



July 30, 2009

NG-09-0539  
10 CFR 50.55a

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Duane Arnold Energy Center  
Docket 50-331  
License No. DPR-49

Relief Request for 1st Period Limited Weld Examinations

Pursuant to 10 CFR 50.55a(g)(5)(iii), NextEra™ Energy Duane Arnold, LLC, f/k/a FPL Energy Duane Arnold, LLC (hereafter, NextEra Energy Duane Arnold) hereby requests NRC approval of the enclosed relief request from IWB-2500 to allow performance of limited examinations of various welds. This relief is requested for the Fourth Ten year Interval of the Inservice Inspection Program for the Duane Arnold Energy Center (DAEC), which ends on February 21, 2014. Enclosure 1 of this letter contains the request for relief and Enclosure 2 contains the 1st period non-destructive evaluation reports associated with the components for which relief is sought.

NextEra Energy Duane Arnold requests approval of this request by the end of December 2009.

If you have any questions, please contact Steve Catron at (319) 851-7234.

A handwritten signature in black ink that reads "Richard L. Anderson".

Richard L. Anderson  
Vice President, Duane Arnold Energy Center  
NextEra Energy Duane Arnold, LLC

Enclosures

cc: Administrator, Region III, USNRC  
Project Manager, DAEC, USNRC  
Senior Resident Inspector, DAEC, USNRC

A047  
NRR

Enclosure 1

10 CFR 50.55a REQUEST  
IN ACCORDANCE WITH 10 CFR 50.55a(g)(5)(iii)  
INSERVICE INSPECTION IMPRACTICALITY

10 CFR 50.55a REQUEST  
IN ACCORDANCE WITH 10 CFR 50.55a(g)(5)(iii)  
INSERVICE INSPECTION IMPRACTICALITY

**Component Identification**

Code Class: Class 1  
References: ASME Code, Section XI, Subarticle IWB-2500  
Table IWB-2500-1  
Examination Categories: B-A, R-A  
Item Numbers: B1.40, and R1.16  
Description: Reactor Vessel Head-to-Flange Weld, and Piping Welds.  
Component Numbers: See Table A for Component Identification

**Applicable Code Edition and Addenda**

ASME Section XI 2001 Edition, 2003 Addenda

**Code Requirement**

Section XI (2001 Edition with the 2003 Addenda), Subarticle IWB-2500 states in part "Components shall be examined and tested as specified in Table IWB-2500-1." Table IWB-2500-1, Category B-A, Item B1.40, requires a volumetric examination of applicable Class 1 pressure retaining welds, which includes essentially 100% of weld length once during the ten year interval.

Relief Request NDE-R005 was approved on January 31, 2007 allowing the use of Risked Informed (RI) Inservice Inspection (ISI) for Class 1 and 2 welds. This relief request states that the original list of intended credited Class 1 welds may have been substituted on specific occasions with similar welds due to accessibility issues that would have resulted in reduced exam volumes. NextEra Energy Duane Arnold chooses welds for examination that are classified within the same risk matrix classification segment, using the same treatment criteria as those originally selected.

**Reason for Request**

The Duane Arnold Energy Center (DAEC) construction permit was issued in 1970 and the operating license was issued in 1974. The reactor vessel was designed and installed to ASME Section III, 1965 Edition, with the Summer 1967 Addenda. The parameters for accessibility for ISI were not requirements at that time and therefore were not necessarily factored into component and system configurations, thereby creating conditions where ASME Section XI Code required examination coverage of Class 1 welds cannot be obtained.

10 CFR 50.55a recognizes the limitations to in-service inspection of components in accordance with Section XI of the ASME Code that are imposed due to early plants' design and construction, as follows:

10 CFR 50.55a(g)(1): For a boiling or pressurized water-cooled nuclear power facility whose construction permit was issued prior to January 1, 1971, components (including supports) must meet the requirements of paragraphs(g)(4) and (5) of this section to the extent practical.

10 CFR 50.55a(g)(4): Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and pre-service examination requirements, set forth in Section XI of editions of the ASME Boiler and Pressure Vessel Code... to the extent practical within the limitation of design, geometry and materials of construction of the components.

10 CFR 50.55a(g)(5)(iii): If the licensee has determined that conformance with certain code requirements is impractical for its facility, the licensee shall notify the Commission and submit, as specified in § 50.4, information to support the determinations.

**Table A - Limited Exam Weld List**

Exam Category	Item Number	Component Number	Period Examined	Code Coverage	Description
B-A	B1.40	HCC-C001	1	76.05%	Reactor Vessel Head-to-Flange Weld
R-A	R1.16	CUA-J024	1	50%	Reactor Water Cleanup Piping Weld
		RMA-J004	1	50%	Recirculation Manifold to Riser Piping Weld

**Reactor Vessel Head to Flange Weld – HCC-C001**

This weld is the Head to Flange Weld which can only be examined from the head surface. The examination is limited to approximately 76.05% and is limited due to the configuration of the weld. Note that this weld examination is divided up into thirds, with each third being examined each period. The examination completed was from Stud Holes 60 to 20. There is no feasible option in order to examine the remaining 23.95%.

