

## ENGINEERING STANDARDS UPDATE

[Standards are serious business](#), but this newsletter isn't.

### Topics this month:

- **Shining Stars**
- **Engineering Processes News; Sarah Terrill**
- **When Good Conduct of Engineering Isn't Followed**
- **Environmental Management System; Earth Week**
- **Training & Qualification**
- **LANL Standards Issued in March**
- **DOE Technical Standards Action**

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

### SHINING STARS

This here's the West, and there's a new Sheriff in town. OK, a Marshal in the townsite. Jim Streit, long-time LANL Fire Marshal/Fire Protection Division Leader, accepted the Engineering Services DL position vacated by the retired Larry Goen effective March 25. Even better, as a sort of dowry I guess, the FP group came over with him and so is now in ES-Div under Jason Kemp, the presumptive soon-to-be Fire Marshal. Welcome, all! The longstanding idea of consolidating facility engineering support in one division is happening...bwah ha ha! Kidding. (...or am I...?)

Every sheriff needs good deputies so Jason Apperson has been named a Deputy DL helping to manage the expanded and somewhat reconfigured organization (including ES-WFO oversight).

The posse is evolving, too—Mike Williams, ES-UI Eng Mgr, is taking the utilities director job at Pantex next week where he may enjoy the challenge but not the increase in wind, dust, and, perhaps, Texans. Kidding. (...or am I...?). Wishing him the best.

As for LANL Building Official duties, with Goen now MIA, deputies Jim and Doug Volkman have LBO authority per that org chart (an ESM [Ch 16](#) reference).

Other updated org charts and listings coming soon to an intranet near you hopefully (some following various field office delegations).



**ENGINEERING PROCESSES NEWS; SARAH TERRILL**

The big news here is that Sarah Terrill has been hired to eventually succeed Jeff Fauble in the CoE Eng Processes Manager position. Sarah comes to us from the PIO Startup group where she's been doing commissioning-related work for the past couple of years. Going backwards from that, she worked for Merrick (REI-2 glovebox design eng), EES and UI, and the NNSA field office; even co-ran an inspection business in Idaho. [sterrill@lanl.gov](mailto:sterrill@lanl.gov), 7-7788.

Jeff's still here every other week or so, so he'll see her full-time effort—and raise her with his part-time—so as to crank out a whole bunch of AP revisions for at least a few more months, then fade into the Colorado sunset à la spaghetti Western for another retirement. Jeff's at 665-5832 (but not this week) and more often at [jfauble@lanl.gov](mailto:jfauble@lanl.gov); (if it bounces, click Outlook's "To" button and select him from the directory; after that the autocomplete will work).

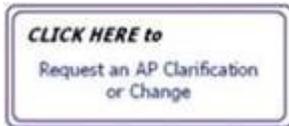
The following Administrative Procedures have been revised and posted on the [SharePoint site](#):

<b>AP-341-610-R1</b>	<b>Specifications for SSCs</b> Course 55426 (for those assigned)	<b>Issued:</b> 3/18/19
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This revision (excerpts):

- Expands the scope of the procedure to include ML-4 SSCs. Upon issue of this revision, AP-341-609, Specifications for Non-Safety SSCs, will be cancelled.
- Clarifies that Critical Characteristics only apply to Commercial Grade Items; deletes Critical Characteristic steps and directs the user to AP-341-607 instead.
- Deletes the Specification Change Notice process and form.
- Deletes the term "Checking" and replaces it with "Design Verification" to better align with SD-330. Moves Design Verification to the set of final steps.
- Adds requirements to include Safety Functions and associated Functional Requirements and Performance Criteria in specifications for safety related items.

For questions this AP, please contact Jeff until Sarah is more up-to-speed. When ideas for AP change come, please enter them in the SharePoint database. Use the live button below, same one that's found in the upper right of the Processes [homepage](#).



## WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED Rearranging the Deck Chairs



[Facebook: workingpinoycruiseship](#)

You've probably heard about the recent Viking Sky cruise ship disaster with high seas, engine failure, listing/flooding, airlifts, etc. (if not, read [this](#)). They're since revealed why the engines failed: [Viking Sky cruise ship engines failed because of low oil levels, maritime official says](#) (USA TODAY).

Article excerpt (reminiscent of the Sultana disaster video in my Standards course):

'... low oil levels were the "direct cause" of the engine failure that stranded the Viking Sky on Saturday.

The NMA indicated in a press release that while oil in the tanks was relatively low, it was within set limits. But as the ship crossed rocky seas, movement of oil in the tanks triggered an alarm. Norwegian media reported gusts up to 43 mph and waves over 26 feet.

"The heavy seas in Hustadvika probably caused movements in the tanks so large that the supply to the lubricating oil pumps stopped," Alvestad said. "This triggered an alarm indicating a low level of lubrication oil, which in turn shortly thereafter caused an automatic shutdown of the engines."

Viking Ocean Cruises said in a statement that the company is revising procedures to ensure the issue doesn't happen again...'

Wikipedia disputes that an alarm was received, but either way, engines stopped.

My analysis: If you read accident theory or reports you learn that disasters are usually the result of multiple, compounding failures of levels of protection, be they human-caused (most common), equipment failure, or both. In this “first-ever” wintertime arctic cruise, it was (1) sailing into a known upcoming storm (greed?) and (2) low-ish/sloshing oil causing the engines to interlock off (more oil or baffles?). Remove either initiator and it’s a “pleasure” cruise. As it turned out, it was a nightmare.

### **ENVIRONMENTAL MANAGEMENT SYSTEM; EARTH WEEK**

Yet more personnel changes: ES-Div now has two new people coordinating EMS matters as a side hustle: Thaddeus “Tadz” Kostrubala, (ES-EPD, [tkostrub@lanl.gov](mailto:tkostrub@lanl.gov), 505.412.3217) and Genna “Genna” Waldvogel (ES-UI & Sustainability Program, [gwaldvogel@lanl.gov](mailto:gwaldvogel@lanl.gov), 505.665.9963). They’ll be helping the Division come up with initiatives to improve life on the planet by making small advances here at LANL. (FYI, some recent goals related to LED lighting, ESM Ch 14 updates, and oil-free vacuum pumps). Please send them any suggestions you have related to new goal-setting.

(stolen from Genna’s signature)

Related to the EMS is Earth Week. Per [Kassidy Burnett Boorman](#) (yes, THAT Burnett) in Environmental Stewardship:

The Earth Week theme is One Earth, One Chance. The events go from April 22<sup>nd</sup>–April 26<sup>th</sup> with each day during Earth Week having its own emphasis to challenge our everyday thinking and give us specific things all of us can do to make the greatest impact in our everyday lives. There will also be a LANL booth at [PEEC](#) (on LA’s Canyon Rd) during the Earth Day event on April 27<sup>th</sup>. Feel free to include the link to our [website](#) which will see a lot of additions as we get closer to Earth Week so stay tuned!

### **TRAINING & QUALIFICATION**

#### **OOPS! SOME SOFTWARE OWNERS AND RLMs IN ES-DIV, NCS, SB (THUS SUBJECT TO ESM CHAPTER 21 SOFTWARE) STILL NEED LIVE COURSES!**

Please be advised that all Ch 21-scope RLMs and Owners must take live-course 38047 per ESM Ch. 21, despite having done the reading (and Owners also need 34048). Due to an equivalency mix-up, UTrain equivalency was incorrect from Dec 2017 until 3/6/19 and allowed some recent RLMs and Owners to get 38047 credit by doing the 38040 Required Reading. Our apologies for this hiccup.

