NCSX Corrective Action Resolution Response

CA # 1538
Date: Feb. 6, 2006
NCSX Response: This CA addresses 7 areas on B1 which deviates from the model dimensions as detailed in the attached. NCSX agrees with EIO's planned action plan, as summarized below. Other than area 1, NCSX leaves the decision about the necessity of pattern changes up to EIO.
Area 1: Areas of the flange are outside of tolerance range. EIO proposes to add stock in low areas and grind high areas to bring into tolerance, as well as to add stock to cre box to prevent reoccurance. NCSX concurs- the casting stock addition should be handled as a weld repair.
Area 2: Opposite of area 1 but not related has excess stock. EIO will remove excess during processing. NCSX concurs.
Area 3: loss of machine stock ranging from 3/8-9/16". EIO feels that since 1" of machine stock was planned, sufficient remains. This is an EIO decision, but it appears reasonable to NCSX.
Area 4 is a thin shell wall condition similar to A1. NCSX reviewed the details and concurs with EIO's recommendation to use as is. This will be acceptable for future B's and NCSX will submit a RFD.
Area 5: Parts of the wing area interface may be high and it is not certain if other areas are out of tolerance. EIO will get better data during layout scans and may need to bring some areas into tolerances. NCR's may be needed if all areas are not brought into compliance.
Area 6: wing interface appears to be high, EIO plans to remove metal as required. NCSX concurs with this plan.
Area 7: wing interface appears to be high, but details need to be clarified in subsequent scans; EIO plans to remove metal as required. NCSX concurs with this plan.

Approved by:

Phil Heitzenroeder

Digitally signed by Phil Heitzenroeder
DN: CN = Phil Heitzenroeder, C = US, O = PPPL, OU = Mech. Eng. Division
Reason: I agree to the terms defined by the placement of my signature on this document
Date: 2006.02.07 14:38:54 -05'00'

Tech. Rep.

Brad Nelson

Digitally signed by Brad Nelson
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov
Date: 2006.02.07 16:12:17 -05'00'

Responsible Line Manager

Carondelet Division
8600 Commercial Blvd. • Pevely, MO 63070 USA
Phone: 636-479-4499 • Fax: 636-479-3399
E-Mail: Charles.Ruud@MetalTekInt.com

Corrective Action 1538
Carondelet Division
Corrective Action Type NCR
Date 1-13-06 **Revised 1-26-06**
CA Originator C. Ruud
Applies to: B-1 Coil

Description of Defect / Non-Conformance
Scan performed by 3D Scanco indicated that the coil deviates from the model in some areas.

Root Cause
Detailed analysis has been performed. See report below.

Corrective Action
Addressed in each area below.

Verification of Corrective Action
A scan will be performed with our equipment to verify dimesions.

Preventive Action
Pending.

Verification Of Preventative Action
Pending
.

Estimated Completion Date
Prior to shipment of B-1.

