

April 11, 2003
NG-03-0297

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station 0-P1-17
Washington, DC 20555-0001

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Response to Request for Additional Information Regarding
Duane Arnold Energy Center Relief Requests NDE-R001,
Revision 1 and NDE-R045

References: 1. March 29, 2002, NG-02-0268, K. Putnam (NMC) to NRC,
Relief Requests NDE-R001 Revision 1, NDE-R028 Revision 2,
NDE-R044 and NDE-R045
2. March 14, 2003, D. Hood (NRC) to M. Peifer (NMC), Duane
Arnold Energy Center - Request for Additional Information for
Relief Requests NDE-R001 and NDE-R045 (TAC No. MB4800
and MB4803)

File: A-100, A-286

By letter dated March 29, 2002 (Reference 1), Nuclear Management Company, LLC (NMC) requested approval of four relief requests concerning the Duane Arnold Energy Center (DAEC) inservice inspection (ISI) program. By letter dated March 14, 2003 (Reference 2), the NRC requested additional information regarding two of these requests - NDE-R045 and NDE-R001, Revision 1. Additional information to support the Staff's review of NDE-R045 is included in the attachment.

After further review, NMC has decided to withdraw NDE-R001, Revision 1. A revised submittal requesting relief will be made at a later date.

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Should you have any questions regarding this matter, please contact this office.

Sincerely,



Mark A. Peifer
DAEC Site Vice President

- Attachments: 1. Response to Request for Additional Information Regarding Duane Arnold
Energy Center Relief Requests NDE-R001, Revision 1 and NDE-R045
2. Calibration Sheets and Record

cc: F. Dohmen
R. Severson
C. Rushworth
D. Hood (NRC-NRR)
J. Dyer (Region III)
NRC Resident Office
IRMS

**Response to Request for Additional Information Regarding
Duane Arnold Energy Center Relief Requests NDE-R001, Revision 1 and NDE-R045**

By letter dated March 29, 2002, Nuclear Management Company, LLC (the licensee) forwarded four relief requests for the third 10-year interval of the Inservice Inspection (ISI) Program for Duane Arnold Energy Center and requested Nuclear Regulatory Commission (NRC) staff review and approval. The NRC staff finds that additional information is needed for two of the four relief requests:

Relief Request NDE-R001, Revision 1 (TAC No. MB4800)

1. Please provide the non-destructive examination (NDE) reports for reactor vessel welds VCB-B004, HMA-B002, and VCB-C005, complete with sketches showing the limitations regarding the extent of examination coverage. (The licensee's letter of March 29, 2002, only provided data for one of the four reactor vessel welds, HCC-C001, for which relief is requested).
2. Is relief being requested in advance of performing the NDE on the three reactor vessel welds listed in item 1 above? This is different from the remainder of the relief requests where the examination is performed, reviewed against previous interval results and coverage calculated. If so, please provide sketches of the limitations on examination coverage and discuss the results found from testing of the welds during the second 10-year ISI Interval. Indicate whether any pattern of degradation was found and, if so, discuss this pattern. Also, identify the expected percentage of coverage.
3. What action will be taken if the amount of coverage for which relief is sought should not be obtained?
4. Page 3 of Attachment 1 to the licensee's letter of March 29, 2002, states that HCC-C001 (the vessel head to flange weld) was examined as follows:

A third of this weld was examined during the RFO14 (1st period) with a weld coverage of 36.8 percent. The second third was examined during RFO17 (2nd period) with a weld coverage of 70.54 percent. The third that was examined in RFO14 will be re-examined to obtain the 70.54 percent in the 3rd period.

This infers that the final third of HCC-C001 (with partial coverage) will not be examined and it will be replaced by re-examining a portion of the weld examined during the 1st period. Please explain the limitation that prevents partial coverage of this final third.

DAEC Response:

The DAEC's request for approval of Revision 1 to NDE-R001 is withdrawn.

Relief Request NDE-R045 (TAC No. MB4803)

1. This relief request addresses scram discharge weld SDN-CF010. Please indicate whether the NDE results were compared with previous data on this weld and whether there was any change in the results.

DAEC Response 1:

The NDE results have been compared with previous data; no indications were identified in either examination.

2. Please explain why the required coverage cannot be achieved using a two-sided or one-sided full Vee examination.

DAEC Response 2:

A two-sided examination was performed on the accessible areas. As shown on the attached calibration sheets and sketches, the maximum possible coverage was obtained with the configuration limitations. Methods used to obtain maximum coverage included reducing the dimension of the wedge edge-to-beam entry point, and increasing the beam angle.

