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**ENGINEERING STANDARDS UPDATE**

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

**Topics this month:**

- ES-Div Org Changes
- Revised Form 2178, *Subcontractor Deviation Disposition Request*
- Training & Qualification
- Standards POC News
- LANL Standards Issued in June
- National Standards Action
- DOE Standards Action
- MSS Document Action
- When Good Conduct of Engineering Isn't Followed

Note: This newsletter has hyperlinks all over but their formatting may not show, so please hover your cursor where you might expect one.

The LANL Standards Homepage: <https://engstandards.lanl.gov/index.shtml>

**Happy Fourth of July!! And welcome to any new hires!**



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**ES-DIV ORG CHANGES**

From several ES-DO emails:

- Landry Milnes has been appointed as the Group Leader for ES-WFO.
- Laila Badran will assume the role of Acting Group Leader for ES-WPD.
- Rob Swickley will assume the role of ES-LFO Group Leader.
- Beau Portillo is the newly selected Engineering Services – Facility Engineering Group Leader starting August 7.

Congratulations, everyone!

**REVISED FORM 2178, *SUBCONTRACTOR DEVIATION DISPOSITION REQUEST***

A revision to this form is now available on the Standards Homepage, lower right (Forms Center update pending).

Sarah Murdock, CoE Engineering Processes Manager, recently wrote about its usage, the gist being:

The basic difference between Engineering's Form 2178 and QA's Form 2276 *Subcontractor Nonconformance Report* is the work product acceptance status. If the subcontractor realizes that the approved design will not work and they have not delivered the product, then Form 2178 is appropriate since they are then asking for permission. If the work is delivered to LANL and does not match the approved designs, then Form 2276 is necessary since they are asking for forgiveness.

The NCR is a one-time exception for a finite number of products to not meet the design — the design stays the same. The SDDR is requesting a change to the design itself. Following are some great examples of situations for each.

- Form 2276 Subcontractor NCR: Glovebox manufacturer has a unit that will not meet the design, but they believe it is still usable and meets the design intent. They submit Form 2276 with supporting evidence and the request is considered by LANL for this one case. The glovebox design package does not change, but there may be an addition of a drawing for this single unit showing the difference. LANL may also reject and require the manufacturer to replace the unit with one that matches the design.
- Form 2178 SDDR: Glovebox manufacturer determines a better more efficient method for installing a plate that does not match the design package they are working to. They submit Form 2178 with the suggested modifications to see if LANL will accept this change. If accepted, the glovebox design package will be revised to include the suggested method. Form 2178 will cover the request and the LANL design review so that the design change is covered under one process; it is a design revision form (ref. AP-341-519).



## **TRAINING & QUALIFICATION**

### **Courses (standards-heavy again!)**

#### **Engineering Continuing Training: COE and Configuration Mgt Overview, Thursday, July 20, 2023 1:00 PM-2:00 PM**

From Sarah Murdock's Teams invitation:

The topic for July's Continuing Training is Conduct of Engineering and Configuration Management at LANL. This is the course I provide to all new facility engineers as part of the onboarding curriculum, but it's been pointed out by many senior engineers that there are nuggets of information in this course that they never knew or understood.

We'll be looking at the big picture of how LANL implements requirements, how we got those requirements, and what COE and CM really mean. This is a great course to understand how all those little annoying tasks you do daily fit within the bigger picture. Understanding this bigger picture will help you see how your role fits in! [Click here to join the meeting](#)

#### **CoE: LANL Engineering Standards Overview 52693 -- Aug 7, Sep 18, or Nov 6**

If you're new or don't have Course 24140 Intro to LANL Engineering Standards in your training plan and just want to learn about the standards for 2 hours, not 8, then you can wait until later this year, sign up, and take this shortened course on Aug 7, Sep 18, or Nov 6 from 2:00-4:00 pm.

#### **ESM Chapter 21 Software -- Overview and Owners Courses -- series begins Tues, Nov 7, Teams**

A few of you are new "Owners" of nuclear safety or other ML-1, -2, or -3 software (installed in a system, or maybe for design/analysis). If you follow ESM Chapter 21 Software then you need to take training on the chapter. The managers (including FDARs) of Owners only need the overview.

So...if you, in fact, need training, please register in Utrain for the course(s) below. If you're not sure what you need, contact SME/instructor Jared Harris or Neha Gidwani.

· 38047 ESM Chapter 21 Software Overview, 3 hours. (RLMs and Owners): Tuesday, Nov 7, from 9 am - noon.

