

## **ENGINEERING STANDARDS UPDATE**

Standards are serious business, but this newsletter isn't.

With National Engineers Week this month, honoring (and dishonoring) engineers more than usual this time.

### **Topics this month:**

- **Engineers Week Talk, Posters**
- **Engineer-Ring**
- **Engineering Services Boss**
- **Engineering Continuing Ed**
- **Engineering Special Ed**
- **Electrical Standards Course**
- **LANL Standards Issued in January**
- **Engineering Processes Changes**
- **O&M Criterion Changes**
- **DOE Technical Standards Actions**
- **When Good Conduct of Engineering Isn't Followed**

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

“But we have always understood that when times change, so must we; that fidelity to our founding principles requires new responses to new challenges; that preserving our individual freedoms ultimately requires collective action...No single person can train all the math and science teachers we'll need to equip our children for the future, or build the roads and networks and research labs that will bring new jobs and businesses to our shores. Now, more than ever, we must do these things together, as one nation and one people.”

Barack Obama's 2<sup>nd</sup> Inauguration Speech, 1/21/2013

### **ENGINEERS WEEK TALK, POSTERS**

As part of National Engineers Week, February 17-23, ADE is sponsoring a keynote address by Christine Anderson, Executive Director of the New Mexico Spaceport Authority at 1:00 on Wednesday, February 20 in the Study Center (library upstairs). There will also be a poster session on recent LANL R&D engineering projects right before and after the talk. This year's national theme “Celebrate Awesome” celebrates you—engineers, engineering students, and technicians—and all of the amazing things you do every day to make the world a better place. Thanks to Heidi Hahn ([hahn@lanl.gov](mailto:hahn@lanl.gov)) 5-4606 for this.

## **ENGINEER-RING**

[The Order of the Engineer](#) is a bit like the BSA's Order of the Arrow honor society, but with less camp craft and more openness to females and gays. Yes, now all engineering students and registered PEs -- a few of whom have trouble getting a date, much less a spouse -- can have ethical vows and wear a ring, too! Appropriately, the Engineer's Ring is plain, function-over-form stainless steel, and worn on the dominant-hand pinky. Membership is priced right for the target audience, only \$10, and the deadline for joining New Mexico's [induction](#) is today.

## **ENGINEERING SERVICES BOSS**

Larry Goen was recently announced as the permanent Engineering Services Division Leader in NHHO. As noted in the June Update, this position includes being the LANL Building Official and leader of the virtual Conduct of Engineering Office (aka army of 3.5). Larry also has duties as the Chief Engineer and leader of the Lab's seismic program, among other things. With all this, Larry probably isn't paid enough, so kind words might help. And I'm not just saying this because he doesn't pay me enough either. ;-)

## **ENGINEERING CONTINUING ED**

Those either maintaining professional licensure or just interested in techie learning will benefit from the new ADE Professional Development [calendar](#). It has engineering seminars by various Lab organizations and local chapters of professional societies, plus links to free webinars hosted by a variety of external entities (professional societies, vendors, etc.). Lots of INCOSE (systems eng) things, too; see Oct 2012 Update on that.