Actual Completion Date

Signed: C. Ruud

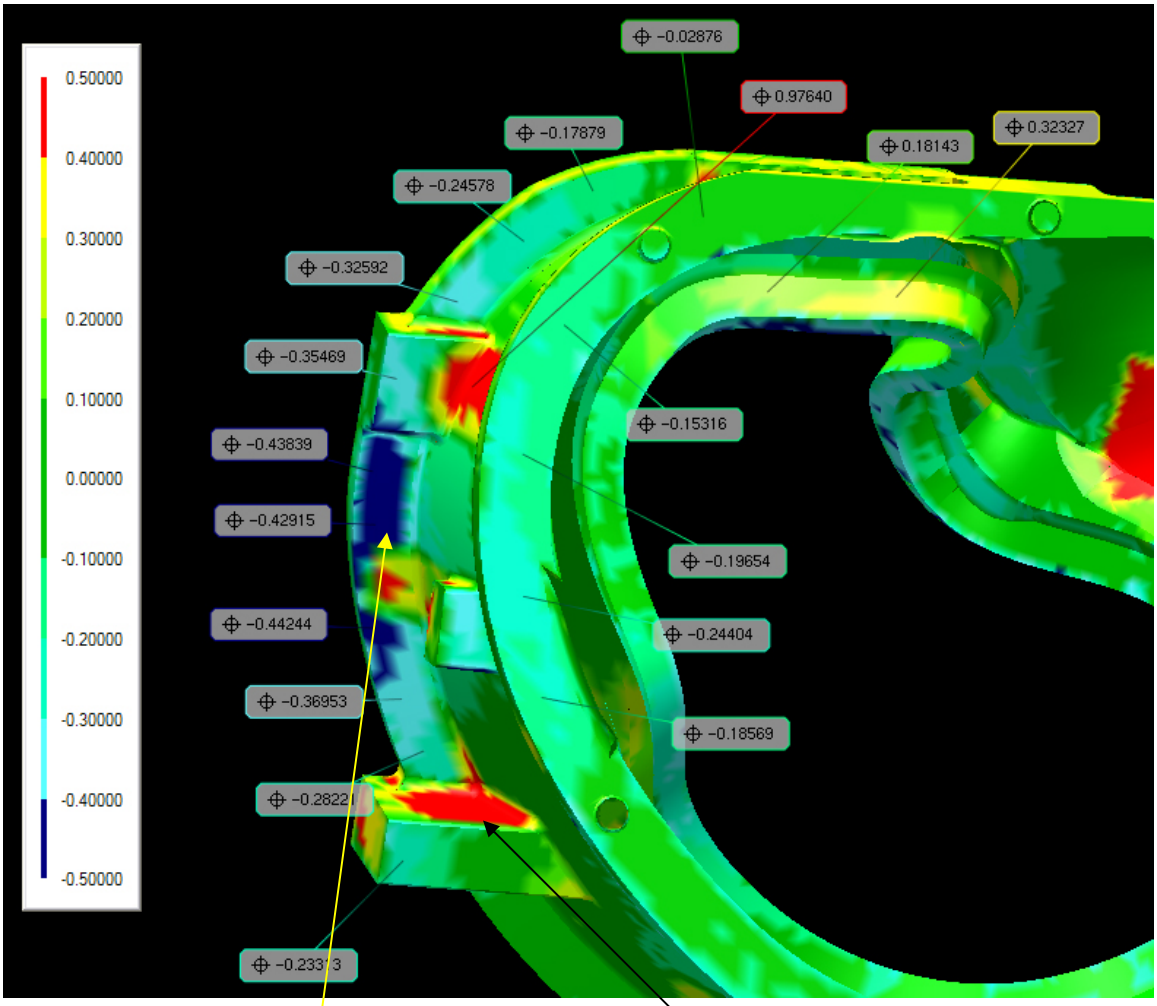
CC: B. Craig, J. Edwards, E.J. Kubick, J. Markham, R. Broman

Coil B-1 Layout Analysis

1-21-06 Roger Broman / MetalTekInt - Carondelet Div.

