ENGINEERING STANDARDS UPDATE

Standards are serious business, but this newsletter isn't.

Topics this month:

- **Nuclear Grade, Medical Grade, and Cost**
- **Nuclear Workers Behaving Badly**
- **LANL Standards Issued in July**
- **Processes Changes**
- **DOE Technical Standards Actions**
- **When Good Conduct of Engineering Isn't Followed**

The Standards Homepage: http://engstandards.lanl.gov/

NUCLEAR GRADE, MEDICAL GRADE, AND COST

I had rotator cuff/biceps arthroscopy two weeks ago, and my surgeon added a screw and a half-dozen little, plasticky bone-implanted suture anchors to my bionics collection. So I thought about this while homebound.

Nuclear grade: Products from suppliers on LANL's Institutional Evaluated Suppliers List (IESL) should be of the highest quality, at least for the nuclear safety functions upon which we rely. The cost for such parts is always higher than non-nuclear-grade due to the cost of producing the part under a nuclear QA program and resulting pedigree/paperwork. Since the nuclear market has been shrinking ever since the TMI accident, cost can also be higher due to lack of competition (when sole-sourcing, analysis may be needed to determine whether a price is fair and reasonable).

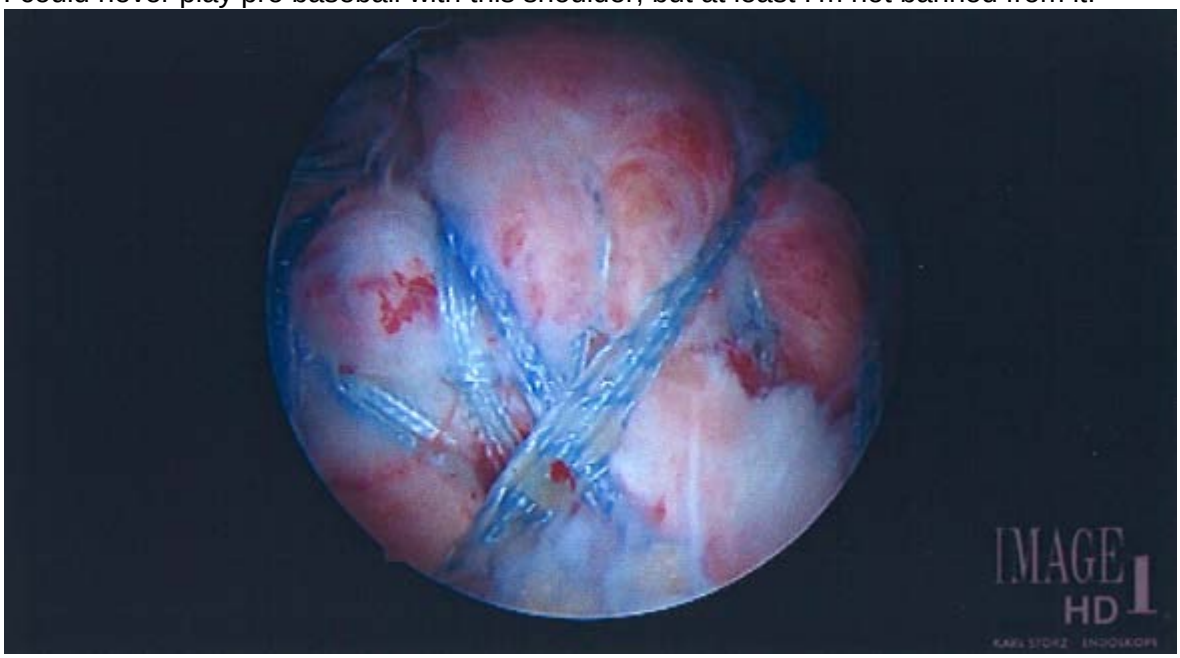
And what about CGD, the only alternative to buying from an IESL supplier? Don't assume that using a commercial grade dedication approach is less expensive; depending on quantities and frequency of purchase, properly executed CGD can cost as much or more than buying from an IESL supplier as it shifts most of the burden and cost for the QA from the supplier to LANL or, potentially, a third party dedicator (neither inexpensive).