So...if you, in fact, need live training, please get on the waitlists for the course(s) below so we can determine when to schedule the training; ideally, request in UTrain (Request Schedule function) or contact Yolanda Trujillo (see below). If you’re not sure what you need, contact me (5-8475) or SME/Instructor Joy Getha, 5-9586, [jlgetha@lanl.gov](mailto:jlgetha@lanl.gov)

- [38047](#) ESM Chapter 21 Software Overview Course 9-11:30 a.m. (RLMs and Owners)
- [34048](#) ESM Chapter 21 Software Owner’s Course 1-3 p.m. (just Owners return for this)

### Electrical Standards – Weds, May 29

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, at White Rock Training Center TA-00-1308 Rm 112. Also planned for 8/7, 11/14.

**REGISTERING** for UTrain Courses: Go to [UTrain](#), search on course, select and enroll. Disenroll if you have to bail. AEs can also register; use token (CryptoCard) or contact ES T&Q coordinator Yolanda Trujillo at 665-5696 or [yjtrujillo@lanl.gov](mailto:yjtrujillo@lanl.gov) with Z number.

### IEEE for Sparkheads (EEs) April 18

LANL's IEEE Client Services Manager will visit and offer the following training and awareness services in [IEEE Xplore](#), such as the new search engine. IEEE Xplore is a digital library that gives users access to over four million full-text documents in the fields of electrical engineering, computer science, and electronics, and includes standards, journals, and conferences.

IEEE Xplore training session 1:00 – 2:00pm

What you will learn: a soup to nuts training for new users, or updates for current users. Updates on what's new with Xplore, such as the new search engine and new features.

Place: Research Library, TA03-0207-218, Jemez Room - upper level

Snacks and drinks.

IEEE Awareness 2:00 – 4:00pm

The purpose is to highlight our IEEE Xplore subscription and promote library's services.

Place: Research Library, TA03-0207, Collaboration Space – main level

Giveaways and brochures.

**Gearheads, don't feel left out.** Here are two training/qual opp's for you:

Swagelok Southwest is offering "**Swagelok Essentials Training**: Tube Fitting Installation and Tube Bending" on Tuesday, April 9 in ABQ. They used to teach this in Los Alamos at no cost, and this one is \$500 plus travel, so I only mention it because installers need it per LANL Master Spec 40 0504 Process Piping: "Compression fitting assembler shall be qualified by UTrain Course 30831, Compression Fittings Assembly, or factory training within 30 days of start of assembly." [Learn More | Register](#)

Pressure Safety Officer: Chief PSO Ari (Ben) Swartz is working on setting up the next round of classes for PSO training for Duty Area A and B, and wanting to gauge interest. Please send an [email](#) to both Yolanda Trujillo and Swartz if you have interest in taking the PSO Overview class 52955 or the B31.3 class 53900. If you want to become certified you will need to have your RLM approve of your training because it does take time. The Qualification Standard defines all the training requirements for PSO Duty Area A and B, and is available [here](#).

**LANL STANDARDS ISSUED IN MARCH**

Last month I joked about daily Goen signing parties—a gross exaggeration, but as a Division we cranked out the AP above, almost a dozen CoE VARs, and the standards below.

If you're counting, at this mid-FY mark the Standards program has revised 20+ spec sections, 20+ ESM documents, and another 4 CAD Standards Manual sections or Std Details. This rate is very comparable to last FY, and we hope it holds.

ESM Chapter	Title	Rev.
Chapter 5 – Structural, Section III Nuclear	Posted VAR-10314, <i>NDC-3 SSC Post-installed Anchors – General Usage</i> (see discussion below)	0
Chapter 14 - Sustainable Design	LEED waiver process posted as a reference	-
Chapter 15 - Commissioning	Commissioning (w/ Att A: Commissioning Process Flow Chart) Summary: Lessons learned from RLUOB, LLW, and TWF; resolved QPA-IQ: 15-107/IM 2018-128; updated references. Thanks to POC Matt Foster and his staff and Tech Committee.	1
Chapter 17 - Pressure Safety POC: Ari Ben Swartz	NASME Reference: Reputable Manufacturers listing as discussed in NASME-1-a, b, etc. (xls) (LANL only)	-
	<a href="#">VAR-10317</a> , <i>Certification of Legacy Pressure Safety Systems</i> posted to <a href="#">ADMIN-1-3</a> , <i>Existing (including Legacy) System Documentation Requirements</i> .	0

