

**Energy Industries of Ohio**

**Contract # S005242-F**

**Modular Coil Winding Form**

**B-4 Documentation Package**

**11/13/06**

# **This B-4 Documentation consists of:**

## **Part 1**

**Final documentation package Metal Tek Intl. – Pages 3 -  
Latest revision 11/13/2006  
Foundry documentation**

## **Part 2**

**Final documentation package Major Tool - Pages  
Latest revision  
Machine shop documentation**

**NOTE - MTM – new EIO TOC is on page 55. Use this as a reference for  
finding files in MTM portion of Doc package.**

## **Part 3**

**Metal Tek radiographic films from part 1 (shipped to PPPL)**

**Major Tool radiographic films from part 2 (shipped to PPPL)**

# **Energy Industries of Ohio**

**Contract # S005242-F**

**Modular Coil Winding Forms**

## **B-4 Documentation Package**

**Part 1 – Metal Tek International  
Casting Data Package**

**Revised 11/13/2006**

\*\*Note – Document #'s listed in the TOC (page 4) are not necessarily the same as the number hand written on the top of the document. Please use page # to find relevant document.

# B-4 Documentation Package

## List of Documents 11-13-06

Doc #	Description	Page #
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2	MTR for B-4 Shim	6
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Addendum	RFD # for thin wall below spec on B-2 through B-6	54
11-13-06		



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### 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  
Pattern Number MCWF-B4 Coil  
CAF Metal Designation CF8MNMnMod  
Material Spec CF8MNMnMOD

Cert Number 183510-1  
Pour Date 3/28/2006

Weighted average of 3 heats – Ladle 1 #32850 (41%), Ladle 2 #32851 (23%), Ladle 3 #32854 (36%) Total Weight 31667 lbs.

Element	Min	Actual	Max
C	0.04	0.04	0.07
MN	2.3	2.7	2.8
SI	0.0	0.4	0.7
CR	18.0	18.1	18.5
NI	13.0	13.3	13.5
MO	2.1	2.3	2.5
P	0.0	0.032	0.035
S	0.0	0.014	0.025
N	0.24	0.25	0.28

#### Comparison to WC Analysis

All analysis at CAF was performed after the preventive maintenance.

Lab	I.D.	Sample	C	Si	Mn	Cr	Ni	Mo	N	P	S
Ladle #1											
CAF	32850	Button #1	0.04	0.4	2.7	18.1	13.4	2.3	0.25	0.033	0.014
CAF	32850	Button #2	**	0.4	2.5	17.6	13.2	2.2	**	0.027	0.014
WC	32850	Button #2	**	0.4	2.5	17.6	13.2	2.2	**	0.031	0.021
Ladle #2											
CAF	32851	Button #1	0.04	0.3	2.8	17.9	12.9	2.2	0.25	0.030	0.014
CAF	32851	Button #2	**	0.3	2.5	17.5	13.0	2.2	**	0.028	0.017
WC	32851	Button #2	**	0.5	2.5	17.4	13.0	2.2	**	0.027	0.022
Ladle #3											
CAF	32854	Button #1	0.04	0.4	2.6	18.1	13.5	2.4	0.25	0.033	0.014
CAF	32854	Button #2	**	0.3	2.4	17.6	13.4	2.2	**	0.028	0.016
WC	32854	Button #2	**	0.3	2.4	17.6	13.4	2.3	**	0.031	0.027

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

Superior Quality Engineered Metal Products



## 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 Heat Number 31455 Pour Date 11/2/2005  
Pattern Number SE-141-058 COIL B SHIM Cert Number 177360-1  
CAF Metal Designation CF8MNMnMod S/N 4  
Material Spec CF8MNMN MOD

Element	Min	Actual	Max
C	0.04	0.04	0.07
MN	2.3	2.8	2.8
SI	0.0	0.3	0.7
CR	18.0	18.3	18.5
NI	13.0	13.4	13.5
MO	2.1	2.2	2.5
P	0.0	0.030	0.035
S	0.0	0.010	0.025
N	0.24	0.24	0.28

The certificate is produced with EDP and valid without signature.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

Superior Quality Engineered Metal Products

www.MetalTekInt.Com

# PRODUCT CONFORMANCE REPORT



Product	LNM 4455	Size(s) mm	1,2
Class	EN 12072-99: G 20 16 3 Min L	Lot/Batch	3018513/78308
		Item No.	692129
Customer	EUROWELD MOORESVILLE N.C. 28117 UNITED STATES	Quantity	105,0 KG
		Customer ref.	P.O. 05-46
		LSW Order No.	SD427896

## Chemical analysis (%) EN10204 2.2

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N
0,01	0,5	7,3	0,015	0,001	20,3	15,4	2,9	0,1	0,19

## Mechanical tests, all weld metal EN10204 2.2

Tensile testing					Impact testing		
Cond.	Temp. °C	Rp0.2 N/mm2	Rm N/mm2	A5 %	Cond.	Temp.1 °C	Av1 J
AW	RT	407	623	41	AW	-196	67

## Additional information EN10204 2.2

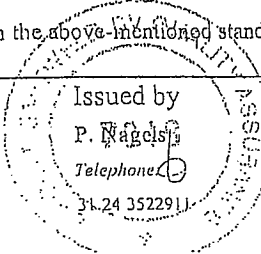
Other tests

Remarks  
Impact testing (individual values): 70J - 65J - 67J

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. Nagels	QA Administrator	22/03/2005	3018513/7830
Registered Office	Telephone	Fax:		
Nieuwe Dukenburgseweg 20	31 24 3522911	31 24 3522200		
6534 AD NIJMEGEN				
Post address				
P.O. Box 253				
6500 AG Nijmegen				



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085  
 Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

**METALTEK INTERNATIONAL**  
 8600 Commercial Blvd.  
 Pevely, MO 63070

August 16, 2005  
 Lab No. 05P-2532  
 P.O. No. 21324  
 Page 1 of 2

Attention: Chuck Ruud

**REPORT OF CHARPY IMPACT TEST**

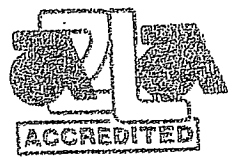
**MATERIAL (SAMPLE ID):** LNM 4455, LINCOLN LOT 3018513/78308  
**SPECIFICATION:** ASTM A 370-03a  
**SPECIMEN TYPE:** "A" Vee Notch  
**SPECIMEN SIZE:** 10 mm x 10 mm  
**TEMPERATURE OF TEST:** 293°K

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
LNM4455-7	104	0.085	100
LNM4455-8	106	0.093	100
LNM4455-9	99	0.084	100
<b>Average</b>	<b>103</b>	<b>0.087</b>	<b>100</b>

*Identification of tested specimen provided by client.*

  
 Karl Schmitz, Director  
 Materials Testing

KS/tlv



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

AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST.  
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 SEE REVERSE FOR CONDITIONS.





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August 16, 2005  
 Lab No. 05P-2532  
 P.O. No. 21324  
 Page 2 of 2

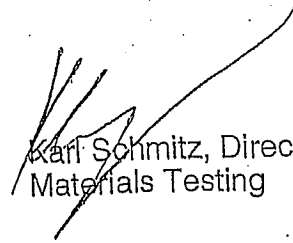
Attention: **CHUCK RUUD**

**REPORT OF MECHANICAL TESTS**

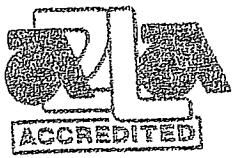
**SAMPLE ID: LNM 4455, LINCOLN LOT 3018513/78308**

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length)		Modules of Elasticity
						in.	%	
LNM4455	0.1932	0.0866	55.2	65200	95200	0.76	38.0	23.4

Round, reduced section 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



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

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 Pevely, MO 63070

October 5, 2005  
 Lab No. 05P-3096  
 P.O. No. 21324  
 Page 1 of 1

Attention: Chuck Ruud

**REPORT OF CHARPY IMPACT TEST**

**MATERIAL (SAMPLE ID):** WELD PLATE- 3018513 / 78308  
**SPECIFICATION:** ASTM A 370-03a  
**SPECIMEN TYPE:** "A" Vee Notch  
**SPECIMEN SIZE:** 10 mm x 10 mm  
**TEMPERATURE OF TEST:** -320°F  
**REQUIREMENTS:** minimum 35 ft / lbs.

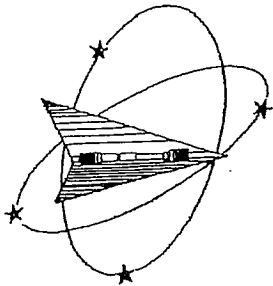
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
3018513/78308-1	48	0.033	50
3018513/78308-2	65	0.045	50
3018513/78308-3	48	0.033	50
<b>Average</b>	54	0.037	50

*Identification of tested specimen provided by client.*

  
 Karl Schmitz, Director  
 Materials Testing

KS/tlv





# 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](http://www.wmtr.com)

WMT&R is a technical leader in the material testing industry.



621-01 & 621-02



Section 1 of 1

WMT&R Report No. 5-35979

Requisition No. 4972

October 18, 2005

## CERTIFICATION

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

Attention: Jim Galaske

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

Specimen ID	Test Log 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	AUUR
3018513/78308	C54936	-320	184.9	123.7	33	33	32.8	18470	12350	0.3566	0.2926	1.40	1.86	0.09987403	M9	R

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

  
Roy E. Stamm  
Technical Services Manager

10-18-05  
October 18, 2005

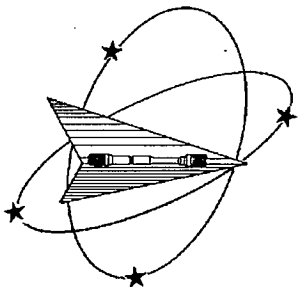
KNOWINGLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMT&R, INC.

Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
Locations in Youngstown, PA U.S.A. ~ Tel. (724) 537-3131 and  
Baltimore, U.S. ~ Tel. +44 (0) 1295 261211

PHOTO COPY

PHOTO COPY

14:29 OCT 18, 2005



# 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](http://www.wmtr.com)

WMT&R is a technical leader in the material testing industry.



621-01 & 621-02



7

May 9, 2006

## 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. 6-27868

P.O. No. 19386

Requisition No. 6842

Attention: Jim Galaske

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 E21-05

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: 0.003 in./in./min., 0.05 in./min./in.

MATERIAL: Metaltek CF8MNMnMOD

DISPOSITION: Acceptable

Coil No.	Specimen	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	AIUR
B4	Z1	D47460	-320	164.5	98.0	56	53	25.8	16010	9535	0.3520	0.2420	1.40	2.18	0.09731397	M9	A
B4	Z2	D47461	-320	166.0	97.9	56	42	24.1	16190	9545	0.3524	0.2695	1.40	2.18	0.09753527	M9	A
B4	Z3	D47462	-320	167.9	104.8	48	46	25.9	16270	10160	0.3513	0.2588	1.40	2.07	0.09692731	M9	A

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

Requirements supplied by MetalTek International.

*Matt Wojton*

Roy E. Starr (Matt Wojton)

Technical Services Manager / Tensile Supervisor

5-9-06

May 9, 2006

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 Pevely, MO 63070

April 12, 2006  
 Lab No. 06P-1284  
 P.O. No. 21324  
 Page 1 of 3

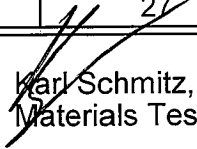
Attention: Chuck Ruud

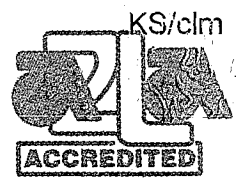
**REPORT OF CHARPY IMPACT TEST**

**MATERIAL (SAMPLE ID):** B-4, Z1, Z2, Z3  
**SPECIFICATION:** ASTM A 370-03a  
**SPECIMEN TYPE:** "A" Vee Notch  
**SPECIMEN SIZE:** 10 mm x 10 mm  
**TEMPERATURE OF TEST:** 77°K  
**REQUIREMENTS:** 35 Ft. Lbs. Minimum

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	55	0.034	30
Z1-8	59	0.038	30
Z1-9	71	0.032	40
<b>Average</b>	62	0.035	33
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	83	0.051	40
Z2-8	77	0.054	50
Z2-9	66	0.041	30
<b>Average</b>	75	0.049	40
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	66	0.036	30
Z3-8	62	0.037	30
Z3-9	52	0.037	20
<b>Average</b>	60	0.037	27

Identification of tested specimen provided by client.

  
 Karl Schmitz, Director  
 Materials Testing



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

AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST.  
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 Pevely, MO 63070

April 12, 2006  
 Lab No. 06P-1284  
 P.O. No. 21324  
 Page 2 of 3

**Attention: Chuck Ruud**

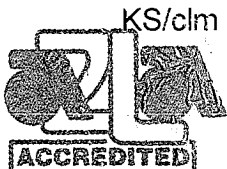
**REPORT OF CHARPY IMPACT TEST**

**MATERIAL (SAMPLE ID):** B-4, Z1, Z2, Z3  
**SPECIFICATION:** ASTM A 370-03a  
**SPECIMEN TYPE:** "A" Vee Notch  
**SPECIMEN SIZE:** 10 mm x 10 mm  
**TEMPERATURE OF TEST:** 293°K  
**REQUIREMENTS:** 50 Ft. Lbs. Minimum

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	106	0.077	50
Z1-8	103	0.103	60
Z1-9	122	0.112	80
<b>Average</b>	110	0.097	63
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	126	0.082	60
Z2-8	105	0.084	50
Z2-9	124	0.102	80
<b>Average</b>	118	0.089	63
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	154	0.085	80
Z3-8	127	0.094	70
Z3-9	111	0.071	60
<b>Average</b>	131	0.083	70

Identification of tested specimen provided by client.

  
 Karl Schmitz, Director  
 Materials Testing



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

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 Pevely, MO 63070

April 12, 2006  
 Lab No. 06P-1284  
 P.O. No. 21324  
 Page 3 of 3

Attention: Chuck Ruud

**REPORT OF MECHANICAL TEST**

**SAMPLE ID:** B-4, Z1, Z2, Z3

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Modulus	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length)	
							in.	%
B4-Z1	.1924	.1320	31.4	21.7	41,600	85,700	0.90	45.0
B4-Z2	.2003	.1244	37.9	23.5	43,100	84,800	0.86	43.0
B4-Z3	.1971	.1269	35.6	23.1	43,200	86,300	0.85	42.5

Round, reduced section 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



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

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## B-4 Coil Weld Map – Metal Tek

Map of all major welds exceeding 20% of wall, over 1 inch or over 10<sup>2</sup> inches

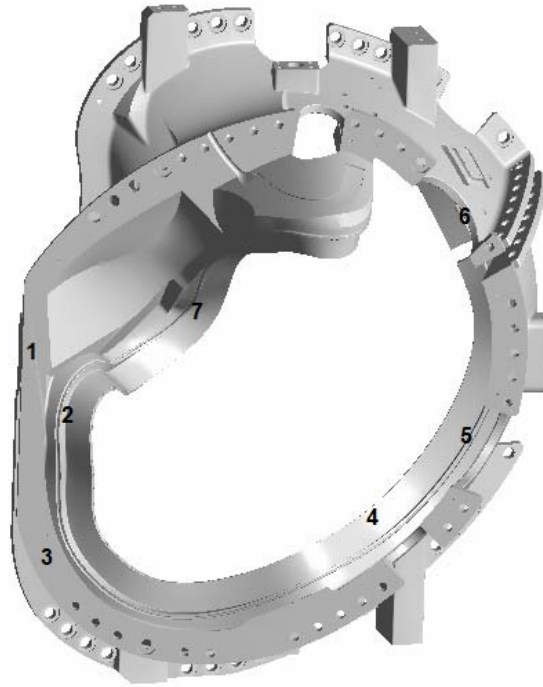
<b>Defect Number</b>	<b>Drawing View</b>	<b>Length (inches)</b>	<b>Width (inches)</b>	<b>Depth (inches)</b>
1	Left	7	5	5
2	Left	8	6 ½	¼
3	Left	4	1 ½	1
4	Left	6	2	1
5	Left	22	9	¾
6	Left	8	6	Thru
7	Left	1 ½	1	1
8	Back	16	3 ½	½
9	Top	6 ½	2	1
10	Front	6 ¼	6 ¾	½
11	Front	3 ⅛	5 ½	1
12	Right	8 ¼	4 ¼	½
13	Right	2 ½	1 ¾	1 ⅛
14	Front	6 ½	5 ½	¾
15	Right	6 ¾	3 ¾	1
16	Back	16 ¼	2	Thru
17	Bottom	4 ¾	1 ¾	Thru
18	Right	16	7 ½	½
19	Right	10	3 ¾	½



# B-4 Coil Weld Map – Metal Tek

Map of all major welds exceeding 20% of wall, over 1 inch or over 10<sup>2</sup> inches

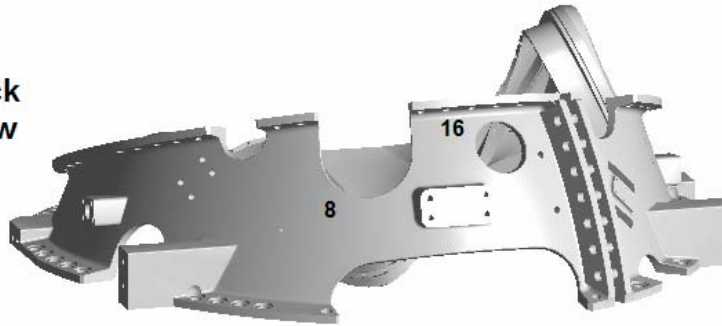
Left  
View



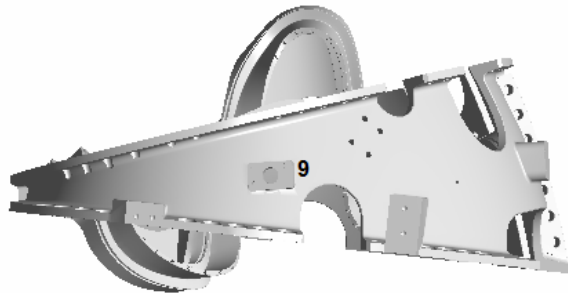
# B-4 Coil Weld Map – Metal Tek

Map of all major welds exceeding 20% of wall, over 1 inch or over 10<sup>2</sup> inches

Back  
View



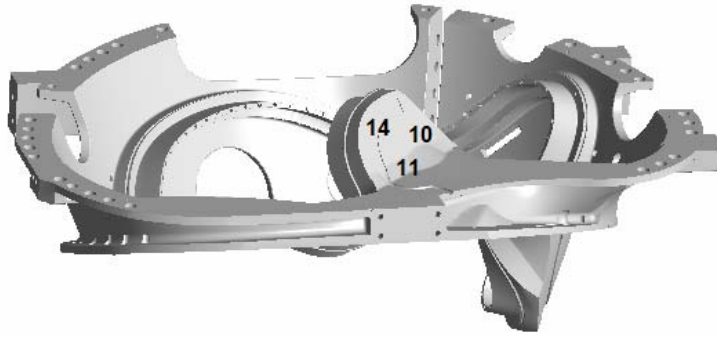
Top  
View



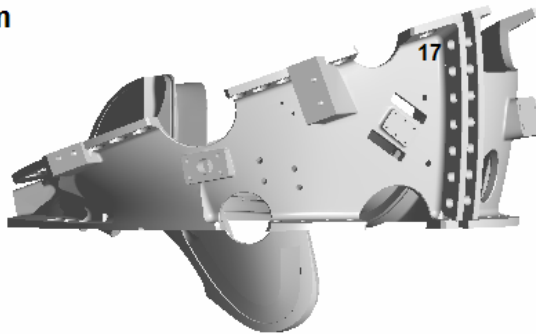
# B-4 Coil Weld Map – Metal Tek

Map of all major welds exceeding 20% of wall, over 1 inch or over 10<sup>2</sup> inches

