From: **Daniel Cheng** dwcheng@lbl.gov
Subject: Deviation request and/or DCR proposal
Date: September 8, 2020 at 4:03 PM
To: Giorgio Ambrosio giorgioa@fnal.gov
Cc: Jamie Blowers blowers@fnal.gov, Katherine Ray klray@lbl.gov, Soren Prestemon soprestemon@lbl.gov, Paolo Ferracin pferracin@lbl.gov

DC

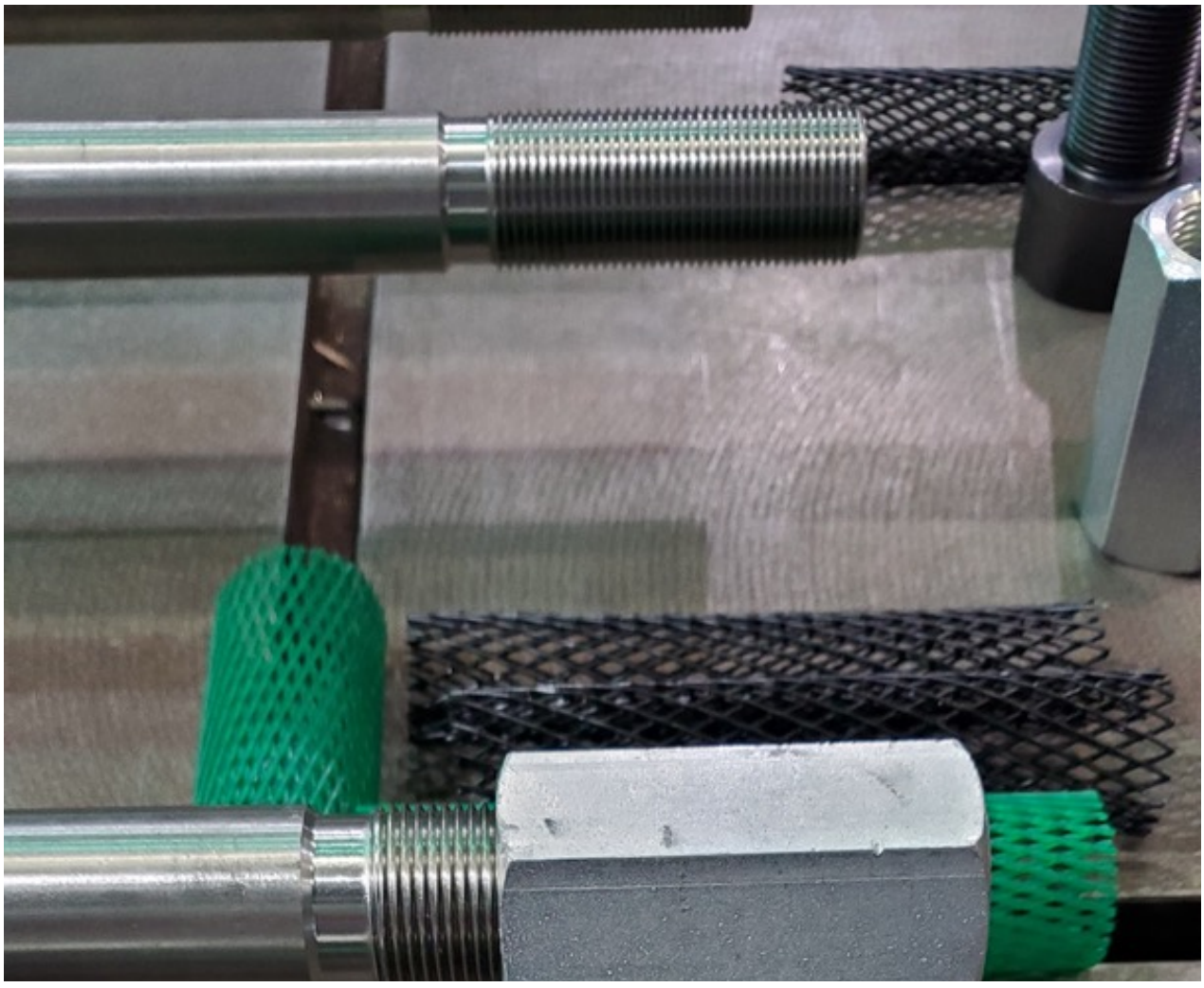
Giorgio,

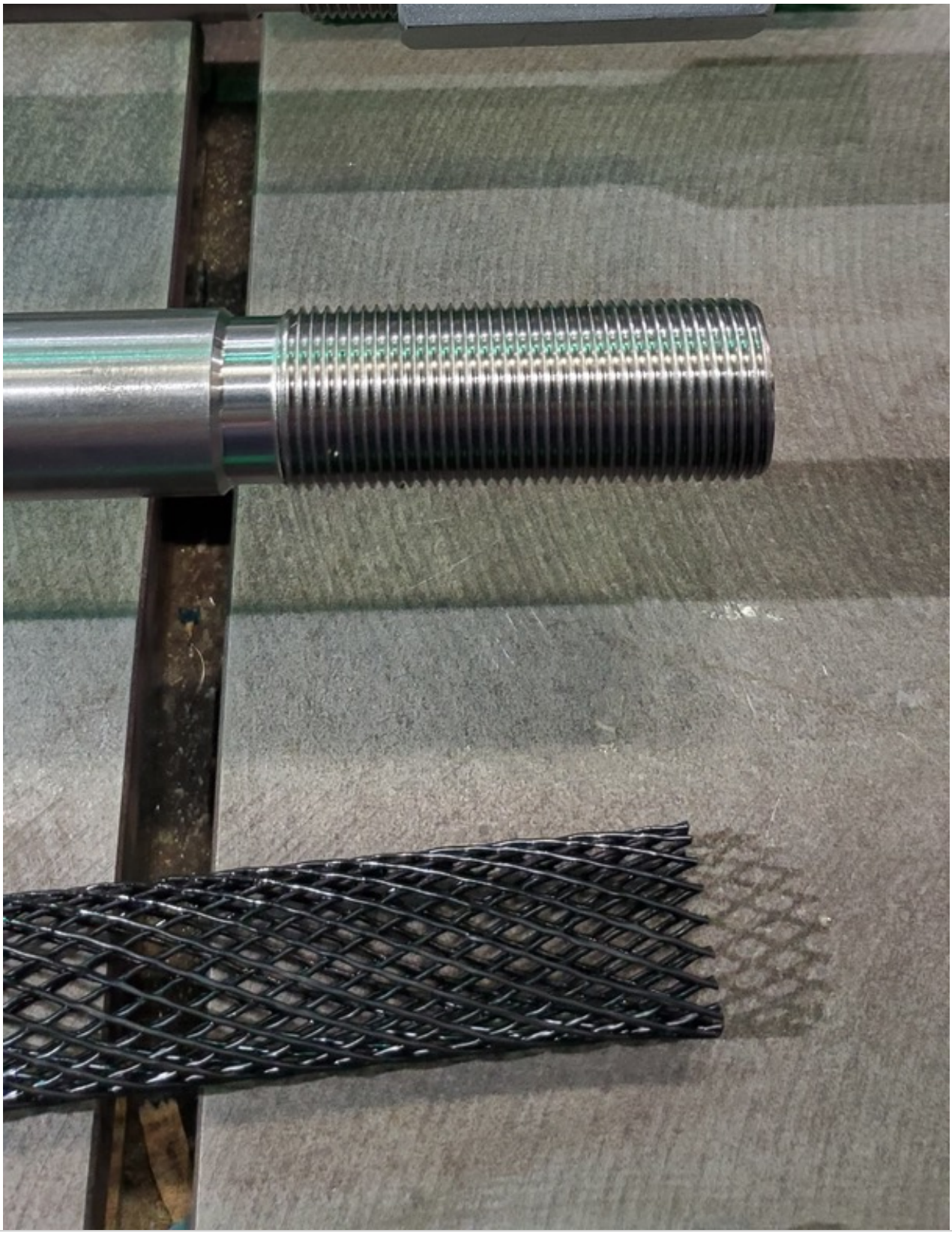
We've been having an issue with our axial rods, and I wanted to give you the heads up on a proposal we'd like to make for either a Deviation for just MQXFA06, or a DCR for the rest of the magnets. A little bit of back story:
The vendor who machined the rods has apparently been having an issue with the thread pitch, which is ever-so-slightly off, to the effect that ~2" or less of rod engagement into the Nitronic end plate is okay, but any more thread engagement begins to binds up. We had noticed this with earlier magnets, but we finally tracked it down to it being the pitch issue; we even had the vendor come on site to observe the issues we were having with the batch of rods for A05-A08 orders, after which we sent these rods back for rework. After getting them back we are finding this issue still persists.

This redline proposal (for either a DR or DCR) is to remove the last ~1" of the thread so that the we can fully screw the axial rods into the Nitronic endplate without binding, but still maintain the same loading on the threaded contact area as before. It's only the first part of the threads that take up the full load, so removing the "backend" of the threads doesn't change the loading condition on the threads or plate.

The enclosed picture shows a 3" long threaded coupler nut at the point where it begins to bind. The attached PDF redline is the fix that we are proposing.
Let me know if anything is still not clear, as well as how best you think we should proceed, after which Katherine can write up the appropriate documentation.

