PRELIMINARY

Energy Industries of Ohio

Contract # S005242-F

Modular Coil Winding Forms

C-2 Documentation Package

Part 1 – Metal Tek International
Casting Data Package

11/8/2005

C-2 Documentation Package

List of Documents 11-08-2005

Doc #	Description	# Pages
4	MTR for weighted average of chemistry – 3 ladles replaced by product analysis	1
4a	MTR from Wisconsion Centrifugal	1
5	Chemistry of weld material Lot # 3012668/82743	1
6	Chemistry of weld material Lot # WO19711	1
7	Westmoreland Tensile test report @ -320°F dated 6-17-05	1
8	St Louis Test Lab dated 5-17-05 – incl. tensile test results @ room temp & Charpy V Notch (CVN) at 77°K & 293°K	7
9	Westmoreland tensile test results of weld material @ -320°F dated 4-28-05	1
10	St Louis Testing tensile test report of weld material @ RT dated 4-22-05	1
11	St Louis Testing CVN test report of weld material @ -320°F dated 4-6-05	2
12	St Louis Testing CVN test report of weld material @ RT dated 3-2-05 *note – page 2 of this report unrelated to project – added to show page 2 of 2*	2
13	Weld map list - revised	9
13a	RT photos	7
14	Final Inspection report	1
15	RT inspection reports from MQS dated 5-20-05 & 6-11-05	7
16	Metal Tek Radiographic Interpretation Report dated 6-15-05	1
17	Heat treat chart 4-28-05	1
18	Heat treat chart – stress relief dated 6-21-05	1
19	CA1292 for major welds dated 6-2-05	1
20	CA1292a for major welds dated 6-15-05	2
21	CA1302 test material – lack of direction dated 5-29-05 & signed 6-06-05	1
21a	CA 1323 – CA for sulfur & phosphorus readings dated 7/26/05 + addendum dated 8/17/05	5
21b	CA 1423 for non conforming Metrode chemistry	2
22	MQS Radiographic Technique Sheet dated 1-18-2005	5
23	Signed & dated MTS for C-2	11
24	Supplemental routing card for C-2 stress relief dated 6-21-05	1
25	Qualifying report from dimensional scan of C-2 dated 5-22-05	8
25a	Qualifying report from dimensional scan of C-2 dated 5-23-05	16
26	MTR C-2 shim dated 4-28-05	1
27	Westmoreland shim tensile tests @ -320°F	1
28	St Louis Testing Labs CVN shim material @ 77°K & 293°K + mechanical test results at RT dated 6-13-05	3
29	Final inspection report – C-2 shim dated 6-22-05	1
30	C-2 Shim C of C dated 6/21/05	1
31	CA1308 – chemistry out of spec	1
32	Metal Tek Radiographic Interpretation Report – C-2 shim dated 6-23-05	2
33	Heat treat chart – C-2 shim – dated 6-03-05	1
34	Dimensioned sketch C-2 shim dated 6-23-05	2
35	MTS – C-2 Shim dated & signed	6
36	EIO shipping release dated 6-27-05	2
11/07/05		

MetalTek INTERNATIONAL

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

C-2 Doc Package
Document # 4

Material Test Report

Replaced by product analysis - See CA 12323

ENERGY INDUSTRIES OF OHIO

Purchase Order Number PPPL-FP-LTS-2
Pattern Number MCWF-C2
CAF Metal Designation CF8MNMnMod
Material Spec CF8MNMnMOD

Cert Number S75920-1
Pour Date 4/15/2005

Weighted average of 3 heats – 29060(46%),29061(25%),29063(29%) Total Weight 29107 lbs.

Revised 10/26/05

Element	Min	Actual	Max
C	0.04	0.06	0.07
MN	2.3	2.8	2.8
SI	0.0	0.5	0.7
CR	18.0	18.0	18.5
NI	13.0	13.2	13.5
MO	2.1	2.3	2.5
P*	0.0	0.023	0.035
S*	0.0	0.018	0.025
N	0.24	0.26	0.28

*P & S taken from cast on bar, zones 1,2,&3 and analyzed by wet chemistries, ASTM E1019-03 for sulfur and Colormetric for phosphorous.

PRODUCT ANALYSIS

Results of spectrometer analysis of cast on test bar after spectrometer preventive maintenance performed and at Wisconsin Centrifugal.
***Not analyzed on spectrograph.

Element	CAF after PM	WC Analysis
C	***	0.07
MN	1.6	1.6
SI	0.8	.09
CR	18.2	18.2
NI	13.5	13.7
MO	2.3	2.2
P	0.024	0.023
S	0.012	0.014
N	***	0.23

Charles A. Ruud
Quality Assurance Manager

MetalTek INTERNATIONAL

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

C-2 Doc Package
Document # 4a

Material Test Report

ENERGY INDUSTRIES OF OHIO

Purchase Order Number PPPL-FP-LTS-2
Pattern Number MCWF-C2
CAF Metal Designation CF8MNMnMod
Material Spec CF8MNMnMOD
Analysis performed by Wisconsin Centrifugal

Cert Number S75920-1
Pour Date 4/15/2005

Revised 11/3/05

Element	Min	Actual	Max
C	0.04	0.07	0.07
MN*	2.3	1.6	2.8
SI*	0.0	0.9	0.7
CR	18.0	18.2	18.5
NI*	13.0	13.7	13.5
MO	2.1	2.2	2.5
P	0.0	0.023	0.035
S	0.0	0.014	0.025
N	0.24	0.23	0.28

* See Corrective Action Number 1323.

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

PRODUCT CONFORMANCE REPORT

LINCOLN ELECTRIC

Product	LNM 4455	Size(s) mm	1,2
Class.		Lot/Batch	3012668/82743
	EN 12072-99: G 20 16 3 Mn L	Item No.	692129

C-2 Doc Package
Document # 5

Customer	CK SUPPLY	Quantity	
	Contact Ernie Simpson	Customer ref.	P.O.: SL056508
	Eureka (MISSOURI) 63025	LSW Order No.	SD418352
	UNITED STATES		

Chemical analysis (%) EN10204 3.1B

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N
0,02	0,4	7,2	0,014	0,003	19,6	15,7	2,7	0,1	0,17

Can't read that high J.G.

Mechanical tests, all weld metal EN10204

Additional information EN10204
Other tests

Remarks

The product identified above has been manufactured, tested and supplied in compliance with a Quality Assurance Programme that fulfils the requirements of EN 29000/ ISO 9000/BS 5750 or similar standard.
We herewith certify that the product complies with the above-mentioned standards.
Certified ISO 9001:2000

Company	Issued by	Function	Date	Cert.No.
Lincoln Smitweld B.V.	P. van Etteger	QS Manager	27/01/2005	3012668/8274

Registered Office
Nieuwe Dukenburgseweg 20
6534 AD NIJMEGEN

Post address
P.O. Box 253
6500 AG Nijmegen
NETHERLANDS

Telephone
31 24 3522911

Fax
31 24 3522200

C-2 Doc Package
Document # 6

METRODE PRODUCTS LIMITED
HANWORTH LANE, CHERTSEY
SURREY, UK, KT16 9LL
Tel: +44 (0) 1932 566721
Fax: +44 (0) 1932 565168
Email: info@metrode.com
Website: www.metrode.com

CERTIFIED MATERIAL TEST REPORT

METRODE WELDING CONSUMABLES

THIS PRODUCT HAS BEEN MANUFACTURED AND SUPPLIED THROUGH A SYSTEM APPROVED TO ISO 9001 & 2 OR EQUIVALENT

LLOYD'S REGISTER QUALITY ASSURANCE LTD. ISO9001

TEST CERTIFICATE NUMBER

175185

INVOICE TO
Euroweld Ltd
255 Rolling Hills Road
Mooresville
NC 28117
USA

DESPATCHED TO
Euroweld Ltd
255 Rolling Hills Road
Mooresville
NC 28117
USA

CUSTOMER ORDER NUMBER	N 03-134
DELIVERY NOTE DOCUMENT NUMBER	DN0096436
QUANTITY (KG)	40.5000
OUR ORDER REFERENCE	SO1777956 / 1
DATE	07/01/04

METRODE WELDING CONSUMABLE	ULTRAMET B316NF 4.0MM
FORM	MMA ELECTRODE
BATCH NUMBER	WO19711
SPECIFICATION	BS EN 1600:1997 E 18 15 3 L B 4 2

Chemical Analysis (Weight %) — Type: BS EN 10204: 3.1.B / ASME SFA-5.01: Sch. H

C	Mn	Si	S	P	Cr	Ni	Mo	Cu	N		
0.02	3.28	0.24	0.009	0.023	18.0	15.4	2.80	0.07	0.11		

Mechanical Tests — Type: BS EN 10204: 2.2

Tensile Tests — Impact Energies

Condition	Test Temperature	$Rp_{0.2\%}$ (MPa)	Rm (MPa)	A4 (%)	Z (%)	Temperature (°C)	Impact Energy (J)	Lateral Expansion (mm)
AS-WELDED	ROOM	>420	>600	38	54	-196	>40	

Metrode Products Limited certifies that the above material conforms to the indicated specifications

This document is produced electronically and is valid without signature.

IMPORTANT. Any liability arising from either reliance on this certificate, or use of our products, is strictly limited and governed by our conditions of business

Barrie Kylet – Q.A.Manager

ASME SFA-5.01: Lot classification: C4

Notes:
% Ni includes incidental Co unless otherwise specified
% Nb (Cb) includes incidental Ta unless otherwise specified
Ferrite is given as FN (Ferrite number) and measured on all-weld pad using instrument calibrated against NBS-related secondary standards (See AWS A4.2-97) unless otherwise specified

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

June 17, 2005

CERTIFICATION

Section 1 of 1

WMT&R Report No. 5-29323
Req. No. 5394

MetalTek International
The Carondelet Division
8600 Commercial Blvd.
I-55 Industrial Park
Pevely, MO 63070-1528

Attention: Rick Suria

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-03a
SOAK TIME: 5 Minutes
SPEED OF TESTING: 0.0030 in./in./min., 0.0500 in./min./in.
MATERIAL: Metaltek CF8MNMnMOD

DISPOSITION: Report

Sample	TestLog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Codes	Ult. Load lbf	0.2% YLD. lbf	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	A\U\R
A1 (Z1)	C03040	-320	165.1	95.5	51	37	25.9	—	33210	19210	0.5060	0.4002	2.00	3.02	0.20109020	M9	R
A1 (Z2)	C03041	-320	165.1	94.6	59	51	25.4	—	33120	18980	0.5054	0.3543	2.00	3.18	0.20061359	M9	R
A1 (Z3)	C03042	-320	168.7	101.8	58	57	25.2	—	33840	20420	0.5054	0.3305	2.00	3.16	0.20061359	M9	R
C2 (Z1)	C03043	-320	163.6	94.0	51	41	25.9	D	32840	18880	0.5056	0.3891	2.00	3.03	0.20077240	M9	R
C2 (Z2)	C03044	-320	162.4	91.7	61	61	25.0	—	32580	18390	0.5054	0.3163	2.00	3.21	0.20061359	M9	R
C2 (Z3)	C03045	-320	165.5	93.9	61	61	25.7	—	33230	18850	0.5056	0.3163	2.00	3.21	0.20077240	M9	R

A\U\R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

D - Failed outside middle half of gage length.

Matthew Wojton 6-17-05

Roy E. Stan/Matt Wojton
Technical Services Manager / Tensile Supervisor June 17, 2005

Founded 1929 St. Louis Testing Laboratories INCORPORATED

2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

May 17, 2005
Lab No. 05P-1488
P.O. No. 12516

C-2 Doc Package
Document # 8

Attention: Chuck Ruud

REPORT OF MECHANICAL TESTS

SAMPLE ID: 3 Ea. C-2 COIL, #Z1, #Z2, & #Z3

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length) in.	Elongation (2.0" Gage Length) %	Modulus of Elasticity Msi
#Z1	.1948	.0946	51.4	37,700	82,000	1.17	51.4	23.4
#Z2	.1948	.0887	54.5	35,900	81,000	1.03	51.5	23.2
#Z3	.1901	.0887	53.3	36,100	84,300	1.15	57.5	21.4

Round, reduced section tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370

Identification of tested specimens provided by the client

KS/mrm

Karl Schmitz. Director
Materials Testing

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Certificate No. 0397-01
Certificate No. 0397-02

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Pevely, MO 63070

May 17, 2005
Lab No. 05P-1488
P.O. No. 12516

Attention: Chuck Ruud

C-2 Doc Package
Document # 8

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C-2 COIL, #Z1

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 293°K

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-1	140	.106	100
Z1-2	128	.059	70
Z1-3	150	.126	100
AVERAGE	139	.097	90

Identification of tested specimen provided by client.

KS/mrm

Karl Schmitz, Director
Materials Testing

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May 17, 2005
Lab No. 05P-1488
P.O. No. 12516

Attention: Chuck Ruud

C-2 Doc Package
Document # 8

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C-2 COIL, #Z1

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 77°K

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-4	90	.045	60
Z1-5	80	.049	60
Z1-6	81	.055	60
AVERAGE	84	.050	60

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

KS/mm

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Pevely, MO 63070

May 17, 2005
Lab No. 05P-1488
P.O. No. 12516

Attention: **Chuck Ruud**

C-2 Doc Package
Document # 8

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C-2 COIL, #Z2

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 293°K

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-1	140	.118	100
Z2-2	154	.090	90
Z2-3	150	.109	100
AVERAGE	148	.105	97

Identification of tested specimen provided by client.

KS/mm

Karl Schmitz, Director
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Attention: Chuck Ruud

May 17, 2005
Lab No. 05P-1488
P.O. No. 12516

C-2 Doc Package
Document # 8

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C-2 COIL, #Z2

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 77°K

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-4	88	.071	90
Z2-5	76	.037	60
Z2-6	86	.057	70
AVERAGE	83	.055	73

Identification of tested specimen provided by client.

KS/mrm

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Pevely, MO 63070

May 17, 2005
Lab No. 05P-1488
P.O. No. 12516

Attention: Chuck Ruud

C-2 Doc Package
Document # 8

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C-2 COIL, #Z3

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 293°K

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-1	154	.086	100
Z3-2	200	.061	100
Z3-3	142	.080	90
AVERAGE	165	.076	97

Identification of tested specimen provided by client.

KS/mrm

Karl Schmitz, Director
Materials Testing

ACCREDITED

Certificate No. 0397-01
Certificate No. 0397-02

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Pevely, MO 63070

May 17, 2005
Lab No. 05P-1488
P.O. No. 12516

Attention: **Chuck Ruud**

C-2 Doc Package
Document # 8

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C-2 COIL, #Z3

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 77°K

RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-4	91	.052	80
Z3-5	86	.050	80
Z3-6	81	.061	80
AVERAGE	86	.054	80

Identification of tested specimen provided by client.

KS/mrm

Karl Schmitz, Director
Materials Testing

ACCREDITED
Certificate No. 0397-01
Certificate No. 0397-02

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

April 28, 2005

CERTIFICATION

Section 1 of 1

MetalTek International
The Carondelet Division
8600 Commercial Blvd.
I-55 Industrial Park
Pevely, MO 63070-1528

WMT&R Report No. 5-26097
P.O. No. 19386R9
WMT&R Quote No. QN250563
Req. No. 4315

Attention: Rick Suria

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-03a
Requirements: UTS ksi (Min 95\Max ---) 0.2% YS ksi (Min 72\Max ---) 4D Elong. % (Min 32\Max ---) Modulus Msi (Min 21\Max —)
SOAK TIME: 5 Minutes
SPEED OF TESTING: 0.0050 in./in./min., 0.0500 in./min./in.
MATERIAL: 316 S/S

DISPOSITION: Acceptable

Sample	TestLog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Ult. Load lbf	0.2% YLD. lbf	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	A\U\R
Bar#1 (Lot#3012668/82743)	B75123	-320	187.7	126.3	33	22	27.1	37740	25394	0.5060	0.4471	2.00	2.65	0.20109020	M9	A
Bar#2 (Batch#W019711)	B75124	-320	166.9	109.5	34	27	26.4	33500	21990	0.5056	0.4315	2.00	2.67	0.20077240	M9	A

A\U\R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Roy E. Starr\Matt Wojton
Technical Services Manager\Tensile Supervisor

4-28-05
April 28, 2005

C-2 Doc Package
Document # 9

10

C-2 Doc Package
Document # 10

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

Attention: **Chuck Ruud**

April 22, 2005
Lab No. 05P-1170
P.O. No. 12516
Page 1 of 1
(revised 6/15/05)

REPORT OF MECHANICAL TESTS

SAMPLE ID: 1 Ea., Sample Bar #1, Lot 3012668/82743
1 Ea., Sample Bar #2, Batch # WO19711

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length) in.	Elongation (2.0" Gage Length) %	Elastic Modulus
#1	.1901	.0855	55.0	56,500	85,000	0.80	55.0	25.5 MSI
#2	.1917	.0881	54.0	63,900	98,100	0.88	54.0	23.1 MSI

Round, reduced section all weld room temperature tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370
Identification of tested specimens provided by the client

Karl Schmitz, Director
Materials Testing

KS/tw

ACCREDITED
Certificate No. 0397-01
Certificate No. 0397-02

MEMBER ACIL

11

C-2 Doc Package Document # 11

Founded 1929 St. Louis Testing Laboratories INCORPORATED

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

Attention: Chuck Ruud

April 6, 2005
Lab No. 05P-1007
P.O. No. 12516
Page 1 of 2

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): 1 Ea., Material (1) LNM4455, Lot # 3012668/82743

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: -320°F

ALL WELD METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
LNM4455-1	52	0.027	40
LNM4455-2	50	0.022	40
LNM4455-3	50	0.016	20
Average	51	0.022	33

Identification of tested specimen provided by client.

KS/tw

Karl Schmitz, Director
Materials Testing

Founded 1929 St. Louis Testing Laboratories INCORPORATED

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C-2 Doc Package
Document # 11

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

Attention: Chuck Ruud

April 6, 2005
Lab No. 05P-1007
P.O. No. 12516
Page 2 of 2

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): (2) Metrode B316NF, Batch # WO19711

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: -320°F

ALL WELD METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
B316NF-1	48	0.030	30
B316NF-2	52	0.027	30
B316NF-3	44	0.027	30
Average	48	0.028	30

Identification of tested specimen provided by client.

KS/tw

Karl Schmitz, Director
Materials Testing

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Certificate No. 0397-01
Certificate No. 0397-02

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C-2 Doc Package
Document # 12

February 28, 2005
Lab No. 05P-0554
P.O. No. 12516
Page 1 of 2
(Revised Report 3-2-05)

Attention: Rick Suria

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): Electrode LNM 4455 & B316NF — 3012668274 3

SPECIFICATION: ASTM A 370-03a — L W01974 Cbr 6/14/05

SPECIMEN TYPE: "A" Vee Notch, All Weld

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: +70°F

RESULTS:

ALL WELD	JOULES	FOOT LBS.	LATERAL EXPANSION	% SHEAR
LNM 4455-7	149	110	0.055	50
LNM 4455-8	130	96	0.050	50
LNM 4455-9	134	99	0.051	50
Average	**138**	102	0.052	50

ALL WELD	JOULES	FOOT LBS.	LATERAL EXPANSION	% SHEAR
B316NF-7	155	114	0.056	50
B316NF-8	151	111	0.053	50
B316NF-9	146	108	0.052	50
Average	**151**	111	0.054	50

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

KS/clm

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Attention: Rick Suria

C-2 Doc Package
Document # 12
(unrelated to C-2)

February 28, 2005
Lab No. 05P-0554
P.O. No. 12516

(Revised Report 3-2-05)

PROCEDURE QUALIFICATION

WELDER: TERRY STANFIELD
MATERIAL: 1" CF8MnMn, Mod
SPECIFICATION: ASME IX
ELECTRODE: B316NF
PROCESS: SMAW

This is unrelated to report for C-2

REDUCED SECTION TENSILE

SAMPLE ID	WIDTH INCHES	THICKNESS INCHES	AREA SQ. INCHES	ACTUAL LBS.	TENSILE STRENGTH PSI	FRACTURE
TS-2	.750	1.000	.7500	70,000	93,300	Weld Metal
TS-5	.750	1.010	.7575	71,000	93,700	Weld Metal

GUIDED BEND TEST

SAMPLE ID	BEND	RESULTS
TS-1	Side	Acceptable, No Discontinuities
TS-3	Side	Acceptable, No Discontinuities
TS-4	Side	Acceptable, No Discontinuities
TS-6	Side	Acceptable, No Discontinuities

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Materials Testing
CWI No. 92120161

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C-2 Doc Package
Document # 13

C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
1	11	2 1/2	1 3/4	1/2	NO	Acceptable
2	11	1 1/2	3/4	1/8	NO	
3	23	2 3/4	1 1/4	3/8	NO	
4	23	2	1 1/2	1/4	NO	
5	23	2 7/8	1 1/4	3/8	NO	
6	23	3/4	1/2	3/8	NO	
7	23	7	1 1/2	3/8	NO	
8	23	2 1/4	1 1/2	5/8	NO	
9	23	2 3/4	1 1/4	1/4	NO	
10	23	3 1/2	1 1/4	1/4	NO	
11	23	1 3/4	1	3/8	NO	
12	24	4	3	1/2	NO	
13	24	13 1/2	3 3/4	1/2	Yes	
14	24	2 1/2	1 1/2	1/8	NO	
15	16	2 3/4	1	1/4	NO	
16	16	2 1/2	1 1/2	3/4	NO	
17	16	4	2 1/2	1/2	NO	
18	16	2	2	1	Yes	
19	16	1 1/2	3/4	3/4	NO	
20	16	2	1 1/4	1	Yes	
21	16	6	4	1 1/4	Yes	
22	14	2 3/4	2	7/8	Yes	
23	14	3 1/2	2 7/8	1/4	NO	
24	14	2 1/2	1 3/4	1/4	NO	
25	14	5	1	5/8	NO	
26	19	2	1 5/8	1/2	NO	
27	19	1 3/4	1 1/2	1/4	NO	
28	19	6	5	1/4	NO	
29	29	2	2	1/4	NO	
30	29	4 7/8	3 3/4	1/4	NO	
31	29	7	4	7/8	Yes	
32	29	2 1/4	2	1/4	NO	
33	29	2	1	1/4	NO	

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C-2 Doc Package
Document # 13

C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
34	15	2	1 1/4	1/4	NO	Acceptable
35	15	2 1/2	2	1/4	NO	
36	15	2	1	1/8	NO	
37	15	1 1/2	1	1/8	NO	
38	15	2	1 1/2	3/8	NO	
39	15	4 1/2	2	1/4	NO	
40	15	2 1/2	1 1/2	3/8	NO	
41	15	3	1 1/2	1/4	NO	
42	15	3 1/2	2 1/2	1/4	NO	
43	20	3 1/4	3	1/2	No	
44	20	2 1/2	3/4	1/2	NO	
45	20	3 1/4	1	1/4	NO	
46	18	8 3/4	2	1/4	NO	
47	18	8	2 1/2	1/4	Yes	
48	16	6	3	3/4	NO	
49	16	2	1 1/2	1/4	NO	
50	16	4	2	1 1/4	NO	
51	46	2 1/2	2	1/8	NO	
52	16	3 1/2	2 1/2	1	Yes	
53	46	4 1/2	4	1	Yes	
54	46	1	1	1/4	NO	
55	46	6 3/4	2 1/2	1/2	Yes	
56	46	1	1	1/4	NO	
57	46	1 1/2	1	1/4	NO	
58	46	3 1/2	2	1/8	NO	
59	46	6 3/4	1	1/8	NO	
60	45	1 1/2	1 1/2	3/4	Yes	
61	45	4 1/2	3 1/2	1/4	NO	
62	45	20	5	1	Yes	
63	45	13	4	3	Yes	
64	16	3/4	1/2	1/8	NO	
65	16	2 1/2	2	1/4	NO	
66	16	3/4	1/2	1/8	NO	

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C-2 Doc Package
Document # 13

C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
67	45	10 1/2	4 1/4	2	Yes	Acceptable
68	14	3/4	1/2	1/8	NO	
69	14	4 1/2	3	1/4	No	
70	14	3	1 1/2	1/4	NO	
71	14	3	1	1/2	Yes	
72	45	1	1	1/4	NO	
73	45	1 1/4	1/4	1/8	NO	
74	47	1 1/2	1 1/2	3/4	Yes	
75	47	3/4	3/4	1/8	NO	
76	47	2	1/2	3/16	NO	
77	47	[illegible] 4	2 1/2	1/2	Yes	
78	47	1	1/2	1/4	NO	
79	47	2 1/2	2	1/4	No	
80	47	7	3	3/8	Yes	
81	19	2 1/2	2	1/4	No	
82	47	1 1/2	1 1/2	1/4	NO	
83	47	4	2 1/2	5/8	NO	
84	19	2	1/2	1/4	No	
85	19	1 1/2	1	3/4	NO	
86	19	7 1/2	5	3	Yes	
87	19	3 1/2	2	1/4	No	
88	19	4	2 1/2	5/8	NO	
89	19	3 1/2	3	1/2	Yes	
90	19	2 1/2	2	1/4	No	
91	19	2	3/4	1/4	No	
92	19	9	4	1	Yes	
93	19	1 1/2	1	1/4	NO	
94	19	4	3	1/4	NO	
95	19	4 1/8	4	1/4	No	
96	19	6	3	1/4	No	
97	19	3	2 1/2	3/4	Yes	
98	19	2 1/2	1	3/4	Yes	
99	25	4	4	1 1/4	Yes	
100	25	2 1/2	2 1/2	1/2	NO	
101	25	2 1/2	2 1/2	1 1/2	Yes	

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C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
102	25	2 1/2	2 1/2	1/2	Yes	Acceptable
103	36	2	1	1/4	NO	
104	36	24	6	1	Yes	
105	36	3	2	1/4	NO	
106	29	2 1/2	1 1/2	3/4	Yes	
107	29	1	1	1/4	NO	
108	29	3/4	3/4	1/8	No	
109	29	6	3	1	Yes	
110	17	1	1	1/8	NO	
111	17	8	5	1	Yes	
112	17	7	4	1	Yes	
113	Deleted	—	—	—	—	—
114	17	2 1/2	2	1	Yes	
115	17	3 1/2	7/8	3/4	Yes	
116	17	5	3	3/4	Yes	
117	17	1 1/2	1 1/2	1/4	NO	
118	17	2 1/2	1 3/4	1/4	NO	
119	17	10	5	1	Yes	
120	Deleted	—	—	—	—	—
121	17	1	1/2	1/2	Yes	
122	17	10	2 1/2	1 3/4	Yes	
123	17	2 1/2	2	1/4	NO	
124	17	2	1 1/2	1/2	Yes	
125	17	3	2 3/4	1	Yes	
126	15	4 1/2	3 1/2	3/4	Yes	
127	15	1 1/2	1	1/4	NO	
128	15	4	2 1/2	1/4	NO	
129	15	2	1 1/2	1/4	NO	
130	15	2	1	1/4	NO	
131	15	2	1/2	1/4	No	
132	31	1 1/2	1	1/4	NO	
133	31	2 1/2	1	1/2	Yes	
134	31	3	1	1/2	Yes	
135	31	2 1/2	2	1/2	Yes	
136	31	2	1	1/4	NO	
137	31	1	1	1/4	NO	
138	31	2	1	1/4	NO	

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C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
139	31	7	5 1/2	1/2	Yes	Acceptable
140	31	2	1	1/4	No	
141	31	5	2	1/2	Yes	
142	31	2 1/2	2	1/4	No	
143	19	5	2 3/4	1/8	No	
144	19	5	2 1/2	1/4	No	
145	19	1 1/2	1	1/8	No	
146	19	3	2 1/2	1/4	No	
147	19	3	2 1/2	1/4	No	
148	34	12	3	1	Yes	
149	22	1 1/2	1	1/4	No	
150	41	3	2	1/8	No	
151	22	6	2	1/8	No	
152	22	1 1/2	1 1/2	1	Yes	
153	24	3	1 1/2	1/8	No	
154	24	2 3/4	1	1/8	No	
155	44	3	1 1/2	1	Yes	
156	42	2	1	1/4	No	
157	42	2	1	1/2	Yes	
158	42	2	1	1/4	No	
159	42	3	2 3/4	1 1/2	Yes	
160	42	3	2	5/8	Yes	
161	42	6	2	1	Yes	
162	42	4 1/2	1	3/4	Yes	
163	42	1	1/2	1/2	Yes	
164	42	2 1/2	1	1/8	No	
165	42	2	1 1/4	1/4	No	
166	42	3	2	1/4	No	
167	42	1 1/2	1	1/8	No	
168	42	3	2	1/8	No	
169	42	13	2	1 3/4	Yes	
170	42	2	1	1/2	Yes	
171	42	2	1	1/8	No	
172	42	2 1/2	1 3/4	1/4	No	
173	42	2	1	1/8	No	
174	42	2	1	1/8	No	
175	23	3	2 1/2	1/8	No	

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C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
176	23	2	1	1/8	NO	Acceptable
177	23	2	1	1/8	NO	
178	8	3	1 3/4	1/4	NO	
179	8	2	1	1/8	NO	
180	8	3 1/2	2	1/4	NO	
181	8	3	1/4	1/8	NO	
182	8	4	2	1/4	NO	
183	8	3	2	1/2	Yes	
184	6	1	1	1/4	NO	
185	6	2 3/4	1	1	Yes	
186	6	1	1	1/4	NO	
187	3	2	1	1/4	NO	
188	3	3 1/2	2	1/4	NO	
189	21	3	2	1/4	NO	
190	8	2 1/2	2	1/4	NO	
191	8	2 1/2	1	3/4	Yes	
192	8	4	3	1/2	Yes	
193	8	8	1 1/2	1	Yes	
194	8	19	2	1/2	Yes	
195	8	2 3/4	2	1/2	Yes	
196	26	6	1 3/4	2	Yes	
197	26	1 1/2	1	1/2	Yes	
198	26	3	2	1/4	NO	
199	26	2	1 1/4	1/4	NO	
200	26	4	3	1/4	NO	
201	8	1 1/2	1	1/2	Yes	
202	8	7 3/4	2	1	Yes	
203	8	6 3/4	1 1/2	1/2	Yes	
204	8	3	2	1/2	Yes	
205	6	2	1 1/4	1/4	NO	
206	6	4	2	1/4	NO	
~~207~~	6	2	1 1/2	1/4	NO	
208	6	1	1	1/4	NO	

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C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
209	26	3 1/2	1 1/2	1	Yes	Acceptable
210	26	1	3/4	1/4	No	1
211	Deleted	—	—	—	—	—
212	26	4	2 1/2	1/4	No	
213	28	6	2 1/2	3/4	Yes	
214	28	4	2	3/4	Yes	
215	Deleted	—	—	—	—	—
216	3	3 1/2	1	3/4	Yes	
217	28	2	2	1	Yes	
218	28	2	1	3/4	Yes	
219	28	2	1	1/4	No	
220	1 cut of new	3	1	1	Yes	
221	3	5	4	1/4	No	
222	3	4	1	1/4	No	
223	3	13	4	1/2	Yes	
224	3	2	1	1/4	No	
225	9	9 1/2	7	1/2	Yes	
226	9	3	1 3/4	1/2	Yes	
227	9	1 1/2	1	1/4	No	
228	9	1 1/2	1	1/4	No	
229	4	2 1/2	1	1	Yes	
230	11	6	2	1 1/2	Yes	
231	11	7	1 1/2	3/4	Yes	
232	11	3	1 1/4	3/4	Yes	
233	11	3	1 1/4	3/4	Yes	
234	11	3	2	1/8	No	
235	11	1 1/2	3/4	1/4	No	
236	11	1	3/4	1/8	No	
237	11	2	3/4	1/4	No	
238	11	2	1	1/4	No	
239	11	1 3/4	1	1/4	No	
240	11	8 1/8	3 3/4	1/4	Yes	
241	2	3	1/4	1/8	No	
242	2	1/2	1/2	1/8	No	
243	2	1 1/2	1 1/2	1/4	No	

