

**ENGINEERING STANDARDS UPDATE**

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

**Topics this month:**

- Training & Qualification -- **24140 Intro to Eng Standards**
- Engineering Processes News
- New ES-EPD Groups: IPD, SPD, and WPD
- LANL Standards Issued in June or So
- Master Equipment List (MEL) Realignment Milestone Reached
- National Standards Action
- MSS Document Changes
- When Good Conduct of Engineering Isn't Followed

LANL Engineering Standards: <https://engstandards.lanl.gov/>

**Note:** This newsletter has hyperlinks all over but their formatting may not show, so please hover your cursor where you might expect one. It's like bait fishing that way.



In case you don't follow the meaningless-to-me (unless disturbing) activities of the British royals, this clever meme likely references the Queen's Platinum Jubilee celebration and birthday parade in early June. Now hot dog eating contests — that's important. ;-)

**TRAINING & QUALIFICATION -- 24140 INTRO TO ENG STANDARDS**

July 25-28 (attend all 4 days) ...Microsoft Teams – Attend each day from 2:00-4:00 to receive credit (it's 8 contact hours, despite what UTrain may say). Self-assign in UTrain and register. If that fails, contact ES training person Stan Hayes ([sehayes@lanl.gov](mailto:sehayes@lanl.gov)) or Nick Jones, ([n.jones@lanl.gov](mailto:n.jones@lanl.gov)) with Z number if you can't register. You'll need to block your calendars.

Back by popular demand (ok, just demand). 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 couple of times a year--so hope most can attend**. Teams info is in UTrain and here: [Click here to join the meeting](#) . We plan to send info again the morning of each day.

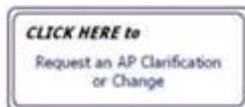
**Registering for UTrain Courses:** Go to UTrain, search on course, select and enroll. Disenroll if you have to bail. [AEs can also register for some; use token (CryptoCard) or contact ES training person Stan Hayes ([sehayes@lanl.gov](mailto:sehayes@lanl.gov)) or Nick Jones, ([n.jones@lanl.gov](mailto:n.jones@lanl.gov)) with Z number. The instructor may have to invite you to Teams or Webex specifically just before starting time.

**ENGINEERING PROCESSES NEWS**

From CoE Eng Process Manager Sarah Murdock, [smurdock@lanl.gov](mailto:smurdock@lanl.gov), 667-7788:

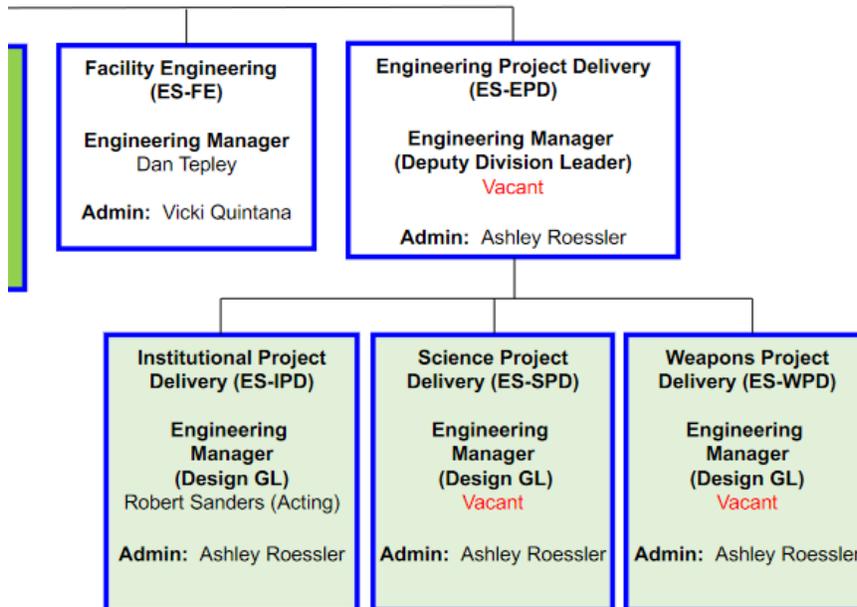
- AP-341-627 Rev. 2, **Design Coordination**: This revision has a requirement for PEs, CSEs, and DEs to attend live briefings through Microsoft Teams. The course is #54166.
- AP-341-517 **Design Change Form**, and AP-341-602 **Requirements Criteria Document** are in revision. Please reach out to Sarah Murdock (667-7788) if there are any suggestions or concerns you would like to have addressed in these next revisions.