**Front  
View**



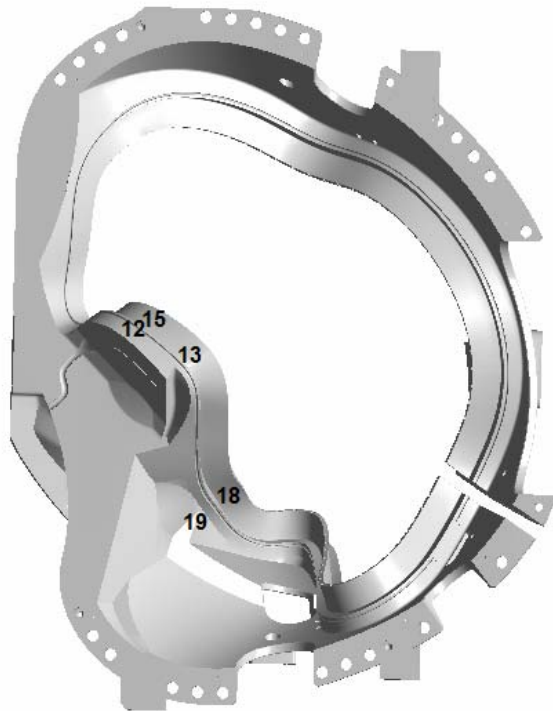
**Bottom  
View**



# B-4 Coil Weld Map – Metal Tek

Map of all major welds exceeding 20% of wall, over 1 inch or over 10<sup>2</sup> inches

Right  
View



# 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		DATE	WORK ORDER NO.
NAME METAL TEK INTERNATIONAL		4/18/2006	361-03124
ADDRESS 8600 COMMERCIAL BLVD		P.O. NUMBER	XRAY X
CITY PEVELY STATE MO ZIP 63070		23525	GAMMA
PROCEDURE SPECIFICATION ASTM E94-93	ACCEPTANCE CRITERIA MSS-SP-54-1999	SHEET _____ OF _____	

PART NUMBER	Serial No	View	Acceptable	No Apparent Indications		Incomplete Penetration		Shrinkage		Film Artifacts		REMARKS
				Rejection	Inclusion	Dross	Porosity	Lack of Fusion	Gas Cracks	Hot Tears	Under surface	
MCWF-B4		1-2	✓									
		2-3	✓									
E.I.O. C040851		3-4	✓									
		4-5	✓									
M183510		5-6	✓									✓
		6-7	✓									
Z103989		7-8	✓									✓
		8-9	✓									✓
		9-10	✓									
		10-11	✓									
		11-12	✓									
		12-13			R							
		13-14	✓									
		14-15	✓									
		15-16	✓									
		16-17	✓									
		17-18			R					R		
		18-19	✓									
		19-20	✓									
		20-21	✓									
		21-22	✓									
		22-23	✓									
		23-24	✓									✓
		24-25	✓									✓
		25-26	✓									✓

NO. ACCEPTED	0	NO. REJECTED	1	MQS TECH. NO.	13205	SHT.	REV. 1
COMMENTS				CUST. RSS NO.		SHT.	REV.
				REVIEWER	<i>John Petroske</i>		
				CERTIFIED NDT LEVEL (RT)			
				John Petroske RT II Exp. 01/08			

# 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		DATE	WORK ORDER NO.
NAME METAL TEK INTERNATIONAL		4/18/2006	361-03124
ADDRESS 8600 COMMERCIAL BLVD		P.O. NUMBER	XRAY X
CITY PEVELY STATE MO ZIP 63070		23525	GAMMA
PROCEDURE SPECIFICATION ASTM E94-93	ACCEPTANCE CRITERIA MSS-SP-54-1999	SHEET ____ OF ____	

PART NUMBER	Serial No	View	No Apparent Indications		Incomplete Penetration		Shrinkage		Film Artifacts		REMARKS
			Acceptable	Rejected	Dross or Slag	Porosity	Lack of Fusion	Gas Cracks	Hot Tears	Under cut surface	
MCWF-B4	26-27	✓								✓	1
	27-28	✓									
E.I.O. C040851	28-29	✓									
	29-1	✓									
M183510	30-31	✓									
	31-32	✓									
Z103989	V33	✓									
	34-35	✓									
	35-36	✓									
	36-37	✓									
	V38	✓									
	39-40	✓						1			
	40-41	✓						1			✓
	42-43	✓						1			
	43-44	✓			1						
	V45	✓									
	46-47	✓									
	47-48	✓									
	48-49	✓									
	49-50	✓						2			
	V51	✓									
	V51A	✓									
	52-53	✓						1-2			
	53-54	✓									
	54-55	✓									

NO. ACCEPTED	Φ	NO. REJECTED	1	MQS TECH. NO.	13205	SHT.	REV. 1
COMMENTS				CUST. RSS NO.		SHT.	REV.
				REVIEWER	<i>John Petroske</i>		
				CERTIFIED	RT LEVEL (RT)		
				John Petroske RT II Exp. 01/08			

# 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		DATE	WORK ORDER NO.
NAME METAL TEK INTERNATIONAL		4/18/2006	361-03124
ADDRESS 8600 COMMERCIAL BLVD		P.O. NUMBER	XRAY X
CITY PEVELY STATE MO ZIP 63070		23525	GAMMA
PROCEDURE SPECIFICATION ASTM E94-93	ACCEPTANCE CRITERIA MSS-SP-54-1999	SHEET ____ OF ____	

PART NUMBER	Serial No	View	No Apparent Indications		Incomplete Penetration		Shrinkage		Film Artifacts		REMARKS
			Acceptable	Rejected	Dross or Slag	Porosity	Lack of Fusion Gas Cracks	Hot Tears cut	Under Surface		
MCWF-B4	55-56	✓									
	56-57	✓									
E.I.O. C040851	58-59	✓					1				*
	59-60	✓									
M183510	60-61			R					R		
	61-62	✓					2				
Z103989	62-63	✓					2			✓	✓
	64	✓					2-3				
	63-65			R			3-4				
	65-66			R			4				
	66-67			R			4-5				
	67-68			R			2		R		
	69			R	5						
	70-71			R	5						
	71-72	✓									
	73-74			R					R		
	74-75	✓									
	75-76	✓									
	77-78	✓									
	78-79	✓									
	80-81	✓									
	81-82	✓									
	82-83	✓					3				
	84-85			R			4				
	85-86			R			4-5				

NO. ACCEPTED	NO. REJECTED 1	MQS TECH. NO. 13205	SHT.	REV. 1
COMMENTS		CUST. RSS NO.	SHT.	REV.
* Due To Excessive Core Swell, 50% could not be placed in the proper location and was partially cut off.		REVIEWER <i>John Petroske</i>	CERTIFIED NOT LEVEL (RT)	
		John Petroske RT II Exp. 01/08		

# TEAM COOPERHEAT-MQS, INC.

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CUSTOMER		DATE	WORK ORDER NO.
NAME METAL TEK INTERNATIONAL		4/18/2006	361-03124
ADDRESS 8600 COMMERCIAL BLVD		P.O. NUMBER	XRAY X
CITY PEVELY STATE MO ZIP 63070		23525	GAMMA
PROCEDURE SPECIFICATION	ACCEPTANCE CRITERIA	SHEET ____ OF ____	
ASTM E94-93	MSS-SP-54-1999		

PART NUMBER	Serial No	View	No Apparent Indications		Incomplete Penetration		Shrinkage		Film Artifacts		REMARKS
			Acceptable	Rejected	Dross or Slag	Porosity	Lack of Fusion Gas Cracks	Hot Under Tears	Surface		
MCWF-B4	86-87	✓					3	2		✓	
	87-88	✓						2			
I.O. CC40851	88-89	✓						2			
	89-90	✓									
M183510	90-91	✓									
	91-92	✓									
Z103989	93-94	✓					2				
	94-95	✓									
	96-97	✓									
	97-98	✓									
	98-99	✓									
	99-100	✓									
	101-102	✓									*
	102-103	✓									
	103-104	✓			R	1				R	
	104-105	✓									
	106-107	✓									
	107-108	✓				2					
	108-109	✓				1					
	109-110	✓			R					R	
	110-111	✓									
	111-112	✓									
	112-113	✓									
	113A-114	✓									
	115-116	✓			R					R	

NO. ACCEPTED	0	NO. REJECTED	1	MQS TECH. NO.	13205	SHT.	REV. 1
COMMENTS	* Eliminated The 70+90 pen's. Chill or Riser pad has been Arched off were these penos would have gone.			CUST. RSS NO.		SHT.	REV.
				REVIEWER	John Petroske		
				CERTIFIED NDT LEVEL (RT)			
				John Petroske RT II Exp. 01/08			



# 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		DATE	WORK ORDER NO.
NAME METAL TEK INTERNATIONAL		4/18/2006	361-03124
ADDRESS 8600 COMMERCIAL BLVD		P.O. NUMBER	XRAY X
CITY PEVELY STATE MO ZIP 63070		23525	GAMMA
PROCEDURE SPECIFICATION	ACCEPTANCE CRITERIA	SHEET ____ OF ____	
ASTM E94-93	MSS-SP-54-1999		

PART NUMBER	Serial No	View	No Apparent Indications		Dross		Incomplete Penetration		Shrinkage		Film Artifacts		REMARKS
			Acceptable	Rejected	Inclusion	Porosity	Lack of Fusion	Gas Cracks	Hot Tears	Under cut	Surface		
MCWF-B4	117	118	✓										
	118	119	✓										
E.I.O. C040851	119	120	✓										
	120	121	✓		2								
M183510	121	122	✓										
	123	124	✓										
Z103989	124	125	✓										
	126	127	✓										
	127	128			R					R			

