LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

QA Records Checklist

The purpose of this form is to ensure that the appropriate quality assurance records are present in the QA records packages for hardware being installed at SLAC. This form is required to be completed by ANL LCLS project personnel prior to authorizing shipments to SLAC.

System or Component Name: *Extrusion Polishing*

Part/Drawing Number: SOW L143-00097 Serial Numbers: 45

Supplier Name: *Engineered Finishing Corporation* PO Number: 8A-00222

Responsible LCLS Technical Lead: Dean Walters Reponsible Engineer: G. Wiemerslage

No.	Record Name	Document number	Record Source	Comments	Present (Y, N, or NA)?
1.	Supplier polishing record for each extrusion		EFC	See record 31	Y
2.	Completed ANL-266 Completed ANL Acceptance Criteria Listing E7-275017		ANL		Y
3.	Supplier QA Manual		EFC	Accepted by T. Barsz during visit to EFC on 11/15/07.	N
4.	Supplier certificate of conformance for polishing process		EFC	Required by ANL-407 section 4.15	NA
5.	Material certificate for polishing media		EFC	Required by ANL-407 section 4.14. Tom Barsz obtained during 11/15/07 visit	Y
6.	Calibration certificates for pressure gages		EFC	Required by ANL-407 section 4.29. Tom Barsz obtained during 11/15/07 visit	Y
7.	Completed ANL-311 Supplier Disposition Reports		EFC		Y
8.	Completed ANL-626 Supplier Nonconformance Reports		T. Barsz		NA

Optional notes or Comments:

#4 not req'd per G. Wiemerslage 2/4/08. See Assy 39 for records 2, 5, 6, 7

System or Component Name: *Vacuum Chamber Machining*

Part/Drawing Number: L1440202-200010 Serial Numbers: 45

Supplier Name: *Hi-Tech Manufacturing Inc* PO Number: 8A-01238

Responsible LCLS Technical Lead: Dean Walters Reponsible Engineer: E. Trakhtenberg

No.	Record Name	Document number	Record Source	Comments	Present (Y, N, or NA)?
9.	Completed ANL-266 Completed ANL Acceptance Criteria Listing E7-295080		ANL	Part of requisition approval conditions	Y
10.	Supplier Certification of Conformance for all critical dimensions		Hi-Tech	Required by SOW. See record 30.	Y
11.	Supplier Inspection Plan		Hi-Tech	Required by SOW	NA
12.	Supplier QA Manual		Hi-Tech	Supplier QA Manual was submitted and accepted by T. Barsz for the LCLS Support Mover Contract	N
13.	Supplier Thickness measurement procedure		Hi-Tech	Required by ANL-407 form	NA
14.	Supplier inspection and test reports and as built drawing		Hi-Tech	Required by section 4.19 of the ANL-407 form	
15.	Supplier calibration certificates		Hi-Tech	Required by ANL-407 form	
16.	Completed ANL-311 Supplier Disposition Reports		Hi-Tech	Required by SOW and ANL-407 form	
17.	Completed ANL-626 Supplier Nonconformance Reports		T. Barsz		

Optional notes or Comments:

Records 11, 12, 14, 15 are no longer required since ANL performed duplicate inspections prior to shipment to SLAC. See ASS439 for record 9.

System or Component Name: *Vacuum Chamber Inspection*

Part/Drawing Number: ESD Serial Numbers: 45

Supplier Name: *ANL Mechanical Engineering Group* PO Number: NA

Responsible LCLS Technical Lead: P. DenHartog Reponsible Engineer: M. Erdmann

No.	Record Name	Document number	Record Source	Comments	Present (Y, N, or NA)?
18.	LCLS Extruded Vacuum Chamber Traveler	L1440202-00039	M. Erdmann	Small weld bead @ corner on end B. Accepted by MJE	Y
19.	Inspection/Acceptance Report for machined extrusion	L1440202-00041	M. Erdmann		Y
20.	Results Summary Table	L1440202-00041	M. Erdmann	Slot thickness + overall length rejected and accepted by MJE	Y
21.	Inspection/Acceptance Report for Bi-mteal flange	L1440202-200050-01	M. Erdmann	Slot thickness rejected and accepted by MJE	Y
22.	Inspection/Acceptance Report for Bi-mteal flange	L1440202-200050-01	M. Erdmann		Y
23.	Results Summary Excel Graphs	NA	M. Erdmann		Y
24.	Calculation of Residual Outgassing	NA	G. Wiemerslage		Y
25.	Slope Error Report showing green, yellow and red levels of acceptability	NA	G. Wiemerslage		Y
26.	Bakeout Logsheet	NA	B382		Y
27.	RGA Plot		B382		Y
28.	Chamber material certificate showing 6063 Alloy, temper, and hardness		Cardinal Aluminum		Y
29.	Leak Test Certification	NA	Atlas Technologies		Y
30.	Certificate of Inspection	L1440202-200010	Hi-Tech Mfg.		Y
31.	Abrasive Flow Records for 220 & 400 grit from both upstream and downstream ends		Engineered Finishing Corp.		Y

