ENGINEERING STANDARDS UPDATE

Because Standards Know-How Isn't Just for Nerds

Topics this month:

- **Engineers Week**
- **Civil POC Change, Glovebox Spec Ownership**
- **Training & Qual**
- **Who Moved my PC Category?**
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- **DOE Technical Standards Actions**
- **When Good Conduct of Engineering Isn't Followed**

The Standards Homepage (on the LANL public website): http://engstandards.lanl.gov/

ENGINEERS WEEK

This is a nationwide event. I think it's about teaching people that few engineers' drive trains, generally celebrating the profession, and convincing students to get a STEM degree so they can get a job and we can compete with China (\'jina\).

In New Mexico, E-Week is Feb. 19-25, with the NMSPE big event on Friday, Feb 24, which includes 2 PDHs of ethics training (yes, ethics is still a thing).

The **LANL event** is Thursday, Feb 16 from 1:00–4:00 pm. The ADE announcement (more politically correct than me) says:

The Associate Director for Engineering Sciences (ADE) invites LANL employees and students to join in celebrating Engineers Week 2017. This year's Engineers Week theme, *Engineers Dream Big*, promotes the curiosity and inventiveness of engineers, engineering students and technicians and the diversity of the roles they play: designer, maker, inventor, developer, problem solver, creator and *dreamer*. These important attributes play a vital role in making the world a better place. Plan to stop by and learn more about the field of engineering at LANL, our engineering resources, capabilities, and the wide spectrum of R&D Engineering activities conducted in support of the Laboratory, the DOE complex, and the nation.

Activities in celebration of Engineers Week will be held at the J. Robert Oppenheimer Study Center on Thursday, February 16, 2017 from 1:00 pm – 4:00 pm. The keynote address will be given by Alan B. Carr, Senior Historian for Los Alamos National Laboratory at 1:00 pm. The title of the talk is ***On the Front Lines of the Cold War: Los Alamos 1970 - 1992***. The talk will be followed by an Engineering Showcase featuring posters from LANL's recent R&D engineering projects from 2:15 pm until 4:00 pm. Light refreshments will be served during the poster session.

CIVIL POC CHANGE, GLOVEBOX SPEC OWNERSHIP

We've made a couple of standards personnel changes in the last couple of months, and the new guys are already getting a workout.

- For the Civil standards, Scott Bane is now filling the POC role formerly held by Crystal Rodarte-Romero, who did a great job following the retirements of Jerry Gonzales and then Mell Smithour almost 2 years ago. Scott is ably supported by Alternate POC Donald Yardman. Crystal's moved on from ES-Div, and sincerely we wish her well even though she ditched us.
- For our glovebox-related Master Specs (mostly in Div 11), we've appointed Stacey Talachy as alternate to Mechanical POC Michael Ladach. The alphabet soup explanation is that he's the FLM over the enduring GB SMEs like CSE Rick Hinckley, so he's the best person to own and sign as POC.

TRAINING & QUAL

Electrical Standards Course – Thurs, March 16

Four-hour course 17998 covers the electrical engineering standards in Chapter 7 of the LANL Engineering Standards Manual and discusses mandatory requirements and good practices for those involved in electrical design. Strongly suggested for electrical designers, electrical engineers, electrical safety officers, and facility managers. AEs are also encouraged to attend. Taught by Electrical Standards POC Eric Stromberg from 7:30–11:30 am, Otowi Building 03-261, "Main Gate" Classroom Rm. F200W.

CGD Training -- Thurs, March 30

The usual one-two punch:
8-10 a.m. Course 30726, CGD Overview for Managers, CGD Preparers, others. Prereq for 30727.
10:15 a.m.-4:00 p.m. Course 30727, required for CGD Preparers and reviewers (like QPA) to be qualified.
Taught at TA-00-1308 White Rock Training Center Rm 117.

To register for LANL courses, sign up via UTrain (AEs without cryptocard via Yolanda Trujillo at 665-5696 or yjtrujillo@lanl.gov with Z number).

- On UTrain click on the "catalog" tab and select "advanced catalog search"
- Enter course number as the "ID", then "search"
- Add-to-do-list
- Go to your to-do-list and click on 'register'

Disenroll a similar way.