NO. ACCEPTED	0	NO. REJECTED	1	MQS TECH. NO.	13205	SHT.	REV. 1
COMMENTS				CUST. RSS NO.		SHT.	REV.
				REVIEWER	<i>John Petroske</i>		
				CERTIFIED NDT LEVEL (RT)			
				John Petroske	RT II Exp. 01/08		

# 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		DATE	WORK ORDER NO.
NAME METAL TEK INTERNATIONAL		5/15/2006	361-03170
ADDRESS 8600 COMMERCIAL BLVD		P.O. NUMBER	XRAY X
CITY PEVELY STATE MO ZIP 63070		23525	GAMMA
PROCEDURE SPECIFICATION	ACCEPTANCE CRITERIA	SHEET ____ OF ____	
ASTM E94-93	MSS-SP-54-1999		

PART NUMBER	Serial No	View	No Apparent Indications		Dross or Porosity		Incomplete Penetration		Shrinkage		Film Artifacts		REMARKS
			Acceptable	Rejected	Included	Excluded	Lack of Fusion	Gas Cracks	Hot Tears	Under cut	Surface		
MCWF-B4	R1	12-13	✓							2			
		17-18	✓							1			
E.I.O. C040851		60-61	✓										
		63-65	✓							2			
M183510		65-66	✓							1-2			
		66-67	✓							2			
Z103989		67-68	✓							2			
		V69	✓										
		70-71	✓										
		73-74	✓										
		84-85	✓										
		85-86	✓							1-2			
		103-104	✓										
		109-110	✓							2			
		115-116	✓										
		127-128	✓									✓	

NO. ACCEPTED	1	NO. REJECTED	0	MQS TECH. NO.	13205	SHT.	REV. 1
COMMENTS				CUST. RSS NO.		SHT.	REV.
				REVIEWER	<i>John Petroske</i>		
				CERTIFIED NDT LEVEL (RT)	John Petroske RT II Exp. 01/08		

# 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		DATE	WORK ORDER NO.
NAME METAL TEK INTERNATIONAL		5/15/2006	361-03170
ADDRESS 8600 COMMERCIAL BLVD		P.O. NUMBER	XRAY X
CITY PEVELY STATE MO ZIP 63070		23525	GAMMA
PROCEDURE SPECIFICATION ASTM E94-93	ACCEPTANCE CRITERIA MSS-SP-54-1999	SHEET ____ OF ____	

PART NUMBER	Serial No	View	No Apparent Indications		Incomplete Penetration		Shrinkage		Film Artifacts		REMARKS
			Acceptable	Rejected	Dross or Slag	Porosity	Lack of Fusion Gas Cracks	Hot Under Tears	Surface cut		
MCWF-B4	19-20	✓									
	20-21	✓									
E.I.O. C040851	21-22	✓									
	22-23	✓									
M183510	28-29	✓									
	V33	✓									
Z103989	34-35	✓									
	75-76	✓									
	77-78	✓			2						
	80-81	✓									
	88-89	✓						2			
	89-90	✓								✓	
	101-102	✓									
	117-118	✓									
	118-119	✓								✓	
	126-127	✓									

NO. ACCEPTED	1	NO. REJECTED	0	MQS TECH. NO.	13205	SHT.	REV. 1
COMMENTS	Reshots			CUST. RSS NO.		SHT.	REV.
				REVIEWER	<i>John Petroske</i>		
				CERTIFIED NDT LEVEL (RT)	John Petroske RT II Exp. 01/08		

# MetalTek

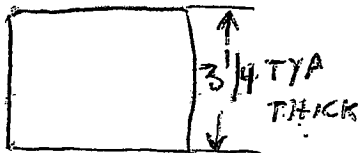
## INTERNATIONAL

4

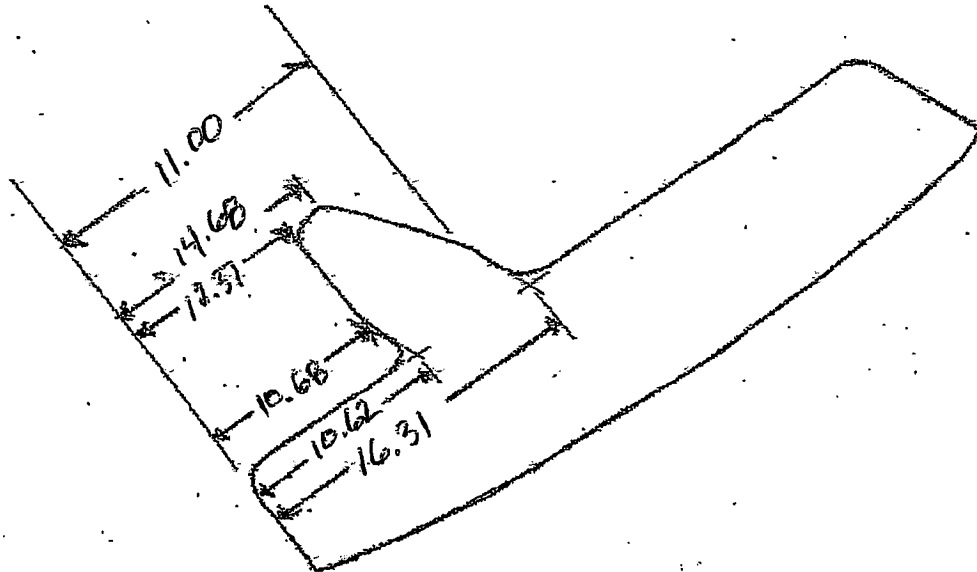
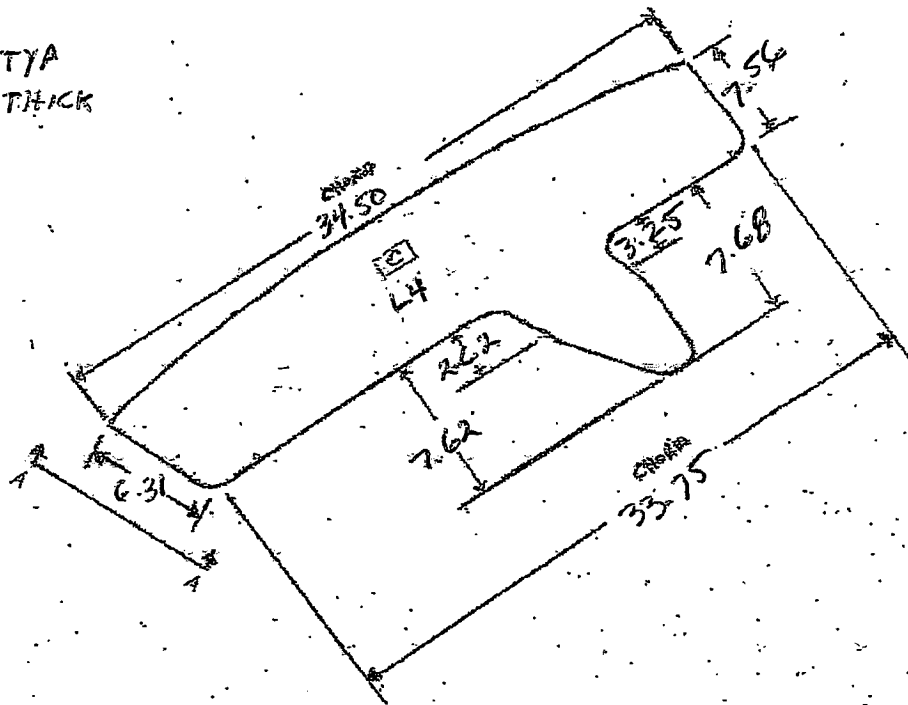
### RADIOGRAPHIC INTERPRETATION REPORT

CUSTOMER <b>E.I.D</b>		PURCHASE ORDER NUMBER <b>PPPL-FP-LTS-2</b>				DATE <b>5-23-06</b>		CONTROL NO. <b>40851</b>		PAGE <b>1 of 1</b>													
PART NO. <b>SE-141-058 B Skim</b>		SPECIFICATION <b>E186</b>		CLASS <b>See Spec</b>		TOTAL PIECES <b>1</b>		PIECES ACCEPTED <b>1</b>															
RADIOGRAPHED BY: <b>Kelley</b>				INTERPRETED BY: <b>Kelley</b>				ASNT LEVEL <b>#</b>															
FILM TYPE <b>80</b>		MATERIAL <b>CF8M UNMOD</b>		ISOTOPE <b>IRIDIUM 192 COBALT 60 /</b>				CODE <b>ASTM E94 / ASME MIL-STD-453</b>															
SN-4 M177360-1 RT.4		VIEW		PEN		ACCEPT		REJECT		SHRINK		INCLUSION		POROSITY		LINEAR		SURFACE		LOF/LOP		COMMENTS	
		A		50		/						1						/					
		B		/		/												/					
		C		/		/				2		1											
		D		/		/																Processor Marks	