Optional notes or Comments:

Signature of person that completed this checklist: Terry Date: 2/7/08

Concurrence signatures of checklist:

Responsible ANL LCLS Engineer: [signature] Date: 2/15/08

Responsible ANL QA Coordinator: Terry Date: 2/7/08

Responsible ANL LCLS Technical Lead: Drew Welty Date: 2/15/08

ANL LCLS Project Manager: [signature] Date: 2/15/08

Distribute completed checklist to: ANL QA Records package. ANL Engineer. ANL LCLS Technical Lead. ANL LCLS Quality Assurance Coordinator.

LCLS Linac Coherent Light Source — Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center

Shipping Authorization Checklist

The purpose of this form is to ensure that the required actions are completed prior to authorizing shipments of hardware to be installed at SLAC.

System or Component Name: Aluminum Vacuum Chambers

Part/Drawing Number: L4440202 - 200010 Serial Numbers: 37, 39, 41, 45, 46

Supplier Name: H. Tech Purchase Order Number: 84-01238

Special Instructions:

Task No.	Task Descriptions (attach continuation sheets if additional steps are required) *Inform the LCLS Technical Lead if a task cannot be completed or a requirement met	Completed by*	Date
1.	*Verify that the Bill of Material, drawing list, and SOW shown in the ASK System agrees with what is being shipped*		2-4-08
2.	*Verify that a packing list has been included for each shipping container*	N/A	
3.	*Verify that the shipping address is correct*		2/4/08
4.	*Verify that **SLAC PO number 54628** is included on each shipping container, so the SLAC Receiving Department will know how to process the shipment.*		2/4/08
5.	*Verify that all records required by the Purchase Order, Statement of Work, Drawings or Nonconformance Reports are present in the ANL QA Records package*		2/4/08
6.	*Complete a QA Records Checklist form and include it as page 1 in the QA Records Package*		2/4/08
7.	*Verify that the QA Records Package has been included with the shipment or uploaded to the SLAC ftp site* will upload later		2/4/08
8.	*Authorize Supplier to proceed with shipment*	N/A	
9.	*Enter shipping information into the ASK system*		2/4/08
10.	*Send email to Ben Poling (poling@slac.stanford.edu) notifying him that a shipment to SLAC has taken place* include SH in approval		2/4/08
11.	*Verify that Ben Poling has completed the SLAC portion of ASK System entry*		

Distribute: ANL Engineer's QA Records Package. ANL LCLS Quality Assrance Coordinator.

Report Distribution: LCLS Quality Assurance Database, G. Wiemerslage, P. DenHartog, D. Walters, G. Pile

Argonne NATIONAL LABORATORY

ANL QUALITY CRITERIA NONCONFORMANCE REPORT

Report Status: ***Open***

NCR No. **530**

Division: **ASD**

SECTION 1: DESCRIPTION (To be completed by Initiator)

Group/Project.	Location.	System or Component Name:
LCLS	B401 B4192	Aluminum Vacuum Chambers

Drawing/Specification:	Work Document/Purchase Order No.	Supplier:
L1440202-200010	**NA**	*AES Mechanical Engineering*

Quantity Recieved:	Number Inspected:	Number Nonconforming:
5	5	5

NONCONFORMANCE DESCRIPTION

Item No.

Condition: (Additional sheets may be used if necessary) (List Serial Numbers Where Applicable)

(1) Section 3.5 of the ESD requires no peaks over 5 x 10E-12 for masses over 44. However the RGA Plots for vacuum chambers 37,41,45,46 do not show any data below 1.0E-9. The RGA Plot for vacuum chamber 39 does not show any data below 1.0E-10.

(2) The </= .050mm straightness on vacuum chamber 41 was found to be .059mm and was accepted by M. Erdmann because it was only 9 microns (.0003") over the limit and there is enough tolerance in the assembly to not cause a problem.