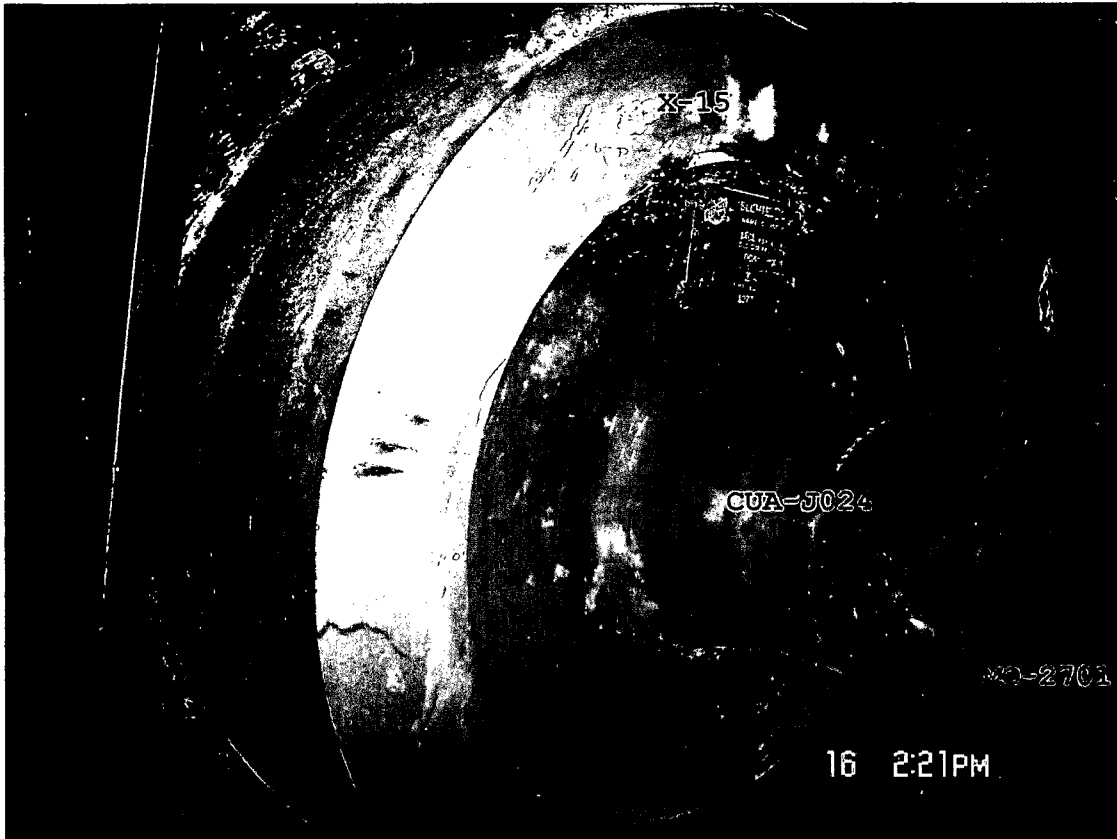
The Nondestructive Examination (NDE) procedure used for this examination incorporates the examination techniques qualified under Appendix VIII of the ASME Section XI Code by the Performance Demonstration Initiative (PDI). That procedure was approved under Relief Request NDE-R008 on January 31, 2007.

## Reactor Water Cleanup Class 1 Weld CUA-J024

This weld is between a containment penetration and a motor operated valve (MO-2701). The valve side of the weld is not accessible for scanning due to geometry. This weld is the only weld in the risk segment (CU-007) so there is no other weld to select. The consequence evaluation determined this weld to be high because it is the weld between the containment and the isolation valve (MO-2701). The material for the items welded together is A182 F316 forging penetration to an A351 CF8M cast valve. Per Generic Letter 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping," "Inspection Schedules" position (2), this weld would be considered in the Intergranular Stress Corrosion Cracking (IGSCC) Category A. The A182 F316 is solution heat treated which is an acceptable process for resistance to IGSCC. The staff position states:

*"Although castings with higher carbon content than 0.035% are not considered to be resistant to sensitization, welds joining such castings (in the form of pump and valve bodies) to piping have been relatively free of IGSCC. This may be attributed to a favorable residual stress distribution, as calculations have indicated. For this reason, weld joining resistant material to pumps and valves will be considered to be resistant welds, and included in IGSCC Category A. If extensive weld repairs were performed the residual stress may be unfavorable, in which case such welds should be included in Category D."*