<u>Areas of Note</u>

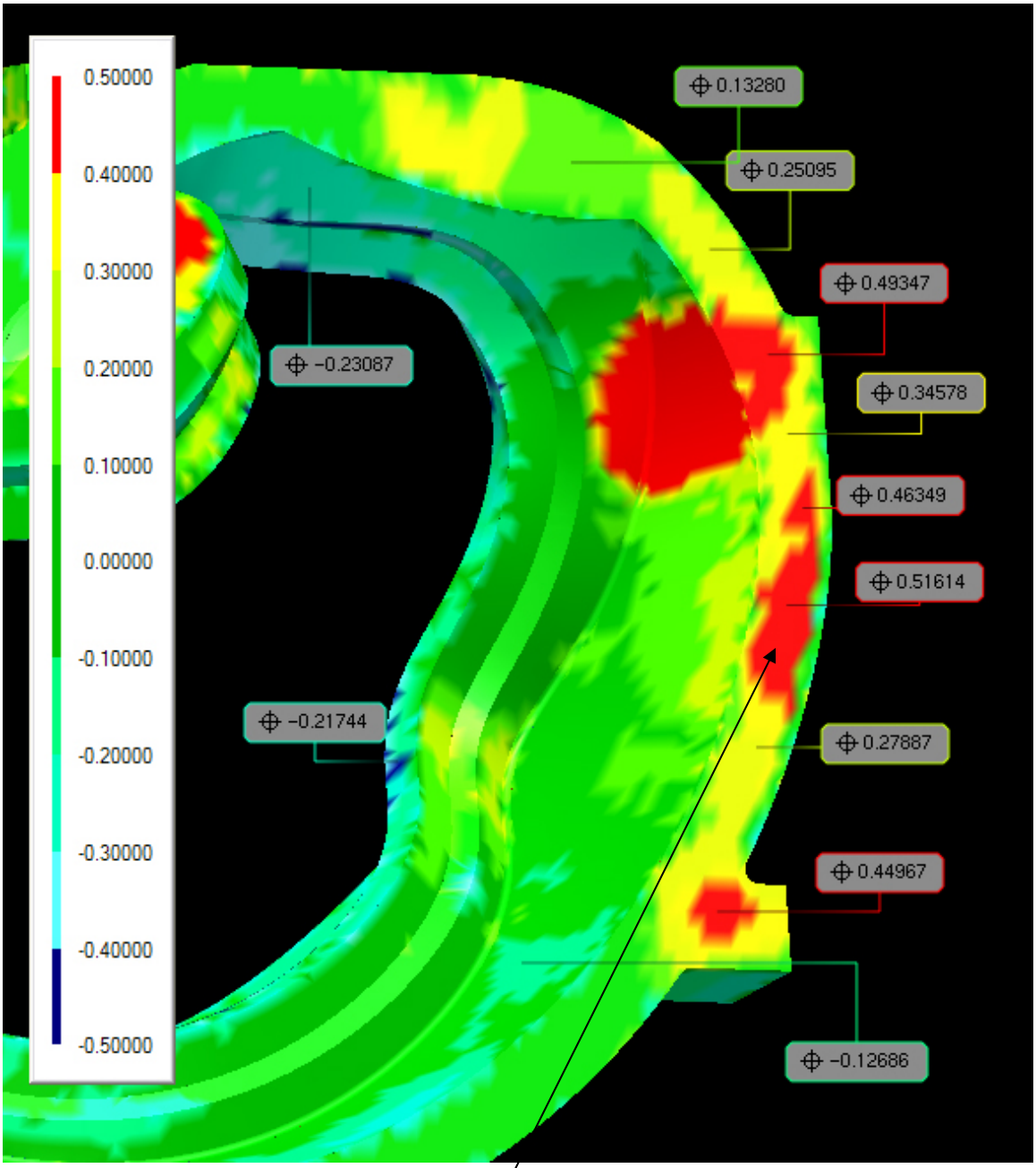
Area 1:



An area on the back-side of the cope flange is showing a surface profile approximately 7/16” below expected. This area will be addressed for Coil B-2 by adding approximately 7/16” stock into this area in corebox #9. On B-1 we will build up this are by welding. The opposite side will require additional machining to remove the excess.