(3) The 5.00 +/-.08 mm aperture height was found to be 5.118mm and was accepted by P. DenHartog.

QUALITY ASSURANCE LEVEL (A, B or C): A

GROUP RESPONSIBLE FOR DISPOSITION: LCLS

T. Barsz	2/7/2008
Initiator Signature*	Date
G. Pile	2/8/2008
Supervisor Signature*	Date
T. Barsz	2/7/2008
QAR Signature*	Date

SECTION 2: DISPOSITION (To be completed by Responsible Group)

☐ Reject ☐ Rework ☐ Repair (Justification Required) ☑ Use-As-Is (Justification Required)
☐ Scrap ☒ Document Change ☐ Return to Supplier ☒ Other

INSTRUCTIONS/JUSTIFICATION

Item No.

Disposition: (Use one of the options noted above)

Accept 1,2,3 as is. There are no indications from any of the bakeout, HLT and outgassing data that the chambers do not meet the RGA requirement. Cannot redo the RGA at this time because the chambers have been packaged and are awaiting shipment. G. Wiemerslage to see that the next series of chambers have RGA Plots down to the 1.0E-12 scale.

☐ Re-inspection required

Signature of person that provided disposition *	Date:
G. Pile	2/8/2008

* Signatures not required if report is approved via email or the APS ICMS System

Re-inspection Results (to be completed by person who performed re-insection

Was reinspection acceptable? ☐ Yes ☐ No (enter new NCR number) _____

Re-inspection Signature* Date

Signature (Disposition/Actions Completed)* Date

Signature (Facility/Program Manager)* Date

Note: Facility/Program Manager signature only required if disposition is Use-As-Is or involved rework or acceptance criteria other than that originally specified.

SECTION 3: CAUSE AND CORRECTIVE ACTION (To be completed by Responsible Group or QAR)

☐ Training Deficiency ☐ Equipment/Material Problem ☐ Procedure Problem ☒ Personnel Error
☒ Design Problem ☒ Management Problem ☒ External Phenomena ☐ Other (provide description below)

Cause/Root Cause:

The RGA requirements in the SLAC ESD appeared to be a carry-over from the SLAC Linac requirements and were felt to be too high for the Vacuum Chamber system. RGA data in the 10E-12 scale was not provided because RGA records for APS ID Aluminum Vaccum chambers showed that the data in the 10E-12 range to be inconclusive noise.

Corrective Action:

G. Wiemerslage to have SLAC revise the ESD RGA requirement or see that the next series of chambers have RGA Plots down to the 1.0E-12 scale

CORRECTIVE ACTION COMPLETED:

Signature (Responsible Group or QAR)* Date

* Signatures not required if report is approved via email or the APS ICMS System

(AES QA 3/05) (This report was generated from the AES Quality Assuance Database. Contact AES QA Tom Barsz at 620-252-9177 for details)

ARGONNE NATIONAL LABORATORY

ACCEPTANCE CRITERIA LISTING

1. DISTRIBUTION:

INSPECTION REQUIRED: ☑

4. ORIGINATOR'S NAME & DIVISION: Emil Trakhtenberg/AES 5. PHONE: 2-9400 6. DATE: 10/22/2007

9. FOR INSPECTION, DELIVER TO BLDG. NO.: DIVISION: ATTN.:

10. AFTER INSPECTION, DELIVER TO BLDG. NO.: DIVISION: ATTN.:

11. REFERENCES AND/OR REMARKS:

Report nonconformances to LCLS Quality Assurance Coordinator Tom Barsz, 630-252-9177

15. ORIGINATOR OF PLAN: Emil Trakhtenberg DATE: 10/22/2007

16. PLAN REVIEWED/APPROVED BY: Dean Walters DATE: 10/22/2007

17. QAR CONCURRENCE WITH PLAN: Tom Barsz DATE: 10/22/2007

3. ACL NO.: E7-295080 **LINE NBR: 1**

7. PART NO. & NAME: . Extrusion Machining 8. QUANTITY: 40

12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
1	Verify receipt of technical data per Section 7.2 of the Statement of Work	B401	NA [signature]	2/4/08
2	Perform First Article Acceptance	B382	NA [signature]	2/4/08
3	Perform Supplier Surveillance as required	Supplier Facility	[signature]	2/4/08
4	Verify QA records have been sent to SLAC	B401	[signature]	2/4/08