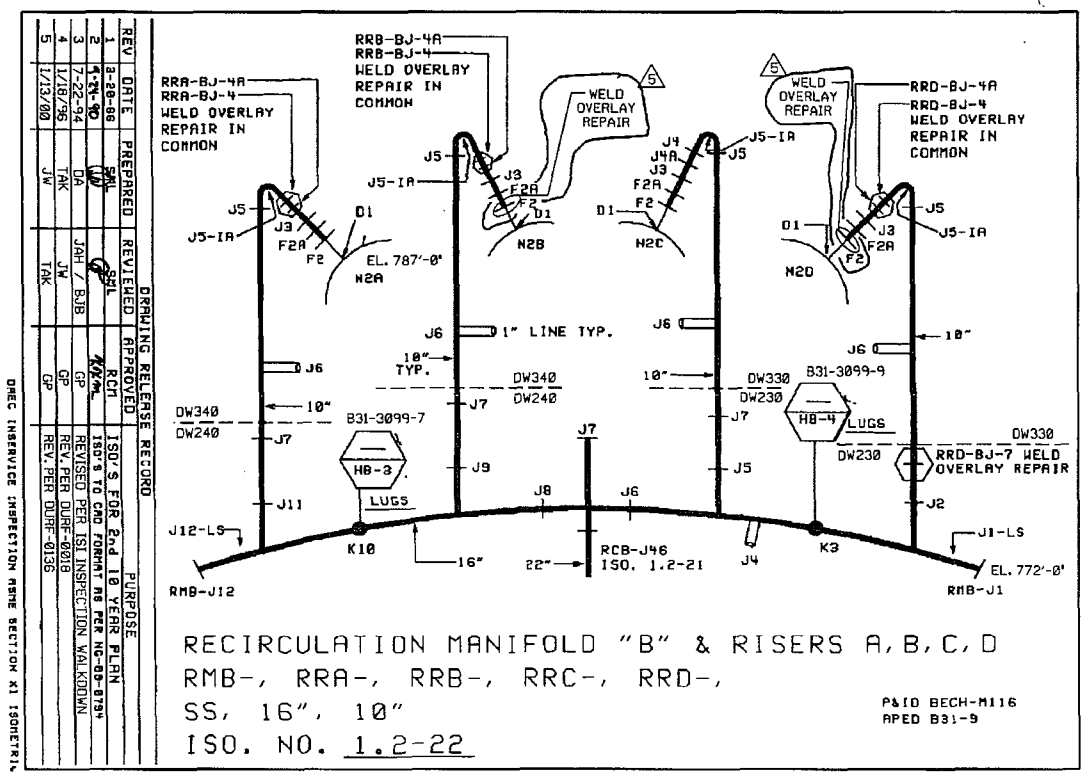
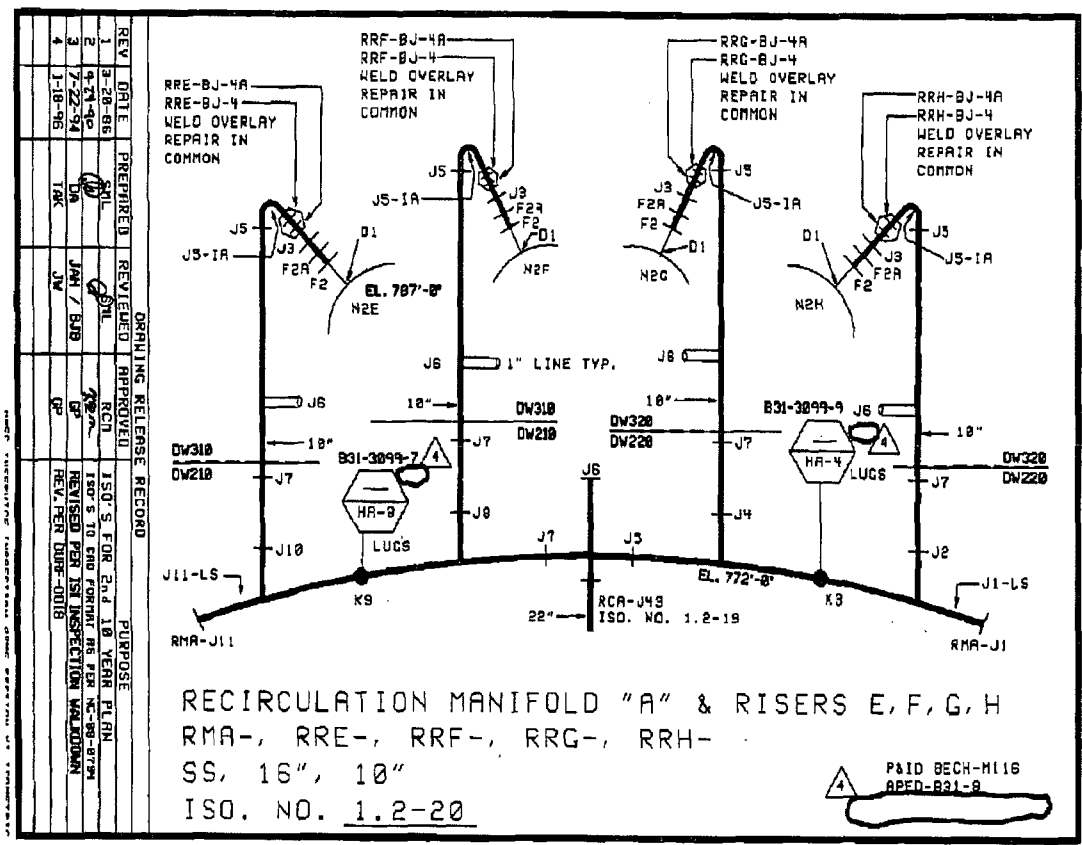
Therefore, this weld is considered resistant to IGSCC. The volume examined was from the A182 F316 penetration side of the weld. The weld was not examined from the A351 CF8M cast valve side due to the configuration of the valve (see photo that follows).



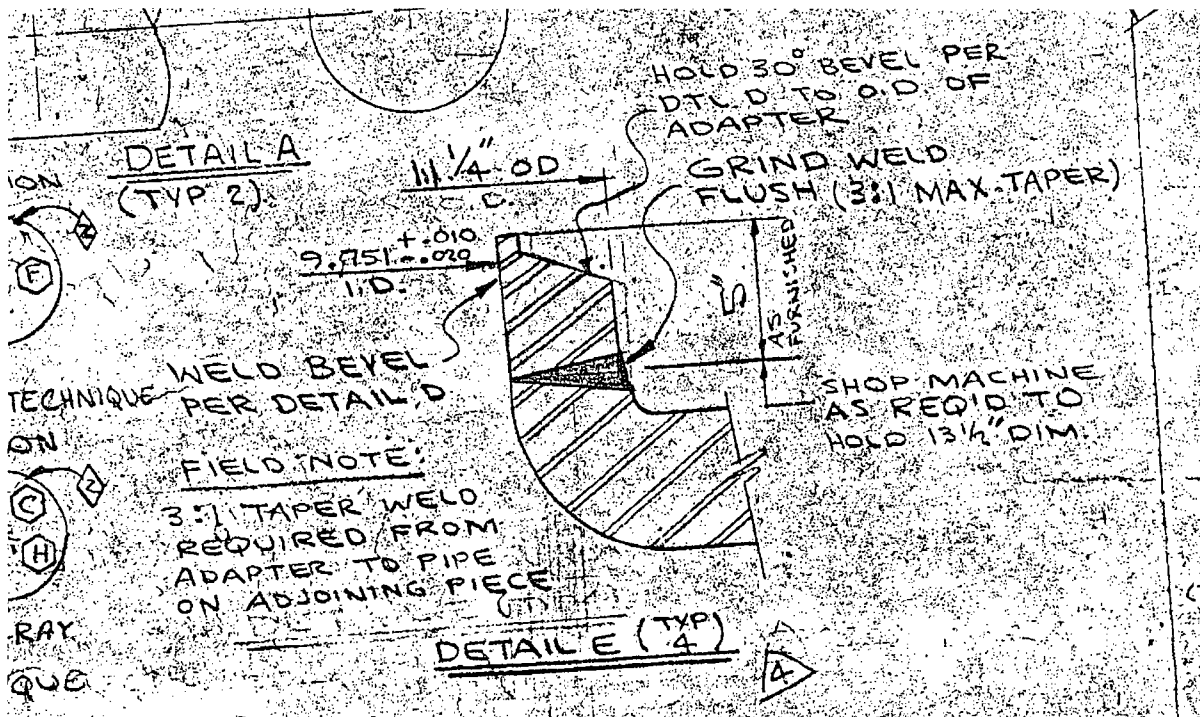
Since this weld is resistant to the degradation mechanism of IGSCC and there is no other degradation mechanism that has been identified for this weld, the volume examined is acceptable.