WHO MOVED MY PC CATEGORY?

Should you need to know this, PC Category historical data is temporarily unavailable in ARCHIBUS/FIMS. Notes saying this have been added under ESM Ch 5 and 16 (IBC-GEN PPD Form) suggesting that, until restored, contact Scott Richardson, Glen Pappas, or Tobin Oruch for manual lookups. It's gonna cost you. Once restored, such notes will be removed.

If you don't know what PC is: Here, it doesn't stand for political correctness, a social concept that's on life support of late. No, it's performance category, a legacy graded approach for SSC resilience to natural phenomena hazards used in the complex until DOE-STD-1020-2012 replaced it with new gradations (RC I-IV and SDC and other NDC levels). So in reality, PC Cat has fallen out of favor just like social PC has among some.

All not-joking aside, because PC Cat was used for 20 years and the determinations are cataloged in FIMS for structures and CMMS for equipment, we can still refer to those databases when preparing design input for modifications (e.g., in a DCF, RCD, and/or on a Preliminary Project Determination Form for ESM Ch 16). One day the databases may even capture RC and NDC instead or in addition to PC. Also, in the meantime, ESM Ch. 5 Section I has crosswalks from PCs to RCs, etc. This saves the effort of determining the new category from scratch for every mod, although the crosswalks may be slightly conservative at times such that a new determination would be beneficial.

SDDR CENTRAL

An SDDR is a Subcontractor Deviation Disposition Request, LANL Form 2178. These are initiated by suppliers to propose changes to a purchase order (subcontract) for providing equipment to LANL. They're not for field work, which uses an FCR, etc.

SDDRs are given a unique number once they hit LANL. For years, this was a simple sequential number generated by SharePoint via a link that was only in the form instructions. As of January, the engine was changed to yield a number that includes the PO number and, more significantly, the modern number generator was located on the usual ENG Doc Numbering site here.

Finally, using the same approach as the Variance Central page discussed in December's Update, there's now an SDDR Central page where users can request a number, access the form, and see listings of newfangled and legacy number requests.

Speaking of **variances**, that form's hidden-text instructions were just improved to enumerate how requestors must only add the signers using Edit Document Properties. Now if only VAR requestors would collectively do a better job explaining the situation they have, why it happened, and why their proposed solution is well-researched and justified, the POCs wouldn't have to spend so much time pulling this information out and getting it put into the form in a clear way…sigh…

ENGINEERING PROCESSES

The following Administrative Procedures have been amended on the SharePoint site.

AP-341-605, Calculations	Posted sitewide VAR-10104, Alternate Method for Calculation Log.	**Issued:** 1/18/17
AP-341-517 Design Change Form	Posted sitewide VAR-10107, Allow DCF Log to be generated with an EDMS report.	1/4/17

For the above, in EDMS, once you select "Calculation Log Report," on the top of the report will be a dropdown box where you select the area for which you want to populate the log. The DCF log may work the same way, but if it doesn't you'll need to get with Douglas McCabe to get the programming done like Jared did for the custom WCRRF and Area G logs.

For questions about CoE processes, please contact Jeff Fauble.

LANL STANDARDS ISSUED IN JANUARY

ESM STD-342-100	
Ch. 13 Welding, Joining & NDE, Vol.6 Welding Inspection and General NDE, WIGN 6-02 NDE Inspector Qualifications, Att. 3 Rev. 4 Written Practice for NDE Personnel Qualification & Certification	Fully aligned with ASNT SNT-TC-1A-2016. Defined Responsible Level III, SME Level III, and Reverted Certification (not ASNT terms). Created a path for a Level III to revert to Level II under certain circumstances. Thanks to SME David Harvey, POC David Bingham.
Ch. 21, Software	1. Added a table of contents to the entire-chapter (except references) pdf. 2. Improved and expanded the examples provided on the chapter's webpage, and provided in Word to facilitate modeling them. Thanks to Heather Nordquist et al. with Source Tracker. Thanks to SME Paula Diepolder on both.

