

# **Energy Industries of Ohio**

**Contract # S005242-F**

**Modular Coil Winding Forms**

## **C-1 Documentation Package**

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

**10/4/2005**

# C-1 Documentation Package

## List of Documents 10-4-2005

| Doc # | Description   | # Pages |
|-------|---|---------|
| A1    | Coil C-1 certificate of conformance S73140-1 revised dated 7-21-05  | 1       |
| A2    | Coil C shim certificate of compliance dated 4-29-05   | 1       |
| A3    | Coil C-1 Shim Final Inspection Report dated 7-26-05   | 1       |
| A4    | Dimensional sketch of shim # 141-073 dated 3-31-05  | 2       |
| A5    | Traveler – MTS Coil C shim orig. dated 12-14-04 – signed/dated  | 6       |
| A6    | Radiographic shooting sketch C shim dated 3-10-05   | 2       |
| A7    | Original MTS for C shim dated 12-14-04  | 6       |
| 1     | MTR for ladle 1 heat 27728  | 1       |
| 2     | MTR for ladle 2 heat 27730  | 1       |
| 3     | MTR for ladle 3 heat 27731  | 1       |
| 4     | MTR for weighted average of chemistry – 3 ladles  | 1       |
| 5     | Chemistry of weld material Lot # 3012668/82743  | 1       |
| 7     | Westmoreland tensile test report @ -320F dated 4-19-05  | 1       |
| 8     | St Louis Testing tensile test report @ room temperature dated 4-22-05 – corrected 6-15-05                               | 2       |
| 8a    | St Louis Testing tensile test report @ room temperature –retest of heat 27728 dated 5-12-05                             | 1       |
| 8b    | St Louis Testing tensile test report @ room temperature –retest of heat 27728 dated 6-1-05                              | 1       |
| 9     | St Louis Testing charpy test report of heat 27728 @ -320F dated 1-10-05   | 1       |
| 10    | St Louis Testing charpy test report of heat 27728 @ room temperature dated 1-10-05                                      | 1       |
| 11    | Westmoreland tensile test of weld material @ -320F dated 4-28-05  | 1       |
| 12    | St Louis Testing tensile test of weld material @room temperature dated 4-22-05  | 1       |
| 13    | St Louis Testing tensile test of weld material @ -320F dated 4/6/05   | 1       |
| 15    | St Louis Testing tensile test of weld material @room temperature dated 2-28-05 – revised 3-2-05                         | 2       |
| 16    | Weld map list with mag perm results   | 11      |
| 17    | Metal Tek final inspection report   | 1       |
| 18    | RT reports – X-ray reader sheets from 1-19-05 & 3-19-05   | 8       |
| 18a   | Radiographic Technique sheet  | 17      |
| 19    | Heat treat chart – dated 12-28-04   | 1       |
| 19a   | Heat treat chart stress relief dated 3-5-05   | 1       |
| 20    | CA1219 – major welds dated 2-18-05  | 2       |
| 21    | CA1226 – thru wall weld dated 2-18-05   | 2       |
| 22    | CA1251 – second weld dated 3-22-05  | 1       |
| 22a   | CA 1252 – welding – defects discovered during final LP dated 3/24/2005  | 1       |
| 22b   | CA 1320 – Lack of test material Dated 7/5/2005  | 2       |
| 23    | CA 1300 – test material- lack of ID dated 5-29-05   | 1       |
| 24    | CA 1301 – test material lack of direction dated 5-29-05   | 1       |
| 24a   | CA 1323 – CA for sulfur & phosphorus readings dated 7/26/05 + addendum dated 8/17/05                                    | 5       |
| 25    | MTS C-1 Coil original dated 12-14-04 includes supplemental routing card on welding dated 3-21-05 – with dated sign-offs | 10      |
| 26    | Shipping release from EIO   | 1       |

# Carondelet Division

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

C-1 Doc Package  
Document A-1

## Certificate of Conformance

ENERGY INDUSTRIES OF OHIO

Order Number PPPL-FP-LTS-2

Pattern MCWF-C1

ASTM CF8MNMN MOD

Revised Date 7/21/2005

Cert Number

**S73140-1**

Coil C-1, certification number S73140-1 was poured from three ladles known as heat numbers 27728, 27730 and 27731. Heat 27728 is actually a ladle containing material from heats 27728 and 27729. Cast on test bars located in each of the three zones were used for testing purposes. Test reports from St Louis Testing use Heat number 27728 for all test bar samples. Test bars did not have zone identification. Corrective action number 1300 was issued to correct.

Weld repairs were made using approved procedures and Lincoln material LMN 44/55, lot number 3012668/82743.

A shim, certification number S73220-1, for C-1 coil was poured from heat number 27728. No weld repairs were necessary.

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 except as noted by corrective actions.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

***Superior Quality Engineered Metal Products***

www.MetalTekInt.Com

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## Certificate of Conformance

C-1 Doc Package  
Document A-2

ENERGY INDUSTRIES OF OHIO

Order Number PPPL-FP-LTS-2

Pattern SE-141-073 COIL C SHIM

Alloy CF8MNMnMOD

Revised Date 4/29/2005

Cert Number

**S73220-1**

A shim for C-1 coil was poured from heat number 27728. No weld repairs were necessary. No testing for mechanical properties was performed.

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 except as noted by corrective actions.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

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

### Final Inspection Report

Customer Name: ENERGY INDUSTRIES OF OHIO

Pattern: SE-141-073 COIL C-1 SHIM

Order Number: PPPL-FP-LTS-2

Revised 7/26/05

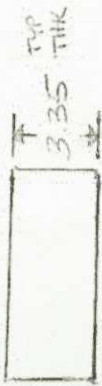
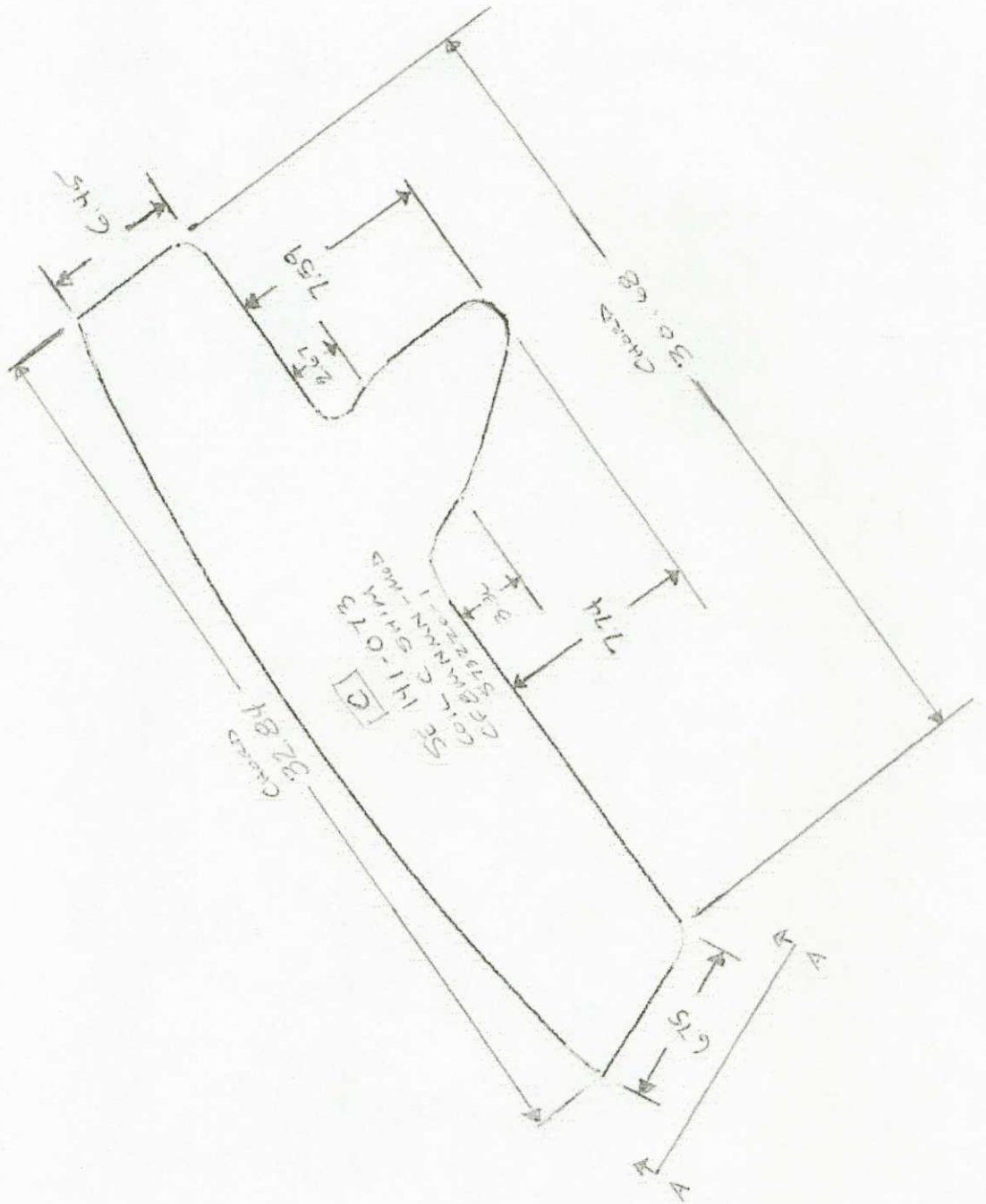
ASTM Metal CF8MNMN MOD

Date 7/26/2005

| Type Description | Cert Number | Procedure              | Acceptance Criteria | Actual     |
|------------------|-------------|------------------------|---------------------|------------|
| Liquid Penetrant | S73220-1    | CQP - 300 Rev 9        | ASTM A903 Level II  | Acceptable |
| Mag Perm         | S73220-1    | SOP Mag Perm 100 Rev 1 | <1.02               | Acceptable |
| Radiographic     | S73220-1    | CQP - 401 Rev 5        | MSS SP 54           | Acceptable |
| Visual           | S73220-1    | CQP - 500 REV 4        | ASTM A802 LEVEL 2   | Acceptable |

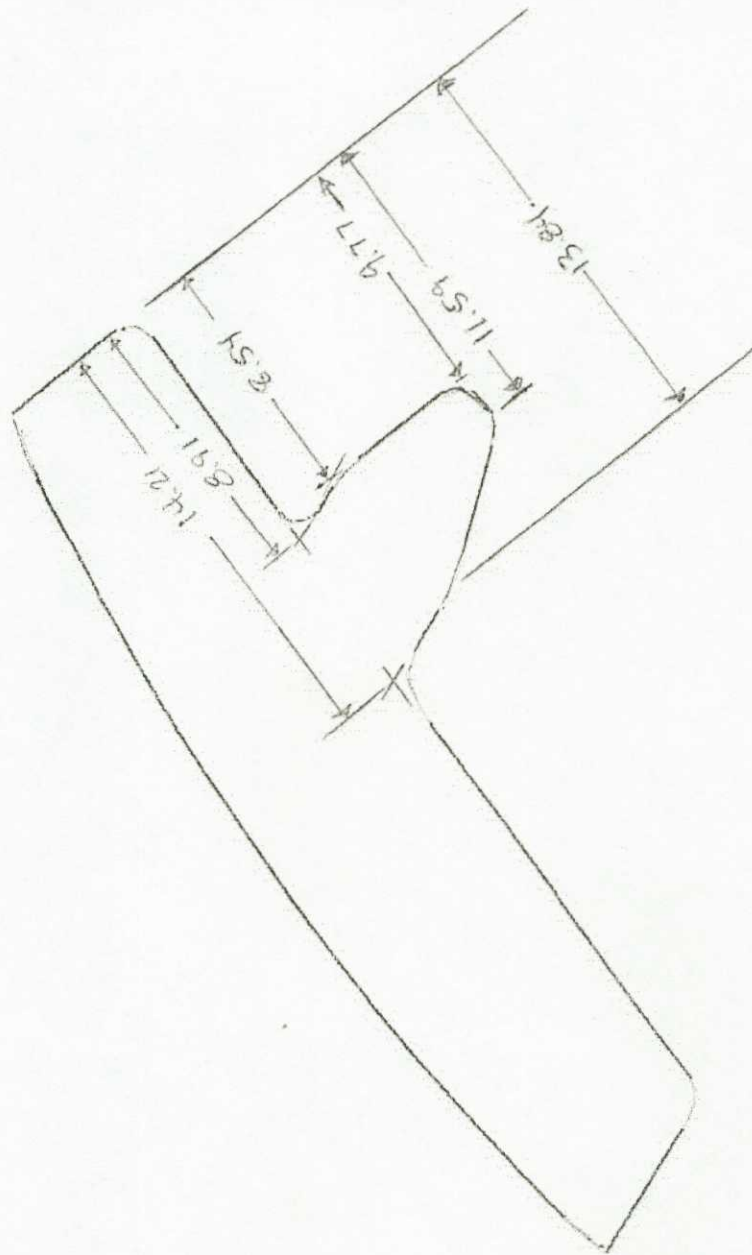
Liquid Penetrant  
Technician: Kevin Anderson  
ASNT Level II

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager



SECT A-A

SHIM SE 141-073  
SKETCH 03/21/05  
Kuni Hori



PAGE 2 OF 2  
SHIM SE 141-073  
SKETCH 03/31/05

Energy Industries of Ohio  
Manufacturing and Test Sequence (MTS) Coill C Shim-1

CO# 40851, Pattern SE 141-073 S73220-1 Dated December 14, 2004 Revision: Original Page 6 of 6 Dated Issued: 12-14-04

|        |   |   |  |                 |                    |
|--------|---|---|--|-----------------|--------------------|
| 420    | GRIND GCIII SOP 0100R2                            | GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 420. REPEAT UNTILL COMPLIANCE IS ACHIEVED.   |  | NA              |                    |
| NOTICE | WITNESS NOTIFICATION                              | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF MAG PERM STEP.<br>EIO NOTIFIED ON <u>3/23/05</u> DCMA NOTIFIED ON <u>3/23/05</u>  |  | Q ENG OR QA MGR | <u>Chk</u>         |
| 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" BY 6" 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.<br>OK CHECK HERE _____ AND GO TO STEP 470.<br>IF REJECTED CHECK HERE _____ |  |                 | <u>3/30/05 Chk</u> |
| 440    | GRIND GCIII 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              |                    |
| 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.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE _____ IF REJECTED CHECK HERE _____ RETURN TO STEP 450  |  |                 |                    |
| 460    | PHOTOGRAPH  | TAKE DIGITAL PICTURES.  |  |                 | <u>Chk</u>         |
| 470    | AUDIT REVIEW                                      | PROCESS DOCUMENT TO PROGRAM MANAGER FOR COMPLIANCE AUDIT.   |  |                 | <u>3/31/05</u>     |
| 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)   |  |                 | <u>3/31/05</u>     |
| NOTICE | RELEASE FROM EIO                                  | PROVIDE DOCUMENTS TO EIO. SENT ON <u>3/30</u> BY <u>Chk</u><br>RECEIVED RELEASE FROM EIO ON <u>3/30/05</u>  |  | Q ENG OR QA MGR | <u>Chk</u>         |
| 490    | PACK AND SHIP                                     | PACKAGE, AND SHIP TO MAJOR TOOL.  |  |                 | <u>3/31/05</u>     |
| 1000   | REVISION HISTORY                                  | ORIGINAL 12-14-04.  |  | Shipped         |                    |
|        |   |   |  | CARUUD          |                    |



Energy Industries of Ohio  
Manufacturing and Test Sequence (MTS) Coill C Shim-1

CO# 40851, Pattern SE 141-073 S73220-1 Dated December 14, 2004 Revision: Original Page 5 of 6 Dated Issued: 12-14-04



|     |   |   |  |
|-----|---|---|--|
| 330 | FINAL L.P.<br>CQP 0300<br>REV 10            | MUST BE PERFORMED BY LEVEL II in VT.<br><br>FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-<br>LEVEL I FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP<br>DRAWING.<br><br>IF OK CHECK HERE <input checked="" type="checkbox"/> WASH AND SEND TO STEP 410.<br>IF REJECTED CHECK HERE _____   | LP -<br>LEVEL II<br><br>KHA<br>3-30-05 |
| 340 | WELD SOP 0100<br>REV 7                      | EXCAVATE ANY DEFECTS FOUND DURING FINAL PENETRANT INSPECTION.   | N/A CA-3-30-05                         |
| 350 | L.P. EXCAVATION<br>CQP-300<br>REV 10        | L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT.<br>ACCEPTANCE PER A903.  | LP -<br>LEVEL II                       |
| 370 | WELD MAP                                    | MAP ALL WELDS WITH DIGITAL PHOTO/MAPS. SERIALIZE DEFECTS ON CASTING. USE SCALE IN<br>PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD<br>MAN OR THEIR DESIGNEE. FILE WITH QA. MUST SEND REPORT ON ALL WELDS OVER 10% OF<br>NOMINAL WALL THICKNESS TO CUSTOMER. NOMINAL WALL THICKNESS TO CUSTOMER.<br>DEFECTS > 10% YES _____, REPORT SENT BY _____ DATE _____<br>DEFECTS < 10% _____ SIGN BY QA ENG. |  |
| 380 | WELD SOP 0100<br>REV 7                      | WELD REPAIR DEFECTS AS MARKED<br>FOR WELDS < 2" - WPS 10-SMAW-CF8MMNMN MOD REV 1<br>FOR WELDS < 8" - WPS 15-GMAW-CF8MMNMN MOD REV 2   |  |
| 390 | GRIND<br>GCHI SOP 0100<br>REV 2             | HAND GRIND WELDS.   |  |
| 400 | L.P. WELDS<br>CQP 0300<br>REV 10            | L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903.<br>IF OK CHECK HERE _____ WASH AND SEND TO STEP 460.<br>IF REJECTED CHECK HERE _____ AND RETURN TO STEP 390.  | LP -<br>LEVEL II                       |
|     | REPEAT                                      | REPEAT STEPS 390 TO 410 AS REQUIRED TILL WELDS CLEAR FINAL LIQUID PENETRANT<br>INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS  | QA/ENG.                                |
| 410 | TEST MAG PERM<br>SOP MAG PERM<br>100, REV 1 | TEST MAG PERMEABILITY REPAIR AREAS. RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS<br>PER WELD.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE _____ AND GO TO STEP 430.  | NA                                     |

Energy Industries of Ohio  
 Manufacturing and Test Sequence (MTS) Coill C Shim-1  
 CO# 40851, Pattern SE 141-073 S73220-1 Dated December 14, 2004 Revision: Original Page 4 of 6 Dated Issued: 12-14-04

|        |  |  |                       |                            |
|--------|--|--|-----------------------|----------------------------|
| 260    | L.P. WELD<br>CQP 0300<br>REV 10                                    | L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 2.<br>IF OK CHECK HERE _____ WASH AND SEND TO STEP 300.<br>IF REJECTED CHECK HERE _____ AND RETURN TO STEP 220.  | LP -<br>LEVEL II      | NA                         |
|        | 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<br>SOP MAG PERM<br>100, REV 1                        | TEST MAG PERMEABILITY REPAIR AREAS. RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE _____ AND GO TO STEP 290. IF REJECTED CHECK HERE _____   |                       |                            |
| 280    | GRIND GCHI SOP<br>0100R2   | GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 270.<br>REPEAT UNTILL COMPLIANCE IS ACHIEVED.   |                       |                            |
| 290    | CAF<br>X-RAY DEFECTS<br>REPAIRED BY<br>WELDING<br>CQP 401<br>REV 5 | X-RAY PER TECHNIQUE: To be determined. USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.   | RT -<br>LEVEL II      |                            |
| 300    | X-RAY<br>CQP 401<br>REV 5  | X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.<br>IF OK CHECK HERE _____ AND SEND TO STEP 310.<br>REJECTED CHECK HERE _____ MARK UP DEFECTS AND SEND THE CASTING TO STEP 200. | RT -<br>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<br>BLAS SOP<br>0100R6                                   | SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.   |                       | NA                         |
| NOTICE | WITNESS<br>NOTIFICATION  | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS.<br>EIO NOTIFIED ON 7/23/05 DCMA NOTIFIED ON 8/23/05   | Q ENG<br>OR QA<br>MGR | CA                         |
| 320    | FINAL VISUAL<br>INSPECTION<br>CQP-500 REV 4                        | VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 2 ALL CONDITIONS.<br>IF OK CHECK HERE <input checked="" type="checkbox"/><br>IF REJECTED CHECK HERE _____ MARK AND REPAIR AT STEP 340.   | VT -<br>LEVEL 1       | 3/30/04<br>R. Garcia-Soria |



Energy Industries of Ohio  
 Manufacturing and Test Sequence (MTS) Coill C Shim-1  
 CO# 40851, Pattern SE 141-073 S73220-1 Dated December 14, 2004 Revision: Original Page 3 of 6 Dated Issued: 12-14-04

| 170    | CAP<br>X-RAY<br>CQP 401<br>REV 5     | X-RAY PER TECHNIQUE: To be determined. USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.   | RT -<br>LEVEL II<br>RBK | 3-10-05 |
|--------|--------------------------------------|--|-------------------------|---------|
| 180    | X-RAY<br>CQP 401<br>REV 5            | X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> AND SEND TO STEP 300. 190 then to 310 OK<br>REJECTED CHECK HERE <input type="checkbox"/> MARK UP DEFECTS AND SEND THE CASTING TO STEP 200.               | RT -<br>LEVEL II<br>RBK | 3-10-05 |
| 190    | LAYOUT                               | INSPECT CASTING TO VERIFY DIMENSIONS. THIS MAY BE PERFORMED BEFORE OR AFTER STEP 180. NO BIP AVAILABLE MADE REVISION SCHEMATIC<br>DATE _____ RELEASED _____ (ENGINEER ONLY)  | Kobrin 3/31/05          |         |
| 200    | WELD SOP 0100<br>REV 7               | EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.   | NA                      |         |
| 210    | L.P. EXCAVATION<br>CQP-300<br>REV 10 | L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT.<br>ACCEPTANCE PER A903. ACCEPTANCE CRITERIA- LEVEL 2.   | LP -<br>LEVEL II        |         |
| 220    | WELD MAP                             | MAP ALL WELDS WITH DIGITAL PHOTO/MAPS. SERIALIZE DEFECTS ON CASTING, USE SCA.F. IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA.<br>MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER.<br>DEFECTS > 10% YES _____, REPORT SENT BY _____ DATE _____<br>DEFECTS < 10% _____ SIGN BY QA ENG. |                         |         |
| NOTICE | WITNESS<br>NOTIFICATION              | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP<br>EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____  | Q ENG<br>OR QA<br>MGR   |         |
| 230    | QA APPROVAL,<br>HOLD POINT           | QA TO APPROVE ELECTRODE PRIOR TO USE.<br>PROCEDURE USED: _____ MATERIAL USED: _____<br>QUALITY ENG. Name: _____ Date: _____  |                         |         |
| 240    | WELD SOP 0100<br>REV 7               | WELD REPAIR DEFECTS AS MARKED.<br>FOR WELDS < 2" - WPS 10-SMAW-CF8MMN MOD REV 1<br>FOR WELDS < 8" - WPS 15-GMAW-CF8MMN MOD REV 2   |                         |         |
| 250    | GRIND<br>GCHI SOP 0100R2             | HAND GRIND WELDS.  |                         |         |

*Handwritten notes:*  
 12/20/04  
 3/31/05  
 (Signature)



Energy Industries of Ohio  
Manufacturing and Test Sequence (MTS) Coill C Shim-1  
Dated December 14, 2004 Revision: Original

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Dated Issued: 12-14-04

|        |  |  |                                      |
|--------|--|--|--------------------------------------|
| 90     | GRIND<br>GSA SOP<br>0100R3<br>GCHI SOP<br>0100R2 | SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED. CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED.   | MA B.C<br>1-09-05                    |
| 100    | SAND BLAST<br>BLAS SOP<br>0100R6                 | SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.   | M1W<br>1-7-05                        |
| 110    | VISUAL<br>INSPECTION<br>CQP-500 REV 4            | VISUALLY INSPECT 100% OF COMPONENT ACCORDING TO ASTM A802 LEVEL 3 ALL CONDITIONS.<br>IF OK CHECK HERE<br>IF REJECTED CHECK HERE <input checked="" type="checkbox"/> MARK AND REPAIR AT STEP 130.   | VT -<br>LEVEL IV<br>Pmkh<br>1-7-05   |
| NOTICE | WITNESS<br>NOTIFICATION                          | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LP STEP.<br>EIO NOTIFIED ON 1/3/05 DCMA NOTIFIED ON 1/3/05 <i>again on 1/4/05 for as early as 1/7/05</i>   | Q ENG<br>OR QA<br>MGR<br><i>Chad</i> |
| 120    | 100% L.P.<br>CQP 0300<br>REV 10                  | L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA- LEVEL 2.<br>IF OK CHECK HERE<br>IF REJECTED CHECK HERE <input checked="" type="checkbox"/> MARK AND REPAIR AT STEP 130.   | LP -<br>LEVEL II<br>CQP<br>1/7/05    |
| 130    | WELD SOP 0100<br>REV 7                           | EXCAVATE ANY DEFECTS FOUND DURING 100% VISUAL AND LP INSPECTION.<br><b>DEFECTS GROUND ON ONLY NO WELDING REQUIRED</b>  | CQA<br>3/9/05<br>↓                   |
| 140    | L.P. EXCAVATION<br>CQP-300<br>REV 10             | L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT.<br>ACCEPTANCE PER A903. ACCEPTANCE CRITERIA- I-LEVEL 2.   | LP<br>LEVEL I<br>N/A<br>↓            |
| 150    | SAND BLAST<br>BLAS SOP<br>0100R6                 | SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.   | NNAW<br>3/9/05                       |
| 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.<br>MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER.<br>DEFECTS > 10% YES _____, REPORT SENT BY _____ DATE _____<br>DEFECTS < 10% _____ SIGN BY QA ENG. | N/A<br>↓                             |
| NOTICE | WITNESS<br>NOTIFICATION                          | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF XRAY AND LAYOUT STEPS.<br>EIO NOTIFIED ON 3/9/05 DCMA NOTIFIED ON 3/9/05   | Q ENG<br>OR QA<br>MGR<br>Chad        |

*Chad*  
*1/7/05*  
*1/7/05*





Energy Industries of Ohio

Manufacturing and Test Sequence (MTS) Coils C Shim-1

CO# 40851, Pattern SE 141-073 S73220-1 Dated December 14, 2004 Revision: Original Page 1 of 6 Dated Issued: 12-14-04

| OPER. # | STATION   | DESCRIPTION OF PROCESS  | Name       | Date     |
|---------|---|---|------------|----------|
| 10      | QUALITY RELEASE   | REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON 12/15/04 FROM <u>Patrick</u> SIGNED QUALITY MANAGER   | <u>ADR</u> | 12/15/04 |
| 20      | PATTERN NPAT SOP 0100REV2   | APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, FOUNDRY MARK, TO THE PATTERN.   | <u>ADR</u> | 12/17    |
| 30      | MOLD MOLD SOP 0400 REV 8 CALIBRATION PER MOLD SOP 0900 REV 5 PREPARATION PER MOLD SOP 1100R2/1200R2/13 00R1 SAND TESTING PER MOLD SOP 1400R2/1500R3/16 00R2 | 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.  | <u>ADR</u> | 12-17-04 |
| 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>2250</u> CASTING POURED AT: <u>5:30 AM</u> DATE: <u>12/19/04</u> HEAT #'S: <u>2728, 2729, 2730, 2731</u> ELAPSED POUR TIME: <u>N/A</u> KEEL BLOCKS POURED: <u>YES</u> Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Sample Taken by: <u>JG</u> Analyzed: <u>J. Galante</u> Date: <u>12-19-04</u> | <u>ADR</u> |          |
| 50      | MELT SOP 0800R2   | SHAKEOUT  | <u>ADR</u> | 12-21-04 |
| 60      | ARC RISE SOP 0100R1   | REMOVE RISERS AS DIRECTED BY SUPERVISOR.  | <u>ZAB</u> | 12-21-04 |
| 70      | HEAT TREAT HEAT SOP 0103R5  | SOLUTION ANNEAL. With C-1 Coil. 2050° HOLD  | <u>DLS</u> | 12/28/04 |
| 80      | PHYSICAL TESTING  | OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 480.  | <u>WAT</u> | 12/28/04 |