#### **Recirculation System Class 1 Weld RMA-J004**

This weld is the branch connection of the recirculation manifold to the recirculation riser line. The manifold side is not accessible for scanning due to geometry. There are a total of eight welds with this configuration (8 recirculation risers coming off the two manifolds); see ISI Isometrics 1.2-20 and 1.2-22 that follow.



The detailed configuration of the branch connection weld provided below is taken from the construction drawing (B31-G001-RD-N-B3). As the configuration shows it does not allow an examination to be performed from the manifold side.



All eight manifold to riser welds were solution annealed which is an acceptable process for resistance to IGSCC. Each weld was identified in its own risk category so there is no other weld that could be selected to obtain a higher examination coverage. These welds were determined to have Thermal Transients as a degradation mechanism under the RI-ISI Program. The Degradation Mechanism Evaluation Document (M453-047) states:

*For the most part, the RCR System heats up and cools down slowly and uniformly so it is not susceptible to the thermal shocks that result in TT degradation mechanism. However, at the beginning of shutdown cooling, the RCR System does receive a double-shock from the RHR System (cold fluid and then hot fluid into formerly hot lines). The double-shock was analyzed for the RCR main loop discharge, manifold, and riser piping. The results indicate that all of these pipe segments are potentially susceptible to the TT degradation mechanism.*

NextEra Energy Duane Arnold proposes to perform the ultrasonic examination on one more of the eight welds (which would only receive 50% coverage) in lieu of performing the examination on just one weld. One weld will be examined from each loop.

Performing two of the eight welds (each receiving 50% coverage) is considered an acceptable alternative.



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

In accordance with 10 CFR 50.55a(g)(5)(iii), relief is requested for the components listed in Table A on the basis that the required examination coverage of "essentially 100 percent" is impractical due to physical obstructions and the limitations imposed by design, geometry and materials of construction. NextEra Energy Duane Arnold performed qualified examinations that achieved the maximum, practical amount of coverage obtainable within the limitations imposed by the design of the components.

Additionally, for the Class 1 examination Category B-P, a VT-2 examination is performed on the subject components of the Reactor Coolant Pressure Boundary during system pressure tests each refueling outage. The examination was completed during the 2009 refueling outage and no evidence of leakage was identified for these components.

Based on the above, with due consideration of the earlier plant design, the underlying objectives of the Code required volumetric examinations have been met. The examinations were completed to the extent practical and no evidence of unacceptable flaws was detected. VT-2 examinations performed on the subject Class 1 components during system pressure testing each refueling outage (in accordance with examination Category B-P) provide continued assurance that the structural integrity of the subject components is maintained. Additionally, the DAEC Water Chemistry Program and inerted primary containment environment provide added measures of protection for the component materials.

### **Duration of Proposed Alternative**

Relief is requested for the Fourth Ten year Interval of the Inservice Inspection Program for the DAEC, which ends on February 21, 2014.

### **Precedents**

- 1) NRC Letter dated May 1, 2008, "Safety Evaluation for Request for Relief from IWB-2500 and IWC-2500 Requirements to Allow Performance of Limited Examinations of Various Welds for the Third 10-Year Interval of the Inservice Inspection Program (TAC No. MD5669)."
- 2) NRC Letter dated October 18, 1999, "Safety Evaluation of Third 10-Year Interval Inservice Inspection Program Plan Requests for Relief for Duane Arnold Energy Center (TAC No. MA4151)" specifically for Relief Request NDE-R028.
- 3) NRC Letter dated March 23, 1998, "Evaluation of Third 10-Year Inservice Inspection Interval Program Plan Requests for Relief for the Duane Arnold

Energy Center (TAC No. M95412)" specifically for Relief Requests NDE-R006, NDE-R007, NDE-R008, NDE-R009, and NDE-R010.

**References**

None

Enclosure 2

1st Period Non-Destructive Evaluation Reports



# UT Vessel Examination

Site/Unit: DAEC / 1 Procedure: ACP1211.27 Outage No.: RFO-20-1  
 Summary No.: 3300 Procedure Rev.: 1 Report No.: UT-07-100  
 Workscope: ISI Work Order No.: 1135860 Page: 1 of 3

Code: ASME 2001 Ed thru 2003 Add Cat./Item: B-A/B1.40 Location: RB511  
 Drawing No.: VS-01-06 SHT-01 Description: REACTOR VESSEL(STUD HOLES 60-20)  
 System ID: RPV  
 Component ID: HCC-C001 Size/Length: N/A Thickness/Diameter: 3.93 "  
 Limitations: Single sided exam due to configuration Start Time: 1000 Finish Time: 1200

Examination Surface: Inside  Outside  Surface Condition: Blended

Lo Location: Stud Hole One Wo Location: WCL Couplant: Ultragel II Batch No.: 06225

Temp. Tool Mfg.: PTC Serial No.: 254038 Surface Temp.: 70 °F

Cal. Report No.: CAL-07-031

Angle Used	0	45	45T	60	60T	
Scanning dB	*					

Indication(s): Yes  No  Scan Coverage: Upstream  Downstream  CW  CCW

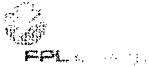
Comments:

Scan Sensitivity: Zone 1 / 82.5 Zone 2 / 83.5

Results: Accept  Reject  Info

Percent Of Coverage Obtained > 90%: 76.05% Reviewed Previous Data: Yes

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Stevermer, Aaron J.	II-PDI		2/22/2007	Timm, Jeremy		2/27/07
Examiner	Level	Signature	Date	Site Review	Signature	Date
N/A	N/A			Dohmen, Frank E.		2/28/07
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			Bowers, Jeremy		3/20



# Supplemental Report

Report No.: UT-07-100

Page: 2 of 3

Summary No.: 3300

Examiner: Stevermer, Aaron J.