Medical grade: Perhaps because of this litigious society, I suspect the quality of drugs and medical equipment is almost on a par with nuclear. FDA protocols are extensive, though perhaps not as extensive as DOE or NRC regs -- and certainly not a guarantee of safety based on all the drug and implant recalls. Failure of medical implants can affect the health of thousands of people just as nuclear accidents can, and revision of a previous, difficult surgery isn't good.

In another meaning of TMI: Just as with my wrist plate x-ray and Strong-Tie discussion in the March 2012 Update, some may appreciate detail. A rotator cuff is simply four tendons working in harmony; the implanted anchors were for lacing up my three torn ones, not unlike a hiking boot or a Paula Deen style Thanksgiving turducken (evidently served with a side of racism). The surgeon used six Arthrex Swivelocks, biocomposite screw body, with closed PEEK eyelet tip (then laced with blue UHMWPE woven sutures, photo below). The biceps tendosis screw was 8x23mm,

PEEK. BCBS was billed over $10k for the 7 screws; they may pay about a tenth of that but this seems high (imagine no insurance). By comparison, TA-55 has nuclear grade bolts that cost 20 cents. Biomedical engineering, which hardly existed formally when I was in school in the last millennium, sure looks like a good discipline.

I could never play pro baseball with this shoulder, but at least I'm not banned from it.



NUCLEAR WORKERS BEHAVING BADLY

Thanks to Anthony Cuaron for sending this one some time ago:

AZ Vendor Pleads Guilty In Nuke Equipment Case

12/06/2012

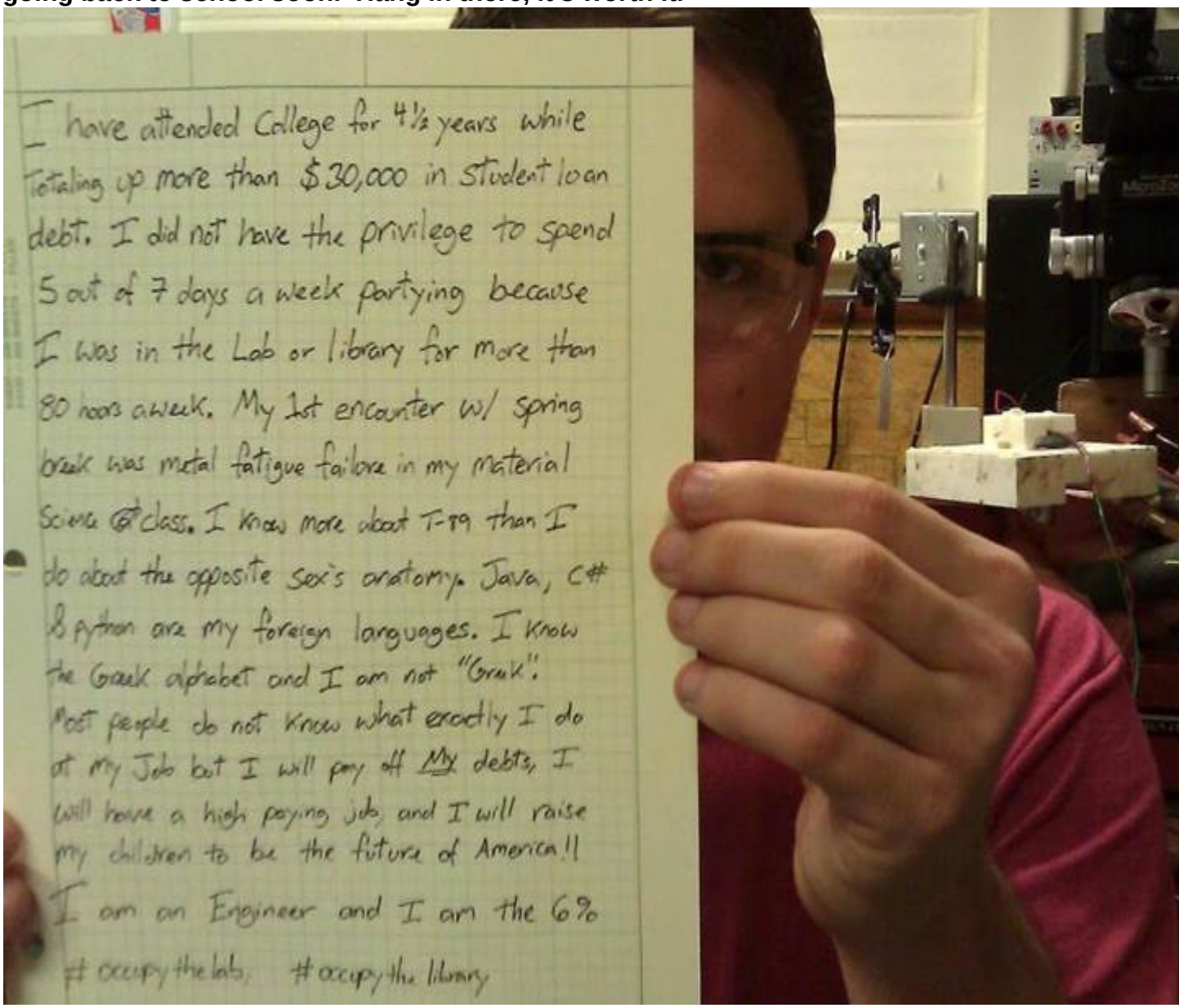
PHOENIX (AP) — An Arizona vendor for nuclear power plants has pleaded guilty to making false statements about equipment repair to federal regulators.

