
C/L Weld: N/A			
Comp: N/A			
BM: N/A		HAZ: N/A	
Crown HT.: N/A			
Weld Width: N/A			

Scan Direction on Cal. Block	0 Deg.	Axial	Circ
(Yes / No)	NO	YES	NO

Reflector	NOTCH	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sweep Pos. / Depth in Inches	7.0 / .50"	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Amplitude in %	80%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gain in dB	31.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Performed a 45° shear, circumferential (parallel to weld) and axial (perpendicular to weld) examination of Elbow to Pipe Weld (RVD-BJ-18).
No recordable indications were noted. Limited exam due to weld crown height, 84.85% code volume achieved.
"NCD"
ID roll 20% @ 3.0 sweep divisions.

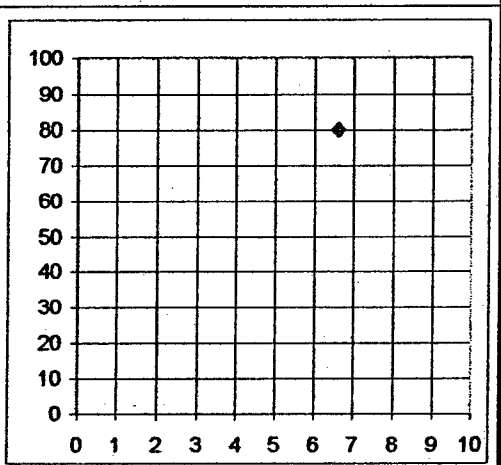
Examiner: Terry Kobernusz Sign:	Level: II	Date: 01/26/05	Examiner: N/A Sign:	Level: N/A	Date: N/A
Reviewed: Sign:	Level: III	Date: 1-31-05	ANII Review: Sign:		Date: 2/9/05
Customer: Sign:		Date: 2-8-05			

AREVA

UT CALIBRATION DATA SHEET

Customer: Cooper Nuclear Station, NPPD	Exam Date: 01/26/2005	Summary No.: B9.21.0033.R1
System / Component I.D.: NBDR / RVD-BJ-18		Calibration No.: CNS-05-060
Component Description: 2.0" ELBOW TO PIPE WELD		
ISO / Drawing No.: X-2512-200	Procedure No. / Rev.: 54-ISI-836-08	Code / Accept. Criteria: IWB-3514
Material: STAINLESS STEEL	Diameter: 2.0"	Thickness: .218"

INSTRUMENT SETTINGS		SEARCH UNIT	CALIBRATION STANDARD	
Mfg: KBA	Model: USN 58L	DB / Serial No.: 34790	Cal. Block No.: 7500285	
Serial / MT&E #: VH-9074		Size: .25"	Cal. Block Thickness (in): .50"	
Mat. Cal. / Velocity: 0.1247		Freq. (MHz): 2.25 MHZ	Cal. Block Dia. (in): N/A	
Delay: 0.000	Zero Offset: 8.5269	Long / Shear / Single / Dual: SHEAR / SINGLE	Temp (F) Block: 74°	Comp.: 84°
Each Major Screen Div. #: .15"		Nominal Angle: 60° Measured: 60°	Therm. No.: VH-8043	
Channel #: N/A		Fixture / Size: MSWQC	Couplant Type: EXOSEN 30	
Range: 1.5"	Freq (MHz): 2.25	Cable Type & Length: RG-174 / 12'	Couplant Batch No.: 32104301	
Damping: 1000Ω	Reject: OFF	No. of Connectors: 0	CALIBRATION STD. SIMULATOR	
Rep. Rate:AUTOHIGH	Pulse: HIGH	DAC PLOT	Serial No.: 7500772	
Gate: N/A	Display: FULLWAVE		Sweep Position / Depth: 7.0	
Mode: P.E.	Jack: T		Signal Amp. (%): 40%	
Ref. Sensitivity: 53.0 dB			Gain DB (dB): 34.0 dB	
Scan Sensitivity: 53.0 dB			EXAM DATA	
(Amt. DB to bring Notch to DAC)			Scan Direction to Weld:90 TO WELD	
Notch dB (Piping): N/A			(0 to WRV; 0 to Material; 90 to Weld; = to Weld)	
Notch dB (Vessels): N/A			Recordable Geometry (Yes / No): NO	
			Recordable Indications (Yes / No): NO	
			Limited Exam (Yes / No): YES	
			Percent Scan Completed: 84.85%	
			Percent Exam Completed: 84.85%	
			0 DEG. WELD THICKNESS ONLY	
			Comp.: N/A	
		Amplitude vs. Range	BM: N/A	HAZ: N/A
		Signal to Noise Ratio: 8 TO 1	C/L Weld: N/A	
			Comp: N/A	
			BM: N/A	HAZ: N/A
			Crown HT.: N/A	
			Weld Width: N/A	



CALIBRATION CHECK

	Time	OK	Initials
Initial Cal:	0310	OK	TLK
Init. Sim. Cal:	0312	OK	TLK
Intermediate:	0320	OK	TLK
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Intermediate:	N/A	N/A	N/A
Final Cal.:	0510	OK	TLK

Scan Direction on Cal. Block	0 Deg.	Axial	Circ
(Yes / No)	NO	YES	NO

Reflector	NOTCH	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sweep Pos. / Depth in Inches	6.6 / .50"	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Amplitude in %	80%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gain in dB	53.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Performed a 60° shear, axial (perpendicular to weld) examination of Elbow to Pipe Weld (RVD-BJ-18).
No recordable indications were noted. Limited exam due to weld crown height, 84.85% code volume achieved.
"NCD"
ID roll 20% @ 3.0 sweep divisions.