# Metaltek INTERNATIONAL

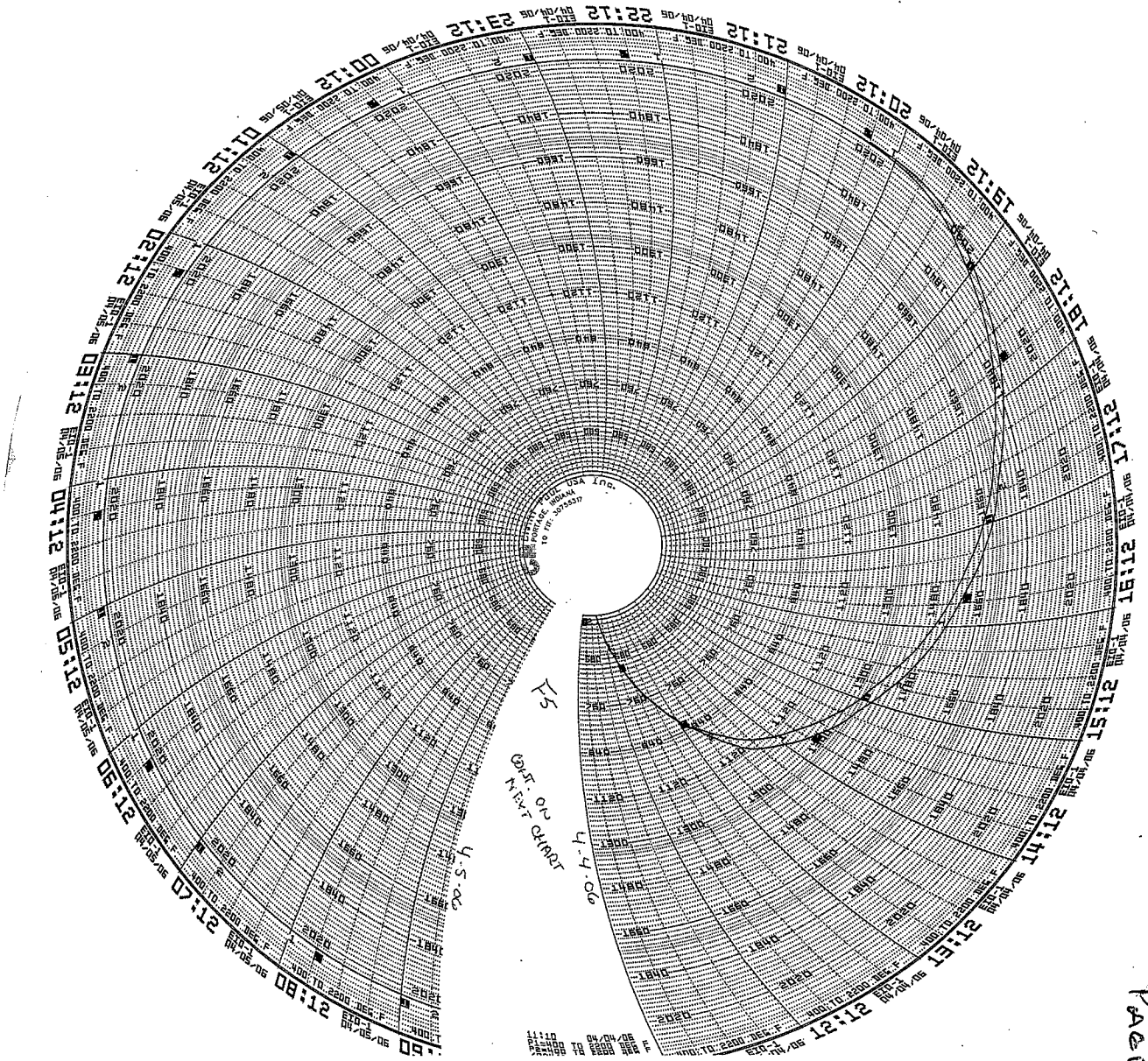


SECT A-A



SE-141-058	CF8MNMN	B COIL SHIM	S/N-177360-1
INSPECTED BY:	<i>[Signature]</i>		DATE: 5-23-06