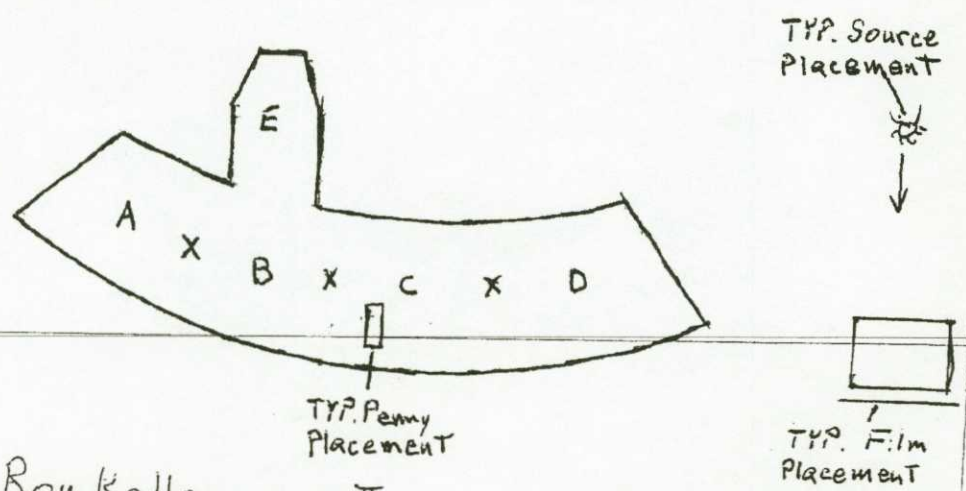
RADIOGRAPHIC STANDARD SHOOTING SKETCH

|  |                                    |
|--|------------------------------------|
| Customer <u>Energy Industries of Ohio</u>  | Pattern Number <u>SE-141-073</u>   |
| Material <u>CF8MNMN-MOD</u>  | Traceability Number <u>M573220</u> |
| Film Manufacturer <u>FUJI</u>  | Source Number <u>CO60 24.7 CI</u>  |
| IQI LEVEL <u>2-2T</u> From CQP 401 <input checked="" type="checkbox"/> Other (Specify, E.G. 2-4T, 2-1T) <u>N/A</u> |                                    |

| Exposures (views)           | A                | B | C | D | E |
|-----------------------------|------------------|---|---|---|---|
| Thickness (IN.)             | <u>3 3/8"</u>    | → | → | → | → |
| S/F Distance (IN.)          | <u>24"</u>       | → | → | → | → |
| Penetrameter                | <u>50</u>        | → | → | → | → |
| Time (MIN.)                 | <u>calculate</u> | → | → | → | → |
| Focal Spot (IN.)            | <u>0.1</u>       | → | → | → | → |
| Film Size (IN.)             | <u>14x17</u>     | → | → | → | → |
| Screen Size (Pb) Front/Back | <u>.01</u>       | → | → | → | → |
| S.W.E./D.W.E.               | <u>SWE</u>       | → | → | → | → |
| S.W.V./D.W.V.               | <u>SWV</u>       | → | → | → | → |
| Film Type                   | <u>80</u>        | → | → | → | → |
| Acceptance Standard         | <u>E186</u>      | → | → | → | → |
| Severity Level              | <u>III</u>       | → | → | → | → |

Shooting Sketch (Use Additional Pages as Needed)

use Spec. MSS-SP-54



Technique Prepared By: Roy Kelley  
Technique Approved By: [Signature]

Level: II  
Level: III

Date: 3-10-05  
Date: 3-10-05



### RADIOGRAPHIC INTERPRETATION REPORT

|  |  |  |  |                                       |  |        |                             |  |                             |           |  |          |  |       |  |         |  |         |  |          |  |
|--|--|--|--|---------------------------------------|--|--------|-----------------------------|--|-----------------------------|-----------|--|----------|--|-------|--|---------|--|---------|--|----------|--|
| CUSTOMER<br><i>Energy Industries of Ohio</i> |  | PURCHASE ORDER NUMBER<br><i>28030003</i> |  |                                       | DATE<br><i>3-9-05</i>                            |        | CONTROL NO.<br><i>40851</i> |  | PAGE<br><i>1 of 1</i>       |           |  |          |  |       |  |         |  |         |  |          |  |
| PART NO.<br><i>SE-141-073</i>                |  | SPECIFICATION<br><i>MSS-SP-54</i>        |  |                                       | CLASS<br><i>See Spec</i>                         |        | TOTAL PIECES<br><i>1</i>    |  | PIECES ACCEPTED<br><i>1</i> |           |  |          |  |       |  |         |  |         |  |          |  |
| RADIOGRAPHED BY:<br><i>[Signature]</i>       |  |  |  | INTERPRETED BY:<br><i>[Signature]</i> |  |        | ASNT LEVEL<br><i>II</i>     |  |                             |           |  |          |  |       |  |         |  |         |  |          |  |
| FILM TYPE<br><i>FUJI 80</i>                  |  | MATERIAL<br><i>CF8M N/A N-M2d</i>        |  |                                       | ISOTOPE<br><i>IRIDIUM 192</i> <i>COBALT 60</i> ✓ |        |                             | CODE<br><i>ASTM E94</i> ✓ <i>ASME</i> <i>MIL-STD-453</i> |                             |           |  |          |  |       |  |         |  |         |  |          |  |
|  |  | VIEW                                     |  | ACCEPT                                |  | REJECT |                             | SHRINK   |                             | INCLUSION |  | POROSITY |  | LINER |  | SURFACE |  | LOF/LOP |  | COMMENTS |  |
|  |  |  |  |                                       |  |        |                             |  |                             |           |  |          |  |       |  |         |  |         |  |          |  |
| <i>M573220</i>                               |  |  |  |                                       |  |        |                             |  |                             |           |  |          |  |       |  |         |  |         |  |          |  |
| <i>RT-1</i>                                  |  | <i>A</i>                                 |  | <i>50</i>                             |  | /      |                             |  |                             |           |  |          |  |       |  |         |  |         |  |          |  |
|  |  | <i>B</i>                                 |  | /                                     |  | /      |                             |  |                             |           |  |          |  |       |  |         |  |         |  |          |  |
|  |  | <i>C</i>                                 |  | /                                     |  | /      |                             |  |                             |           |  |          |  | /     |  |         |  |         |  |          |  |
|  |  | <i>D</i>                                 |  | /                                     |  | /      |                             |  |                             |           |  |          |  |       |  |         |  |         |  |          |  |
|  |  | <i>E</i>                                 |  | /                                     |  | /      |                             |  |                             |           |  |          |  | /     |  |         |  |         |  |          |  |

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



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



|        |  |   |                       |  |
|--------|--|---|-----------------------|--|
| 90     | GRIND<br>GSA SOP<br>0100R3<br>GCHI SOP<br>0100R2 | SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED. CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED.  |                       |  |
| 100    | SAND BLAST<br>BLAS SOP<br>0100R6                 | SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.  |                       |  |
| 110    | VISUAL<br>INSPECTION<br>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 -<br>LEVEL II      |  |
| NOTICE | WITNESS<br>NOTIFICATION                          | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LP STEP. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____   | Q ENG<br>OR QA<br>MGR |  |
| 120    | 100% L.P.<br>CQP 0300<br>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 -<br>LEVEL II      |  |
| 130    | WELD SOP 0100<br>REV 7                           | EXCAVATE ANY DEFECTS FOUND DURING 100% VISUAL AND LP INSPECTION.  |                       |  |
| 140    | L.P. EXCAVATION<br>CQP-300<br>REV 10             | L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA- LEVEL 2.   | LP -<br>LEVEL II      |  |
| 150    | SAND BLAST<br>BLAS SOP<br>0100R6                 | SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.  |                       |  |
| 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. |                       |  |
| NOTICE | WITNESS<br>NOTIFICATION                          | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF XRAY AND LAYOUT STEPS. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____   | Q ENG<br>OR QA<br>MGR |  |

**Energy Industries of Ohio  
Manufacturing and Test Sequence (MTS) Coill C Shim-1**

**CO# 40851, Pattern SE 141-073 S73220-1 Dated December 14, 2004 Revision: Original Page 1 of 6 Dated Issued: 12-14-04**

| OPER. # | STATION   | DESCRIPTION OF PROCESS  | Name | Date |
|---------|---|---|------|------|
| 10      | QUALITY RELEASE   | REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON _____ FROM _____ SIGNED QUALITY MANAGER   |      |      |
| 20      | PATTERN NPAT SOP 0100REV2   | APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, FOUNDRY MARK, TO THE PATTERN.   |      |      |
| 30      | MOLD MOLD SOP 0400 REV 8 CALIBRATION PER MOLD SOP 0900 REV 5 PREPARATION PER MOLD SOP 1100R2/1200R2/13 00R1 SAND TESTING PER MOLD SOP 1400R2/1500R3/16 00R2 | 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.  |      |      |
| 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: _____ CASTING POURED AT: _____ DATE: _____ HEAT #'s: _____ ELAPSED POUR TIME: _____ KEEL BLOCKS POURED: _____<br>Sample from ladle to be analyzed for final chemical analysis and reported on material certifications.<br>Sample Taken by: _____ Analyzed: _____ Date: _____ |      |      |
| 50      | MELT SOP 0800R2   | SHAKEOUT  |      |      |
| 60      | ARC RISE SOP 0100R1   | REMOVE RISERS AS DIRECTED BY SUPERVISOR.  |      |      |
| 70      | HEAT TREAT HEAT SOP 0103R5  | SOLUTION ANNEAL. With C-1 Coil.   |      |      |
| 80      | PHYSICAL TESTING  | OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 480.  |      |      |



|        |   |   |                 |  |
|--------|---|---|-----------------|--|
| 420    | GRIND GCHI SOP 0100R2                             | GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 420. REPEAT UNTILL COMPLIANCE IS ACHIEVED.   |                 |  |
| NOTICE | WITNESS NOTIFICATION                              | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF MAG PERM STEP.<br>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" BY 6" 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.<br>OK CHECK HERE _____ AND GO TO STEP 470.<br>IF REJECTED CHECK HERE _____ |                 |  |
| 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.   |                 |  |
| 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.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE _____ IF REJECTED CHECK HERE _____ RETURN TO STEP 450  |                 |  |
| 460    | PHOTOGRAPH  | TAKE DIGITAL PICTURES.  |                 |  |
| 470    | AUDIT REVIEW                                      | PROCESS DOCUMENT TO PROGRAM MANAGER FOR COMPLIANCE AUDIT.   |                 |  |
| 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)   |                 |  |
| NOTICE | RELEASE FROM EIO                                  | PROVIDE DOCUMENTS TO EIO. SENT ON _____ BY _____<br>RECEIVED RELEASE FROM EIO ON _____  | Q ENG OR QA MGR |  |
| 490    | PACK AND SHIP                                     | PACKAGE AND SHIP TO MAJOR TOOL.   |                 |  |
| 1000   | REVISION HISTORY                                  | ORIGINAL. 12-14-04.   | CARUUD          |  |



**Energy Industries of Ohio  
Manufacturing and Test Sequence (MTS) Coill C Shim-1**

**CO# 40851, Pattern SE 141-073 S73220-1 Dated December 14, 2004 Revision: Original** **Page 5 of 6** **Dated Issued: 12-14-04**

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



C-1 Package  
Document # 1

### 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-C1  
CAF Metal Designation CF8MNMnMod  
Material Spec CF8MNMnMOD  
Ladle#1 Heat 27728

Cert Number S73140-1  
Pour Date 12/19/2004

Revised 8/1/05

| Element | Min  | Actual | Max   |
|---------|------|--------|-------|
| C       | 0.04 | 0.07   | 0.07  |
| MN      | 2.3  | 2.7    | 2.8   |
| SI      | 0.0  | 0.5    | 0.5   |
| CR      | 18.0 | 18.2   | 18.5  |
| NI      | 13.0 | 13.1   | 13.5  |
| MO      | 2.1  | 2.2    | 2.5   |
| P*      | 0.0  | ----   | 0.015 |
| S*      | 0.0  | ----   | 0.015 |
| N       | 0.24 | 0.26   | 0.28  |

\* Reported on weighted average MTR see Doc. #4.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

Superior Quality Engineered Metal Products

[www.MetalTekInt.Com](http://www.MetalTekInt.Com)



C-1 Doc Package  
Document # 2

### 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-C1  
CAF Metal Designation CF8MNMnMod  
Material Spec CF8MNMnMOD  
Ladle#2 Heat 27730

Cert Number S73140-1  
Pour Date 12/19/2004

Revised 8/1/05

| Element | Min  | Actual | Max   |
|---------|------|--------|-------|
| C       | 0.04 | 0.05   | 0.07  |
| MN      | 2.3  | 2.8    | 2.8   |
| SI      | 0.0  | 0.6    | 0.5   |
| CR      | 18.0 | 18.1   | 18.5  |
| NI      | 13.0 | 13.2   | 13.5  |
| MO      | 2.1  | 2.2    | 2.5   |
| P*      | 0.0  | ----   | 0.015 |
| S*      | 0.0  | ----   | 0.015 |
| N       | 0.24 | 0.25   | 0.28  |

\* Reported on weighted average MTR see Doc. #4.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

Superior Quality Engineered Metal Products

[www.MetalTekInt.Com](http://www.MetalTekInt.Com)



3

C-1 Doc Package  
Document # 3

### 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-C1  
CAF Metal Designation CF8MNMnMod  
Material Spec CF8MNMnMOD  
Ladle#3 Heat 27731

Cert Number S73140-1  
Pour Date 12/19/2004

Revised 8/1/05

| Element | Min  | Actual | Max   |
|---------|------|--------|-------|
| C       | 0.04 | 0.05   | 0.07  |
| MN      | 2.3  | 2.6    | 2.8   |
| SI      | 0.0  | 0.4    | 0.5   |
| CR      | 18.0 | 18     | 18.5  |
| NI      | 13.0 | 13.1   | 13.5  |
| MO      | 2.1  | 2.3    | 2.5   |
| P*      | 0.0  | ----   | 0.015 |
| S*      | 0.0  | ----   | 0.015 |
| N       | 0.24 | 0.28   | 0.28  |

\* Reported on weighted average MTR see Doc. #4.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager



4

C-1 Doc Package  
Document # 4

### 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-C1  
CAF Metal Designation CF8MNMnMod  
Material Spec CF8MNMnMOD

Cert Number S73140-1  
Pour Date 12/19/2004

Weighted average of 3 heats – 27728(32.4%), 27730(25.1%), 27731(42.5%) Total Weight 28779 lbs.

Revised 8/1/05

| Element | Min  | Actual | Max   |
|---------|------|--------|-------|
| C       | 0.04 | 0.06   | 0.07  |
| MN      | 2.3  | 2.7    | 2.8   |
| SI      | 0.0  | 0.5    | 0.5   |
| CR      | 18.0 | 18.1   | 18.5  |
| NI      | 13.0 | 13.1   | 13.5  |
| MO      | 2.1  | 2.2    | 2.5   |
| P*      | 0.0  | 0.018  | 0.015 |
| S*      | 0.0  | 0.014  | 0.015 |
| N       | 0.24 | 0.27*  | 0.28  |

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

\*P is above the specification.

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

Superior Quality Engineered Metal Products

[www.MetalTekInt.Com](http://www.MetalTekInt.Com)

# PRODUCT CONFORMANCE REPORT



Product LNM.4455  
 Class. EN 12072-99: G 20 16 3 Mn L

Size(s) mm 1,2  
 Lot/Batch 3012668/82743  
 Item No. 692129

C-1 Doc Package  
 Document # 5

Customer CK SUPPLY  
 Contact Ernie Simpson  
 Eureka (MISSOURI) 63025  
 UNITED STATES

Quantity  
 Customer ref. P.O.: SL056508  
 LSW Order No. SD418352

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  
 Other tests

EN10204

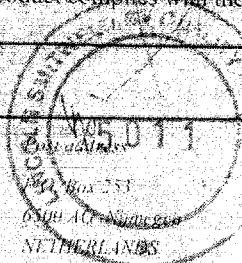
Remarks

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

Van der Dukerweg 20  
 6334 AD NIMMIGEN



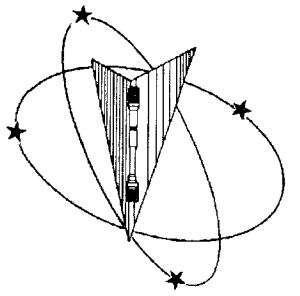
Telephone

+31 24 3522931

Fax

+31 24 3522500

NETHERLANDS



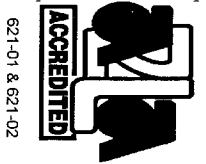
**Westmoreland Mechanical Testing & Research, Inc.**  
 P.O. Box 388  
 Westmoreland Drive  
 Youngstown, PA 15696-0388 U.S.A.  
 Telephone: 724-537-3131 Fax: 724-537-3151  
 Website: www.wmtr.com

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

**CERTIFICATION**

Section 1 of 1

WMT&R Report No. 5-25287  
 WMT&R Quote No. QN250563  
 Req No. 2767



621-01 & 621-02



April 19, 2005  
 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**

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./in./in.

MATERIAL: Metatek CF8MMNMMOD

*CAST on Bars from C-1 coil* *4/1/05*

DISPOSITION: Acceptable

| Sample     | Test-log Number | Temp. °F | UTS KSI | 0.2% YS KSI | Elong % | RA % | Modulus MSI | Ult. Load LBS | 0.2% YLD. LBS | Orig. Dia. (in.) | Final Dia. (in.) | 4D Orig GL (in.) | 4D Final GL (in.) | Orig. Area (Sq. In.) | Machine Number | A/U/R |
|------------|-----------------|----------|---------|-------------|---------|------|-------------|---------------|---------------|------------------|------------------|------------------|-------------------|----------------------|----------------|-------|
| Tensile-2  | B67872          | -320     | 172.0   | 98.7        | 62      | 68   | 24.2        | 16590         | 9522          | 0.3504           | 0.1968           | 1.40             | 2.27              | 0.09643131           | M9             | A     |
| Tensile-4E | B67873          | -320     | 167.4   | 97.8        | 44      | 36   | 23.3        | 16120         | 9416          | 0.3502           | 0.2805           | 1.40             | 2.02              | 0.09632126           | M9             | A     |
| Tensile-5A | B67874          | -320     | 171.2   | 98.7        | 61      | 64   | 22.5        | 16450         | 9481          | 0.3498           | 0.2090           | 1.40             | 2.25              | 0.09610135           | M9             | A     |

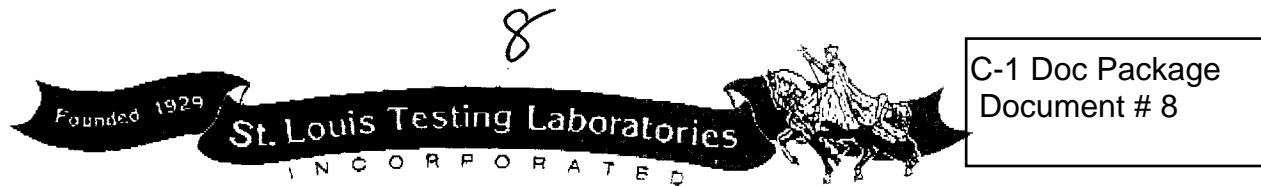
A/U/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

C-1 Doc Package Document # 7

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*[Signature]*  
 Roy E. Star/Matt Wojton  
 Technical Services Manager / Tensile Supervisor  
 April 19, 2005

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



C-1 Doc Package  
Document # 8

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

March 22, 2005  
Lab No. 05P-0864  
P.O. No. 12516  
Page 1 of 2  
(Corrected Report 6/15/05)

Attention: **Chuck Ruud**

**REPORT OF MECHANICAL TESTS**

**SAMPLE ID: 3 EA., HT# 27728 Alloy CF8MNMNMOD +70°F**

| Sample ID | Original Area<br>Sq. Inches | Reduced<br>Area<br>Sq. Inches | Reduction in<br>Area % | Yield<br>Strength<br>PSI | Tensile<br>Strength<br>PSI | Modulus<br>of<br>Elasticity | Elongation<br>(2.0" Gage<br>Length) |      |
|-----------|-----------------------------|-------------------------------|------------------------|--------------------------|----------------------------|-----------------------------|-------------------------------------|------|
|           |                             |                               |                        |                          |                            |                             | in.                                 | %    |
| 27728-1   | .1948                       | .0683                         | 64.9                   | 34,600                   | 82,500                     | 21.3                        | 1.06                                | 53.0 |
| 27728-2   | .1886                       | .0697                         | 63.0                   | 34,800                   | 85,100                     | 20.5                        | 1.03                                | 51.5 |
| 27728-3   | .1924                       | .0683                         | 64.5                   | 33,300                   | 83,900                     | 21.1                        | 1.00                                | 50.0 |

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.*

*K.S.*  
Ken Schmitz, Director  
Materials Testing



Certificate No. 0307-11  
Certificate No. 0307-02

AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST, DO NOT REPRODUCE.  
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MEMBER  
**ACIL**





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

March 22, 2005  
Lab No. 05P-0864  
P.O. No. 12516  
Page 2 of 2  
(Corrected Report 6/15/05)

Attention: **Chuck Ruud**

**REPORT OF MECHANICAL TESTS**

**SAMPLE ID:** HT# 28597 & HT# 28679

| Sample ID | Original Area<br>Sq. Inches | Reduced Area<br>Sq. Inches | Reduction in Area % | Yield Strength<br>PSI | Tensile Strength<br>PSI | Elongation<br>(2.0" Gage Length) |      |
|-----------|-----------------------------|----------------------------|---------------------|-----------------------|-------------------------|----------------------------------|------|
|           |                             |                            |                     |                       |                         | in.                              | %    |
| 28597     | .1886                       | .1140                      | 39.5                | 54,600                | 84,100                  | 0.48                             | 24.0 |
| 28679     | .1863                       | .1029                      | 44.7                | 57,400                | 82,900                  | 0.46                             | 23.0 |

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.

*Unrelated  
to project  
C/R 4/14/05*

*[Signature]*  
Kar Schmitz, Director  
Materials Testing



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

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SA



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

May 12, 2005  
Lab No. 05P-1439  
P.O. No. 12516  
Page 1 of 1

Attention: **Chuck Ruud**

**REPORT OF MECHANICAL TESTS**

**SAMPLE ID: HT# 27728**

| Sample ID | Original Area<br>Sq. Inches | Reduced Area<br>Sq. Inches | Reduction in Area % | Yield Strength<br>PSI | Modulus<br>MSI | Tensile Strength<br>PSI | Elongation<br>(2.0" Gage Length) |      |
|-----------|-----------------------------|----------------------------|---------------------|-----------------------|----------------|-------------------------|----------------------------------|------|
|           |                             |                            |                     |                       |                |                         | in.                              | %    |
| 27728     | .1948                       | .0651                      | 66.6                | 37,300                | 28.1           | 83,100                  | 1.1                              | 55.0 |

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.*

KS/tw

Karl Schmitz, Director  
Materials Testing



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

EB



C-1 Doc Package  
Document # 8b

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

June 1, 2005  
Lab No. 05P-1658  
P.O. No. 12516  
Page 1 of 1

May 31

Attention: Chuck Ruud

**REPORT OF MECHANICAL TESTS**

SAMPLE ID: HT# 27728, 29511, 29497, 29563, 29560, 29553

Retest of material

| Sample ID | Original Area<br>Sq. Inches | Reduced Area<br>Sq. Inches | Reduction<br>in Area % | Yield<br>Strength<br>PSI | Tensile<br>Strength<br>PSI | Elongation<br>(2.0" Gage Length) |      | Modulus of<br>Elasticity<br>(MSI) |
|-----------|-----------------------------|----------------------------|------------------------|--------------------------|----------------------------|----------------------------------|------|-----------------------------------|
|           |                             |                            |                        |                          |                            | in.                              | %    |                                   |
| 27728     | .1886                       | .0830                      | 56.0                   | 36400                    | 83100                      | 1.05                             | 52.5 | 24.4                              |
| 27728b    | .1886                       | .0908                      | 51.9                   | 34100                    | 84300                      | 1.00                             | 50.0 | 23.4                              |

29511 F  
29497 F  
29563 F  
29560 OK  
29553 OK

| Sample ID | Original Area<br>Sq. Inches | Reduced Area<br>Sq. inches | Reduction<br>in Area % | Yield<br>Strength<br>PSI | Tensile<br>Strength<br>PSI | Elongation<br>(2.0" Gage Length) |      |
|-----------|-----------------------------|----------------------------|------------------------|--------------------------|----------------------------|----------------------------------|------|
|           |                             |                            |                        |                          |                            | in.                              | %    |
| 29511     | .1995                       | .1878                      | 05.9                   | 40600                    | 60400                      | 0.12                             | 06.0 |
| 29497     | .1932                       | .1772                      | 08.3                   | 35700                    | 62100                      | 0.18                             | 09.0 |
| 29563     | .1847                       | .1840                      | 00.4                   | 37700                    | 37900                      | 0.04                             | 02.0 |
| 29560     | .1863                       | .1728                      | 07.3                   | 47500                    | 69500                      | 0.24                             | 12.0 |
| 29553     | .1886                       | .1765                      | 06.4                   | 50100                    | 72700                      | 0.16                             | 08.0 |

unrelated to project  
6/24/05

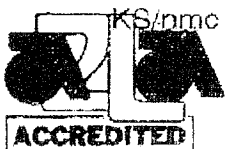
Round, reduced section tensiles

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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METALTEK INTERNATIONAL  
8600 Commercial Blvd.  
Pevsley, MO 63070

January 10, 2005  
Lab No. 05P-0008  
P.O. No. 12516  
Page 3 of 3

Attention: Chuck Ruud

**REPORT OF CHARPY IMPACT TEST**

**MATERIAL (SAMPLE ID):** HT# 27728, Alloy CF8 MnMN-MOD  
**SPECIFICATION:** ASTM A 370-03a  
**SPECIMEN TYPE:** "A" Vee Notch  
**SPECIMEN SIZE:** 10 mm x 10 mm  
**TEMPERATURE OF TEST:** -320°F

**RESULTS:**

| BASE METAL     | FOOT LBS. | LATERAL EXPANSION | % SHEAR |
|----------------|-----------|-------------------|---------|
| 27728-1        | 98        | 0.051             | 50      |
| 27728-2        | 91        | 0.060             | 50      |
| 27728-3        | 80        | 0.045             | 50      |
| <b>Average</b> | 90        | 0.052             | 50      |
| BASE METAL     | FOOT LBS. | LATERAL EXPANSION | % SHEAR |
| 27728-4        | 77        | 0.038             | 40      |
| 27728-5        | 86        | 0.055             | 50      |
| 27728-6        | 61        | 0.032             | 40      |
| <b>Average</b> | 75        | 0.042             | 43      |
| BASE METAL     | FOOT LBS. | LATERAL EXPANSION | % SHEAR |
| 27728-7        | 64        | 0.041             | 50      |
| 27728-8        | 67        | 0.043             | 50      |
| 27728-9        | 72        | 0.030             | 40      |
| <b>Average</b> | 68        | 0.038             | 47      |

*on chart*

Identification of tested specimens provided by client.