ARGONNE NATIONAL LABORATORY

ACCEPTANCE CRITERIA LISTING

1. DISTRIBUTION:

INSPECTION REQUIRED: ☑

4. ORIGINATOR'S NAME & DIVISION: Greg Wiemerslage/AES 5. PHONE: 2-0142 6. DATE: 00/00/0000

9. FOR INSPECTION, DELIVER TO BLDG. NO.: DIVISION: ATTN.:

10. AFTER INSPECTION, DELIVER TO BLDG. NO.: DIVISION: ATTN.:

11. REFERENCES AND/OR REMARKS:

15. ORIGINATOR OF PLAN: DATE: 00/00/0000

16. PLAN REVIEWED/APPROVED BY: Tom Barsz DATE: 00/00/0000

17. QAR CONCURRENCE WITH PLAN: DATE: 00/00/0000

3. ACL NO.: E7-275017 **LINE NBR: 1** Polished Extrusion

7. PART NO. & NAME: . ~~Additional Fixture~~ 8. QUANTITY:

12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
1	Verify chemistry and hardness of raw extrusions	B401	TMz	10/12/07
2	Verify receipt of supplier QA documents per section 5.2.1a of the Statement of Work	B401	TMz	11/15/07
3	Verify receipt of Program Schedule per section 5.2.1b of the Statement of Work	B401	[illegible]	2/4/08
4	Verify receipt of Supplier Progess Reports per sections 5.1 and 5.2.1c of the Statement of Work	B401	[illegible]	2/4/08
5	Conduct supplier kickoff meeting prior to authorizing supplier to begin work	pplier Facility or B4	[illegible]	11/15/07

ABRADEHONE Certification of Conformity
Certificate No. 101207-06

~ CERTIFICATION ~

ABRADEHONE CORPORATION
N. Huntingdon, PA. 15642
USA

Customer P.O. No. C11758

Customer Name Engineered Finishing

Address:

Media Type: D300-400A(50)NX(3) Batch No: 45121-01

Date of test: 7/12/07 Tested by: R.P.

This media conforms to established specifications for D300-400A(50)NX(3)

CERTIFIED BY: _____ Date: 7/12/07
Signature

ISO – 003-3-087 Rev. 2 02-22-2000

HONE Certification of Conformity
Certificate No. 102607-01

~ CERTIFICATION ~

HONE CORPORATION
N. Huntingdon, PA. 15642
USA

Customer P.O. No. 11369

Customer Name Engineered Finishing

Address:

Media Type: D300-220A(50)NX(3) Batch No: 45294-01

Date of test: 10/23/07 Tested by: R.P.

This media conforms to established specifications for D300-220A(50)NX(3)

CERTIFIED BY: _____ Date: 10/23/07
Signature

ISO – 003-3-087 Rev. 2 02-22-2000

p.2

ENDUROHONE Certification of Conformity
Certificate No. 061907-01

~ CERTIFICATION ~

ENDUROHONE CORPORATION
N. Huntingdon, PA. 15642
USA

Customer P.O. No. 11369

Customer Name Engineered Finishing

Address:

Media Type: D300-220A(50)NX(3) Batch No: 43568-01

Date of test: 6/19/07 Tested by: R.P.

This media conforms to established specifications for D300-220A(50)NX(3)

CERTIFIED BY: _____ Date: 6/19/07
Signature

ACCREDITED CALIBRATION LABORATORY

Martin Calibration

"Your Partner in Quality"

Certificate of Calibration

Certificate #: 205030

For:
ENGINEERED FINISHING CORP.
10044 GOODHUE ST. NE.
BLAINE, MN 55449

DEC 19 2006

Serial Number: 610172
Description: SURFACE FINISH ANALYZER
Manufacturer: MITUTOYO
Gage Type: RA
Temp./RH: 70 F / 33 %
Cal Date: 11/21/06
Calibration Result: **PASS**

Gage I.D.: 610172

Model Number: SJ-400
Procedure Used: SCP-150-0089
Performed By: GARY SLUZNIS
Cal. Due Date: 11/21/07

Comments:

Test Points

Description	Standard	Tolerance -	Tolerance +	As Found	Final	Unit
CALIBRATION	115.97	110.17	121.77	117.00		in
LINEARITY	17.88	16.99	18.77	18.10		in
STYLUS CHECK	15.45	14.68	16.22	16.00		in

Standards Used To Calibrate Equipment:

Serial Number	Last Calibration	Due for Calibration
PDR-6-4301	02/01/06	02/01/07

UNCERTAINTY IN MEASUREMENT: 2.83% of value

The above instrument was calibrated by standards traceable to the National Institute of Standards & Technology (NIST) per the guidelines specified in the latest revisions of ANSI/NCSL Z540-1, ISO 9002 and ISO/IEC 17025. All measurements performed at 95% Confidence Level (k=2). The results indicated on this certificate relate only to the items calibrated. This certificate shall not be reproduced, except in full, without the written approval of Martin Calibration. Martin Calibration's responsibility shall in no event, nor for any cause whatsoever, exceed the purchase price of this certificate.

