

**ENGINEERING STANDARDS UPDATE**  
Trying to Make Standards Exciting Since 2001

This is the monthly newsletter of the LANL Conduct of Engineering Office's Engineering Standards Program. The Standards define the minimum technical requirements for the design, fabrication, construction, commissioning, repair, and replacement of both new and existing equipment and facilities, including both maintenance and modification, for programmatic and facility work at LANL [[PD340](#)].

**Topics this month:**

- **Building Code Adoptions Delayed**
- **P342 Engineering Standards Issued**
- **Nuclear Safety Design Course Coming to LANL**
- **AP-CMP-400, Startup and Commissioning**
- **CoE Procedure Progress**
- **Ethics for PEs in Oct – Updated**
- **PE Review Classes in ABQ**
- **CoE Quote of the Month**
- **LANL Standards Issued in August**
- **What Happens When Conduct of Engineering Isn't Followed**
- **DOE Technical Standards Actions**

The Standards Homepage: <http://engstandards.lanl.gov/>

**BUILDING CODE ADOPTIONS DELAYED**

Discussed in the July issue, New Mexico did adopt the 2009 building, energy, and mechanical related code editions, but effective in 2011. LANL will therefore adopt them late this calendar year or early in 2011 through revision of ESM Chapters 5 and 16, and alert users in this email. Until then, use the 2006 versions (of which the I-Codes are available through the Library's IHS national standard subscription if you uncheck "Most Recent Revision" in the search criteria).

**P342 ENGINEERING STANDARDS ISSUED**

The LANL Standards have a new mandating procedure, P342. It replaces PD 342, Engineering Standards Manual Introduction.

It's linked from the Standards homepage for internal folks, but there's not much need to read it so long as workers follow the Standards, including newly revised ESM Chapter 1 Section Z10 which implements much of what's in P342, including new, required forms for variances and interpretations.

The other notable change is a new numbering scheme for the Standards documents for people that like such things when referencing them:

STD-342-100, Engineering Standards Manual  
STD-342-200, Master Specifications  
STD-342-300, Drafting Standards Manual  
STD-342-400, Standard Drawings and Details  
STD-342-500, Engineering Guides

### **NUCLEAR SAFETY DESIGN COURSE COMING TO LANL**

The 2-day course on DOE-STD-1189, Integration of Safety into the Design Process, will be taught November 17th and 18th, 8-5, in Canyon Room 160.

It is being taught through the DOE National Training Center as SAF-280, which says: "Application of DOE-STD-1189 is required for line-item projects under DOE Order 413.3A and represents best practices for all nuclear and high-hazard projects and modifications. The target audience for this course includes: Project Directors, Engineering Managers, Design Authority Representatives (DARs), Project Engineers, and Authorization Basis personnel. The instructors for this course were part of the team that developed DOE-STD-1189 and provide valuable insight into the intent and application of this important DOE Standard. This course is open to both DOE and LANL personnel on a priority basis. There is no cost for this course but seats are very limited."

To register contact Greg Barbee, CT-Operations Training Services Group at [gab@lanl.gov](mailto:gab@lanl.gov)

### **AP-CMP-400, STARTUP AND COMMISSIONING**

ADPMSS has approved and issued this Functional Series procedure applicable across directorates that implements ESM Chapter 15, *Commissioning*. According to author Aleene Jenkins, the procedure establishes implementing process and expectations for execution of start-up and commissioning (Cx) activities.

Cx is intended to validate that structures, systems, and components (SSCs) are

- functioning as designed
- designed and constructed to minimize hazards;
- adequate for current requirements;
- functionally tested, verified, and documented; and
- can be operated in a safe and efficient manner

In accordance with P342, Chapter 15, these processes are applicable to projects as defined in SD350, major modifications including International Existing Building Code Level 3 alterations, post-modification in HAZCAT 1 or 2 nuclear and High/Moderate non-

nuclear, new buildings and additions, transportables, and other projects identified by a Design Authority Representative.

The [procedure](#) includes several forms required to appropriately document commissioning activities.

Using Safari, Firefox, or any other non-IE browser? Use your WIN Domain password to authenticate and access the SharePoint site.

The LANL Commissioning Authority (LCA) is the Startup and Commissioning (CM-SU) Startup Manager, currently Jim Bodnar.

Contact [Aleene](#) or [Jim](#) if you have questions.

### **COE PROCEDURE PROGRESS**

The following CoE Administrative Procedures were issued in August. For a listing of all APs, visit the Conduct of Engineering Office, [Engineering Processes](#) page which will lead you to the new SharePoint site that delivers them. For questions about procedures, please contact Gurinder Grewal at [ggrewal@lanl.gov](mailto:ggrewal@lanl.gov) or 667-3667.

AP-341-516, Operability Determination and Functionality Assessment, Rev. 2 (8/4/10)

AP-341-616, Technical Baseline Change during Design, Rev. 0 (7/20/10)

AP-341-622, LANL Review of Designs Produced by External Design Agencies, R1 (7/27/10)

AP-341-626, Design Interface Control, Rev. 0 (7/20/10)

AP-341-627, Design Coordination, Rev. 0 (7/27/10)

AP-341-802, System Health Reporting, Rev. 3 (8/4/10)

AP-341-901, Performing Vital Safety System Assessments, Rev. 3 (8/5/10)

### **COE QUOTE OF THE MONTH**

"There is a saying among engineers that earthquakes do not kill people -- buildings kill people. And the buildings here were badly constructed. They failed for a reason."