Level: II-PDI

Reviewer: Timm, Jeremy

Date: 2/27/07

Examiner: N/A

Level: N/A

Site Review: Dohmen, Frank E.

Date: 2/27/07

Other: N/A

Level: N/A

ANII Review: Bowers, Jeremy

Date: 3-2-07

Comments: Coverage Plots

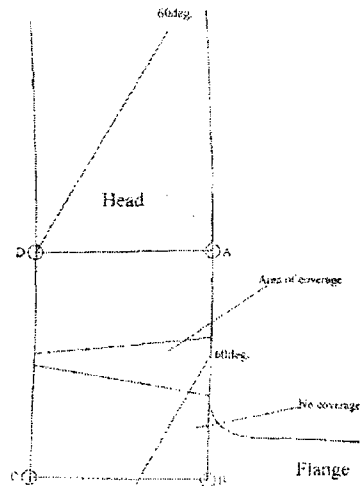
## AXIAL

## PARALLEL

Sketch or Photo: U:\Apps\DAECDB\EROC\RFO20\REPORT SUPPLEMENTS\UT\SN\_3300  
CompID\_HCC\_C001 Report\_UT\_07\_100 Axial.jpg

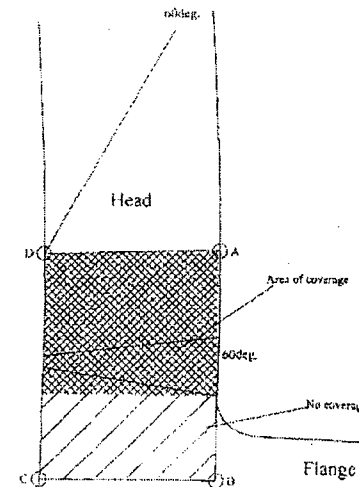
U:\Apps\DAECDB\EROC\RFO20\REPORT SUPPLEMENTS\UT\SN\_3300  
CompID\_HCC\_C001 Report\_UT\_07\_100 Parallel.jpg

HCC-C001 Coverage plot- Axial scan direction



Scale 2:1

HCC-C001 Coverage plot- Parallel scan direction



Scale 2:1



# Supplemental Report

Report No.: UT-07-100

Page: 3 of 3

Summary No.: 3300

Examiner: <u>Stevermer, Aaron J.</u>	Level: <u>II-PDI</u>	Reviewer: <u>Timm, Jeremy</u>	Date: <u>2/27/07</u>
Examiner: <u>N/A</u>	Level: <u>N/A</u>	Site Review: <u>Dohmen, Frank E.</u>	Date: <u>2/27/07</u>
Other: <u>N/A</u>	Level: <u>N/A</u>	ANII Review: <u>Bowers, Jeremy</u>	Date: <u>3-2-07</u>

Comments: **COVERAGE CALCULATIONS**

Sketch or Photo: U:\Apps\DAECDB\EROC\RF020\REPORT SUPPLEMENTS\UT\SN\_3300 CompID\_HCC\_C001 Report\_UT\_07\_100 CovCalc.jpg

RPV Coverage Calculation Sheet

Note: calculations performed using 2D plot only

Component ID HCC-C001

Area required to be examined

Axial scan direction: Height x width

3.93 inches x 5.3 inches equals 20.829 square inches

Parallel scan direction: Height x width

3.93 inches x 5.3 inches equals 20.829 square inches

Total area required to be examined 41.658 square inches required for complete exam

Actual area examined

60 degree R.L. Axial scan direction: Height x width

3.93 inches x 5.3 inches equals 20.829 square inches

Triangular area not examined (if applies) 1.53 Base x .5 x 2.92 height equals 2.2336 square inches

Axial scan direction area examined 18.5952 square inches

60 degree R.L. Parallel scan direction: Height x width

3.93 inches x 3.33 inches equals 13.0869 square inches

Additional Inner 15% area achieved using 40 & 45 degree shear techniques: Height x width (Nozzle to RPV only)

0 inches x 0 inches equals 0 square inches

Combining all scan directions: 31.6821 square inches for total exam

Divide area examined by required area: equals coverage achieved 76.05 % coverage for total exam

Calculations performed by: Todd Blechinger Level III

DAEC Review Frank Dohmen Level III

ANII Review Jeremy Bowers

Additional - Supplemental Reports



# UT Calibration/Examination

FPL Energy  
Duane Arnold Energy Center

Site/Unit: DAEC / 1  
Summary No.: 117900-RI  
Workscope: ISI

Procedure: ACP1211.20  
Procedure Rev.: 7  
Work Order No.: 1144503

Outage No.: RFO-21  
Report No.: UT-09-006  
Page: 1 of 3

Code: ASME 2001Ed Thru 2003Add Cat./Item: R-A/R1.16-2 Location: DW220

Drawing No.: 1.2-20 SHT-01 Description: MANIFOLD TO PIPE WELD OFF OF THE RECIRCULATION MAN

System ID: RM

Component ID: RMA-J004 Size/Length: 1.1" / 32" Thickness/Diameter: 0.844" / 12"

Limitations: Single side access due to branch configuration Start Time: 1408 Finish Time: 1506

**Instrument Settings**  
 Serial No.: 01R6B7  
 Manufacturer: Krautkramer  
 Model: USN 60 SW  
 Delay: 6.8847 Range: 2.828  
 M'll Cal/Vel: 0.1232 Pulser: Square  
 Damping: 500 Ω Reject: 0%  
 Rep. Rate: Autohigh Freq.: 2.0 mhz  
 Filter: N/A Mode: Fullwave  
 Voltage: 450 volts Other: PW 330 nS  
 Ax. Gain (dB): 11.0 Circ. Gain (dB): N/A  
1 Screen Div. = .2828 in. of Sound Path