#4



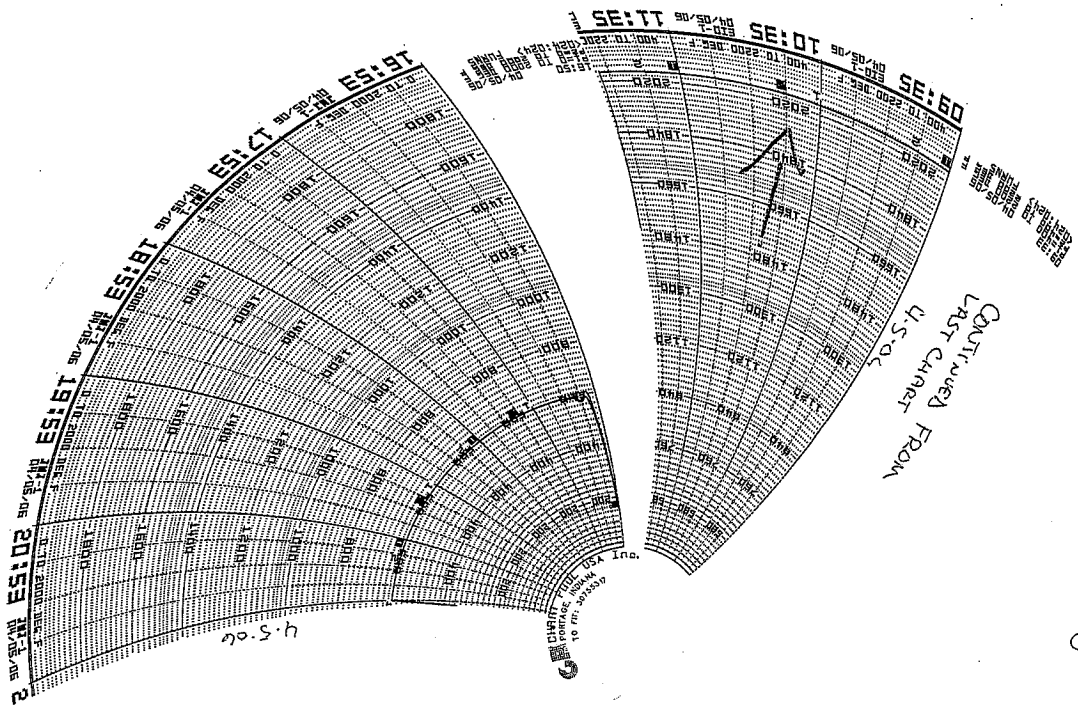
Page 1 of 2

B10 4-4-06

B4

183510-1

1Pa



ES

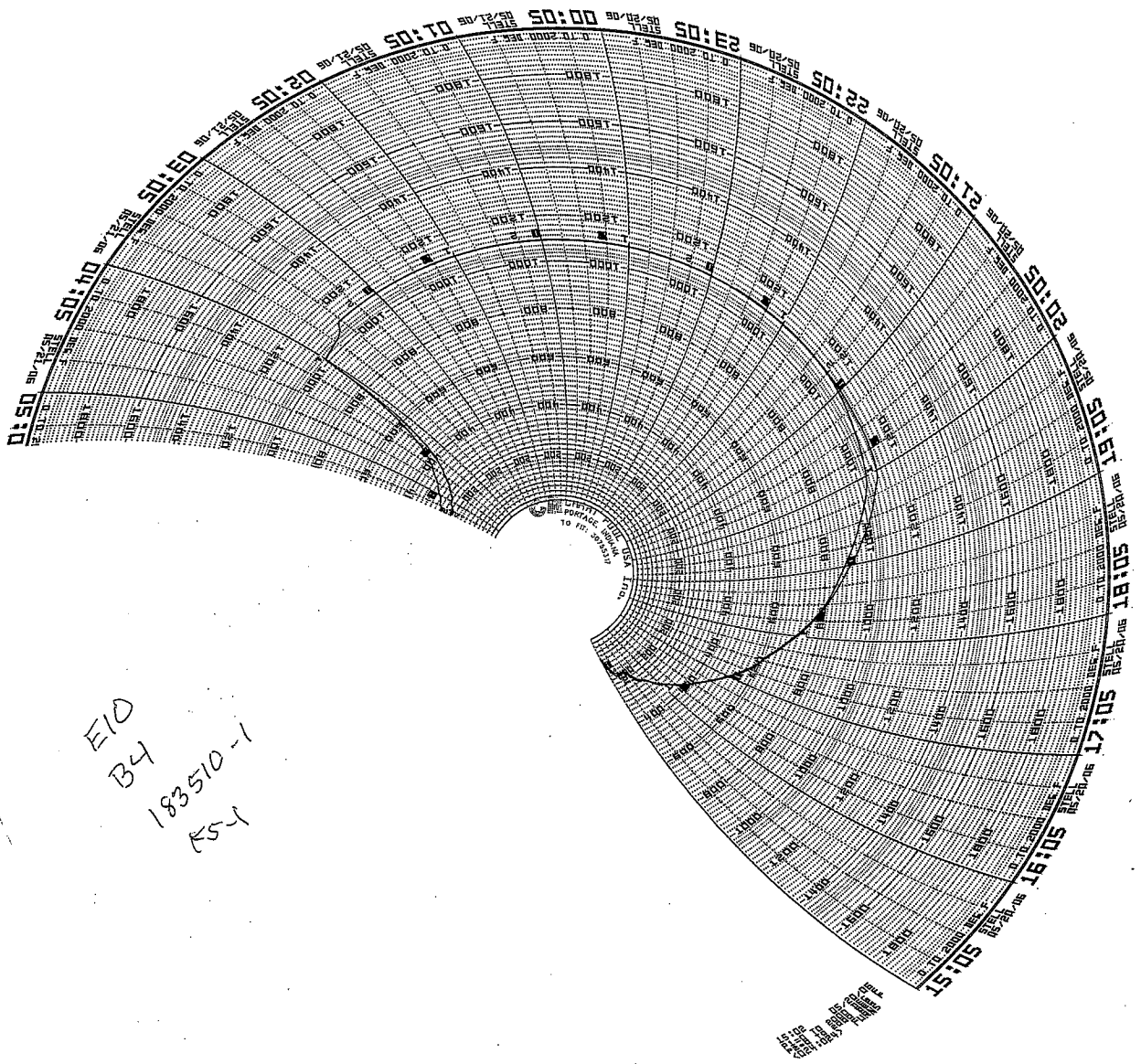
PAGE 2 OF 2

FIELD 4.4.06

B4

183510-1

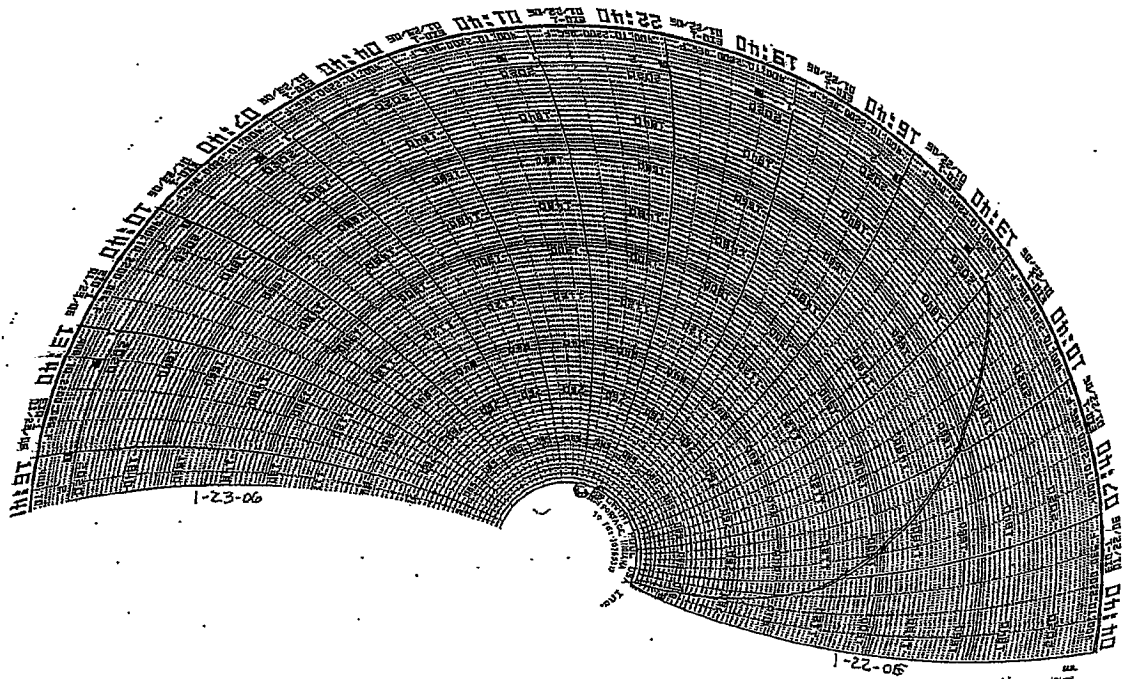
1Pc



E10  
B4  
183510-1  
K5-1

E10 5-20-06  
B4  
183510-1  
1R





90-22-1

90-22-1

25

NAVY  
OFFICE OF THE CHIEF OF BUREAU OF NAUTICAL SURVEY  
WASHINGTON, D.C.

E10 1-22-06

B SHIMS  
147360-1 6 Pcs.  
SERIAL #'S 1 thru 6

Energy Industries of Ohio  
 Manufacturing and Test Sequence (MTS) ALL Coils B 4 COIL  
 1 OF 11 CO# 40851 Dated 3-9-05 Revision: Rev10 Dated Issued:3-10-06

OPER. #	STATION	DESCRIPTION OF PROCESS	Name	Date
10	QUALITY RELEASE	REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON xxxxx FROM <u>Pete D.</u> SIGNED QUALITY MANAGER	<i>ADL</i>	3/10/06
15	PATTERN NPAT SOP 0100REV2	APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, AND FOUNDRY MARK, TO THE PATTERN. CAST ON TEST BARS AND CAST ON BLOCKS (extra 3"x3"x1" specimens) REQUIRED, ID AS TO COIL NUMBER AND ZONE LOCATION.		
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.	<i>V. J. ...</i>	3/23/06
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.	<i>James ...</i>	3/27/06
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: <u>2750</u> CASTING POURED AT: <u>2750</u> DATE: <u>3/29/06</u> HEAT #'s: <u>32850, 51, 52, 53, 54</u> ELAPSED POUR TIME <u>60.8 sec</u> KEEL BLOCKS POURED: <u>NA</u> Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Sample Taken by: <u>gn</u> Analyzed: <u>GLT</u> Date: <u>3/29</u>	<i>Shane ...</i>	3/29/06
50	MELT SOP 0800R2	SHAKEOUT	<i>CLA</i>	3/30/06
60	ARC RISE SOP 0100R1	REMOVE RISERS AS DIRECTED BY SUPERVISOR.	<i>DAS</i>	4/10/06

**Energy Industries of Ohio  
Manufacturing and Test Sequence (MTS) ALL Coils B 4 COIL**

2 OF 11 CO# 40851 Dated 3-9-05 Revision: Rev10 Dated Issued:3-10-06

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: At least 7 hours, Quench Type: Air Cool MAKE SURE TEST MATERIAL IS PLACED IN THE CORRECT ZONE.	KMR	4/4/06
80	PHYSICAL TESTING	OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 530. DCMA IS TO WITNESS CHARPY TESTING AT LAB.	WJH	4/4
NOTE		<b>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.</b>		
90	GRIND GSA SOP 0100R3	SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED.	BC	4/6
100	GRIND GCHI SOP 0100R2	CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED FOR CONTOUR.	RG	4-17
110	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.	GA	4-17
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF X-RAY. EIO NOTIFIED ON <u>4/17</u> DCMA NOTIFIED ON <u>4/17</u>	Q ENG OR QA MGR	GA
120	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	RBK 4-24-06
130	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 160. REJECTED CHECK HERE <input checked="" type="checkbox"/> MARK UP DEFECTS AND SEND THE CASTING TO STEP 140.	RT - LEVEL II	RBK 4-24-06
140	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING 100% RT INSPECTION.	TAD	4/26/06
150	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION AS REQUIRED.	TU	4/26/06

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160	INTERIM VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% OF COMPONENT ACCORDING TO ASTM A802 LEVEL 3 IN NON MACHINED AREAS AND LEVEL 2 IN MACHINED AREAS. IF OK CHECK HERE _____ IF REJECTED CHECK HERE <input checked="" type="checkbox"/> MARK AND REPAIR AT STEP 190.	VT - LEVEL II <i>KA</i>	
170	INTERIM 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 _____ GO TO 190. IF REJECTED CHECK HERE <input checked="" type="checkbox"/>	LP - LEVEL II T.R.C.	5/3/06
180	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING 100% VISUAL AND LP INSPECTION.	<i>TAD</i>	5/5/06
190	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION OR VISUAL DEFECTS AS REQUIRED.	<i>T.U</i>	5/6/06
200	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 190	LP - LEVEL II TRC	5-16-06
210	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.	<i>A</i>	—
220	WELD MAP	MAP ALL MAJOR 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. SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING. MUST INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATLY 3.3"X3.3".	<i>TRC</i> <i>5/8/06</i>	5/3, 5/8
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO, AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON <u>5/11</u> DCMA NOTIFIED ON <u>5/11</u>	Q ENG OR QA MGR <i>TRC</i>	
230	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ LIST ALL MATERIAL/LOTS USED: <u>78300</u> QUALITY ENG. Name: <u>ch</u> Date: <u>5/17</u>		
240	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD	<i>TAD</i>	5/18/06

*to RT  
STEP 300  
AND  
BACK*

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		REV 0 (Vertical) FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2	TAD	5/18/06					
250	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.	DWP AU	5/18/06					
260	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 <u>                    </u> WASH AND SEND TO STEP 280. IF REJECTED CHECK HERE <u>                    </u>	LP - LEVEL II TRC	5/18/06					
270	REPEAT	REPEAT STEPS S180 TO S250AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION. IF OK CHECK HERE <u>                    </u> AND PROCEED TO STEP 280.							
280	REPEAT STEPS	SUPPLEMENTAL REPAIR STEPS							
S180	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.							
S190	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION OR VISUAL DEFECTS AS REQUIRED.							
S200	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						
S210	WELD MAP	MAP ALL MAJOR 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 INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATLY 3.3"X3.3". SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING.							
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON <u>                    </u> DCMA NOTIFIED ON <u>                    </u>	Q ENG OR QA MGR						
S220	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: <u>                    </u> , <u>                    </u> , <u>                    </u> MATERIAL /LOT USED : <u>                    </u> , <u>                    </u> , <u>                    </u> QUALITY ENG. Name: <u>                    </u> Date: <u>                    </u>							
S230	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD REV 0 (Vertical)							

*grind only*  
 1<sup>ST</sup> 180 TAD 5/18/06  
 2<sup>ND</sup> 240 TAD 5/18/06  
 3<sup>RD</sup>  
 4<sup>TH</sup>  
 5<sup>TH</sup>

NA

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		FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2					
S240	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.					
S250	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 280. IF REJECTED CHECK HERE _____ AND RETURN TO STEP S180.	LP - LEVEL II	OK	OK	OK	OK
	REPEAT	REPEAT STEPS S180 TO S250 AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION.	QA ENG.				
280	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS TEST AT LEAST EVERY 2 INCH SQUARE OF WELD. ACCEPTANCE 1.02. IF OK CHECK HERE _____ AND GO TO STEP 300. IF REJECTED CHECK HERE _____.					
290	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 280. REPEAT UNTIL COMPLIANCE IS ACHIEVED.					
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 ENGINE ER			
310 A	MQS X-RAY DEFECTS REPAIRED BY WELDING	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. <b>ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.</b> ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.		LEVEL II			
310 B	CAF X-RAY DEFECTS REPAIRED BY WELDING CQP 401 REV 5	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. <b>ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.</b> ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.		RT - LEVEL II			
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 S321.		RT - LEVEL II			
	REPEAT STEPS	SUPPLEMENTAL REPAIR STEPS		1 <sup>ST</sup>	2 <sup>ND</sup>	3 <sup>RD</sup>	4 <sup>TH</sup> 5 <sup>TH</sup>

✓  
From  
weld

NA  
✓

5/16/02

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NA

S321	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.					
S322	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				
S323	WELD MAP	MAP ALL MAJOR 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 INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATELY 3.3"X3.3". SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING. SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING.					
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				
S324	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____, _____, _____ MATERIAL /LOT USED : _____, _____, _____ QUALITY ENG. Name: _____ Date: _____					
S325	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD REV 0 (Vertical) FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2					
S326	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.					
S327	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 S328. IF REJECTED CHECK HERE _____ AND RETURN TO STEP S321.	LP - LEVEL II	OK  REJ	OK  REJ	OK  REJ	OK  REJ
S 328 A	MQS X-RAY DEFECTS REPAIRED BY WELDING	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. <b>ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.</b> ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT- LEVE L II				



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NA

S 328 B	CAF X-RAY DEFECTS REPAIRED BY WELDING CQP 401 REV 5	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. <b>ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.</b> ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT - LEVE L II				
S 329	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 S321.	RT - LEVE L II				
	REPEAT	REPEAT STEPS S321 TO S329 AS REQUIRED TILL CLEAR THROUGH VISUAL, PENETRANT AND RT INSPECTION.	QA ENG.				
340	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.					
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____	Q ENG OR QA MGR				
350	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 3 IN NON MACHINED AREAS AND LEVEL 2 IN MACHINED AREAS. IF OK CHECK HERE _____. SEND TO STEP 453. IF REJECTED CHECK HERE _____. MARK AND REPAIR. INITIAL WHEN COMPLETE. MUST BE PERFORMED BY LEVEL II in VT.	VT - LEVEL II				
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 453. IF REJECTED CHECK HERE _____	LP - LEVEL II				
380	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING FINAL PENETRANT INSPECTION.					
385	GRIND GCHI SOP 0100R2	CHIP AND HAD GRIND EXCAVATION AS REQUIRED.					