Prosecutors say 47-year-old Kevin A. Doyle, of Scottsdale, is scheduled to be sentenced Feb. 11 in U.S. District Court in Phoenix. They say a conviction for false statements carries a maximum sentence of five years in federal prison.

Authorities say Doyle's company was unable to repair a nuclear measurements display for the Peach Bottom Atomic Power Station in Pennsylvania. A substitute display from the Brunswick Nuclear Plant in North Carolina was shipped from Doyle's facility in Scottsdale.

Prosecutors say the serial number on the substitute display was filed down to conceal its identity in violation of Nuclear Regulatory Commission safety regulations and Doyle lied about the situation to NRC investigators.

Clever and amusing selfie/meme below is for the benefit of our engineering students going back to school soon. Hang in there, it's worth it.



LANL STANDARDS ISSUED IN JULY

Master Specifications STD-342-200

05 1000 R8 Structural Metal Framing	Added EOR notifications to 3.3.E.1.b (to ensure P-I anchor design o.k.)
28 3100 R7 Fire Detection and Alarm	Changed to reflect the new EST3x replacement for the EST QuickStart panel. Added deliverables attachment.

PROCESSES CHANGES

The following Administrative Procedures were posted on the Conduct of Engineering Office, Engineering Processes page in SharePoint in July. Please refer to the individual notifications on these for instructions on training and implementation. For questions about APs, please contact Gurinder Grewal at 667-3667.

AP-341-405-R3	***Identification and Control of Technical Baseline, Variances, Alternate Methods, and Clarifications in Operating Facilities,*** Course #54133	Issued: 7/01/13
AP-341-504-R2	***Temporary Modification Control*,** Course #44252	
AP-341-602-R1	***Requirements and Criteria Document*** Course #44258	Issued: 7-15-13
AP-341-404-R2	***Master Equipment List*** Course #44237	Issued: 7-25-13

DOE TECHNICAL STANDARDS ACTIONS

DOE Tech Stds activity this past month:

DOE-HDBK-1092-2013, Electrical Safety

DOE-STD-1111-2013, Department of Energy Laboratory Accreditation Program Administration

DOE-STD-1070-92 (r2013), Criteria for Evaluation of Nuclear Facility Training Programs (Reaffirmed)

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

This is what's called an interference problem, or a "clash" in the 3D CAD world, but it doesn't take CAD to find it. The sign in the background is coincidentally apropos; this is surely an "Oh, snap!" situation. Sent along with by Lyle Kerstiens, who still thinks of us periodically while enjoying retirement.

LAST MONTH'S UPDATE TOPICS

Miss an issue? The archive is at "Monthly Update" on the Standards homepage. Last month's topics:

- **Construction Inspector Extraordinaire**
- **Standards Support in July**
- **IHS Online National Standards News**
- **Nuclear Workers Behaving Badly**
- **LANL Standards Issued in June**
- **Processes Changes**
- **DOE Technical Standards Actions**
- **When Good Conduct of Engineering Isn't Followed**

To request a change to this newsletter's distribution, please contact me.

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