ENGINEERING STANDARDS UPDATE

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

Topics this month:

- **N3B**
- **Editing, Variance Processes Streamlined for Some Specs, etc.**
- **Civil Spec Variance New Approach**
- **Engineering Processes Changes**
- **LANL Standards Issued in April or So**
- **PM Procedure Changes**
- **DOE Technical Standards Action**
- **National Standards Action**
- **When Good Conduct of Engineering Isn't Followed**

The LANL Engineering Standards: http://engstandards.lanl.gov/

N3B

Many saw the announcement that the Environmental Management (EM) program at LANL was transferred to Newport News Nuclear BWXT-Los Alamos (N3B) effective April 30. So now there's LANL, plus cleanup on former Lab territory by N3B (all still DOE-owned). From a Conduct of Engineering perspective, N3B is initially using LANL documents under a so-called blue-sheet temporary adoption process, but they have their own engineering and will eventually diverge. In fact, short-time CoE Office Director Julie Minton-Hughes is now the Eng Manager of N3B's Eng. Systems and Disciplined Ops group. This is great for them (she has longtime Area G experience) but leaves a hole in CoE again which Larry Goen is working to fill quickly.

Further Standards Program impact is that longtime (15+ years) Fire Protection POC Julie Wood also moved to N3B-ENS, and we'll sure miss her. AHJ Jim Streit has tapped Mark Rosenberg for the job.

Breakups are never easy, but it's not the first time that there have been multiple major contractors doing engineering at Los Alamos. During WWII, it was the US Army Corp of Engineering, then the Zia Company (1946-86), Pan Am World Services, Johnson Controls Northern New Mexico, and finally KSL Services (until 2008 when it was absorbed by LANS like the Borg collective). And the USCOE is here again running federalized projects.

Per Director Wallace, "For nearly 30 years, the EM program has been dedicated to packaging, shipping, and disposing of legacy waste that included low-level, mixed low-level, and transuranic (TRU) waste from our site. In addition, the EM scope included the water well monitoring program and clean-up of the chromium plume in Sandia Canyon. N3B is now responsible for the legacy waste program and will operate Area G (TA-54)." The N3B website notes "The N3B contract is for ten years: an initial five years, with two extensions for an additional five years, for a total of ten years" and "The current lifecycle baseline for cleanup work at Los Alamos estimates that cleanup work will continue through 2035."

EDITING, VARIANCE PROCESSES STREAMLINED FOR SOME SPECS, ETC.
April brought few showers (though the news is all Stormy lately)—and significant changes to how the Standards control the LANL Master Spec variance and editing process.

The first change that occurred was in ESM Chapter 1 Section Z10 itself; among other enhancements, the three types of variances were refined; a Type 1 (such as a variance to a spec requirement that's purely the spec POC's preference) can now be documented with only POC "permission" which "shall be documented and maintained in project file. This can be by POC email, email documenting verbal permission with POC copied, a 2137 form (with all but POC N/A), another electronic system for capturing issues/responses (e.g., SharePoint, DRS), or other method that shows POC permission (Standards Manager should be copied on all methods). Written requests should be specific about revision and citation in question and justification for change." Also included in Type 1 variances are non-ESM-driven requirements in Std Details, CAD Stds Manual, Welding Procedure Specs, and Std Procedures.

The second change was to Z10 Att F Specifications. Much of the complexity around submittal reduction was deleted from this (and also from 01 1117 Work by Owner-Self-Perform)—although that's still a desire—and the rules for editing simplified and clarified. The combination of these changes should help people produce better, tailored specs with less whining, churn, foot-dragging, and excuses for not doing so.

CIVIL SPEC VARIANCE NEW APPROACH
In addition to the above changes, which affect all disciplines, we're instituting a new approach to collaboration in the civil discipline to be more efficient.

Here's what's involved. Users are expected to follow this process immediately:

1. We have designated Utilities and Infrastructure (ES-UI) primary system engineers as Alternate POCs to Civil POC Scott Bane for their systems. Donald Yardman remains the overall Alt. Civil POC.
2. When variance requests and/or specification revisions surface, the requester contacts the appropriate UI System Engineer prior to involving the main POC. (CoE will put a hold on creation of VAR folder/template until UI system eng collaboration in Step 3 below, if this is found to be necessary.)
3. Requestor interfaces with System Engineer and Donald Yardman to ensure all reasonable alternative solutions have been considered. Donald is vital to help us collaborate and prevent balls from bouncing; he can aid pulling the right folks into a session to formalize agreements.
    a. This will force the collaboration to take place early since currently not all requestors are performing their due diligence ahead of time, but by obtaining a variance number they feel entitled, easy button, to claiming POCs etc… are holding up their project.
4. Once the optimal solution and compensatory measures have been agreed upon by System Engineer and Donald, they should engage main POC (currently Scott) for final concurrence. If the VAR issue is only for a particular system, then the Alt POC for that

system has signature authority not requiring Primary POC interaction (unless UI FDAR states a new individual lacks experience).

5. Variance approval routing will not occur until the requester has proven above steps were taken.

Guidance: VAR-10180r1 is a great example reflecting level of coordination and detail required to obtain concurrence from System Engineer and Alt. POC. One line explanation without consideration given to the compensatory measure is not acceptable.