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C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
244	2	1/2	1/2	1/4	NO	Acceptable
245	2	6	1	3/4	Yes	
246	2	9	2	1/4	Yes	
247	46	8 3/8	3 3/4	1/2	Yes	
248	46	1	1	1/2	NO	
249	46	1	1	1/2	NO	
250	46	1	1	1/2	NO	
251	45	5 1/2	1 1/2	1/8	NO	
252	45	2 1/2	2 1/4	1/4	NO	
253	45	9	4 1/2	1/2	Yes	
254	46	13	2 1/4	1/2	Yes	
255	46	1	1	1/8	NO	
256	46	1	1	1/8	NO	
257	46	1 1/2	1	1/8	NO	
258	46	1	1/2	1/8	NO	
259	46	4	1	1/8	NO	
260	46	1 1/2	1	1/4	NO	
261	46	6 1/2	5 1/2	1/2	Yes	
262	46	2 1/2	1	1/4	NO	
263	46	[redacted]	2 3/8	3/4	Yes	
264	46	10	4 1/4	1/2	Yes	
265	46	2 1/2	1 1/2	1/2	NO	
266	46	2 1/2	1 1/2	1/2	NO	
267	46	2 1/4	1	1/4	NO	
268	46	6 1/2	4 1/2	1	Yes	
269	46	6 1/2	3 3/4	3/4	Yes	
270	38	13 1/2	3 3/4	3/4	Yes	
271	38	7	3/4	1/2	NO	
272	18	9	2	1/2	NO	
273	38	7	2 1/2	1/2	NO	
274	38	17	1	3/4	Yes	
275	38	9 3/4	3/4	3/4	Yes	
276	38	4	4	3/4	Yes	
277	40	14	2 1/4	1 1/2	Yes	
278	40	2	1	1/4	NO	
279	40	2	1 1/2	1/4	NO	
280	40	2 1/4	1 1/2	1/4	NO	

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C-2 COIL WELD MAP

Defect Number	Photo Number	Length Inches	Width Inches	Depth Inches	Over 10% Wall Yes/No	Weld Permeability Result
281	37	6 1/2	3/4	3/4	Yes	Acceptable
282	37	4	3/4	1/4	NO	
283	37	1	1/4	1/8	NO	
284	17	3	2	1/8	No	
285	17	2	1	1/4	NO	
286	17	3	2 1/2	1/4	No	
287	17	4	2	1/4	No	
288	17	4	2 1/2	1/4	NO	
289	29	14	5	1/2	No	
290	29	13	5 1/2	1	Yes	
291	29	1 1/2	1	1/8	NO	
292	29	11 1/2	8 3/8	1	Yes	
293	29	3/4	1/2	1/8	NO	
294	29	5 1/2	4 1/2	3/4	Yes	
295	34	4 1/2	3 1/4	7/8	Yes	


V94
110
108

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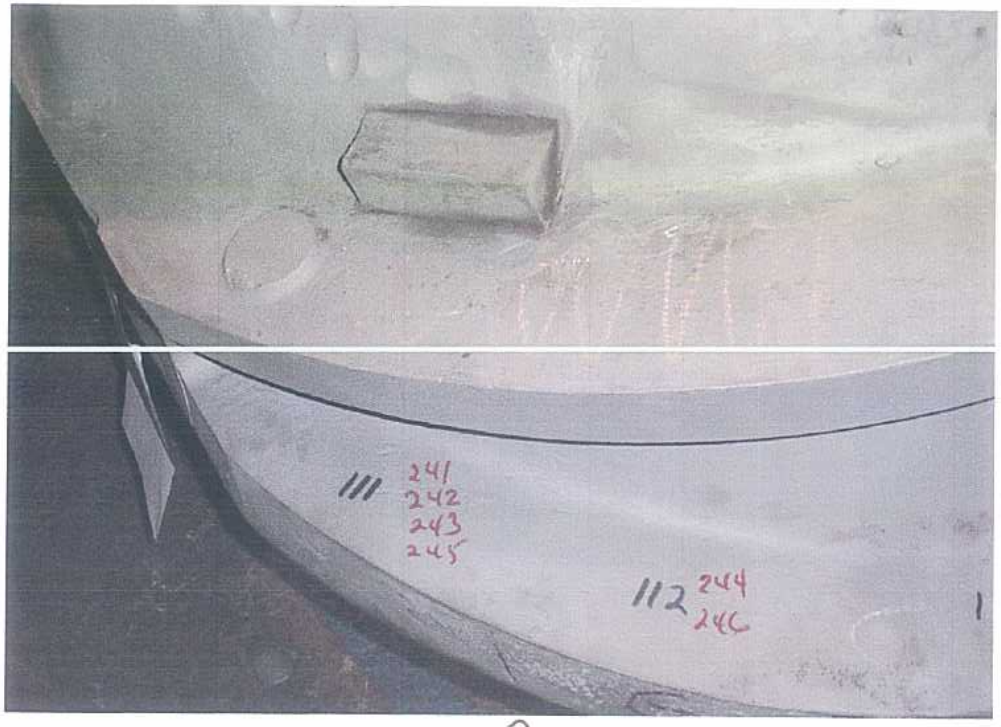
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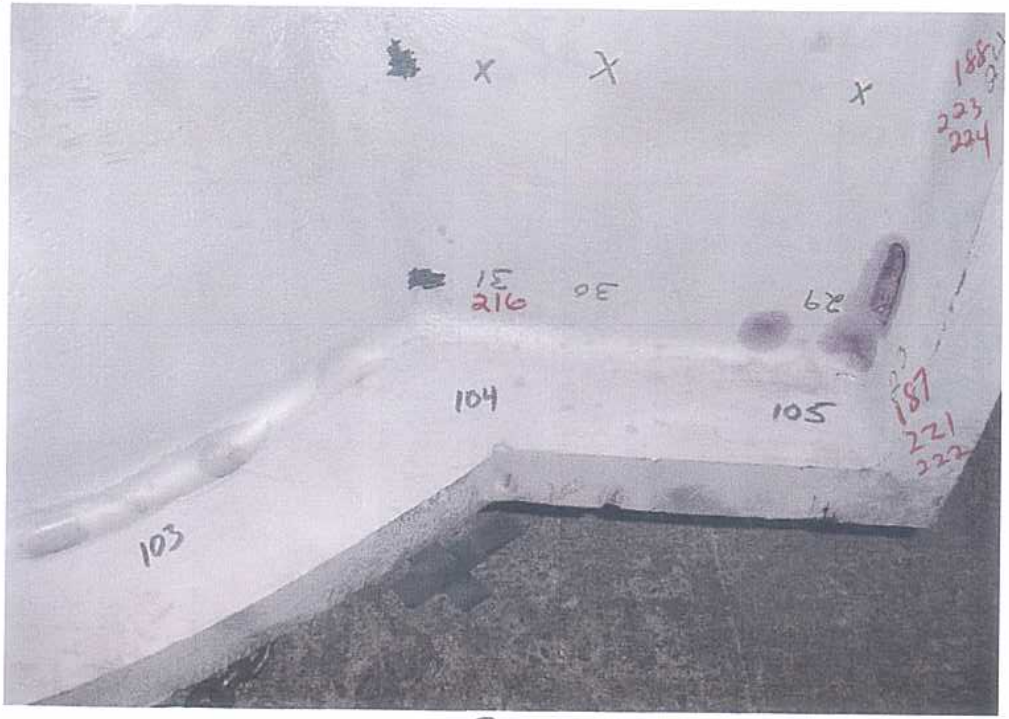
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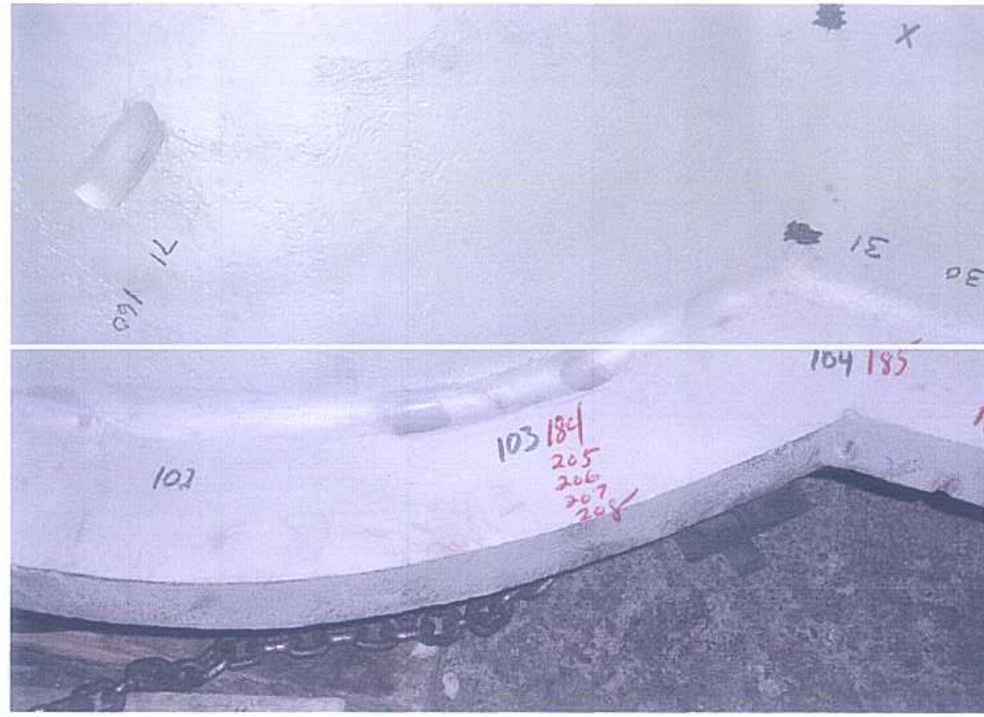
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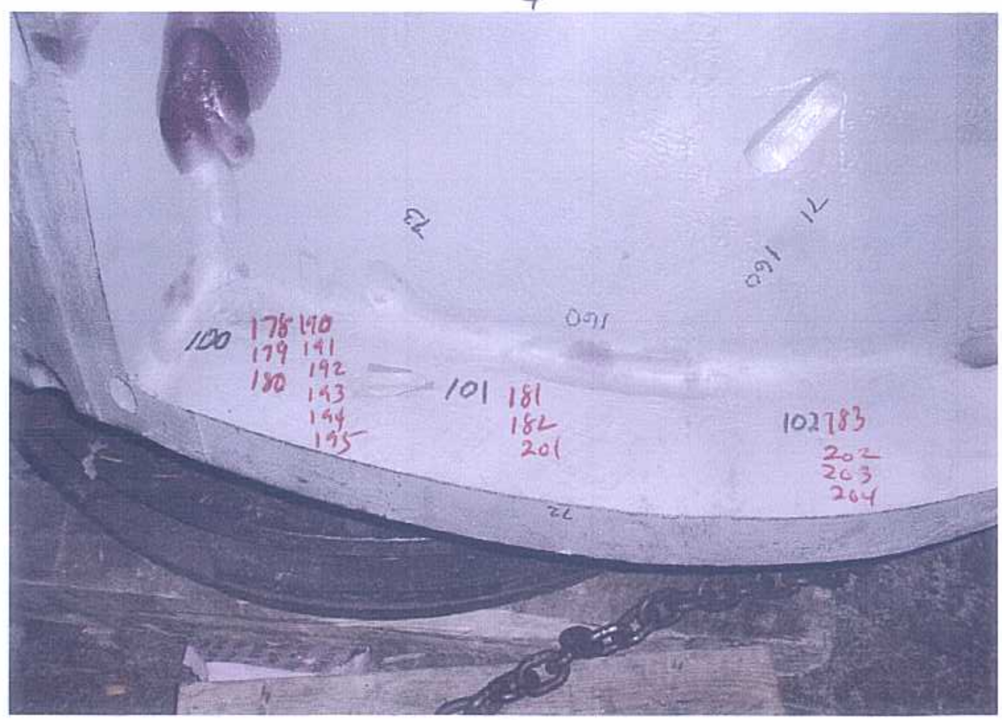
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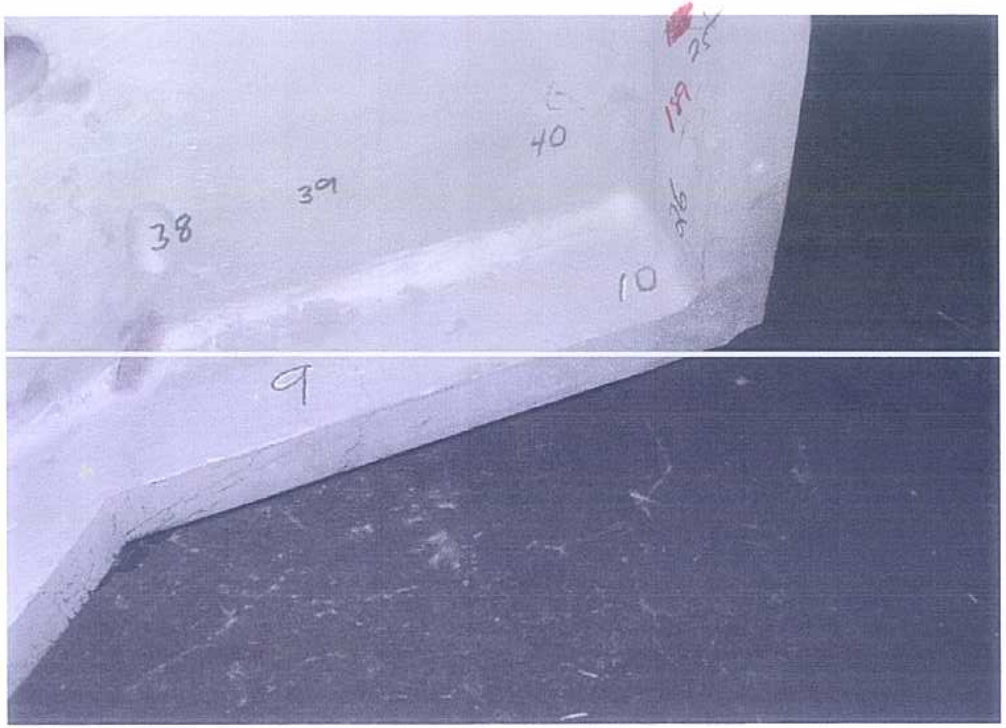
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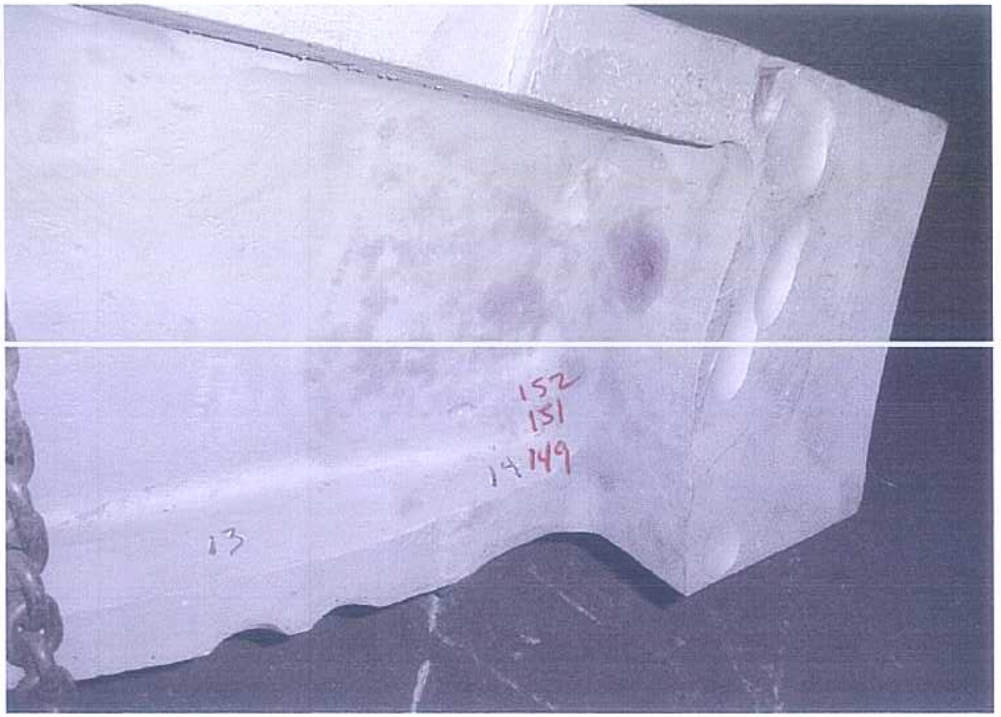
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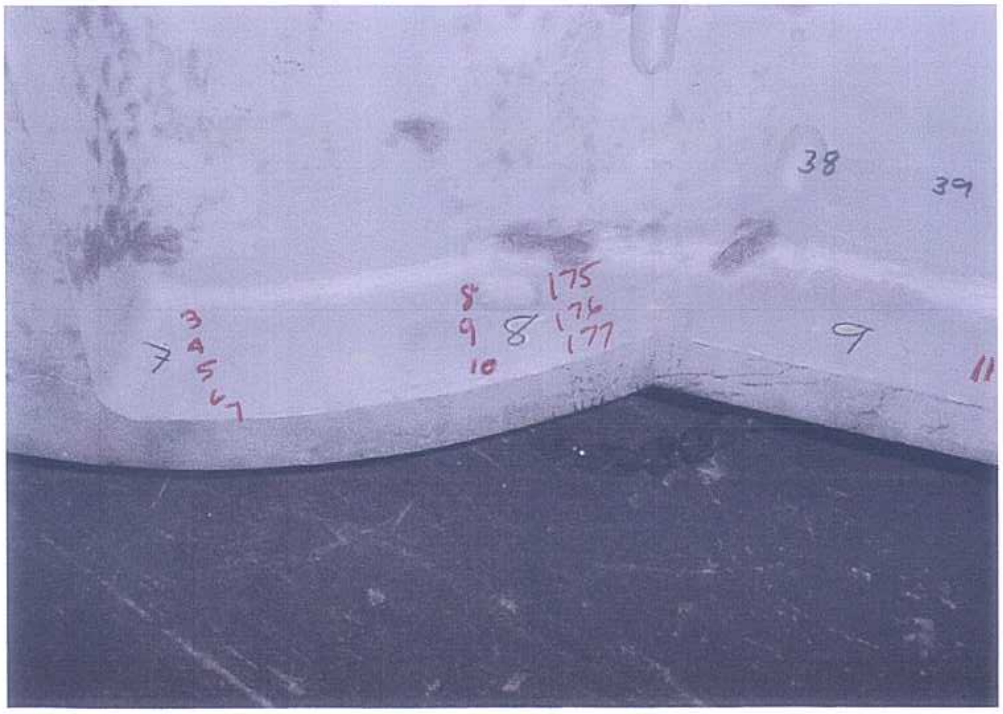
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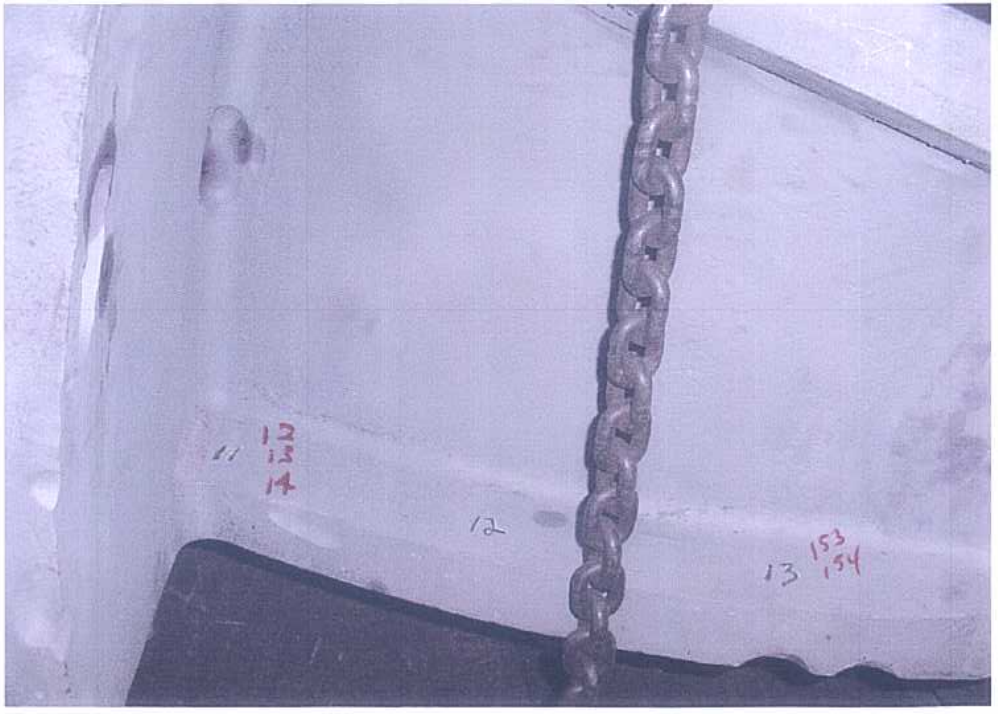
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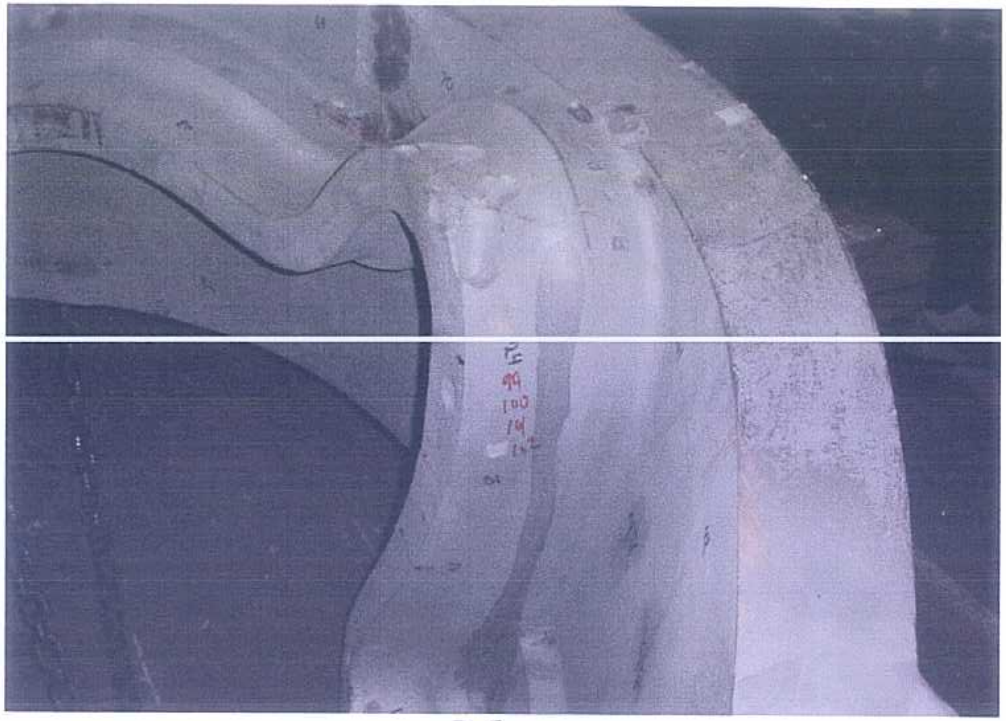

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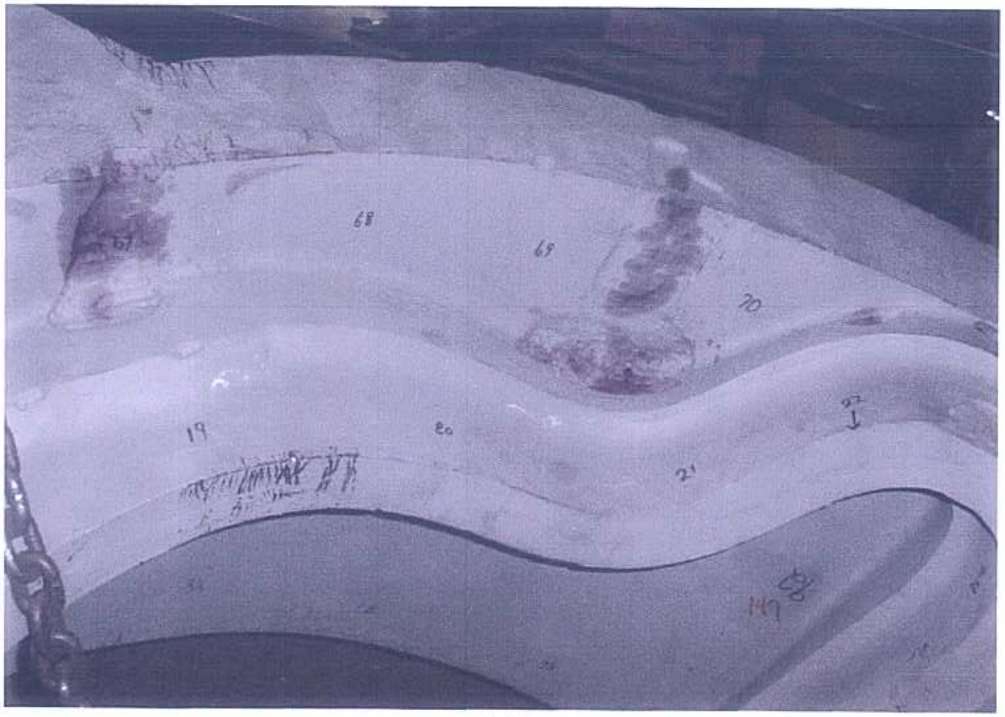

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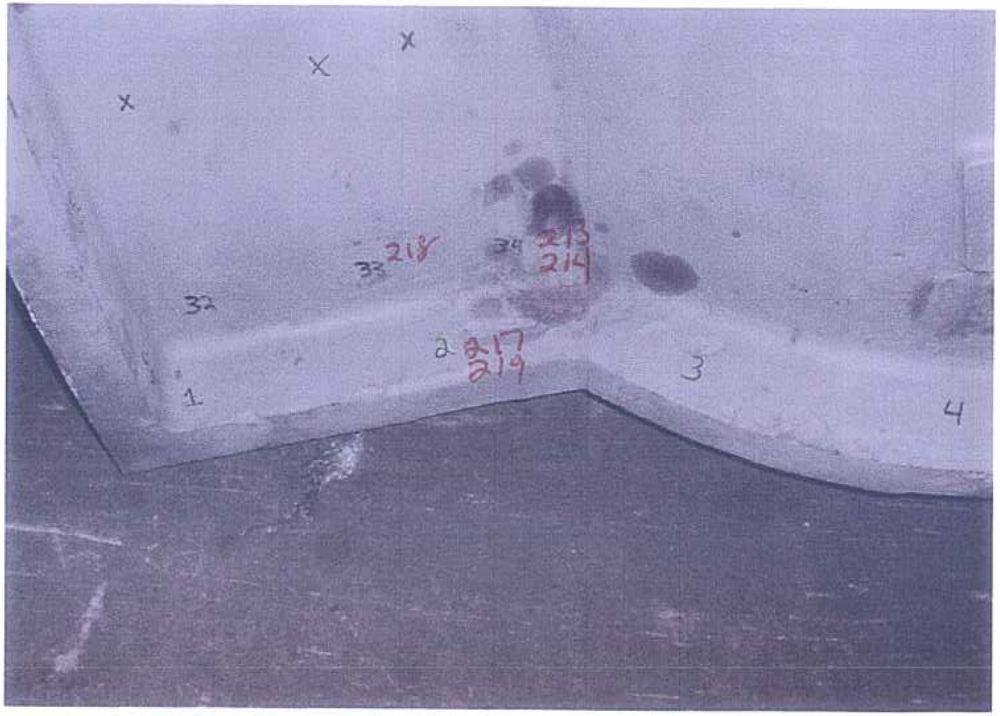

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14

C-2 Doc Package
Document # 14

Carondelet Division

8600 Commericial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Final Inspection Report

Customer Name: ENERGY INDUSTRIES OF OHIO

Pattern: MCWF-C2

Order Number: PPPL-FP-LTS-2

Revised 7/26/05

ASTM Metal CF8MNMN MOD

Date 7/26/2005

Type Description	Cert Number	Procedure	Acceptance Criteria	Actual
Liquid Penetrant	S75920-1	CQP - 300 Rev 9	SEE NOTE	Acceptable
Notes Acceptance per ASTM A903. Acceptance criteria - level 1 for high stressed areas, level 2 for all other areas.				
Mag Perm	S75920-1	SOP Mag Perm 100 Rev 1	<1.02	Acceptable
Radiographic	S75920-1	Technique # 12726	MSS SP 54	Acceptable
Visual	S75920-1	CQP - 500 REV 4	ASTM A802 LEVEL 2	Acceptable

Liquid Penetrant

Technician: Jason Rees
~~ASNT Level~~ II

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

Superior Quality Engineered Metal Products

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

FORM 6061-RT- 002 Rev.2

5512 W. State St. Milwaukee, WI 53208 Tel:(414)771-3060 Fax:(414)771-9481 (800)818-6403 www.cooperheat-mqs.com

CUSTOMER

NAME METAL TEK INTERNATIONAL

ADDRESS 8600 COMMERCIAL BLVD

CITY PEVELY STATE MO ZIP 63070

DATE 05/20/2005

WORK ORDER NO. 361-02283

P.O. NUMBER 21041

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Inclusion	Dross or Slag	Incomplete Penetration: Porosity	Lack of Fusion	Gas	Shrinkage: Cracks	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF -C2	1	1-2	✓			2									
MAIN BODY		2-3	✓												
E.I.O. C040851		3-4	✓				1								
		4-5	✓												
MS75920		5-6	✓												
		7-8	✓												
		8-9	✓												
		9-10	✓ ST	R			2				R-LW 3+			✓	
		11-12	✓		2									✓	
		12-13	✓											✓	
		13-14	✓		1										
		~~14-15~~													
		15-16	✓			1									
		16-17	✓		1									✓	
		~~17-18~~													
		18-19	✓												
		19-20	✓											✓	
		20-21	✓		2									✓	
		21-22	✓		1									✓	✓
		23-24	✓		1									✓	
		24-25	✓											✓	
		26-27	✓			2									
		27-28	✓												
		29-30	✓		1									✓	
		30-31	✓		1									✓	

NO. ACCEPTED 0 NO. REJECTED 1

COMMENTS

MQS TECH. NO. 12970 SHT. REV.

CUST. RSS NO. SHT. REV.

