December 20, 1994

Los Alamos National Laboratory
PO Box 1663
Los Alamos, NM 87545
Attn: Mr. James R. Jefferis

Dear James,

The Parting Lathe, based upon LANL specification Titled "Nuclear Materials Technology Division Equipment Specification for A Prototype 3-Axis CNC Parting Lathe" subcontract number 4300H0013-95, considered to be complete and is hereby submitted for acceptance.

Sincerely,

Wayne Hobson
Chief Engineer, Special Products

1st Indorsement

To: Mr. Wayne F. Hobson

The parting lathe required under subcontract 4300H0013-95 is hereby accepted.

George Zakar
Customer Liaison Specialist

James R. Jefferis
Lead Contract Administrator

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POSITIONING ERROR PLOT

MACHINE: PARTING LATHE
NUMBER: 1 (REF3.0.3)
DATE: 12-20-94 BY: AAF
AXIS: X AXIS SPINDLE CL

LOCATION: COMP ON 1 RUN
VOL723.6 AIR67.0 MAT68.0

+/- 3 SIGMA
ERROR BAND: .000402
NON-REPEAT: .000382
POSITIONING ERROR PLOT

MACHINE: PARTING LATHE
NUMBER: 1 (REF3.0.3)
DATE: 12-19-94 BY: AAF
AXIS: X AXIS SPINDLE CL

LOCATION: COMP ON 5 RUNS
VOL 726.0 AIR67.4 MAT68.7

+/- 3 SIGMA
ERROR BAND: .000189 Re±
NON-REPEAT: .000115 3.0.6

POS. Diagonostics
max. Dev. Error (+.0".) (-.0")
POSITIONING ERROR PLOT

<table>
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<th>MACHINE: PARTING LATHE</th>
<th>LOCATION: COMP ON 5 RUNS</th>
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<tr>
<td>NUMBER: 1 (REF 3.0.3)</td>
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<td>DATE: 12-19-94 BY: AAF</td>
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Neg Duration

Res 3.0.6
POSITIONING ERROR PLOT

MACHINE: PARTING LATHE
NUMBER: 1 (REF 3.0.4)
DATE: 12-15-94 BY: AAF
AXIS: Z AXIS @ SPINDLE CL

LOCATION: COMP ON 5 RUNS
VOL 722.3 AIR 66.9 MAT 67.8
FOR POS DIRECTION (-->)

+/- 3 SIGMA
ERROR BAND: .000249
NON-REPEAT: .000124

CHINESE PARTING LATHE
COMP ON 5 RUNS
3 SIGMA
1
(REF 3.0.4)
VOL 722.3 AIR 66.9 MAT 67.8
FOR POS DIRECTION (-->)

+/- 3 SIGMA
ERROR BAND: .000249
NON-REPEAT: .000124

CHINESE PARTING LATHE
COMP ON 5 RUNS
3 SIGMA
1
(REF 3.0.4)
VOL 722.3 AIR 66.9 MAT 67.8
FOR POS DIRECTION (-->)

+/- 3 SIGMA
ERROR BAND: .000249
NON-REPEAT: .000124

CHINESE PARTING LATHE
COMP ON 5 RUNS
3 SIGMA
1
(REF 3.0.4)
VOL 722.3 AIR 66.9 MAT 67.8
FOR POS DIRECTION (-->)

+/- 3 SIGMA
ERROR BAND: .000249
NON-REPEAT: .000124
MACHINE: PARTING LATHE
NUMBER: 1 (REF3.0.4)
DATE: 12-15-94
AXIS: Z AXIS @ SPINDLE CL

LOCATION: COMP ON 5 RUNS
VOL 722.3 AIR 66.9 MAT 67.8
FOR NEG DIRECTION ( <-- )

ERROR BAND: .000236
NON-REPEAT: .000143

POSITIONING ERROR PLOT
POSITIONING ERROR PLOT

MACHINE: PARTING LATHE
NUMBER: 1 (REF 3.0.5)
DATE: 12-6-94 BY: AAF
AXIS: W AXIS SPINDLE CL

LOCATION: COMP ON 5 RUNS
VOL726.4 AIR 19.5 MAT 19.7
FOR POS DIRECTION (---)

+/- 3 SIGMA
ERROR BAND: .009068
NON-REPEAT: .007361
POSITIONING ERROR PLOT

ERROR (mm)

+0.0100

+0.0000

-0.0100

0 100 200 300 400

MACHINE: PARTING LATHE
NUMBER: 1 (REF 3.0.5)
DATE: 12-6-94 BY: AAF
AXIS: W AXIS SPINDLE CL

LOCATION: COMP ON 5 RUNS
VOL726.4 AIR 19.5 MAT 19.7
FOR NEG DIRECTION (←)

+/- 3 SIGMA
ERROR BAND: .012226
NON-REPEAT: .012189

\[ \text{ERROR} = \left( \pm \frac{1}{3} \right) \text{SIGMA} \]
POSITIONING ERROR PLOT

ERROR [mm]

MACHINE: PARTING LATHE
NUMBER: 1 (REF 3.0.5)
DATE: 12-6-94 BY: AAF
AXIS: W AXIS SPINDLE CL

LOCATION: COMP ON 5 RUNS
VOL 726.4 AIR 19.5 MAT 19.7

+/- 3 SIGMA
ERROR BAND: .014832
NON-REPEAT: .014832
STRAIGHTNESS ERROR PLOT

MACHINE: PARTING LATHE
NUMBER: 1 (REF 3.0.10)
DATE: 12-8-94 BY: AAF

AXIS: X AXIS @ SPINDLE CL
LOCATION: HORZ ST 10 RUNS
PLUS TO SPINDLE OPT 180°

+/-95% CONFIDENCE ERROR BAND = +.0002500
NON REPEAT = +.0000227

MAX ERROR (+54) (1-150) = .00000" TOTAL
WORKING PLOT
STRAIGHTNESS ERROR PLOT

ERROR (inches)

MACHINE: PARTING LATHE
NUMBER: 1 (REF 3.011)
DATE: 12-15-94 BY: AAF

AXIS: Z AXIS 5 RUNS
LOCATION: HORZ ST @ SPINDLE CL
PLUS TO LEFT

ERROR BAND= +.0001384
NON REPEAT= +.0000267

max error = (.0001524/12)/100 in = .0000267
C-axis positioning accuracy (Ref: 3.0.16)

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