3. In the "Basis for Relief," you state that the adoption of Code Case N-460 "permits a reduction in examination coverage of Class 1 welds..."; however, your relief request pertains to Class 2 welds. Please address the applicability of your request relative to Class 2 welds.

DAEC Response 3:

Code Case N-460 provides alternative examination coverage for both Class 1 and Class 2 welds; the aforementioned reference to Class 1 welds is a typographical error in the "Basis for Relief." The correct verbiage is "permits a reduction in examination coverage of Class 2 welds..."

**Attachment 2
to NG-03-0297**

Calibration Sheets and Record

(4 Pages)

ULTRASONIC CALIBRATION DATA SHEET (MANUAL EXAMINATION)

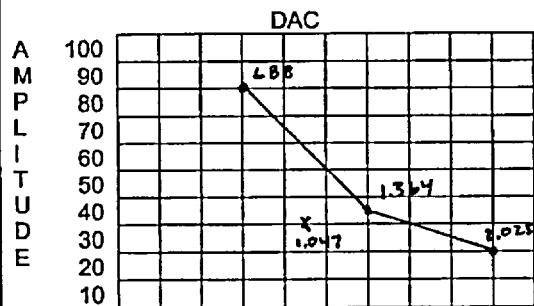
 Site.: DUNE ARNOLD

 Calibration Sheet No.: C-0012

 Linearity Sheet No.: L-0001

 Procedure No.: 1211.19 Revision: 2

Instrument PANAMETRICS EPOCH II 91040206
Manufacturer Model No Serial No
 Search Unit KBA 66573 .25 5.0 MHz 45/SHEAR .35"
Manufacturer Serial No Size Freq Angle/Mode Incident to wedge front
 Cable RG-174 6' 1
Type Length No of Connectors
 Calibration Standard IE-06 CS 8"/1.500" 72 °F
Serial No Material Size/Thickness Temp
 Couplant HUMEX 19565A Thermometer 166599
Type Batch No Serial No


 Sweep: 0 - 10 = 2.26
 Depth Metal Path

INSTRUMENT SETTINGS

DAC Construction	Sensitivity
Gain-Axial Scan <u>44</u>	Gain-Axial Scan <u>44</u>
Gain-Circ. Scan <u>44</u>	Gain-Circ. Scan <u>44</u>
Pulse <u>HIGH</u>	Range <u>2.26</u>
Damping <u>400n</u>	Delay <u>0.0</u>
Rep Rate <u>FIX.</u>	Velocity <u>1270</u>
Filter <u>DN</u>	Sweep <u>2.26</u>
Frequency <u>2.25</u>	Resolution <u>N/A</u>
Reject <u>0% / OFF</u>	Jack <input checked="" type="checkbox"/> R <input type="checkbox"/> T

 Field Simulator: KOMPAS S/N LMT-107

CALIBRATION VERIFICATION

REFLECTOR:	1D	0D	2nd ID	Initial Calibration Time	Verification Times	
MAX AMPLITUDE:	80	35	20	13:01	13:50	14:00
SWEEP:	3.0	6.0	9.0	Final Verification Time	N/A	N/A
GAIN: (dB)	44	44	44			

WELDS EXAMINED	REPORT NO.	COMMENTS:
<u>SDN-CFD10</u>	<u>IO1143</u>	<u>42° MEASURED ANGLE</u>

<u>W.L. Thomas III</u> Examiner	<u>III</u> Level	<u>02/08/01</u> Date	<u>Frank Dolmen</u> Level III Review	<u>2/19/01</u> Date	<u>William Muller</u> ANII Review	<u>3-21-01</u> Date
Page <u>1</u> of <u>1</u>						

ULTRASONIC CALIBRATION DATA SHEET (MANUAL EXAMINATION)

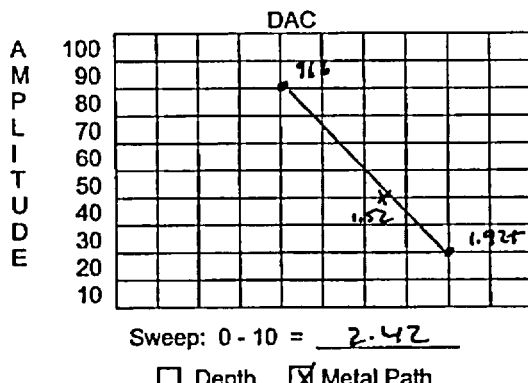
Site.: DUANE ARNOLD

Calibration Sheet No.: C-0013

Linearity Sheet No.: L-0001

Procedure No.: 12 11, 19 Revision: 2

Instrument PANAMETRICS Manufacturer EPOCH II Model No 91040206 Serial No
 Search Unit KBA Manufacturer 66573 Serial No .25" Size 5.0 MHz Freq 60/Shear Angle/Mode .4 Incident to wedge front
 Cable RG-174 Type 6' Length 0 No of Connectors
 Calibration Standard IE-06 Serial No CS Material 8" / .500" Size/Thickness 72 Temp °F
 Couplant HUMEX Type 19565A Batch No Thermometer 166599 Serial No