REVIEWER S. TEAGUE

CERTIFIED NDT LEVEL (RT) II

C-2 Doc Package
Document # 15

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

FORM 6061-RT- 002 Rev.2

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CITY PEVELY STATE MO ZIP 63070

DATE 05/20/2005

WORK ORDER NO. 361-02283

P.O. NUMBER 21041

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Incomplete Penetration: Inclusion	Dross or Slag	Porosity	Lack of Fusion	Gas	Shrinkage: Cracks	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF -C2	1	32-33	✓		2								✓		
MAIN BODY		33-34	✓											✓	
E.I.O. C040851		35-36	✓		2										
		36-37	✓										✓		
MS75920		38-39	✓										✓		
		39-40	✓		2								✓		
		41-42	✓										✓		
		42-43		R - ~~Slag~~									✓		
		44-45	✓								R		✓		
		45-46		R									✓		
		47-48		R							R		✓	✓	
		48-49		R							R(2)		✓		
	49	50-51	✓								R(2)		✓		
		52-53	✓										✓		
		53-54	✓										✓		
		54-55	✓										✓		
		55-56	✓										✓		
		56-57	✓										✓		
		57-58	✓												
		58-59	✓										✓		
		59-60	✓												
		60-61	✓										✓		
		62-63	✓			1							✓		
		63-64	✓										✓		
		65-66	✓										✓		

NO. ACCEPTED 0 NO. REJECTED 1

COMMENTS

C-2 Doc Package
Document # 15

MQS TECH. NO. 12970 SHT. REV.

CUST. RSS NO. SHT. REV.

REVIEWER S. [illegible]

CERTIFIED NDT LEVEL (RT) II

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

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CITY PEVELY STATE MO ZIP 63070

DATE 05/20/2005

WORK ORDER NO. 361-02283

P.O. NUMBER 21041

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Incomplete Penetration: Inclusion	Dross or Slag	Porosity	Lack of Fusion	Gas	Shrinkage: Cracks	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF -C2	1	67-68	✓										✓		
MAIN BODY		68-69	✓										✓		
E.I.O. C040851		69-70	✓										✓		
		V64	✓										✓		
MS75920		71-72	✓		1										
		72-73	✓										✓		
		73-74	✓										✓	✓	LIGHT LOOK
		74-75	✓										✓	✓	
		75-76	✓										✓		
		76-77	✓										✓		
		78-79	✓		1								✓		
		79-80	✓										✓		
		80-81	✓										✓		
		81-82	✓										✓		
		83-84	✓										✓		
		85-86	✓		2								✓		
		86-87	✓		1								✓		
	1	87-88		R				POSSIBLE HOT TEAR - R					✓		
		88-89	✓										✓		
		90-91	✓		1								✓		
		92-93		R						2	R		✓		
		V94	✓							1			✓	✓	
		V95	✓											✓	
		96-97	✓											✓	
		97-98	X	R							R		✓		

NO. ACCEPTED 6

NO. REJECTED 1

COMMENTS

C-2 Doc Package
Document # 15

MQS TECH. NO. 12970 SHT. REV.

CUST. RSS NO. SHT. REV.

REVIEWER J. TERALD

CERTIFIED NDT LEVEL (RT) II

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

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CUSTOMER

NAME METAL TEK INTERNATIONAL
ADDRESS 8600 COMMERCIAL BLVD
CITY PEVELY STATE MO ZIP 63070

DATE 05/20/2005
WORK ORDER NO. 361-02283
P.O. NUMBER 21041
XRAY X
GAMMA

PROCEDURE SPECIFICATION ASTM E94-93
ACCEPTANCE CRITERIA MSS-SP-54-1999
SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Inclusion	Dross or Slag	Incomplete Penetration: Porosity	Lack of Fusion	Gas	Cracks	Shrinkage	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF -C2	1	98-99	✓		R	GP	R	3+	GP	2	L	L	T	✓		
MAIN BODY	100-101		✓				1							✓		
E.I.O. C040851	101-102		✓											✓		
	102-103		✓											✓		
MS75920 11	103-104			R	}	Same	Defect							✓		
8	104-105			R	}							R		✓		
8	106-107			R								R		✓		
	107-108		✓									R		✓	✓	
	108-109		✓											✓		
	109-110		✓											✓		
	111-112		✓		1									✓		
	112-113		✓				2							✓		
	114-115		✓								2			✓		
	115-116		✓											✓		
8	116-117			R								R		✓		

). ACCEPTED 8 NO. REJECTED 1

OMMENTS

MQS TECH. NO. 12970 SHT. REV.
CUST. RSS NO. SHT. REV.
REVIEWER S. Teague
CERTIFIED NDT LEVEL (RT) II

C-2 Doc Package
Document # 15

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

FORM 6061-RT- 002 Rev.2

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CUSTOMER

NAME METAL TEK INTERNATIONAL

ADDRESS 8600 COMMERCIAL BLVD

CITY PEVELY STATE MO ZIP 63070

DATE 05/20/2005

WORK ORDER NO. 361-02283

P.O. NUMBER 21041

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Inclusion	Dross or Slag	Incomplete Penetration: Porosity	Lack of Fusion	Gas Cracks	Shrinkage	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF -C2	1	1-2	✓				1						✓		
INSIDE RAIL		2-3	✓				1						✓		
E.I.O. C040851		3-4	✓				1						✓		
		4-5	✓										✓		
MS75920		5-6	✓										✓		
		6-7	✓										✓		
		7-8	✓										✓	✓	
		8-9	✓												
		9-10	✓										✓		
		10-11	✓										✓		
		11-12	✓										✓	✓	
		12-13	✓		1								✓	✓	
		13-14	✓				i						✓		
		14-15	✓										✓		
		15-16	✓										✓		
		16-17	✓		1		2-3						✓	✓	
		17-18	✓				1						✓		
		18-19	✓										✓		
		19-20	✓		2								✓		
		20-21	✓										✓		
		21-22	✓							1-2			✓		
		22-23	✓							1			✓		
		23-24	✓										✓		
		24-25	✓										✓		
		25-26	✓										✓	✓	

NO. ACCEPTED 1 NO. REJECTED 0

COMMENTS

C-2 Doc Package
Document # 15

MQS TECH. NO. 12970 SHT. REV.

CUST. RSS NO. SHT. REV.

REVIEWER S. Tebbe

CERTIFIED NDT LEVEL (RT) II

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

FORM 6061-RT- 002 Rev.2

5512 W. State St. Milwaukee, WI 53208 Tel:(414)771-3060 Fax:(414)771-9481 (800)818-6403 www.cooperheat-mqs.com

CUSTOMER

NAME METAL TEK INTERNATIONAL

ADDRESS 8600 COMMERCIAL BLVD

CITY PEVELY STATE MO ZIP 63070

DATE 05/20/2005

WORK ORDER NO. 361-02283

P.O. NUMBER 21041

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Incomplete Penetration: Inclusion	Dross or Slag	Porosity	Lack of Fusion	Shrinkage: Gas	Cracks	Hot Tears	Undercut	Film Artifacts: Surface		REMARKS
MCWF -C2	1	26-27	✓			1							✓		
INSIDE RAIL		V28	✓										✓		
E.I.O. C040851		29-30	✓			1							✓	✓	
		30-1	✓										✓		
MS75920															

NO. ACCEPTED 1

NO. REJECTED ϕ

COMMENTS

C-2 Doc Package
Document # 15

MQS TECH. NO. 12970 SHT. REV.

CUST. RSS NO. SHT. REV.

REVIEWER S. Teague

CERTIFIED NDT LEVEL (RT) II

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

FORM 6061-RT- 002 Rev.2

5512 W. State St. Milwaukee, WI 53208 Tel:(414)771-3060 Fax:(414)771-9481 (800)818-6403 www.cooperheat-mqs.com

CUSTOMER

NAME METAL TEK INTERNATIONAL

ADDRESS 8600 COMMERCIAL BLVD

CITY PEVELY STATE MO ZIP 63070

DATE 06/11/2005

WORK ORDER NO. 361-02341

P.O. NUMBER 21041

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET 1 OF 1

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Incomplete Penetration: Inclusion	Dross or Slag	Porosity	Lack of Fusion	Shrinkage: Gas	Cracks	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF -C2	1	9-10	✓		2				1					✓	
		41-42	✓		1										
E.I.O. C040851		45-46	✓		1						2				
		47-48	✓		1						1				
MS75920		48-49	✓											✓	
(R1)		87-88	✓											✓	
		92-93		R				R							
		97-98	✓						1						
		103-104	✓												
		104-105	✓												
		106-107	✓		1										
		116-117	✓		1										

NO. ACCEPTED 0

NO. REJECTED 1

COMMENTS

MQS TECH. NO. 12970 SHT. REV.

CUST. RSS NO. SHT. REV.

REVIEWER John Petroske

CERTIFIED NDT LEVEL (RT)

John Petroske RT II Exp. 01/08

C-2 Doc Package
Document # 15

MetalTek INTERNATIONAL

C-2 Doc Package
Document # 16

RADIOGRAPHIC INTERPRETATION REPORT

CUSTOMER	PURCHASE ORDER NUMBER	DATE	CONTROL NO.	PAGE
Energy Industries of OH	PPPL-F2-L+S-2	6-15-05	40851	1 of 1

PART NO.	SPECIFICATION	CLASS	TOTAL PIECES	PIECES ACCEPTED
MCWF-C2	E 446	See Spec	1	1

RADIOGRAPHED BY:	INTERPRETED BY:	ASNT LEVEL
M. dyett	M dyett	II

FILM TYPE	MATERIAL	ISOTOPE	CODE
29/59	CF8MN/HN mod	IRIDIUM 192 COBALT 60 V	ASTM E94 V ASME MIL-STD-453

	VIEW	PENE	ACCEPT	REJECT	SHRINK	INCLUSION	POROSITY	LINEAR	SURFACE	LOF/LOP	COMMENTS
MS75920											
	92-93R2	30/40		X						X	
6-16-05	92-93R3	30/40	/			1	2		/		Film Crimp

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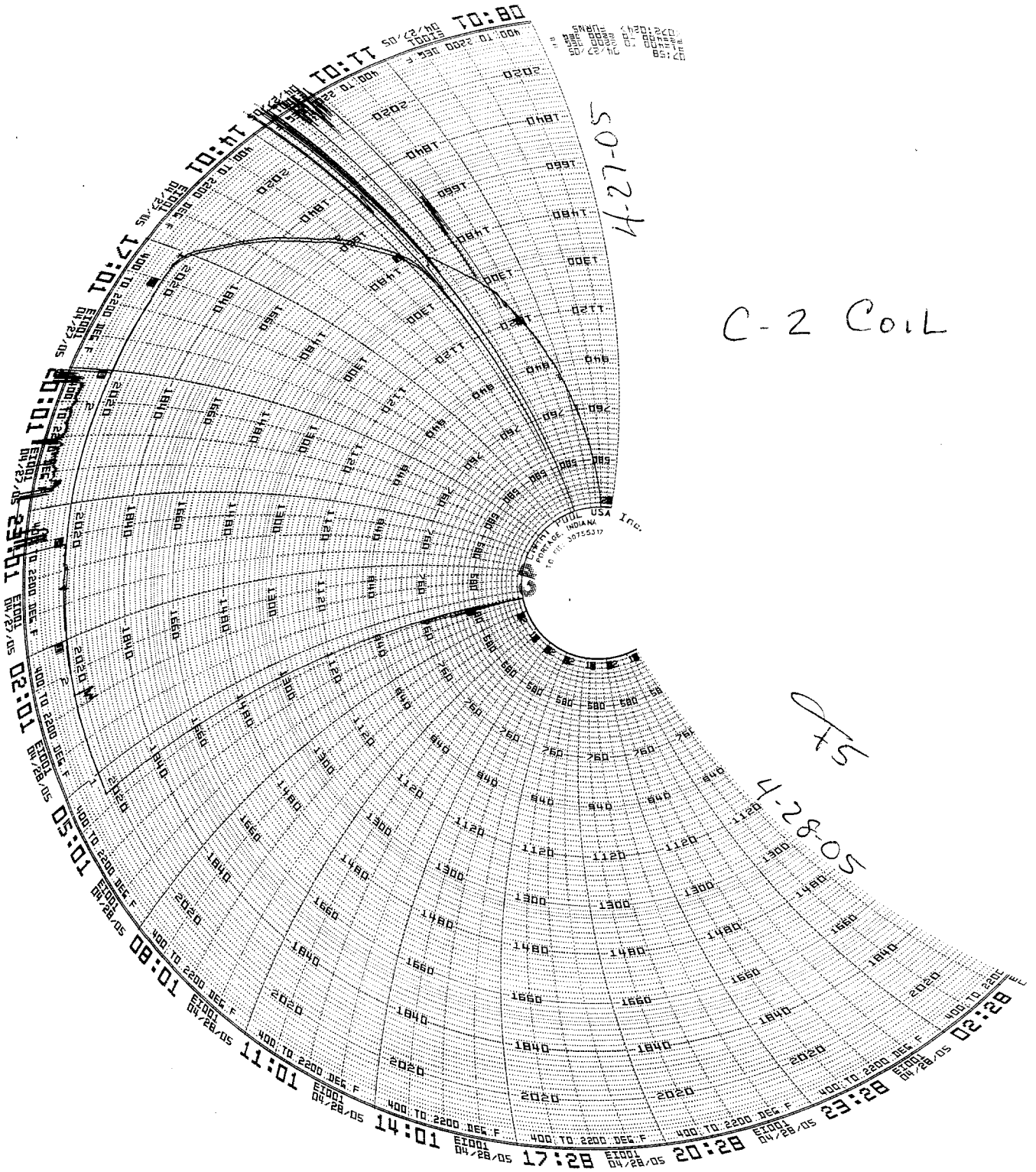
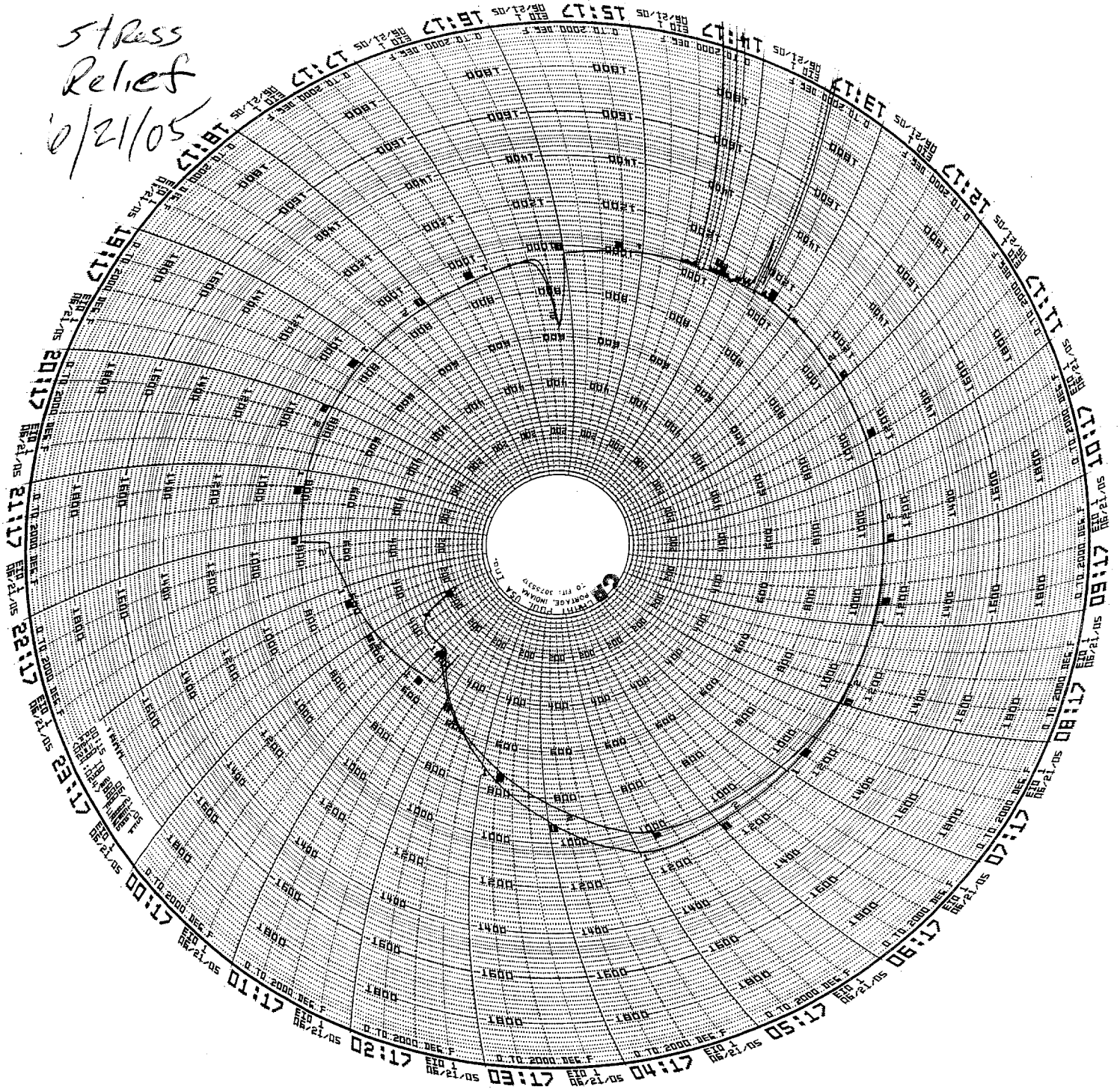
C-2 Doc Package
Document # 17



C-2 Doc Package
Document # 18

C-2 Coil
Stress
Relief
6/21/05



MetalTek INTERNATIONAL

C-2 Doc Package Document # 19

Corrective Action 1292
Carondelet Division - CA / PA / RGA Database
Corrective Action Type NCR
Date 6/1/2005 6-2-05 Rev 1 ctn
CA Originator C. Ruud
Pattern Number: C-2 Coil

Description of Defect / Non-Conformance
104 defects requiring major welds were found during visual, LP and RT inspections.

Root Cause
Inherent to the manufacturing process.

Corrective Action Weld upgrade C1 casting. Welding will be performed following the approved procedure FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1. FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2.

Verification of Corrective Action
All repairs will be verified by the inspection method used to discover the original defect.

Signed: C. Ruud

CC: Roger Broman, Barry Craig, Joe Edwards, E.J. Kubick

MetalTek INTERNATIONAL

C-2 Doc Package
Document # 20

Corrective Action 1292a
Carondelet Division - CA / PA / RGA Database
Corrective Action Type NCR
Date 6/15/2005
CA Originator C. Ruud
Pattern Number: C -2 Coil

Description of Defect / Non-Conformance
Defect found during RT verification. Result in a major weld.

Root Cause
Lack of fusion was discovered.

Corrective Action
Weld repair will be made according to approved prodcedures.

Verification of Corrective Action
Area will be LP and RT inspected.

Estimated Completion Date
6/15/05

Actual Completion Date
Complete.

Signed: C. Ruud

CC: Roger Broman, Barry Craig, Joe Edwards, E.J. Kubick

We concur with this CA.

C-2 Doc Package
Document # 20

Nonconformance Report: MetalTek CA 1292 Rev. 1

Project Disposition: Corrective action approved

Approvals

Procurement Technical Representative _____
Wayne Reiersen for Phil Heitzenroeder

Responsible Line Manager _____
Mike Cole for Brad Nelson

MetalTek INTERNATIONAL

C-2 Doc Package
Document # 21

Corrective Action 1302
Carondelet Division - CA / PA / RGA Database
Corrective Action Type NCR
Date 5/29/2005
CA Originator C. Ruud
Pattern Number: C-2 Coil

Description of Defect / Non-Conformance
Failed to differentiate two directions of test material on pattern/casting per the requirement of NCSX-CSPEC-141-03-07, SECTION 4.2.2.

Root Cause
Failed to communicate specification to Pattern Shop to add cast on test material specimens in the transverse direction.

Corrective Action
Will request a deviation to eliminate requirement.

Verification of Corrective Action
N/A

Preventive Action
Create Inspection and Test Plan summarizing all requirements.

Estimated Completion Date
6/15/05

Actual Completion Date

Signed: C. Ruud

CC: Roger Broman, Barry Craig, Joe Edwards, E.J. Kubick

Accept As-Is. NCSX-CSPEC-141-03-07 is being revised to eliminate the requirement to test in 2 directions. 6-6-05 PBA
Ref. also 1301.

C-2 Doc Package
Document # 21a

Corrective Action 1323
Carondelet Division - CA / PA / RGA Database
Corrective Action Type NCR
Date 7/27/2005
CA Originator C. Ruud
Applies to: Coil castings C-1, C-2, C-3, C-4 and A-1 and C 1 shim and four C coil and six A coil shims

Description of Defect / Non-Conformance
Phosphorus levels in material produced to date exceed specification limits. Both phosphorus and sulfur readings reported erroneously in certifications.

Certification reports have shown phosphorus and sulfur levels in the <.01% range. Independent laboratory data confirmed phosphorus in the .018 to .033% range and sulfur in the .005 to .022% range. Actual levels of some tests are above those in PPPL Specification NCSX-CSPEC-141-03-07 Rev 7.

Nonconformance was first suspected as a result of analysis of zoned attached test specimens volunteered by MetalTek International as response to PPPL questions on weighted average chemical analysis and quality of blending in the gating system. Nonconformance was verified on the bars used in the study and has been extended to evaluation of previously poured products.

Root Cause
Specification limits were set below the levels achievable through use of available raw materials. Spectrometer did not properly calibrate for phosphorus and sulfur at levels of specification due to equipment malfunction.
The chemical specification of EIO heats uses alloy CF8MNMn-Mod which incorporates a type standard calibration with a certified reference material (CRM) BS180. This enables the operator of the spectrometer to match the elemental concentrations of this alloy with corrective factors. These factors are determined by analyzing the CRM and having them compared with the calibration curves for each element. The phosphorus and sulfur content have very low measured intensities due to low concentrations. Intermittent failure of the spectrometer intensity measuring card caused higher intensity readings for phosphorus and sulfur. Subsequent checks with the CRM resulted in low corrective factors that were not detected. This in turn resulted in low reported concentrations for the EIO samples. All the major elements, which are measured on other intensity cards, have been closely monitored and matched very well with the CRM and thus were reported correctly.

Corrective Action
Modification to specification for phosphorus and sulfur will be requested. Limits will be set based on process capability and consistent with other stainless steel grades. Replacement of deficient card in spectrometer will be made upon delivery.

Subsequent immediate analysis of chemistry results, obtained by wet analysis, is attached and demonstrate top of specification for sulfur and over specification for phosphorus. The spectrometer manufacturer has performed an analysis to determine the cause of the malfunction and verified that the intensity card has an intermittent fault and must be replaced. The card has been ordered and scheduled for replacement on August 15, 2005.
Until the card is replaced we will be performing additional type standardizations to ensure accurate sulfur and phosphorus analysis. Additionally, for coils made until the card is replaced, an independent laboratory will perform a verification of the chemical analysis.

Verification of Corrective Action
Will be determined at a later date.

Preventive Action
In addition to spectrometer faults, we have identified that the specification ranges for sulfur and phosphorus is unattainable. Analysis and specifications for virgin charge materials predict sulfur at 0.040% maximum and phosphorus at 0.040% maximum. We have no way to remove phosphorus from the melt and do not intentionally add phosphorus. So, the confirmed coil analyses, along with analyses of virgin material heats, demonstrate sulfur in the range of 0.010% to 0.022% and phosphorus in the range of 0.018% to 0.033%. These results are consistent with our charge material analysis. We will request a deviation for phosphorus in the subject parts and also request a permanent specification change to 0.040% maximum for both phosphorus and sulfur, to allow us to provide non-discrepant material. This change will not affect, in any way, the physical properties or material performance because all coils and test material exhibited sulfur and phosphorus within the new ranges despite inaccurate reporting.
Other actions: Specifications have been added to the BS 180 standard and the type standard will be measured against the criteria.

Estimated Completion Date
August 15, 2005

Actual Completion Date TBD

Signed: C. Ruud 

CC: Jim Galaske, Barry Craig, Joe Edwards, E.J. Kubick

C-2 Doc Package
Document # 21a

Guide to St Louis Testing Report Dated 7-26-05

Sample name	Sample origin
A1Z1	Cast on bar A-1 coil, zone 1
A1Z2	Cast on bar A-1 coil, zone 2
A1Z3	Cast on bar A-1 coil, zone 3
C1	Cast on bar C-1 coil
C2Z1	Cast on bar C-2 coil, zone 1
C2Z2	Cast on bar C-2 coil, zone 2
C2Z3	Cast on bar C-2 coil, zone 3
C3Z1	Cast on bar C-3 coil, zone 1
C3Z2	Cast on bar C-3 coil, zone 2
C3Z3	Cast on bar C-3 coil, zone 3
F1	Final analysis button from ladle for C-4 coil
F2	Final analysis button from ladle for C-4 coil
F3	Final analysis button from ladle for C-4 coil
P1	Preliminary analysis button from ladle for C-4 coil

Testing is underway of the heat used to pour the four C coil and six A coil shims.

C-2 Doc Package
Document # 21a

Attachment 40
CA 1323

Founded 1929 St. Louis Testing Laboratories INCORPORATED

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service

July 26, 2005
Lab No. 05C-0608
Invoice No. 59891
P.O. No. 21324
Page 1 of 1

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

Attention: Chuck Ruud

REPORT OF CHEMICAL ANALYSIS

SAMPLE ID: A1 Z1, A1 Z2, A1 Z3, C1, C2 Z1, C2 Z2, C2 Z3, C3 Z1, C3 Z2, C3 Z3, F1, F2, F3, P1

RESULTS: %

ANALYTE	A1Z1	A1Z2	A1Z3
Sulfur	.013	.005	.010
Phosphorus	.025	.023	.018

ANALYTE	C1	C2Z1	C2Z2	C2Z3
Sulfur	.014	.022	.018	.015
Phosphorus	.018	.024	.021	.025

ANALYTE	C3Z1	C3Z2	C3Z3
Sulfur	.013	.014	.012
Phosphorus	.024	.025	.021

ANALYTE	F1	F2	F3	P1
Sulfur	.014	.015	.012	.010
Phosphorus	.029	.033	.028	.030

Sulfur Test Method: ASTM E1019-03

Phosphorous Test Method: Colormetric

Identification of tested specimen provided by the client.

Robin E. Sinn
Laboratory Director

RES/nmc

MetalTek INTERNATIONAL

C-2 Doc Package
Document # 21a

Addendum to CA1323 8-17-05

Historical:
The proto type coil was poured on February 24, 2004. The chemistry specification at that time permitted a maximum of 0.04% for sulfur and phosphorus. The reported values for these elements were 0.01 and 0.02% respectively.

Prior to pouring the C-1 coil casting the specification was revised. MT failed to incorporate the revisions into our system. The contract review procedure did not detect the changes to the specification. Therefore normal change procedures were not implemented. This was reported in corrective action 1308 on June 13, 2005. The error was recognized when the material poured to cast C and A coil shims did not meet the revised specification.

An investigation was begun immediately to determine compliance of the C-1 and C-2 coils. It was determined that both the C-1 and C-2 met the revised chemistry, except for sulfur and phosphorus. To verify the analysis MT analyzed samples from the cast on bars taken from the coils. By this time the optical card had malfunctioned. This fact, in combination with the human error (believing that the type standard was also in the 0.002% range) led MT to believe that the sulfur and phosphorus were actually in the 0.002% range. As a result MT believed the coils to be compliant and no action was taken.

Current Activities:
Samples from A-1, C-4 and C-5 have been sent to Wisconsin Centrifugal, our parent company for independent analysis of all reported elements.

Repair to the spectrometer is scheduled for this week. In the mean time we continue our surveillance of the suspect elements during melt and chemistry analysis.

C. Ruud

CC: Jim Galaske, Barry Craig, Joe Edwards, E.J. Kubick

MetalTek INTERNATIONAL

Corrective Action 1423
Carondelet Division - CA / PA / RGA Database
Corrective Action Type NCR
Date 10/20/2005 **Revised 10-25-05**
CA Originator C. Ruud

C-2 Doc Package
Document # 21b

Applies to: Weld Material Metrode Lot WO21735 and Lot WO19711 **used on C-2 and C-4 coils.**

Description of Defect / Non-Conformance
Material does not meet the requirements of NCSX CSPEC – 141-03-09.

Root Cause
The specification was to have included chemical ranges to accommodate the different kinds of weld material used and accepted for the weld procedure qualifications.

Corrective Action
Revise specification.

Estimated Completion Date

Actual Completion Date TBD

Signed: C. Ruud

CC: R. Suria, Barry Craig, Joe Edwards, E.J. Kubick

C-2 Doc Package
Document # 21b

Nonconformance Report: 1423

Project Disposition:
Rev. 10 of NCSX-CSPEC-141-03 now includes two tables for weld wire chemistry (3-1 and 3-2) to permit the use of both bare weld wire and coated wire electrodes.

Approvals: Phil Heitzenroeder

Digitally signed by Phil Heitzenroeder
DN: CN = Phil Heitzenroeder, C = US, O = PPPL, OU = Mech. Eng. Division
Reason: I am the author of this document
Date: 2005.11.07 11:36:36 -05'00'

Procurement Technical Representative

Brad Nelson

Digitally signed by Brad Nelson
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov
Date: 2005.11.07 13:08:04 -05'00'

Responsible Line Manager:

TEAM COOPERHEAT-MQS, INC.