*[Signature]*  
Karl Schmitz, Director  
Materials Testing



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

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METALTEK INTERNATIONAL  
860C Commercial Blvd.  
Pevsely, MO 63070

January 10, 2005  
Lab No. 05P-0008  
P.O. No. 12516  
Page 2 of 3

Attention: Chuck Ruud

**REPORT OF CHARPY IMPACT TEST**

**MATERIAL (SAMPLE ID):** HT# 27728, Alloy CF8 MnMN-MOD  
**SPECIFICATION:** ASTM A 370-03a  
**SPECIMEN TYPE:** "A" Vee Notch  
**SPECIMEN SIZE:** 10 mm x 10 mm  
**TEMPERATURE OF TEST:** +70°F

**RESULTS:**

| BASE METAL     | FOOT LBS. | LATERAL EXPANSION | % SHEAR |
|----------------|-----------|-------------------|---------|
| 27728-1        | 139       | 0.097             | 100     |
| 27728-2        | 119       | 0.081             | 100     |
| 27728-3        | 167       | 0.091             | 100     |
| <b>Average</b> | 142       | 0.090             | 100     |
| BASE METAL     | FOOT LBS. | LATERAL EXPANSION | % SHEAR |
| 27728-4        | 170       | 0.107             | 100     |
| 27728-5        | 124       | 0.071             | 100     |
| 27728-6        | 129       | 0.060             | 100     |
| <b>Average</b> | 141       | 0.079             | 100     |
| BASE METAL     | FOOT LBS. | LATERAL EXPANSION | % SHEAR |
| 27728-7        | 141       | 0.103             | 100     |
| 27728-8        | 137       | 0.052             | 100     |
| 27728-9        | 150       | 0.114             | 100     |
| <b>Average</b> | 143       | 0.090             | 100     |

*on chart*

Identification of tested specimens provided by client.

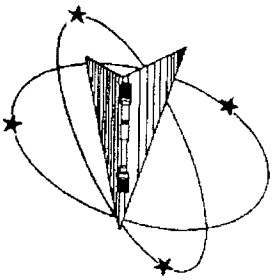
*[Signature]*  
Karl Schmitz, Director  
Materials Testing



Certificate No. 0317-01  
Certificate No. 0317-02

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April 28, 2005

Metattek International  
The Carondelet Division  
8600 Commercial Blvd.  
L-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  
Requirements: UTS ksi (Min 95Max ---) 0.2% YS ksi (Min 72Max ---) 4D Elong. % (Min 32Max ---) Modulus Msi (Min 21Max ---)  
SOAK TIME: 5 Minutes  
SPEED OF TESTING: 0.0050 in./in./min., 0.0500 in./in./min.  
MATERIAL: 316 S/S

| 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 | AIUR |
|---------------------------|----------------|----------|---------|-------------|---------|------|-------------|---------------|---------------|------------------|------------------|-------------------|--------------------|----------------------|----------------|------|
|                           |                |          |         |             |         |      |             |               |               |                  |                  |                   |                    |                      |                |      |
| 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    |

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

*D. J. [Signature]*

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Document # 11

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

CERTIFICATION

Section 1 of 1  
WMT&R Report No. 5-26097  
P.O. No. 19386R9  
WMT&R Quote No. QN250563  
Req. No. 4315



*[Signature]*  
Roy E. Starr  
Hoy E. Starr  
Technical Services Manager  
Tensile Supervisor  
4-28-05

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

12



C-1 Doc Package  
Document # 12

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

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

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

Attention: **Chuck Ruud**

**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<br>Sq. Inches | Reduced Area<br>Sq. Inches | Reduction<br>in Area % | Yield Strength<br>PSI | Tensile Strength<br>PSI | Elongation<br>(2.0" Gage Length) |      | Elastic Modulus |
|-----------|-----------------------------|----------------------------|------------------------|-----------------------|-------------------------|----------------------------------|------|-----------------|
|           |                             |                            |                        |                       |                         | in.                              | %    |                 |
| #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*

KS/tw

*Karl Schmitz*  
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. DO NOT REPRODUCE.  
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13



C-1 Doc Package  
Document # 13

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

April 8, 2005  
Lab No. 05P-1007  
P.O. No. 12516  
Page 1 of 2

Attention: **Chuck Ruud**

**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      |
| <b>Average</b> | 51        | 0.022             | 33      |

*Identification of tested specimen provided by client.*

KS/tw

*[Signature]*  
Ken Schmitz, Director  
Materials Testing



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

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C-1 Doc Package Document # 15

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METALTEK INTERNATIONAL  
8600 Commercial Blvd.  
Pevely, MO 63070

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

30126682743

SPECIFICATION:

ASTM A 370-03a

L W01974 Cste 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        |
| <b>Average</b> | <b>138</b> | <b>102</b> | <b>0.052</b>      | <b>50</b> |
| 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        |
| <b>Average</b> | <b>151</b> | <b>111</b> | <b>0.054</b>      | <b>50</b> |

Identification of tested specimen provided by client.

*Karl Schmitz*  
Karl Schmitz, Director  
Materials Testing

KS/clm



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

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

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

Attention: Rick Suria

**PROCEDURE QUALIFICATION**

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

**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 |

KS/clm

*Karl Schmitz*  
Karl Schmitz, Director  
Materials Testing  
CWI No. 92120161



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

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Doc 16

only welds 7/10<sup>2</sup>/10  
submitted 2/19/05  
to EIO.  
CJR

## C COIL RT1 WELD MAP

| Defect Number | Photo Number | Length Inches | Width Inches | Depth Inches | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|--------------|---------------|--------------|--------------|----------------------|--------------------------|
| 1             | 1            | 3             | 1 1/2        | 3/16         | NO                   | OK                       |
| 2             | 1            | 5 1/2         | 2            | 1/4          | NO                   | OK                       |
| 3             | 1            | 9             | 4 1/2        | 1/4          | NO                   | OK                       |
| 4             | 1            | 12            | 4            | 1/4          | NO                   | OK                       |
| 5             | 1            | 2             | 1            | 1/4          | NO                   | OK                       |
| 6             | 1            | 2             | 1            | 1/4          | NO                   | OK                       |
| 7             | 1            | 3 7/8         | 3            | 3/16         | NO                   | OK                       |
| 8             | 1            | 1             | 1            | 1/4          | NO                   | OK                       |
| 9             | 1            | 3             | 2            | 1/4          | NO                   | OK                       |
| 10            | 1            | 2 3/4         | 1 3/4        | 1/4          | NO                   | OK                       |
| 11            | 1            | 1 3/4         | 1            | 1/4          | NO                   | OK                       |
| 12            | 1            | 2             | 1            | 1/4          | NO                   | OK                       |
| 13            | 2            | 4             | 3            | 1/4          | NO                   | OK                       |
| 14            | 2            | 3             | 1 1/2        | 1/4          | NO                   | OK                       |
| 15            | 2            | 2             | 1 1/2        | 1/4          | NO                   | OK                       |
| 16            | 2            | 2             | 1            | 1/4          | NO                   | OK                       |
| 17            | 2            | 1 3/4         | 1            | 1/4          | NO                   | OK                       |
| 18            | 2            | 2             | 1            | 1/4          | NO                   | OK                       |
| 19            | 2            | 2             | 1 1/4        | 1/4          | NO                   | OK                       |
| 20            | 2            | 2             | 1 1/2        | 1/4          | NO                   | OK                       |
| 21            | 2            | 1 1/2         | 1 1/2        | 1/4          | NO                   | OK                       |
| 22            | 58           | 2             | 1            | 1/4          | NO                   | OK                       |
| 23            | 3            | 2             | 2            | 1/2          | NO                   | OK                       |
| 24            | 3            | 2             | 1            | 3/16         | NO                   | OK                       |
| 25            | 3            | 4             | 3            | 3/4          | NO yls               | OK                       |
| 26            | 3            | 2             | 3 1/2        | 3/8          | NO                   | OK                       |
| 27            | 3            | 2             | 1            | 1/2          | NO                   | OK                       |
| 28            | 3            | 2 1/2         | 1 1/2        | 1/4          | NO                   | OK                       |
| 29            | 4            | 2 1/2         | 1 1/2        | 1/4          | NO                   | OK                       |
| 30            | 5            | 1 1/2         | 2            | 1/4          | NO                   | OK                       |
| 31            | 5            | 2 1/2         | 1 1/2        | 1/4          | NO                   | OK                       |
| 32            | 5            | 3 1/2         | 1 1/2        | 1/4          | NO                   | OK                       |
| 33            | 5            | 2             | 1 1/2        | 1/4          | NO                   | OK                       |
| 34            | 5            | 3             | 2            | 1/4          | NO                   | OK                       |
| 35            | 6            | 3             | 3/4          | 1/4          | NO                   | OK                       |

Checked  
3/6/05  
1.02

x

Scanned  
5/9/05 EIO.



## C COIL RT1 WELD MAP

3/6/05  
← 1.02

| Defect Number | Photo Number | Length Inches                 | Width Inches                  | Depth Inches                  | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|--------------|-------------------------------|-------------------------------|-------------------------------|----------------------|--------------------------|
| 36            | 6            | 1 <sup>1</sup> / <sub>4</sub> | 1                             | 3/8                           | NO                   | OK                       |
| 37            | 6            | 3 <sup>1</sup> / <sub>2</sub> | 2 <sup>1</sup> / <sub>2</sub> | 3/8                           | NO                   | OK                       |
| 38            | 6            | 3                             | 2 <sup>3</sup> / <sub>4</sub> | 3/4                           | NO                   | OK                       |
| 39            | 6            | 2                             | 1 <sup>1</sup> / <sub>2</sub> | 1/8                           | NO                   | OK                       |
| 40            | 6            | 2                             | 1 <sup>1</sup> / <sub>2</sub> | 1/4                           | NO                   | OK                       |
| 41            | 6            | 5                             | 2                             | 1                             | YES                  | OK                       |
| 42            | 6            | 5 <sup>3</sup> / <sub>4</sub> | 3                             | 1 <sup>1</sup> / <sub>2</sub> | YES                  | OK                       |
| 43            | 7            | 4 <sup>3</sup> / <sub>4</sub> | 1 <sup>1</sup> / <sub>2</sub> | 7/8                           | YES                  | OK                       |
| 44            | 7            | 2 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>2</sub> | 1/4                           | NO                   | OK                       |
| 45            | 59           | 3 <sup>1</sup> / <sub>4</sub> | 1 <sup>1</sup> / <sub>4</sub> | 1/4                           | NO                   | OK                       |
| 46            | 59           | 5 <sup>1</sup> / <sub>2</sub> | 3 <sup>1</sup> / <sub>2</sub> | 2                             | YES                  | OK                       |
| 47            | 7            | 2                             | 1 <sup>1</sup> / <sub>2</sub> | 1/2                           | NO                   | OK                       |
| 48            | 7            | 5                             | 2 <sup>1</sup> / <sub>2</sub> | 2                             | YES                  | OK                       |
| 49            | 7            | 6                             | 4                             | 1 <sup>1</sup> / <sub>2</sub> | YES                  | OK                       |
| 50            | 8            | 9                             | 4                             | THRU                          | YES                  | OK                       |
| 51            | 8            | 4                             | 1 <sup>1</sup> / <sub>2</sub> | 3/8                           | NO                   | OK                       |
| 52            | 9            | 1                             | 1 <sup>1</sup> / <sub>2</sub> | 1/4                           | NO                   | OK                       |
| 53            | 9            | 2 <sup>1</sup> / <sub>2</sub> | 2                             | 1/4                           | NO                   | OK                       |
| 54            | 9            | 2                             | 1                             | 1/4                           | NO                   | OK                       |
| 55            | 10           | 6 <sup>1</sup> / <sub>2</sub> | 3 <sup>3</sup> / <sub>4</sub> | 1/2                           | NO                   | OK                       |
| 56            | 10           | 2 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>4</sub> | 1/4                           | NO                   | OK                       |
| 57            | 10           | 3 <sup>1</sup> / <sub>2</sub> | 2 <sup>1</sup> / <sub>2</sub> | 1/8                           | NO                   | OK                       |
| 58            | 11           | 2                             | 1 <sup>1</sup> / <sub>2</sub> | 1/4                           | NO                   | OK                       |
| 59            | 11           | 2                             | 1 <sup>1</sup> / <sub>2</sub> | 1/4                           | NO                   | OK                       |
| 60            | 14           | 2 <sup>1</sup> / <sub>2</sub> | 2                             | 3/4                           | YES                  | OK                       |
| 61            | 14           | 2                             | 1 <sup>1</sup> / <sub>4</sub> | 1/2                           | YES                  | OK                       |
| 62            | 13           | 13                            | 5 <sup>3</sup> / <sub>4</sub> | THRU                          | YES                  | OK                       |
| 63            | 14           | 2 <sup>1</sup> / <sub>4</sub> | 1 <sup>1</sup> / <sub>2</sub> | 1/4                           | NO                   | OK                       |
| 64            | 14           | 2 <sup>1</sup> / <sub>4</sub> | 1 <sup>1</sup> / <sub>2</sub> | 1/4                           | NO                   | OK                       |
| 65            | 14           | 7 <sup>1</sup> / <sub>4</sub> | 5 <sup>1</sup> / <sub>2</sub> | 1 <sup>3</sup> / <sub>4</sub> | YES                  | OK                       |
| 66            | 14           | 3                             | 1                             | 1/4                           | NO                   | OK                       |
| 67            | 14           | 8 <sup>1</sup> / <sub>4</sub> | 4                             | 1 <sup>1</sup> / <sub>2</sub> | YES                  | OK                       |
| 68            | 14           | 5 <sup>1</sup> / <sub>2</sub> | 3                             | 1                             | YES                  | OK                       |
| 69            | 17           | 6                             | 2                             | 1 <sup>1</sup> / <sub>2</sub> | YES                  | OK                       |
| 70            | 17           | 3                             | 2 <sup>1</sup> / <sub>2</sub> | 1 <sup>3</sup> / <sub>4</sub> | YES                  | OK                       |
| 71            | 17           | 7 <sup>1</sup> / <sub>2</sub> | 4 <sup>1</sup> / <sub>2</sub> | 2 <sup>3</sup> / <sub>4</sub> | YES                  | OK                       |
| 72            | 17           | 3                             | 1                             | 1/4                           | NO                   | OK                       |



## C COIL RT1 WELD MAP

| Defect Number | Photo Number | Length Inches | Width Inches | Depth Inches | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|--------------|---------------|--------------|--------------|----------------------|--------------------------|
| 73            | 16           | 3             | 1            | 1/4          | NO                   | OK                       |
| 74            | 17           | 1             | 1/2          | 1/4          | NO                   | OK                       |
| 75            | 15           | 3             | 2 1/2        | 1/4          | NO                   | OK                       |
| 76            | 15           | 2             | 1 1/2        | 1/4          | NO                   | OK                       |
| 77            | 16           | 2             | 1 1/2        | 1/4          | NO                   | OK                       |
| 78            | 19           | 2 1/2         | 1 1/2        | 1/4          | NO                   | OK                       |
| 79            | 18           | 4 7/8         | 1 1/2        | 1/2          | YES                  | OK                       |
| 80            | 18           | 1 1/2         | 1            | 1/4          | NO                   | OK                       |
| 81            | 18           | 4             | 3 3/4        | 1 1/4        | YES                  | OK                       |
| 82            | 20           | 11 1/2        | 4 1/2        | 2            | YES                  | OK                       |
| 83            | 20           | 6             | 3            | 1            | YES                  | OK                       |
| 84            | 23           | 1 1/2         | 1            | 1/8          | NO                   | OK                       |
| 85            | 23           | 3             | 1 1/2        | 1/8          | NO                   | OK                       |
| 86            | 23           | 4             | 3 1/2        | 3/8          | NO                   | OK                       |
| 87            | 23           | 6             | 2            | 3/8          | NO                   | OK                       |
| 88            | 21           | 5             | 3 1/4        | 7/8          | YES                  | OK                       |
| 89            | 22           | 8 1/2         | 2 1/2        | 3/4          | Yes                  | OK                       |
| 90            | 22           | 3             | 1 1/2        | 3/8          | Yes                  | OK                       |
| 91            | 60           | 1             | 1            | 1/8          | No                   | OK                       |
| 92            | 60           | 1             | 1/2          | 1/8          | No                   | OK                       |
| 93            | 23           | 4             | 1 1/2        | 3/8          | Yes                  | OK                       |
| 94            | 23           | 3             | 2 1/2        | 3/8          | Yes                  | OK                       |
| 95            | 23           | 1 1/2         | 1            | 1/8          | No                   | OK                       |
| 96            | 23           | 1             | 1            | 1/8          | No                   | OK                       |
| 97            | 23           | 3             | 2            | 1/8          | No                   | OK                       |
| 98            | 61           | 4 1/2         | 1 1/2        | 1/4          | Yes                  | OK                       |
| 99            | 24           | 1 1/2         | 3/4          | 7/8          | Yes                  | OK                       |
| 100           | 24           | 9 3/4         | 4 1/4        | 2 1/8        | Yes                  | OK                       |
| 101           | 24           | 1 1/2         | 1            | 1/8          | No                   | OK                       |
| 102           | 24           | 6             | 2            | 1/2          | Yes                  | OK                       |
| 103           | 24           | 1             | 1            | 1/8          | No                   | OK                       |
| 104           | 24           | 1             | 1/2          | 1/2          | No                   | OK                       |
| 105           | 24           | 3 1/2         | 3            | 1 1/4        | Yes                  | OK                       |
| 106           | 24           | 6 7/8         | 2            | 1            | Yes                  | OK                       |
| 107           | 26           | 1 1/2         | 1 1/2        | 3/4          | Yes                  | OK                       |
| 108           | 26           | 7             | 5            | 1 1/2        | Yes                  | OK                       |
| 109           | 27           | 11 1/2        | 6 1/2        | 2 1/2        | Yes                  | OK                       |

3/6/05  
 L102

## C COIL RT1 WELD MAP

| Defect Number  | Photo Number  | Length Inches | Width Inches | Depth Inches | Over 10% Wall Yes/No | Weld Permeability Result |
|----------------|---------------|---------------|--------------|--------------|----------------------|--------------------------|
| 110            | 25            | 8 1/2         | 1            | 3/8          | Yes                  | OK                       |
| 111            | 25            | 1             | 1            | 3/8          | Yes                  | OK                       |
| 112            | 62            | 2             | 1            | 3/8          | Yes                  | OK                       |
| 113            | 62            | 1             | 1/2          | 3/8          | Yes                  | OK                       |
| 114            | 28            | 2             | 1            | 3/8          | Yes                  | OK                       |
| 115            | 28            | 3 3/4         | 1            | 3/8          | Yes                  | OK                       |
| 116            | 28            | 1             | 1            | 3/16         | No                   | OK                       |
| 117            | 29            | 1 1/2         | 1 1/2        | 3/16         | No                   | OK                       |
| 118            | 29            | 4             | 1 1/2        | 3/16         | No                   | OK                       |
| 119            | 28            | 2             | 1 1/2        | 3/8          | Yes                  | OK                       |
| <del>120</del> | 28            | 2             | 1 1/2        | 3/8          | Yes                  | OK                       |
| 121            | 28            | 1 1/2         | 1            | 3/8          | No                   | OK                       |
| 122            | 28            | 3 1/2         | 1 1/2        | 3/8          | No                   | OK                       |
| 123            | 28            | 1             | 1/2          | 1/8          | No                   | OK                       |
| 124            | 28            | 2             | 1            | 3/8          | No                   | OK                       |
| 125            | 28            | 17            | 2            | 3/8          | No                   | OK                       |
| 126            | 30            | 2             | 1 1/2        | 1/4          | No                   | OK                       |
| 127            | 30            | 3 1/2         | 1 3/4        | 3/4          | Yes                  | OK                       |
| 128            | 32            | 1 3/4         | 1            | 3/8          | Yes                  | OK                       |
| 129            | 32            | 2             | 1            | 1/2          | No                   | OK                       |
| 130            | <del>32</del> | 5             | 1 3/4        | 1/2          | No                   | OK                       |
| 131            | <del>32</del> | 1             | 1/2          | 1/2          | No                   | OK                       |
| 132            | <del>32</del> | 1/2           | 1/2          | 1/2          | No                   | OK                       |
| 133            | 32            | 2 3/4         | 1/2          | 3/8          | Yes                  | OK                       |
| 134            | 32            | 2 3/4         | 1 3/4        | 1/4          | Yes                  | OK                       |
| 135            | 31            | 5 1/2         | 3            | 1 1/2        | Yes                  | OK                       |
| 136            | 31            | 4             | 2            | 1 1/2        | Yes                  | OK                       |
| 137            | 31            | 3             | 2            | 3/4          | Yes                  | OK                       |
| 138            | 31            | 5 1/2         | 2            | 1            | Yes                  | OK                       |
| 139            | 31            | 3             | 3            | 1            | Yes                  | OK                       |
| 140            | 31            | 3 1/2         | 3            | 1            | Yes                  | OK                       |
| 141            | 31            | 5 1/4         | 1 1/2        | 1/4          | No                   | OK                       |
| 142            | 31            | 1 1/2         | 1            | 1/4          | No                   | OK                       |

3/6/05  
← 1.02

1. Weld maps submitted to EIO/PPPL on \_\_\_\_\_ By: \_\_\_\_\_
2. Weld maps approved by EIO/PPPL on \_\_\_\_\_ By: \_\_\_\_\_



## C COIL RT1 WELD MAP

| Defect Number | Photo Number | Length Inches | Width Inches | Depth Inches | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|--------------|---------------|--------------|--------------|----------------------|--------------------------|
| 143           | 33           | 2             | 1            | 1/8          | No                   | OK                       |
| 144           | 33           | 2             | 1            | 1/8          | No                   | OK                       |
| 145           | 32           | 3             | 1/2          | 1/8          | No                   | OK                       |
| 146           | 32           | 2             | 1/2          | 1/8          | No                   | OK                       |
| 147           | 35           | 4             | 3            | 1/8          | No                   | OK                       |
| 148           | 35           | 3             | 1/2          | 1/8          | No                   | OK                       |
| 149           | 35           | 2 1/2         | 1 1/2        | 1/8          | No                   | OK                       |
| 150           | 35           | 3 1/2         | 2 1/2        | 1/8          | No                   | OK                       |
| 151           | 34           | 12 1/2        | 2 1/2        | 2            | Yes                  | OK                       |
| 152           | 34           | 3             | 1 1/2        | 3/4          | Yes                  | OK                       |
| 153           | 34           | 3             | 2 1/2        | 1            | Yes                  | OK                       |
| 154           | 34           | 3             | 1 3/4        | 7/8          | Yes                  | OK                       |
| 155           | 38           | 2             | 1            | 1/8          | No                   | OK                       |
| 156           | 38           | 5 1/2         | 1 1/2        | 1/2          | Yes -                | OK                       |
| 157           | 38           | 1 1/2         | 1            | 3/8          | Yes -                | OK                       |
| 158           | 36           | 2             | 1 1/2        | 3/8          | Yes -                | OK                       |
| 159           | 37           | 3 1/2         | 3            | 1            | Yes -                | OK                       |
| 160           | 37           | 1 1/2         | 1            | 1/2          | Yes -                | OK                       |
| 161           | 37           | 1             | 1            | 3/8          | Yes -                | OK                       |
| 162           | 39           | 1             | 1 1/2        | 3/8          | Yes -                | OK                       |
| 163           | 39           | 1 1/2         | 1 1/2        | 1/2          | Yes -                | OK                       |
| 164           | 39           | 1             | 1 1/2        | 1/2          | No                   | OK                       |
| 165           | 39           | 3 1/2         | 1            | 3/8          | No                   | OK                       |
| 166           | 39           | 1             | 1            | 1/8          | No                   | OK                       |
| 167           | 39           | 1 1/2         | 1            | 3/8          | Yes -                | OK                       |
| 168           | 40           | 4             | 2            | 3/8          | No                   | OK                       |
| 169           | 40           | 8             | 1 1/2        | 3/8          | Yes -                | OK                       |
| 170           | 40           | 1 1/2         | 1 1/2        | 1/8          | No                   | OK                       |
| 171           | 40           | 6 3/4         | 4            | 3/8          | Yes -                | OK                       |
| 172           | 63           | 5 1/2         | 1            | 3/8          | Yes -                | OK                       |
| 173           | 41           | 4             | 2 1/4        | 3/16         | No                   | OK                       |
| 174           | 41           | 4             | 1            | 3/8          | Yes -                | OK                       |
| 175           | 41           | 5             | 1            | 3/8          | Yes -                | OK                       |
| 176           | 42           | 1             | 1/2          | 1/2          | No                   | OK                       |
| 177           | 43           | 1             | 1            | 3/8          | Yes -                | OK                       |

3/6/05  
L1.02

*[Handwritten signature]*

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## C COIL RT1 WELD MAP

3/6/05  
21.02

| Defect Number | Photo Number | Length Inches | Width Inches | Depth Inches | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|--------------|---------------|--------------|--------------|----------------------|--------------------------|
| 178           | 43           | 1 1/2         | 1            | 1/8          | No                   | OK                       |
| 179           | 43           | 1 1/2         | 1            | 3/8          | No                   | OK                       |
| 180           | 44           | 1             | 1            | 1/2          | No                   | OK                       |
| 181           | 44           | 1             | 1            | 1/2          | No                   | OK                       |
| 182           | 44           | 2             | 2            | 1            | Yes                  | OK                       |
| 183           | 44           | 2 1/2         | 2            | 3/4          | Yes                  | OK                       |
| 184           | 45           | 1             | 1            | 1/2          | No                   | OK                       |
| 185           | 46           | 1             | 1/2          | 3/8          | Yes                  | OK                       |
| 186           | 46           | 1             | 1            | 1/8          | No                   | OK                       |
| 187           | 64           | 2             | 1 1/2        | 1/4          | No                   | OK                       |
| 188           | 47           | 2             | 1 1/2        | 1/4          | No                   | OK                       |
| 189           | 48           | 2             | 1 1/2        | 1/4          | No                   | OK                       |
| 190           | 48           | 3             | 2 1/4        | 1/4          | No                   | OK                       |
| 191           | 48           | 9 1/4         | 3            | 1 1/8        | Yes                  | OK                       |
| 192           | 49           | 1 1/4         | 1            | 3/8          | No                   | OK                       |
| 193           | 49           | 6 1/8         | 3 3/4        | 1 1/8        | Yes                  | OK                       |
| 194           | 49           | 1 3/4         | 1 1/4        | 3/8          | No                   | OK                       |
| 195           | 50           | 1 1/2         | 1            | 1/8          | No                   | OK                       |
| 196           | 65           | 1             | 1            | 3/8          | No                   | OK                       |
| 197           | 51           | 2             | 1 1/4        | 3/8          | No                   | OK                       |
| 198           | 51           | 6             | 3/4          | 1/2          | No                   | OK                       |
| 199           | 51           | 4             | 1 1/2        | 3/8          | No                   | OK                       |
| 200           | 55           | 2             | 1 1/2        | 1/8          | No                   | OK                       |
| 201           | 54           | 4             | 3 1/4        | 2 1/2        | Yes                  | OK                       |
| 202           | 52           | 5             | 2            | 1/2          | No                   | OK                       |
| 203           | 52           | 6 3/4         | 3            | 3/8          | No                   | OK                       |
| 204           | 52           | 5 1/2         | 3 1/2        | 3/4          | Yes                  | OK                       |
| 205           | 57           | 3 1/4         | 3            | 2 1/4        | Yes                  | OK                       |
| 206           | 56           | 7 1/2         | 3            | 2            | Yes                  | OK                       |
| 207           | 66           | 3             | 2 1/8        | 1/8          | No                   | OK                       |
| 208           | 66           | 1             | 1/2          | 1/8          | No                   | OK                       |
| 209           | 66           | 2 1/8         | 1 1/2        | 3/8          | No                   | OK                       |
| 210           | 66           | 2 1/2         | 1            | 3/8          | No                   | OK                       |
| 211           | 68           | 2             | 1 1/2        | 1 1/4        | Yes                  | OK                       |
| 212           | 68           | 7             | 3 1/4        | 1            | Yes                  | OK                       |
| 213           | 68           | 5 1/2         | 3 1/4        | 1 1/2        | Yes                  | OK                       |
| 214           | 68           | 5 1/2         | 4            | 3/16         | No                   | OK                       |