Please enter issues with APs in the SharePoint issues database. Use the live button below, same one that's found in the upper right of the Processes SharePoint [homepage](#).



**NEW ES-EPD GROUPS: IPD, SPD, and WPD**

For those that associate with Engineering Project Delivery, here's info about the recent creation of three groups under the EPD subdivision umbrella.



Full ES org chart [here](#). These groups are, and support LANL, as follows:

- ES-IPD: Institutional Project Delivery
  - Support UI FOD
  - Support IF FOD
  - Provide Institutional Support
  - Institutional Programs
    - Fire Alarm, NFPA 70E, Pressure Safety, Welding
- ES-SPD: Science Project Delivery
  - Support STO FOD
  - Support LFO FOD
- ES-WPD: Weapons Project Delivery
  - Support WFO FOD
  - Support TA55/CWF FOD

**Chocolate is vital for  
our survival.  
Dinosaurs didn't  
have chocolate and  
look what happened  
to them...**

Keep reading...

**LANL STANDARDS ISSUED IN JUNE OR SO**  
Engineering Standards Manual ESM [STD-342-100](#)

ESM-Chapter	Section	Title	Rev.	Date	Comments
Ch. 3 – Civil, Ch. 6 Mechanical, Ch. 7 Electrical, Ch. 14 Sustainable Design, Tailored Stds Manual	G30, D10-30GEN, D5010	Issued VAR-10538, Utility Metering Requirements (Building-level)	-	6/16/2022	VAR consolidates and modifies existing direction and positions it as an addendum (e.g., new Att. 2) to ESM Ch. 14, Sustainable Design for Facilities, which is currently silent on meters. Thanks to Dee Bangert, UI SMEs.
Chapter 15 Commissioning	Refs	Added link for Cx Service Requests (CxSR), for both Agent and Authority needs; goes to STUPCOMM managers	-	-	
Chapter 16 IBC Program	Refs	Updated <a href="#">ARMAG robust structure summary of LANL requirements and guidance</a> (LANL only, xls)	3	6/20/2022	Thanks to Logan Tiejn et al.

Chapter 17 - Pressure Safety	ASME-1	Attachment ASME-1, Code and Regulation Application. Issued VAR-10547, B31.5, Refrigeration Piping and Heat Transfer Components, Alternative Leak Testing	6/30/2022	POC: Ari Swartz
Chapter 17 - Pressure Safety	NASME	Updated Reference: When listed components cannot be used, reputable manufacturers as discussed in NASME-1-a, b, etc. (xls) (LANL only)	6/9/2022	POC: Ari Swartz

**Master Spec Sections STD-342-200**

**You may be wondering about the flurry of spec revisions.** It's because ES-Div plans to purchase SpecLink production software this summer and we want our masters in tip-top shape before they're added to that software's existing masters. More revisions post every few days thanks to CoE's Christina Salazar-Barnes, DCRM.

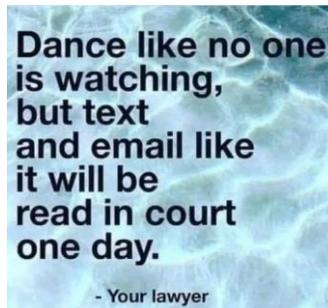
Section Number	Rev.	Spec Title	Effective	Summary of Latest Revision
01 3545	8	Water Discharge Requirements	6/9/2022	Added neutralization requirements formerly in 22 0816; updated notifications, form. Thanks to SME Brian Iacona.
01 4631	1	Welding of ASME B31 Piping	6/2/2022	Section name updated, clarified intent being weld thickness specificity, added option to move content to Drawings or Div 02-48 (wherein submittals are to be sent), updated code editions and other references.
01 4731	1	Flange Assembly for B31 Systems	6/2/2022	Clarified intent, added option to move content to Drawings or Div 02-48 (wherein submittals are to be sent), updated code editions and other references.
01 5705	6	Temporary Controls and Compliance Requirements	6/15/2022	Updates throughout. Thanks to SME Brad Schilling, POC Jon Stein.
01 9100	0	Commissioning	6/23/2022	NEW!!! Thanks to Charles Richardson, POC Cindy Dilworth.