RADIOGRAPHIC TECHNIQUE SHEET

FORM 20.3-61 Rev. 4

5512 W. State St-Milwaukee, WI 53208 (414) 771-3060 Fax (414)771-9481 (800) 818-6403 www.cooperheat-mqs.com

CUSTOMER RSS NO.: _____ SHEET: _____ REV: _____

MQS TECH. NO.: 12970

MQS RSS NO.: _____

CUSTOMER METALTEK INTERNATIONAL DATE: 1-18-2005

PART NO. MCWF-C12103989 DESCRIPTION C2 COIL CASTING MATERIAL CF8MNM

TOTAL NUMBER OF VIEWS 121 NUMBER X-RAY VIEWS 121 NUMBER GAMMA RAY VIEWS 0

MACH(s) MAKE(s) VARIAN MODEL(s) L2000 S/N(s) 20 MAX KV(s) 7500

SOURCE(s) N/A

PROCEDURE SPECIFICATION MSS-SP-54 ACCEPTANCE CRITERIA MSS-SP-54

MQS PROCEDURE NO. 20.H.010 REV. 0 PENETRAMETER SPEC. ASTM E142-86

PROCESSING: AUTOMATIC X PROCESSOR B2000 MANUAL ___ TEMPERATURE 27.2°

TECHNICIAN J.P., S.S. NDT LEVEL II APPROVED BY Chris Rudolph NDT LEVEL III

VIEW IDENTIFICATION		*					
SOURCE/X-RAY MACH USED		VARIAN					
CURIES OR KV		7500					
MA OR PULSES		N/A					
SOURCE TO FILM DISTANCE		*					
EXPOSURE TIME OR RADS		*					
MATERIAL THICKNESS		1					
MATERIAL GROUP		1					
PENETRAMETRER SIZE/(AMT)	GP. 1	*		SEE ATTACHED	INFORMATION		
SHIM BLOCK SIZE	GP.	N/A					
FILM SIZE		*					
FILM TYPE/BRAND		*					
PB SCREEN, FRONT		.010					
PB SCREEN, BACK		.010					
SENSITIVITY		2-2T					
FILTER TYPE/LOCATION		N/A					
MASKING TYPE/LOCATION		N/A					
ANGLE		*					
NO. OF FILMS IN CASSETTE		*					
VIEWING: SING./DOUB./BOTH		S-B					
FOCAL SPOT SIZE		2 MM					
SKETCH AND/OR REMARKS		SEE ATTACHED					
GEOMETRIC UNSHARPNESS							

C-2 Doc Package
Document # 22

C-2 Doc Package
Document # 22

CUSTOMER Metaltek RSS # 12970 PART NO. MCWF-C 2

VIEW	SFD	EXP. TIME	FILM TYPE	FILM SIZE	THK. RANGE	IQI
1-2	65"	25 KR	T	14 X 17	2-3/4"	50(2)
2-3	65"	25 KR	T	14 X 17	2-3/4"	50(2)
3-4	65"	25 KR	T	14 X 17	2-3/4"	50(2)
4-5	65"	25 KR	T	14 X 17	2-3/4"	50(2)
5-6	65"	25 KR	T	14 X 17	2-3/4"	50(2)
7-8	65"	25 KR	T	14 X 17	2-3/4"	50(2)
8-9	65"	25 KR	T	14 X 17	2-3/4"	50(2)
9-10	65"	25 KR	T	14 X 17	2-3/4"	50(2)
10-11	65"	25 KR	T	14 X 17	2-3/4"	50(2)
11-12	65"	25 KR	T	14 X 17	2-3/4"	50(2)
12-13	65"	25 KR	T	14 X 17	2-3/4"	50(2)
13-14	65"	25 KR	T	14 X 17	2-3/4"	50(2)
14-15	65"	25 KR	T	14 X 17	2-3/4"	50(2)
15-16	65"	25 KR	T	14 X 17	2-3/4"	50(2)
16-17	65"	25 KR	T	14 X 17	2-3/4"	50(2)
17-18	65"	25 KR	T	14 X 17	2-3/4"	50(2)
18-19	65"	25 KR	T	14 X 17	2-3/4"	50(2)
19-20	65"	25 KR	T	14 X 17	2-3/4"	50(2)
20-21	65"	25 KR	T	14 X 17	2-3/4"	50(2)
21-22	65"	25 KR	T	14 X 17	2-3/4"	50(2)
23-24	65"	25 KR	T	7 x 17	2-3/4"	50(2)
24-25	65"	25 KR	T	7 x 17	2-3/4"	50(2)
26-27	65"	25 KR	T	7 x 17	2-3/4"	50(2)
27-28	65"	25 KR	T	7 x 17	2-3/4"	50(2)
29-30	70"	25 KR	M125	14 x 17	1-1/2"	30(2)
30-31	70"	25 KR	M125	11 x 17	1-1/2"	30(2)
32-33	70"	25 KR	M125	14 x 17	1-1/2"	30(2)
33-34	70"	25 KR	M125	14 x 17	1-1/2"	30(2)
35-36	70"	25 KR	M125	11 x 14	1-1/2"	30(2)
36-37	70"	25 KR	M125	14 x 17	1-1/2"	30(2)
38-39	70"	25 KR	M125	14 x 17	1-1/2"	30(2)
39-40	70"	25 KR	M125	14 x 17	1-1/2"	30(2)
41-42	85"	35 KR	T/M125	14 X 17	1-1/2" – 2"	30, 40
42-43	85"	35 KR	T/M125	14 X 17	1-1/2" – 2"	30, 40
44-45	85"	35 KR	T/M125	14 X 17	1-1/2" – 2"	30, 40
45-46	85"	35 KR	T/M125	14 X 17	1-1/2" – 2"	30, 40
47-48	85"	35 KR	T/M125	14 X 17	1-1/2" – 2"	30, 40
48-49	85"	35 KR	T/M125	14 X 17	1-1/2" – 2"	30, 40
50-51	85"	35 KR	T/M125	14 X 17	1-1/2" – 2"	30, 40
52-53	90"	40 KR	D8/T/AA/Dumb	14 x 17	1-1/2" – 7"	30,40,100,140
53-54	90"	40 KR	D8/T/AA/Dumb	14 x 17	1-1/2" – 7"	30,40,100,140
54-55	90"	40 KR	D8/T/AA/Dumb	14 x 17	1-1/2" – 5"	30,40,100

C-2 Doc Package
Document # 22

CUSTOMER Metaltek RSS # _____ PART NO. MCWF-C 2

VIEW	SFD	EXP. TIME	FILM TYPE	FILM SIZE	THK. RANGE	IQI
55-56	90"	40 KR	D8/T/AA/Dumb	14 x 17	1-1/2" – 5"	30,40,100
56-57	90"	40 KR	D8/T/AA/Dumb	14 x 17	1-1/2" – 5"	30,40,100
57-58	93"	65 KR	D8/AA/T/D8	14 x 17	3" – 7"	60,140
58-59	90"	40 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
59-60	90"	40 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
60-61	90"	40 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
62-63	90"	40 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
63-64	90"	35 KR	T/M125	14 x 17	1-1/2"	30(2)
65-66	90"	150 KR	D8/AA/T/D8	14 x 17	3" – 10"	60,140,180,200
67-68	90"	40 KR	T/M125	14 x 17	1-1/2" – 3"	30,40,60
68-69	90"	40 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
69-70	90"	55 KR	D8/M125/AA	14 x 17	1-1/2" – 6"	30,40,100,120
V64	90"	40 KR	M125/M100	11 X 14	1" – 1-1/2"	20,30
71-72	80"	50 KR	AA/M125/T	14 x 17	1-1/2" – 5"	30,50,60,80,100
72-73	80"	90 KR	AA/M125/M100/T	14 x 17	1-1/2" – 5"	30,50,60,80,100
73-74	80"	35 KR	T/M125	14 x 17	1-1/2" – 4"	30,40,80
74-75	80"	35 KR	T/M125	14 x 17	1-1/2" – 4"	30,40,80
75-76	80"	30 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
76-77	80"	30 KR	T/M125	11 x 14	1-1/2" – 2"	30,40
78-79	80"	35 KR	T/M125	14 x 17	1-1/2" – 3"	30,40,60
79-80	80"	35 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
80-81	80"	30 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
81-82	80"	30 KR	T/M125	7 x 17	1-1/2" – 2"	30,40
83-84	80"	35 KR	T/M125	14 x 17	1-1/2" – 3"	30,40,60
85-86	80"	30 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
86-87	80"	60 KR	D8/M125/T	14 x 17	1-1/2" – 6"	30,40,120(2)
87-88	80"	30 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
88-89	80"	40 KR	AA/M125/T	14 x 17	1-1/2" – 3"	30,40,60
90-91	80"	30 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
92-93	80"	30 KR	T/M125	14 x 17	1-1/2" – 2"	30,40
V94	72"	25 KR	T	14 x 17	2-3/4"	50
V95	72"	25 KR	T	8 x 10	2-3/4"	50
96-97	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
97-98	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
98-99	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
100-101	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
101-102	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
102-103	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
103-104	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
104-105	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
105-107	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)

C-2 Doc Package
Document # 22

CUSTOMER Metaltek RSS # 12970 PART NO. MCWF-C2

VIEW	SFD	EXP. TIME	FILM TYPE	FILM SIZE	THK. RANGE	IQI
107-108	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
108-109	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
109-110	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
111-112	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
112-113	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
114-115	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
115-116	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)
116-117	65"	25 KR	T/T	14 x 17	2-3/4"	50(2)

C-2 Doc Package
Document # 22

CUSTOMER Metaltek RSS # 12970 PART NO. MCWF-C2

VIEW	SFD	EXP. TIME	FILM TYPE	FILM SIZE	THK. RANGE	IQI
1-2	72"	100 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
2-3	72"	100 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
3-4	72"	100 KR	AA-AA-M100	14 X 17	3" – 8"	60(2), 120(2), 140
4-5	72"	100 KR	AA-AA-M100	14 X 17	3" – 8"	60(2), 120(2), 140
5-6	72"	100 KR	AA-AA-M100	14 X 17	3" – 8"	60(2), 120(2), 140
6-7	76"	100 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
7-8	60"	67 KR	AA-M125-M100	14 X 17	3" – 6"	60(2), 80,120(2)
8-9	72"	105 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
9-10	72"	105 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
10-11	60"	67 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
11-12	60"	67 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
12-13	60"	67 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
13-14	74"	95 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
14-15	70"	90 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
15-16	64"	80 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
16-17	62"	74 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
17-18	60"	67 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
18-19	53"	55 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
19-20	48"	50 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
20-21	54"	55 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
21-22	65"	80 KR	AA-M100	11 X 14	3" – 6"	60(2), 120(2)
22-23	74"	110 KR	AA-M100 *	14 X 17	3" – 6"	60(2), 120(2)
23-24	74"	110 KR	AA-M100 *	14 X 17	3" – 6"	60(2), 120(2)
24-25	72"	100 KR	AA-M100	11 X 14	3" – 6"	60(2), 120(2)
25-26	72"	100 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
26-27	72"	95 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
V28	72"	100 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
29-30	65"	70 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)
30-1	65"	70 KR	AA-M100	14 X 17	3" – 6"	60(2), 120(2)

Form 20.4 - 61 Attachment A

C-2 Doc Package
Document # 23

Energy Industries of Ohio
Manufacturing and Test Sequence (MTS) Serial Number C-2
 CO# 40851 Dated 3-9-05 Revision: Rev 4 Dated Issued: 4-18-05

OPER. #	STATION	DESCRIPTION OF PROCESS	Name	Date
10	QUALITY RELEASE	REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON 4/12/05 ~~FROM~~ Pete D. SIGNED QUALITY MANAGER	CMR	4/12/05
15	PATTERN NPAT SOP 0100REV2	APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, AND FOUNDRY MARK, TO THE PATTERN. CAST ON BARS REQUIRED. Place numbers on the bars as to their location.		4-14
20	COREMAKE CORE SOP 0100 REV 6 CALIBRATION PER CORE SOP 0200R4/0300R6	MAKE CORES IN SAND MIXTURES AS DESCRIBED BY METALTEK ENGINEERING AND VERIFIED IN MODELING TRIALS. METALTEK CORE SOP 0100 REV 6) CORE WASH WITH ZIRCONIUM CORE WASH. (CALIBRATION OF EQUIPMENT REQUIRED PER CORE SOP 0200,R4 / 0300,R6) VERIFY COUNT AND INSPECT.		4-14
30	MOLD MOLD SOP 0400 REV 8 CALIBRATION PER MOLD SOP 0900 REV 5 PREPARATION PER MOLD SOP 1100R2/1200R2/1300R1 SAND TESTING PER MOLD SOP 1400R2/1500R3/1600R2	MOLD PER WORK INSTRUCTIONS IN MAPICS ROUTING AND SOPS REFERENCED. ENGINEER OF RECORD – ROGER BROMAN, CONSULT ON MOLD-RELATED CONCERNS. MOLD MATERIALS REQUIRED PER MAPICS BOM. NOTIFY ENGINEER OF ANY SUBSTITUTIONS.		4-14
40	POUR MELT SOP 0100R5 MELT SOP 0700R2 MELT SOP 0600R2	METAL MUST BE AOD REFINED OR AOD INGOT. VIRGIN METAL ADDITIONS ALLOWED. RECORD POURING TEMPERATURE: 2730 CASTING POURED AT: 2730°F DATE: 4/15/2005 HEAT #"s: 29060, 29061, ~~29062~~, 29063 ELAPSED POUR TIME 1:20 KEEL BLOCKS POURED: cast-on 3 Ladles Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Sample Taken by: SR Analyzed: Gluit Date: 4/15/2005	J. Golota	4-15-05
50	MELT SOP 0800R2	SHAKEOUT	CMR	4/18/05

C-2 Doc Package
Document # 23

Energy Industries of Ohio
Manufacturing and Test Sequence (MTS) Serial Number C-2
 CO# 40851 Dated 3-9-05 Revision: Rev 4 Dated Issued: 4-18-05

60	ARC RISE SOP 0100R1	REMOVE RISERS AS DIRECTED BY SUPERVISOR.	RLL	4-21-05 Cut High
70	HEAT TREAT HEAT SOP 0103R5	SOLUTION ANNEAL. MAKE SURE TO BLOCK ALL FLANGES OF FORM AND RACETRACK TO MINIMIZE CREEP DISTORTION. Soak Temp: 2050F, Soak Time: 4HR + 1/2 HR/IN, Quench Type: Air Cool	DLS	4-27-05
75	PHYSICAL TESTING	OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 510.	CHL	4/28/05
NOTE		**THE ORDER OF CLEANING PROCESSES MAY BE ALTERED DUE TO CAPACITY CONSTRAINTS. HOLD POINTS AND COMPLIANCE WILL NOT BE COMPROMISED. EIO WILL BE ADVISED OF ALL CHANGES THAT MAY RESULT IN A REQUEST FOR DEVIATION FROM REQUIREMENTS.**		
80	GRIND GSWA SOP 0100R3	SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED.	TJ	5-4
85	GRIND GCHI SOP 0100R2	CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED FOR CONTOUR.	~~1ST. SHIFT~~ MIKE TOM	5-5-05 5-6-05
90	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.		5-6-05
NOTICE	WITNESS NOTIFICATION **HOLD FOR EIO APPROVAL**	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LAYOUT. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____ APPROVAL RECEIVED ON _____	Q ENG OR QA MGR	
100	**LAYOUT** **SOP LAYOUT** **XX, TBD**	INSPECT CASTING TO VERIFY DIMENSIONS. THIS STEP MAY BE DELAYED. DIMENSIONED _____ DATE _____ RELEASED _____(ENGINEER ONLY)		
110	VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM **A802 LEVEL 3 ALL CONDITIONS.** IF OK CHECK HERE _____. IF REJECTED CHECK HERE ____. MARK AND REPAIR AT STEP 120.	VT - LEVEL II	

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60	ARC RISE SOP 0100R1	REMOVE RISERS AS DIRECTED BY SUPERVISOR.		
70	HEAT TREAT HEAT SOP 0103R5	SOLUTION ANNEAL. MAKE SURE TO BLOCK ALL FLANGES OF FORM AND RACETRACK TO MINIMIZE CREEP DISTORTION. Soak Temp: 2050F, Soak Time: 4HR + 1/2 HR/IN, Quench Type: Air Cool		
75	PHYSICAL TESTING	OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 510.		
NOTE		**THE ORDER OF CLEANING PROCESSES MAY BE ALTERED DUE TO CAPACITY CONSTRAINTS. HOLD POINTS AND COMPLIANCE WILL NOT BE COMPROMISED. EIO WILL BE ADVISED OF ALL CHANGES THAT MAY RESULT IN A REQUEST FOR DEVIATION FROM REQUIREMENTS.**		
80	GRIND GSWA SOP 0100R3	SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED.		
85	GRIND GCHI SOP 0100R2	CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED FOR CONTOUR.		
90	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.		
NOTICE	WITNESS NOTIFICATION **HOLD FOR EIO APPROVAL**	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LAYOUT. EIO NOTIFIED ON 5/4/03 DCMA NOTIFIED ON 5/4/03 APPROVAL RECEIVED ON 5/10/05 CAR as long as length check performed ✓	Q ENG OR QA MGR	
100	**LAYOUT** **SOP LAYOUT** **0100**	INSPECT CASTING TO VERIFY DIMENSIONS. THIS STEP MAY BE DELAYED. DIMENSIONED _____ DATE _____ RELEASED _____ (ENGINEER ONLY) NOTE: THE FIRST PART PRODUCED OF EACH TYPE A, B AND C WILL BE DIMENSIONED BY LAWTON PATTERN. IF DIMENSIONED BY LAWTON IT WILL BE DOCUMENTED HERE. Subsequent casting done internally per Romer Arm.	JRS	5/11/05
110	VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM **A802 LEVEL 3 ALL CONDITIONS.** IF OK CHECK HERE _____. IF REJECTED CHECK HERE ✓. MARK AND REPAIR AT STEP 120.	VT - LEVEL II KRA	5/12/05

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NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LP STEP. EIO NOTIFIED ON 5/10/05 DCMA NOTIFIED ON 5/10/05	Q ENG OR QA MGR	CAR
115	100% L.P. CQP 0300 REV 10	L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ IF REJECTED CHECK HERE ✓ MARK AND REPAIR AT STEP 120.	LP - LEVEL II KRA 5-12-05	
120	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING 100% VISUAL AND LP INSPECTION.	JC 5/20/05	
125	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION AS REQUIRED.	JC 5/13	
130	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ IF REJECTED SEND BACK TO STEP 125.	LP - LEVEL II	Hold pending RT in CAR
165	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.	CA	5-13
170	**HOLD POINT** WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. USE YELLOW MARKER. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS>10% YES _____, REPORT SENT BY _____ DATE_____ DEFECTS < 10 % _____SIGN BY QA ENG. **MAJOR WELD REPAIRS MAY NOT PROCEED UNTIL INFORMATION IS SUBMITTED.**	Delayed Trl after XRay CAR	
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF X-RAY AND DIMENSIONAL STEPS. EIO NOTIFIED ON 5/12/05 DCMA NOTIFIED ON 5/12/05	Q ENG OR QA MGR	CAR 5/12
190	X-RAY AT MQS MQS PROCEDURE 20.H.010 REV 0	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. WHEN MARKING USE BLACK MARKERS. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT – LEVEL II Complete at MAS 5/24/05	Rmt

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210	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE ______ AND SEND TO STEP 340. REJECTED CHECK HERE ✓ MARK UP DEFECTS AND SEND THE CASTING TO STEP 220.	RT – LEVEL II Complete 5/24/05 at MGS	[signature]
220	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.	[initials]	6-7-05
225	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION AS REQUIRED.	DWP	6-8-05
230	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE ________ IF REJECTED SEND BACK TO STEP 225.	LP - LEVEL II	
240	**HOLD POINT** WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION . SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS>10% YES X, REPORT SENT BY R Sum[illegible] DATE 6/1/05 DEFECTS < 10 % ________________ SIGN BY QA ENG. **MAJOR WELD REPAIRS MAY NOT PROCEED UNTIL INFORMATION IS SUBMITTED.** MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER PRIOR TO REPAIR. ONCE THE REPORT IS SENT, WELDING MAY START.	[signature]	6/1/05
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON 5/25/05 DCMA NOTIFIED ON 5/25/05 for June 1 start.	Q ENG OR QA MGR	[signature]
260	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: 15-GMAW-CF8MNMN mod / 20-SMAW-CF8MNMN mod MATERIAL USED: LNM 4455 / Heat 82743 Metrode 13B16 NF Lot W019711 QUALITY ENG. Name: [signature] Date: 6/1/05		
270	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1 FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2 **ADD WPS FOR VERTICAL WELDS.**		
280	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.		

Review [initials] 6/7/05

Go to Rev 6. 6/7/05

NA

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210	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE _____ AND SEND TO STEP 340. REJECTED CHECK HERE _____ MARK UP DEFECTS AND SEND THE CASTING TO STEP 220.	RT – LEVEL II	
220	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.	[illegible]	6-15
225	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION AS REQUIRED.	[illegible]	6-15
230	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE ✓ IF REJECTED SEND BACK TO STEP 225.	LP - LEVEL II	
240	**HOLD POINT** WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION . SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS>10% YES _____, REPORT SENT BY _____ DATE_____ DEFECTS < 10 % _____SIGN BY QA ENG. **MAJOR WELD REPAIRS MAY NOT PROCEED UNTIL INFORMATION IS SUBMITTED.** MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER PRIOR TO REPAIR. ONCE THE REPORT IS SENT, WELDING MAY START.		
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____	Q ENG OR QA MGR	
260	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ MATERIAL/LOT USED:_____ QUALITY ENG. Name: _____ Date: _____		
270	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1 FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2 **ADD WPS FOR VERTICAL WELDS.**	GP JLC 6/7/05	0802
280	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.	AB	6-8-05

should be doc no 5220 GA

Start 6/7/05

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290	L.P. WELD CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ WASH AND SEND TO STEP 300. IF REJECTED CHECK HERE ___✓___	LP - LEVEL II TRC 6-8-05	
	REPEAT	REPEAT STEPS __220 TO 290___AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION. DOCUMENT REWORK ON STEPS S220 TO S290 ON LAST PAGE OF MTS. IF OK CHECK HERE _____ AND PROCEED TO STEP 295.	See S220	
295	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD. ACCEPTANCE 1.02. IF OK CHECK HERE ___✓___ AND GO TO STEP 300. IF REJECTED CHECK HERE _____.	CA	
296	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 295. REPEAT UNTIL COMPLIANCE IS ACHIEVED.	CA	
300	X-RAY (NOTE)	IF RADIO GRAPHED AREAS ARE GREATER THAN FOUR TO FIVE INCHES THE CASTING WILL BE SENT TO MQS. SEND TO MQS CHECK HERE ___✓___. RADIOGRAPH AT CAF CHECK HERE _____.	QA ENGINEER RS	
310 A	MQS X-RAY DEFECTS REPAIRED BY WELDING	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	LEVEL II R. Sucia RT Valley	6/6/05
310 B	CAF X-RAY DEFECTS REPAIRED BY ~~WELDING~~ CQP 401 REV 5	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT - LEVEL II RT	
320	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE _____ AND SEND TO STEP 340. REJECTED CHECK HERE ___✓___ MARK UP DEFECTS AND SEND THE CASTING TO STEP 220. OK on Reshoot 6/16	RT - LEVEL II Ronk RK	6/15/05 6/16
	REPEAT	REPEAT STEPS __220 TO 320___AS REQUIRED TILL WELDS CLEAR X-RAY. DOCUMENT REWORK ON A SUPPLEMENTAL MTS 1st loop repair #1 Doc Repeats on Last page CAN	QA ENG. CAN	6/15/05

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340	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.		PTW 6/16/05
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS. EIO NOTIFIED ON 6/20 DCMA NOTIFIED ON 6/20	Q ENG OR QA MGR	
350	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 2 ALL CONDITIONS. IF OK CHECK HERE _____. IF REJECTED CHECK HERE ✓. MARK AND REPAIR AT STEP 385. MUST BE PERFORMED BY LEVEL II in VT.	VT - LEVEL II KLA 6-24-05	
360	FINAL L.P. CQP 0300 REV 10	FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ WASH AND SEND TO STEP 455. IF REJECTED CHECK HERE ✗	LP - LEVEL II JPS 6.23	
380	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING FINAL PENETRANT INSPECTION.	N/A	
385	GRIND GCHI SOP 0100R2	CHIP AND HAD GRIND EXCAVATION AS REQUIRED.	AB SJ 6/23-05	
390	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. IF OK CHECK HERE ✓ IF REJECTED SEND BACK TO STEP 385.	LP - LEVEL II JDR 6-23-05	
400	**HOLD POINT** WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE. FILE WITH QA. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS.>10% YES _____, REPORT SENT BY _____ DATE_____ DEFECTS < 10 % _____SIGN BY QA ENG. **MAJOR WELD REPAIRS MAY NOT PROCEED UNTIL INFORMATION IS SUBMITTED.** MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER PRIOR TO REPAIR. ONCE THE REPORT IS SENT, WELDING MAY START.	N/A	

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420	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ MATERIAL/LOT USED: _____ QUALITY ENG. Name: _____ Date: _____	N/A	
430	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1 FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2 **ADD WPS FOR VERTICAL WELDS.**	N/A	
440	GRIND GCHI SOP 0100 REV 2	HAND GRIND WELDS.		
450	L.P. WELDS CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. IF OK CHECK HERE _____ WASH AND SEND TO STEP 460. IF REJECTED CHECK HERE _____ AND RETURN TO STEP 440.	LP - LEVEL II	
	REPEAT	REPEAT STEPS ___350 TO 450_____AS REQUIRED TILL WELDS CLEAR FINAL LIQUID PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS	QA ENG.	
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS. EIO NOTIFIED ON 6/20/05 DCMA NOTIFIED ON 6/20/05	Q ENG OR QA MGR	
460	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 2 ALL CONDITIONS. IF OK CHECK HERE _____. IF REJECTED CHECK HERE ___✓___. MARK AND REPAIR AT STEP 390. MUST BE PERFORMED BY LEVEL II in VT.	VT - LEVEL II KRA 6-24-05	
470	FINAL L.P. CQP 0300 REV 10	FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE ___✓___ WASH AND SEND TO STEP 455. IF REJECTED CHECK HERE _____	LP - LEVEL II JDR 6-23-05	
480	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS. RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD. Performed on entire Part 100% ACCEPTANCE 1.02. IF OK CHECK HERE ___✓___ AND GO TO STEP 430. IF REJECTED CHECK HERE _____ Pictures provided to DCMA	RG 6-23-05	
490	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 451. REPEAT UNTIL COMPLIANCE IS ACHIEVED.	N/A	

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NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF MAG PERM STEPS. EIO NOTIFIED ON 6/20 DCMA NOTIFIED ON 6/20	Q ENG OR QA MGR	CAR
500	FINAL MAG PERM INSPECTION SOP MAG PERM 100, REV 1	PERFORM MAG PERM TESTING WITH SEVRIN GAUGE. ACCEPTANCE 1.02. CHECK THE ENTIRE SURFACE ON A 6"BY6" GRID. REPORT RESULTS. USE A 6" SQUARE BLOCK TO INDICATE TEST LOCATIONS AND RECORD RESULTS. COMPLIANT AREAS WILL NOT BE MARKED. MARK NONCOMPLIANT AREAS WITH AN "X" FOR REPAIR. OK CHECK HERE _____AND GO TO STEP 530. IF REJECTED CHECK HERE _____.	N/A	
510	GRIND GCHI SOP 0100 REV 2	HAND GRIND WITH SUITABLE CONE OR OTHER SIMILAR GRINDER AS REQUIRED TO ENSURE REMOVAL OF MATERIAL TO ACHIEVE MAG PERM REQUIREMENT. CIRCLE AREA REMEDIATE FOR RETEST.		
520	RETEST MAG PERM SOP MAG PERM 100, REV 1	RETEST MAG PERMEABILITY AT FAILED TEST POINTS. MARK NONCOMPLIANT AREAS WITH AN "X" FOR REPAIR. ACCEPTANCE 1.02. IF OK CHECK HERE _____. IF REJECTED CHECK HERE _____RETURN TO STEP 510.		
530	DOC. REVIEW	REVIEW DOCUMENTS AS REQUIRED IN CAF CHECKLIST, ALL DOCUMENTS NOTED TO BE ACCESSIBLE FOR AUDITING. (SHIPPER, C OF C, M.T.R., M.T.S., INSPECTION REPORT, X-RAY READER SHEETS AND HEAT TREAT CHARTS)	CAR	6/24/05
NOTICE	RELEASE FROM EIO	PROVIDE DOCUMENTS TO EIO. SENT ON 6/24/05 BY CAR. RECEIVED RELEASE FROM EIO ON _____.	Q ENG OR QA MGR	
540	PACK AND SHIP	PACKAGE AND SHIP TO MAJOR TOOL.		
1000	REVISION HISTORY	ORIGINAL 12-14-04. Approved 12-14-04. Revision level 1- Revised 1-26-05 new page 8, correct High stress areas, Revision level 2 3-16-05, delete LO step 455. Revision 3 3-28-05 Added note regarding hold point at weld step 400. Revision level 4 written for C-2 casting 4-18-05. Rev 5 added Layout SOP# and note regarding first casting layout responsibility. 5-10-05 Rev 6 added step 420 and "LOT" to step 260 and 420.5-29-05	CARUUD	

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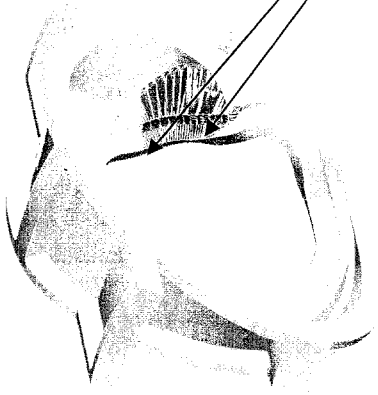
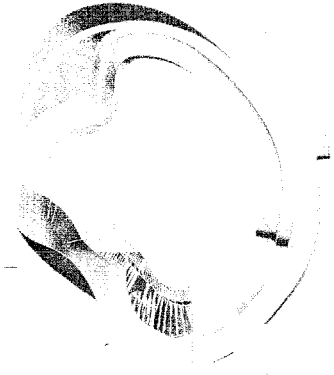
GENERAL ISOMETRIC
VIEW FROM TOP SIDE

TABS DESIGNATE CRITICAL AREA

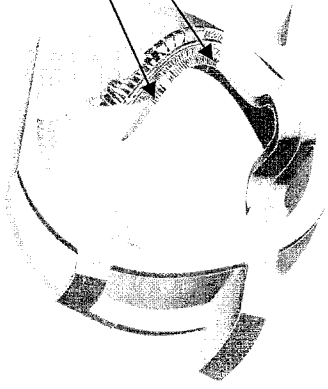
RED AREA INDICATES HIGH STRESSED AREA



TOP SIDE ISOMETRIC



TOP SIDE VIEW



BOTTOM SIDE ISOMETRIC

BOTTOM SIDE VIEW

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	REPEAT STEPS	SUPPLEMENTAL REPAIR STEPS	1ST	2ND	3RD	4TH	5TH
S220	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.	JC 6/15/05				
S230	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING.	LP - LEVEL II SB 6/15/05				
S240	WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION . SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS>10% YES X, REPORT SENT BY Cdn DATE 6/15/05 DEFECTS < 10% _____ SIGN BY QA ENG. **REPAIRS MAY NOT PROCEED UNTIL INFORMATION IS SUBMITTED.**	Cdn				
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON 6/13/05 DCMA NOTIFIED ON 6/13/05 Cdn	Q ENG OR QA MGR Cdn 6/13				
S260	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: WPS 10-SMAW-CF8MNMN mod REV 1 MATERIAL USED: 1 of 4 LNM 4455 MAT. B2743 316NF LOT W019711 QUALITY ENG. Name: Cdn Date: 6/15	Cdn 6/15				
S270	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1 FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2 **ADD WPS FOR VERTICAL WELDS.**	JC	6-15 JC 62305			
S280	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.	JC	6-15 JC 62305			
S290	L.P. WELD CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE ✓ WASH AND SEND TO STEP 300. IF REJECTED CHECK HERE _____ AND RETURN TO STEP 220.	LP - LEVEL II JOR 6/15	OK REJ	OK REJ TJC 6/16	OK JOR 6/15	OK REJ

TO XRAY 6/16

Added Lot of weld material Per rev 1 Cdn

all ground of LP and Cdn

C-2 Doc Package
Document # 23

Energy Industries of Ohio
Manufacturing and Test Sequence (MTS) Serial Number C-2

 CO# 40851 Dated 3-9-05 Revision: Rev 6 Dated Issued: 5-29-05

	REPEAT	REPEAT STEPS S220 TO S290 AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS	QA INIT.					