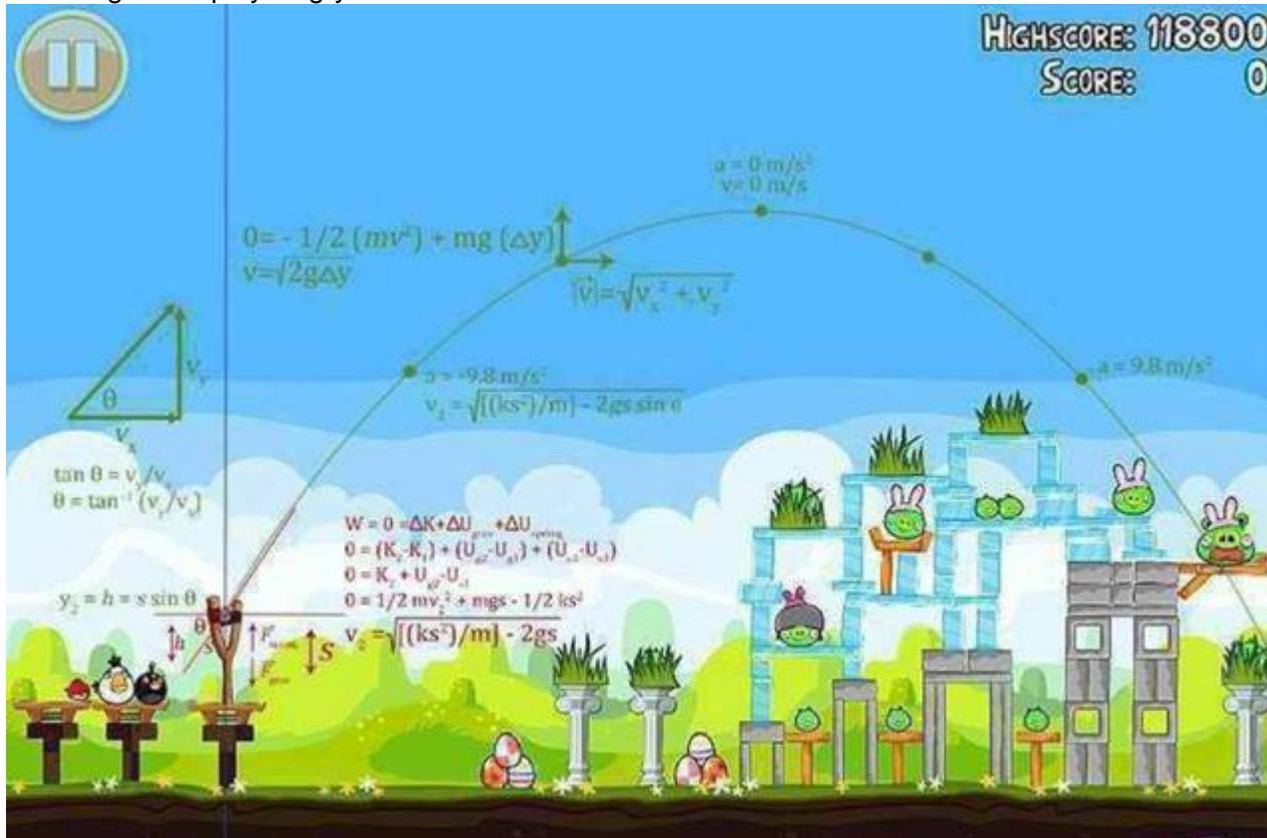
Also, anyone can post an event. Please limit posts to those events that are engineering-related and open to any LANL badge holder. If registration is required, please include information on where and how to do so.

It's on the ADE [SharePoint site](#), so use IE or log in with WIN credentials. Again, thanks to ADE's Heidi Hahn ([hahn@lanl.gov](mailto:hahn@lanl.gov)), 5-4606.

## ENGINEERING SPECIAL ED

Actually, few short-bus jokes about engineers, so running this meme before this game is as forgotten as Asteroids.

How Engineers play Angry Birds:



## ELECTRICAL STANDARDS COURSE

Thurs Feb 7 8am-12pm, White Rock Training Center

Now compacted to four hours, this course 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. Taught by (and chance to suck up to) Electrical Standards POC Duane Nizio.

It's Course 17998, but registration is not simply clicking a link or plugging 17998 into [UTrain](#).

Easiest: In UTrain, search in upper right for LANL Standards, scroll down to course, add to To-Do List, and register from there. Or click Catalog, Browse, Safety (on left), Electrical, show 25 (or all) per page, and look for title. Or get frustrated and contact CT-ITS, 7-0059 or e-mail [esh-registration@lanl.gov](mailto:esh-registration@lanl.gov).

Once you manage to register in UTrain, you should also take the just-mandated workplace violence training; protect yourself should others fail and snap!

## LANL STANDARDS ISSUED IN JANUARY

### Standard Drawings & Details [STD-342-400](#)

#### [Structural](#)

ST-D5020-3 Motor Control Center Anchorage, r0 (3 sheets) – **NEW!!!** Thanks to student Sally Thompson for this labor-saving addition!