**Spotlight: VAR-10314, NDC-3 SSC Post-installed Anchors – General Usage**

The Hilti HDA undercut concrete anchor is a great, high-confidence/nuclear-service solution if one has the necessary concrete depth (7+ inches). Because that's not always possible, this VAR was written to allow Hilti HIT-RE 500 V3 adhesive anchors in a de-rated fashion (for now) and also de-rated Hilti TZ expansion anchors. Glen Pappas is making revisions to ESM Chapter 5 Section III anchorage appendices and the LANL Master Specs (drafts available soon) to support such usage long term.

**Master Specs**

Spec Number	Rev.	Spec Title	Effective	Summary of Revision
01 8712	0	<b>Seismic Qualification of Equipment – Nuclear-Safety Related – NEW!!!!</b>	3/22/2019	<b>Initial issue.</b> Thanks to POC Glen Pappas.
08 7100	4	Door Hardware	3/4/2019	Revision adds notes to editor and specifications for VTR entry door hardware. Thanks to lock shop, POC Scott Richardson.

### Drawings & Details

Ch.	Dwg. #	Sheet	Title	Date	Summary
Electrical (Ch 7)	Example Drawing D5000-1 Rev.3	1	Legend and General Notes	3/11/19	Added/updated symbols per National CAD Standard. Thanks to POC Eric Stromberg.

### CAD Standards Manual

Section	Section/Title	Rev.	Date	Summary of Revision per POC Scott Richardson:
200	Title Sheet and Block Templates, Sketch Title Block	-	3/7/2019	Windows 10 does not recognize the Frutiger font as a font type file, so the templates been updated using Swis721 Blk BT font as a substitute which is a close match and is a Windows standard font. The digital sig templates were developed with the Swis721 font originally so are not affected.
300	300 Drafting Symbols and Conventions	5	3/6/2019	Replaced "Drafting" with "CAD" in section title and throughout document. Updated and/or expanded all subsections including FPRs and EEDs. Updated Att. 1 on historical numbers; eliminated or moved Att. 2 (Existing Facility Mod Process), App. A (Plot Limits, etc.), and App. H on title blocks.

### O&M CRITERION CHANGES

Below are recent [O&M Criterion](#) and related Preventative Maintenance Instruction (PMI) 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 authentication issues.

The PMIs listed below have been revised to show only the Checklists. You must refer to the associated O&M to obtain the administrative portion. Any questions, please contact the document author.

Also, Work Orders that reference the below PMIs shall also reference the below forms such that it is included in the work package:

[PMI 602-A R5.1: Hydraulic Elevator Inspection, Testing, and Maintenance](#)

Added sub-steps to 602-A.004 for checking in-tank heaters (admin change).

### DOE TECHNICAL STANDARDS ACTION

Tech Stds Program [postings](#) in the past month: DOE-HDBK-1226-2019, [Conduct of Operations Implementation](#), 3/6/2019

**LAST MONTH'S UPDATE TOPICS**

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

- **Larry Goen Retiring**
- **When Good Conduct of Engineering Isn't Followed**
- **Training & Qualification**
- **LANL Standards Issued in January or so**
- **Engineering Processes News**
- **Engineers Week and Feb 20**
- **DOE Technical Standards Action**
- **National Standards Action**

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Tobin Oruch, Engineering Standards Mgr  
Los Alamos Nat'l Lab, Conduct of Eng Program Office  
(505) 665-8475 [oruch@lanl.gov](mailto:oruch@lanl.gov) <http://engstandards.lanl.gov/>  
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