4463 go to 4660

NOTES: Stress relieve of C-2 Coil Casting

C-2 Doc Package
Document # 24

SUPPLEMENTAL ROUTING CARD

Date: 6-20-05

	PART NUMBER: C-2 Coil		SERIAL NUMBER: C-1			AUTHORITY C Ruud
OPER NUMBER	**STATION**					**OPERATOR SIGN/DATE**
Extra operation	Heat treat		Load casting into cold furnace. Ramp up to 1100 F at rate of 200 F per hour. Hold at temp 4-5 hours. Furnace cool to 500 F at 50 F per hour. Air cool. Submit furnace charts to QA.		FS-1	DLS 6-21-05

S:DRIVE MANUAL FORMS/SEI
SRC-01 REV. 0 10/28/03

MetalTek INTERNATIONAL

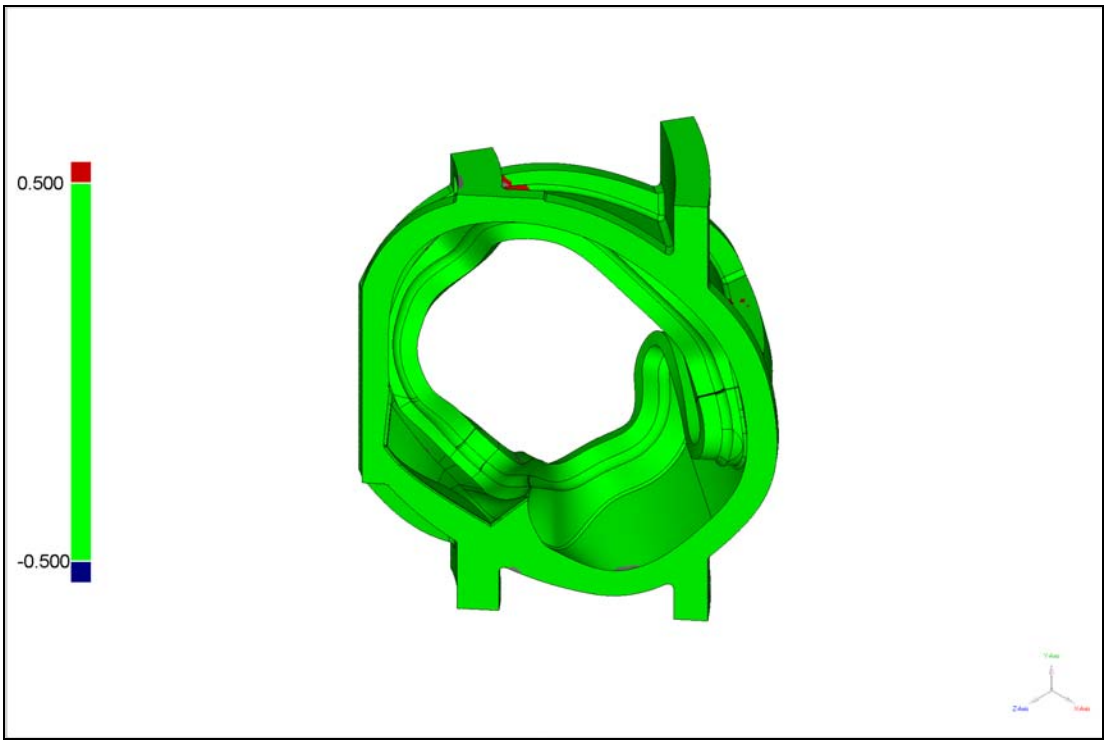
Carondelet Division
Pevely, MO 63070
(636) 475-2100

9/6/2005

Qualify Report

C-2 Doc Package
Document # 25

Date Generated: 5/22/2005, 11:49 am

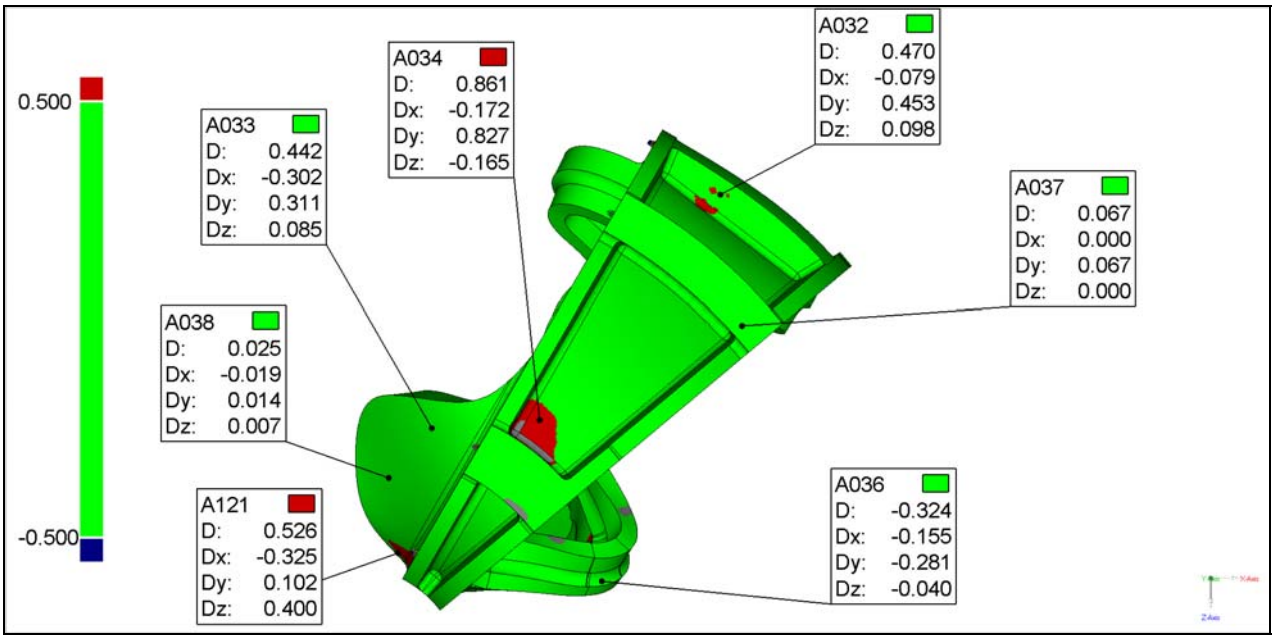


Author: Kevin Harris / Jarrod Boyer

Part: C2

Test: Merged Points 1

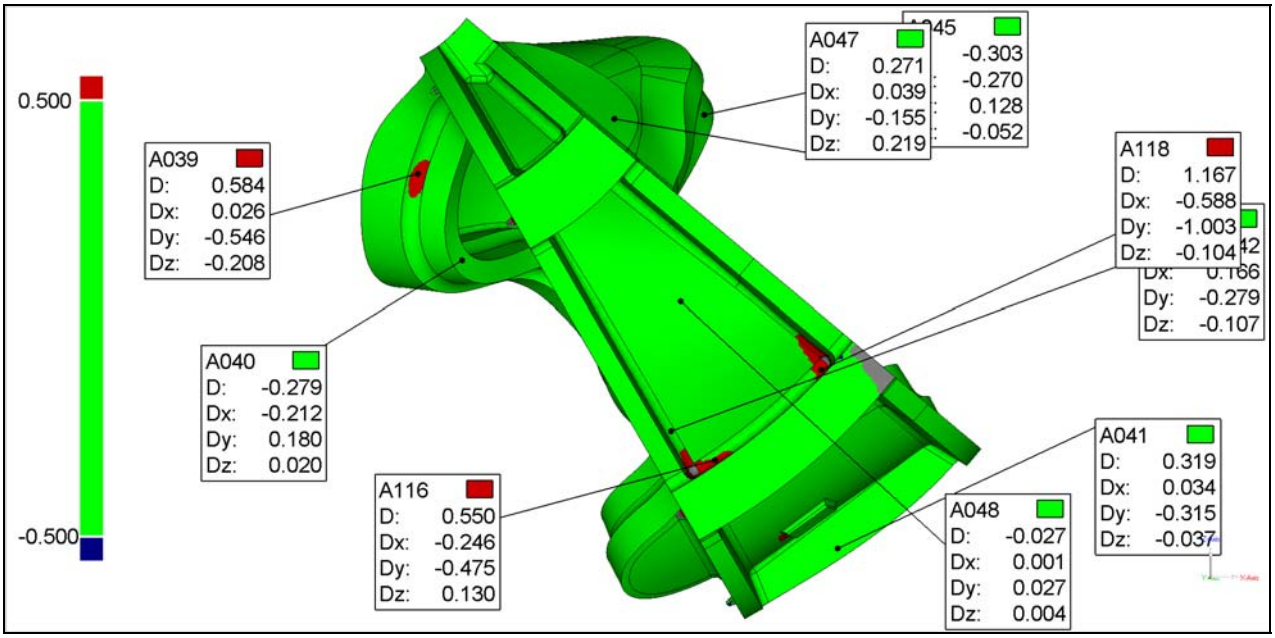
Annotated: Annotation View Top



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A032	0.470	FAIL	0.100	-0.100	54.294	11.519	-71.235	0.039	-0.079	0.453	0.098	54.215	11.972	-71.137
A033	0.442	FAIL	0.100	-0.100	11.899	30.670	-36.884	0.039	-0.302	0.311	0.085	11.597	30.981	-36.798
A034	0.861	FAIL	0.100	-0.100	27.749	40.157	-38.073	0.039	-0.172	0.827	-0.165	27.577	40.984	-38.237
A036	-0.324	FAIL	0.100	-0.100	36.863	-3.808	-14.297	0.039	-0.155	-0.281	-0.040	36.708	-4.090	-14.337
A037	0.067	PASS	0.100	-0.100	57.469	48.188	-51.942	0.039	0.000	0.067	0.000	57.469	48.255	-51.942
A038	0.025	PASS	0.100	-0.100	5.558	19.704	-29.553	0.039	-0.019	0.014	0.007	5.539	19.718	-29.546
A121	0.526	FAIL	0.100	-0.100	6.945	8.741	-18.458	0.039	-0.325	0.102	0.400	6.620	8.843	-18.057

Annotated: Annotation View Bottom



Units: in

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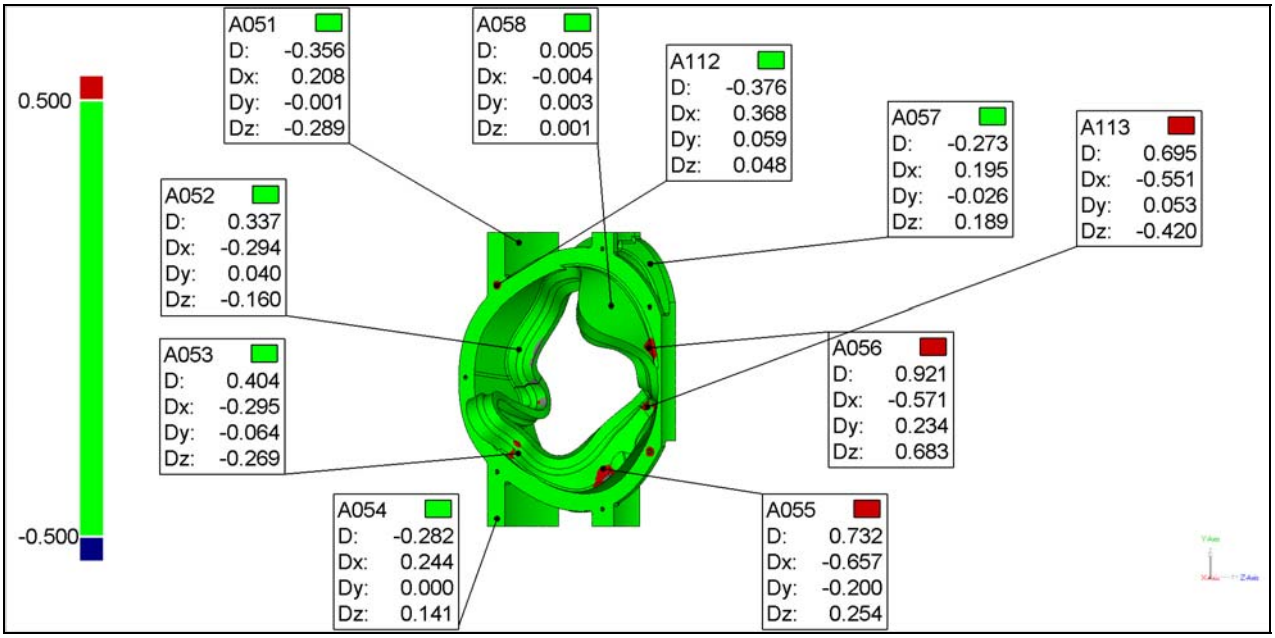
A039	0.584	FAIL	0.100	-0.100	7.399	10.856	-28.360	0.039	0.026	-0.546	-0.208	7.425	10.310	-28.567
A040	-0.279	FAIL	0.100	-0.100	12.590	14.051	-38.580	0.039	-0.212	0.180	0.020	12.377	14.230	-38.560
A041	0.319	FAIL	0.100	-0.100	56.713	6.078	-72.483	0.039	0.034	-0.315	-0.037	56.747	5.762	-72.520
A044	0.342	FAIL	0.100	-0.100	37.135	-31.757	-58.654	0.039	0.166	-0.279	-0.107	37.301	-32.037	-58.761
A045	-0.303	FAIL	0.100	-0.100	41.032	-8.625	-21.418	0.039	-0.270	0.128	-0.052	40.762	-8.497	-21.469
A047	0.271	FAIL	0.100	-0.100	30.470	-23.402	-21.884	0.039	0.039	-0.155	0.219	30.509	-23.558	-21.665
A048	-0.027	PASS	0.100	-0.100	38.270	-38.262	-43.393	0.039	0.001	0.027	0.004	38.270	-38.235	-43.390
A116	0.550	FAIL	0.100	-0.100	42.288	-28.727	-62.067	0.039	-0.246	-0.475	0.130	42.042	-29.202	-61.937
A118	1.167	FAIL	0.100	-0.100	54.773	-33.113	-51.430	0.039	-0.588	-1.003	-0.104	54.185	-34.115	-51.534

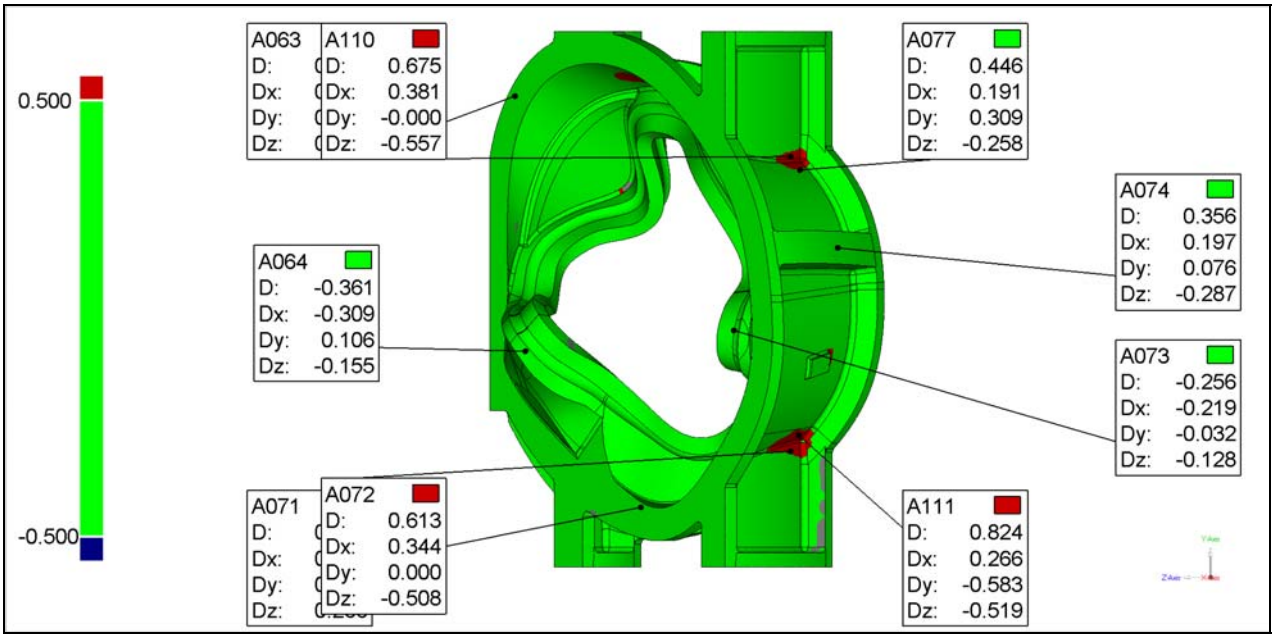
Annotated: Annotation View Left



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A051	-0.356	FAIL	0.100	-0.100	44.544	44.812	-61.169	0.039	0.208	-0.001	-0.289	44.752	44.811	-61.458
A052	0.337	FAIL	0.100	-0.100	53.352	9.964	-61.169	0.039	-0.294	0.040	-0.160	53.058	10.004	-61.329
A053	0.404	FAIL	0.100	-0.100	36.665	-24.158	-61.411	0.039	-0.295	-0.064	-0.269	36.371	-24.222	-61.680
A054	-0.282	FAIL	0.100	-0.100	38.553	-45.608	-68.276	0.039	0.244	0.000	0.141	38.798	-45.608	-68.135
A055	0.732	FAIL	0.100	-0.100	32.132	-29.208	-33.635	0.039	-0.657	-0.200	0.254	31.476	-29.408	-33.381
A056	0.921	FAIL	0.100	-0.100	7.357	10.477	-18.642	0.039	-0.571	0.234	0.683	6.786	10.711	-17.959
A057	-0.273	FAIL	0.100	-0.100	18.242	37.816	-18.201	0.039	0.195	-0.026	0.189	18.437	37.790	-18.012
A058	0.005	PASS	0.100	-0.100	8.213	24.147	-30.989	0.039	-0.004	0.003	0.001	8.209	24.149	-30.988
A112	-0.376	FAIL	0.100	-0.100	37.662	30.761	-68.470	0.039	0.368	0.059	0.048	38.030	30.820	-68.421
A113	0.695	FAIL	0.100	-0.100	34.410	-8.925	-19.083	0.039	-0.551	0.053	-0.420	33.859	-8.871	-19.503

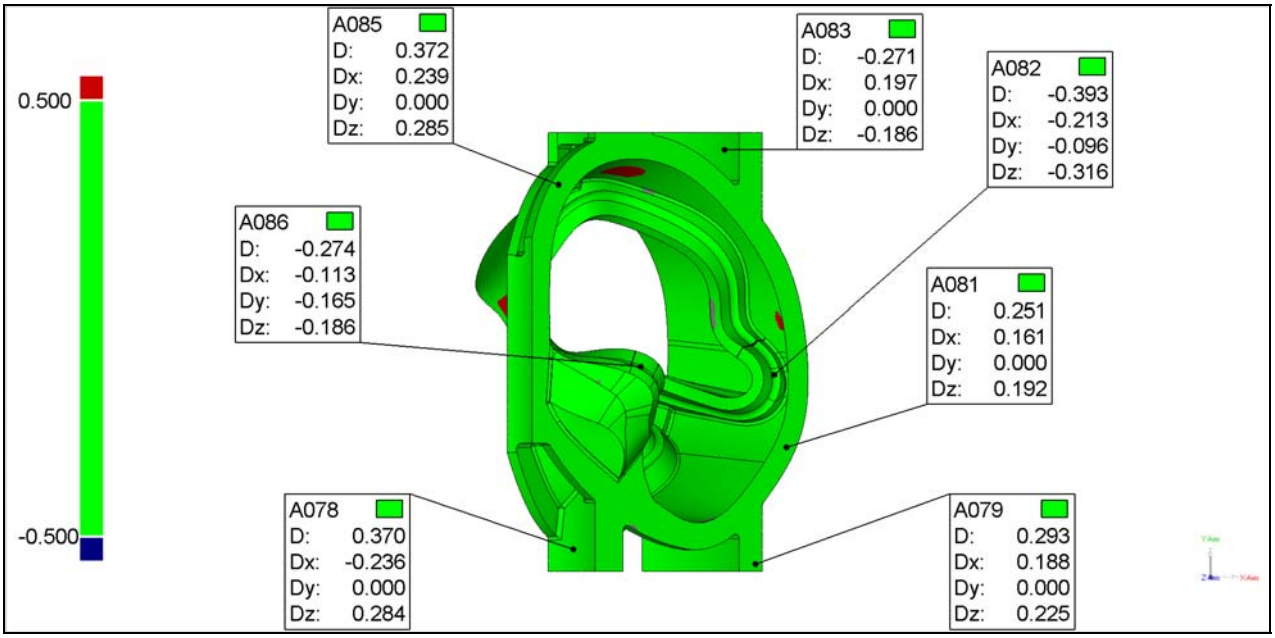
Annotated: Annotation View Right



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A063	0.379	FAIL	0.100	-0.100	18.531	36.560	-14.571	0.039	0.244	0.000	0.290	18.775	36.560	-14.280
A064	-0.361	FAIL	0.100	-0.100	40.476	-9.285	-16.439	0.039	-0.309	0.106	-0.155	40.167	-9.179	-16.594
A071	0.348	FAIL	0.100	-0.100	45.441	-37.411	-37.150	0.039	0.223	0.000	0.266	45.664	-37.411	-36.884
A072	0.613	FAIL	0.100	-0.100	43.968	-27.330	-64.018	0.039	0.344	0.000	-0.508	44.312	-27.330	-64.526
A073	-0.256	FAIL	0.100	-0.100	65.593	-5.551	-53.854	0.039	-0.219	-0.032	-0.128	65.374	-5.583	-53.983
A074	0.356	FAIL	0.100	-0.100	57.859	9.211	-72.488	0.039	0.197	0.076	-0.287	58.056	9.287	-72.775
A077	0.446	FAIL	0.100	-0.100	44.242	23.247	-65.712	0.039	0.191	0.309	-0.258	44.433	23.557	-65.970
A110	0.675	FAIL	0.100	-0.100	43.968	25.667	-64.018	0.039	0.381	-0.000	-0.557	44.349	25.667	-64.575
A111	0.824	FAIL	0.100	-0.100	44.012	-24.426	-65.470	0.039	0.266	-0.583	-0.519	44.278	-25.010	-65.989

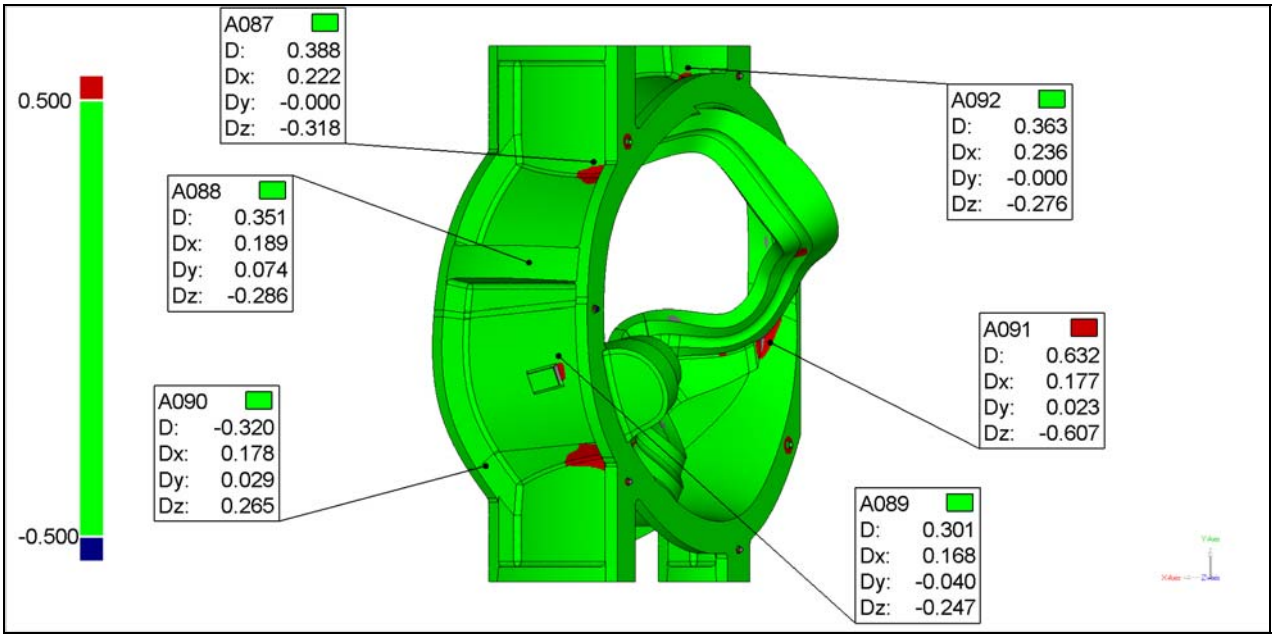
Annotated: Annotation View Front



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A078	0.370	FAIL	0.100	-0.100	22.125	-43.372	-26.471	0.039	-0.236	0.000	0.284	21.889	-43.372	-26.187
A079	0.293	FAIL	0.100	-0.100	62.028	-46.623	-51.069	0.039	0.188	0.000	0.225	62.216	-46.623	-50.844
A081	0.251	FAIL	0.100	-0.100	68.826	-20.908	-56.773	0.039	0.161	0.000	0.192	68.987	-20.908	-56.581
A082	-0.393	FAIL	0.100	-0.100	66.166	-4.946	-54.617	0.039	-0.213	-0.096	-0.316	65.953	-5.043	-54.932
A083	-0.271	FAIL	0.100	-0.100	55.230	44.415	-51.785	0.039	0.197	0.000	-0.186	55.427	44.415	-51.971
A085	0.372	FAIL	0.100	-0.100	18.874	36.730	-14.858	0.039	0.239	0.000	0.285	19.113	36.730	-14.573
A086	-0.274	FAIL	0.100	-0.100	36.904	-3.173	-15.496	0.039	-0.113	-0.165	-0.186	36.791	-3.338	-15.682

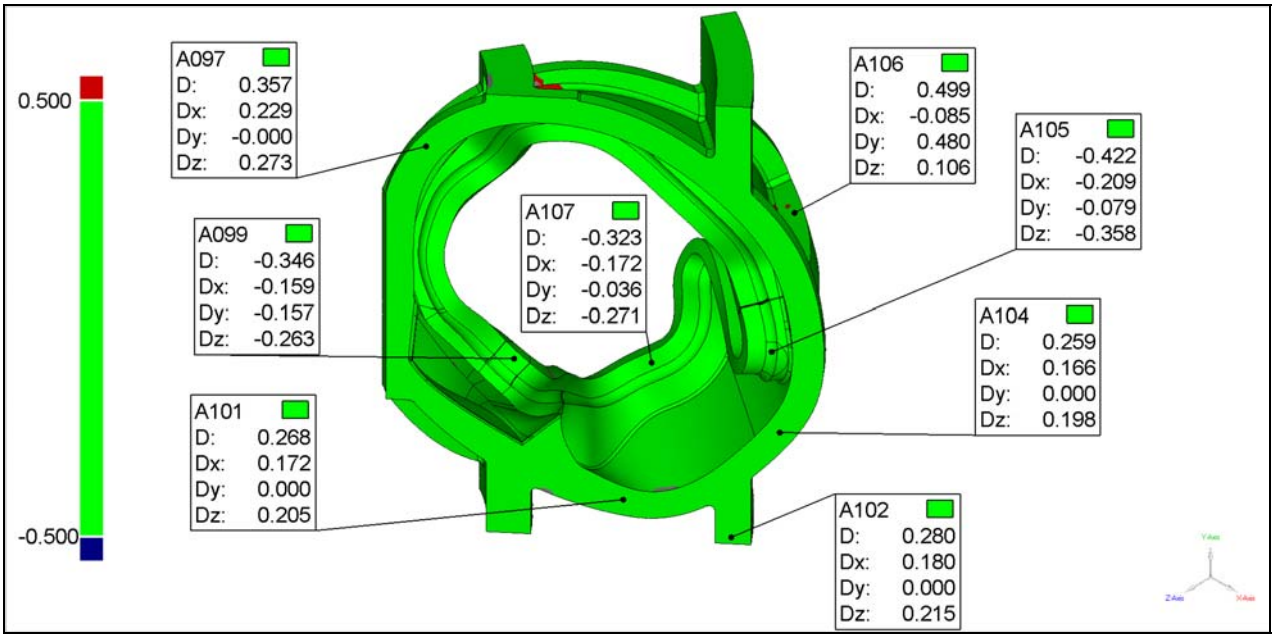
Annotated: Annotation View Back



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A087	0.388	FAIL	0.100	-0.100	44.656	27.300	-63.543	0.039	0.222	-0.000	-0.318	44.878	27.300	-63.861
A088	0.351	FAIL	0.100	-0.100	56.271	9.151	-73.572	0.039	0.189	0.074	-0.286	56.460	9.225	-73.859
A089	0.301	FAIL	0.100	-0.100	50.948	-7.547	-71.367	0.039	0.168	-0.040	-0.247	51.115	-7.587	-71.614
A090	-0.320	FAIL	0.100	-0.100	64.015	-27.391	-56.486	0.039	0.178	0.029	0.265	64.193	-27.363	-56.221
A091	0.632	FAIL	0.100	-0.100	12.954	-5.127	-14.409	0.039	0.177	0.023	-0.607	13.131	-5.105	-15.016
A092	0.363	FAIL	0.100	-0.100	27.716	44.240	-32.733	0.039	0.236	-0.000	-0.276	27.952	44.240	-33.009

Annotated: Annotation View Isometric



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A097	0.357	FAIL	0.100	-0.100	18.638	35.973	-14.660	0.039	0.229	-0.000	0.273	18.868	35.973	-14.387
A099	-0.346	FAIL	0.100	-0.100	38.499	-2.006	-17.121	0.039	-0.159	-0.157	-0.263	38.340	-2.164	-17.385
A101	0.268	FAIL	0.100	-0.100	45.849	-39.638	-37.493	0.039	0.172	0.000	0.205	46.021	-39.638	-37.288
A102	0.280	FAIL	0.100	-0.100	60.736	-46.739	-49.985	0.039	0.180	0.000	0.215	60.917	-46.739	-49.770
A104	0.259	FAIL	0.100	-0.100	67.436	-23.082	-55.606	0.039	0.166	0.000	0.198	67.602	-23.082	-55.408
A105	-0.422	FAIL	0.100	-0.100	66.355	-5.353	-54.634	0.039	-0.209	-0.079	-0.358	66.146	-5.431	-54.992
A106	0.499	FAIL	0.100	-0.100	55.821	11.733	-70.985	0.039	-0.085	0.480	0.106	55.736	12.213	-70.879
A107	-0.323	FAIL	0.100	-0.100	35.687	-23.162	-54.842	0.039	-0.172	-0.036	-0.271	35.515	-23.198	-55.113