INSTRUMENT SETTINGS

DAC Construction	Sensitivity
Gain-Axial Scan <u>65</u>	Gain-Axial Scan <u>65</u>
Gain-Circ. Scan <u>N/A</u>	Gain-Circ. Scan <u>N/A</u>
Pulse <u>HIGH</u>	Range <u>2.42</u>
Damping <u>400u</u>	Delay <u>0.0</u>
Rep Rate <u>FLX</u>	Velocity <u>.1270</u>
Filter <u>DN</u>	Sweep <u>2.42</u>
Frequency <u>2.25</u>	Resolution <u>N/A</u>
Reject <u>0% / OFF</u>	Jack <input checked="" type="checkbox"/> R <input type="checkbox"/> T

Field Simulator: ROMPAS SIN LMT-107

CALIBRATION VERIFICATION

REFLECTOR:	ID	DD	Initial Calibration Time	13:11	Verification Times	
MAX AMPLITUDE:	80	20	Final Verification Time	1420	1401	1412
SWEEP:	4.0	8.0			N/A	N/A
GAIN: (dB)	65	65				

WELDS EXAMINED	REPORT NO.	COMMENTS: <u>5B MEASURED ANGLE</u>
<u>SDN-CF010</u>	<u>I01143</u>	

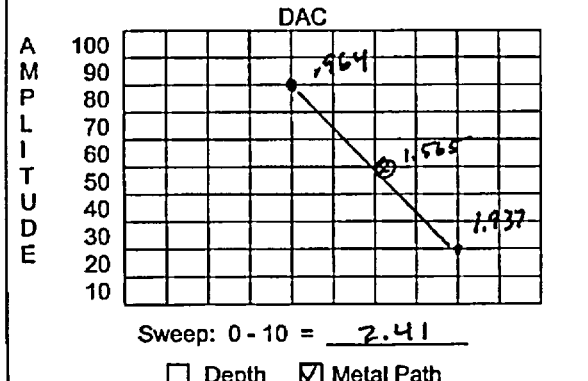
<u>W.L. THOMAS JR</u> Examiner <u>02/08/01</u> Level Date	<u>Frank D. [Signature]</u> Level III Review <u>2/19/01</u> Date	<u>William M. [Signature]</u> ANII Review <u>3/21/01</u> Date
Page <u>1</u> of <u>1</u>		

ULTRASONIC CALIBRATION DATA SHEET (MANUAL EXAMINATION)

Site.: DUANE ARNOLD Calibration Sheet No.: C-0014
Linearity Sheet No.: L-0001

Procedure No.: 1211.19 Revision: 2

Instrument PANAMETRICS EPOCH II 91040206
Manufacturer Model No Serial No
 Search Unit KBA C07118 .25" 5.0 MHz 60°/SHEAR .3
Manufacturer Serial No Size Freq Angle/Mode Incident to wedge front
 Cable RG-174 6' 0
Type Length No of Connectors
 Calibration Standard IE-06 CS 8" / .500" 66 °F
Serial No Material Size/Thickness Temp
 Couplant HUMEX 19565A Thermometer 166599
Type Batch No Serial No



INSTRUMENT SETTINGS

DAC Construction	Sensitivity
Gain-Axial Scan <u>61.4</u>	Gain-Axial Scan <u>61.4</u>
Gain-Circ. Scan <u>N/A</u>	Gain-Circ. Scan <u>N/A</u>
Pulse <u>HIGH</u>	Range <u>2.41</u>
Damping <u>4000</u>	Delay <u>0.0</u>
Rep Rate <u>FIX</u>	Velocity <u>.1270</u>
Filter <u>ON</u>	Sweep <u>2.41</u>
Frequency <u>2.25</u>	Resolution <u>N/A</u>
Reject <u>0% / OFF</u>	Jack <input checked="" type="checkbox"/> R <input type="checkbox"/> T

Field Simulator: ROMPAS S/N LMT-107 **CALIBRATION VERIFICATION**

REFLECTOR:	1D	0D	Initial Calibration Time	0215	Verification Times	
MAX AMPLITUDE:	80	20	Final Verification Time	1220	1000	1005
SWEEP:	4.0	8.0			N/A	N/A
GAIN: (dB)	61.4	61.4				