05 0520	6	Post-Installed Concrete and Grouted-Masonry Anchors - Normal Confidence	6/8/2022	Deleted KB-TZ since out of production and supplies are dwindling. Thanks to POC Mike Denlinger.
05 4000	7	Cold-Formed Metal Framing	6/21/2022	streamlined welding-related submittals and QC/QA requirements, and clarified items in Related Sections. Thanks to Tadz Kostrubala, POC Mike Denlinger.
22 0548.23	2	Vibration and Seismic Controls for Mechanical Systems	6/8/2022	Revised acceleration values to match ESM Ch. 5 Section II r11 including SDC C. Thanks to POCs Mike Denlinger, Michael Ladach.
22 0813	11	Testing Piping Systems	6/30/2022	Revised requirements for steam, condensate, and refrigeration piping. Thanks to POCs Ari Swartz, Michael Ladach
22 0816	6	Disinfection of Potable Water Piping [also 33 1300]	6/15/2022	New attachment for small scope work. Minor clarifications and corrections, including ES-UI, ESH, Neutralization moved to 01 3545, R8, <i>Water Discharge Requirements</i> , other minor updates. Thanks to SME Brian Iacona, POC Jon Stein.
22 1100	6	Facility Water Distribution	6/10/2022	Backflow preventer articles updated for boiler 250F and UPC 2021 reference. Harmonized with 22 0813. Thanks to POCs Ari Swartz, Michael Ladach.
26 0548.16	4	Seismic Controls for Electrical Systems	6/8/2022	Revised acceleration values to match ESM Ch. 5 Section II r11 including SDC C. Thanks to POC Mike Denlinger.
26 0813	3	Electrical Acceptance Testing	7/6/2022	Clarified that Section is almost entirely LANL-performed work. For ML-1/2, allowed for LANL personnel to perform work (1.3.G). For ML-3/4 systems, eliminated testing for grounding and some conductors. For VFDs, increased threshold from 50 to 60 hp. For analytical studies, added notes for who performs and deletion (1.1.B.3, 3.4). Clarification on lightning arresters. Other minor rewording. Thanks to POC Eric Stromberg.
26 2500	4	Enclosed Bus Assemblies	6/30/2022	Added wording to coordinate ampacity of enclosed bus with equipment terminations; moved requirement for a factory trained representative to above 800 amps instead of 800 amps and above. Thanks to POC Eric Stromberg.

27 3000	4	Voice Communications	6/30/2022	Added allowance for 70-volt systems, removed requirement for raceways in all cases by recognizing class 2 and class 3 wiring. Minor wording changes. Thanks to POC Eric Stromberg.
33 1300	6	Disinfecting of Water Utility Distribution [22 0816]	6/15/2022	See 22 0816
33 8126	1	Communication Underground Ducts, Manholes, and Handholes	6/7/2022	Revised PART 2 spacing, pulling irons, manhole accessories. Thanks to POC Eric Stromberg.
Div 40	-	Process Interconnections	-	Added reference (note) that Process Control Spec Section drafts available from I&C POC (Hayward)

**STD Drawings and Details STD-342-400**

Chapter	Topic	Dwg. #	Sheet	Rev.	Title	Date	
Chapter 5 - Structural	Wall-Mounted Equipment	ST-F1033-1	1	2	Wall-Mounted Equipment Details	6/15/2022	Updated anchors and simplified detailing; seismically exempt hollow CMU option added; deleted Sheets 2-4. Thanks to Andrew Giesler, Dante Salazar, POC Mike Denlinger.



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## **MASTER EQUIPMENT LIST (MEL) REALIGNMENT MILESTONE REACHED**

Following is the text of an email composed by the realignment team and sent 6/30 by Adam Smith, MSS-WC. Great stuff!