## C COIL RT1 WELD MAP

*3/6/05  
Checked  
L102*

| Defect Number | Photo Number  | Length Inches                  | Width Inches                  | Depth Inches                   | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|---------------|--------------------------------|-------------------------------|--------------------------------|----------------------|--------------------------|
| 215           | 69            | 2 <sup>3</sup> / <sub>4</sub>  | 2                             | 1 <sup>1</sup> / <sub>8</sub>  | Yes                  | OK                       |
| 216           | 69            | 1 <sup>1</sup> / <sub>2</sub>  | 1                             | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 217           | 70            | 12                             | 11                            | 2                              | Yes                  | OK                       |
| 218           | 70            | 1                              | 1 <sup>1</sup> / <sub>2</sub> | 3 <sup>1</sup> / <sub>16</sub> | No                   | OK                       |
| 219           | 71            | 11 <sup>3</sup> / <sub>4</sub> | 1 <sup>1</sup> / <sub>2</sub> | 3 <sup>1</sup> / <sub>16</sub> | No                   | OK                       |
| 220           | 72            | 2 <sup>3</sup> / <sub>8</sub>  | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 221           | 73            | 6                              | 4 <sup>3</sup> / <sub>4</sub> | 2                              | Yes                  | OK                       |
| 222           | 74            | 1                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 223           | 74            | 1                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 224           | 74            | 3                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 225           | 75            | 9 <sup>1</sup> / <sub>2</sub>  | 2 <sup>1</sup> / <sub>2</sub> | 2 <sup>1</sup> / <sub>2</sub>  | Yes                  | OK                       |
| 226           | 76            | 12 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 227           | 76            | 1                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 228           | 77            | 1                              | 1                             | 3 <sup>1</sup> / <sub>4</sub>  | Yes                  | OK                       |
| 229           | 77            | 4                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 230           | 78            | 2                              | 1                             | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 231           | 78            | 9                              | 5                             | 3 <sup>1</sup> / <sub>2</sub>  | Yes                  | OK                       |
| 232           | 79            | 1                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 233           | 79            | 4 <sup>1</sup> / <sub>2</sub>  | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 234           | 79            | 1 <sup>3</sup> / <sub>4</sub>  | 1 <sup>1</sup> / <sub>2</sub> | 3 <sup>1</sup> / <sub>8</sub>  | Yes                  | OK                       |
| 235           | 79            | 3                              | 2                             | 1                              | Yes                  | OK                       |
| 236           | 79            | 2                              | 1 <sup>1</sup> / <sub>2</sub> | 1                              | Yes                  | OK                       |
| 237           | 80            | 2                              | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 238           | 81            | 2                              | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 239           | 82            | 3                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | Yes                  | OK                       |
| 240           | 82            | 5 <sup>1</sup> / <sub>2</sub>  | 1 <sup>3</sup> / <sub>4</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 241           | 83            | 2 <sup>1</sup> / <sub>2</sub>  | 1 <sup>1</sup> / <sub>2</sub> | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 242           | <del>85</del> | 1                              | 1                             | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 243           | 84            | 2                              | 1 <sup>3</sup> / <sub>4</sub> | 3 <sup>1</sup> / <sub>8</sub>  | Yes                  | OK                       |
| 244           | 84            | 1                              | 1                             | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 245           | 86            | 1                              | 1 <sup>1</sup> / <sub>2</sub> | 1 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 246           | 86            | 1                              | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 247           | 87            | 1 <sup>3</sup> / <sub>4</sub>  | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 248           | 87            | 2 <sup>3</sup> / <sub>4</sub>  | 1 <sup>1</sup> / <sub>2</sub> | 1                              | Yes                  | OK                       |
| 249           | 87            | 1 <sup>1</sup> / <sub>2</sub>  | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | Yes                  | OK                       |
| 250           | 88            | 1 <sup>1</sup> / <sub>2</sub>  | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |
| 251           | 88            | 1 <sup>1</sup> / <sub>2</sub>  | 1                             | 3 <sup>1</sup> / <sub>8</sub>  | No                   | OK                       |

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## C COIL RT1 WELD MAP

| Defect Number | Photo Number | Length Inches | Width Inches | Depth Inches | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|--------------|---------------|--------------|--------------|----------------------|--------------------------|
| 253           | 1            | 1             | 1            | 1/8          | NO                   | OK                       |
| 254           | 1            | 1             | 1            | 1/8          | NO                   | OK                       |
| 255           | 1            | 2             | 1 5/8        | 1/8          | NO                   | OK                       |
| 256           | 1            | 1 1/2         | 1            | 3/8          | NO                   | OK                       |
| 257           | 2            | 2 1/2         | 1 1/2        | 3/8          | NO                   | OK                       |
| 258           | 2            | 1             | 1            | 5/8          | NO                   | OK                       |
| 259           | 2            | 4             | 1            | 3/8          | NO                   | OK                       |
| 260           | 3            | 2             | 1 1/2        | 1/2          | YES                  | OK                       |
| 261           | 3            | 4             | 2            | 3/4          | YES                  | OK                       |
| 262           | 4            | 1             | 1/2          | 3/8          | NO                   | OK                       |
| 263           | 5            | 1             | 1            | 3/8          | NO                   | OK                       |
| 264           | 5            | 1 1/2         | 1 1/2        | 1/2          | YES                  | OK                       |
| 265           | 6            | 1             | 1            | 5/8          | NO                   | OK                       |
| 266           | 6            | 9 1/4         | 2            | 3/8          | NO                   | OK                       |
| 267           | 7            | 1 1/2         | 1/2          | 1/4          | NO                   | OK                       |
| 268           | 7            | 2             | 1 1/2        | 1/4          | NO                   | OK                       |
| 269           | 7            | 3             | 2            | 1/4          | NO                   | OK                       |
| 270           | 7            | 5             | 2            | 1/8          | NO                   | OK                       |
| 271           | 7            | 4             | 2            | 1/8          | NO                   | OK                       |
| 272           | 7            | 1 1/2         | 1 1/2        | 1/4          | NO                   | OK                       |
| 273           | 7            | 1 1/2         | 1            | 1/4          | NO                   | OK                       |
| 274           | 7            | 1             | 1            | 3/8          | NO                   | OK                       |
| 275           | 8            | 2             | 1            | 1            | YES                  | OK                       |
| 276           | 8            | 1             | 1            | 3/8          | NO                   | OK                       |
| 277           | 8            | 1 1/2         | 1            | 1/2          | NO                   | OK                       |
| 278           | 8            | 1             | 1            | 1/2          | NO                   | OK                       |
| 279           | 8            | 2 1/2         | 2            | 5/8          | NO                   | OK                       |
| 280           | 9            | 2 1/2         | 2            | 5/8          | NO                   | OK                       |
| 281           | 9            | 2             | 2            | 1/2          | YES                  | OK                       |
| 282           | 10           | 1             | 1            | 1/8          | NO                   | OK                       |
| 283           | 11           | 4             | 1 1/2        | 1/2          | YES                  | OK                       |
| 284           | 11           | 3             | 1            | 1/2          | YES                  | OK                       |
| 285           | 12           | 2             | 1/2          | 1/4          | NO                   | OK                       |

1. Weld maps submitted to EIO/PPPL on 3/23/05 By: RS  
 2. Weld maps approved by EIO/PPPL on NA By: \_\_\_\_\_

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## C COIL RT1 WELD MAP

| Defect Number | Photo Number | Length Inches | Width Inches | Depth Inches | Over 10% Wall Yes/No | Weld Permeability Result |
|---------------|--------------|---------------|--------------|--------------|----------------------|--------------------------|
| 286           | 12           | 2             | 2            | 1            | YES                  | OK                       |
| 287           | 12           | 2             | 2            | 1/2          | YES                  | OK                       |
| 288           | 12           | 1             | 1            | 1/4          | NO                   | OK                       |
| 289           | 12           | 2 1/2         | 2            | 3/8          | NO                   | OK                       |
| 290           | 12           | 4             | 2            | 1/4          | NO                   | OK                       |
| 291           | 12           | 1 1/2         | 1            | 3/8          | NO                   | OK                       |
| 292           | 12           | 1 1/2         | 1            | 1/8          | NO                   | OK                       |
| 293           | 12           | 2             | 1            | 3/8          | NO                   | OK                       |
| 294           | 12           | 3             | 1            | 5/8          | NO                   | OK                       |
| 295           | 12           | 2             | 1            | 3/8          | NO                   | OK                       |
| 296           | 13           | 1             | 1            | 1/4          | NO                   | OK                       |
| 297           | 13           | 2             | 1            | 1/4          | NO                   | OK                       |
| 298           | 13           | 1             | 1            | 1/8          | NO                   | OK                       |
| 299           | 13           | 1 1/2         | 1 1/2        | 1/2          | NO                   | OK                       |
| 300           | 13           | 2             | 1            | 3/8          | NO                   | OK                       |
| 301           | 13           | 3             | 2 1/2        | 1 1/4        | YES                  | OK                       |
| 302           | 13           | 6 1/2         | 3 1/2        | 1 1/2        | YES                  | OK                       |
| 303           | 13           | 3 1/2         | 3 1/2        | 1            | YES                  | OK                       |
| 304           | 14           | 2 1/2         | 2 1/2        | 1            | YES                  | OK                       |
| 305           | 14           | 4             | 3            | 1            | YES                  | OK                       |
| 306           | 14           | 1 1/2         | 1 1/2        | 3/8          | NO                   | OK                       |
| 307           | 15           | 4             | 2            | 3/8          | NO                   | OK                       |
| 308           | 15           | 4             | 2            | 3/8          | NO                   | OK                       |
| 309           | 15           | 2 1/2         | 2 1/2        | 5/8          | NO                   | OK                       |
| 310           | 16           | 2 1/2         | 2 1/2        | 1/2          | YES                  | OK                       |
| 311           | 17           | 3 1/2         | 3            | 3/8          | NO                   | OK                       |
| 312           | 17           | 1             | 1            | 1/8          | NO                   | OK                       |
| 313           | 17           | 3             | 1 1/2        | 1/8          | NO                   | OK                       |
| 314           | 17           | 3             | 1 1/2        | 1/8          | NO                   | OK                       |
| 315           | 17           | 2 1/2         | 2 1/2        | 3/8          | NO                   | OK                       |
| 316           | 17           | 2 1/2         | 2            | 3/8          | NO                   | OK                       |
| 317           | 17           | 1 1/2         | 1            | 1/8          | NO                   | OK                       |
| 318           | 18           | 1             | 1            | 1/8          | NO                   | OK                       |

1. Weld maps submitted to EIO/PPPL on  
2. Weld maps approved by EIO/PPPL on

3/23 By: RS  
NA By: \_\_\_\_\_

A10







C-1 Doc Package  
Document # 17

### Carondelet Division

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

### Final Inspection Report

Customer Name: ENERGY INDUSTRIES OF OHIO  
Pattern: MCWF-C1

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     |
|--|-------------|------------------------|---------------------|------------|
| Radiographic   | S73140-1    | Technique # 12726      | MSS SP 54           | Acceptable |
| Liquid Penetrant   | S73140-1    | CQP - 300 Rev 9        | SEE NOTE            | Acceptable |
| <b>Notes</b> Acceptance per ASTM A903. Acceptance criteria - level 1 for high stressed areas, level 2 for all other areas. |             |                        |                     |            |
| Mag Perm   | S73140-1    | SOP Mag Perm 100 Rev 1 | <1.02               | Acceptable |
| Visual   | S73140-1    | CQP - 500 REV 4        | ASTM A802 LEVEL 2   | Acceptable |

#### Liquid Penetrant

Technician: Kevin Anderson  
ASNT Level II

Respectfully Submitted,  
Charles A. Ruud  
Quality Assurance Manager

### RADIOGRAPHIC INTERPRETATION REPORT

|                                       |  |                                   |  |                                 |                 |   |                      |                                      |                |                            |  |
|---------------------------------------|--|-----------------------------------|--|---------------------------------|-----------------|---|----------------------|--------------------------------------|----------------|----------------------------|--|
| CUSTOMER<br>Energy Industries of OHIO |  | PURCHASE ORDER NUMBER<br>28030003 |  |                                 | DATE<br>1-19-05 |   | CONTROL NO.<br>40851 |                                      | PAGE<br>1 of 6 |                            |  |
| PART NO.<br>MCWF-C1                   |  | SPECIFICATION<br>MSS-SP-54        |  | CLASS<br>See Spec               |                 | TOTAL PIECES<br>1                         |                      | PIECES ACCEPTED<br>1                 |                |                            |  |
| RADIOGRAPHED BY:<br>Cooperheat/MRS    |  |                                   |  | INTERPRETED BY:<br>Kelley/Suria |                 |   | ASNT LEVEL<br>II     |                                      |                |                            |  |
| FILM TYPE<br>Kodak                    |  | MATERIAL<br>CF8M                  |  | ISOTOPE<br>IRIDIUM 192          |                 |   |                      | CODE<br>ASTM E94 / ASME              |                | MIL-STD-453                |  |
|                                       |  |                                   |  | COBALT 60                       |                 |   |                      |                                      |                | COMMENTS                   |  |
|                                       |  | V<br>I<br>E<br>W                  |  | P<br>E<br>N<br>E                |                 | A<br>C<br>C<br>E<br>P<br>T                |                      | R<br>E<br>J<br>E<br>C<br>T           |                | S<br>H<br>R<br>I<br>N<br>K |  |
|                                       |  |                                   |  |                                 |                 | I<br>N<br>C<br>L<br>U<br>S<br>I<br>O<br>N |                      | P<br>O<br>R<br>O<br>S<br>I<br>T<br>Y |                | L<br>I<br>N<br>E<br>A<br>R |  |
|                                       |  |                                   |  |                                 |                 | S<br>U<br>R<br>F<br>A<br>C<br>E           |                      | L<br>O<br>F<br>/<br>L<br>O<br>P      |                |                            |  |
| CRT, 1                                |  |                                   |  |                                 |                 |   |                      |                                      |                |                            |  |
| Inside Rail                           |  | 1-2                               |  | 60<br>120                       |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 2-3                               |  | 60<br>120                       |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 3-4                               |  | 60<br>120                       |                 | /   |                      | 2                                    |                | /                          |  |
|                                       |  | 4-5                               |  | ↓                               |                 | /   |                      | 3                                    |                | /                          |  |
|                                       |  | 5-6                               |  | ↓                               |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 6-7                               |  | 60<br>120                       |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 7-8                               |  | 60<br>80<br>120                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 8-9                               |  | 60<br>120                       |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 9-10                              |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 10-11                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 11-12                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 12-13                             |  |                                 |                 | /   |                      | 2                                    |                | /                          |  |
|                                       |  | 13-14                             |  |                                 |                 | /   |                      | X                                    |                | X                          |  |
|                                       |  | 14-15                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 15-16                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 16-17                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 17-18                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 18-19                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 19-20                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |
|                                       |  | 20-21                             |  |                                 |                 | /   |                      |                                      |                | /                          |  |







**RADIOGRAPHIC INTERPRETATION REPORT**

|                                       |  |                                   |                                 |                      |   |                   |                      |                                     |                |                                |  |
|---------------------------------------|--|-----------------------------------|---------------------------------|----------------------|---|-------------------|----------------------|-------------------------------------|----------------|--------------------------------|--|
| CUSTOMER<br>Energy Industries of OHIO |  | PURCHASE ORDER NUMBER<br>28030003 |                                 |                      | DATE<br>1-19-05                                       |                   | CONTROL NO.<br>40851 |                                     | PAGE<br>3 of 6 |                                |  |
| PART NO.<br>MCWF-C1                   |  | SPECIFICATION<br>MSS-SP-54        |                                 | CLASS<br>SeeSpec     |   | TOTAL PIECES<br>1 |                      | PIECES ACCEPTED<br>1                |                |                                |  |
| RADIOGRAPHED BY:<br>Cooperheat/MQS    |  |                                   | INTERPRETED BY:<br>Kelley/Suria |                      |   | ASNT LEVEL<br>II  |                      |                                     |                |                                |  |
| FILM TYPE<br>Kodak                    |  | MATERIAL<br>CF8M/MV Mod           |                                 |                      | ISOTOPE<br>Varian model 6200<br>IRIDIUM 192 COBALT 60 |                   |                      | CODE<br>ASTM E94 ✓ ASME MIL-STD-453 |                |                                |  |
|                                       |  | VIEW                              |                                 | ACCEPT               |   | REJECT            |                      | SHRINK                              |                | INCLUSION                      |  |
|                                       |  | PENE                              |                                 | SURFACE              |   | POROSITY          |                      | LINEAR                              |                | LOF/LOOP                       |  |
| C.R.T.1                               |  |                                   |                                 |                      |   |                   |                      |                                     |                | COMMENTS                       |  |
| Body                                  |  | 13-14                             |                                 | 50                   |   |                   |                      |                                     |                |                                |  |
|                                       |  | 15-16                             |                                 |                      |   |                   |                      |                                     |                | Excavations<br>Processor Marks |  |
|                                       |  | 16-17                             |                                 |                      |   |                   |                      |                                     |                |                                |  |
|                                       |  | 18-19                             |                                 |                      |   |                   |                      |                                     |                | Excavations                    |  |
|                                       |  | 19-20                             |                                 |                      |   |                   |                      |                                     |                | Excavations                    |  |
|                                       |  | 20-21                             |                                 |                      |   |                   |                      |                                     |                | Excavations                    |  |
|                                       |  | 21-22                             |                                 |                      |   |                   |                      |                                     |                | Excavations                    |  |
|                                       |  | 23-24                             |                                 |                      |   | X X               |                      |                                     |                | Excavations                    |  |
|                                       |  | 24-25                             |                                 |                      |   |                   |                      |                                     |                | Excavations                    |  |
|                                       |  | 26-27                             |                                 |                      |   |                   |                      |                                     |                | Excavations                    |  |
|                                       |  | 27-28                             |                                 | ↓<br>End<br>Material |   | X X               |                      |                                     |                |                                |  |
|                                       |  | 29-30                             |                                 | 30                   |   | X X               |                      |                                     |                |                                |  |
|                                       |  | 30-31                             |                                 |                      |   |                   |                      |                                     |                | excavation-Processor Marks     |  |
|                                       |  | 32-33                             |                                 |                      |   |                   |                      |                                     |                |                                |  |
|                                       |  | 33-34                             |                                 |                      |   |                   |                      |                                     |                | Processing Marks               |  |
|                                       |  | 35-36                             |                                 |                      |   |                   |                      |                                     |                | excavations, Film Scratch      |  |
|                                       |  | 36-37                             |                                 |                      |   | X X               |                      |                                     |                |                                |  |
|                                       |  | 38-39                             |                                 |                      |   |                   |                      |                                     |                | excavations                    |  |
|                                       |  | 39-40                             |                                 | ↓                    |   | X X               |                      |                                     |                |                                |  |
| ↓                                     |  | 41-42                             |                                 | 30<br>40             |   | X X               |                      |                                     |                |                                |  |



**RADIOGRAPHIC INTERPRETATION REPORT**

|                                       |  |                                   |                   |                                 |   |                            |   |                                      |                                     |                                 |                                 |                            |
|---------------------------------------|--|-----------------------------------|-------------------|---------------------------------|---|----------------------------|---|--------------------------------------|-------------------------------------|---------------------------------|---------------------------------|----------------------------|
| CUSTOMER<br>Energy Industries of Ohio |  | PURCHASE ORDER NUMBER<br>28030003 |                   |                                 | DATE<br>1-19-05                                       |                            | CONTROL NO.<br>40851                      |                                      | PAGE<br>4 of 6                      |                                 |                                 |                            |
| PART NO.<br>MCWF-C1                   |  | SPECIFICATION<br>MSS-SP-54        |                   | CLASS<br>SeeSpec                |   | TOTAL PIECES<br>1          |   | PIECES ACCEPTED<br>1                 |                                     |                                 |                                 |                            |
| RADIOGRAPHED BY:<br>Cooperheat/MDS    |  |                                   |                   | INTERPRETED BY:<br>Kelley/Suria |   |                            |   | ASNT LEVEL<br>II                     |                                     |                                 |                                 |                            |
| FILM TYPE<br>Kodak                    |  | MATERIAL<br>CF8M N/Mu Mpd         |                   |                                 | ISOTOPE<br>Varian model 6200<br>IRIDIUM 192 COBALT 60 |                            |   |                                      | CODE<br>ASTM E94 / ASME MIL-STD-453 |                                 |                                 |                            |
|                                       |  | V<br>I<br>E<br>W                  | P<br>E<br>N<br>E  | A<br>C<br>C<br>E<br>P<br>T      | R<br>E<br>J<br>E<br>C<br>T                            | S<br>H<br>R<br>I<br>N<br>K | I<br>N<br>C<br>L<br>U<br>S<br>I<br>O<br>N | P<br>O<br>R<br>O<br>S<br>I<br>T<br>Y | L<br>I<br>N<br>E<br>A<br>R          | S<br>U<br>R<br>F<br>A<br>C<br>E | L<br>O<br>P<br>/<br>L<br>O<br>P | COMMENTS                   |
| CRT.1                                 |  |                                   |                   |                                 |   |                            |   |                                      |                                     |                                 |                                 |                            |
| Body                                  |  | 42-43                             | 30<br>40          | /                               |   |                            |   |                                      |                                     |                                 |                                 | excavation-Processor Mark  |
|                                       |  | 44-45                             |                   | /                               |   |                            |   |                                      |                                     |                                 |                                 | Processor Marks            |
|                                       |  | 45-46                             |                   | /                               |   |                            | 1   |                                      |                                     |                                 |                                 | excavation-Processor Mark  |
|                                       |  | 47-48                             |                   | /                               |   |                            | 2   |                                      |                                     |                                 |                                 | excavation-Processor Mark  |
|                                       |  | 48-49                             | ↓                 |                                 | X   | X                          |   |                                      |                                     |                                 |                                 |                            |
|                                       |  | 50-51                             | ↓                 | /                               |   |                            |   |                                      |                                     |                                 |                                 | excavation-Processor Mark  |
|                                       |  | 52-53                             | 30/100<br>40/140  |                                 | X   | X                          |   |                                      |                                     |                                 |                                 |                            |
|                                       |  | 53-54                             | ↓                 | /                               |   |                            |   |                                      |                                     |                                 |                                 | excavation-Film Scratch    |
|                                       |  | 54-55                             | 30<br>40/100      | /                               |   |                            |   |                                      |                                     |                                 |                                 | excavation-Film scratches  |
|                                       |  | 55-56                             | ↓                 | /                               |   |                            |   |                                      |                                     |                                 |                                 |                            |
|                                       |  | 56-57                             | ↓                 | /                               |   |                            |   |                                      |                                     |                                 |                                 | excavation-Processor Marks |
|                                       |  | 57-58                             | 60<br>140         |                                 | X   | X                          |   |                                      |                                     |                                 |                                 |                            |
|                                       |  | 58-59                             | 30<br>40          | /                               |   | 1                          | 1   |                                      |                                     |                                 |                                 | excavation-Light Leak      |
|                                       |  | 59-60                             | ↓                 | /                               |   |                            |   |                                      |                                     |                                 |                                 | excavations                |
|                                       |  | 60-61                             | ↓                 | /                               |   |                            |   |                                      |                                     |                                 |                                 |                            |
|                                       |  | 62-63                             | ↓                 | /                               |   |                            | 1   | 1                                    |                                     |                                 |                                 | excavations                |
|                                       |  | 63-64                             | 30                | /                               |   |                            | 1   |                                      |                                     |                                 |                                 | excavations                |
|                                       |  | 65-66                             | 60/180<br>140/200 | /                               |   |                            |   |                                      |                                     |                                 |                                 | excavations                |
|                                       |  | 67-68                             | 30<br>40/60       |                                 | X   | X                          |   |                                      |                                     |                                 |                                 |                            |
|                                       |  | 68-69                             | 40<br>30          | /                               |   | 1                          |   |                                      |                                     |                                 |                                 | excavations                |



**RADIOGRAPHIC INTERPRETATION REPORT**

|  |  |  |  |                                      |                        |                          |                             |  |                       |                                  |  |
|--|--|--|--|--------------------------------------|------------------------|--------------------------|-----------------------------|--|-----------------------|----------------------------------|--|
| CUSTOMER<br><i>Energy Industries of OHIO</i> |  | PURCHASE ORDER NUMBER<br><i>28030003</i> |  |                                      | DATE<br><i>1-19-05</i> |                          | CONTROL NO.<br><i>40851</i> |  | PAGE<br><i>5 of 6</i> |                                  |  |
| PART NO.<br><i>MCWF-C1</i>                   |  | SPECIFICATION<br><i>MSS-SP-54</i>        |  | CLASS<br><i>See Spec</i>             |                        | TOTAL PIECES<br><i>1</i> |                             | PIECES ACCEPTED<br><i>1</i>                |                       |                                  |  |
| RADIOGRAPHED BY:<br><i>Cooperheat/MRS</i>    |  |  | INTERPRETED BY:<br><i>Kelley/Suria</i> |                                      |                        | ASNT LEVEL<br><i>H</i>   |                             |  |                       |                                  |  |
| FILM TYPE<br><i>Kodak</i>                    |  | MATERIAL<br><i>CF8Mw/Mod</i>             |  | ISOTOPE<br><i>Varian model 62000</i> |                        |                          |                             | CODE<br><i>ASTM E94 / ASME MIL-STD-453</i> |                       |                                  |  |
|  |  |  |  | <i>IRIDIUM 192</i>                   |                        | <i>COBALT 60</i>         |                             |  |                       |                                  |  |
|  |  |  |  |                                      |                        |                          |                             | COMMENTS                                   |                       |                                  |  |
| CET.1  |  |  |  |                                      |                        |                          |                             |  |                       |                                  |  |
| Body   |  | <i>69-70</i>                             |  | <i>30 100<br/>40 120</i>             |                        | <i>X X</i>               |                             |  |                       |                                  |  |
|  |  | <i>71-72</i>                             |  | <i>30 80<br/>50 100</i>              |                        |                          |                             |  |                       | <i>Processor Marks</i>           |  |
|  |  | <i>72-73</i>                             |  | <i>↓</i>                             |                        |                          |                             |  |                       | <i>excavation - Film scratch</i> |  |
|  |  | <i>73-74</i>                             |  | <i>30 80<br/>40</i>                  |                        | <i> </i>                 |                             |  |                       | <i>excavation Film scratch</i>   |  |
|  |  | <i>74-75</i>                             |  | <i>↓</i>                             |                        |                          |                             |  |                       | <i>Excavations, crimp</i>        |  |
|  |  | <i>75-76</i>                             |  | <i>30<br/>40</i>                     |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>76-77</i>                             |  | <i>↓</i>                             |                        |                          |                             |  |                       | <i>Excavations</i>               |  |
|  |  | <i>78-79</i>                             |  | <i>30<br/>40 60</i>                  |                        |                          |                             |  |                       | <i>Processor marks</i>           |  |
|  |  | <i>79-80</i>                             |  | <i>30<br/>40</i>                     |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>80-81</i>                             |  | <i>↓</i>                             |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>81-82</i>                             |  | <i>↓</i>                             |                        | <i> </i>                 |                             |  |                       |                                  |  |
|  |  | <i>83-84</i>                             |  | <i>30<br/>40 60</i>                  |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>85-86</i>                             |  | <i>30<br/>40</i>                     |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>86-87</i>                             |  | <i>30<br/>40 20</i>                  |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>87-88</i>                             |  | <i>30<br/>40</i>                     |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>88-89</i>                             |  | <i>30 60<br/>40</i>                  |                        | <i>X X</i>               |                             |  |                       |                                  |  |
|  |  | <i>90-91</i>                             |  | <i>30<br/>40</i>                     |                        |                          |                             |  |                       |                                  |  |
|  |  | <i>92-93</i>                             |  | <i>↓</i>                             |                        |                          |                             |  |                       | <i>Excavation</i>                |  |
|  |  | <i>v94</i>                               |  | <i>50</i>                            |                        | <i>X X</i>               |                             |  |                       |                                  |  |
| ↓  |  | <i>v95</i>                               |  | <i>↓</i>                             |                        |                          |                             |  |                       | <i>Processor Mark</i>            |  |