**Search Unit**  
 Serial No.: 01RP1H  
 Manufacturer: KBA  
 Size: .50" Shape: Round  
 Freq.: 1.5 MHz Style: Comp G  
 Exam Angle: 45° # of Elements: 1  
 Mode: Shear  
 Measured Angle: 45°  
 Wedge Style: MSWQC

**Search Unit Cable**  
 Type: RG-174  
 Length: 6' No. Conn.: 0

**Linearity Report No.:** L-09-001

**Calibration Block**  
 Cal. Block No.: 5539  
 Thickness: .5" - 2.0" Dia.: 0  
 Cal. Blk. Temp.: 75° Temp. Tool: M415  
 Comp. Temp.: 82° Temp. Tool: M415

**Scan Coverage**  
 Upstream  Downstream  Scan dB: 23.0  
 CW  CCW  Scan dB: 23.0  
 Exam Surface: OD  
 Surface Condition: Blended

**Recordable Indication(s):** Yes  No  (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept  Reject  Info

Cal. Checks	Time	Date
Initial Cal.	1100	2/8/2009
Inter. Cal.	1408	2/8/2009
Inter. Cal.		
Inter. Cal.		
Final Cal.	1633	2/8/2009

**Couplant**  
 Cal. Batch: 06225  
 Type: Ultrigel II  
 Mfg.: Sonotech  
 Exam Batch: 06225  
 Type: Ultrigel II  
 Mfg.: Sonotech

**Reference Block**  
 Serial No.: 08-4349  
 Type: ROMPAS

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1.0" Notch	85	5.0	1.413

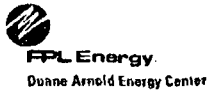
Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
11.0	FSDH	20	3.8	1.067

Comments: See supplemental sheet for thickness and contour and coverage plot.

Percent Of Coverage Obtained > 90%: 50% Reviewed Previous Data: Yes

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Davis, Layn R.	III-PDI	<i>[Signature]</i>	2/8/2009	HANG, S.W.	<i>[Signature]</i>	2/11/09
Tolosky, Ryan J.	II-PDI	<i>[Signature]</i>	2/8/2009	Frank Dahmen	<i>[Signature]</i>	2/12/09
Other	N/A	Signature	Date	ANII Review	Signature	Date
N/A				Jeremy Bowers	<i>[Signature]</i>	2-14-09



# UT Calibration/Examination

Site/Unit: DAEC / 1 Procedure: ACP1211.20 Outage No.: RFO-21  
 Summary No.: 117900-RI Procedure Rev.: 7 Report No.: UT-09-006  
 Workscope: ISI Work Order No.: 1144503 Page: 2 of 3

Code: ASME 2001Ed Thru 2003Add Cat./Item: R-A/R1.16-2 Location: DW220  
 Drawing No.: 1.2-20 SHT-01 Description: MANIFOLD TO PIPE WELD OFF OF THE RECIRCULATION MAN  
 System ID: RM  
 Component ID: RMA-J004 Size/Length: 1.1" / 32" Thickness/Diameter: 0.844" / 12"  
 Limitations: Single side access due to branch configuration Start Time: 1408 Finish Time: 1506

**Instrument Settings**  
 Serial No.: 01R6B7 Manufacturer: Krautkramer Model: USN 60 SW  
 Delay: 8.6128 Range: 4.0 M'll Cal/Vel: 0.2222 Pulser: Square  
 Damping: 500 Ω Reject: 0% Rep. Rate: Autohigh Freq.: 2.0 mhz  
 Filter: N/A Mode: Fullwave Voltage: 450 volts Other: PW 250 ns  
 Ax. Gain (dB): 51.0 Circ. Gain (dB): N/A  
1 Screen Div. = 0.4 in. of Sound Path  
 Linearity Report No.: L-09-001

**Search Unit**  
 Serial No.: 08-440 Manufacturer: RTD  
 Size: 2 (8 x 14) Shape: Rectangle Freq.: 2.0 MHz Style: TRL2-Aust  
 Exam Angle: 60° # of Elements: 2 Mode: Long  
 Measured Angle: 60° Wedge Style: Integral  
**Search Unit Cable**  
 Type: RG-174 Length: 6' No. Conn.: 0

Cal. Checks	Time	Date
Initial Cal.	1205	2/8/2009
Inter. Cal.	1445	2/8/2009
Inter. Cal.		
Inter. Cal.		
Final Cal.	1637	2/8/2009

**Couplant**  
 Cal. Batch: 06225 Type: Ultragel II  
 Mfg.: Sonotech  
 Exam Batch: 06225 Type: Ultragel II  
 Mfg.: Sonotech

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1.0" Notch	80	5.0	2.00

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
47.0	FSDH	85	3.5	1.41

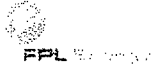
**Calibration Block**  
 Cal. Block No.: 5539 Thickness: .5" - 2.0" Dia.: 0  
 Cal. Blk. Temp.: 75° Temp. Tool: M415 Comp. Temp.: 89° Temp. Tool: M415  
 Upstream  Downstream  Scan dB: 57.0  
 CW  CCW  Scan dB: N/A  
 Exam Surface: OD Surface Condition: Blended  
 Recordable Indication(s): Yes  No  (If Yes, Ref. Attached Ultrasonic Indication Report.)  
 Results: Accept  Reject  Info   
 Percent Of Coverage Obtained > 90%: 50% Reviewed Previous Data: Yes

**Reference Block**  
 Serial No.: 08-4349 Type: ROMPAS

Comments: See supplemental sheet for thickness and contour and coverage plot.