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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	
400	WELD MAP	MAP ALL MAJOR 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. SEND MAPS WITHIN 24 HOURS OF WELDING. MUST INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATLY 3.3"X3.3".		
420	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ MATERIAL/LOT USED: _____ QUALITY ENG. Name: _____ Date: _____		
430	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD REV 0 (Vertical) FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2		
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 453. 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.	
451	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS. RECORD ON WELD MAP LIST. TEST AT LEAST EVERY 2" SQUARE OF WELD. ACCEPTANCE 1.02. IF OK CHECK HERE _____ AND GO TO STEP 430. IF REJECTED, CHECK HERE _____.		
452	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 451. REPEAT UNTIL COMPLIANCE IS ACHIEVED.		
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LAYOUT. EIO NOTIFIED ON <u>5/10</u> DCMA NOTIFIED ON <u>5/10</u>  APPROVAL RECEIVED ON _____	Q ENG OR QA MGR	



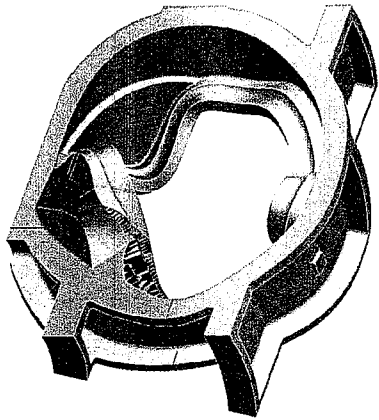
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453	INTERIM LAYOUT SOP LAYOUT 0100	INSPECT CASTING TO VERIFY DIMENSIONS. THIS STEP MAY BE MOVED. NOTE: THE FIRST PART PRODUCED OF EACH TYPE A, B AND C WILL BE DIMENSIONED BY LAWTON PATTERN. IF DIMENSIONED BY LAWTON IT WILL BE DOCUMENTED HERE. Subsequent casting done internally per Romer Arm.	SLAWSON	5/22
455	HEAT TREAT	STRESS RELIEF. Load casting into cold furnace. Ramp up to 1100 F at rate of 200 F per hour. Hold at temp 4 hours. Furnace cool to 500 F at 50 F per hour. Air cool. Submit furnace charts to QA.	DLS	5/20/06
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS. EIO NOTIFIED ON <u>5/10</u> DCMA NOTIFIED ON <u>5/10</u>	Q ENG OR QA MGR	
460	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 3 ALL CONDITIONS. THIS STEP MAY BE UNNECESSARY IF OK AT STEP 350. IF OK CHECK HERE _____ IF REJECTED CHECK HERE _____. MARK AND REPAIR AT STEP 510. MUST BE PERFORMED BY LEVEL II in VT.	VT - LEVEL II	KA 5/23
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. THIS STEP MAY BE UNNECESSARY IF OK AT STEP 360. IF OK CHECK HERE <input checked="" type="checkbox"/> WASH AND SEND TO STEP 500. IF REJECTED CHECK HERE _____. DOCUMENT REPAIRS USING A SUPPLEMENTAL MTS.	LP - LEVEL II	JPS 5/23/06
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF MAG PERM STEPS. EIO NOTIFIED ON <u>5/10</u> DCMA NOTIFIED ON <u>5/10</u>	Q ENG OR QA MGR	
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 <input checked="" type="checkbox"/> AND GO TO STEP 530. IF REJECTED CHECK HERE _____	MGP	5.23
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.	NA	
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.	NA	
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)	CHK	

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NOTICE	RELEASE FROM EIO	PROVIDE DOCUMENTS TO EIO. SENT ON <u>5/26</u> BY <u>CA</u> RECEIVED RELEASE FROM EIO ON <u>5/25</u>	Q ENG OR QA MGR	<u>CA</u>
540	PACK AND SHIP	PACKAGE AND SHIP TO MAJOR TOOL. MARK ON CASTING THE COIL NUMBER e.g. " <u>540</u> "	<u>B-4</u> ✓	
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 word LOT to weld material steps. 5-29-05. Rev 7 6-14-05 added "LOT" to weld step on supplement page. Rev. 8 7-29-05 added stress relief, deleted weld hold points, added vertical weld procedure, and several editorial changes. REV 9 8-28-05 – MODIFIED RT STEPS AND ADDED REQUIREMENT TO RT ALL RT DEFECTS INCLUDING SURFACE. 1-9-06 Rev 10 – added note to mark casting in step 540.	CARUUD	

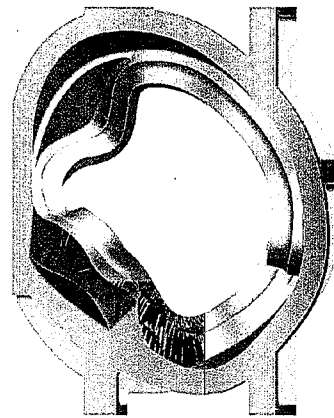


GENERAL ISOMETRIC  
VIEW FROM TOP SIDE

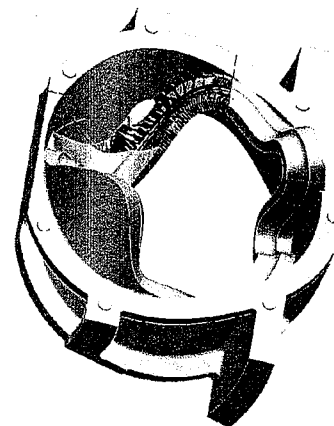
RED AREA INDICATES HIGH STRESSED AREA



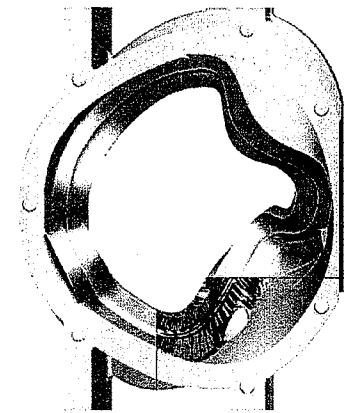
TOP SIDE ISOMETRIC



TOP SIDE VIEW



BOTTOM SIDE ISOMETRIC



BOTTOM SIDE VIEW

MetalTek International – Carondelet Division

Manufacturing and Test Sequence (MTS) B Coil Shim SN -4

Dated 12-14-04 Revision:1

Dated Issued:10-25-05

Page 1 of 3

OPER. #	STATION	DESCRIPTION OF PROCESS	Name	Date
10	QUALITY RELEASE	REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON 11-1-05 FROM Pete D. SIGNED QUALITY MANAGER. <b>SHADED BOXES NEED NOT BE SIGNED.</b>	CAR	11-1-05
20	PATTERN NPAT SOP 0100REV2	APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, FOUNDRY MARK, TO THE PATTERN.		
30	MOLD	MOLD PER WORK INSTRUCTIONS IN MAPICS ROUTING AND SOPS REFERENCED. MOLD MATERIALS REQUIRED PER MAPICS BOM. NOTIFY ENGINEER OF ANY SUBSTITUTIONS. 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		
40	POUR MELT SOP 0100R5 MELT SOP 0700R2 MELT SOP 0600R2	METAL MUST BE AOD REFINED OR AOD INGOT. VIRGIN METAL ADDITIONS ALLOWED. HEAT #: <u>31455</u>  Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Sample Taken by: <u>I. Winsten</u> Analyzed: <u>G. Hurt</u>	<i>J. G. Gaska</i>	<i>11-3-05</i>
50	MELT SOP 0800R2	SHAKEOUT		
60	ARC RISE SOP 0100R1	REMOVE RISERS AS DIRECTED BY SUPERVISOR.		
70	HEAT TREAT HEAT SOP 0103R5	SOLUTION ANNEAL. MINIMUM 4 HOURS AT 2050 F. AIR COOL.	<i>DLS</i>	<i>1-22-06</i>
80	GRIND GSWA SOP 0100R3 GCHI SOP 0100R2	SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED. CHIP AND HAND GRIND SURFACE OF PART AS REQUIRED.	<i>MMJ</i>	<i>5-22-06</i>
90	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.	<i>LW</i>	<i>5-22-06</i>
100	VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 3 ALL CONDITIONS. IF OK CHECK HERE <input checked="" type="checkbox"/> IF REJECTED CHECK HERE <input type="checkbox"/> . MARK AND REPAIR AT STEP 130OR 140 IF WELDING IS REQUIRED. MAY PERFORM STEPS 110 AND 120 TOGETHER.	VT - LEVEL II <i>KA</i>	<i>5/23</i>

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Dated 12-14-04 Revision:1 Dated Issued:10-25-05 Page 2of 3