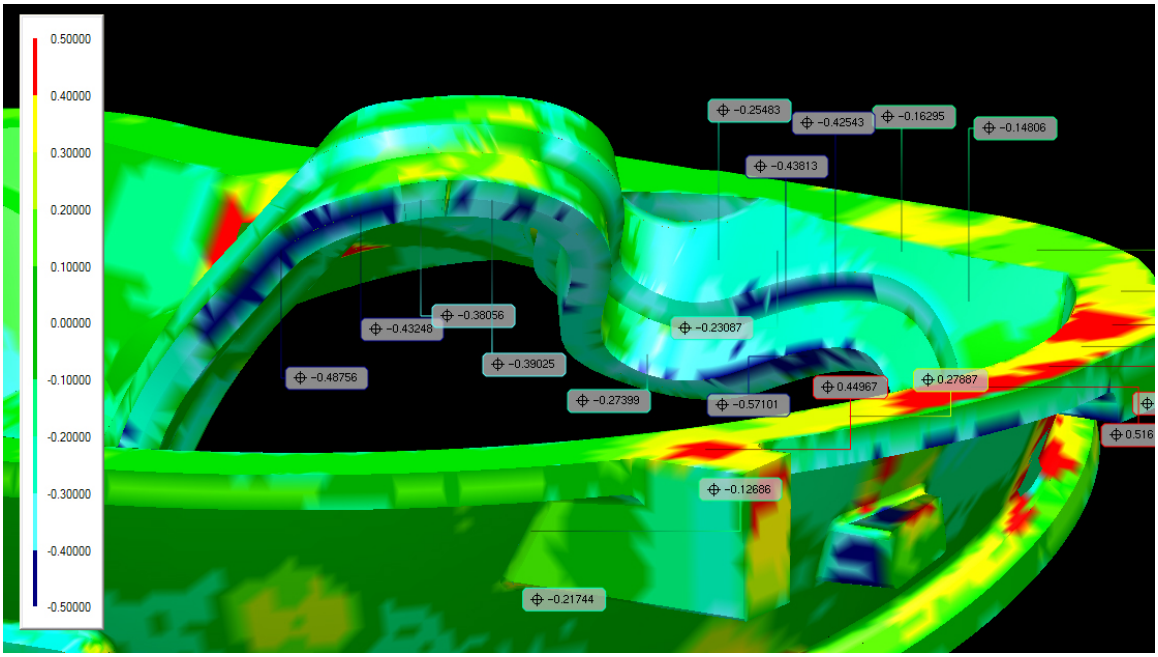
The red area on the side of the ear is not a riser pad or any other expected condition. This will need to be further analyzed with our scan

Area 2:



This area is on the opposite side of the flange of Area 1, but cannot be immediately related to Area 1. A riser sits directly over this spot and the excess stock could be a result of the riser contact not being cut down flush to the flange. At this point, as planned, all of the riser contact areas show the same excess stock condition. They will be worked down closer to the intended flange surface later in the process.

Area 3:

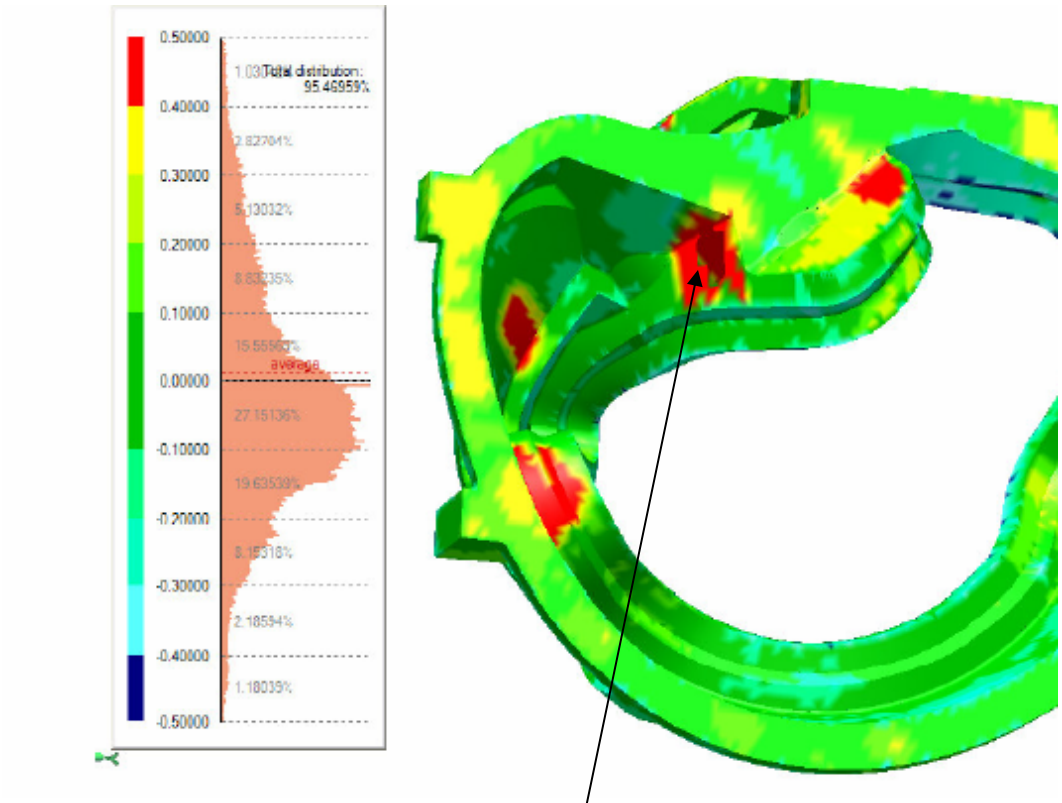


There are a few areas around the race track that display a loss of machine stock anywhere from 3/8" to 9/16". There was 1" machine stock planned in this area, so stock still remains, but the tooling will be inspected for flaws and repaired as needed.

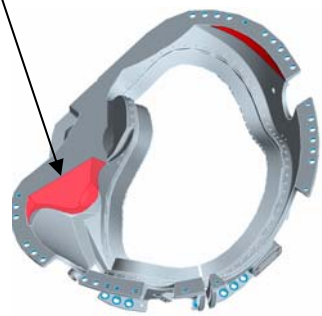
Area 4: (see page 8 of the Scanco report)

Overall wall thickness shows a condition very similar to the A coils we have processed. Scanco's analysis shows wall thicknesses in the range of 1.21" to 1.54" which is what we would have expected based on Coil A results. No action is planned for this condition. We recommend use as is.

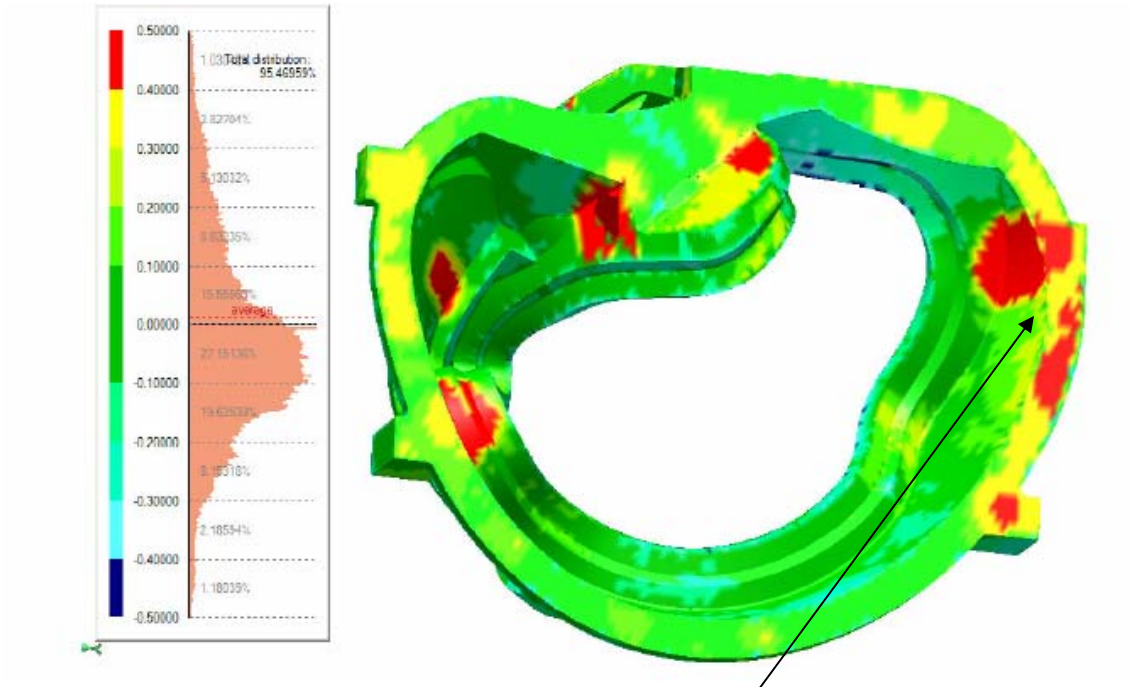
Area 5:



This wing area interface contains a riser pad that will require removal. The rest of the interface seems to be within a +/- 0.2” profile, but due to the color scheme used I cannot tell if it tends toward the plus or minus side of that tolerance. Our layout scan will be clearer in this regard.