· 34048 ESM Chapter 21 Software Owners (3 additional hours, just Owners return for this): Thursday, Nov 9, also from 9 am - noon.

**[Intro to LANL Engineering Standards, 24140 – Nov 13-16 \(M-Tr, must attend all 4 days\), 2:00-4:00 PM Teams](#)**

Attend each day to receive credit (it's 8 contact hours, despite what UTrain may say. Also, ignore UTrain showing 7/15/2020 11:20 AM America/Denver, that's just an establishment date). You'll need to block your own calendars. Register in UTrain. If that fails, contact [es-do-tng@lanl.gov](mailto:es-do-tng@lanl.gov) with Z number. Provides familiarity with national and LANL engineering standards for anyone performing, reviewing, or managing design activities. **Required course for many LANL engineers**, recommended for those at local AE firms, and **only taught a few times a year -- so try to attend.**

## **T&Q Admin matters**

E-mail for COE Training: [es-do-tng@lanl.gov](mailto:es-do-tng@lanl.gov)

Click addy above for help with COE training issues like getting registered, missing credit, etc. Goes to the whole team: Stan Hayes, Nick Jones, Sadonna Tapia, Santana Quintana, and Chris Martinez.

E-mail for COE Qual Program: [COEQuals@lanl.gov](mailto:COEQuals@lanl.gov)

Click addy above for any help with COE quals such as CSE, PrE, Design, Project, PSO, FDAR, and other qualified positions (and also SHR matters for CSEs). Goes to the whole team: Deb Cushner, Jess Blea, and Barb Dela Cruz.

Instructor-Led Course Request/Registration Guide

For live courses without a session in UTrain, there's a step-by-step guide posted to the CoE T&Q "Resources" page

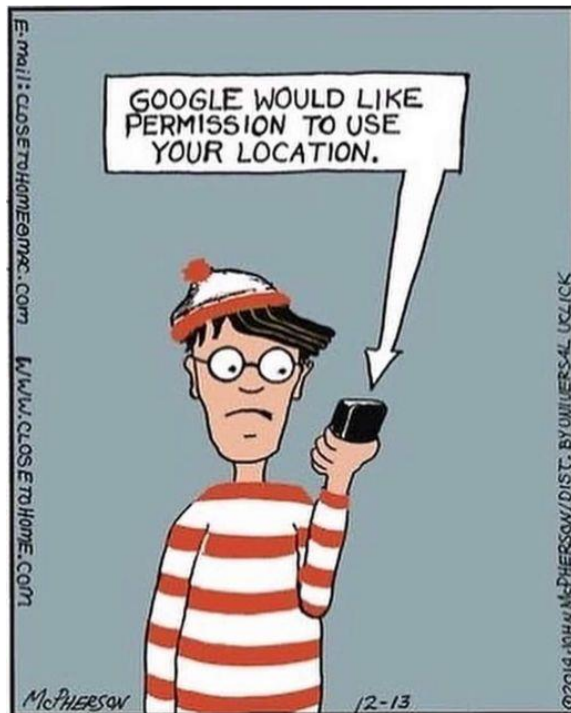
**<https://int.lanl.gov/org/ddops/aldfo/nuclear-safety/engineering-services/conduct-of-engineering/assets/resources/instructor-led-course-registration-FAQ.pdf>**

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**STANDARDS POC NEWS**

For ESM Chapter 19, Communications, [Jason Flesher](#) has taken over the POC role from Dave Schlegel. Thanks to both.

Again, Scott Richardson is part-time until a late summer retirement and others have taken over his formal POC and Lead SME roles. He may appreciate this one -- Where's Waldo puzzles has adorned the ES Div men's room for a very long time.