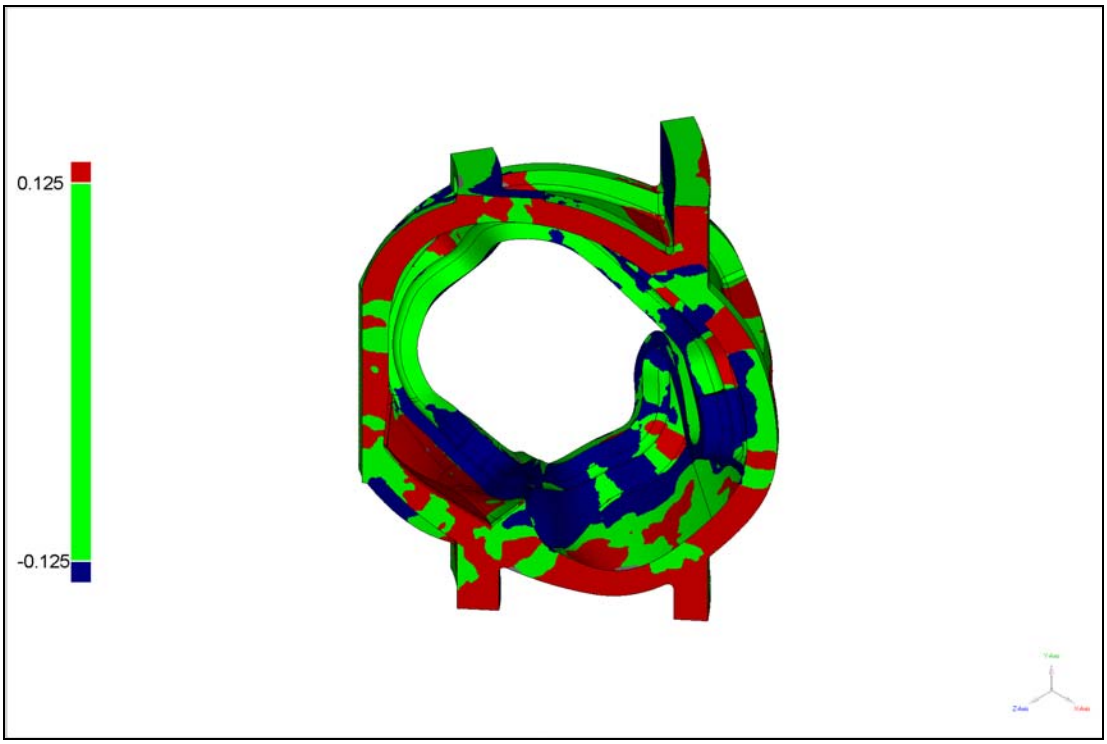
Carondelet Division
Pevely, MO 63070
(636) 475-2100

9/6/2005

Qualify Report

C-2 Doc Package
Document # 25a

Date Generated: 5/23/2005, 5:05 pm



Author: Kevin Harris / Jarrod Boyer

Part: C2

Test: Merged Points 1

3D Comparison Results

Reference Model	c-coil-casting
Test Model	Merged Points 1
# Data Points	5326043

Tolerances	in
Max Tol +	0.125
Min Tol +	0.125
Min Tol -	-0.125
Max Tol -	-0.125

Deviation	in
Max Dev +	2.048
Max Dev -	-2.060
Average +/-	0.132 / -0.115
Std Dev	0.172

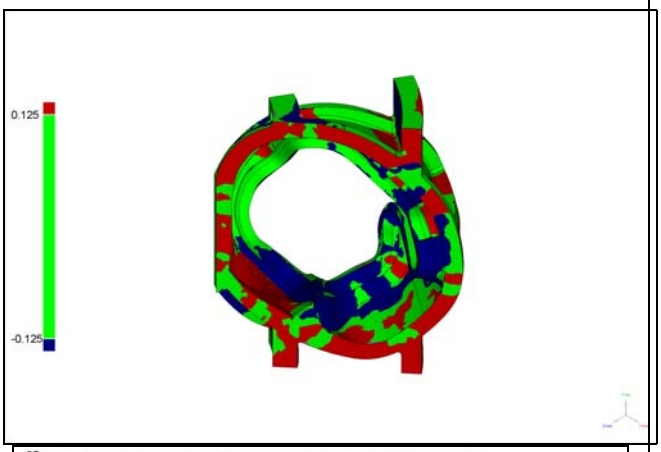
Percentage Deviations

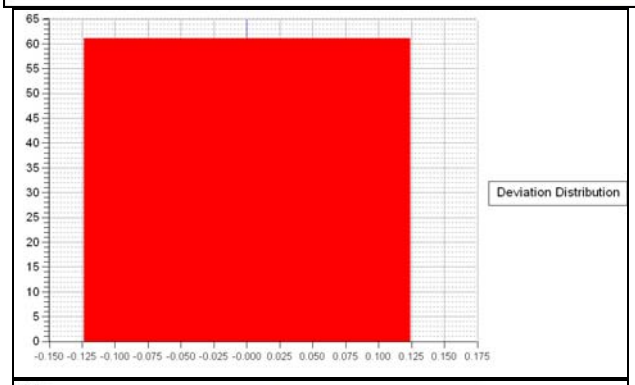
>=Min	<Max	# Points	%
-0.125	0.125	3257136	61.155

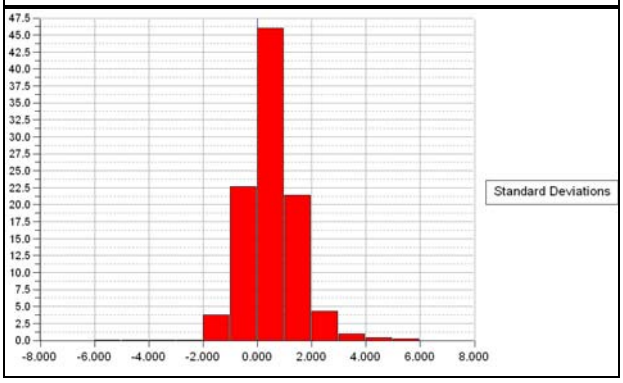
Out of Max Tol +	1067561	20.044
Out of Max Tol -	1001346	18.801

Standard Deviations

Distribution ()	# Points	%
-6 * Std Dev	38	0.001
-5 * Std Dev	384	0.007
-4 * Std Dev	674	0.013
-3 * Std Dev	2880	0.054
-2 * Std Dev	201623	3.786
-1 * Std Dev	1206953	22.661
1 * Std Dev	2451060	46.020
2 * Std Dev	1137309	21.354
3 * Std Dev	230395	4.326
4 * Std Dev	52331	0.983
5 * Std Dev	20317	0.381
6 * Std Dev	12930	0.243







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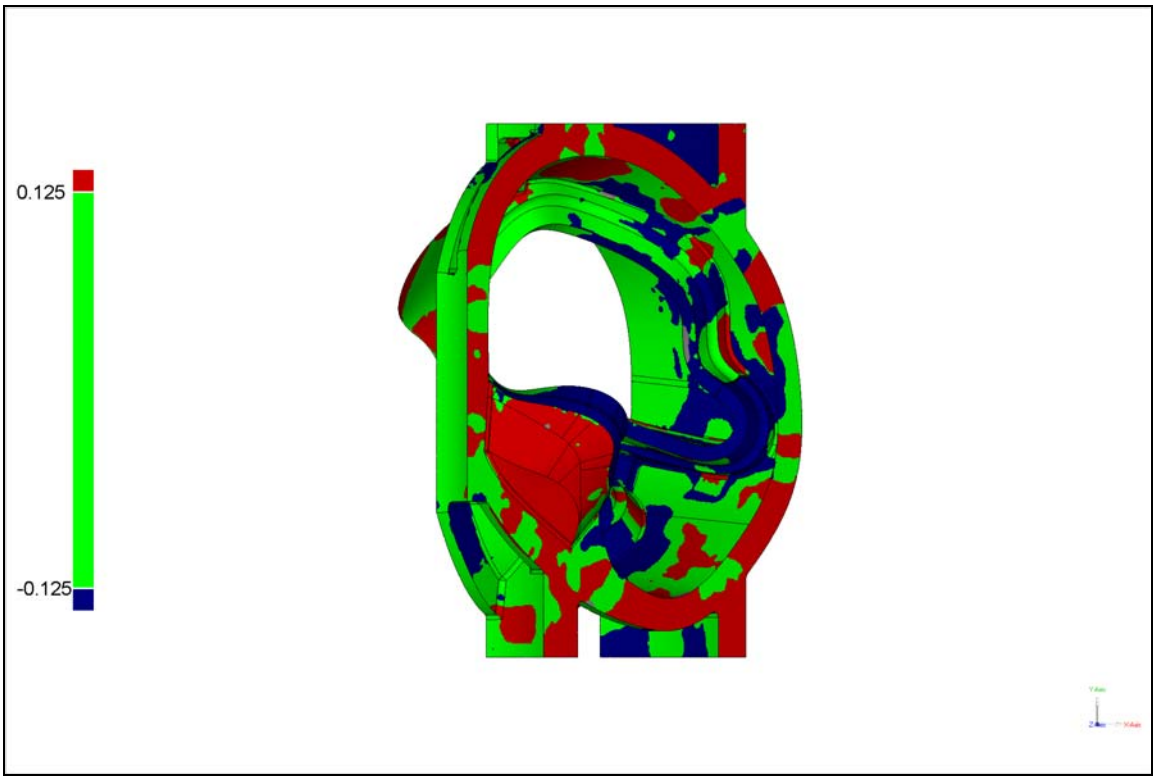
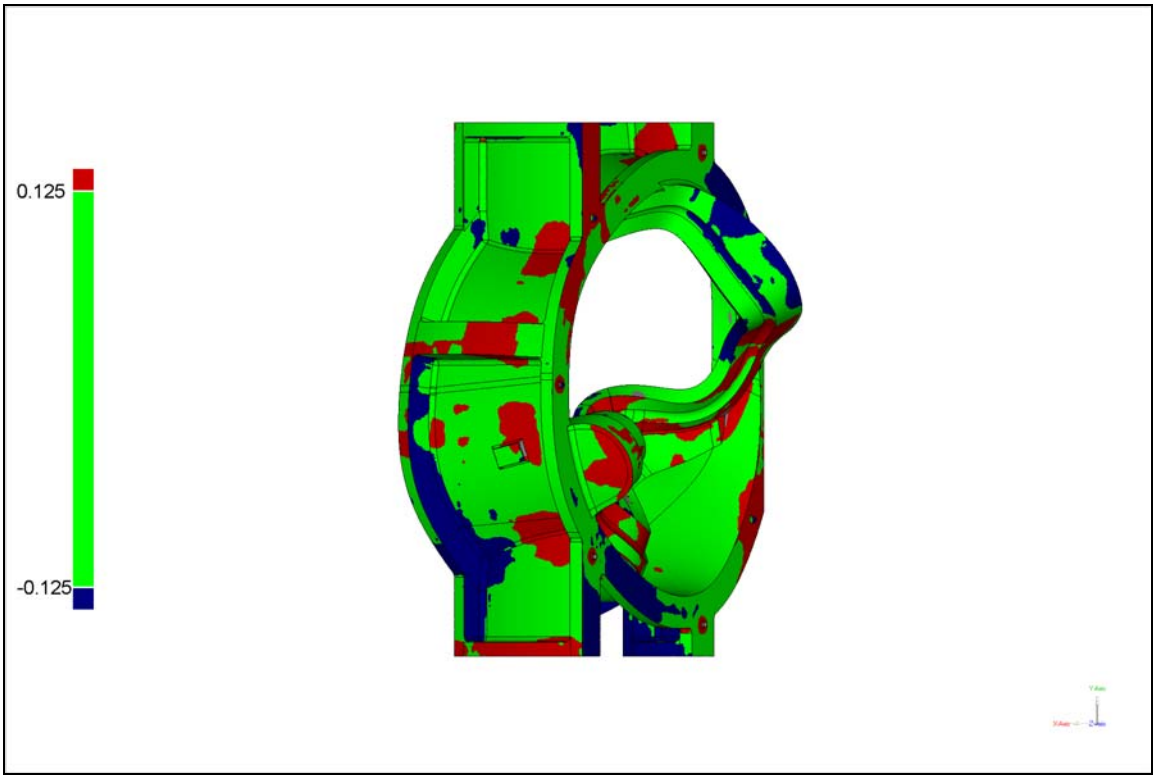


Predefined: Back



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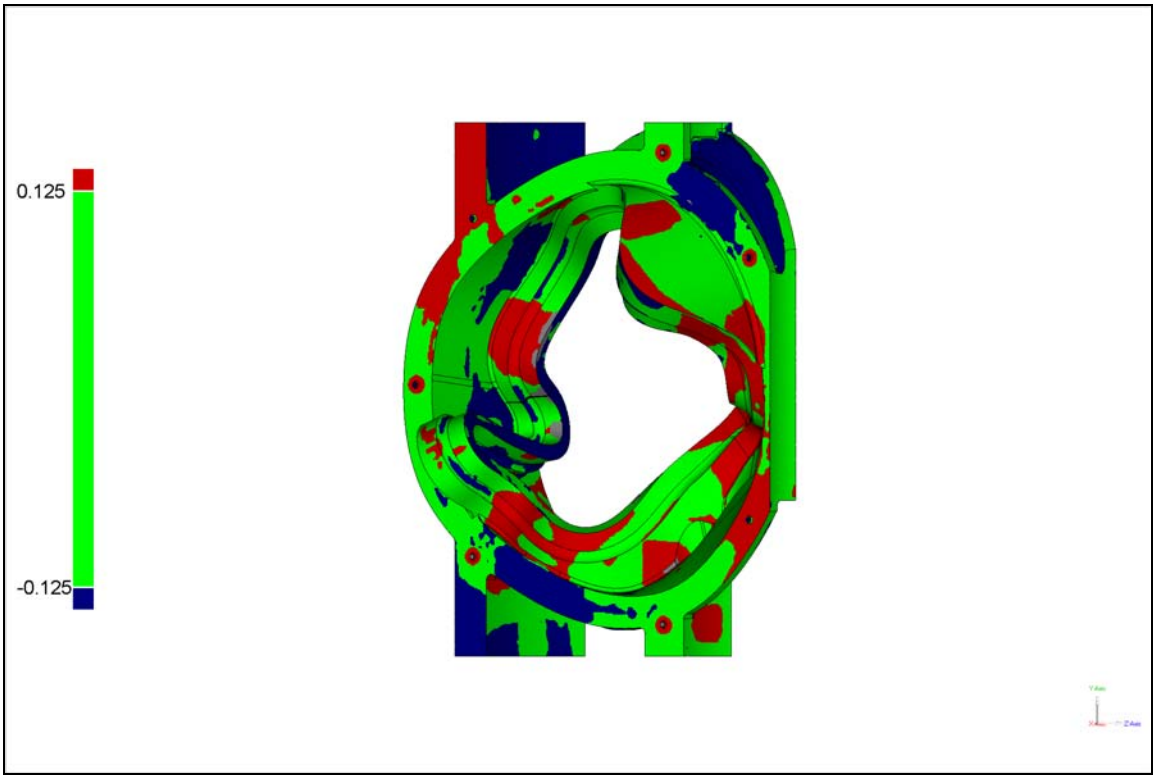
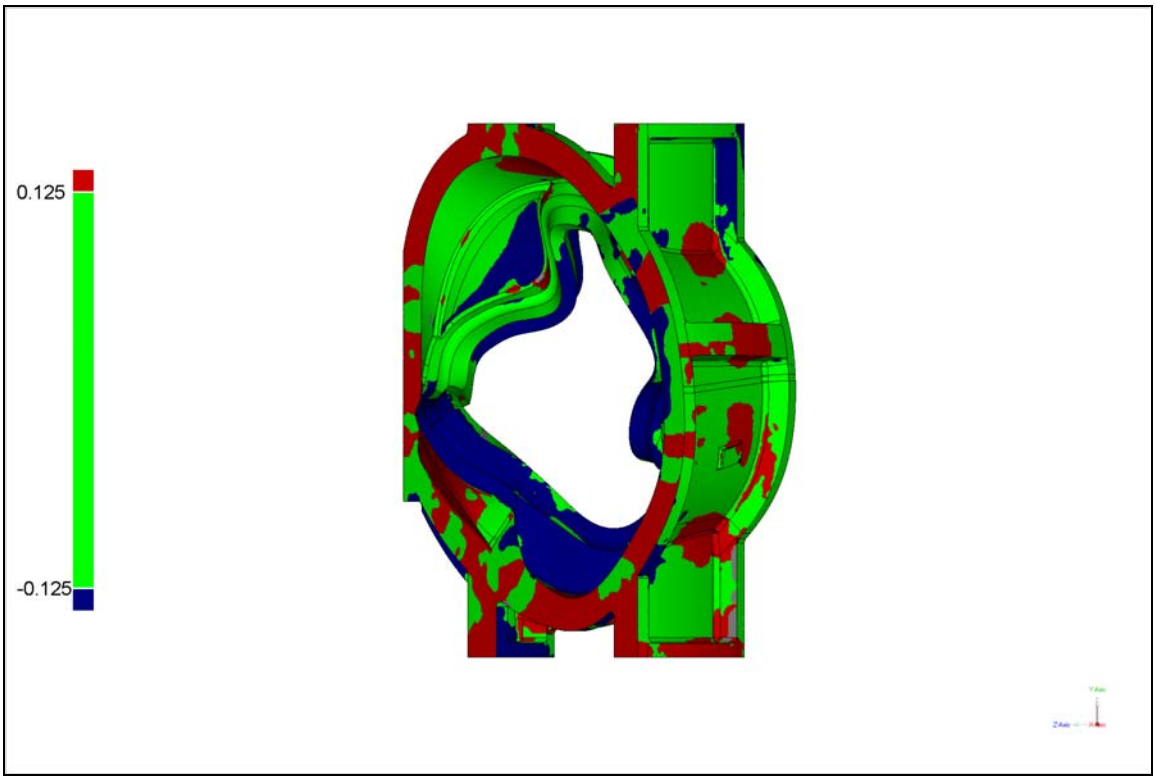
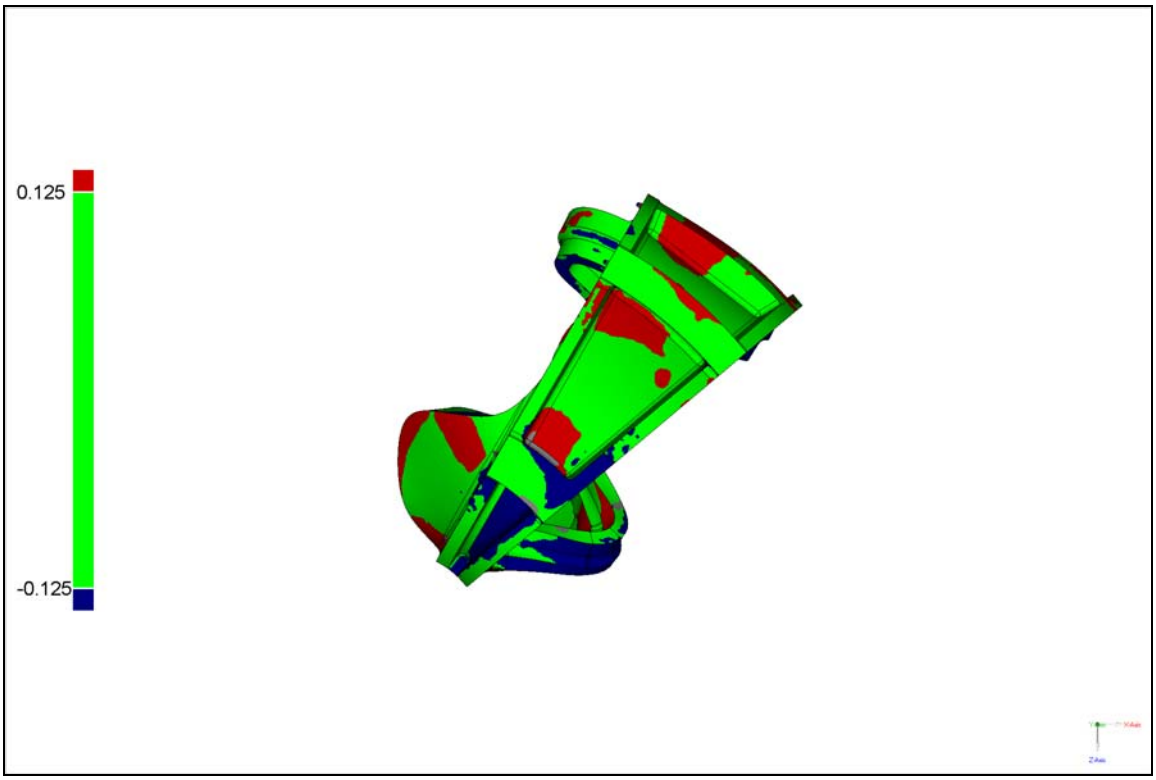


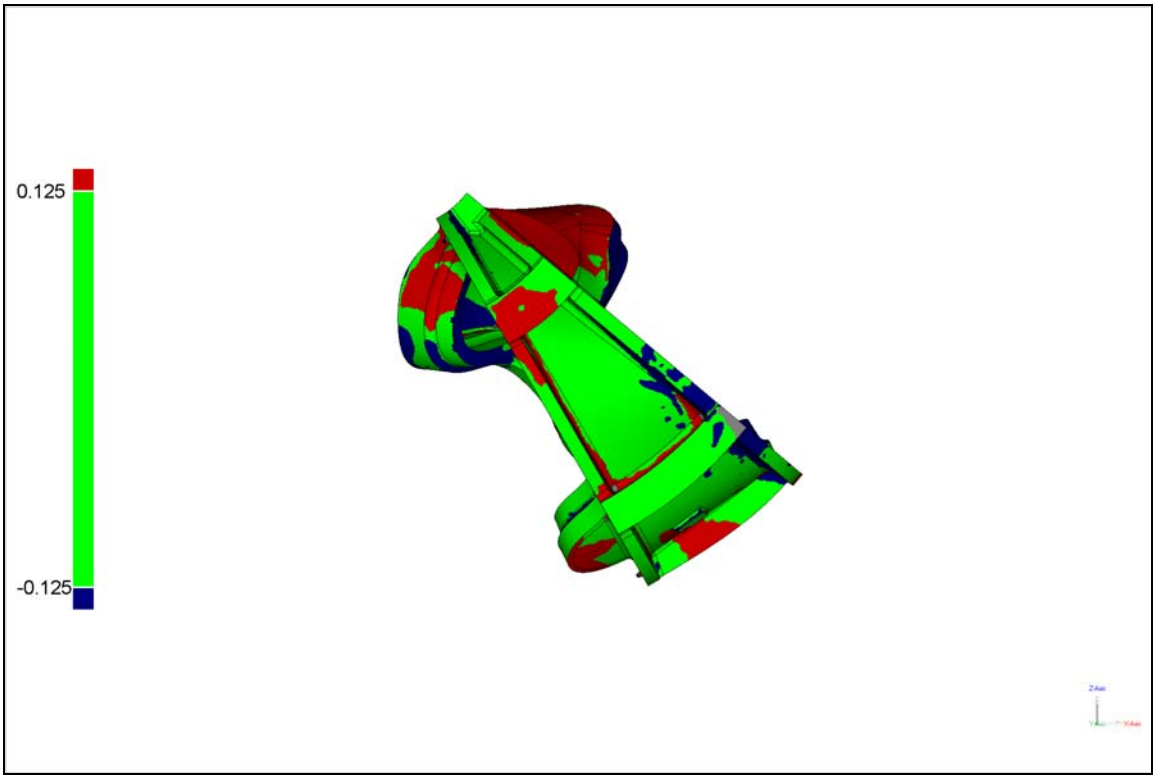
Predefined: Right



Predefined: Top



Predefined: Bottom



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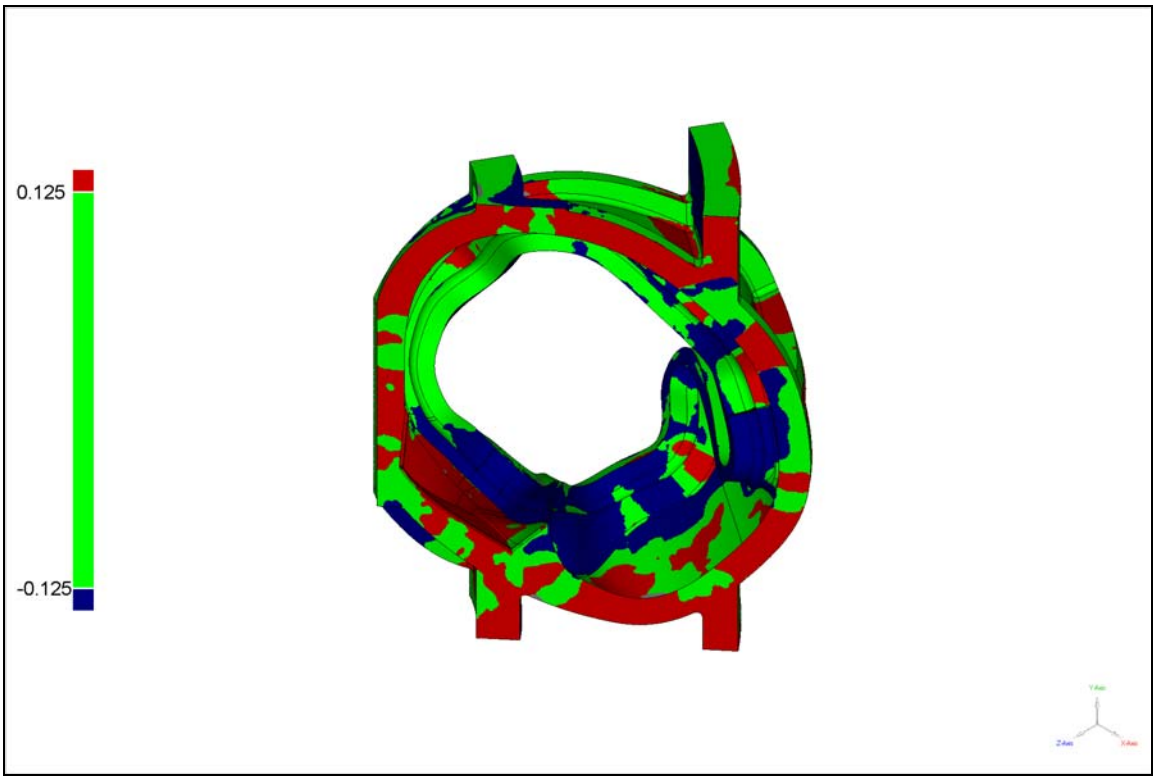
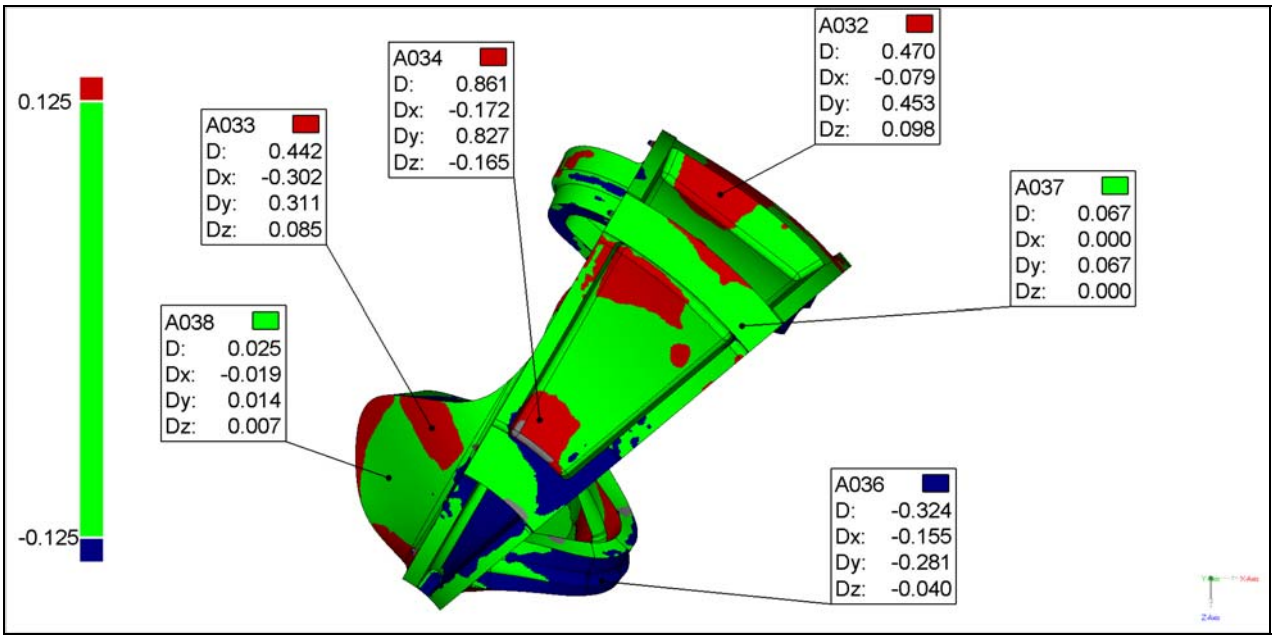


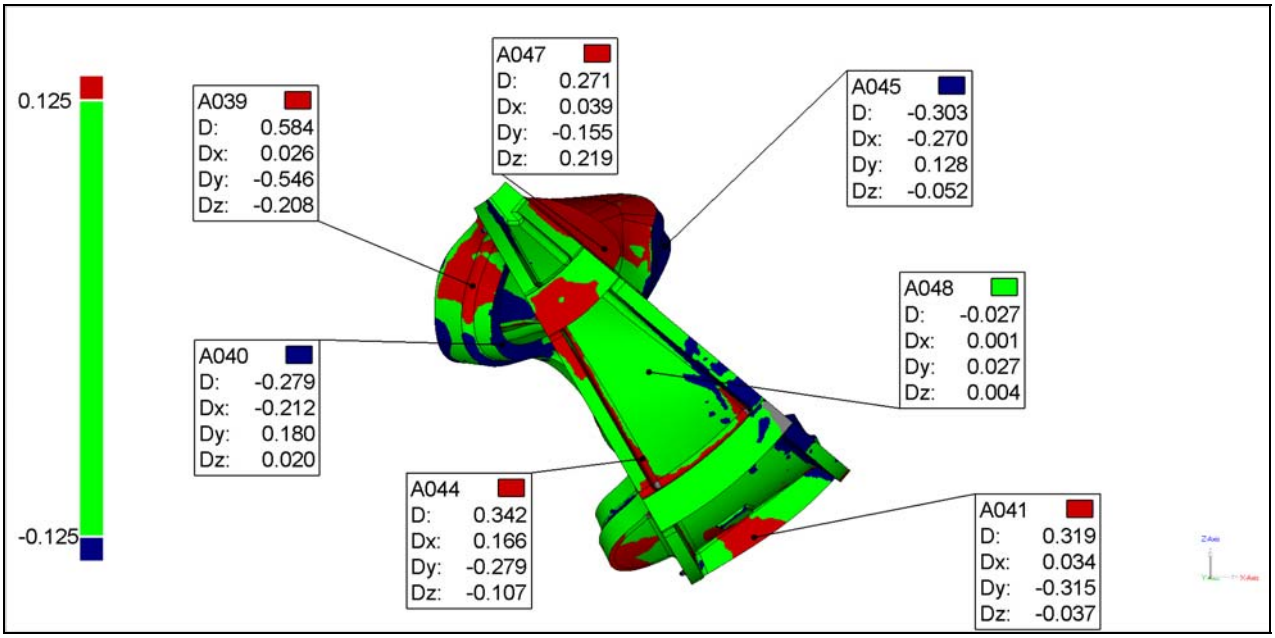
Annotated: Annotation View Top



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A032	0.470	FAIL	0.100	-0.100	54.294	11.519	-71.235	0.039	-0.079	0.453	0.098	54.215	11.972	-71.137
A033	0.442	FAIL	0.100	-0.100	11.899	30.670	-36.884	0.039	-0.302	0.311	0.085	11.597	30.981	-36.798
A034	0.861	FAIL	0.100	-0.100	27.749	40.157	-38.073	0.039	-0.172	0.827	-0.165	27.577	40.984	-38.237
A036	-0.324	FAIL	0.100	-0.100	36.863	-3.808	-14.297	0.039	-0.155	-0.281	-0.040	36.708	-4.090	-14.337
A037	0.067	PASS	0.100	-0.100	57.469	48.188	-51.942	0.039	0.000	0.067	0.000	57.469	48.255	-51.942
A038	0.025	PASS	0.100	-0.100	5.558	19.704	-29.553	0.039	-0.019	0.014	0.007	5.539	19.718	-29.546