The Master Equipment List (MEL) is the keystone metadata that underlies LANL's computerized maintenance management system (CMMS). The MEL realignment project was first discussed in 2011. At that time, the MEL data was not consistent with LANL's standards or compliant with our field definitions. The 12 years of use without any oversight created a system that was difficult to use. Five years ago, the MEL Realignment Project was initiated with the goal to upgrade and standardize the data so that it can be more applicable to LANL's requirement and can be in alignment to support NNSA's BUILDER asset management system. This effort is led by MSS Work Control with significant support from engineering and the CMMS vendor. The goal was to change the condition of the MEL to a data system that is consistent, of high quality and is functional across all LANL's processes.

In June, the TA-55 Facility Operations Directorate (FOD1) became the first FOD to fully complete realignment of their MEL data to the new standard of excellence. This data set was the largest by far and most critical from a data quality standpoint. Three other FODs have completed realignment of their system-level data, the halfway milestone to full realignment. And most of the FODs are expected to fully finish realignment this year, with all eight planned by 2023.

For the MEL, LANL now has one consistent approach to creating the hierarchy of data. At the top is a two-tiered system assignment structure. Below that, the previously neglected Type field has been revamped to allow a simple and reliable search for a limited-choice category of equipment like LIFT or PUMP. Below Type, item-specific Subtype identifiers were created to capture the specific forms of switches, valves, and other categories. At every level, choices were made to ensure minimal disruption to existing labeling and to use CMMS data integrity capabilities to help ensure future data quality (drop-downs to qualify data by field above).

In parallel with the above, the Conduct of Engineering instructions that direct and facilitate MEL were completely revised and streamlined as Engineering Standards Manual Chapter 1 Section 200. A new, easy-to-use upload worksheet helps ensure that data is correct the first time. It also facilitates data entry for key safety systems such as pressure safety and oxygen monitoring.

Finally, regarding BUILDER, FOD1 data now fully reflects facility and equipment maintenance, age, and health. The auto-feed interface from CMMS development is nearing completion. Currently we (MSS and ES) are controlling the systems list and the equipment/component type and subtype list through the ESM. Moving Forward we need to establish a robust system/team to continue to maintain consistency and integrity; manage future growth to include the addition of programmatic equipment that requires maintenance history at the other FODs (FOD1 already uses CMMS for their programmatic equipment configuration management); to facility efficient integration to other applications including BUILDER, SAFER and Ariba; and to better utilize additional CMMS capabilities such as procurement, inventory and critical spares.

## **NATIONAL STANDARDS ACTION**

LANL's [IHS Eng Workbench](#) (EWB) online codes & standards subscription news.

NFPA Access: For NFPA only, users can read online, not download pdfs. This causes an issue with LANL's three NFPA licenses occasionally being tied-up and denying access. Please help alleviate this by logging off when you're not actively using EWB (this goes for all

societies). To log off, click your name (upper-right) and log off from drop-down. As another workaround, users can always register on NFPA.org and have read-only there just as they have it on EWB. Demonstrating with signs outside NFPA offices is also an option.

Digital Rights Management: Also discussed previously, some societies require the FileOpen browser plug-in to see pdfs (and some pdfs have a shelf life). If you need IT support to install FileOpen or what have you, it can take about 20 minutes (they might review notes from, or talk to, Benjamin Setzler who did it for Mike O'Neill on 6/17).

Knovel: When the standard you desire is not in LANL's EWB subscription, try Knovel, another document service the library hosts. Knovel is "Engineering Data and Technical References to Solve Engineering Problems" and sometimes even has standards (so does Google, sometimes). Knovel recognizes LANL IPs and delivers. <https://app.knovel.com/kn>

### Changes on EWB

Document number: **ASHRAE Refrigeration [Handbook] IP [inch-pound/l-P]**

Publication Date: 2022

Type of Change: Complete Revision

Note: From the ASHRAE website, one example of "Some of this volume's most exciting revisions" is: "Chapter 24, Refrigerated-Facility Loads, has new guidance on fan motor loads." Oh, boy!

Document number: **AWS D1.1/D1.1M, Structural Welding Code—Steel**

Publication Date: 2020

Type of Change: **Errata/Erratum (error corrections that must be followed — don't have regrets).**



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**MSS DOCUMENT CHANGES**

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

**Operation and Maintenance Criterion** and related Preventative Maintenance Instructions (PMI) are standards with which system 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. If you have issues with SharePoint sites use Internet Explorer or Edge to access them.