### RADIOGRAPHIC INTERPRETATION REPORT

|                                       |  |                                   |                                |   |                            |                            |   |                                      |                            |                                 |                                 |                               |
|---------------------------------------|--|-----------------------------------|--------------------------------|---|----------------------------|----------------------------|---|--------------------------------------|----------------------------|---------------------------------|---------------------------------|-------------------------------|
| CUSTOMER<br>Energy Industries of Ohio |  | PURCHASE ORDER NUMBER<br>28030003 |                                |   | DATE<br>1-19-05            |                            | CONTROL NO.<br>40851                      |                                      | PAGE<br>6 of 6             |                                 |                                 |                               |
| PART NO.<br>MCWF-C1                   |  | SPECIFICATION<br>MSS-SP-54        |                                | CLASS<br>See Spec                                     |                            | TOTAL PIECES<br>1          |   | PIECES ACCEPTED<br>1                 |                            |                                 |                                 |                               |
| RADIOGRAPHED BY:<br>Cooperheat/MAS    |  |                                   | INTERPRETED BY:<br>Kelly/Suria |   |                            | ASNT LEVEL<br>II           |   |                                      |                            |                                 |                                 |                               |
| FILM TYPE<br>Kodak                    |  | MATERIAL<br>CF8M                  |                                | ISOTOPE<br>VARIAN model 6200<br>IRIDIUM 192 COBALT 60 |                            |                            |   | CODE<br>ASTM E94 / ASME MIL-STD-453  |                            |                                 |                                 |                               |
|                                       |  | V<br>I<br>E<br>W                  | P<br>E<br>N<br>E               | A<br>C<br>C<br>E<br>P<br>T                            | R<br>E<br>J<br>E<br>C<br>T | S<br>H<br>R<br>I<br>N<br>K | I<br>N<br>C<br>L<br>U<br>S<br>I<br>O<br>N | P<br>O<br>R<br>O<br>S<br>I<br>T<br>Y | L<br>I<br>N<br>E<br>A<br>R | S<br>U<br>R<br>F<br>A<br>C<br>E | L<br>O<br>F<br>/<br>L<br>O<br>P | COMMENTS                      |
| C.R.T.I<br>Body                       |  | 96-97                             | 50                             | /   |                            |                            |   |                                      |                            |                                 |                                 | Excavations                   |
|                                       |  | 97-98                             |                                | /   |                            |                            |   |                                      |                            |                                 |                                 | Excavations                   |
|                                       |  | 98-99                             |                                | /   |                            |                            |   |                                      |                            |                                 |                                 | Excavations                   |
|                                       |  | 100-101                           |                                |   | X                          | X                          |   |                                      |                            |                                 |                                 |                               |
|                                       |  | 101-102                           |                                | /   |                            |                            |   |                                      |                            |                                 |                                 | Excavations                   |
|                                       |  | 102-103                           |                                | /   |                            |                            |   |                                      |                            |                                 |                                 | Excavations                   |
|                                       |  | 103-104                           |                                |   | X                          | X                          |   |                                      |                            |                                 |                                 | Excavations                   |
|                                       |  | 104-105                           |                                |   | X                          | X                          |   |                                      |                            | /                               |                                 | excavations                   |
|                                       |  | 106-107                           |                                |   | X                          |                            |   |                                      | X                          | /                               |                                 | excavations                   |
|                                       |  | 107-108                           |                                | /   |                            |                            |   | 1                                    |                            | /                               |                                 |                               |
|                                       |  | 108-109                           |                                | /   |                            |                            |   |                                      |                            | /                               |                                 | excavations                   |
|                                       |  | 109-110                           |                                |   | X                          | X                          |   |                                      |                            | /                               |                                 | excavations                   |
|                                       |  | 111-112                           |                                | /   |                            |                            |   |                                      |                            | /                               |                                 | excavations - Processor marks |
|                                       |  | 112-113                           |                                | /   |                            |                            |   | 1                                    |                            | /                               |                                 | Film scratch: excavations     |
|                                       |  | 114-115                           |                                |   | X                          |                            |   |                                      | X                          |                                 |                                 |                               |
|                                       |  | 115-116                           |                                | /   |                            |                            |   |                                      |                            | /                               |                                 | excavations Processor Marks   |
| ↓                                     |  | 116-117                           | ↓                              |   | X                          |                            |   |                                      | X                          |                                 |                                 |                               |
| ↓                                     |  | V64                               | 20<br>30                       |   | X                          | X                          |   |                                      |                            |                                 |                                 |                               |



**RADIOGRAPHIC INTERPRETATION REPORT**

|  |  |   |  |  |                        |                            |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|--|--|---|--|--|------------------------|----------------------------|-----------------------------|--|-----------------------|----------------------------|--|---|--|--------------------------------------|--|----------------------------|--|---------------------------------|--|---------------------------------|--|----------|--|
| CUSTOMER<br><i>Energy Industries of OHIO</i> |  | PURCHASE ORDER NUMBER<br><i>2803 0003</i> |  |  | DATE<br><i>3-19-05</i> |                            | CONTROL NO.<br><i>40851</i> |  | PAGE<br><i>1 of 2</i> |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
| PART NO.<br><i>MCWF-C1</i>                   |  | SPECIFICATION<br><i>ASS-SP-54</i>         |  | CLASS<br><i>See Spec</i>                       |                        | TOTAL PIECES<br><i>1</i>   |                             | PIECES ACCEPTED<br><i>1</i>                |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
| RADIOGRAPHED BY:<br><i>Cooperheat/MRS</i>    |  |   |  | INTERPRETED BY:<br><i>Cooperheat/MRS/Kella</i> |                        |                            | ASNT LEVEL<br><i>II</i>     |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
| FILM TYPE<br><i>Kodak</i>                    |  | MATERIAL<br><i>CF8M WW Mod</i>            |  | ISOTOPE<br><i>varian model 2600</i>            |                        |                            |                             | CODE<br><i>ASTM E94 / ASME MIL-STD-453</i> |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  |   |  | IRIDIUM 192                                    |                        | COBALT 60                  |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
| <i>Repair views</i>                          |  | V<br>I<br>E<br>W                          |  | P<br>E<br>N<br>E                               |                        | A<br>C<br>C<br>E<br>P<br>T |                             | R<br>E<br>J<br>E<br>C<br>T                 |                       | S<br>H<br>R<br>I<br>N<br>K |  | I<br>N<br>C<br>L<br>U<br>S<br>I<br>O<br>N |  | P<br>O<br>R<br>O<br>S<br>I<br>T<br>Y |  | L<br>I<br>N<br>E<br>A<br>R |  | S<br>U<br>R<br>F<br>A<br>C<br>E |  | L<br>O<br>F<br>/<br>L<br>O<br>P |  | COMMENTS |  |
|  |  |   |  |  |                        |                            |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
| <i>Body</i>                                  |  | <i>8-9</i>                                |  | <i>50</i>                                      |                        | <i>/</i>                   |                             |  |                       |                            |  | <i>/</i>                                  |  |                                      |  |                            |  |                                 |  | <i>Film Mark</i>                |  |          |  |
|  |  | <i>23-24</i>                              |  | <i> </i>                                       |                        | <i>/</i>                   |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>27-28</i>                              |  | <i>↓</i>                                       |                        | <i>/</i>                   |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>29-30</i>                              |  | <i>30</i>                                      |                        |                            |                             | <i>X</i>                                   |                       |                            |  | <i>ABK</i>                                |  |                                      |  | <i>X</i>                   |  |                                 |  |                                 |  |          |  |
|  |  | <i>36-37</i>                              |  | <i> </i>                                       |                        | <i>/</i>                   |                             | <i>1</i>                                   |                       | <i>1</i>                   |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>39-40</i>                              |  | <i>↓</i>                                       |                        | <i>/</i>                   |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>41-42</i>                              |  | <i>30/40</i>                                   |                        | <i>/</i>                   |                             | <i>1</i>                                   |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>48-49</i>                              |  | <i>↓</i>                                       |                        | <i>/</i>                   |                             |  |                       | <i>1</i>                   |  | <i>1</i>                                  |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>52-53</i>                              |  | <i>30/40<br/>100/140</i>                       |                        | <i>/</i>                   |                             |  |                       | <i>2</i>                   |  | <i>1</i>                                  |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>57-58</i>                              |  | <i>60/40</i>                                   |                        | <i>/</i>                   |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>67-68</i>                              |  | <i>30/40<br/>60/40</i>                         |                        | <i>/</i>                   |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>69-70</i>                              |  | <i>30/100<br/>40/20</i>                        |                        | <i>/</i>                   |                             | <i>1</i>                                   |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>88-89</i>                              |  | <i>30/40<br/>60/40</i>                         |                        | <i>/</i>                   |                             | <i>ABK</i>                                 |                       | <i>2</i>                   |  |   |  |                                      |  |                            |  |                                 |  | <i>OK R.S</i>                   |  |          |  |
|  |  | <i>V94</i>                                |  | <i>50</i>                                      |                        | <i>/</i>                   |                             |  |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>100-101</i>                            |  | <i> </i>                                       |                        | <i>/</i>                   |                             | <i>3</i>                                   |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>101-102</i>                            |  | <i> </i>                                       |                        | <i>/</i>                   |                             | <i>3</i>                                   |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>103-104</i>                            |  | <i> </i>                                       |                        | <i>/</i>                   |                             | <i>3</i>                                   |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>104-105</i>                            |  | <i> </i>                                       |                        | <i>/</i>                   |                             | <i>1</i>                                   |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>106-107</i>                            |  | <i> </i>                                       |                        | <i>/</i>                   |                             | <i>ABK</i>                                 |                       | <i>2</i>                   |  | <i>ABK</i>                                |  | <i>/</i>                             |  |                            |  |                                 |  |                                 |  |          |  |
|  |  | <i>109-110</i>                            |  | <i>↓</i>                                       |                        | <i>/</i>                   |                             | <i>2</i>                                   |                       |                            |  |   |  |                                      |  |                            |  |                                 |  |                                 |  |          |  |

**RADIOGRAPHIC INTERPRETATION REPORT**

|  |  |  |               |   |                        |                          |                             |  |                       |         |                        |
|--|--|--|---------------|---|------------------------|--------------------------|-----------------------------|--|-----------------------|---------|------------------------|
| CUSTOMER<br><i>Energy Industries of Ohio</i> |  | PURCHASE ORDER NUMBER<br><i>28030003</i> |               |   | DATE<br><i>3-19-05</i> |                          | CONTROL NO.<br><i>40851</i> |  | PAGE<br><i>2 of 2</i> |         |                        |
| PART NO.<br><i>MCWF-C1</i>                   |  | SPECIFICATION<br><i>M55-SP-54</i>        |               | CLASS<br><i>sec spec</i>                    |                        | TOTAL PIECES<br><i>1</i> |                             | PIECES ACCEPTED<br><i>1</i>                |                       |         |                        |
| RADIOGRAPHED BY:<br><i>Cooper Heat/MQS</i>   |  |  |               | INTERPRETED BY:<br><i>M. J. [Signature]</i> |                        |                          | ASNT LEVEL<br><i>II</i>     |  |                       |         |                        |
| FILM TYPE<br><i>Kodak</i>                    |  | MATERIAL<br><i>LF8MNMN mod</i>           |               | ISOTOPE<br><i>Varian Model 2600</i>         |                        |                          |                             | CODE<br><i>ASTM E94 7 ASME MIL-STD-453</i> |                       |         |                        |
|  |  |  |               | IRIDIUM 192                                 |                        | COBALT 60                |                             | COMMENTS                                   |                       |         |                        |
| Repair views                                 |  | VIEW                                     | PENETRATION   | ACCEPT                                      | REJECT                 | SHRINK                   | INCLUSION                   | POROSITY                                   | LINEAR                | SURFACE | LOF/LOP                |
| <i>CRT-1</i>                                 |  |  |               |   |                        |                          |                             |  |                       |         |                        |
| <i>Body</i>                                  |  | <i>114-115</i>                           | <i>50</i>     | <i>/</i>                                    |                        |                          | <i>1</i>                    | <i>1</i>                                   | <i>/</i>              |         |                        |
| <i>↓</i>                                     |  | <i>116-117</i>                           | <i>↓</i>      | <i>/</i>                                    |                        | <i>2</i>                 |                             |  |                       |         | <i>Processing Mark</i> |
| <i>↓</i>                                     |  | <i>V64</i>                               | <i>30</i>     | <i>/</i>                                    |                        |                          | <i>1</i>                    | <i>1</i>                                   |                       |         |                        |
| <i>Inside Rail</i>                           |  | <i>13-14</i>                             | <i>60/120</i> | <i>/</i>                                    |                        |                          |                             |  |                       |         |                        |
| <i>↓</i>                                     |  | <i>21-22</i>                             | <i>↓</i>      | <i>/</i>                                    |                        | <i>2</i>                 |                             |  |                       |         |                        |
| <i>Body</i>                                  |  | <i>29-30</i>                             | <i>30</i>     | <i>/</i>                                    |                        | <i>1</i>                 | <i>1</i>                    | <i>1</i>                                   |                       |         |                        |



# TEAM COOPERHEAT-MQS, INC.

C-1 Doc Package  
Document 18a  
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 REV.1\*  
 MQS RSS NO.: \_\_\_\_\_

CUSTOMER METALTEK INTERNATIONAL DATE: 8-3-2005

PART NO. MCWF-C12103989 DESCRIPTION C 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  PROCESSOR B2000 MANUAL  TEMPERATURE 27.2°

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

|                           |                                |           |              |             |              |             |
|---------------------------|--------------------------------|-----------|--------------|-------------|--------------|-------------|
| VIEW IDENTIFICATION       | *                              | VIEWS 1-2 | THROUGH      | 116-117     | BODY         |             |
| SOURCE/X-RAY MACH USED    | VARIAN                         | VIEWS A-B | THROUGH      | DD-A        | RAIL         |             |
| CURIES OR KV              | 7500                           |           |              | REV.1 :     | CHANGED RAIL | VIEWS TO    |
| MA OR PULSES              | N/A                            |           |              |             | LETTERS      | RATHER THAN |
| SOURCE TO FILM DISTANCE   | *                              |           |              |             | NUMBERS.     |             |
| EXPOSURE TIME OR RADS     | *                              |           |              |             |              |             |
| MATERIAL THICKNESS        | 1                              |           |              |             |              |             |
| MATERIAL GROUP            | 1                              |           |              |             |              |             |
| PENETRATRER SIZE/(AMT)    | GP. <input type="checkbox"/> I | *         | SEE ATTACHED | INFORMATION |              |             |
| SHIM BLOCK SIZE           | GP. <input type="checkbox"/>   | 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     |                                |           |              |             |              |             |



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CUSTOMER Metaltek RSS # 12970 Rev.1 PART NO. MCWF-C1

| 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)         |
| 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)         |
| 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)         |
| 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        |
| 49-50-51 | 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     |



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CUSTOMER Metaltex RSS # 12970 Rev.1 PART NO. MCWF-C1

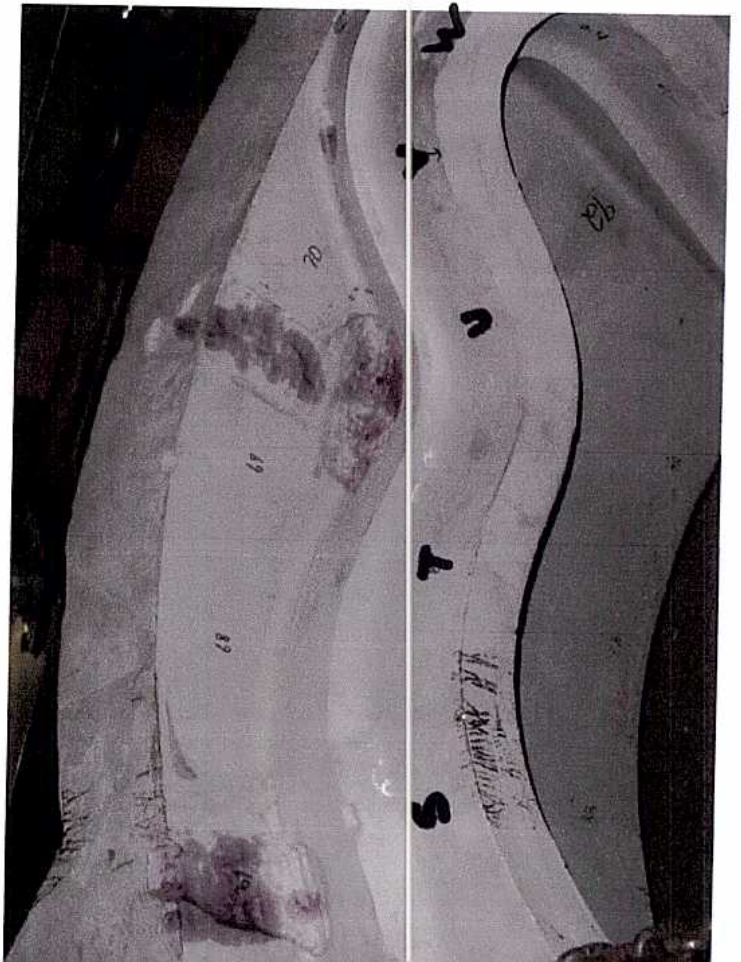
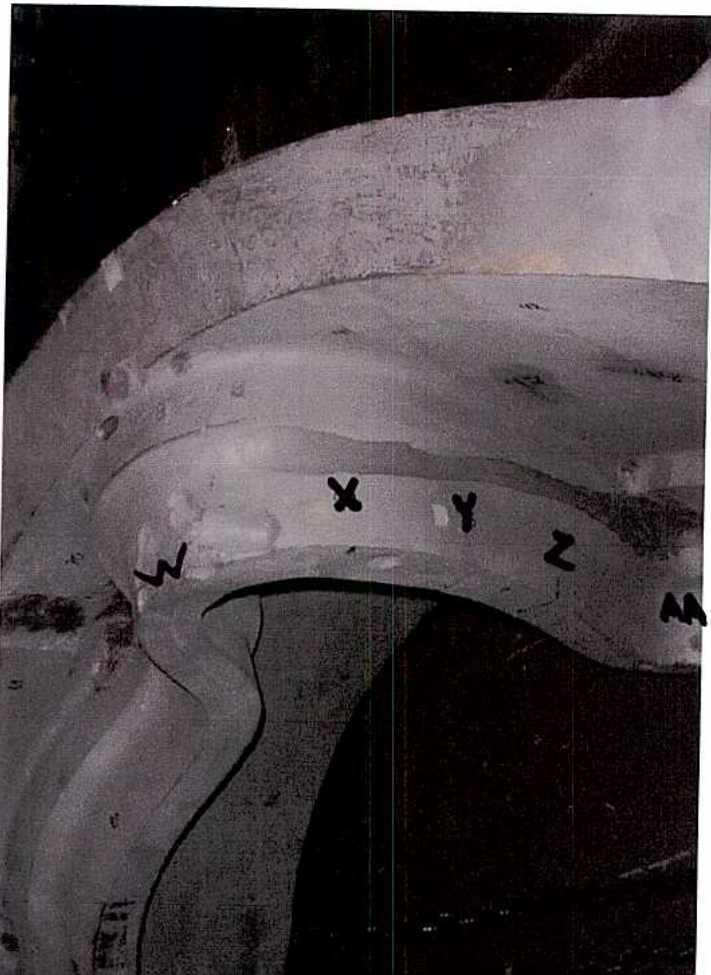
| VIEW    | SFD | EXP. TIME | FILM TYPE      | FILM SIZE | THK. RANGE  | IQI             |
|---------|-----|-----------|----------------|-----------|-------------|-----------------|
| 55-56   | 90" | 40 KR     | D8/T/AA/Dumb   | 14 x 17   | 1-1/2" - 5" | 30,40,100       |
| 56-57   | 90" | 40 KR     | 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)           |
| 106-107 | 65" | 25 KR     | T/T            | 14 x 17   | 2-3/4"      | 50(2)           |



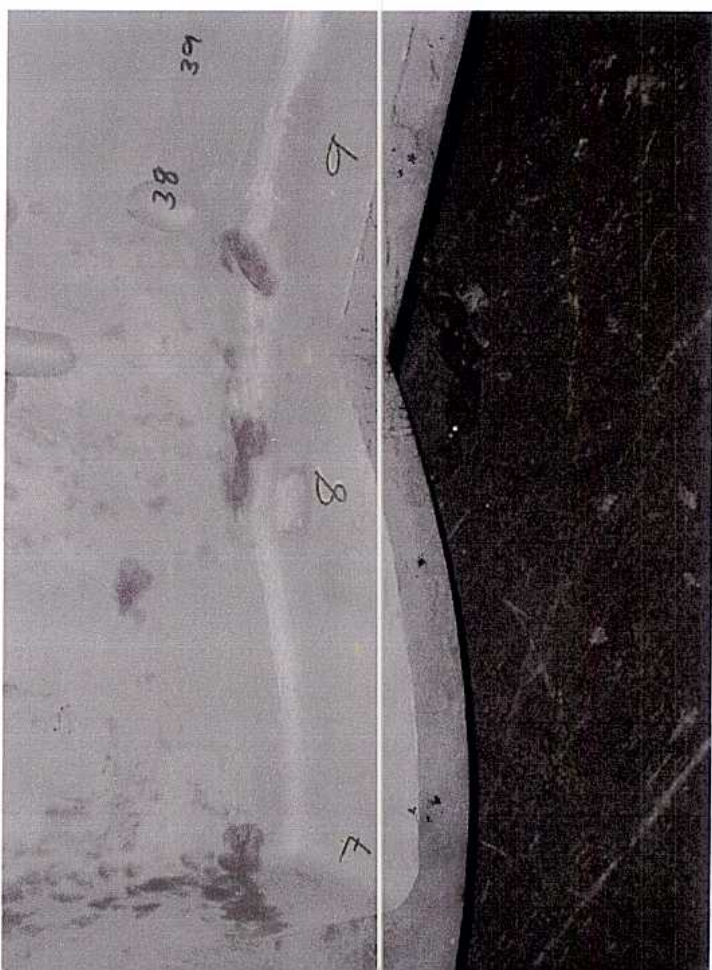
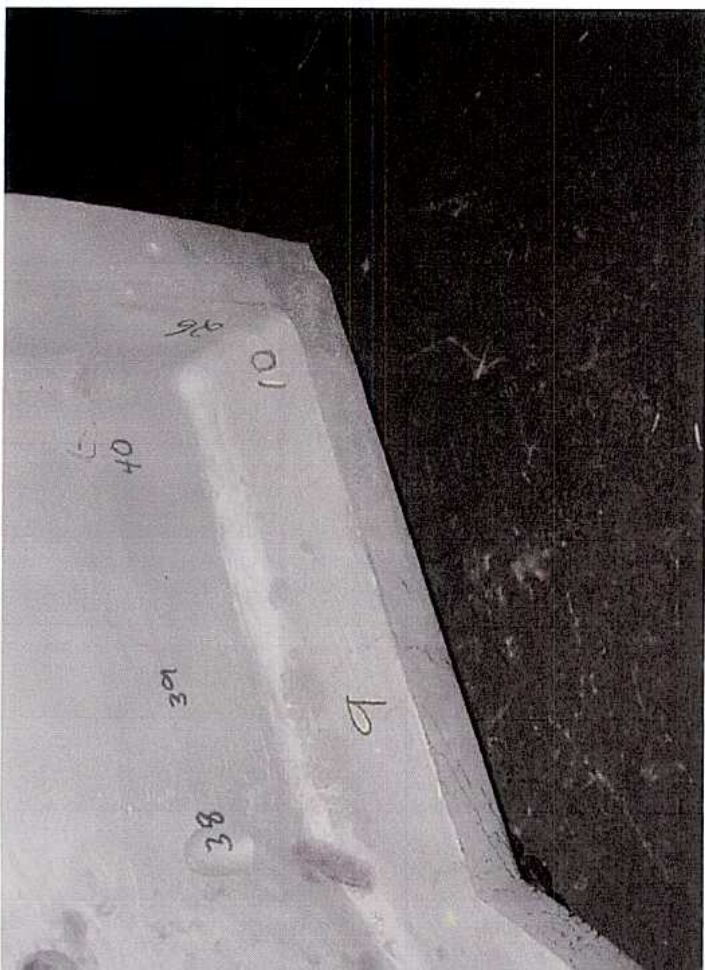
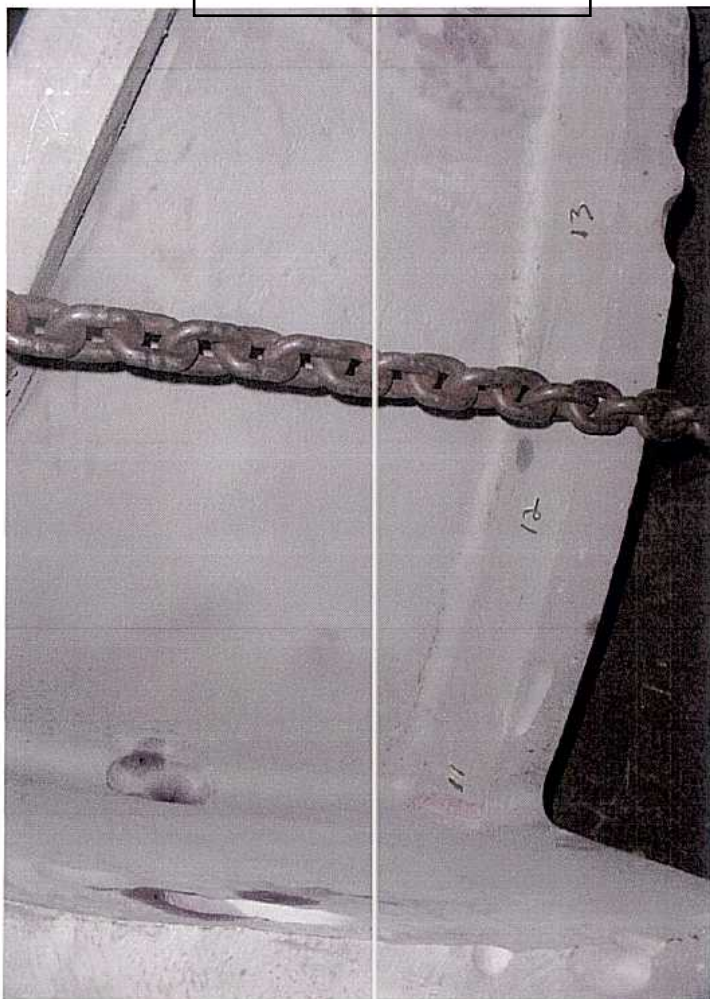
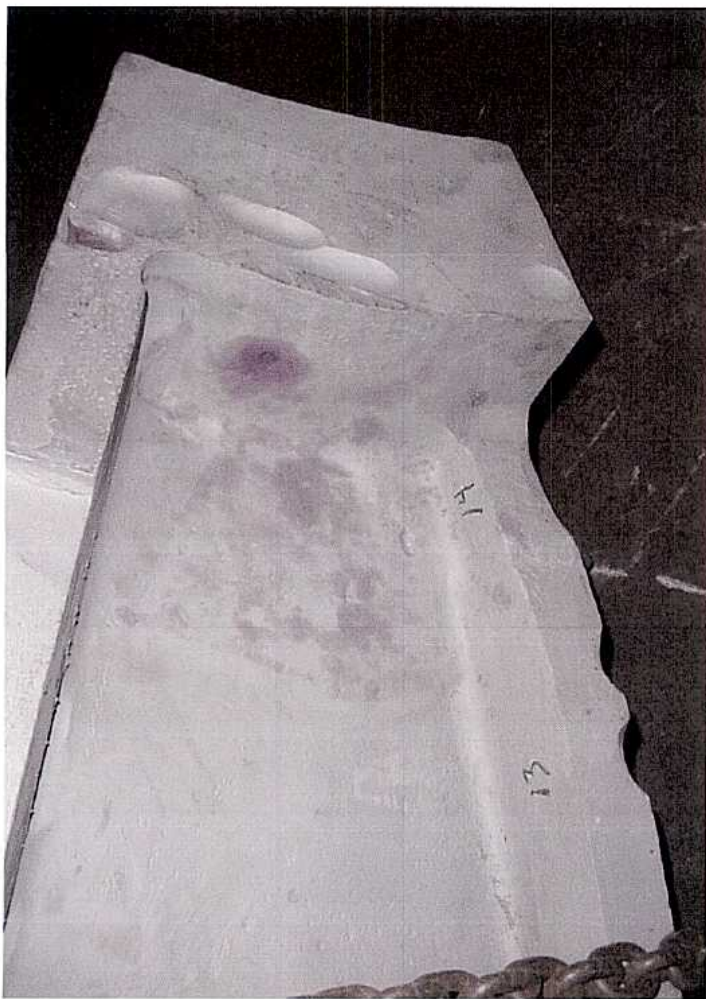