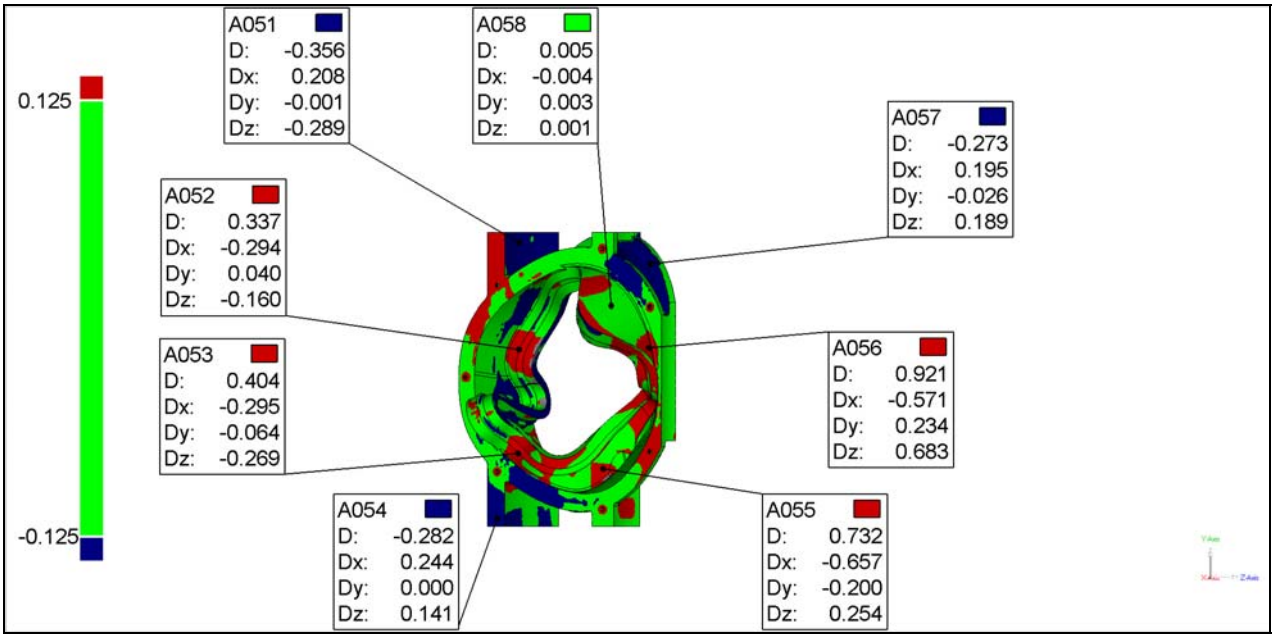
Annotated: Annotation View Bottom



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A039	0.584	FAIL	0.100	-0.100	7.399	10.856	-28.360	0.039	0.026	-0.546	-0.208	7.425	10.310	-28.567
A040	-0.279	FAIL	0.100	-0.100	12.590	14.051	-38.580	0.039	-0.212	0.180	0.020	12.377	14.230	-38.560
A041	0.319	FAIL	0.100	-0.100	56.713	6.078	-72.483	0.039	0.034	-0.315	-0.037	56.747	5.762	-72.520
A044	0.342	FAIL	0.100	-0.100	37.135	-31.757	-58.654	0.039	0.166	-0.279	-0.107	37.301	-32.037	-58.761
A045	-0.303	FAIL	0.100	-0.100	41.032	-8.625	-21.418	0.039	-0.270	0.128	-0.052	40.762	-8.497	-21.469
A047	0.271	FAIL	0.100	-0.100	30.470	-23.402	-21.884	0.039	0.039	-0.155	0.219	30.509	-23.558	-21.665
A048	-0.027	PASS	0.100	-0.100	38.270	-38.262	-43.393	0.039	0.001	0.027	0.004	38.270	-38.235	-43.390

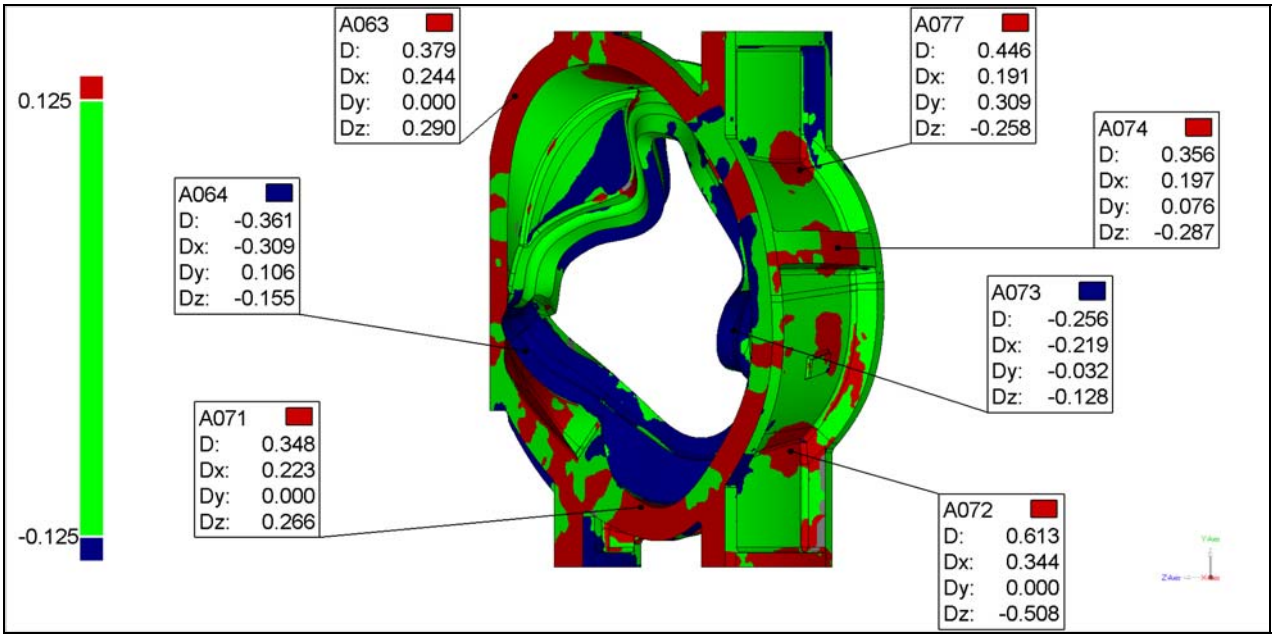
Annotated: Annotation View Left



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A051	-0.356	FAIL	0.100	-0.100	44.544	44.812	-61.169	0.039	0.208	-0.001	-0.289	44.752	44.811	-61.458
A052	0.337	FAIL	0.100	-0.100	53.352	9.964	-61.169	0.039	-0.294	0.040	-0.160	53.058	10.004	-61.329
A053	0.404	FAIL	0.100	-0.100	36.665	-24.158	-61.411	0.039	-0.295	-0.064	-0.269	36.371	-24.222	-61.680
A054	-0.282	FAIL	0.100	-0.100	38.553	-45.608	-68.276	0.039	0.244	0.000	0.141	38.798	-45.608	-68.135
A055	0.732	FAIL	0.100	-0.100	32.132	-29.208	-33.635	0.039	-0.657	-0.200	0.254	31.476	-29.408	-33.381
A056	0.921	FAIL	0.100	-0.100	7.357	10.477	-18.642	0.039	-0.571	0.234	0.683	6.786	10.711	-17.959
A057	-0.273	FAIL	0.100	-0.100	18.242	37.816	-18.201	0.039	0.195	-0.026	0.189	18.437	37.790	-18.012
A058	0.005	PASS	0.100	-0.100	8.213	24.147	-30.989	0.039	-0.004	0.003	0.001	8.209	24.149	-30.988

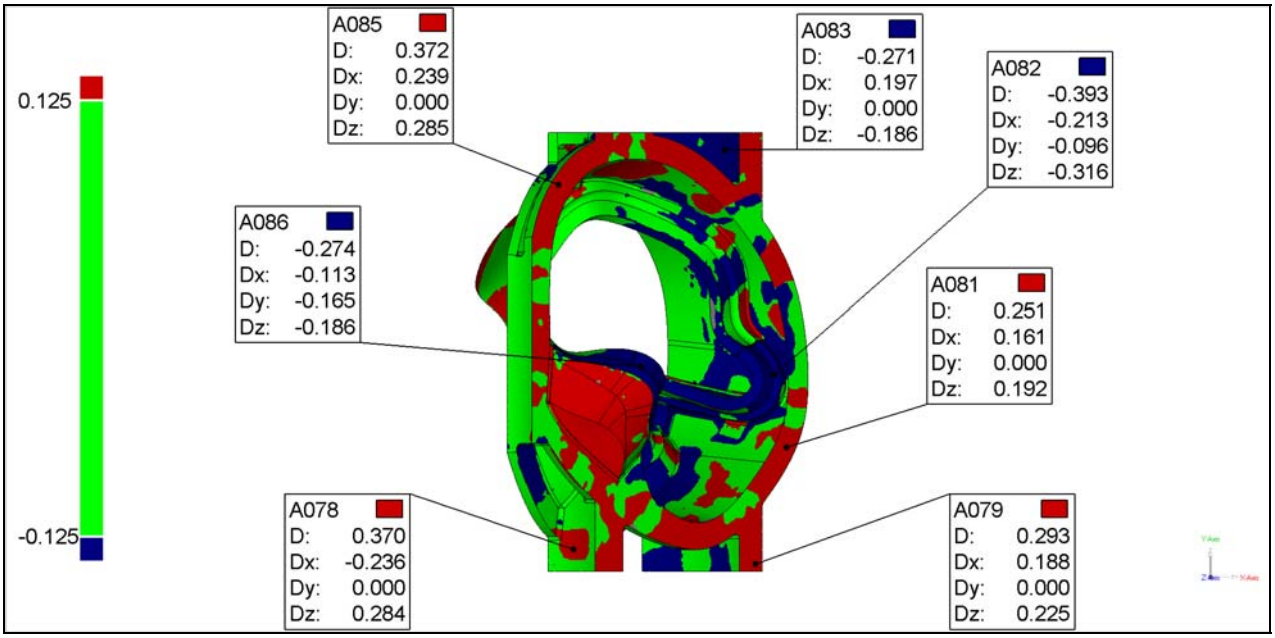
Annotated: Annotation View Right



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A063	0.379	FAIL	0.100	-0.100	18.531	36.560	-14.571	0.039	0.244	0.000	0.290	18.775	36.560	-14.280
A064	-0.361	FAIL	0.100	-0.100	40.476	-9.285	-16.439	0.039	-0.309	0.106	-0.155	40.167	-9.179	-16.594
A071	0.348	FAIL	0.100	-0.100	45.441	-37.411	-37.150	0.039	0.223	0.000	0.266	45.664	-37.411	-36.884
A072	0.613	FAIL	0.100	-0.100	43.968	-27.330	-64.018	0.039	0.344	0.000	-0.508	44.312	-27.330	-64.526
A073	-0.256	FAIL	0.100	-0.100	65.593	-5.551	-53.854	0.039	-0.219	-0.032	-0.128	65.374	-5.583	-53.983
A074	0.356	FAIL	0.100	-0.100	57.859	9.211	-72.488	0.039	0.197	0.076	-0.287	58.056	9.287	-72.775
A077	0.446	FAIL	0.100	-0.100	44.242	23.247	-65.712	0.039	0.191	0.309	-0.258	44.433	23.557	-65.970

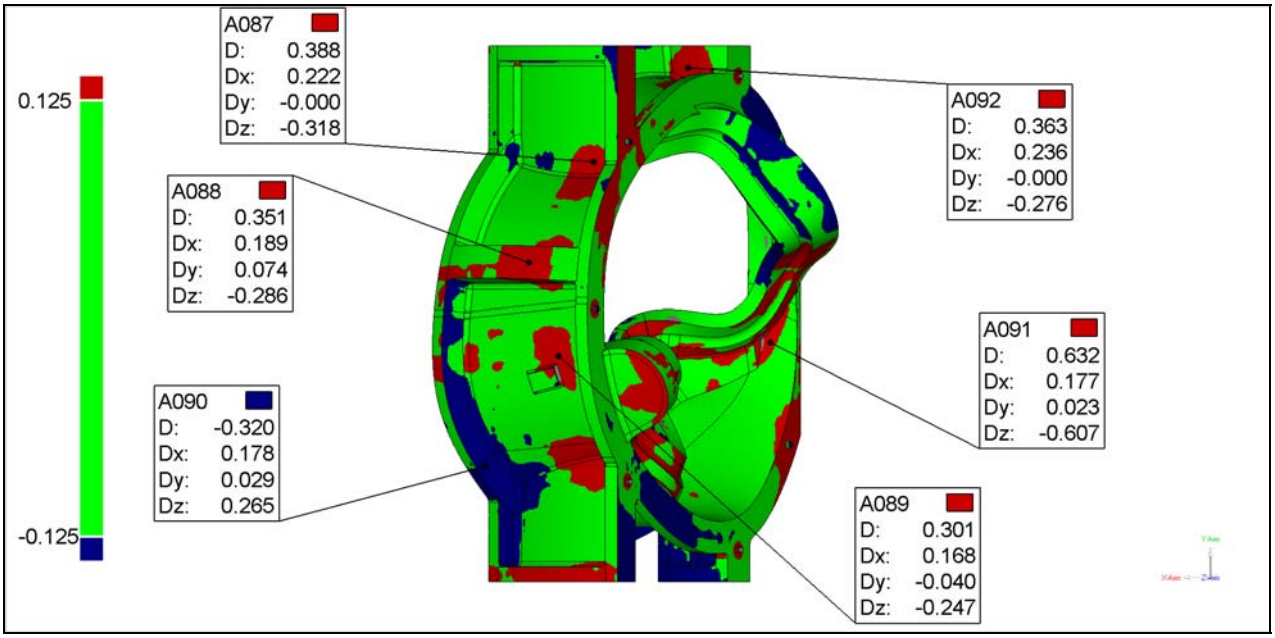
Annotated: Annotation View Front



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A078	0.370	FAIL	0.100	-0.100	22.125	-43.372	-26.471	0.039	-0.236	0.000	0.284	21.889	-43.372	-26.187
A079	0.293	FAIL	0.100	-0.100	62.028	-46.623	-51.069	0.039	0.188	0.000	0.225	62.216	-46.623	-50.844
A081	0.251	FAIL	0.100	-0.100	68.826	-20.908	-56.773	0.039	0.161	0.000	0.192	68.987	-20.908	-56.581
A082	-0.393	FAIL	0.100	-0.100	66.166	-4.946	-54.617	0.039	-0.213	-0.096	-0.316	65.953	-5.043	-54.932
A083	-0.271	FAIL	0.100	-0.100	55.230	44.415	-51.785	0.039	0.197	0.000	-0.186	55.427	44.415	-51.971
A085	0.372	FAIL	0.100	-0.100	18.874	36.730	-14.858	0.039	0.239	0.000	0.285	19.113	36.730	-14.573
A086	-0.274	FAIL	0.100	-0.100	36.904	-3.173	-15.496	0.039	-0.113	-0.165	-0.186	36.791	-3.338	-15.682

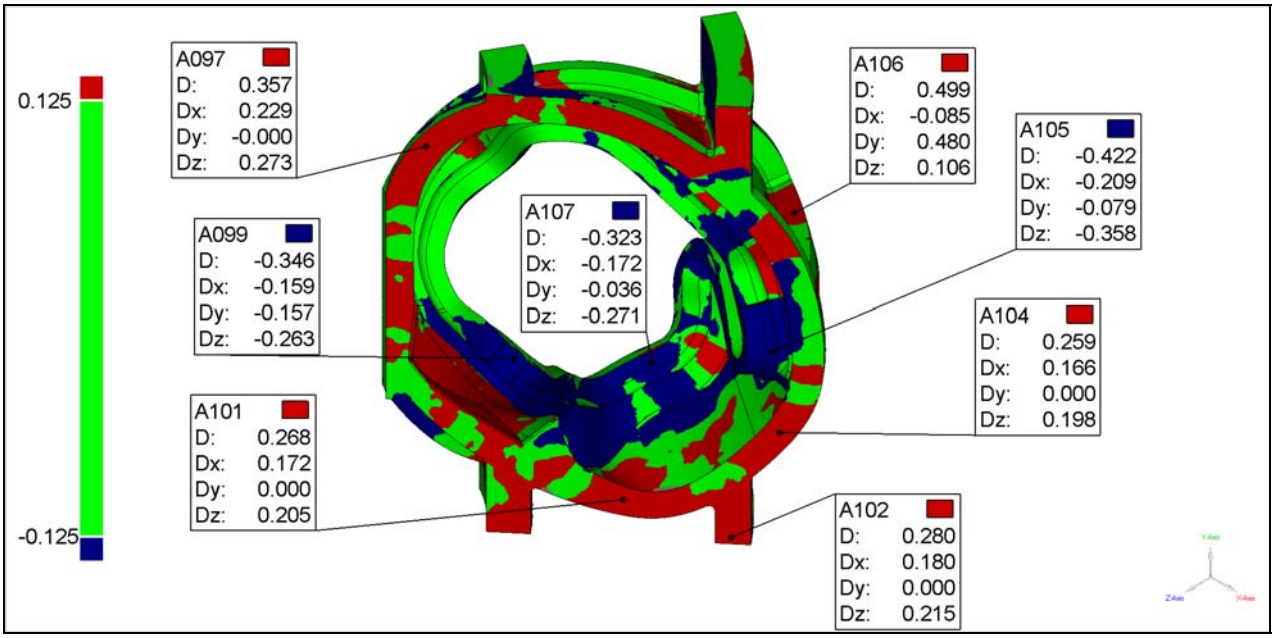
Annotated: Annotation View Back



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A087	0.388	FAIL	0.100	-0.100	44.656	27.300	-63.543	0.039	0.222	-0.000	-0.318	44.878	27.300	-63.861
A088	0.351	FAIL	0.100	-0.100	56.271	9.151	-73.572	0.039	0.189	0.074	-0.286	56.460	9.225	-73.859
A089	0.301	FAIL	0.100	-0.100	50.948	-7.547	-71.367	0.039	0.168	-0.040	-0.247	51.115	-7.587	-71.614
A090	-0.320	FAIL	0.100	-0.100	64.015	-27.391	-56.486	0.039	0.178	0.029	0.265	64.193	-27.363	-56.221
A091	0.632	FAIL	0.100	-0.100	12.954	-5.127	-14.409	0.039	0.177	0.023	-0.607	13.131	-5.105	-15.016
A092	0.363	FAIL	0.100	-0.100	27.716	44.240	-32.733	0.039	0.236	-0.000	-0.276	27.952	44.240	-33.009

Annotated: Annotation View Isometric



Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A097	0.357	FAIL	0.100	-0.100	18.638	35.973	-14.660	0.039	0.229	-0.000	0.273	18.868	35.973	-14.387
A099	-0.346	FAIL	0.100	-0.100	38.499	-2.006	-17.121	0.039	-0.159	-0.157	-0.263	38.340	-2.164	-17.385
A101	0.268	FAIL	0.100	-0.100	45.849	-39.638	-37.493	0.039	0.172	0.000	0.205	46.021	-39.638	-37.288
A102	0.280	FAIL	0.100	-0.100	60.736	-46.739	-49.985	0.039	0.180	0.000	0.215	60.917	-46.739	-49.770
A104	0.259	FAIL	0.100	-0.100	67.436	-23.082	-55.606	0.039	0.166	0.000	0.198	67.602	-23.082	-55.408
A105	-0.422	FAIL	0.100	-0.100	66.355	-5.353	-54.634	0.039	-0.209	-0.079	-0.358	66.146	-5.431	-54.992
A106	0.499	FAIL	0.100	-0.100	55.821	11.733	-70.985	0.039	-0.085	0.480	0.106	55.736	12.213	-70.879
A107	-0.323	FAIL	0.100	-0.100	35.687	-23.162	-54.842	0.039	-0.172	-0.036	-0.271	35.515	-23.198	-55.113

Annotated: All

Units: in

Name	Dev	Status	Tol +	Tol -	Ref X	Ref Y	Ref Z	Dev Radius	Dev X	Dev Y	Dev Z	Test X	Test Y	Test Z
A032	0.470	FAIL	0.100	-0.100	54.294	11.519	-71.235	0.039	-0.079	0.453	0.098	54.215	11.972	-71.137
A033	0.442	FAIL	0.100	-0.100	11.899	30.670	-36.884	0.039	-0.302	0.311	0.085	11.597	30.981	-36.798
A034	0.861	FAIL	0.100	-0.100	27.749	40.157	-38.073	0.039	-0.172	0.827	-0.165	27.577	40.984	-38.237
A036	-0.324	FAIL	0.100	-0.100	36.863	-3.808	-14.297	0.039	-0.155	-0.281	-0.040	36.708	-4.090	-14.337
A037	0.067	PASS	0.100	-0.100	57.469	48.188	-51.942	0.039	0.000	0.067	0.000	57.469	48.255	-51.942
A038	0.025	PASS	0.100	-0.100	5.558	19.704	-29.553	0.039	-0.019	0.014	0.007	5.539	19.718	-29.546
A039	0.584	FAIL	0.100	-0.100	7.399	10.856	-28.360	0.039	0.026	-0.546	-0.208	7.425	10.310	-28.567
A040	-0.279	FAIL	0.100	-0.100	12.590	14.051	-38.580	0.039	-0.212	0.180	0.020	12.377	14.230	-38.560
A041	0.319	FAIL	0.100	-0.100	56.713	6.078	-72.483	0.039	0.034	-0.315	-0.037	56.747	5.762	-72.520
A044	0.342	FAIL	0.100	-0.100	37.135	-31.757	-58.654	0.039	0.166	-0.279	-0.107	37.301	-32.037	-58.761
A045	-0.303	FAIL	0.100	-0.100	41.032	-8.625	-21.418	0.039	-0.270	0.128	-0.052	40.762	-8.497	-21.469
A047	0.271	FAIL	0.100	-0.100	30.470	-23.402	-21.884	0.039	0.039	-0.155	0.219	30.509	-23.558	-21.665
A048	-0.027	PASS	0.100	-0.100	38.270	-38.262	-43.393	0.039	0.001	0.027	0.004	38.270	-38.235	-43.390
A051	-0.356	FAIL	0.100	-0.100	44.544	44.812	-61.169	0.039	0.208	-0.001	-0.289	44.752	44.811	-61.458
A052	0.337	FAIL	0.100	-0.100	53.352	9.964	-61.169	0.039	-0.294	0.040	-0.160	53.058	10.004	-61.329
A053	0.404	FAIL	0.100	-0.100	36.665	-24.158	-61.411	0.039	-0.295	-0.064	-0.269	36.371	-24.222	-61.680
A054	-0.282	FAIL	0.100	-0.100	38.553	-45.608	-68.276	0.039	0.244	0.000	0.141	38.798	-45.608	-68.135
A055	0.732	FAIL	0.100	-0.100	32.132	-29.208	-33.635	0.039	-0.657	-0.200	0.254	31.476	-29.408	-33.381
A056	0.921	FAIL	0.100	-0.100	7.357	10.477	-18.642	0.039	-0.571	0.234	0.683	6.786	10.711	-17.959
A057	-0.273	FAIL	0.100	-0.100	18.242	37.816	-18.201	0.039	0.195	-0.026	0.189	18.437	37.790	-18.012
A058	0.005	PASS	0.100	-0.100	8.213	24.147	-30.989	0.039	-0.004	0.003	0.001	8.209	24.149	-30.988
A063	0.379	FAIL	0.100	-0.100	18.531	36.560	-14.571	0.039	0.244	0.000	0.290	18.775	36.560	-14.280
A064	-0.361	FAIL	0.100	-0.100	40.476	-9.285	-16.439	0.039	-0.309	0.106	-0.155	40.167	-9.179	-16.594
A071	0.348	FAIL	0.100	-0.100	45.441	-37.411	-37.150	0.039	0.223	0.000	0.266	45.664	-37.411	-36.884
A072	0.613	FAIL	0.100	-0.100	43.968	-27.330	-64.018	0.039	0.344	0.000	-0.508	44.312	-27.330	-64.526
A073	-0.256	FAIL	0.100	-0.100	65.593	-5.551	-53.854	0.039	-0.219	-0.032	-0.128	65.374	-5.583	-53.983
A074	0.356	FAIL	0.100	-0.100	57.859	9.211	-72.488	0.039	0.197	0.076	-0.287	58.056	9.287	-72.775
A077	0.446	FAIL	0.100	-0.100	44.242	23.247	-65.712	0.039	0.191	0.309	-0.258	44.433	23.557	-65.970
A078	0.370	FAIL	0.100	-0.100	22.125	-43.372	-26.471	0.039	-0.236	0.000	0.284	21.889	-43.372	-26.187
A079	0.293	FAIL	0.100	-0.100	62.028	-46.623	-51.069	0.039	0.188	0.000	0.225	62.216	-46.623	-50.844
A081	0.251	FAIL	0.100	-0.100	68.826	-20.908	-56.773	0.039	0.161	0.000	0.192	68.987	-20.908	-56.581
A082	-0.393	FAIL	0.100	-0.100	66.166	-4.946	-54.617	0.039	-0.213	-0.096	-0.316	65.953	-5.043	-54.932
A083	-0.271	FAIL	0.100	-0.100	55.230	44.415	-51.785	0.039	0.197	0.000	-0.186	55.427	44.415	-51.971
A085	0.372	FAIL	0.100	-0.100	18.874	36.730	-14.858	0.039	0.239	0.000	0.285	19.113	36.730	-14.573
A086	-0.274	FAIL	0.100	-0.100	36.904	-3.173	-15.496	0.039	-0.113	-0.165	-0.186	36.791	-3.338	-15.682
A087	0.388	FAIL	0.100	-0.100	44.656	27.300	-63.543	0.039	0.222	-0.000	-0.318	44.878	27.300	-63.861
A088	0.351	FAIL	0.100	-0.100	56.271	9.151	-73.572	0.039	0.189	0.074	-0.286	56.460	9.225	-73.859
A089	0.301	FAIL	0.100	-0.100	50.948	-7.547	-71.367	0.039	0.168	-0.040	-0.247	51.115	-7.587	-71.614
A090	-0.320	FAIL	0.100	-0.100	64.015	-27.391	-56.486	0.039	0.178	0.029	0.265	64.193	-27.363	-56.221
A091	0.632	FAIL	0.100	-0.100	12.954	-5.127	-14.409	0.039	0.177	0.023	-0.607	13.131	-5.105	-15.016
A092	0.363	FAIL	0.100	-0.100	27.716	44.240	-32.733	0.039	0.236	-0.000	-0.276	27.952	44.240	-33.009
A097	0.357	FAIL	0.100	-0.100	18.638	35.973	-14.660	0.039	0.229	-0.000	0.273	18.868	35.973	-14.387
A099	-0.346	FAIL	0.100	-0.100	38.499	-2.006	-17.121	0.039	-0.159	-0.157	-0.263	38.340	-2.164	-17.385
A101	0.268	FAIL	0.100	-0.100	45.849	-39.638	-37.493	0.039	0.172	0.000	0.205	46.021	-39.638	-37.288
A102	0.280	FAIL	0.100	-0.100	60.736	-46.739	-49.985	0.039	0.180	0.000	0.215	60.917	-46.739	-49.770
A104	0.259	FAIL	0.100	-0.100	67.436	-23.082	-55.606	0.039	0.166	0.000	0.198	67.602	-23.082	-55.408
A105	-0.422	FAIL	0.100	-0.100	66.355	-5.353	-54.634	0.039	-0.209	-0.079	-0.358	66.146	-5.431	-54.992
A106	0.499	FAIL	0.100	-0.100	55.821	11.733	-70.985	0.039	-0.085	0.480	0.106	55.736	12.213	-70.879
A107	-0.323	FAIL	0.100	-0.100	35.687	-23.162	-54.842	0.039	-0.172	-0.036	-0.271	35.515	-23.198	-55.113

1

C-2 Doc Package
Document # 26

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Material Test Report

ENERGY INDUSTRIES OF OHIO

Purchase Order Number	PPPL-FP-LTS-2	Cert Number	S73220-2
Pattern Number	SE-141-073 COIL C SHIM	Pour Date	4/28/2005
CAF Metal Designation	CF8MNMnMod		
Material Spec	CF8MNMN MOD		

Element	Min	Actual	Max
C	0.040	0.07	0.070
CR	18.000	18.1	18.500
MN	2.300	2.97	2.800
MO	2.100	2.45	2.500
N	0.240	0.255	0.280
NI	13.000	13.12	13.500
P	0.000	0.01	0.015
S	0.000	0.01	0.015
SI	0.000	0.5	0.500

The certificate is produced with EDP and valid without signature.

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

June 20, 2005

CERTIFICATION

Section 1 of 1

WMT&R Report No. 5-29403
Req. No. 5394

MetalTek International
The Carondelet Division
8600 Commercial Blvd.
I-55 Industrial Park
Pevely, MO 63070-1528

Attention: Rick Suria

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-03a
SOAK TIME: 5 Minutes
SPEED OF TESTING: 0.0030 in./in./min., 0.0500 in./min./in.
MATERIAL: Metaltek CF8MNMnMOD
DISPOSITION: Report

Sample	TestLog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Ult. Load lbf	0.2% YLD. lbf	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	A\U\R
29198 (1)	C03696	-320	166.1	96.0	57	62	28.6	33330	19260	0.5054	0.3103	2.00	3.14	0.20061359	M9	R
29198 (2)	C03697	-320	161.4	96.8	38	33	28.8	32390	19430	0.5055	0.4130	2.00	2.75	0.20069299	M9	R
29198 (3)	C03698	-320	165.0	92.6	62	62	27.6	33100	18581	0.5054	0.3109	2.00	3.23	0.20061359	M9	R

A\U\R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

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Document # 27

Matthew T Wojton 6-20-05

Roy E. Starr/Matt Wojton
Technical Services Manager / Tensile Supervisor June 20, 2005

3

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

June 13, 2005
Lab No. 05P-1739
P.O. No. 12516
Page 1 of 3

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): HT # 29198

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 293° K / 68° F

REQUIREMENTS: 50 ft. / lb

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
1-7	132	0.085	100
1-8	176	0.084	100
1-9	152	0.082	100
Average	153	0.084	100

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
2-7	160	0.112	100
2-8	144	0.107	100
2-9	140	0.069	100
Average	148	0.096	100

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
3-7	176	0.110	100
3-8	124	0.087	100
3-9	144	0.107	100
Average	148	0.101	100

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

ACCREDITED
Certificate No. 0367-01
Certificate No. 0367-02

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8600 Commercial Blvd.
Pevely, MO 63070

June 13, 2005
Lab No. 05p-1739
P.O. No. 12516

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): HT # 29198

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 77° K / -321° F

REQUIREMENTS: 35 ft / lb

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
4-7	84	0.055	50
4-8	83	0.035	50
4-9	76	0.058	50
Average	81	0.049	50

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
5-7	82	0.059	50
5-8	82	0.040	50
5-9	98	0.075	80
Average	87	0.058	60

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
6-7	82	0.050	50
6-8	93	0.052	50
6-9	94	0.051	50
Average	90	0.051	50

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

ACCREDITED

Certificate No. 0397-01
Certificate No. 0397-02

MEMBER ACIL

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

June 13, 2005
Lab No. 05P-1739
P.O. No. 12516

Attention: CHUCK RUUD

REPORT OF MECHANICAL TESTS

SAMPLE ID: 3 EA., 29198

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Modules of Elasticity	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length) in.	Elongation (2.0" Gage Length) %
29298-1	0.1817	0.0855	52.9	21.2 Msi	40600	91900	1.00	50.0
29198-2	0.1825	0.0962	47.3	20.9 Msi	42700	88500	1.00	50.0
29198-3	0.1840	0.1170	36.4	21.1 Msi	39500	88300	0.97	48.5

Round, reduced section room temperature tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370-03a

Identification of tested specimens provided by the client.