WELDS EXAMINED	REPORT NO	COMMENTS: <u>60° MEASURED ANGLE, USED MSWS MODEL TO GAIN A HIGHER COVERAGE PERCENTAGE DUE TO PIPE SUPPORT CONFIGURATION.</u>
<u>SDN-CF010</u>	<u>201143</u>	

<u>W.L. THOMAS</u> Examiner	<u>III</u> Level	<u>02/13/01</u> Date	<u>[Signature]</u> Level III Review	<u>2/19/01</u> Date	<u>[Signature]</u> ANII Review	<u>3-21-01</u> Date
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**RECORD OF NONDESTRUCTIVE EXAMINATION
MAGNETIC PARTICLE (DRY OR WET METHOD) MT-1**

ECP NO N/A WO NO. N/A ISI/PSI NO I01143
 AR NO _____ DWG. OR ISO NO 2.2-61 COMPONENT OR SYSTEM WELD SON-CFO10 ON 8" SCRAM DISCH. HEADER

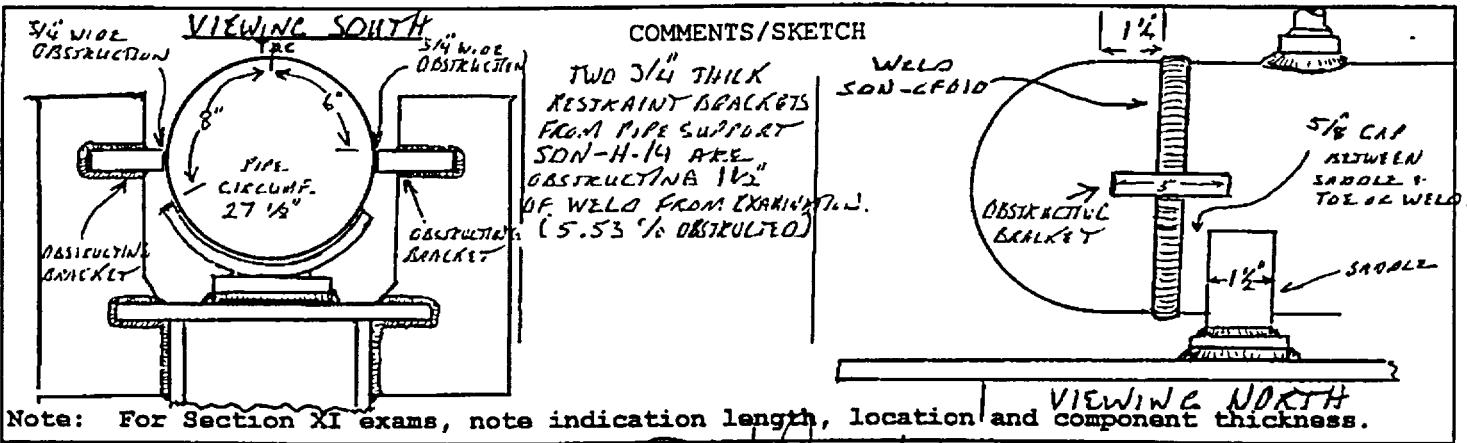
PROCEDURE NO <u> 1211.5 </u> REV <u> 4 </u>	EQUIPMENT NO. ID <u> Q00150 </u>	BATCH NO. _____
ACCEPT STD <u> 3.11.6 </u>	CAL DUE DATE <u> 2-17-01 </u> @ <u> AD </u> DC	DRY POWDER: RED <u> N/A </u> BLACK <u> N/A </u> GRAY <u> N/A </u>
	AMPERAGE <u> N/A </u>	WCP <u> 92603K </u> 9CM RED <u> 92A05K </u>
	YOKE/PROD SPACING <u> 4"-8" </u>	7C-F or 7HF BLACK <u> N/A </u>

COMP. TEMP. 76 °F THICKNESS .503"

ITEM	INITIAL INSPECTION		DEFECT CODE*	INITIAL INSPECTION REMARKS (SIZE/LOCATION)	REINSPECTION		DEFECT CODE*	REINSPECTION REMARKS (SIZE/LOCATION)
	ACC	REJ			ACC	REJ		
WELD SON-CFO10	✓							

*DEFECT CODE 94.47% WELD EXAMINED PREVIOUS INSPECTION DATA REVIEWED NOT FOUND
 SEE BELOW

P - POROSITY, R - ROUNDED, LI - LINEAR INDICATION, LA - LAMINATION, O - OTHER (IDENTIFY)



Note: For Section XI exams, note indication length, location and component thickness.

Examiner [Signature] Reviewed By [Signature] 2/19/01 Reviewed By [Signature] 3/16/01
 Signature/Level/Date Level III Signature/Date ANII Signature/Date
 NG-1112 REV. 3 Page 1 of 1