

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

This is the monthly newsletter of the LANL Conduct of Engineering Office's Standards Program. The Engineering Standards define the minimum design criteria, fabrication, construction, and installation practices to assure that the design, repair, and alteration of LANL facilities and the programmatic equipment associated with them satisfies requirements, needs, and customer expectations in a safe, secure, cost-effective, and environmentally responsible manner [[PD340](#)].

Topics this month:

- **Training on Standards**
- **New Component Testing Procedure**
- **Projects Underway -- Download IBC-2006 this Month**
- **CoE Quote of the Month**
- **Help for the Gulf**
- **LANL Standards Issued in June**
- **What Happens When Conduct of Engineering Isn't Followed**
- **DOE Technical Standards Actions**

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

## **TRAINING ON STANDARDS**

Three courses are being offered in July:

### **Electrical Standards, Monday July 12, White Rock**

Point-of-Contact David Powell will teach "[LANL Electrical Engineering Standards](#)" from 8-5 at the White Rock Training Center -- if a couple more people enroll. 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. Enroll (or disenroll) using link above or call 667-0059 or e-mail Central Training at [esh-registration@lanl.gov](mailto:esh-registration@lanl.gov)

### **Engineering Standards Intro, Tues July 13, Canyon Complex**

Course 24140 has been expanded to 7-8 hours with yet more meat, videos, and a quiz (not that anyone slept previously). Goes from 8am to about 3 pm at Canyon Complex Rm 165. Provides familiarity with national and LANL engineering standards for anyone performing, reviewing, or managing design activities. Taught by yours truly. Enroll (or disenroll) online [here](#), or contact Yolanda Trujillo at 665-5696 or [ytrujillo@lanl.gov](mailto:ytrujillo@lanl.gov)

**Integration of Safety into the Design Process – DOE-STD-1189, Tue-Wed July 27-28, DOE [National Training Center](#) in ABQ**

This is nuclear safety, not paint-it-yellow safety; there is no cost and about 15 openings. The next opportunity will be in FY11. To register for Course SAF-280, contact LANL's NTC registrar [Janet T. Martinez](#), CT-OTS, [janetm@lanl.gov](mailto:janetm@lanl.gov), 664-0269.

Provides the central ideas and themes of DOE-STD-1189 and conveys lessons learned from project management implementation of the Standard. The course was developed to show how project management, engineering design, and safety analysis can be successfully implemented. Some of the topics covered are: Drivers requiring the use of the Standard, Integrating safety into design, DOE Integrated Project Team, Contractor Integrated Project Team, Safety Design Strategy, Project Lifecycle per DOE O 413.3, Key safety-related activities, Safety-related documents, and Lessons Learned.

A 2-page flyer is available from Oruch for those truly interested.

**NEW COMPONENT TESTING PROCEDURE**

Yesterday, ADPMSS issued AP-CMP-401, System/Process Component Testing. Author Aleene Jenkins writes:

This administrative procedure provides process and expectations for post installation testing of equipment and system components. Component testing is performed to demonstrate specific equipment functionality and to document results through the use of formal records that satisfy commissioning requirements per P342, Engineering Standard Manual, Chapter 15, Commissioning.

These requirements are applicable to personnel supporting commissioning efforts for construction projects as defined in SD350, Management of Projects, and P342, Chapter 15 to include, but not limited to, major modifications including IBC Level 3 alterations, upgrade or retro-fit type projects in or to existing facilities and/or systems, and to non-commissioned facilities and systems [a broader scope than Chapter 15].

The AP is effective July 30, 2010 and located on the ADPMSS Document Library (also accessible from the Policy Center under the Functional Series link). Direct link: [AP-CMP-401](#). Because it's a SharePoint, it's LANL-only and one must log in with Z number and WIN password.

[AP-341-801](#), Post Modification/ Post Maintenance Testing, remains active and required for lesser Hazard Category 2 or 3 (nuclear) and high/moderate hazard non-nuclear facility projects.

Contact Aleene ([arj@lanl.gov](mailto:arj@lanl.gov), 665-6277) or Jim Bodnar, Startup Manager ([jtbodnar@lanl.gov](mailto:jtbodnar@lanl.gov), 606-2375) with questions.

## **PROJECTS UNDERWAY -- DOWNLOAD IBC-2006 THIS MONTH**

The State of New Mexico plans to adopt a mostly 2009-based model building code set (NFPAs on a different cycle) on July 16. LANL will follow suite per wording in ESM IBC Program Chapter 16, and update that chapter and Structural Chapter 5 accordingly in August. Once we do, we'll ask the Research Library to switch our IHS online national standards subscription for ICC codes from the 2006 collection to the 2009.

So...for most "underway" facility projects per ESM Chapter 1 Section Z10, your code of record is probably the 2006 International Building Code, and you'll want to have that saved and available. For LANL folks to get it, go to the Research Library from any webpage and click [IHS Standards Database](#) next to the word STANDARDS. Enter IBC as the document number and UNCHECK "Most Recent Revision" parameter, then hit Enter. The first viewable pdf is the document with errata. Use a similar procedure for the Int'l Existing Building Code (IEBC) if you're underway on a mod. ES-DE design reviewers will want both on their drive.