Thanks!
Dan

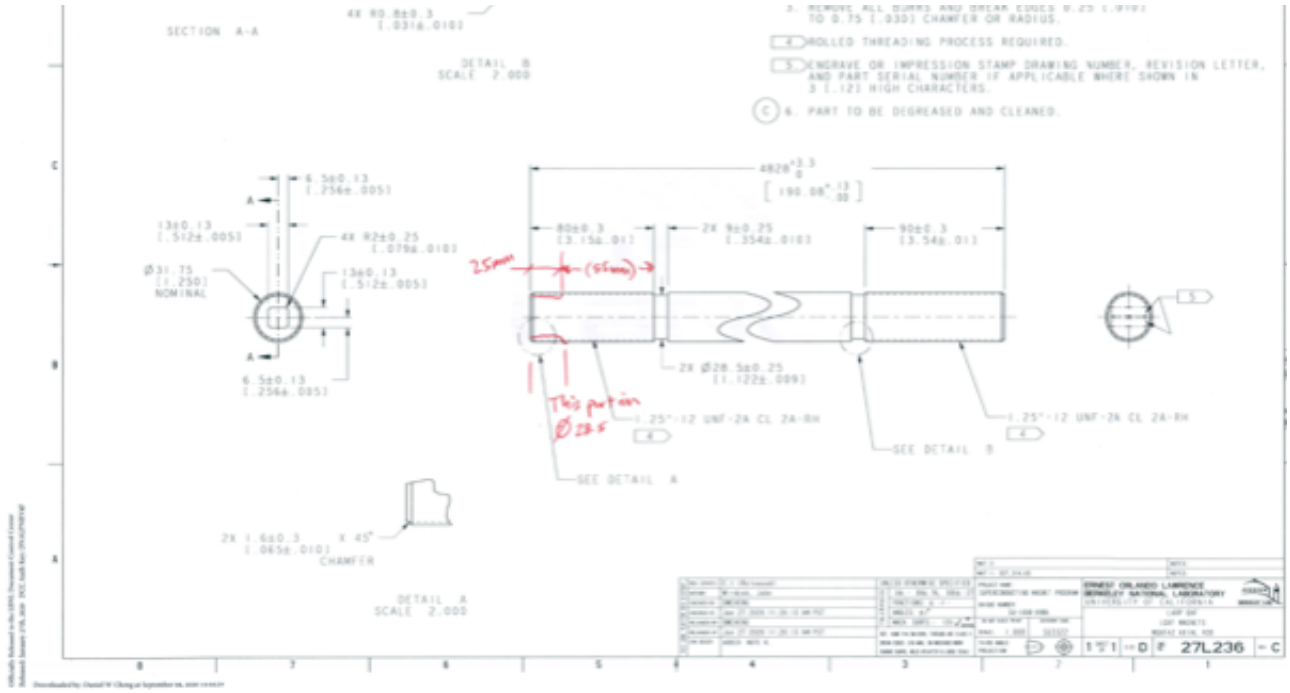




NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND VALUES ARE IN SI UNITS. DIMENSIONS AND VALUES IN BRACKETS ARE U.S. CUSTOMARY UNITS (inch) CONVERTED FROM MILLIMETERS / SI UNITS.

2. APPLICABLE STANDARDS AND SPECIFICATIONS.
ASME Y14.5M-2009, DIMENSIONING AND TOLERANCING.


SECTION A-A
DETAIL B
SCALE 2.000
4X R0.8±0.3
[.031±.010]
ROLLED THREADING PROCESS REQUIRED.
ENGRAVE OR IMPRESSION STAMP DRAWING NUMBER, REVISION LETTER, AND PART SERIAL NUMBER IF APPLICABLE WHERE SHOWN IN 3 [.12] HIGH CHARACTERS.
6. PART TO BE DEGREASED AND CLEANED.
6.5±0.13
[.256±.005]
13±0.13
[.512±.005]
4X R2±0.25
[.079±.010]
Ø31.75
[1.250]
NOMINAL
13±0.13
[.512±.005]
6.5±0.13
[.256±.005]
482.8 +3.3 -0
[190.08 +.13 -.00]
80±0.3
[3.15±.01]
2X 9±0.25
[.354±.010]
90±0.3
[3.54±.01]
25mm
(55mm)
This portion Ø23.5
2X Ø28.5±0.25
[1.122±.009]
1.25"-12 UNF-2A CL 2A-RH
SEE DETAIL A
SEE DETAIL B
2X 1.6±0.3 X 45°
[.065±.010]
CHAMFER
DETAIL A
SCALE 2.000
ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY
27L236