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Davis, Layn R.	III-PDI	<i>[Signature]</i>	2/8/2009	<i>[Signature]</i>	<i>[Signature]</i>	2/11/09
Tolosky, Ryan J.	II-PDI	<i>[Signature]</i>	2/8/2009	Site Review	<i>[Signature]</i>	2/13/09
Other	N/A	Signature	Date	ANII Review	Signature	Date
N/A				<i>[Signature]</i>	<i>[Signature]</i>	2-14-09





# Supplemental Report

Report No.: UT-09-006

Page: 3 of 3

Summary No.: 117900-RI

Examiner: Davis, Layn R.

Level: III-PDI

Reviewer: [Signature] HAME, S.W.

Date: 2/11/09

Examiner: Tolosky, Ryan J.

Level: II-PDI

Site Review: [Signature]

Date: 2/17/09

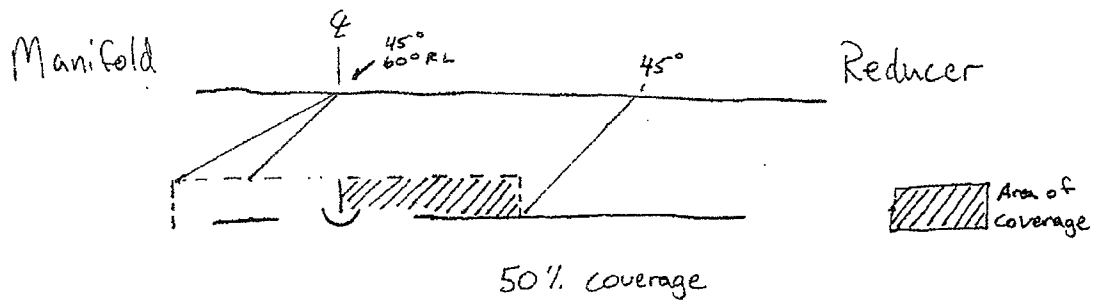
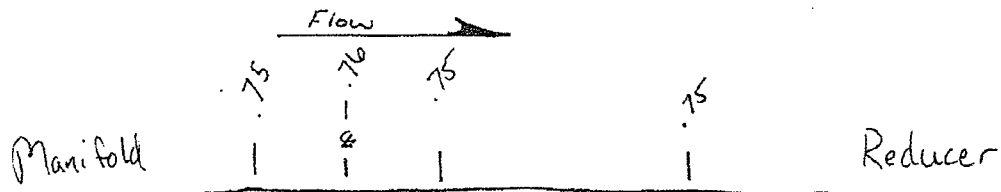
Other: N/A

Level: N/A

ANII Review: [Signature]

Date: 2-14-09

Comments:





# UT Calibration/Examination

Site/Unit: DAEC / 1 Procedure: ACP1211.20 Outage No.: RFO-20-1  
 Summary No.: 74600-RJ Procedure Rev.: 6 Report No.: UT-07-028  
 Workscope: ISI Work Order No.: 1135836 Page: 1 of 2

Code: ASME 2001 Ed thru 2003 Add Cat./Item: R-A/R1.16-4 Location: RB270  
 Drawing No.: 1.2-11A SHT-01 Description: PIPE - MOTOR OPERATED GATE  
 System ID: CU  
 Component ID: CUA-J024 Size/Length: .90" / 15.75" Thickness/Diameter: .58" / 5.0" OD  
 Limitations: Single sided exam due to valve configuration. Start Time: 1400 Finish Time: 1415

**Instrument Settings**

Serial No.: 01LCBL Manufacturer: Krautkramer Model: USN 60 SW  
 Delay: 0/5.30 Range: 1.850"  
 M'tl Cal/Vel: .1223 Pulsar: Square  
 Damping: 500Ω Reject: 0%  
 Rep. Rate: AutoHigh Freq.: 2.0 MHz  
 Filter: Fixed Mode: FullWave  
 Voltage: 450 Other: PulseWidth 330 ns  
 Ax. Gain (dB): 23 Circ. Gain (dB): 23  
10 Screen Div. = 1.850 in. of Sound Path  
 Linearity Report No.: L-07-001

**Search Unit**

Serial No.: 01D4NY Manufacturer: KBA  
 Size: .375" Shape: Round  
 Freq.: 1.50 MHz Style: Comp-G  
 Exam Angle: 45° # of Elements: Single  
 Mode: Shear  
 Measured Angle: 45°  
 Wedge Style: MSWQC  
 Search Unit Cable: RG-174  
 Length: 6' No. Conn.: 0

Cal. Checks	Time	Date
Initial Cal.	0735	2/12/2007
Inter. Cal.	1400	2/12/2007
Inter. Cal.	1415	2/12/2007
Inter. Cal.	N/A	
Final Cal.	1510	2/12/2007

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	8.0	1.43"
N/A			

**Couplant**

Cal. Batch: 06225  
 Type: Ultragel II  
 Mfg.: Sonotech  
 Exam Batch: 06225  
 Type: Ultragel II  
 Mfg.: Sonotech

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

**Calibration Block**

Cal. Block No.: 5539 Thickness .5"-2.0" Dia.: Flat  
 Cal. Blk. Temp. 78° Temp. Tool: 253987  
 Comp. Temp.: 78° Temp. Tool: 253987  
 Recordable Indication(s): Yes  No  (If Yes, Ref. Attached Ultrasonic Indication Report.)