We'll promote the above approach to all the project engineers and in other ways until it becomes a way of life or we change it (the beatings will continue until the morale improves).

CIVIL COMMITTEE (CHAPTER 3)

POC: Scott Bane, ES-EPD, 665-2878 (Schedule B)
Alternates:
Primary Alternate: Donald Yardman, ES-EPD, 665-7606 (Schedule A)
Transportation-Roads/Parking Lots, General Civil, Traffic Control: Natalie Romero-Trujillo, ES-UI, 667-3438 (Schedule 5/40)
Water Potable/Fire Protection: Mark Trujillo, ES-UI, 667-4643 (Schedule A)
Structural: Jon Stein, ES-UI, 695-8932 (Schedule A)
Storm Water/Drainage: Francesco Martinez, ES-UI, 667-9265 (Schedule 5/40)
Waste Water/SERF: Josh Begay, ES-UI, 699-0253 (Schedule A)

Building Safety Month: Celebrate the Building Codes that Protect your Family and Community

The International Code Council announced the 38th annual Building Safety Month theme — Building Codes Save Lives. Building Safety Month is an international campaign held during the month of May that raises awareness about building safety and the importance of current safety codes and the role of code officials in creating safe, sustainable structures that communities can rely on for generations to come.

"Building Safety Month brings attention to issues that are not regularly considered unless disaster strikes. Modern codes and standards incorporate the latest technology and provide the safest, most resilient structures for our families and communities to protect against building failures, hurricanes, tornadoes, floods, high-rise fires and other modern-day disasters," said Code Council Chief Executive Officer Dominic Sims, CBO. "Building codes really do save lives." Read more here and here.

May is also always National Electrical Safety Month, a campaign of the Electrical Safety Foundation International (ESFI), a "non-profit organization dedicated exclusively to promoting electrical safety in the home, school, and workplace." In honor of that:

At least the person that did this can truthfully tell his/her dentist that he/she uses floss.

INTERESTING GLOBAL CONSTRUCTION TRIVIA

From the International Code Council's Newsletter

Did you know?

Italian archeologists unearthed the ruins of a 6th-century Greek structure in southern Italy, complete with detailed assembly instructions. The ancient "IKEA building" is inscribed with coded instruction symbols showing how the various temple sections slot together.

Volkman chosen as ASCE Fellow

A recent LANLtoday noted that "Doug Volkman**,** ES-EPD, was elected a fellow for the American Society of Civil Engineers (ASCE) in February 2018. Volkman, who began working in Los Alamos with the Zia Company in 1985, is group leader in Engineering Services for the Engineering Project Delivery group." Full story. A huge congrats to him!

ENGINEERING PROCESSES CHANGES

The following Administrative Procedure has been revised and posted on the AP SharePoint site:

AP-341-627-R1	**Design Coordination** Required Reading Course 54166 for those assigned (PEs, DEs, FDARs). Where it says project DAR in 3.3.4, take that as FDAR.	**Issued:** 05/01/18

AP-341-403-R1.1	**Master Document List** Administrative change	**Issued:** 04/04/18

Always ensure you are working to the revision being implemented by your facility or project. For questions about CoE engineering processes, well, contact me until I'm no longer the entire CoE Office. For training questions, contact Yolanda Trujillo at 665-5696.

LANL STANDARDS ISSUED IN APRIL OR SO

ESM STD-342-100	
Ch. 1 - Z10 Rev. 14, General Requirements	Required applicable NCS including NFPA editions to be used; streamlined variance process for spec preferences; replaced software requirements with reference to Ch 21; PE sealing clarified; other updates throughout.
Ch. 1 - Z10 Att. F Rev. 2, Specifications	Clarified implementing requirements of specs versus using them, design and safety critical characteristics, editing.
Ch. 2 - Fire Protection D40 Rev.5	Added seismic requirements, need to identify fire barriers on drawings (4.5/6), interfaces to IBC. Implemented PFITS 2013-2393-CA3 regarding mods to listed equipment (at 4.3) and others. Periodic review and update. Thanks to AHJ Jim Streit, former POC Julie Wood.
Ch 7 Electrical, Section D5010	Posted VAR-10234, Circuit length requirements for voltage drop. Thanks to POC Eric Stromberg.
Ch 13, Welding etc. WPS 2010-XXTT-1grp3	New! Thanks to all the Binghams.
Ch.16- IBC-GEN Att. A Rev. 10, LANL Building Code	Minor updates following NM **adoption of 2015 IBC/IEBC and NFPA 70-2017 (discussed last Update)**, changed NFPA 101
Ch.16- IBC-IP Att. B Rev. 12, Statement of Special Inspections	Defined nonstructural concrete, corrected IBC Table 1705.3 omission of shotcrete, included NMAC strengthening changes to Table 1705.3, other minor changes.
Ch.16 References – LBO Listing of Approved IBC Testing Agencies, Fabricators, and Products	Updated May 8

Master Specifications STD-342-200	
01 1117 R1, Work by Owner-Self Perform	Major revision deleting submittal reduction strategies in favor of new approach in ESM Ch 1 Z10 Att F r2