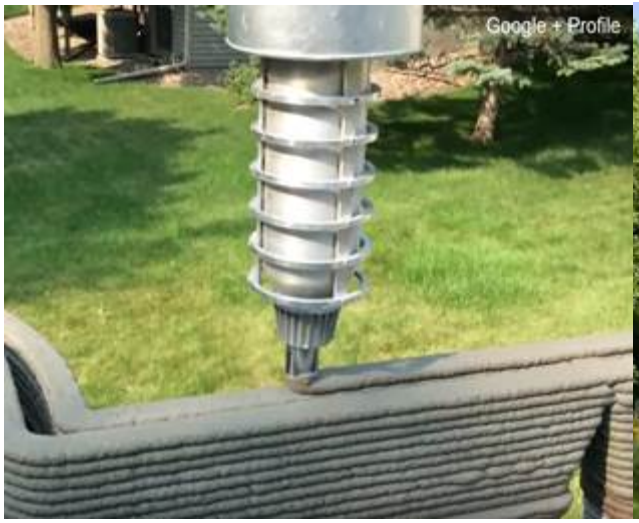
Master Specifications STD-342-200	
11 5311.10 Rev.3 Glovebox Fabrication	Two changes: gasket material callouts for neoprene and Viton are more formalized and allowing for a helium leak test in combination with PPDT or NPDT. Both meet AGS-G006-2005; ref. ES-55:17-001. Thanks to SME Rick Hinckley, POC Stacey Talachey.

Finally, while it's usually a mistake to predict success, expect revisions of the following in early Feb:

06 1000	Rough Carpentry
06 2000	Finish Carpentry
11 5311.16	Glovebox Feedthroughs, Hermetically Sealed (likely by Thurs)
26 0553	Identification for Electrical Systems
26 2713	Electricity Metering

The Emperor has No Clothes

Pretty cool 3D printed castle, even if the result is as seismically unsafe as all the unreinforced concrete work in the third world. Video at https://youtu.be/DQ5Elbvvr1M?t=296



O&M CRITERION CHANGES

Below are recent O&M Criterion changes issued by MSS-MP, the Maintenance Programs Group of Maintenance and Site Services Division. Implementation is required 30 days from issue date for non-nuclear facilities, 60 days for nuclear facilities.

It's best to use Internet Explorer to access them on the SharePoint site to avoid authenticating issues.

O&M 602 R3.3: Elevators, Dumbwaiters, and Lifts	Admin change to update reference to ASME A17.1-2013; deleted requirements from Table 9.1 for ML-1, -2, and -3 because there are only ML-4 elevators.
O&M 424 R2: Cooling Towers	• Corrected criterion reference names in Sections 7.2.2.3 and 10.8 • Added reference 10.2: ANSI/ASHRAE 188-2015 and 10.8: Criterion 412 • Added precautions and limitations: o Sec. 5.1.5, Water Treatment Chemicals o Sec. 5.1.6, Confined Space o Sec. 5.1.7, Legionellosis • Weekly, six-month, and yearly inspection and maintenance recommendations in reference to Cooling Technology Institute's Chapter 13, Inspection of Cooling Towers standard: o Sec. 7.2.2.5, Cooling Tower Cleaning o Sec. 7.2.3.6, Structural Members • Required documentation Basis description updated.
O&M 503 R3: Emergency Lighting System	Changed AHJ references to SMPOR to integrate this document with the LANL Engineering Standards Manual (STD 342-100). Update and minor correction for table in Section 9.0, Required Documentation. Edits on referenced sections in NFPA 101 and format edits of document.

DOE TECHNICAL STANDARDS ACTIONS

DOE Tech Stds activity (beta here) in the past month:
Again, LANL uses most of these, but the adoption process/timeline varies for each and is usually soon but not immediate. Follow written direction in the ESM and elsewhere for direction, and consult applicable POC with any questions.