III 2-1-05

Examiner: Terry Kobernusz Sign:	Level: II	Date: 01/26/05	Examiner: N/A Sign:	Level: N/A	Date: N/A
Reviewed: Sign:	Level: III	Date: 1-31-05	ANII Review: Sign:		Date: 2/9/05
Customer: Sign:		Date: 2-8-05			

AREVA

ULTRASONIC EXAMINATION SCAN LIMITATION REPORT

Customer: Cooper Nuclear Station, NPPD	Component: 2" ELBOW TO PIPE	Summary No.: B9.21.0033.R1

Weld No.: RVD-BJ-18			
Reference Point N/A			
1) Interfering Condition	AS WELDED WELD CROWN		
Distance From Centerline	N/A	To	N/A
Distance From Ref. Point	N/A	To	N/A
2) Interfering Condition	N/A		
Distance From Centerline	N/A	To	N/A
Distance From Ref. Point	N/A	To	N/A
3) Interfering Condition	N/A		
Distance From Centerline	N/A	To	N/A
Distance From Ref. Point	N/A	To	N/A
(For All Measurements Indicate: US, DS, CW, CCW)			

Percent Of Exam Completed
(Calculations Or Comments Below)

84.85% code volume achieved.

Total coverage missing .015"²

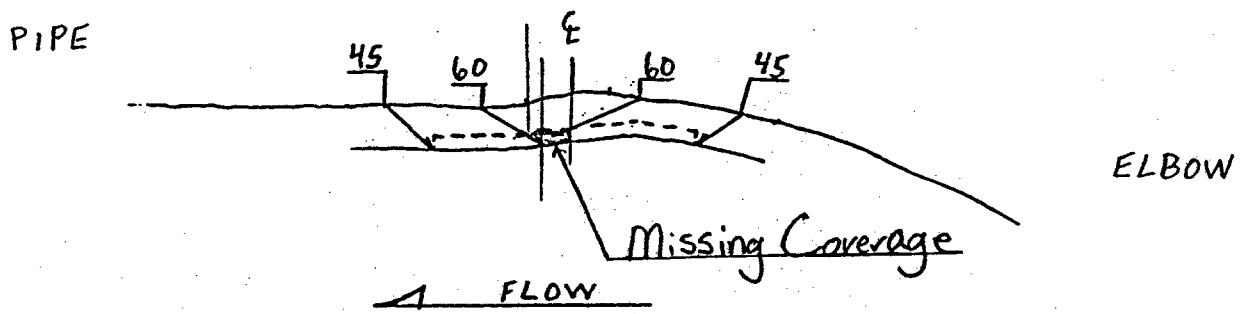
.099"² total area of lower ⅓ =

.099"² - .015"² = .084"²

.084"² ÷ .099"² = .8485

.8485 × 100 = 84.85% total coverage obtained

Sketch Of Limitation(s):



2-1-05

(INCLUDED THE EXTENT OF % COMPLETED OF EXAM AND REASON FOR LIMITED REPORT, AND SKETCH SHOWING AREA OF LIMITATION.)

Level III:	Date: 1-31-05	Examiner: Terry Kobernusz	Date: 1/26/05
Reviewer:		Date:	
Customer: Tim McClure 2-8-05		Date:	

AREVA

Areva CR # 2005-497

NPPD CR # CR-CNS-2005-01191
TOM
2-7-05

Table of search units used for examinations referenced by above CR's. This table will be attached to each data report affected by these CR's.

Data Base #	Manufacturer	Model	Shape	Manu. Serial #
N/A	RTD	TRLA	RECT	00-737
34570	KBA	COMP-G	ROUND	M16422
34639	RTD	TRLA	RECT	98-272
34735	KBA	COMP-G	ROUND	00CR3D
34739	KBA	COMP-G	ROUND	00CRF5
34784	KBA	COMP-G	ROUND	A10524
34785	KBA	COMP-G	ROUND	A10535
34790	KBA	COMP-G	ROUND	007R5M
35000	KBA	COMP-G	ROUND	00PVX1
35265	RTD	TRLA	RECT	03-334
35394	KBA	COMP-G	ROUND	00XR3V
35398	KBA	COMP-G	ROUND	00XWKC
35487	RTD	TRLA	RECT	03-843
35488	RTD	TRLA	RECT	03-844

Areva Level III — Date 2-7-05

CNS Level III — Date 2-7-05

CNS ISI Engineer — Date 2-7-05

Authorized Nuclear Inservice Inspector — Date 2/7/05

Correspondence Number: NLS2005105

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
NONE		