Karl Schmitz, Director
Materials Testing

KS/tlv

ACCREDITED

Certificate No. 0397-01
Certificate No. 0397-02

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Document # 29

Carondelet Division

8600 Commericial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Final Inspection Report

Customer Name: ENERGY INDUSTRIES OF OHIO

Pattern: SE-141-073 COIL C SHIM

Order Number: PPPL-FP-LTS-2

ASTM Metal CF8MNMN MOD

Date 6/22/2005

Type Description	Cert Number	Procedure	Acceptance Criteria	Actual
Liquid Penetrant	S73220-2	CQP - 300 Rev 9	ASTM A903 Level II	Acceptable
Mag Perm	S73220-2	SOP Mag Perm 100 Rev 1	<1.02	Acceptable
Radiographic	S73220-2	Technique # 12726	MSS SP 54	Acceptable
Visual	S73220-2	CQP - 500 REV 4	ASTM A802 LEVEL 2	Acceptable

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

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Document # 30

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Certificate of Conformance

ENERGY INDUSTRIES OF OHIO

Order Number	PPPL-FP-LTS-2	
Pattern	SE-141-073 COIL C 2 SHIM S/ N 6	
ASTM	CF8MNMN MOD	Date 10/26/2005

Cert Number
S73220-2

Shim was not weld repaired. RT 2 on reader sheet refers to a number the x-ray department uses to track parts. It does not refer to a weld repair.

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

MetalTek INTERNATIONAL

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Corrective Action 1308
Carondelet Division - CA / PA / RGA Database
Corrective Action Type NCR
Date 6/13/2005
CA Originator C. Ruud
Pattern Number: C and A Coil Shims 11 Pieces

Description of Defect / Non-Conformance
Chemistry for 11 shim castings is out of specification.

Root Cause
Chemistry specification was not changed in system and not communicated to Lab personnel.

Corrective Action
Specification was corrected in system and Lab personnel trained. Mag permeability was checked on the parts and are less than 1.02u.

Verification of Corrective Action
Chemistries were checked on subsequent parts and are within specification.

Preventive Action
Create Inspection and Test Plan summarizing all requirements.

Estimated Completion Date
6/15/05

Actual Completion Date
Complete.

Signed: C. Ruud

CC: Roger Broman, Barry Craig, Joe Edwards, E.J. Kubick

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Document # 32

RADIOGRAPHIC INTERPRETATION REPORT

CUSTOMER	PURCHASE ORDER NUMBER	DATE	CONTROL NO.	PAGE
Energy Industries of Ohio	PPPL-FP-LTS-2	6-23-05	40851	1 of 1

PART NO.	SPECIFICATION	CLASS	TOTAL PIECES	PIECES ACCEPTED
SE-141-073 coil C shim	E 186	~~III~~	1	1

RADIOGRAPHED BY:	INTERPRETED BY:	ASNT LEVEL
[illegible]	[illegible]	~~II~~

FILM TYPE	MATERIAL	ISOTOPE	CODE
60	CFS MN MN MN	IRIDIUM 192 COBALT 60 V	ASTM E94 ASME V MIL-STD-453

	VIEW	PENE	ACCEPT	REJECT	SHRINK	INCLUSION	POROSITY	LINEAR	SURFACE	LOF/LOP	COMMENTS
-6 part MS73220-2											
RT-2	A	50	✓						✓		
	B	↓	✓						✓		
	C		✓						✓		
	D		✓						✓		
	E		✓						✓		

6/24/05

Metal Tech INTERNATIONAL

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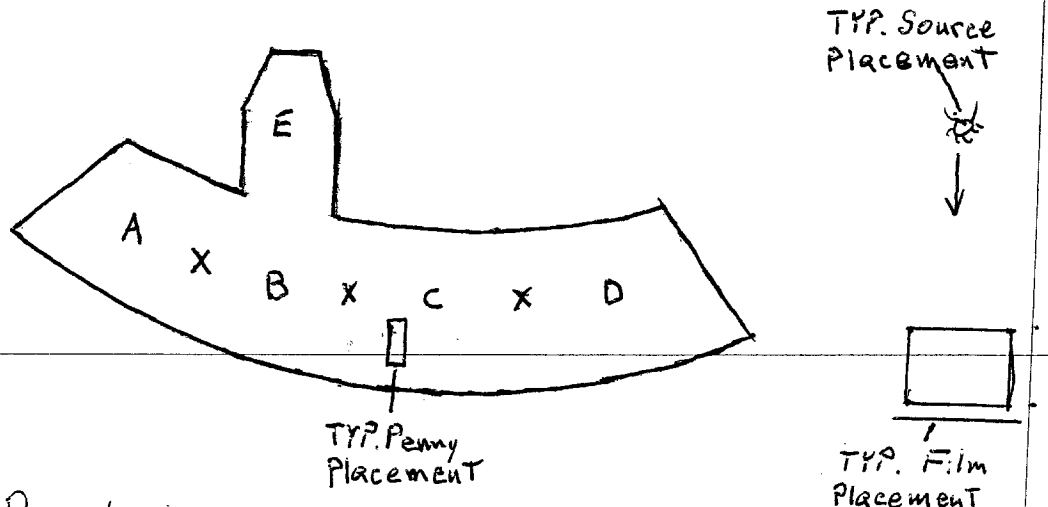
RADIOGRAPHIC STANDARD SHOOTING SKETCH

Customer Energy Industries of Ohio	Pattern Number SE-141-073
Material CF8MNMN-MOD	Traceability Number MS73220
Film Manufactuer FUJI	Source Number C060 247 CI
IQI LEVEL 2-2T From CQP 401 X Other (Specify, E.G. 2-4T, 2-1T) N/A	

Exposures (views)	A	B	C	D	E
Thickness (IN.)	3 3/8"	→	→	→	→
S/F Distance (IN.)	24"	→	→	→	→
Penetrameter	50	→	→	→	→
Time (MIN.)	Calculate	→	→	→	→
Focal Spot (IN.)	.1	→	→	→	→
Film Size (IN.)	14X17	→	→	→	→
Screen Size (Pb) Front/Back	.01	→	→	→	→
S.W.E./D.W.E.	SWE	→	→	→	→
S.W.V/D.W.V.	SWV	→	→	→	→
Film Type	80	→	→	→	→
Acceptance Standard	E186	→	→	→	→
Severity Level	III	→	→	→	→

Shooting Sketch (Use Additional Pages as Needed)

use Spec. MSS-SP-54



Technique Prepared By: Roy Kelley Level: II Date: 3-10-05

Technique Approved By: [signature] Level: III Date: 3-10-05

C Shinn

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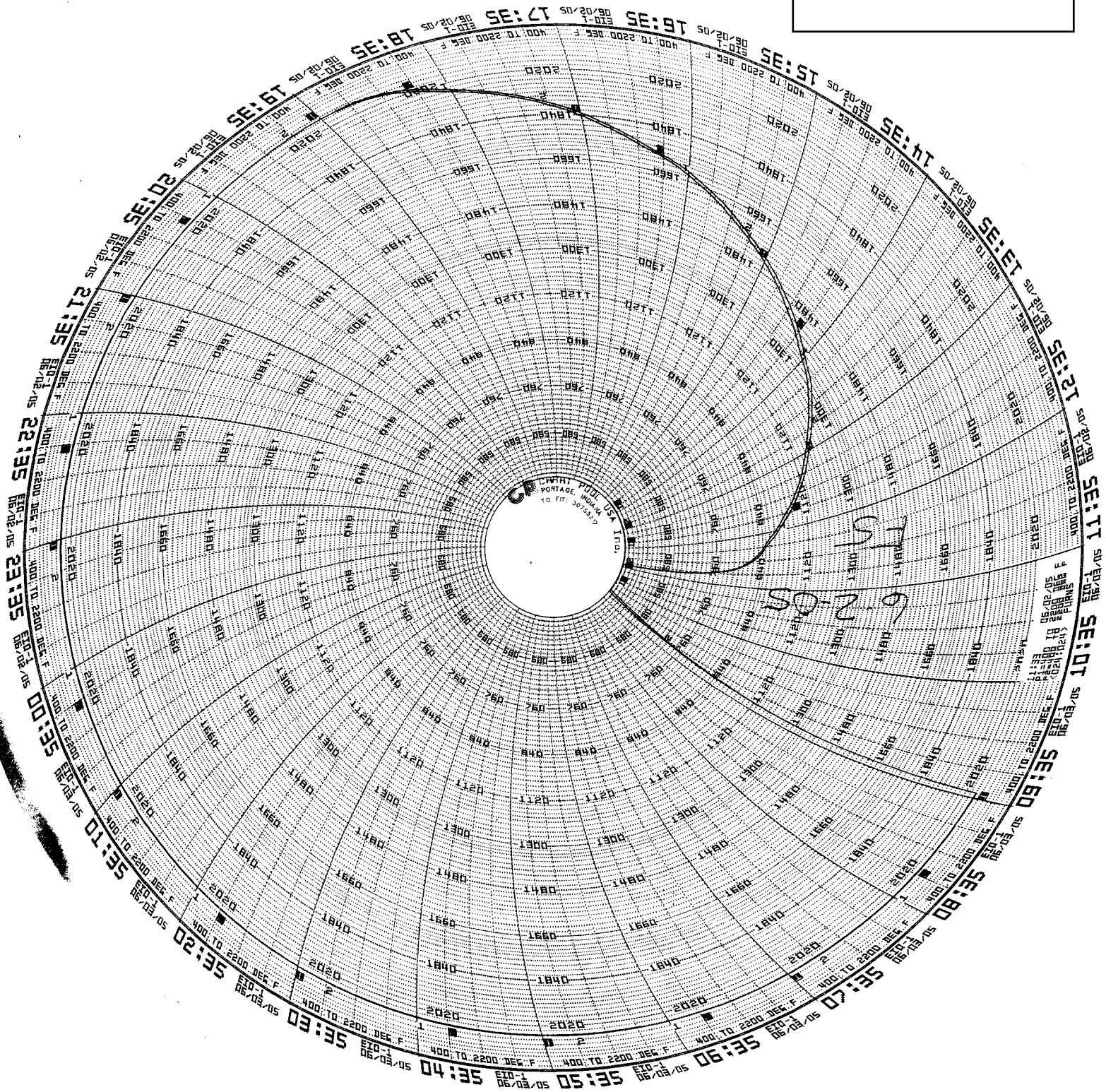
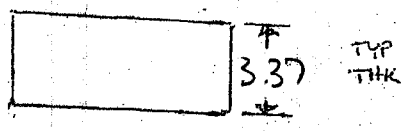
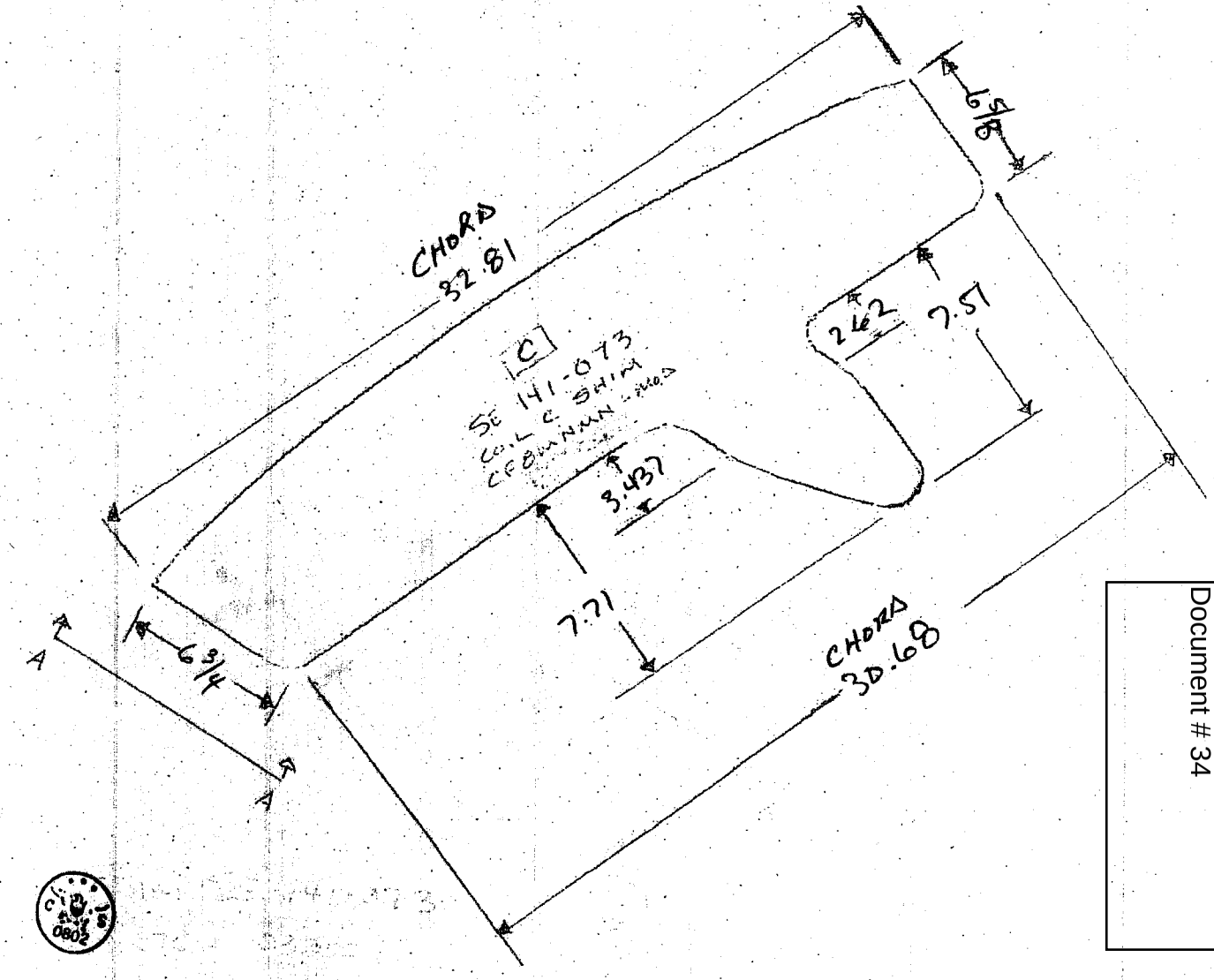
Document # 33





SECT A-A



SHIM SE 141-073-6
SKETCH 6/23/05

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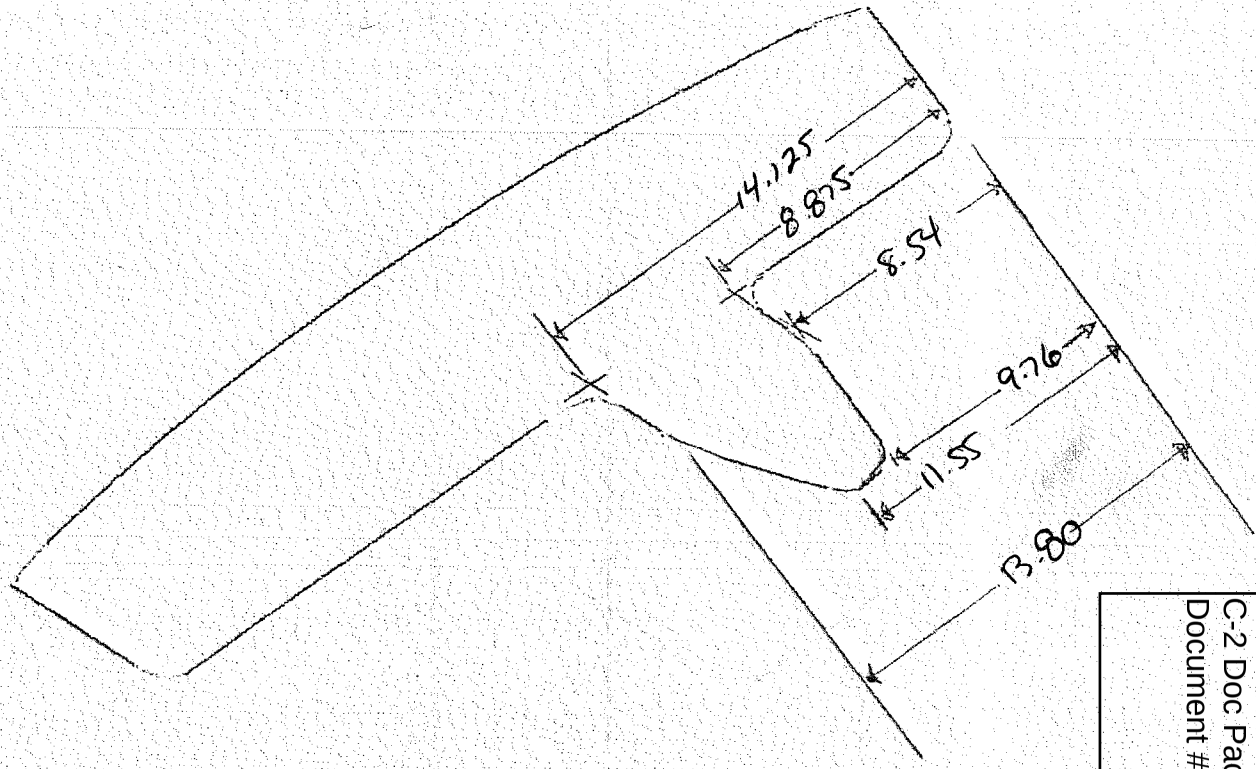
Document # 34



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PAGE 2 OF 2

SHIM SE 141-073-6
SKETCH 6/23/05

FIVE PARTS KEEP TOGETHER -6 CAR

Energy Industries of Ohio

Manufacturing and Test Sequence (MTS) Coill C Shim

CO# 40851, Pattern SE 141-073 / MS73220-2 Dated December 14, 2004 Revision:Original **Dated Issued:4-27-05**

OPER. #	STATION	DESCRIPTION OF PROCESS Keep all parts together. Sign and date each step when all 5 parts have been completed.	Name	Date
10	QUALITY RELEASE	REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON Data FROM 12/15/04 SIGNED QUALITY MANAGER	CAR	4/21/05
20	PATTERN NPAT SOP 0100REV2	APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, FOUNDRY MARK, TO THE PATTERN.	TB	4/22/05
30 C-2 Doc Package Document # 35	MOLD MOLD SOP 0400 REV 8 CALIBRATION PER MOLD SOP 0900 REV 5 PREPARATION PER MOLD SOP 1100R2/1200R2/1300R1 SAND TESTING PER MOLD SOP 1400R2/1500R3/1600R2	MOLD PER WORK INSTRUCTIONS IN MAPICS ROUTING AND SOPS REFERENCED. ENGINEER OF RECORD – ROGER BROMAN, CONSULT ON MOLD-RELATED CONCERNS. MOLD MATERIALS REQUIRED PER MAPICS BOM. NOTIFY ENGINEER OF ANY SUBSTITUTIONS.	CR	4/22/05
40	POUR MELT SOP 0100R5 MELT SOP 0700R2 MELT SOP 0600R2	METAL MUST BE AOD REFINED OR AOD INGOT. VIRGIN METAL ADDITIONS ALLOWED. RECORD POURING TEMPERATURE: 2825 CASTING POURED AT: 1245 4m DATE: 4/28 HEAT #"s: 29195 ELAPSED POUR TIME NA KEEL BLOCKS POURED: yes Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Sample Taken by: SR Analyzed: G Hunt Date: 4/28 **Note: Make 15 additional test bars for mechanical testing.**	JG	4/28/05
50	MELT SOP 0800R2	SHAKEOUT	CA	4/29
60	ARC RISE SOP 0100R1	REMOVE RISERS AS DIRECTED BY SUPERVISOR.	BWH	4/16/05
70	HEAT TREAT HEAT SOP 0103R5	SOLUTION ANNEAL. With C-1 Coil.	DLS	6/2/05

80	PHYSICAL TESTING	OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 480. Returned to HT w/ Parts	WH	4/29/05
90	GRIND GSWA SOP 0100R3 GCHI SOP 0100R2	SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED. CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED.	CEG	6/16/05
100	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE. *		MTW 6/16/05
110	VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% OF COMPONENT ACCORDING TO ASTM A802 LEVEL 3 ALL CONDITIONS. IF OK CHECK HERE ✓. IF REJECTED CHECK HERE ____. MARK AND REPAIR AT STEP 130.	VT - LEVEL II	SSB 6-16-05
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIOAND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LP STEP. EIO NOTIFIED ON 6/10/05 DCMA NOTIFIED ON 6/10/05	Q ENG OR QA MGR	CAR 6-16-05
120	100% L.P. CQP 0300 REV 10	L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA- LEVEL 2. IF OK CHECK HERE ____ IF REJECTED CHECK HERE ✓ MARK AND REPAIR AT STEP 120.	LP - LEVEL II	SSB 6-16-05
130	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING 100% VISUAL AND LP INSPECTION.	CA	4/20
140	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA- LEVEL 2 all defects ground out	LP - LEVEL II	D.F 4/23/05
150	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.	MW	4/23/05
160	WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA.. USE YELLOW MARKER. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS>10% YES _____, REPORT SENT BY _____ DATE_____ DEFECTS < 10 % _____SIGN BY QA ENG.	Not Required	
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIOAND DCMA AT LEAST FIVE DAYS IN ADVANCE OF XRAY AND LAYOUT STEPS. EIO NOTIFIED ON 6/20/05 DCMA NOTIFIED ON 6/20/05	Q ENG OR QA MGR	QA

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170	CAF X-RAY CQP 401 REV 5	X-RAY PER TECHNIQUE: To be determined. USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT - LEVEL II DM	6/23/05
180	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE ✓ AND SEND TO STEP 310. REJECTED CHECK HERE _____ MARK UP DEFECTS AND SEND THE CASTING TO STEP 200.	RT – LEVEL II DM	6/23/05
190	LAYOUT	INSPECT CASTING TO VERIFY DIMENSIONS. THIS MAY BE PERFORMED BEFORE OR AFTER STEP 180. DIMENSIONED JT DATE 6/23/05 RELEASED _____(ENGINEER ONLY)	RB	6/23/0
200	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.		
210	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA- LEVEL 2.	LP - LEVEL II	
220	WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA.. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS>10% YES _____, REPORT SENT BY _____ DATE_____ DEFECTS < 10 % _____ SIGN BY QA ENG.		
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIOAND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____	Q ENG OR QA MGR	
230	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ MATERIAL USED:_____ QUALITY ENG. Name: _____ Date: _____		
240	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1 FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2		
250	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.		

NA

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260	L.P. WELD CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 2. IF OK CHECK HERE _____ WASH AND SEND TO STEP 300. IF REJECTED CHECK HERE _____AND RETURN TO STEP 220.	LP - LEVEL II	
	REPEAT	REPEAT STEPS __220 TO 260___AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS	QA ENG.	
270	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD. ACCEPTANCE 1.02. IF OK CHECK HERE ✓ AND GO TO STEP 290. IF REJECTED CHECK HERE _____.	CAL	6/23/05
280	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 270. REPEAT UNTILL COMPLIANCE IS ACHIEVED.		NA
290	CAF X-RAY DEFECTS REPAIRED BY WELDING CQP 401 REV 5	X-RAY PER TECHNIQUE: To be determined. USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT - LEVEL II	
300	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE _____ AND SEND TO STEP 310. REJECTED CHECK HERE _____ MARK UP DEFECTS AND SEND THE CASTING TO STEP 200.	RT - LEVEL II	
	REPEAT	REPEAT STEPS __200 TO 300___AS REQUIRED TILL WELDS CLEAR X-RAY. DOCUMENT REWORK ON A SUPPLEMENTAL MTS	QA ENG.	
310	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.		BAB 6-24-05
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIOAND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS. EIO NOTIFIED ON 6/20/05 DCMA NOTIFIED ON 6/20/05	Q ENG OR QA MGR	Orfan
320	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL II ALL CONDITIONS. IF OK CHECK HERE ✓. IF REJECTED CHECK HERE _____. MARK AND REPAIR AT STEP 340.	VT - LEVEL II	KLA 6-24-05

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		MUST BE PERFORMED BY LEVEL II in VT.		
330	FINAL L.P. CQP 0300 REV 10	FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ WASH AND SEND TO STEP 410. IF REJECTED CHECK HERE _____	LP - LEVEL II SEE STEP 140	LP OK
340	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING FINAL PENETRANT INSPECTION.	N/A	
350	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903.	LP - LEVEL II	
370	WELD MAP	MAP ALL WELDS WITH DIGITAL PHOTO/MAPS. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE. FILE WITH QA. MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS.>10% YES _____, REPORT SENT BY _____ DATE_____ DEFECTS < 10 % _____SIGN BY QA ENG.		
380	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1 FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2		
390	GRIND GCHI SOP 0100 REV 2	HAND GRIND WELDS.		
400	L.P. WELDS CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. IF OK CHECK HERE _____ WASH AND SEND TO STEP 460. IF REJECTED CHECK HERE _____AND RETURN TO STEP 390.	LP - LEVEL II	
	REPEAT	REPEAT STEPS ___390 TO 410_____AS REQUIRED TILL WELDS CLEAR FINAL LIQUID PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS	QA ENG.	
410	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS. RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD. ACCEPTANCE 1.02. IF OK CHECK HERE _____AND GO TO STEP 430.	N/A SEE STEP 270	

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Energy Industries of Ohio
Manufacturing and Test Sequence (MTS) Coill C Shim

420	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 420. REPEAT UNTILL COMPLIANCE IS ACHIEVED.	N/A	
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIOAND DCMA AT LEAST FIVE DAYS IN ADVANCE OF MAG PERM STEP. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____	Q ENG OR QA MGR	
430	FINAL MAG PERM INSPECTION SOP MAG PERM 100, REV 1	PERFORM MAG PERM TESTING WITH SEVRIN GAUGE. ACCEPTANCE 1.02. CHECK THE ENTIRE SURFACE ON A 6"BY6" GRID. REPORT RESULTS. USE A 6" SQUARE BLOCK TO INDICATE TEST LOCATIONS AND RECORD RESULTS. COMPLIANT AREAS WILL NOT BE MARKED. MARK NONCOMPLIANT AREAS WITH AN "X" FOR REPAIR. OK CHECK HERE ____AND GO TO STEP 470. IF REJECTED CHECK HERE ____.	SEE STEP 270	
440	GRIND GCHI SOP 0100 REV 2	HAND GRIND WITH SUITABLE CONE OR OTHER SIMILAR GRINDER AS REQUIRED TO ENSURE REMOVAL OF MATERIAL TO ACHIEVE MAG PERM REQUIREMENT. CIRCLE AREA REMEDIATE FOR RETEST.	N/A	
450	RETEST MAG PERM SOP MAG PERM 100, REV 1	RETEST MAG PERMEABILITY AT FAILED TEST POINTS. MARK NONCOMPLIANT AREAS WITH AN "X" FOR REPAIR. ACCEPTANCE 1.02. IF OK CHECK HERE _____. IF REJECTED CHECK HERE _____RETURN TO STEP 450	↓	
460	PHOTOGRAPH	TAKE DIGITAL PICTURES.	CAR	6/25/05
470	AUDIT REVIEW	PROCESS DOCUMENT TO PROGRAM MANAGER FOR COMPLIANCE AUDIT.	CAR	6/25/05
480	DOC. REVIEW	REVIEW DOCUMENTS AS REQUIRED IN CAF CHECKLIST, ALL DOCUMENTS NOTED TO BE ACCESSIBLE FOR AUDITING. (SHIPPER, C OF C, M.T.R., M.T.S., INSPECTION REPORT, X-RAY READER SHEETS AND HEAT TREAT CHARTS)	CAR	6/25/05
NOTICE	RELEASE FROM EIO	PROVIDE DOCUMENTS TO EIO. SENT ON 6/25/05 BY CAR. RECEIVED RELEASE FROM EIO ON _____.	Q ENG OR QA MGR	CAR
490	PACK AND SHIP	PACKAGE AND SHIP TO MAJOR TOOL.		
1000	REVISION HISTORY	ORIGINAL 12-14-04.	CARUUD	

C-2 Doc Package
Document # 35

11/26/04
Rev. 01

C-2 Doc Package
Document # 36

EIO
Energy Industries of Ohio
SUPPLIER QUALITY RELEASE

		Date: 6-27-05

I. General Information:			
Project Name:	Modular Coil Winding Form C2		
PO No:	NCSX-SOW-141-02-01	Rev.:	
Supplier:	MetalTek		
Procurement Agent:	EIO		
Shipment:	☒ Partial ☐ Final		

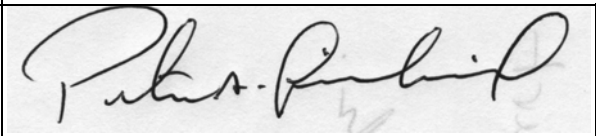
II. Material Description
Casting C2 Coil

III. Release Checklist	
Plan Requirements Complete?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
Variances?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
Princeton Notified of Shipment?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
DCMA Notified of Shipment?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
☒ Conditional ☒ Unconditional	Explain conditional releases in comments section.

IV. Comments
Variances – See attached package for CA's and deviations Dimensional report evaluated, adequate machine stock exists

By signing below you acknowledge that the casting has met all applicable standards and contractual requirements

V. Supplier Quality Representative Sign Off		
Charles Ruud		6-27-05
Supplier Quality Representative (SQR) Print/Type Name	Supplier Quality Representative (SQR) Signature	Date

VI. Supplier Approval For Shipment		
Procurement Agent Notified of Shipment	Date: 6-27-05	
Required Vendor Data Ready for Shipment	Date: 6-27-05	
Peter A Djordjevich	 X	6-27-05

EIO
Energy Industries of Ohio
SUPPLIER QUALITY RELEASE

C-2 Doc Package
Document # 36

		Date: 6-27-05

I. General Information:			
Project Name:	Modular Coil Winding Form C2		
PO No:	NCSX-SOW-141-02-01	Rev.:	
Supplier:	MetalTek		
Procurement Agent:	EIO		
Shipment:	☒ Partial ☐ Final		
Supplier's Representative Print/Type Name	Supplier's Signature	Date	

1. Enter:
   Project Name
   PO Number
   Supplier
   Procurement Agent

2. Enter a brief description of items being released, including applicable drawing number(s), dash or item number(s), drawing revision letter, specification(s), and serial number(s).

3. Self-Explanatory

4. Record any unusual circumstance, such as a conditional release.

5. The Supplier's representative shall sign and date.

7. Signature and date of the Supplier's authorized representative indicating shipping date.

8. In case of partial release, the supplier shall maintain copies of each sequential "Supplier Quality Release" and establish complete accountability of material release on final shipment.

9. Supplier shall include a copy of the completed form with each shipment.