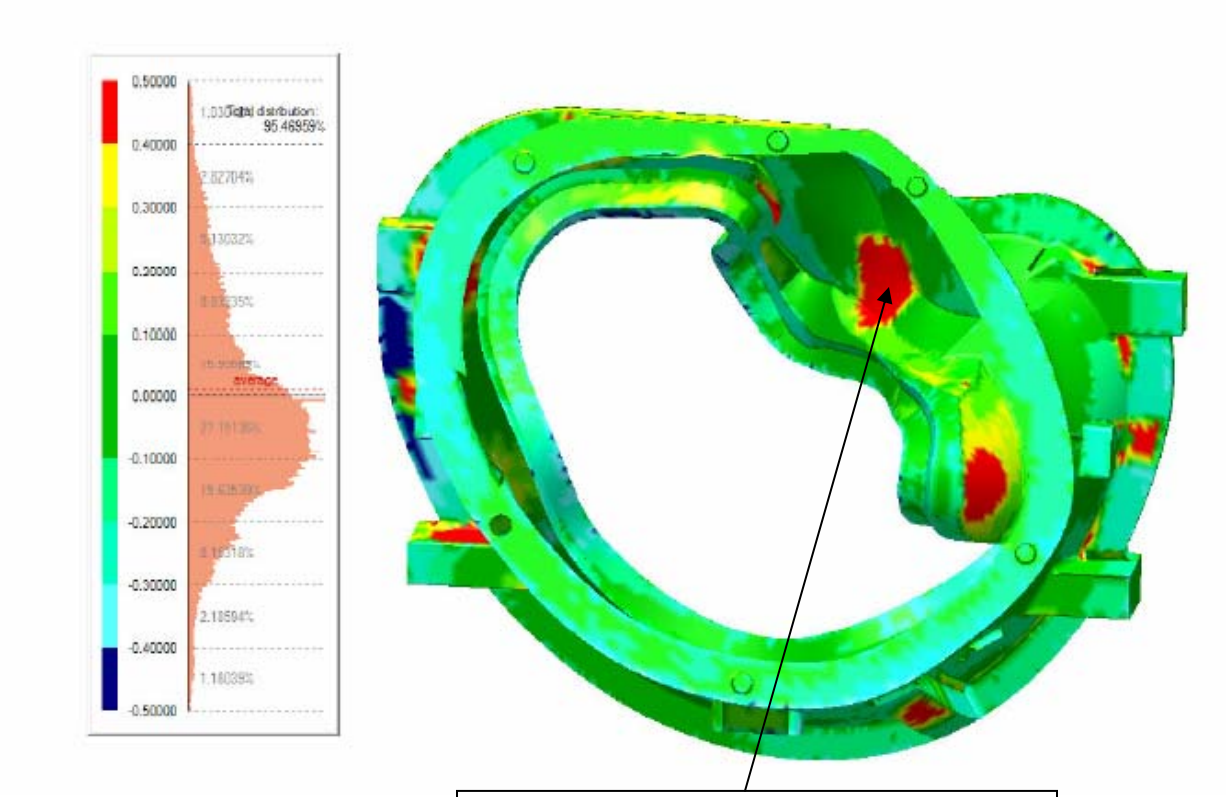


Area 6:



The narrow wing interface here is partially covered by a riser contact that will require removal. The balance of the area is 0.2-0.4" above the intended profile and will require material to be removed.

Area 7:



This wing area interface contains a riser pad that will require removal. The balance of the area is contained within the +/- 0.2" tolerance band, but once again due to the color scheme, I am not able to discern which side of the tolerance the part tends toward. Our scan will show this clearly.