**Scan Coverage**

Upstream  Downstream  Scan dB: 37  
 CW  CCW  Scan dB: 37  
 Exam Surface: OD  
 Surface Condition: Blended

**Reference Block**

Serial No.: LMT-032  
 Type: SS Rompas

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
23	SDH	18	5.8	1.05"
N/A				

Results: Accept  Reject  Info   
 Percent Of Coverage Obtained > 90%: 50% Reviewed Previous Data: Yes

Comments: No downstream scans due to valve configuration. 60° angle reported on UT-07-029

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Davis, Layn R	III-PDI	<i>[Signature]</i>	2/12/2007	Blechinger, Todd P.	<i>[Signature]</i>	3/4/07
Pollock, Norm E.	I	<i>[Signature]</i>	2/12/2007	Dohmen, Frank E.	<i>[Signature]</i>	3/5/07
N/A	N/A	<i>[Signature]</i>		Bowers, Jeremy	<i>[Signature]</i>	3-5-07

# Supplemental Report

Report No.: UT-07-028

Page: 2 of 2

Summary No.: 74600-RI

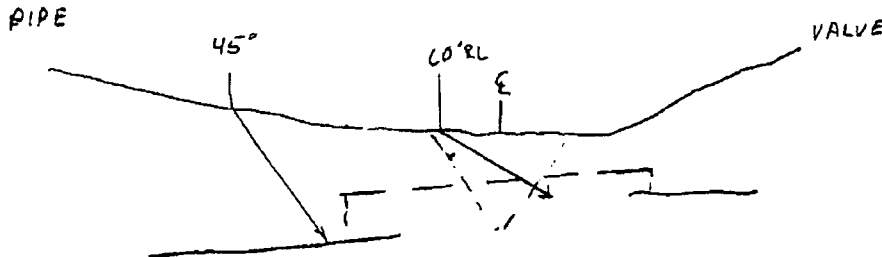
Examiner: Davis, Layn R *LAD* Level: III-PDI Reviewer: Blechinger, Todd P. *TPO* Date: 3/4/07  
 Examiner: Pollock, Norm E. Level: I Site Review: Dohmen, Frank E. *FED* Date: 3/5/07  
 Other: N/A Level: N/A ANII Review: Bowers, Jeremy *JB* Date: 3-5-07

Comments: Actual configuration penetration fitting to valve.  
 50 % code coverage due to single sided access.  
 \*Actual diameter 5.0", actual weld length 15.75"

Sketch or Photo: U:\Apps\DAECDB\EROC\RF020\REPORT SUPPLEMENTS\UT\SN\_74600-RI CompID\_CUA-J024 Report\_UT-07-028 Coverage Plot.jpg

SYSTEM: <u>RWCLL</u>					COMPONENT ID NO.: <u>CUA-J024</u>	
POSITION	0°	90°	180°	270°		
1	1.0"				CROWN HEIGHT:	<u>0.5"</u>
2	.68"				CROWN WIDTH:	<u>.90"</u>
3	.58"		<u>N/A</u>		NOM DIAMETER:	<u>4.0"</u>
4	.40"				WELD LENGTH:	<u>14.5"</u>
5	<u>N/A</u>					

50% CODE COVERAGE DUE TO SINGLE SIDED ACCESS





# UT Calibration/Examination

Site/Unit: DAEC / 1  
 Summary No.: 74600-RI  
 Workscope: ISI

Procedure: ACP1211.20  
 Procedure Rev.: 6  
 Work Order No.: 1135836

Outage No.: RFO-20-1  
 Report No.: UT-07-029  
 Page: 1 of 1

Code: ASME 2001 Ed thru 2003 Add Cat./Item: R-A/R1.16-4 Location: RB270  
 Drawing No.: 1.2-11A SHT-01 Description: PIPE - MOTOR OPERATED GATE  
 System ID: CU  
 Component ID: CUA-J024 Size/Length: .90" / 15.75" Thickness/Diameter: 0.580" / 5.0" OD  
 Limitations: Single sided due to valve configuration Start Time: 1416 Finish Time: 1422

**Instrument Settings**  
 Serial No.: 01LCBL Manufacturer: Krautkramer Model: USN 60 SW  
 Delay: 07.050 Range: 3.0" M'tl Cal/Vel: .2304 Pulsar: Square Damping: 500Ω Reject: 0%  
 Rep. Rate: AutoHigh Freq.: 2.00 MHz Filter: Fixed Mode: FullWave Voltage: 450 Other: PulseWidth 250 ns  
 Ax. Gain (dB): 58 Circ. Gain (dB): 58 10 Screen Div. = 3.0 in. of Sound Path  
 Linearity Report No.: L-07-001

**Search Unit**  
 Serial No.: 05-335 Manufacturer: RTD Size: 2 (7x10 mm) Shape: Rect  
 Freq.: 2.0 MHz Style: TRL2 Exam Angle: 60° # of Elements: Dual  
 Mode: Shear Measured Angle: 60° Wedge Style: N/A  
**Search Unit Cable**  
 Type: RG-174 Length: 6' No. Conn.: 0

Cal. Checks	Time	Date
Initial Cal.	0720	2/12/2007
Inter. Cal.	1416	2/12/2007
Inter. Cal.	1422	2/12/2007
Inter. Cal.	N/A	
Final Cal.	1505	2/12/2007

**Couplant**  
 Cal. Batch: 06225  
 Type: Ultragel II  
 Mfg.: Sonotech  
 Exam Batch: 06225  
 Type: Ultragel II  
 Mfg.: Sonotech

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	7.0	2.04"
N/A			

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
48	SDH	60	45	1.43"
N/A				

**Calibration Block**  
 Cal. Block No.: 5539 Thickness .5"-2.0" Dia.: Flat  
 Cal. Blk. Temp. 78° Temp. Tool: 253987 Comp. Temp.: 78° Temp. Tool: 253987  
 Upstream  Downstream  Scan dB: 64  
 CW  CCW  Scan dB: N/A  
 Exam Surface: OD Surface Condition: Blended

Recordable Indication(s): Yes  No  (If Yes, Ref. Attached Ultrasonic Indication Report.)  
 Results: Accept  Reject  Info   
 Percent Of Coverage Obtained > 90%: 50% Reviewed Previous Data: Yes

Comments: No downstream scans due to valve configuration. Reference Coverage plot on 45° angle report# UT-07-028.

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Davis, Layn R	III-PDI	<i>[Signature]</i>	2/12/2007	Blechingner, Todd P.	<i>[Signature]</i>	3/4/07
Pollock, Norm E.	I	<i>[Signature]</i>	2/12/2007	Dohmen, Frank E.	<i>[Signature]</i>	3/5/07
N/A	N/A	<i>[Signature]</i>		Bowers, Jeremy	<i>[Signature]</i>	3-5-07