**Engineering Standards Update**  
Topics this month: July 2023

**LANL STANDARDS ISSUED IN JUNE** <http://engstandards.lanl.gov/>

**Engineering Standards Manual ESM** [STD-342-100](#)

Chapter	Section	Title	Rev.	Date	Comments
<b>Chapter 2 revision thanks to POC Keenan Dotson</b>					
2 – Fire Protection	D40GEN	Administration and General Requirements	7	6/29/2023	<p>Renamed D40GEN. Moved fire alarm, fire suppression, and testing and commissioning to separate documents.</p> <p>Changed LANL Fire Protection Group (ES-FP) to LANL Fire Protection (FP) Office. Described FP functions as they relate to projects. Clarified use of Uniform Mechanical Code (UMC) and National Fire Protection Association (NFPA) 90A in lieu of the International Mechanical Code (IMC) for fire protection requirements of mechanical systems.</p> <p>Expanded highly protected risk (HPR) section including list of characteristics that would increase level of HPR fire protection.</p> <p>Removed material regarding construction and opening protection that is already in codes and standards.</p> <p>Expanded Section 5.0, Fire Protection Analysis and Design Documentation: Includes criteria and requirements for fire protection design analysis (FPDA), fire hazard analysis (FHA), fire hazard evaluation (FHE), and dust hazard analysis (DHA) documents. Provided content expectations for FPDAs, life safety plans, site compliance plans, and code summary sheets. Expanded and clarified discipline by discipline Main Design (Title II expectation for content of drawings) in bulleted lists.</p> <p>Added requirements for automatic lighting controls for code compliance.</p> <p>Created a construction section to address NFPA 241 and IFC Ch. 33. Added requirements for two-way emergency communication systems for accessible means of egress (areas of refuge). Added DOE-STD-1066-2016 water supply requirements and provided fire flow and sprinkler system demand criteria for expansion/upgrades to the LANL water distribution system. Added International Fire Code (IFC) as an applicable code in hazmat and special hazard sections. Incorporated D4030 Fire Protection Specialties as a subsection to D40GEN.</p>

	D4010	Fire Suppression and Special Extinguishing Systems	0		Extracted from D40 Rev 6 (Subsections D4010 and D4010.50). Moved standpipe systems to its own subsection and moved special hazard systems into the main D4010 document. Changed Fire Protection Group (ES-FP) to Fire Protection (FP) Office. Provided guidance for preliminary design and installation/shop drawings. Added shop drawing requirements. Added qualification requirements for designers and shop drawing technicians. Provided a local policy for fire department connection (FDC) location. Reinforced that the applicable codes are to be consulted for sprinkler system requirements, not the ESM. Deleted unnecessary repetition of DOE requirements. Clarified definition of a sprinkler system and prohibited new antifreeze systems. Added requirements for privacy booths. Created a fire pump section with requirements for water supply reliability. Added installation and agent selection requirements for special hazard suppression systems. Specified a standard releasing panel.
	D4050	Inspection, Testing, and Commissioning	0		Extracted from Ch. 2 D40 Revision 6. Provided new requirements for basic commissioning and NFPA 3 commissioning. Added new requirements for basic end-to-end testing and NFPA 4 integrated system testing.
	D5037	Fire Alarm Systems	0		Extracted from combined D40 r6 document [Subsection 8.0 Fire Detection and Alarm (D5030.90)]. Incorporated key requirements from LANL Master Specification Section 28 4600. Changed Fire Protection Group (ES-FP) to Fire Protection (FP) Office. Clarified difference between fire alarm design and installation (shop) drawings in general requirements. Added requirements for equipment accessibility for maintenance. Added timeline for submittals, review, and coordination for testing. Provided additional requirements and guidance for providing a fire alarm system, and where to locate fire alarm control units and annunciators. Specified standard fire alarm panel manufacturers.
13 – Welding, Joining & NDE; Volume 6, Welding Inspection & General NDE	WIGN 6-02 NDE Inspector Qualification and Performance	Attachment 1 - LANL NDE Personnel Qualification and Certification Procedure	9	6/14/2023	Correction of omission in Table of Contents (Appendix B). Clarified that supplemental staff reporting to LANL (e.g., Triad) supervisors may be qualified and certified under this Procedure in the same manner as employees. Prohibited the use of pharmaceuticals (eye drops) when undergoing visual acuity examination; added that visual acuity examination is required after eye surgery,. Thanks to POC David Harvey.



For Keenan:



**theRoddick**  
@OriginalRoddick

...

Finally finished my fireplace. #proud



### NATIONAL STANDARDS ACTION

[Online National Codes & Standards](#) ← link

NOTE: **Information Handling Services (IHS)**, that some years ago became IHS Markit and in 2022 merged with S&P Global Engineering Solutions, **has now been rebranded as Accuris**. Regardless, the codes and standards are still in the same place and from the service called Engineering Workbench.



Document number: **ACI 318, Building Code Requirements for Structural Concrete (ACI 318-19) Commentary on Building Code Requirements for Structural Concrete (ACI 318R-19)**

Publication Date: **June 2019**, Reaffirmed/Reapproved Date: **(R 2022)**

Type of Change: **Errata/Erratum**

NOTE: LANL uses the 2019 edition, so users should download the just-posted March 8, 2023 version that incorporates the errata.