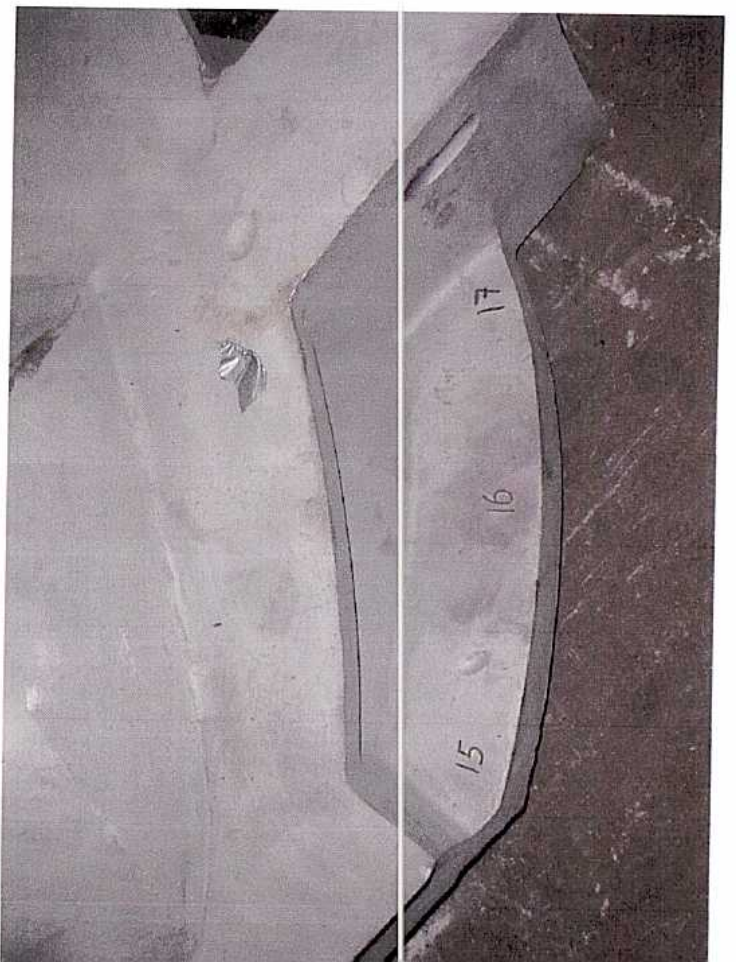
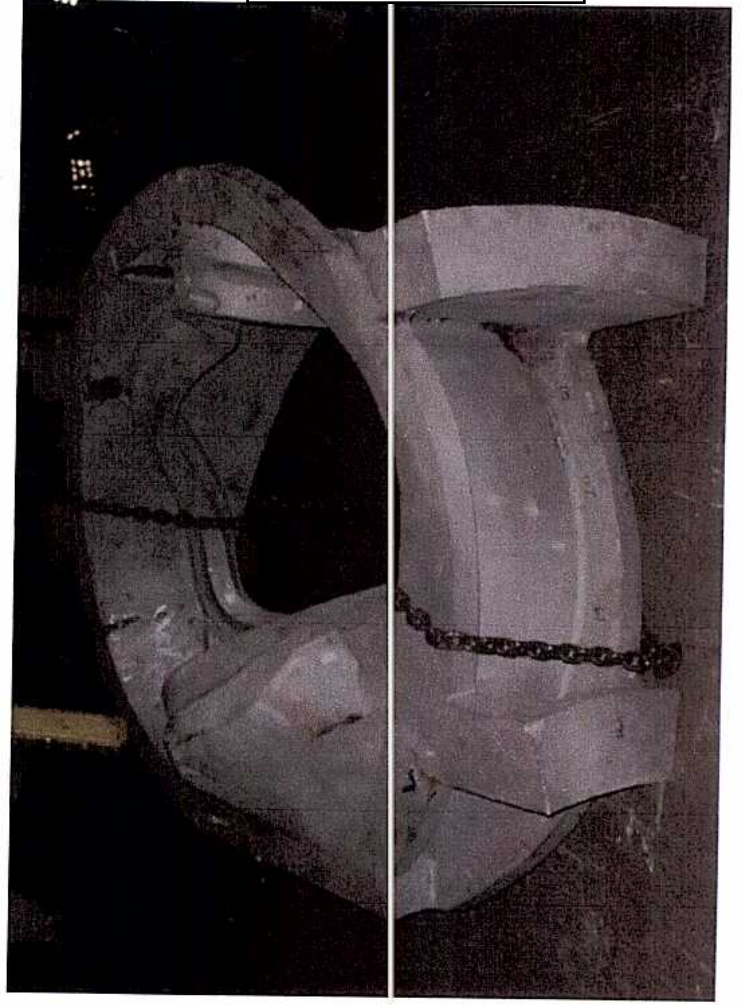




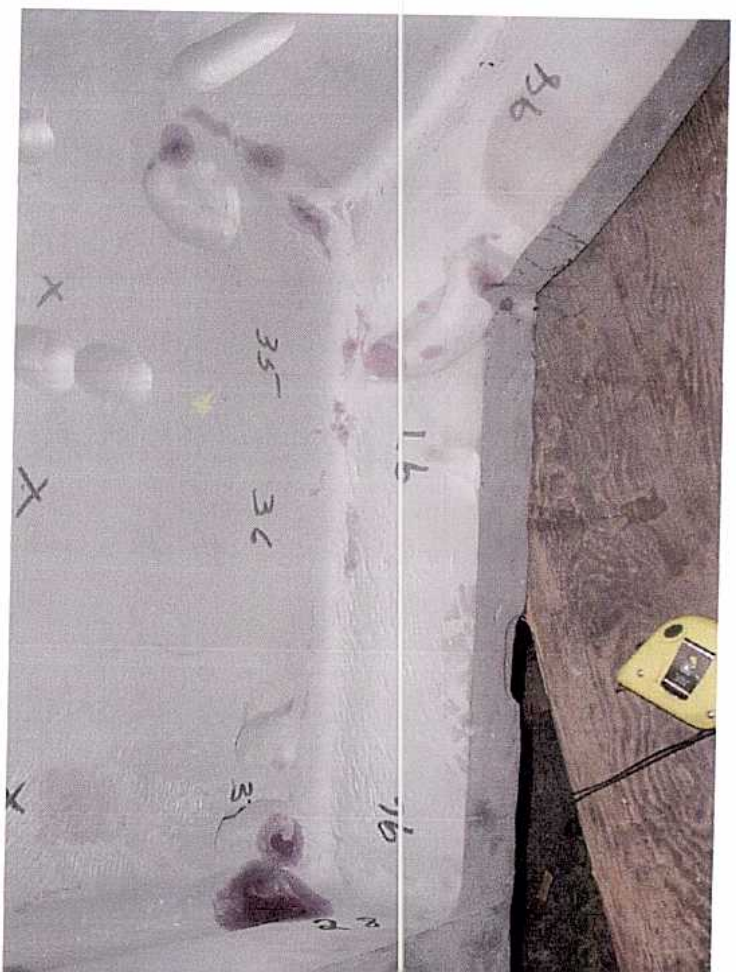
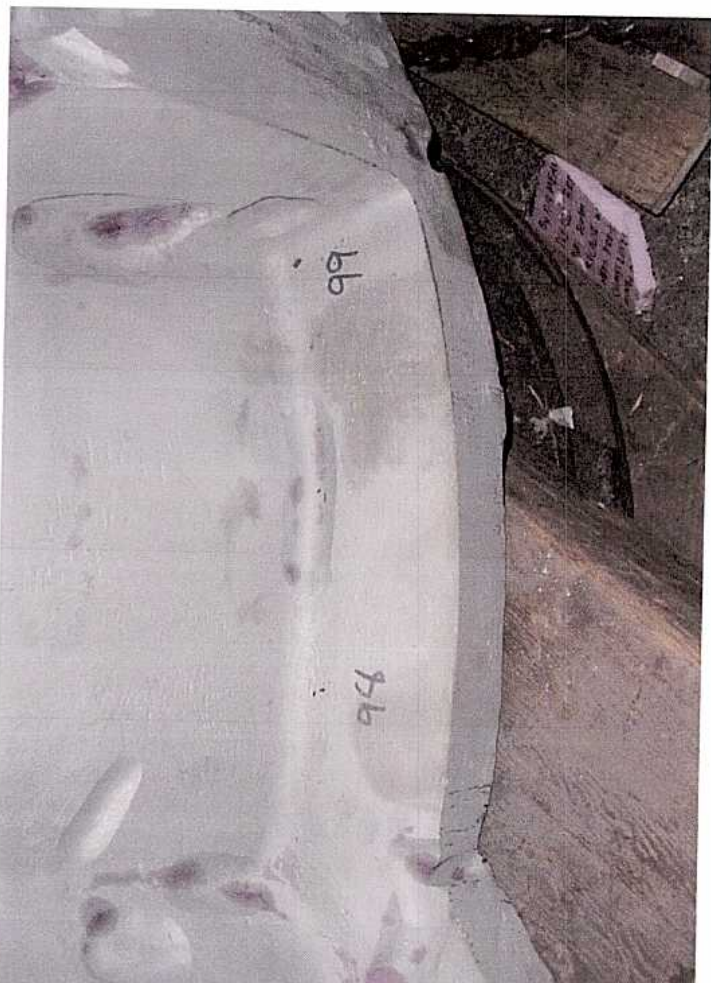
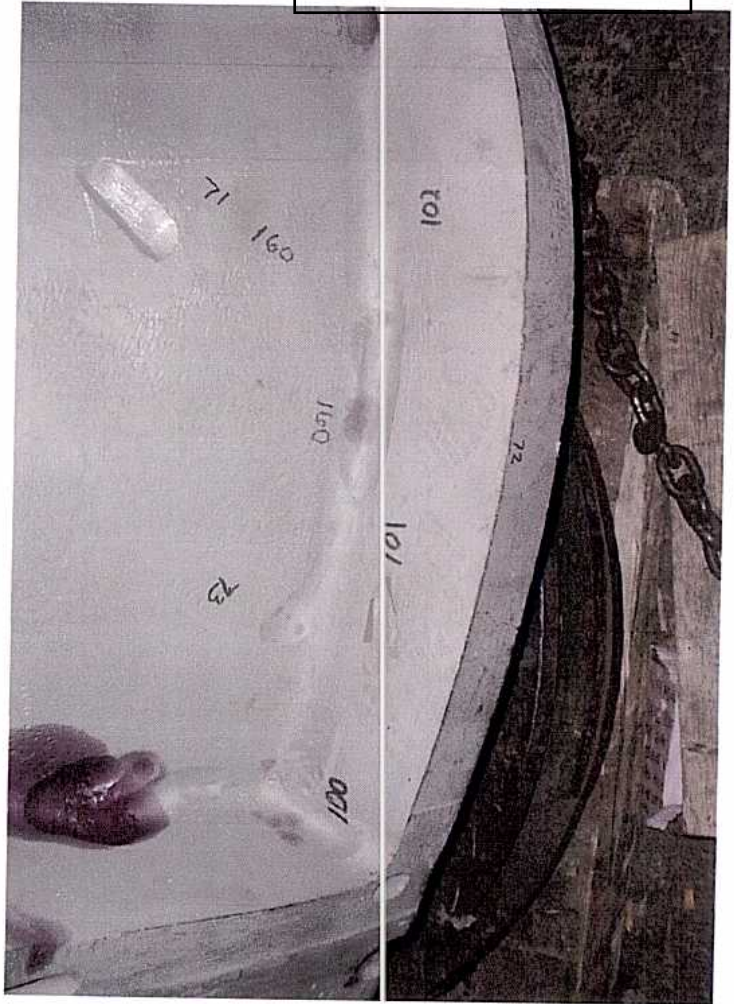




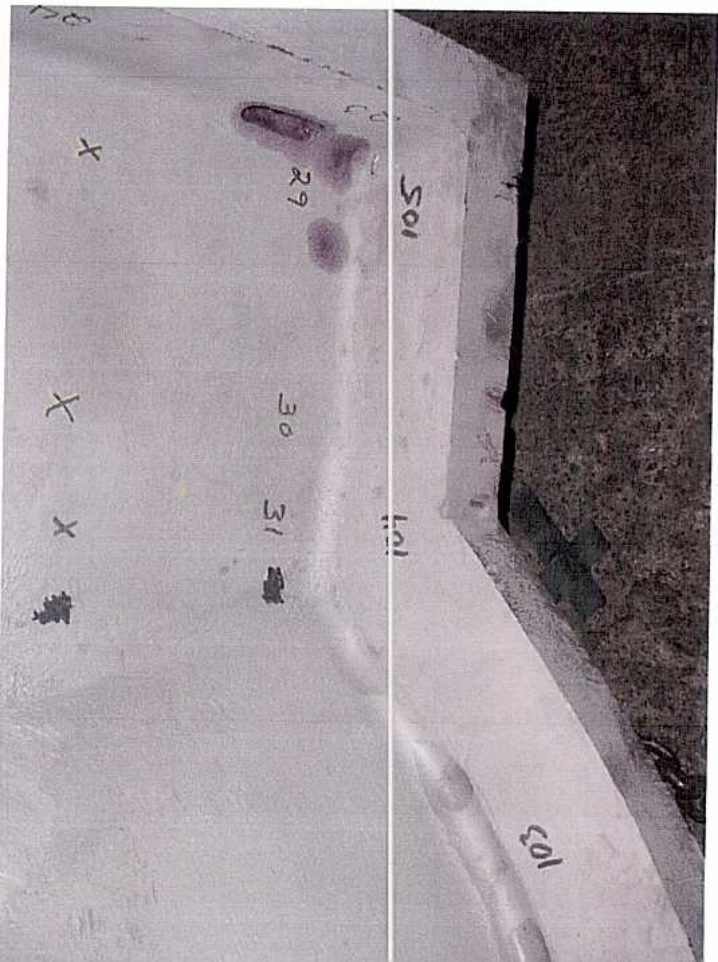
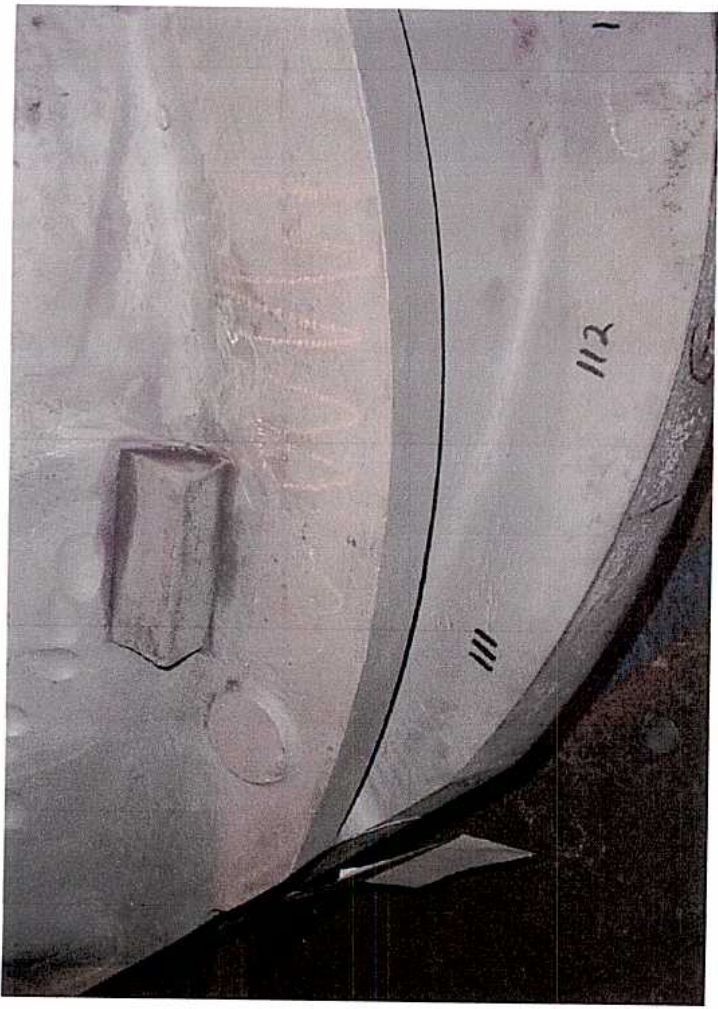




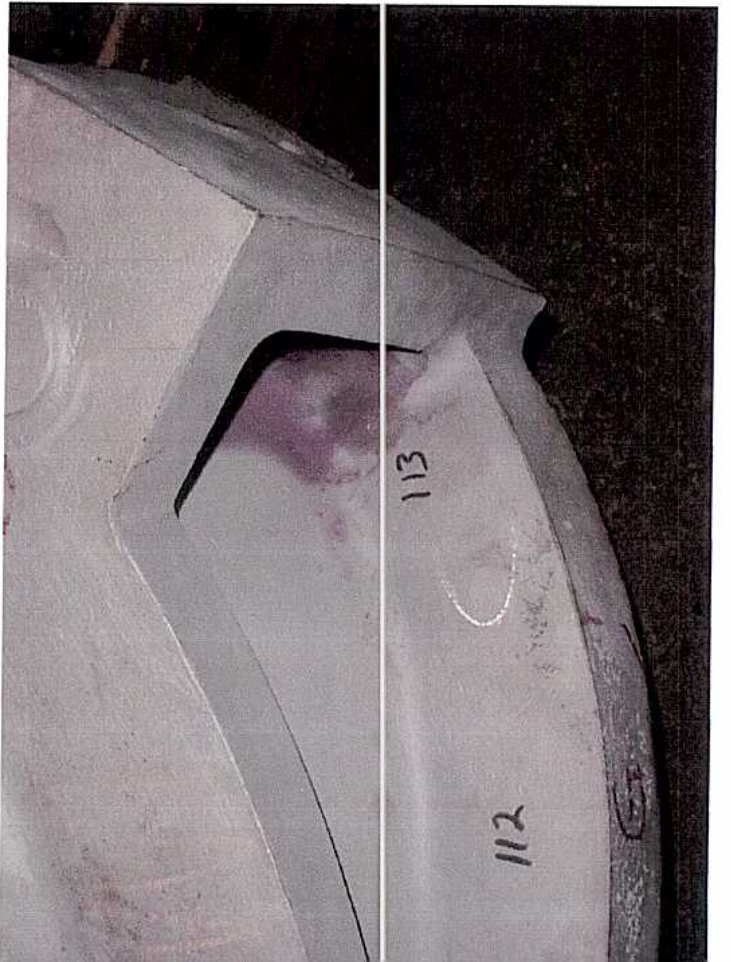
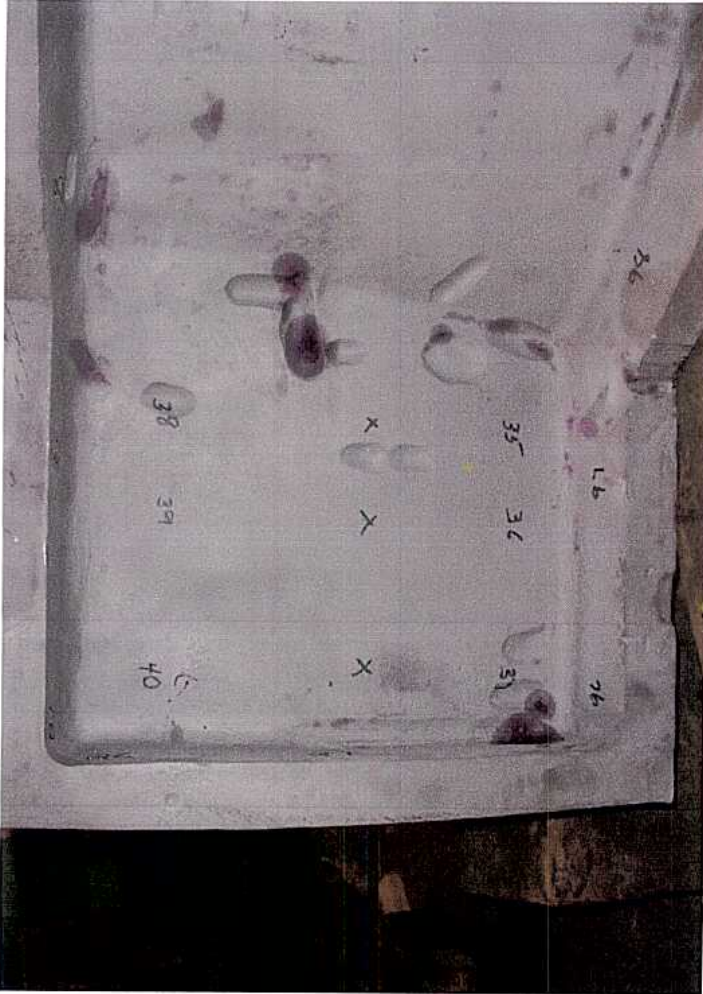








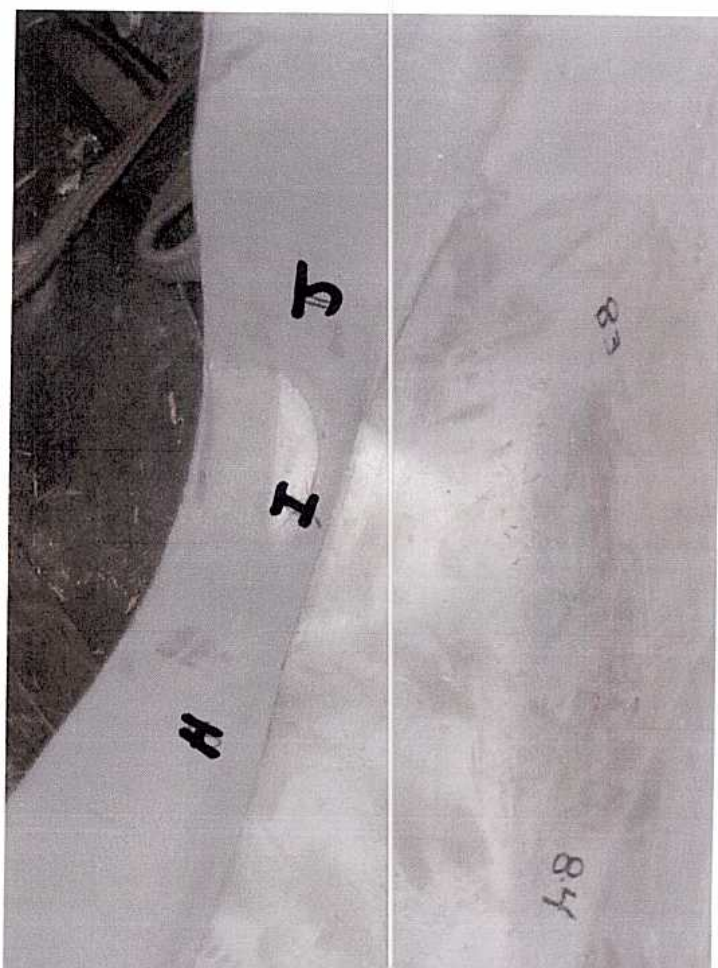
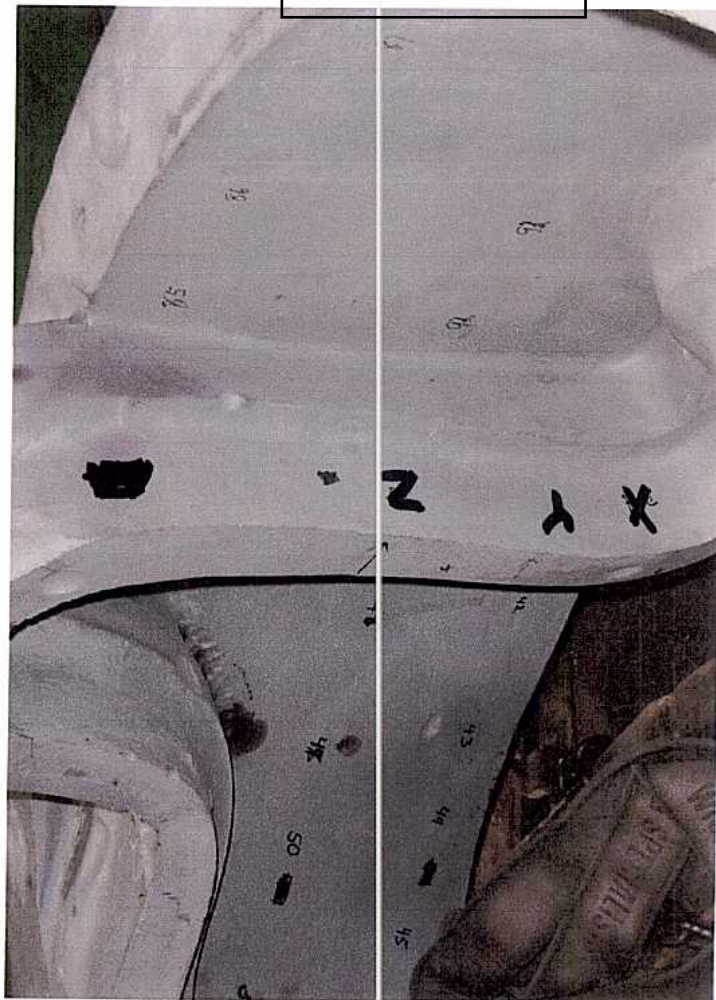