DOE-STD-1020-2016 Natural Phenomena Hazards Analysis and Design Criteria for Department of Energy Facilities. DOE STD 1020-2016 has three purposes: Provide criteria and guidance for meeting the natural phenomena hazard (NPH) requirements of DOE Order (O) 420.1C, Chg. 1, Facility Safety; ensure that structures, systems, and components (SSCs) in DOE facilities will perform assigned safety functions during and after design basis NPH events; and provide requirements and guidance in the use of industry building codes and voluntary consensus standards in meeting NPH requirements.

DOE-HDBK-1221-2016, Suspect/Counterfeit Items Resource Handbook **Change Notice 1.** Provides information to assist the Department of Energy (DOE) sites in preventing suspect/counterfeit (S/CI) items from entering the DOE complex. Specifically, it provides information on identifying, reporting, and dispositioning S/CIs.

DOE-HDBK-1046-2016 Temporary Emergency Exposure Limits for Chemicals: Method and Practice. Describes why TEELs are needed, their role in emergency planning in DOE, the history of their development, and the methods by which they are developed. TEEL values are developed by a team of chemists/toxicologists established by DOE Headquarters. This is the second publication of the DOE Handbook describing TEELs.

NATIONAL STANDARDS CHANGES

A selection of updates; access on IHS here.

Per Ben Swartz: The ASME B31.3 2016 edition has been released, and is available on the IHS Standards through the LANL library. The Date of Issuance is January 31, 2017. This code will become effective 6 months after the Date of Issuance—July 31, 2017. A summary of the changes is located on page xx or page 21 of 562 in the pdf.

Remember, the license for most societies is for single simultaneous user access, so close the document and log out of IHS once you've completed a download, print, save or other use of the item. This will release the license for the next user. Please contact library@lanl.gov with any questions on IHS or IEEE Xplore (how the IEEEs are delivered).

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

If you've read down this far, you deserve a reward. But if you're expecting cartoons again this month, I'm afraid you're going to be disappointed. It's another lesson to be learned from the commercial nuclear world.

Pipe checks at Japan's nuclear control rooms conducted without removing insulation

The vast majority of Japan's 42 viable commercial nuclear reactors have not had detailed checkups performed on the air conditioning and ventilation systems of their central control rooms, it has been learned.

According to Japan Atomic Power Co. and nine utilities that manage nuclear power plants, the checkups — conducted at only two of the plants so far — are carried out without removing the insulation on the pipes.

Last month, Chugoku Electric Power Co. found extensive **corrosion and holes, including one measuring 30 cm by 100 cm**, in the ventilation pipes of the No. 2 reactor at the Shimane nuclear plant in Matsue, Shimane Prefecture. It was the first time the utility had removed the covering on the pipes since the reactor booted up in 1989.

Concluding the pipes were not functioning properly, Chugoku Electric reported the degradation to the Nuclear Regulation Authority.

In the event of [an] accident, control rooms, which are staffed around the clock, must be self-contained to prevent outside air from entering.

Five reactors at the three nuclear plants that have been reactivated since 2015 have not undergone pipe inspections in which their insulation was removed. Of the five, the No. 1 reactor at Kyushu Electric Power Co.'s Sendai plant in Kagoshima Prefecture and the No. 3 reactor at Shikoku Electric Power Co.'s Ikata plant in Ehime Prefecture are currently in operation.

Following the discovery of the pipe degradation at the Shimane No. 2 reactor, the NRA plans to check conditions at all of the nation's nuclear plants, sources said.

Hokuriku Electric Power Co. detected rust in the ventilation pipes of the No. 1 reactor at its Shika nuclear plant in Ishikawa Prefecture in 2003. After removing the covers and conducting further inspections, the company replaced the equipment in 2008.

The NRA suspects that the pipe corrosion at the Shimane No. 2 reactor may violate nuclear regulatory standards, an official said.

"As the plant is located near the sea, salt-containing air may have flowed into the pipes and hastened corrosion," a Chugoku Electric official said.

Most of the nation's nuclear plants are in coastal areas because they use seawater to cool their turbines.

LAST MONTH'S UPDATE TOPICS

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

- Training & Qual
- Engineering Processes
- ML-3 Basic Receipt Inspection (PNV)
- LANL Standards Issued in December
- DOE Technical Standards Actions
- When Good Conduct of Engineering Isn't Followed

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