Quality Assurance Representative:

11965 12th Avenue South, Burnsville, MN 55337 • 952-882-1528 • Fax 952-882-4086

PRODUCTIVITY **QUALITY** INC
15200 25th Avenue North · Plymouth MN 55447
p763.249.8130 · f763.249.8150

Certificate of Calibration

Certificate Number 21121

Prepared For:
ENGINEERED FINISHING CORP
10044 GOODHUE ST NE
MINNEAPOLIS, MN 55449

Equipment Description PRESSURE GAGE, 0-3000 PSI (MACHINE MODEL #HL30)

I.D.:	H2436	Serial Number:	H2436
Manufacturer:	NOSHOK	Model Number:	N/A
Gage Type:	PRESSURE GAGE	Procedure Used:	PRESSURE GAGE 5.4_87
Temp.:	70 F	Performed By:	DOUG BINNING
Cal. Date:	10/30/2007	Cal. Interval:	1 YEARS
Cal. Due Date:	10/30/2008	Calibration Result:	PASS
Condition Received:	IN TOLERANCE	Unit Of Measure:	PSI
Condition Returned:	IN TOLERANCE	Calibration Performed On Site:	☑

Comments:

Test Points

Description	Standard	Tolerance -	Tolerance +	As Found
LINEARITY OF FACTORY DIAL FACE	500.0	455.0	545.0	490.0
	1000.0	955.0	1045.0	980.0
	1500.0	1455.0	1545.0	1490.0
	2000.0	1955.0	2045.0	1980.0
	2500.0	2455.0	2545.0	2470.0
	3000.0	2955.0	3045.0	2980.0
LINEARITY OF SPECIAL DIAL FACE	200.0	715.0	805.0	794.0
	250.0	905.0	995.0	992.0
	300.0	1095.0	1185.0	1166.0
	350.0	1285.0	1375.0	1352.0
	400.0	1475.0	1565.0	1543.0
	450.0	1665.0	1755.0	1724.0

Standards Used To Calibrate Equipment

Serial Number	Description	Last Cal.	Cal. Due Date
7949009	TEMPERATURE/PRESSURE CALIBRATOR	10/5/2007	10/5/2009
SV00007006	PRESSURE MODULE	10/5/2007	10/5/2009

PRODUCTIVITY **QUALITY** INC
15200 25th Avenue North · Plymouth MN 55447
p763.249.8130 · f763.249.8150

Certificate of Calibration

Certificate Number 21121

Traceability Certificate is traceable to NIST Standards. No assurances referencing the stability of results are made beyond the date of inspection. Any number of factors may cause a calibration item to drift out of calibration before the recommended interval has expired. A Productivity Quality, Inc. Certificate of Calibration may not be reproduced except in full, without the written approval of Productivity Quality, Inc. In addition, please feel free to call us with any questions you may have on our services and on the interpretation of the data we have provided. These results relate only to the items calibrated or tested referenced in this document. We would be pleased to provide assistance over the phone, through a personal visit or by forwarding additional documentation on the practices and standards we use in our calibration services.

Service Engineer: DOUG BINNING

Approved by: MARK TOBIAS

PRODUCTIVITY QUALITY INC
15200 25th Avenue North · Plymouth MN 55447
p763.249.8130 · f763.249.8150

Certificate of Calibration

Certificate Number 21120

Prepared For:
ENGINEERED FINISHING CORP
10044 GOODHUE ST NE
MINNEAPOLIS, MN 55449

Equipment Description: PRESSURE GAGE, 0-3000 PSI (MACHINE MODEL #HL20)

I.D.:	H2672	Serial Number:	H2672
Manufacturer:	NOSHOK	Model Number:	N/A
Gage Type:	PRESSURE GAGE	Procedure Used:	PRESSURE GAGE 5.4_87
Temp.:	70 F	Performed By:	DOUG BINNING
Cal. Date:	10/30/2007	Cal. Interval:	1 YEARS
Cal. Due Date:	10/30/2008	Calibration Result:	PASS
Condition Received:	IN TOLERANCE	Unit Of Measure:	PSI
Condition Returned:	IN TOLERANCE	Calibration Performed On Site:	☑