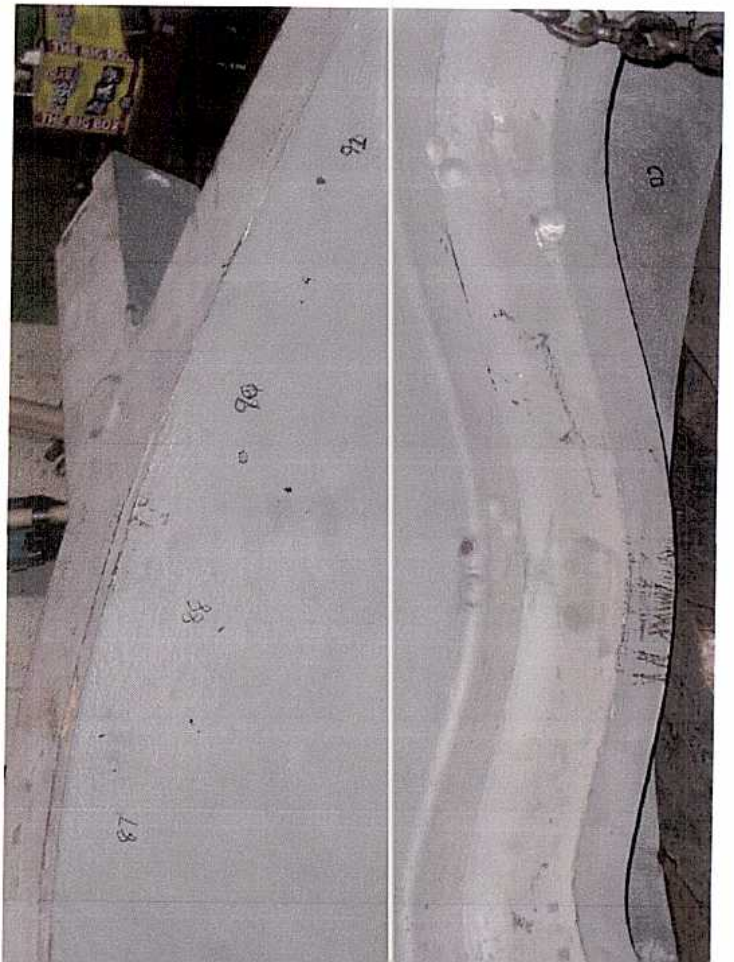
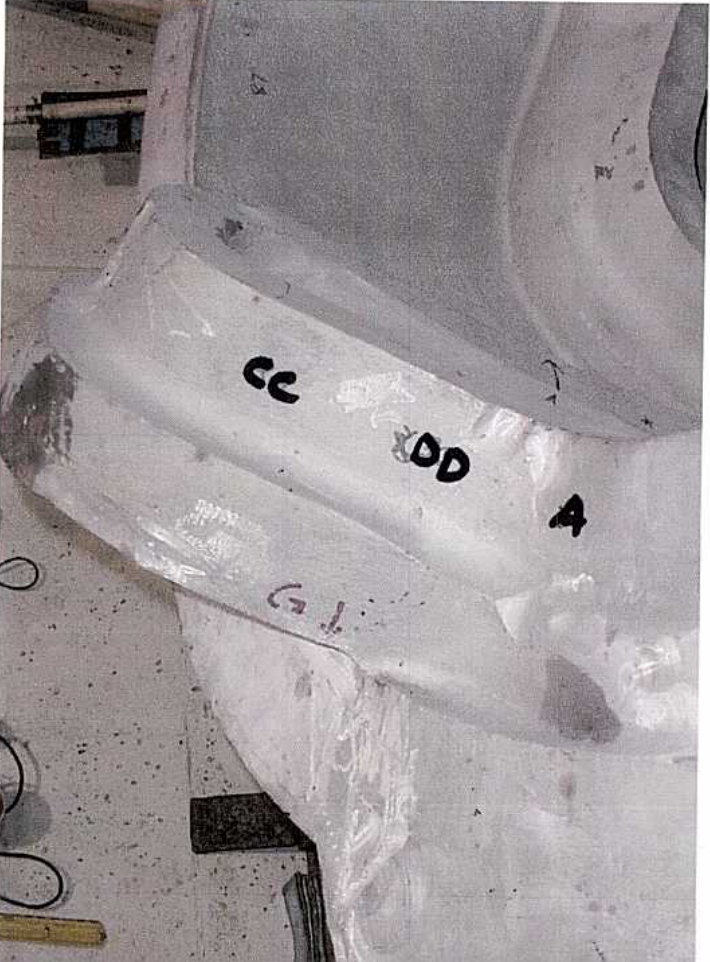




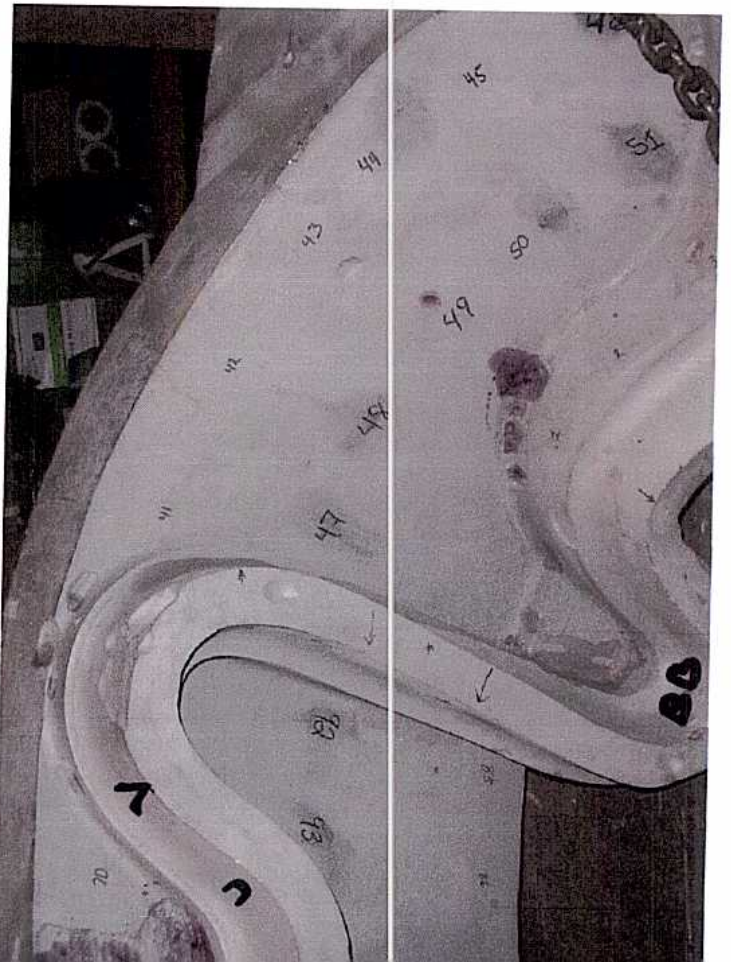
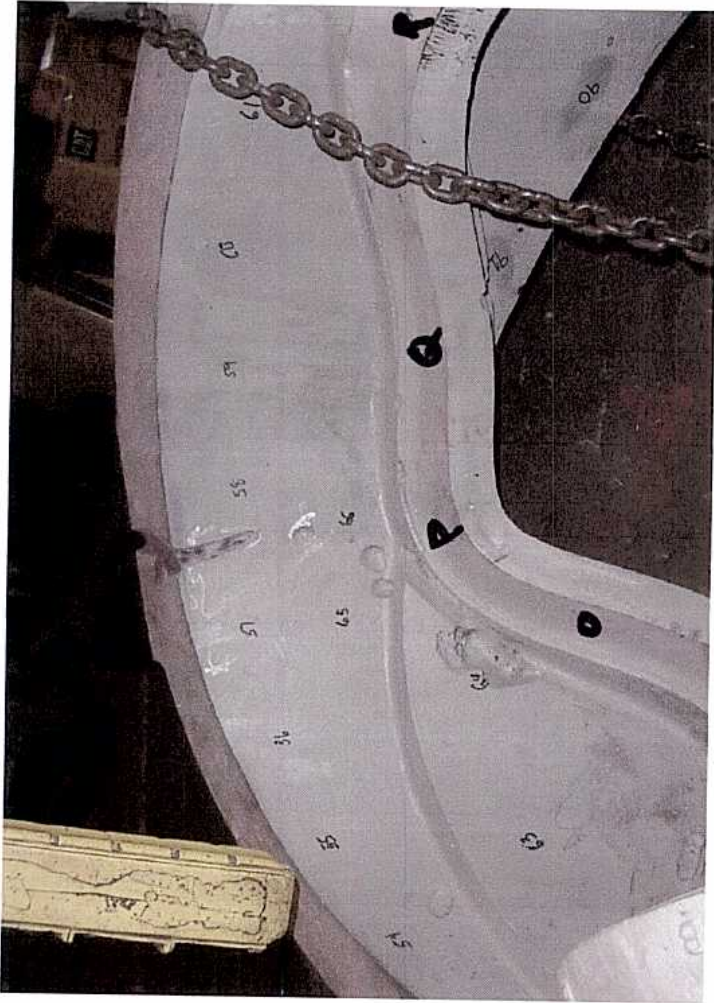




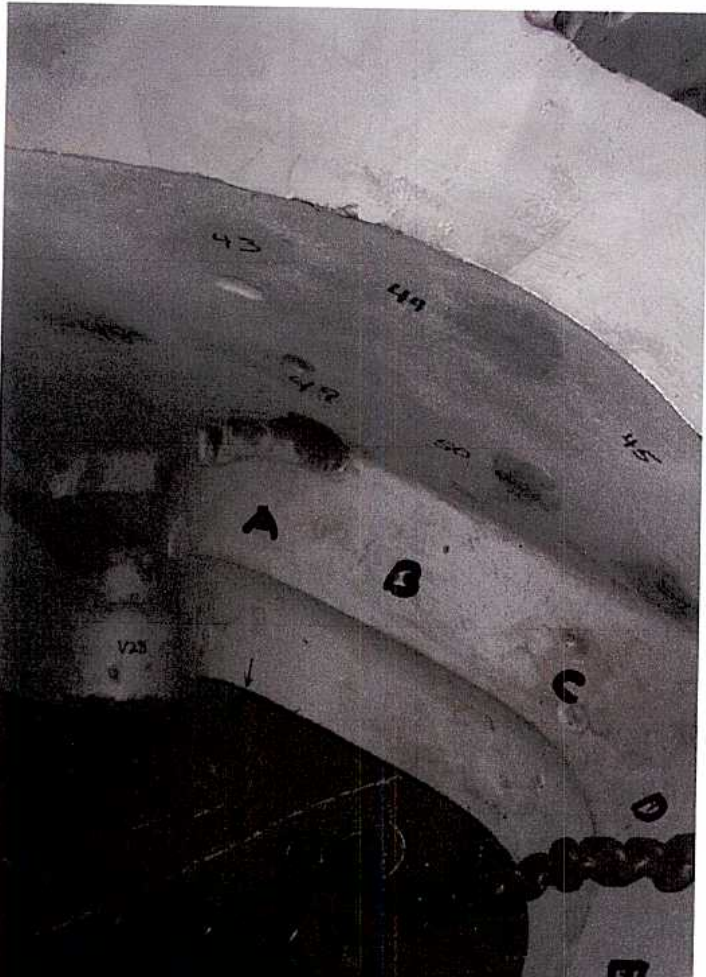
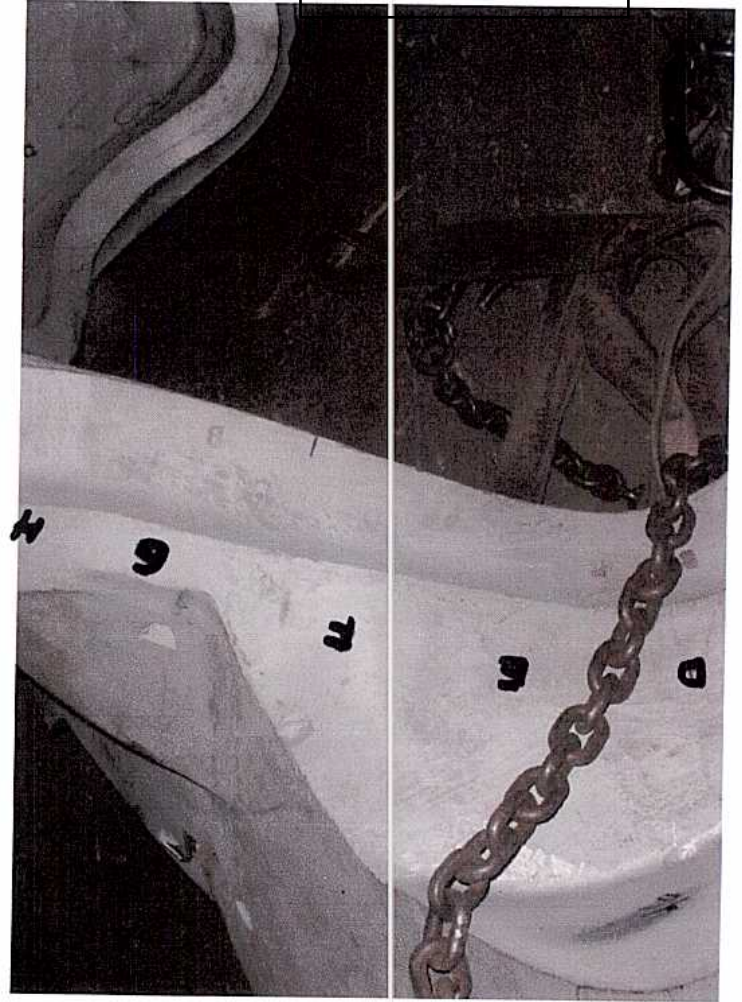




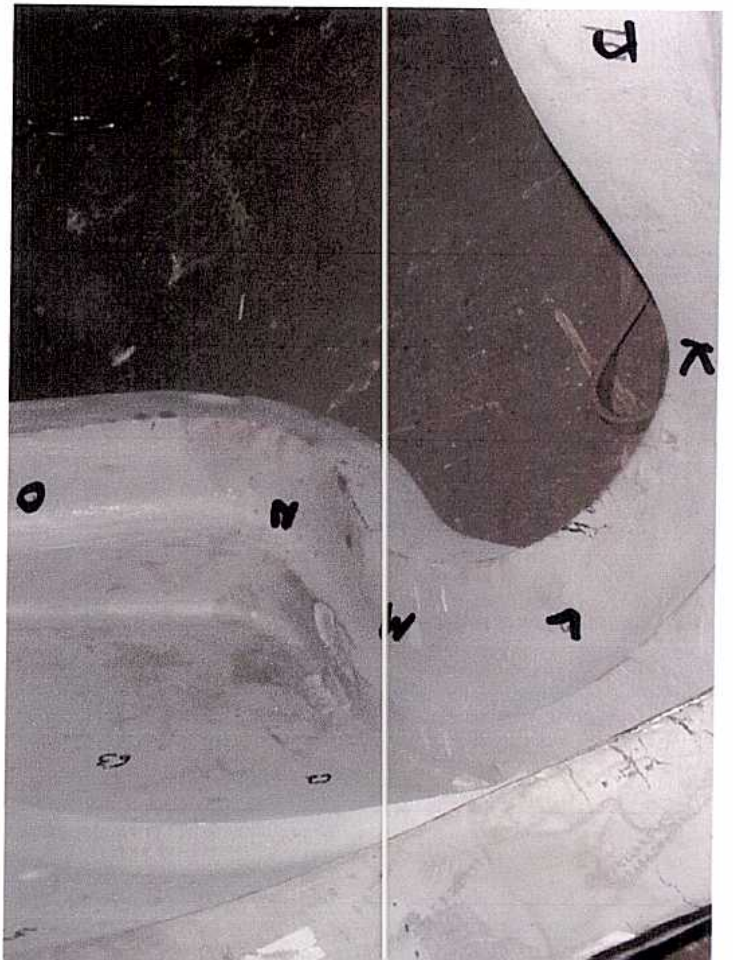
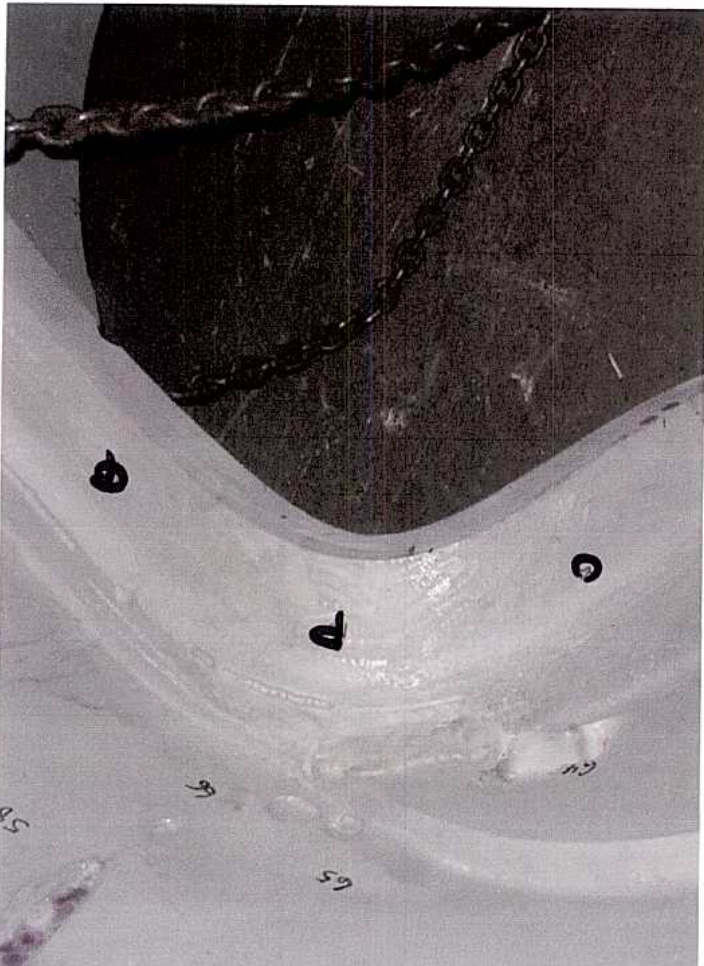
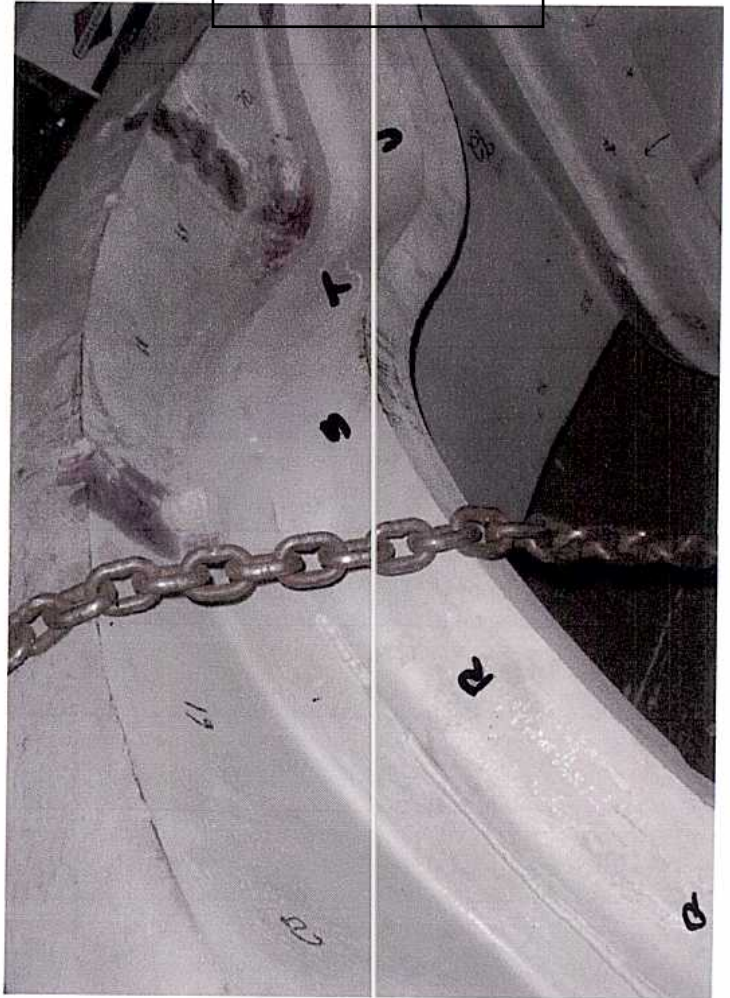








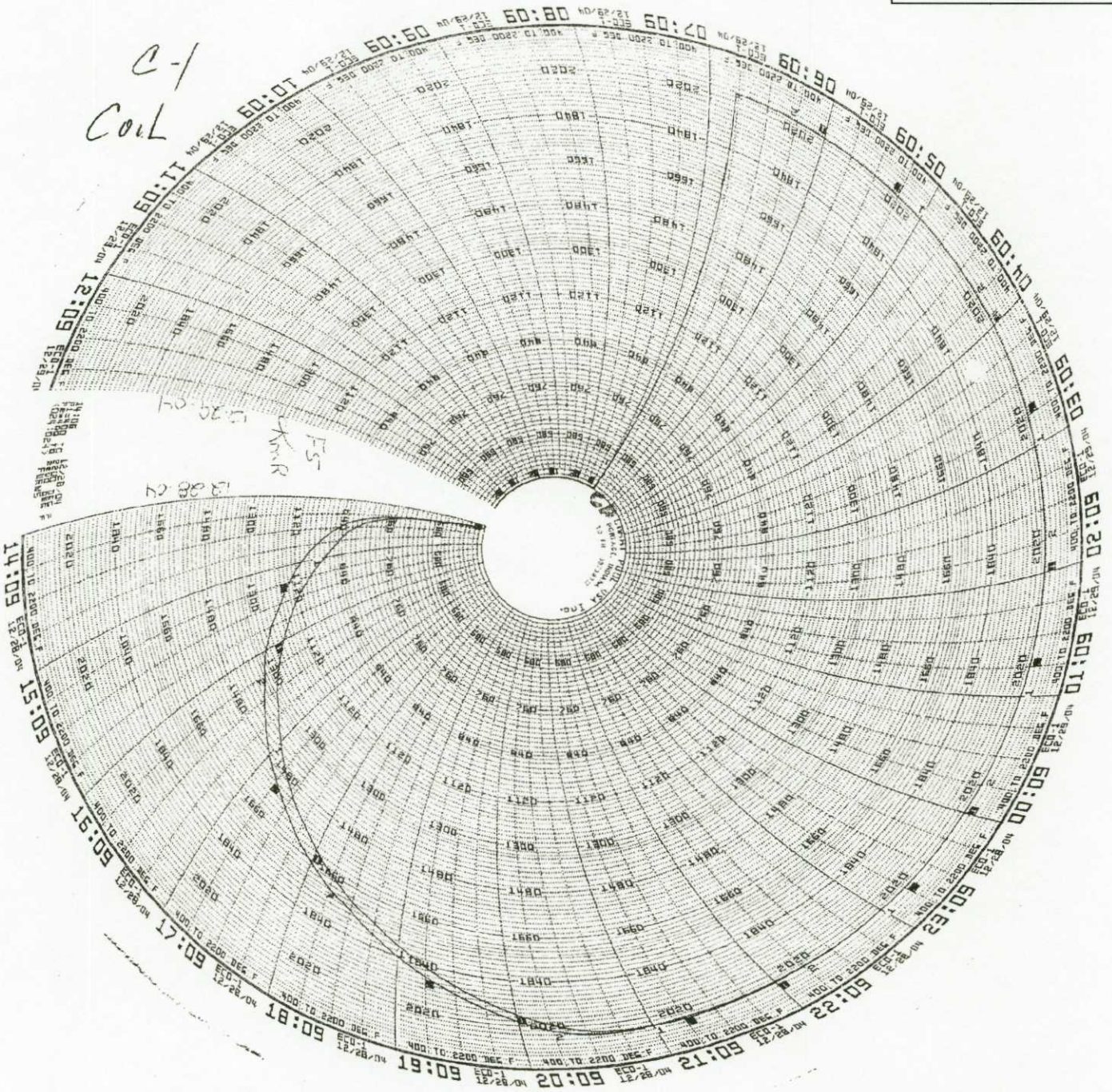






C-1 Doc Package  
Document #19

C-1  
Coil





C-1 coil  
stress  
relief

50  
150  
200  
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400  
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600  
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2000





**MetalTek**

*Carondelet Division - CA / PA / RGA Database*

Corrective Action

1219

Corrective Action Type FOR CASTING DISCONTINUITIES

Date 2/18/2005

CA Originator Ruud

Pattern Number: C-1 Coil

**Description of Defect / Non-Conformance**

96 major weld defects found in the C-1 RT1 coil casting. Two defects were on opposite sides of a wall and after excavation resulted in a through wall defect requiring repair. See CA 1226.

**Root Cause :** Incorrect parameter used during solidification modeling at ESI Group. They used 75% fraction solid cutoff as a feeding criterion. This made the simulation result look like the casting fed correctly with the rigging that was used.

**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.

**Preventive Action:** We used the xray information from the C1 casting to re-simulate the solidification using different fraction solid cutoff numbers. A good correlation between the C1 xray results and a 50% fraction solid cutoff number was found. As of 2-18-05, we are revising the rigging to give good simulated results with a 50%fraction solid cutoff.

**Verification Of Preventative Action:** Radiograph C-2 coil and compare results.

**Estimated Implementation Date:** Prior to shipment.

Signed: CA Ruud

CC: EIO, Barry Craig, Joe Edwards, E.J. Kubick, Geoff Mergel, File

Corrective Action 1219

Concur:

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P. Heitzenroeder, PPPL Tech. Rep.

---

B. Nelson, RLM

cc: F. Malinowski, PPPL QA



**MetalTek**

*Carondelet Division - CA / PA / RGA Database*

Corrective Action

1226

Corrective Action Type FOR CASTING DISCONTINUITIES

Date 2/18/2005

CA Originator Ruud

Pattern Number: C-1 Coil

**Description of Defect / Non-Conformance**

Two defects were on opposite sides of a wall and after excavation resulted in a through wall defect requiring repair.

**Root Cause :** Incorrect parameter used during solidification modeling at ESI Group. They used 75% fraction solid cutoff as a feeding criterion. This made the simulation result look like the casting fed correctly with the rigging that was used.

**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. Copper backing plates will used.

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

**Preventive Action:** We used the xray information from the C1 casting to re-simulate the solidification using different fraction solid cutoff numbers. A good correlation between the C1 xray results and a 50% fraction solid cutoff number was found. As of 2-18-05, we are revising the rigging to give good simulated results with a 50%fraction solid cutoff.

**Verification Of Preventative Action:** Radiograph C-2 coil and compare results.

**Estimated Implementation Date:** Prior to shipment.

Signed: CA Ruud

CC: EIO, Barry Craig, Joe Edwards, E.J. Kubick, Geoff Mergel, File

Corrective Action 1226

C-1 Doc Package  
Document # 21

Concur:

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P. Heitzenroeder, PPPL Tech. Rep.

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B. Nelson, RLM

cc: F. Malinowski, PPPL QA



**MetalTek**

*Carondelet Division - CA / PA / RGA Database*

Corrective Action

1251

Corrective Action Type FOR CASTING DISCONTINUITIES

Date 3/22/2005

CA Originator Ruud

Pattern Number: C-1 Coil

**Description of Defect / Non-Conformance**

Two major weld defects found following verification of weld repairs. Lack of fusion was found. These are repairs of existing weld deposits.

**Root Cause**

Defective weld.

**Corrective Action**

Excavate and repair.

**Verification of Corrective Action**

Radiography indicated part was properly repaired.

Actual Completion and File Date: 3-22-05

Signed: CA Ruud



CC: Barry Craig, Dean Berger, E.J. Kubick, R Suria, File

CONCUR: 

 3/26/05

C-1 Doc Package  
Document # 22a

**MetalTek**

*Grandelet Division - CA / PA / RGA Database*

Corrective Action

1252

Corrective Action Type FOR CASTING DISCONTINUITIES

Date 3/24/2005

CA Originator Ruud

Pattern Number: C-1 Coil

**Description of Defect / Non-Conformance**

Major defects were observed during final Penetrant inspection.

**Root Cause**

Inherent casting discontinuities.

**Corrective Action**

Excavate discontinuities and weld repair.

**Verification of Corrective Action**


Penetrant Inspection of weld repairs.

Actual Completion and File Date: 3-24-05

Signed: CA Ruud



CC: Barry Craig, Dean Berger, E.J. Kubick, R Suria, File

APPROVED: 

25 MARCH 2005



28 March 05





C-1 Doc Package  
Document # 22b

Corrective Action 1320  
Carondelet Division - CA / PA / RGA Database  
Corrective Action Type NCR  
Date 7/5/2005  
CA Originator C. Ruud  
Pattern Number: C 1, C2 and A1 Coil castings

**Description of Defect / Non-Conformance**

Lack of test material in violation of paragraph 4.2.2.4 Additional Test Material.

**Root Cause**

Specification was not communicated to Pattern shop personnel.

**Corrective Action**

Test coupons were added to pattern and will be cast on all future coils.

**Verification of Corrective Action**

Pattern was inspected prior to molding C-4 casting.

**Preventive Action**

Create Inspection and Test Plan summarizing all requirements.

**Actual Completion Date**

Complete.

A handwritten signature in black ink, appearing to be "C. Ruud", with a long horizontal line extending to the right.

Signed: C. Ruud

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

PPPL and EIO agree that additional test material is not available for the C1, C2, and A1 castings, but will be provided for the remaining castings.

This NCR is approved based on EIO's corrective action and the above agreement.

---

Brad Nelson, NCSX Core Systems Engineering Manager

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Phil Heitzenroeder, NCSX MCWF Subcontract Tech. Rep.





Corrective Action 1300  
Carondelet Division - CA / PA / RGA Database  
Corrective Action Type NCR  
Date 5/29/2005  
CA Originator C. Ruud  
Pattern Number: C-1 Coil

**Description of Defect / Non-Conformance**

Failed to differentiate 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 location identifiers to cast on test material specimens.