Dennis Smith, a structural engineer with the U.S. Naval Facilities Engineering Command re Haiti

**ETHICS FOR PEs IN OCT -- UPDATED**

Covered last month, but the Santa Fe date has changed so it's now:

- 1 Oct. Los Alamos - Fuller Lodge
- 8 Oct. Santa Fe - Santa Fe Community College

NMSPE 2010 live and online [classes](#).

Cost: \$75.00 for Members; \$100.00 for Non-Members Day and Time: Fridays 1-3:00 pm

Class sizes may be limited, so register early.

Topic: "Cases 3.0" (Case studies of actual ethical problems faced by practicing engineers); instructor: Dr. Charles Fleddermann.

**PE REVIEW CLASSES IN ABQ**

**From the NMSPE [classes](#) link**

- 9/4 8-12 noon Geotechnical I / Geotechnical II - Dr. Stormont
- 9/11 8-12 noon Transportation I / Transportation II – TBD
- 9/18 8-12 noon Environmental I / Environmental II – Dr. Thomson
- 9/25 8-12 noon Structural I / Structural II - Dr. Taha
- 10/2 8-12 noon Water Resources I / Water Resources II - Dr. Matthews
- 10/9 8-12 noon Construction Management – Dr. Bogus

**LANL STANDARDS ISSUED IN AUGUST**

**Engineering Standards Manual:**

**[http://engstandards.lanl.gov/ESM\\_Chapters.shtml](http://engstandards.lanl.gov/ESM_Chapters.shtml)**

<b>GENERAL</b>	Tobin Oruch
Chapter 1: Section Z10, Rev 9	SMPO term added. Official interpretations/clarifications now require Form 2176. All variances require Form 2137. Code issues require SMPO approval. Specifications moved to Appendix F. Temp Facilities and Sheds articles moved to Ch 16 IBC-GEN. PD342 became P342, ESM became STD-342-100, etc.
Attachment A -Rev 5	Aligned with AP-341-405.
Attachment C - Rev. 4	Added FCN Criteria doc, 90% expectations.
Attachment F - Rev. 0 Specifications NEW!!!!	Initial issue. Includes material formerly in Z10 body and Master Specs Manual Sections 100-200. Added material on acceptance methods, procurement-only specs, other updates.

<b>ELECTRICAL</b>	David Powell
Chapter 7 Section D5000 Rev. 5 General Requirements	Added requirements for electrical load analysis to address non-coincident loads, contingency conditions, and parallel paths; clarified cases where coordination studies are required; revised are flash hazard calculations and warning label requirements to align with LANL P101-14; changed criteria for designed anchors for individual conduit from "2-1/2 inches" to "weighs more than 5 lb./ft"; modified demolition paragraphs to leave conductors if their removal might damage conductors remaining in service; updated requirements for emergency communications system to align with NFPA 72-2010.
Chapter 7 Section G4010 Site Electrical Distribution Rev. 3	Added requirement that "Infrastructure" ductbanks contain one duct dedicated to power utility communications; added requirements to limit structures in electrical utility rights of way.
<b>WELDING, JOINING, &amp; NDE</b>	Kelly Bingham
Chapter 13: Section 1-10 - Attachment 2- Welding Training Requirements Rev. 3	Changed course #25418 Chemical Hazardous Communication Introduction from required to suggested. This course is a general requirement not required just for welding. All workers are required to have this training per OSHA. This change makes our table consistent with EDS Training Plan 2310 requirements.
<b>SUSTAINABLE DESIGN</b>	Tobin Oruch
Chapter 14: Sustainable Design Rev. 6	Added IECC as minimum requirement for new buildings, additions, and alterations. Deleted 10CFR433/434 for process buildings. Noted \$5M LEED is TEC and deleted restriction to LEED-NC. Added new resource links.
<b>IBC PROGRAM</b>	Tobin Oruch
Chapter 16: Section IBC- GEN Rev. 5 and Att. 1 & 2 and App. A & B	Added flowchart. Revised initial risk screening criteria; basis is annual permit provision of code. End date on occ permit. Fabricator approval does include wind/seismic resisting inspections. Added temporary facility and shed requirements formerly in Ch. 1 Z10 to LBC.
Chapter 16: Section IBC- FAB Rev. 5	Corrected that fabricator approval can eliminate all special inspection.
Chapter 16: Section IBC- IP Rev. 5 and App. B	Corrected that fab shop approval does preclude in-shop special inspection. CM-CE must approve TIP (App.B).
<b>PRESSURE SAFETY</b>	Charles DuPre
Chapter 17 Pressure Safety - Forms	Admin change: Updated forms 1-10. Deleted Form 11 because this form was specifically to be used by one of our subcontractors only, and is not part of ESM Chapter 17.

**LANL Master Specifications <http://engstandards.lanl.gov/specs.shtml>**

22 1343.16 R2 Facility Wet-Well Packaged Sewage Pumping Stations (Interior) -- Deleted Part 2.9.B.24

**DOE TECHNICAL STANDARDS ACTIONS**

New or Revised DOE [Tech Stds](#) this past month: None.

### **WHAT HAPPENS WHEN CONDUCT OF ENGINEERING ISN'T FOLLOWED**

Last month it was heaving sidewalks and bad grading. Also on that theme:



### **LAST MONTH'S UPDATE TOPICS**

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

- **Standards Training Aug 17**
- **Are you on a National Standard Committee?**
- **CoE Quotes of the Month**
- **Ethics Training for PEs**
- **LANL Standards Issued in July**
- **What Happens When Conduct of Engineering Isn't Followed**
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To request a change to this newsletter's distribution, please contact me.

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