Document number: **NBBI NB 23 National Board Inspection Code (NBIC)**

**Part 1 Installation, Part 2 Inspection, Part 3 Repairs and Alterations, and Part 4 Pressure Relief Devices**

Publication Date: **7/1/2023**

Type of Change: **Complete Revision**

**NOTE:** LANL uses this extensively in ESM Ch. 17 Pressure Safety with many, many references in our [Quality Control Systems Manual](#) (R-Stamp Program and Federal Inspection Agency; LANL only) and another 50+ in the rest of the chapter.

You may use this newest edition immediately, and must beginning Jan 1, 2024. Documents state:

Editions of the NBIC are published every two years. Editions are permissive on the date issued; however, they become mandatory six months after the date of issue. Substantive revisions and/or additions that have been incorporated into the NBIC since the last edition are noted with the two-digit publication year, enclosed in parentheses, in the margin next to the section, subsection, or paragraph containing the revision(s) and/or addition(s).

## **DOE TECHNICAL STANDARDS ACTION**

[Tech Stds Program postings](#) in the past month on the [Technical Standards Portal](#):

DOE-STD-1066-2023 [Fire Protection](#)

This Standard serves as the primary source document for criteria and guidance for fire protection programs (FPPs) supporting implementation of DOE O 420.1C Chg. 3, Facility Safety.

**NOTE:** LANL will adopt this edition when PD1220 does, likely a few months from now, as the ESM Chapter 2 revision noted above states. Meantime, keep using the 2016 edition.

I can't imagine the things this hotel air conditioner has seen



Anyone road trip over the Fourth?

## MSS DOCUMENT ACTION

**Operation and Maintenance Criterion** and related Preventative Maintenance Instructions (PMI) are standards with which system and plant engineers should be familiar. Implementation is required 30 days from issue date for non-nuclear facilities, 60 days for nuclear facilities. Questions? Contact the document author shown on its approval page.

Below are recent changes issued by Maintenance and Site Services Division per Jeremy vonHarders. Access here:

<https://logistics.lanl.gov/MSS/layouts/15/start.aspx#/Policy%20%20Procedures/Forms/Public.aspx> If you have issues with SharePoint sites, use a Microsoft browser (e.g., Edge) to access them.

### **PMI 511-A R2: Lead Acid Battery Bank Inspection, Testing, and Maintenance**

- Addressed changes reflected in O&M 511 including the following:
  - Updated to most current NFPA, IEEE, and ANSI/NETA applicable codes and standards.
  - Corrected temperature deviation for VRLA batteries.
  - Replaced SMPOR with Standard Discipline POC to match new term Engineering Services is using.
- Placed PMI into latest template.

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**PMI 511-B R3: Nickel-Cadmium Battery Bank Inspection, Testing, and Maintenance**

- Addressed changes reflected in O&M 511 including the following:
  - Updated to most current NFPA, IEEE, and ANSI/NETA applicable codes and standards.
  - Corrected temperature deviation for VRLA batteries.
  - Replaced SMPOR with Standard Discipline POC to match new term Engineering Services is using.

Placed PMI into latest template.

**WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED**

Credit: CBS News

**Sadly, six people were injured, two with life threatening injuries, after a HVAC system collapsed into the Gaylord Rockies resort pool in Aurora, Colorado on May 6.**

It looks to be about 30" ducting, and is only about five years old. It's too early to know how much actual engineering was or wasn't involved.

Excerpt from <https://www.achrnews.com/articles/153020-ductwork-collapses-into-gaylord-rockies-resort-pool>:

As of press time, Alvino said there's been no word on the investigation, and there are many questions that are still unanswered. What hanger system was used? Was all the

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material used rated to be used in a chlorinated environment? Were all manufacturer specifications followed throughout this? Were SMACNA standards followed?

Alvino said that upon inspection of photos from the site, Local No. 9 may have reason to believe some installation procedures at the site ran contrary to SMACNA standards. He said he has heard back from a council member and State Attorney General Phil Weiser's office.

TV News coverage: <https://www.9news.com/article/news/local/gaylord-rockies-patrons-want-investigation-part-of-hvac-system-fell-into-pool/73-33595201-c039-424a-9f6a-2c24bd64b8ad>

## LAST MONTH'S UPDATE TOPICS

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

- Concrete Mixes Changed Today, 6/5
- Training & Qualification
- Standards POC News
- Engineering and Safety Policy News
- LANL Standards Issued in May
- National Standards Action
- DOE Standards Action
- MSS Document 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.**



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With the support of Alan Yaeger and Neha Gidwani in the Standards Team and many others in the CoE Office. Contacts for them:

<https://int.lanl.gov/org/ddops/aldfo/nuclear-safety/engineering-services/conduct-of-engineering/index.shtml>