**Corrective Action**

Add location identifiers to pattern and track through testing.

**Verification of Corrective Action**

Verified on Coil C-2 those identifiers were present.

**Preventive Action**

Create Inspection and Test Plan summarizing all requirements.

**Estimated Completion Date**

Identifiers will be added prior to making C-2. Inspection plan by 6/15/05

**Actual Completion Date**

Identifiers were added 4-15-05.

Signed: C. Ruud

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

Accepted. CA for future castings. 6-6-05  
Accept ~~the~~ as is for C1. PMA



Corrective Action 1301  
Carondelet Division - CA / PA / RGA Database  
Corrective Action Type NCR  
Date 5/29/2005  
CA Originator C. Ruud  
Pattern Number: C-1 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 PRM*



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



**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-1 Doc Package  
Document # 24a

Founded 1929

St. Louis Testing Laboratories  
INCORPORATED



Attachment to  
CA 1323

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: Colorimetric

Identification of tested specimen provided by the client.

Robin E. Sinn  
Laboratory Director

RES/nmc

MEMBER  
**ACIL**





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

A handwritten signature in black ink, appearing to read "C. Ruud", written over a white background.

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

COIK

RTG

Energy Industries of Ohio

Manufacturing and Test Sequence (MTS) Serial Number C-1

Dated December 14, 2004 Revision: Original Page 1 of 8

Dated Issued: 12-14-04

C-1 Doc Package Document #25 10 pages

| OPER. # | STATION   | DESCRIPTION OF PROCESS  | Name               | Date     |
|---------|---|---|--------------------|----------|
| 10      | QUALITY RELEASE   | REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON 12/15/04 FROM <u>Pate</u> SIGNED QUALITY MANAGER.   | <u>Pate</u>        | 12/15/04 |
| 15      | PATTERN NPAT SOP 0100REV2   | APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, FOUNDRY MARK, TO THE PATTERN. CAST ON BARS REQUIRED.<br><i>Cast on bars added - Marked "C1" - Part number, etc. with have to be stamped</i>   | <u>[Signature]</u> | 12/17/04 |
| 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.   | <u>[Signature]</u> | 12/17/04 |
| 30      | MOLD MOLD SOP 0400 REV 8 CALIBRATION PER MOLD SOP 0900 REV 5 PREPARATION PER MOLD SOP 1100R2/1200R2/13 00R1 SAND TESTING PER MOLD SOP 1400R2/1500R3/16 00R2 | 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.  | <u>[Signature]</u> | 12/17/04 |
| 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>5:45</u> DATE: <u>12/21/04</u> HEAT #'S: <u>21128, 21729, 21730, 21731</u> ELAPSED POUR TIME: <u>105 SEC</u> KEEL BLOCKS POURED: <u>YES</u> Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Analyzed: <u>JG</u> Date: <u>12-19-04</u> | <u>[Signature]</u> | 12/19/04 |
| 50      | MELT SOP 0800R2   | SHAKEOUT  | <u>[Signature]</u> | 12-26-04 |

SIGNED WRONG BY CJA 12-26-04



Energy Industries of Ohio  
 Manufacturing and Test Sequence (MTS) Serial Number C-1  
 Dated December 14, 2004 Revision: Original Page 2 of 8

Dated Issued: 12-14-04

|        |                                      |  |   |                               |
|--------|--------------------------------------|--|---|-------------------------------|
| 60     | CO# 40851, MS73140                   | ARC                                      | REMOVE RISERS AS DIRECTED BY SUPERVISOR.  | MW<br>1-3-05                  |
| 70     | RISE SOP 0100R1                      | HEAT TREAT<br>HEAT SOP<br>0103R5         | SOLUTION ANNEAL. MAKE SURE TO BLOCK ALL FLANGES OF FORM AND RACETRACK TO MINIMIZE CREEP DISTORTION.   | DLS<br>12/28/04               |
| 75     | PHYSICAL TESTING                     | PHYSICAL TESTING                         | OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 510.  | WAF<br>12/28/04               |
| 80     | GRIND                                | GSWA SOP<br>0100R3<br>GCHI SOP<br>0100R2 | SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED. CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED FOR CONTOUR.  | SA<br>1-2-05                  |
| 90     | SAND BLAST<br>BLAS SOP<br>0100R6     | SAND BLAST                               | SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.  | MB<br>TV<br>1-6-05            |
| 110    | VISUAL INSPECTION<br>CQP-500 REV 4   | VISUAL INSPECTION                        | VISUALLY INSPECT 100% OF COMPONENT ACCORDING TO ASTM A802 LEVEL 3 ALL CONDITIONS. IF OK CHECK HERE <input checked="" type="checkbox"/> . MARK AND REPAIR AT STEP 120.   | 170<br>1-7-05                 |
| NOTICE | WITNESS NOTIFICATION                 | WITNESS NOTIFICATION                     | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LP STEP. EIO NOTIFIED ON 12/15/05 DCMA NOTIFIED ON 1/3/05<br>+ on 1/4/05 for our early ca 1/7/05  | ABC<br>1-7-05                 |
| 115    | 100% I.P.<br>CQP-300<br>REV 10       | 100% I.P.<br>CQP-300<br>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 <input checked="" type="checkbox"/> . MARK AND REPAIR AT STEP 120. | KRA<br>1-7-05<br>1-12-05      |
| 120    | WELD SOP 0100<br>REV 7               | WELD SOP 0100<br>REV 7                   | EXCAVATE ANY DEFECTS FOUND DURING 100% VISUAL AND LP INSPECTION.  | 1-12-05                       |
| 130    | L.P. EXCAVATION<br>CQP-300<br>REV 10 | L.P. EXCAVATION<br>CQP-300<br>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 I.P. DRAWING.   | deluged OK<br>1-12-05         |
| 165    | SAND BLAST<br>BLAS SOP<br>0100R6     | SAND BLAST                               | SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.  | 1-12-05                       |
| 170    | WELD MAP                             | 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, INSPECTOR, MAN OR THEIR DESIGNEE, FILE WITH QA. USE YELLOW MARKER.                   | built out after RT<br>1-12-05 |

17/04

1-12-05



|        |                                      |   |                                   |                |
|--------|--------------------------------------|---|-----------------------------------|----------------|
| 210    | NOTICE                               | 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.   | W/A                               |                |
| 180    | WITNESS NOTIFICATION                 | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF XRAY AND DIMENSIONAL STEPS. EIO NOTIFIED ON <u>1/14/05</u> DCMA NOTIFIED ON <u>1/14/05</u>  | Q ENG OR QA MGR<br><i>1/13/05</i> |                |
| 190    | HOLD POINT                           | HOLD FOR APPROVAL OF XRAY PROCEDURES. RECEIVE APPROVAL FROM EIO ON <u>1/11/05</u> from R.D  | QA MGR<br><i>1/13/05</i>          |                |
| 190    | X-RAY AT MQS PROCEDURE 2011010 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<br><i>1-12-05</i>   |                |
| 200    | LAYOUT Lawton's procedure            | INSPECT CASTING TO VERIFY DIMENSIONS. THIS MAY BE PERFORMED BEFORE OR AFTER STEP 190. DIMENSIONED <u>1/10-11/05</u> DATE BY <u>3DSCAR</u> RELEASED <u>5:05 PM</u> (ENGINEER ONLY)   |                                   | <i>1/11/05</i> |
| 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 370. REJECTED CHECK HERE <input checked="" type="checkbox"/> MARK UP DEFECTS AND SEND THE CASTING TO STEP 260. EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.  | RT - LEVEL II<br><i>1-19-05</i>   | <i>1/20/05</i> |
| 220    | WELD SOP 0100 REV 7                  |   |                                   | <i>1/25/05</i> |
| 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.   | LP - LEVEL II<br><i>2-17-05</i>   |                |
| 240    | WELD MAP                             | MAP ALL WELDS WITH DIGITAL PHOTOGRAPHS. 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 <input checked="" type="checkbox"/> REPORT SENT BY <u>R. Service</u> DATE <u>2/18/05</u> DEFECTS < 10% _____ SIGN BY QA ENG. |                                   | <i>2/18/05</i> |
| NOTICE | WITNESS NOTIFICATION                 | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON <u>1/11/05</u> DCMA NOTIFIED ON <u>1/11/05</u>   | Q ENG OR QA MGR<br><i>1/11/05</i> |                |
| 260    | QA APPROVAL HOLD POINT               | QA TO APPROVE ELECTRODE PRIOR TO USE. C.F. 8 mm. 1/11/05. MATERIAL USED: <u>15-GW-400</u> QUALITY ENG. Name: <u>Rickards</u> Date: <u>2/18/05</u>   |                                   | <i>2/18/05</i> |

*1/11/05*  
*1/20/05*  
*1/25/05*





Energy Industries of Ohio

Manufacturing and Test Sequence (MTS) Serial Number C-1

CO# 40851, MS73140

Dated December 14, 2004 Revision: Original Page 4 of 8

Dated Issued: 12-14-04



|       |  |  |                                   |  |  |
|-------|--|--|-----------------------------------|--|--|
| 270   | WELD SOP 0100<br>REV 7   | WELD REPAIR DEFECTS AS MARKED.<br>FOR WELDS <2" - WPS 10-SMAW-CF8MMNMN MOD REV 1<br>FOR WELDS <8" - WPS 15-GMAW-CF8MMNMN MOD REV 2   |                                   |  |  |
| 280   | GRIND<br>GCHH SOP 0100R2   | HAND GRIND WELDS.  |                                   |  |  |
| 290   | L.P. WELD<br>CQP 0300<br>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.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> WASH AND SEND TO STEP 300.<br>IF REJECTED CHECK HERE <input type="checkbox"/> AND RETURN TO STEP 220.  | LP-<br>LEVEL II<br>Rlet<br>3/5/05 |  |  |
| 295   | REPEAT   | REPEAT STEPS 220 TO 290 AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS   | QA<br>N/A                         |  |  |
| 295   | TEST MAG PERM<br>SOP MAG PERM<br>100, REV 1                        | TEST MAG PERMEABILITY REPAIR AREAS RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> AND GO TO STEP 430. IF REJECTED CHECK HERE <input type="checkbox"/>   | QA<br>N/A<br>3/5/05               |  |  |
| 296   | GRIND GCHH SOP<br>0100R2   | GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 295.<br>REPEAT UNTILL COMPLIANCE IS ACHIEVED.   | N/A                               |  |  |
| 300   | X-RAY ( NOTE)  | IF RADIO GRAPHED AREAS ARE GREATER THAN FOUR TO FIVE INCHES THE CASTING WILL BE SENT TO MQS.<br>SEND TO MQS CHECK HERE <input checked="" type="checkbox"/><br>RADIOGRAPH AT CAF CHECK HERE <input type="checkbox"/>  | QA<br>ENGINEER<br>3/7/05          |  |  |
| 310 A | MQS<br>X-RAY DEFECTS<br>REPAIRED BY<br>WELDING                     | X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.  | LEVEL II<br>1.101<br>3/20/05      |  |  |
| 310 B | CAF<br>X-RAY DEFECTS<br>REPAIRED BY<br>WELDING<br>CQP 401<br>REV 5 | X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.  | RT-<br>LEVEL II<br>U/A            |  |  |
| 320   | X-RAY<br>CQP 401<br>REV 5  | X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> AND SEND TO STEP 340.<br>REJECTED CHECK HERE <input checked="" type="checkbox"/> MARK UP DEFECTS AND SEND THE CASTING TO STEP 220. | RT-<br>LEVEL II<br>RBK<br>3-21-05 |  |  |



Energy Industries of Ohio

Manufacturing and Test Sequence (MTS) Serial Number C-1

CO# 40851, MS73140 Dated December 14, 2004 Revision: Original Page 5 of 8 Dated Issued: 12-14-04

| REPEAT | REPEAT STEPS 220 TO 320 AS REQUIRED TILL WELDS CLEAR X-RAY. DOCUMENT REWORK ON A SUPPLEMENTAL MTS   | QA ENG.  |
|--------|---|--|
| 340    | SAND BLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.<br><i>Supplemental supplied on 3/21/05</i>  | <i>Ref</i><br><i>3-22</i>  |
| NOTICE | WITNESS NOTIFICATION  | <i>QBR</i>   |
| 350    | FINAL VISUAL INSPECTION CQP-500 REV 4<br>PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS.<br>EIO NOTIFIED ON <i>3/16/05</i> DCMA NOTIFIED ON <i>3/16/05</i><br>VISUALLY INSPECT 100% OF COMPONENT ACCORDING TO ASTM A802 LEVEL 2 ALL CONDITIONS.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> <i>3/30/05 Final OK</i><br>IF REJECTED CHECK HERE <input type="checkbox"/> MARK AND REPAIR AT STEP 390. MUST BE PERFORMED BY LEVEL II in VT. | Q ENG OR QA MGR<br><i>QBR</i>                                    |
| 360    | FINAL L.P. CQP 0300 REV 10<br>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.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> <i>3/30/05 Final OK</i><br>IF REJECTED CHECK HERE <input type="checkbox"/> WASH AND SEND TO STEP 455.  | VT - LEVEL II<br><i>Walt</i><br><i>3/22/05</i><br><i>3/24/05</i> |
| 380    | WELD SOP 0100 REV 7<br>EXCAVATE ANY DEFECTS FOUND DURING FINAL PENETRANT INSPECTION.  | <i>Walt</i><br><i>3/22/05</i>                                    |
| 390    | L.P. EXCAVATION CQP-300 REV 10<br>LP. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903.  | MC<br><i>3/22/05</i>   |
| 400    | WELD MAP<br>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 <i>RS</i> DATE <i>3/23/05</i> DEFECTS < 10% <i>RS</i> SIGN BY QA ENG.   | LP - LEVEL III<br><i>RS</i><br><i>3/23/05</i>                    |
| 420    | GRIND GCHI SOP 0100R2<br>GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 410. REPEAT UNTILL COMPLIANCE IS ACHIEVED.  | <i>W/A</i>   |
| 430    | WELD SOP 0100 REV 7<br>WELD REPAIR DEFECTS AS MARKED.<br>FOR WELDS <2" - WPS 10-SMAW-CF8MMN MOD REV 1<br>FOR WELDS <8" - WPS 15-GMAW-CF8MMN MOD REV 2   | <i>W/A</i><br><i>3-28-05</i>                                     |

*3/22/05*  
*3/23/05*  
*3/24/05*  
*3/22/05*  
*3/22/05*  
*3/23/05*

*AL*



|            |  |   |  |  |  |                        |         |
|------------|--|---|--|--|--|------------------------|---------|
| 440        | GRIND<br>GCH SOP 0100<br>REV 2                             | HAND GRIND WELDS.   |  |  |  | CG                     | 3/28/05 |
| 450        | L.P. WELDS<br>CQP 0300<br>REV 10                           | L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> WASH AND SEND TO STEP 460.<br>IF REJECTED CHECK HERE _____ AND RETURN TO STEP 390.  |  |  |  | LP-<br>LEVEL II<br>WBA | 3/30/05 |
| 451        | REPEAT   | REPEAT STEPS 350 TO 450 AS REQUIRED TILL WELDS CLEAR FINAL LIQUID PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS   |  |  |  | QA ENG<br>NA           |         |
| 452        | TEST MAG PERM<br>SOP MAG PERM<br>100, REV 1                | TEST MAG PERMEABILITY REPAIR AREAS. RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE _____ AND GO TO STEP 430. IF REJECTED CHECK HERE _____  |  |  |  | CJA                    | 3/28/05 |
| 455        | GRIND GCH SOP<br>0100R2                                    | GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 451.<br>REPEAT UNTILL COMPLIANCE IS ACHIEVED.  |  |  |  | N/A                    |         |
| NOTICE     | WITNESS<br>NOTIFICATION                                    | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LAYOUT AND MAG PERM STEPS.<br>EIO NOTIFIED ON 3/23/05 DCMA NOTIFIED ON 3/23/05  |  |  |  | Q ENG<br>OR QA<br>MGR  | OK      |
| 460        | LAYOUT   | LAYOUT PRODUCTION PARTS PROCEDURE TO BE DETERMINED (PERFORMED AFTER FIRST ARTICLE APPROVAL) MAY BE PERFORMED BEFORE OR AFTER STEP 460-480.<br>PERFORM MAG PERM TESTING WITH SEVRIN GAUGE. ACCEPTANCE 1.02. CHECK THE ENTIRE SURFACE ON A 6" BY 6" 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.<br>OK CHECK HERE <input checked="" type="checkbox"/> AND GO TO STEP 490.<br>IF REJECTED CHECK HERE _____ |  |  |  | Deliberate             |         |
| 470        | FINAL MAG PERM<br>INSPECTION<br>SOP MAG PERM<br>100, REV 1 | 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.<br>RETEST MAG PERMEABILITY AT FAILED TEST POINTS. MARK NONCOMPLIANT AREAS WITH AN "X" FOR REPAIR.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE _____ IF REJECTED CHECK HERE _____ RETURN TO STEP 470   |  |  |  | OK                     | 3/30/05 |
| 480        | GRIND<br>GCH SOP 0100<br>REV 2                             | RETEST MAG PERM<br>SOP MAG PERM<br>100, REV 1   |  |  |  | N/A                    |         |
| 490        | PHOTOGRAPH II  | TAKE DIGITAL PICTURES.  |  |  |  | ↓                      |         |
| SAND BLEST |  |   |  |  |  | RAM                    | 3/28/05 |
|            |  |   |  |  |  | CAF                    | 3/31/05 |

Handwritten notes and stamps at the top of the page, including a circular stamp with the number 0000 and a signature.

Handwritten notes and stamps at the top of the page, including a circular stamp with the number 0000 and a signature.

CO# 40851, MS73140 Dated December 14, 2004 Revision: Original

PROCESS DOCUMENT TO PROGRAM MANAGER FOR COMPLIANCE AUDIT.

|        |                  |   |  |                       |
|--------|------------------|---|--|-----------------------|
| 500    | AUDIT REVIEW     |   |  | 3/31/05<br><i>pat</i> |
| 510    | 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) |  | 3/31/05<br><i>pat</i> |
| NOTICE | RELEASE FROM EIO | PROVIDE DOCUMENTS TO EIO SENT ON 4/4/05 BY <i>pat</i><br>RECEIVED RELEASE FROM EIO ON 3/30/05   |  | Q.ENG<br>OR QA<br>MGR |
| 520    | PACK AND SHIP    | PACKAGE AND SHIP TO MAJOR TOOL.   |  | 3/31/05<br>CARUUD     |
| 1000   | REVISION HISTORY | ORIGINAL 12-14-04. approved 12-14-04.   |  |                       |

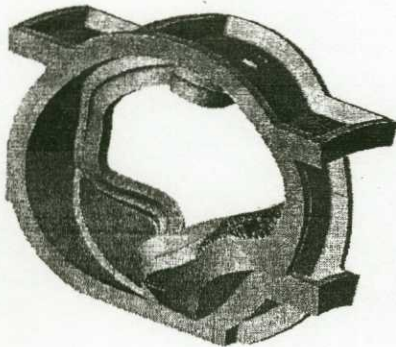
*Shipped*





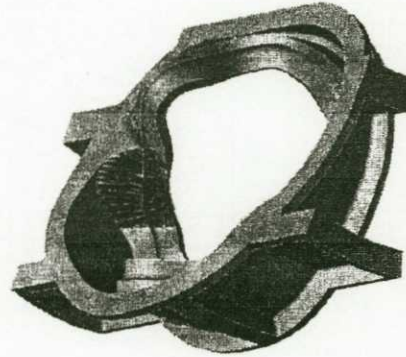
Page 8 of 8 Revised 1-26-05 to clarify and illustrate the critical areas (CLASS 1) of the C-1 Coil

*CLASS 2 ALL OVER*

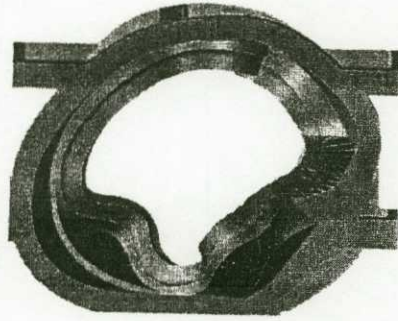


GENERAL ISOMETRIC  
VIEW FROM TOP SIDE

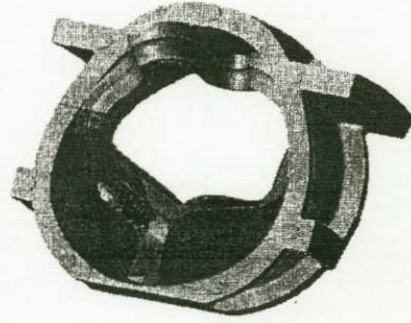
**RED AREA INDICATES HIGH STRESSED AREA**



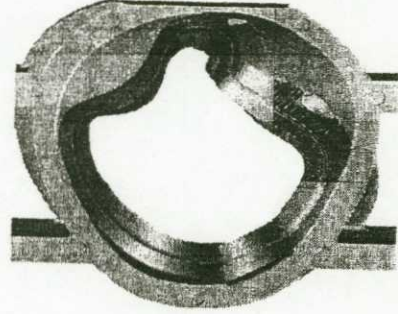
TOP SIDE ISOMETRIC



TOP SIDE VIEW



BOTTOM SIDE ISOMETRIC



BOTTOM SIDE VIEW

**NOTES: Weld repair of C-1 Coil Casting**

Date: 3-21-05

**SUPPLEMENTAL ROUTING CARD**

| PART NUMBER: C-1 Coil |                                      | SERIAL NUMBER: C-1   | AUTHORITY<br>C Ruid               |
|-----------------------|--------------------------------------|--|-----------------------------------|
| OPER NUMBER           | STATION                              |  | OPERATOR<br>SIGN/DATE             |
| 220                   | WELD SOP 0100<br>REV 7               | EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.   |                                   |
| 230                   | L.P. EXCAVATION<br>CQP-300<br>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-<br>LEVEL II<br>JBB<br>3/21/05 |
| 240                   | WELD MAP                             | MAP ALL WELDS WITH DIGITAL PHOTOMAPS. 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.<br>MUST SEND REPORT ON ALL WELDS OVER 10% OF NOMINAL WALL THICKNESS TO CUSTOMER. DEFECTS > 10% YES <input checked="" type="checkbox"/> REPORT SENT BY <u>R. Suris</u> DATE <u>3/27/05</u><br>DEFECTS < 10% <input type="checkbox"/> SIGN BY QA ENG. | RS<br>3/22/05                     |
| NOTICE                | WITNESS<br>NOTIFICATION              | PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. <u>WAVE &amp; SURVE</u>   | Q ENG<br>OR QA<br>MGR<br>CRL      |
| 260                   | QA APPROVAL<br>HOLD POINT            | EIO NOTIFIED ON <u>3/21/05</u> DCMA NOTIFIED ON <u>3/21/05</u><br>QA TO APPROVE ELECTRODE PRIOR TO USE OF D<br>PROCEDURE USED: <u>15-SMAW-C-F8MNMN</u> MATERIAL USED: <u>Lincolb L AN 44/55</u><br>QUALITY ENG. Name: <u>Picardo Suris</u> Date: <u>3/21/05</u>  |                                   |
| 270                   | WELD SOP 0100<br>REV 7               | WELD REPAIR DEFECTS AS MARKED.<br>FOR WELDS < 2" - WPS 10-SMAW-CF8MNMN MOD REV 1<br>FOR WELDS < 8" - WPS 15-GMAW-CF8MNMN MOD REV 2   |                                   |
| 280                   | GRIND<br>GCHI SOP 0100R2             | HAND GRIND WELDS.  |                                   |
| 290                   | L.P. WELD<br>CQP 0300<br>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.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> WASH AND SEND TO STEP 300.<br>IF REJECTED CHECK HERE <input type="checkbox"/> AND RETURN TO STEP 220.  | LP-<br>LEVEL II<br>JBB<br>3/21/05 |
|                       | REPEAT                               | REPEAT STEPS 220 TO 290 AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS   | QA ENG<br>NA                      |



|       |  |   |                                  |                |
|-------|--|---|----------------------------------|----------------|
| 295   | TEST MAG PERM<br>SOP MAG PERM<br>100, REV 1                        | TEST MAG PERMEABILITY REPAIR AREAS RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS<br>PER WELD.<br>ACCEPTANCE 1.02.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> AND GO TO STEP 430. IF REJECTED CHECK HERE _____.   | OK 5/21                          |                |
| 296   | GRIND GCHI<br>SOP 0100R2   | GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 295.<br>REPEAT UNTILL COMPLIANCE IS ACHIEVED.  | N/A                              |                |
| 300   | X-RAY (NOTE)   | IF RADIO GRAPHED AREAS ARE GREATER THAN FOUR TO FIVE INCHES THE CASTING WILL BE<br>SENT TO MQS.<br>SEND TO MQS CHECK HERE _____<br>RADIOGRAPH AT CAF CHECK HERE <input checked="" type="checkbox"/> Y _____   | QA<br>ENGINEER<br>DWA<br>3-21-05 |                |
| 310 A | MQS<br>X-RAY DEFECTS<br>REPAIRED BY<br>WELDING                     | X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR<br>DENSITY VERIFICATION.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER<br>AND ASNT CERTIFICATION LEVEL ON READER SHEET.   | LEVEL II<br>N/A                  |                |
| 310 B | CAF<br>X-RAY DEFECTS<br>REPAIRED BY<br>WELDING<br>CQP 401<br>REV 5 | X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR<br>DENSITY VERIFICATION.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER<br>AND ASNT CERTIFICATION LEVEL ON READER SHEET.   | RT -<br>LEVEL II                 | DWA<br>3-21-05 |
| 320   | X-RAY<br>CQP 401<br>REV 5  | X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54.<br>ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER<br>AND ASNT CERTIFICATION LEVEL ON READER SHEET.<br>IF OK CHECK HERE <input checked="" type="checkbox"/> AND SEND TO STEP 340.<br>REJECTED CHECK HERE _____ MARK UP DEFECTS AND SEND THE CASTING TO STEP 220. | RT -<br>LEVEL II                 | 16             |

EIO  
Energy Industries of Ohio  
SUPPLIER QUALITY RELEASE

C-1 Doc Package  
Document #26

Date: 3/30/05

**I. General Information:**

|                   |   |                                |     |
|-------------------|---|--------------------------------|-----|
| Project Name      | Modular Coil Winding Form C1                | + Shim Ctg.                    | Row |
| PO No             | NCSX SOW 141 02 01                          |                                |     |
| Supplier          | MetalTech                                   |                                |     |
| Procurement Agent | EIO   |                                |     |
| Shipment:         | <input checked="" type="checkbox"/> Partial | <input type="checkbox"/> Final |     |

**II. Material Description:**

Casting C1 Coil

**III. Release Checklist:**

|   |   |   |   |
|---|---|---|---|
| Plan Requirements Complete?                     | <input type="checkbox"/> Yes            | <input checked="" 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 type="checkbox"/> Unconditional  | Explain conditional releases in comments section. |   |

**IV. Comments:**

Metallurgical testing pending, unable to complete prior to shipment.  
Final dimensional inspection waiver. (3D Scanner data utilized)  
Conditional release (Casting may ship, but metallurgical data must be submitted in a reasonable time frame)  
Casting has been accepted by EIO Quality with the above exceptions.

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

**V. Supplier Quality Representative Sign Off:**

|  |  |         |
|--|--|---------|
| + Charles Rued   | x <i>Ch Rued</i>                                   | 3/30/05 |
| Supplier Quality Representative (SQR)<br>Print/Type Name | Supplier Quality Representative (SQR)<br>Signature | Date    |

**VI. Supplier Approval For Shipment:**

|  |                            |
|--|----------------------------|
| Procurement Agent Notified of Shipment       | Date: 3/29/05              |
| Required Vendor Data Ready for Shipment      | Date: 3/30/05              |
| Peter A. Djordjevic                          | <i>Peter A. Djordjevic</i> |
| Supplier's Representative<br>Print/Type Name | Supplier's Signature       |
|  | 3/30/05                    |
|  | Date                       |