**O&M 402 Revision 4: Water Treatment of Open and Closed Units**

- Added section describing the monitoring and maintenance of closed loop systems.
- Changed frequencies for the monitoring and maintenance of open loop systems for more realistic periods; daily activities changed to weekly, weekly activities changed to monthly. Change in frequency was discussed with industry experts (Garratt Callahan) to ensure change is acceptable.
- Added quarterly closed loop water treatment requirements for the following:
  - Corrosion rate control and scale prevention
  - Closed loop filtration
  - Biological growth control
  - Chemical (or similar) water treatment
- Added quarterly chemical evaluation requirements
- Moved Weekly Testing (Critical task checklist) and Monthly Water Testing requirements from Section 6.1 Operations to 6.2 Maintenance.
- Inserted hyperlinks for internal LANL documents.
- Updated formatting and logos to latest template.

Direct: <https://logistics.lanl.gov/MSS/layouts/15/WopiFrame.aspx?sourcedoc=/MSS/Policy%20%20Procedures/402.pdf&action=default>

**O&M 403 Revision 9: Boilers**

- Updated to current references.
- Updated to latest O&M template and added hyperlinks to internal LANL references.
- Added definitions (Appurtances, various boiler types, Confined Space, In-Service, Lay-up, Limited Control, Lockout, Out-Of- Service, Safety Valve, Shutdown)
- Updated responsibilities (SDPOC, EPC-WMP, EPC-ES, NBIC Inspector)
- Added Confined Space to 5.1 Precautions
- Moved Daily and Weekly requirements for hot water and steam boilers from Operations to Maintenance.
- Moved most Maintenance Requirements to 7.2 Maintenance Recommendations in deference to manufacturer maintenance instructions
- Added Annual Chemical Testing recommendations
- Added PMI attachment list to 8.2 Maintenance Guidance

Direct: <https://logistics.lanl.gov/MSS/layouts/15/WopiFrame.aspx?sourcedoc=/MSS/Policy%20%20Procedures/403.pdf&action=default>

### **PMI 406-A Revision 2: Backflow Prevention Assembly Inspection, Testing and Maintenance**

- Moved all fillable items to each Data Sheet, so the steps are just the ITM Instructions (not a form)

### **PMI 721-A Revision 2: Wet Automatic Sprinkler Systems Monthly Inspection and Testing**

- Moved “Work Order” and “Equipment No.” from header to information table. Removed “Foreman” signature line.

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

I should probably drop the “Engineering” in this heading. This example is in the ops or maintenance arena since it was a contract cleaning or repair operation gone bad.

Now M&M Mars has a chocolate mess on their hands: [Two people fell into a tank of chocolate at a Pennsylvania factory](#)

Last month I had Smokey and the Bandit flashbacks and this month it's Willy Wonka & the Chocolate Factory (the Gene Wilder classic, but the pre-defamation Johnny Depp version also works).



Another short media piece: <https://dailyvoice.com/pennsylvania/lancaster/business/safety-investigation-at-mms-factory-after-pair-pulled-from-chocolate-tank-osh/834873/>

Some stories suggest responders drilled a hole to drain the chocolate while others suggest they cut a person-sized hole.

If you're thinking that this is life imitating art or a first, you'd be mistaken. Per the OSHA site, violations and even fatalities at chocolate factories seem all-to-common. In just the last few years:

<https://www.osha.gov/news/newsreleases/region2/01112010>

<https://www.osha.gov/news/newsreleases/region3/08132013>



#### LAST MONTH'S UPDATE TOPICS

Miss an issue? The archive is at "Monthly Update" on the Standards homepage.

Last month's topics:

- ES Division Leadership Change
- Code Adoption Forecast (NEC, IBC, IEBC)
- Training & Qualification
- Non-Destructive Examination Program Lead David Harvey now in Facilities Engineering
- Pressure Safety Program Lead Daniel MacDonald
- Standards POC Changes
- 2021 IBC Adoption Timing
- LANL Standards Issued in May
- Engineering Processes News
- National Standards Action
- MSS Document Changes
- When Good Conduct of Engineering Isn't Followed

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