Comments:

Test Points

Description	Standard	Tolerance -	Tolerance +	As Found
LINEARITY OF FACTORY DIAL FACE	500.0	455.0	545.0	530.0
	1000.0	955.0	1045.0	1030.0
	1500.0	1455.0	1545.0	1540.0
	2000.0	1955.0	2045.0	2030.0
	2500.0	2455.0	2545.0	2530.0
	3000.0	2955.0	3045.0	3040.0
LINEARITY OF SPECIAL DIAL FACE	200.0	755.0	855.0	799.0
	250.0	955.0	1055.0	1000.0
	300.0	1155.0	1255.0	1199.0
	350.0	1355.0	1455.0	1407.0
	400.0	1555.0	1655.0	1570.0
	450.0	1755.0	1845.0	1792.0

Standards Used To Calibrate Equipment

Serial Number	Description	Last Cal.	Cal. Due Date
7949009	TEMPERATURE/PRESSURE CALIBRATOR	10/5/2007	10/5/2009
SV00007006	PRESSURE MODULE	10/5/2007	10/5/2009

PRODUCTIVITY **QUALITY** INC
15200 25th Avenue North · Plymouth MN 55447
p763.249.8130 · f763.249.8150

Certificate of Calibration

Certificate Number 21120

Traceability Certificate is traceable to NIST Standards. No assurances referencing the stability of results are made beyond the date of inspection. Any number of factors may cause a calibration item to drift out of calibration before the recommended interval has expired. A Productivity Quality, Inc. Certificate of Calibration may not be reproduced except in full, without the written approval of Productivity Quality, Inc. In addition, please feel free to call us with any questions you may have on our services and on the interpretation of the data we have provided. These results relate only to the items calibrated or tested referenced in this document. We would be pleased to provide assistance over the phone, through a personal visit or by forwarding additional documentation on the practices and standards we use in our calibration services.

Service Engineer: DOUG BINNING

Approved by: MARK TOBIAS

SUPPLIER DISPOSITION REQUEST (SDR)

(Form ANL-311 includes instructions and continuation sheet.)

Page 1 of 1

(CHECK ONE)

☐ 1A. **Deviation Request**

☑ 1B. **Nonconformance Action Request**

2. SDR No. 8A-00222

3. SDR Date 11/19/2007

4. Supplier Name, Address, Telephone, Fax

Engineered Finishing Corporation
10044 Goodhue Street NE
Blaine, Minnesota
55449

5. Purchase Order No. 8A-00222

6. Related Documents

6.1 P.O. 8A-00222 - Delivery Date 10/19/2007

7. Qty.	8. Describe Nonconforming Condition	9. Identify Requirement	10. Cause & Corrective Action
45	Unable to meet delivery requirements	Delivery date subsequent to 1st Article acceptance	Unable to provide acceptable 1st Article to date - Engineered Finishing Corp. will continue to research and develop an acceptable and repeatable process in conjunction with directives from ANL.

SUPPLIER'S COMMENTS
(IF YES, EXPLAIN):

11. Affects Form, Fit or Function

☑ Yes ☐ No Unable to meet surface finish requirement

12. Affects Price

☑ Yes ☐ No Processing time/price to be determined subsequent to acceptable 1st Article by ANL

13. Affects Delivery

☑ Yes ☐ No Once 1st Article is accepted and the process has proven repeatable - the delivery date will need to be re-set along with the price

14. Recommended Disposition and Comments:

[signature] PRESIDENT 11/19/07

15. SUPPLIER REPRESENTATIVE – TITLE – DATE

16. ANL REPRESENTATIVE – DATE

17. ANL Disposition and Remarks:

18. Approved

TECHNICAL REPRESENTATIVE – DATE

QUALITY ASSURANCE REPRESENTATIVE – DATE

PROCUREMENT REPRESENTATIVE – DATE

ANL-311 (4-94)

ENGINEERED FINISHING CORP.
10044 Goodhue Street NE
Blaine, MN 55449-4401
763-785-9278 Fax 763-785-0646

fax

To: Mike Oprondek, Tom Barsz, Greg Wiemerslage

Fax No: 1-630-252-4517, 7187, 9350

From: Don Fulcher

Date: November 19, 2007

Pages: 2, including cover sheet

Gentlemen:

I was unable to locate the email version of this (SDR), so I copied all of you.

Please accept my apology for the multiple number of copies.

Best regards,
Don Fulcher