03 3001 R11 Reinforced Concrete	Clarification on when to specify/ not specify vapor barrier (p8); indication that pre-approved mix designs 5000-4N & -8E meet the ACI-318 requirements for "F3 concrete" (p13); replaced single-value admix quantities in "4N" & "8E" with ranges. (p14-15); clarification on when slab-on-grade should/shouldn't be separated from vertical concrete (p21); addressed early pickup of cylinders (p25). Thanks to POC Glen Pappas.
05 1000 R10, Structural Metal Framing	Revised definitions (1.4), clarified CMTR needs (1.7.D). Thanks to Glen Pappas.
26 0548.16 R2, Seismic Controls for Electrical Systems	Admin change added 28 4600 to paragraph 1.1.B. Thanks to Glen Pappas.
28 3100 R10, Fire Detection and Alarm	Canceled: Superseded by 28 4600
28 4600 R0, Fire Detection and Alarm	New Section number 28 4600 conforming to CSI MasterFormat; added seismic and Knox Box supervisory/trouble and transfer switches to scope, revised identification, connection to central station. Detector model changes and installation clarifications. Changed FCP to FACP except where discussing drawing and field label identifications. Thanks to Walter Martinez, Julie Wood, AHJ Jim Streit…

Std Drawings & Details STD-342-400	
Ch. 7 ST-G4010-38 Rev.3 Square D Three Phase Transformer Anchorage and Concrete Slabs on Grade	Changed Title; Combined information regarding equipment anchorage from ST-G4010-40 series; removed transformer sizes no longer used; detailed pad placement; and updated calcs & drawings to comply with IBC 2015 & CAD Standards Manual Rev. 5. Changed sheet # from S-4000. Thanks to Ben Winter, Glen Pappas…

PM PROCEDURE CHANGES (SELECTED)

These 350-series APs from PADCAP are applicable to projects subject to SD350, *Project Management for Capital Asset Acquisition and Construction* (e.g., most anything involving capital funding, plus Environmental Programs and also some expense-funded projects over $50k). Per Crystal Lucero, the APs are in the adpmdocs repository in EDMS (like the other PM docs; EDMS is under Top Tools on LANL homepage); if you have access issues, email project-dcrm@lanl.gov.

The following procedure(s) has been revised and issued:

WI-400-497, R2, Materials Testing Laboratory Quality Control Manual (including FM01-FM09) ~ 4/2
WI-400-282, R3, Acceptance Inspection and Testing (including FM02) ~4/11
WI-400-507, R1, Liquid Limit Device and Grooving Tool (including FM01) ~ 4/12

DOE TECHNICAL STANDARDS ACTION

STDs postings in the past month: Of possible interest only to the Feds, who use FAQS:
DOE-STD-1157-2002, *Environmental Restoration Functional Area Qualification Standard*
DOE-STD-1166-2003, *Deactivation and Decommissioning Functional Area Qualification Standard*
DOE-STD-1178-2004, *Technical Program Manager Functional Area Qualification Standard*

NATIONAL STANDARDS ACTION

IHS reports these changes. Section Z10 says “Errata (correct errors) to any document and Tentative Interim Amendments (for NFPA) are mandatory regardless of contract award date or code of record,” so these apply.

NFPA 20 ERTA 2, Standard for the Installation of Stationary Pumps for Fire Protection
Publication Date: 2/27/2018

NFPA 30 ERTA 1, Flammable and Combustible Liquids Code
Publication Date: 2/27/2018

NFPA 72 ERTA 1, National Fire Alarm and Signaling Code
Publication Date: 2/27/2018

NFPA 101 AMD 3, Life Safety Code
Publication Date: 11/18/2017

UL 508, UL Standard for Safety Industrial Control Equipment
Publication Date: 3/30/2018
Type of Change: Complete Revision [applies to LANL, too]

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

CoE often involves both math and writing; issues with the latter can cause communication problems. In the below news release from last month, they seem to be confusing rectangles and triangles. Takes a couple of reads to understand it. Don't be that guy!

Cibola National Forest Lifts Many Portions of the Fire Closure Order

A Closure Order Issued by Cibola National Forest and National Grasslands as a result of the Bluewater and Diener Canyon Fires has been lifted in several areas. **A three-sided rectangle** encompassing the north, east, and south perimeter of the Bluewater Fire and FR 178 on the west will form the new closure. The only closure […]

LAST MONTH'S UPDATE TOPICS

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

- Goodbye Jeff Fauble
- NFPA 70-2017 Adopted!
- Training & Qual
- Engineering Processes Changes
- LANL Standards Issued in March
- PM Procedure Changes
- DOE Technical Standards Action
- When Good Conduct of Engineering Isn't Followed

The views expressed in this email are not necessarily those of my employer.
To request a change to this newsletter's distribution, please contact me.

Tobin Oruch, Engineering Standards Mgr
Los Alamos Nat'l Lab, Conduct of Eng Program Office
(505) 665-8475 oruch@lanl.gov http://engstandards.lanl.gov/
Please consider the environment before printing this or any email