## **COE QUOTE OF THE MONTH**

"Previous studies of more than 600 catastrophic failures (costing more than US \$1 Billions) has provided a simple equation for these catastrophes:  $A + B = C$ . 'A' are natural hazards. 'B' are human fallibilities that include hubris, arrogance, greed, and sloth. 'C' is a catastrophe sooner or later..."

Snarky [paper/testimony](#) by Professor Robert Bea, UC Berkeley Center for Catastrophic Risk Management, Deepwater Horizon Study Group, 5/18/2010

## **HELP FOR THE GULF**

OK, so you missed Wheel of Fortune when, on June 15<sup>th</sup>, President Obama told the world that the national labs have been assisting with the \$20B oil spill disaster. This includes LANL, especially AET Division. Since Congress cited engineering and operations not meeting industry standards and shortcutting safety, the Standards Program wants to help, too, since we hate to see failures when good conduct of engineering isn't followed.

Below, we offer this very abbreviated list of potentially useful publications and courses from the American Petroleum Institute, too late for this disaster but appropriate for future work. The British Standards Institution has many documents as well (pun intended) in case there's a nationalistic barrier to American standards (Tony H. needn't to worry on one point – since API doesn't use an ANSI consensus process, there's no input from "small people").

LANL knows to rely on a number of API standards to keep nastiness in its place – see ESM Chapter 17 Pressure Safety program and Mechanical Chapter 6 (e.g., large pumps and low pressure tanks). API efforts are organized into four segments: upstream (exploration and

production), downstream (e.g., refining, storage, marketing), marine, and pipeline. Many APIs are in LANL's IHS online standards subscription (link above).

RP 10D-2, Recommended Practice for Centralizer Placement and Stop Collar Testing  
TR 10TR4, Selection of Centralizers for Primary Cementing Operations  
TR 10TR5, Methods for Testing of Solid and Rigid Centralizers  
RP 17N, Recommended Practice for Subsea Production System Reliability and Technical Risk Management  
RP 14B/ISO 10417:2004, Design, Installation, Repair and Operation of Subsurface Safety Valve Systems  
RP 53, Blowout Prevention Equipment Systems for Drilling Operations  
Publ 4706, Environmental Considerations For Marine Oil Spill Response  
Bull D16, Suggested Procedure for Development of a Spill Prevention Control and Countermeasure Plan  
Publ 4691, Fate of Spilled Oil in Marine Waters: Where Does It Go? What Does It Do? How Do Dispersants Affect It?  
Biennial Oil Spill Conference Proceedings  
Spec Q1/ISO 29001:2007, Specification for Quality Programs for the Petroleum and Natural Gas Industry  
Developing a New Generation of Oil and Gas Leaders: Strategic Leadership Skills Course (Tony...?)

In 1000 hits, there were many on ES&H but none on ethics.

## **LANL STANDARDS ISSUED IN JUNE**

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

Chapter 13 Welding Joining & NDE, Volume 3, Section 3-01:  
Att.2 WPS Designation Codes and Nomenclature Rev. 5: Added shield gas mix 15.  
App A: New and revised WPSs for 3013 cans and Pu oxide storage containers. Updated Specs Index [http://engstandards.lanl.gov/ESM\\_Ch13\\_specs.shtml](http://engstandards.lanl.gov/ESM_Ch13_specs.shtml)

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

03 1534 R1 Post Installed Concrete Anchors Purchase-Normal Confidence. Minor clarifications to 1.4.A and 1.6.D; deletion of drop-in row in table.

23 3300 R0 Air Duct Accessories. Initial issue.

26 0700 R2 Induction Motors. Clarification that special-purpose motors are not addressed by this Section. Updated and expanded standards referenced in QA paragraph in Part 1. Added environmental qual requirements for Importance Factor greater than 1.0. Updated Service Conditions paragraph to match the IBC. Added Project Record Documents paragraph to capture

field tests. Specified IEEE Std 841 motors for severe duty applications. Corrected and updated motor bearing specifications. Clarified that specified efficiency values are NOMINAL values. Specified motor winding thermistors for large motors. Added Examination paragraph in Part 3. Updated and expanded Field Quality Control paragraph in Part 3.

33 3200 R5 Wastewater Utility Pumping Stations. Added a qualification note to the A-E in 2.8.D Added a Part for a quick disconnect for using a portable pump to bypass the regular pumps and for when a standby generator cannot be used.

Updated Input Template for Construction Subcontract Exhibit I, Attachment B Subcontractor Submittal Requirements Summary (thanks to Katrina Mosimann; our goal is to update at least monthly hereafter).

### **DOE TECHNICAL STANDARDS ACTIONS**

New or Revised DOE [Tech Stds](#) this past month:

[DOE-STD-1136-2009](#) (CN-1) Guide of Good Practices for Occupational Radiological Protection in Uranium Facilities

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

Deepwater Horizon drilling rig on fire after the explosion that killed 11 people and caused massive environmental damage. No barbequed shrimp for me this weekend.



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

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

- Engineering Seminar Today
- PD340 Conduct of Engineering Revised
- Getting All Your E-Mail
- CoE Quote of the Month
- Pressure Safety Program Revised
- LANL Standards Issued in May
- What Happens When Conduct of Engineering Isn't Followed
- DOE Technical Standards Actions

To request a change to this newsletter's distribution, please contact me.

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