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 <input checked="" type="checkbox"/> GO TO 150. IF REJECTED CHECK HERE _____ MARK AND REPAIR AT STEP 130 OR 140 IF WELDING IS REQUIRED.	LP - LEVEL II T.R.C. 5/23/06	
130	GRIND GCHI SOP 0100R2	HAND GRIND DEFECTS. CONFIRM REPAIRS VISUALL AND BY LP. ACCEPTANCE AS NOTED ABOVE. IF OK, CHECK HERE _____ AND GO TO STEP 170. IF WELDING IS NEEDED GO TO STEP 130.		OK
140 IF NEEDED		IF REPAIRS BY WELDING ARE REQUIRED DOCUMENT ON SUPPLEMENTAL MTS ON LAST PAGE.		
150	CAF X-RAY DEFECTS REPAIRED BY WELDING CQP 401 REV 5	X-RAY PER TECHNIQUE: SE-141-073-C SHIM. 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 ABK 5-23-06	
160	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 <input checked="" type="checkbox"/> AND SEND TO STEP 200. REJECTED CHECK HERE _____ MARK UP DEFECTS. DOCUMENT REPAIRS ON S10 TO S70.	RT - LEVEL II ABK 5-23-06	
	REPEAT	REPEAT STEPS S10 TO S70 AS REQUIRED TILL WELDS CLEAR X-RAY.	QA ENG.	
170	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.		
180	LAYOUT SOP 0100 ORIGINAL	INSPECT CASTING TO VERIFY DIMENSIONS. THIS MAY BE PERFORMED EARLIER IF DESIRED. SUBMIT RPORT TO QA.	Jusy 5/23/06	
190	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 2 ALL CONDITIONS. IF OK CHECK HERE <input checked="" type="checkbox"/> IF REJECTED CHECK HERE _____ . MARK AND REPAIR DOCUMENT REWORK ON A SUPPLEMENTAL MTS	VT - LEVEL II KA 5-23	
200	FINAL L.P. CQP 0300 REV 10	FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA- LEVEL 2 ALL AREAS. IF OK CHECK HERE <input checked="" type="checkbox"/> WASH AND SEND TO NEXT STEP. IF REJECTED CHECK HERE _____ MAKE REPAIRS AND DOCUMENT ON SUPPLEMENTL MTS.	LP - LEVEL II T.R.C. 5/23/06	
210	FINAL MAG PERM INSPECTION SOP MAG PERM 100, REV 1 GRIND GCHI SOP 0100 REV 2	PERFORM MAG PERM TESTING WITH SEVRIN GAUGE. ACCEPTANCE 1.02. CHECK THE ENTIRE SURFACE ON A 6"BY6" GRID. REPORT RESULTS. HAND GRIND WITH SUITABLE CONE OR OTHER SIMILAR GRINDER AS REQUIRED TO ENSURE REMOVAL OF MATERIAL TO ACHIEVE MAG PERM REQUIREMENT.	MFP 5-23	
220	DOC. REVIEW	REVIEW DOCUMENTS ALL DOCUMENTS NOTED TO BE ACCESSIBLE FOR AUDITING. ( C OF C, M.T.R., SIGNED M.T.S., LAYOUT INSPECTION REPORT, X-RAY READER SHEETS AND HEAT TREAT CHARTS)	CAK	

**MetalTek International – Carondelet Division**  
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**Dated 12-14-04 Revision:1 Dated Issued:10-25-05 Page 3 of 3**

NOTICE	RELEASE FROM EIO	PROVIDE DOCUMENTS TO EIO. SENT ON <u>5/25</u> BY <u>chr</u> . RECEIVED RELEASE FROM EIO ON <u>5/25</u> .	Q ENG OR QA MGR	<u>chr</u>
	PACK AND SHIP	PACKAGE AND SHIP TO MAJOR TOOL.		
1000	REVISION HISTORY	ORIGINAL 12-14-04. Rev1 complete rewrite due to specification changes.	CARUUD	

**SUPPLEMENTAL MTS FOR WELD REPAIRS.**

FOR VT&LP/ FOR RT

S10	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS.		
S20	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	LP - LEVEL II
S30	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 AJOR WELDS, DEFINED AS OVER 20% OF WALL THICKNESS OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES TO CUSTOMER. MAJOR WELDS YES _____, REPORT SENT BY _____ DATE _____ NO MAJOR WELDS CHECK HERE _____ AND GO TO STEP 170.		
S40	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ MATERIAL USED: _____ QUALITY ENG. Name: _____ Date: _____		
S50	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		
S60	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.		
S70	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	LP - LEVEL II
	REPEAT	REPEAT STEPS S10 TO S70 AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION.	QA ENG.	QA ENG.
S80	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 170. GRIND AS NEEDED TO REMEDIATE.		



### Carondelet Division

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

### Final Inspection Report

Customer ENERGY INDUSTRIES OF OHIO  
Pattern: MCWF-B4 COIL

Order PPPL-FP-LTS-2

ASTM Metal CF8MNMN MOD

Date 5/25/2006

Type Description	Cert Number	Procedure	Acceptance Criteria	Actual
Liquid Penetrant	183510-1	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	183510-1	SOP Mag Perm 100 Rev 1	<1.02	Acceptable
Radiographic	183510-1	Technique # 12726	MSS SP 54	Acceptable
Visual	183510-1	CQP - 500 REV 4	ASTM A802 LEVEL 2	Acceptable

#### Liquid Penetrant

Technician: Jim Shanahan  
ASNT Level II

#### Visual:

Technician: Kevin Anderson  
ASNT Level II

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

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## Carondelet Division

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Phone: 636-479-4499 - Fax: 636-479-3399

### Certificate of Conformance

ENERGY INDUSTRIES OF OHIO

Order Number PPPL-FP-LTS-2  
Pattern MCWF-B4 COIL  
ASTM CF8MNMN MOD

Date 5/25/2006

Cert Number  
183510-1

*CAR REC*

We certify that we have complied in accordance with the drawings(s) and specifications(s) listed on the above purchase order. The articles furnished were made and/or processed from parts and/or materials in accordance with all applicable drawings(s) and specifications(s) pursuant to the afore mention purchase order.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

***Superior Quality Engineered Metal Products***

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### Carondelet Division

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

### Final Inspection Report

Customer ENERGY INDUSTRIES OF OHIO  
Pattern: SE-141-058 COIL B SHIM  
S/N 4

Order PPPL-FP-LTS-2

ASTM Metal CF8MNMN MOD

Date 5/25/2006

Type Description	Cert Number	Procedure	Acceptance Criteria	Actual
Liquid Penetrant	177360-1	CQP - 300 Rev 9	ASTM A903 Level II	Acceptable
Mag Perm	177360-1	SOP Mag Perm 100 Rev 1	<1.02	Acceptable
Radiographic	177360-1	Technique # 12726	MSS SP 54	Acceptable
Visual	177360-1	CQP - 500 REV 4	ASTM A802 LEVEL 2	Acceptable

#### Liquid Penetrant

Technician: Jim Shanahan  
ASNT Level II

#### Visual

Technician: Kevin Anderson  
ASNT Level II

*CAR REC*

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

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Phone: 636-479-4499 - Fax: 636-479-3399

### Certificate of Conformance

ENERGY INDUSTRIES OF OHIO

Order Number PPPL-FP-LTS-2

Pattern SE-141-058 COIL B SHIM S/N 4

ASTM CF8MNMN MOD Date 5/25/2006

Cert Number

177360-1

A shim for B-4 coil was poured from heat number 31455. No weld repairs were necessary.

*CAR REC*

We certify that we have complied in accordance with the drawings(s) and specifications(s) listed on the above purchase order. The articles furnished were made and/or processed from parts and/or materials in accordance with all applicable drawings(s) and specifications(s) pursuant to the afore mention purchase order.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

**Superior Quality Engineered Metal Products**

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**EIO**  
**Energy Industries of Ohio**  
**SUPPLIER QUALITY RELEASE**

		Date: 5-25-06
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**I. General Information:**

Project Name:	Modular Coil Winding Form B4	
PO No:	NCSX-SOW-141-02-01	Rev.: 10
Supplier:	MetalTek	
Procurement Agent:	EIO	
Shipment:	<input checked="" type="checkbox"/> Partial <input type="checkbox"/> Final	

**II. Material Description**

Casting B4 Coil & Shim

**III. Release Checklist**

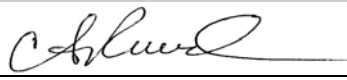
Plan Requirements Complete?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (If identified "No" provide explanation in comments section below)
Variances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (If identified "No" provide explanation in comments section below)
Princeton Notified of Shipment?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (If identified "No" provide explanation in comments section below)
DCMA Notified of Shipment?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (If identified "No" provide explanation in comments section below)
<input checked="" type="checkbox"/> Conditional <input checked="" type="checkbox"/> Unconditional	Explain conditional releases in comments section.

**IV. Comments**

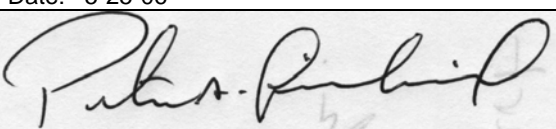
Variances – See attached package for CA's and deviations

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

**V. Supplier Quality Representative Sign Off**

Charles Ruud	X		5-25-06
Supplier Quality Representative (SQR) Print/Type Name		Supplier Quality Representative (SQR) Signature	Date

**VI. Supplier Approval For Shipment**

Procurement Agent Notified of Shipment	Date: 5-25-06	
Required Vendor Data Ready for Shipment	Date: 5-25-06	
Peter A Djordjevich	X	 5-25-06

**EIO**  
**Energy Industries of Ohio**  
**SUPPLIER QUALITY RELEASE**

		Date: 5-25-06
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I. General Information:		
Project Name:	Modular Coil Winding Form B4	
PO No:	NCSX-SOW-141-02-01	Rev.: 10
Supplier:	MetalTek	
Procurement Agent:	EIO	
Shipment:	<input checked="" type="checkbox"/> Partial <input type="checkbox"/> 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.