### Master Specifications [STD-342-200](#)

01 3545 R6 - Water Discharge Requirements	Clarified LANL responsibility for performance when not subcontracted, other minor clarifications (driver: TA-59-001 discharge). Thanks to Jake Meadows and Mell Smithour.
01 4200 R3 - References	Updated and revised definitions, added and deleted references. Thanks to David Carr.
32 3113 R3 - Chain Link Fences and Gates	Clarifies and aligns specification with the physical security requirements of NNSA Policy NAP 70.2, industry standards, and ASTM Standards. Thanks to Mell Smithour, Robert Gonzales, John Ruud, etc.
Updated Exhibit I template	

## ENGINEERING PROCESSES CHANGES

The following Administrative Procedure was posted on the SharePoint site in January:

### **AP-341-703-R3.1, Commercial Grade Dedication** (Issued: 1/16/13)

The effective date of this revision of the AP is 30 calendar days after the issue date (2/15). Also, only those who attended the Nov/Dec/Jan CGD classes can develop or check CGD packages after Feb 15. There is a [listing](#) of such people on the ES Division [SharePoint](#) Site linked from the ES Division home page.

From a required reading standpoint, those assigned to this AP will show the requirement in their to-do list in [UTrain](#). This will not affect CSE qualification. You have 30 days from the date of issue to complete the required reading. Make your do-do list your done list.

For questions about the contents of any AP, please contact Eng Processes Program Manager Gurinder Grewal at [ggrewal@lanl.gov](mailto:ggrewal@lanl.gov) or 667-3667. For a listing of all APs, visit the [Engineering Processes](#) page. Always ensure you are working to the latest revision being implemented by your facility.

## O&M CRITERION CHANGES

MSS-MP actions on the Operation and Maintenance Criterion:

O&M 727 R2– Gaseous Agent Fire Extinguishing Systems	Incorporates ITM requirements for self-contained QuickFire FireFoe™ automatic fire extinguishing tubes and FireTrace™ clean agent automatic fire extinguishing systems.
O&M 738 R0 – Fire Barriers	Initial Issue

These documents may be accessed through [this](#) SharePoint link, then look under Sub-Function: O&M Criterion/PMI

NOTE: Internet Explorer is recommended to view these documents. If you use Mozilla (Firefox), it will prompt you for a user name and password every time. If you ever get prompted for a user name and password, it is your Z# and Win Logon Password. You should only need to put that in on the initial use with IE.

Any questions regarding any of the above Criterion, please contact the Criterion author.

## DOE TECHNICAL STANDARDS ACTIONS

DOE [Tech Stds](#) activity this past month:

DOE-STD-1207-2012, Protection Programming Defensive Planning for Fixed Facilities (52 pages) [PDF](#) Gates! Guards! Guns!

## WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

Last month's story on a plane crash due to a mix-up on references brought to mind another recent and infamous engineering disaster, this one due to wrong units used and follow-on human failings. Total loss was \$328M. Shameful.



### **Mars Climate Orbiter Crash, Sept 23, 1999**

Excerpts from [http://en.wikipedia.org/wiki/Mars\\_Climate\\_Orbiter](http://en.wikipedia.org/wiki/Mars_Climate_Orbiter):

The *Mars Climate Orbiter* (formerly the Mars Surveyor '98 Orbiter) was a 338 kilogram (750 [lb](#)) [robotic space probe](#) launched by [NASA](#) on December 11, 1998 to study the [Martian climate, atmosphere, surface changes](#) and to act as the communications relay in the [Mars Surveyor '98 program](#), for [Mars Polar Lander](#). However, on September 23, 1999, communication with the spacecraft was lost as the spacecraft went into orbital insertion, due to ground based computer software which produced output in Imperial units of pound-seconds (lbfxs) instead of the metric units of newton-seconds (Nxs) specified in the contract between NASA and Lockheed. The spacecraft encountered Mars at an improperly low altitude, causing it to incorrectly enter the upper atmosphere and disintegrate. <sup>[1][2]</sup>

...The discrepancy between calculated and measured position, resulting in the discrepancy between desired and actual orbit insertion altitude, had been noticed earlier by at least two navigators, whose concerns were dismissed. A meeting of trajectory software engineers, trajectory software operators (navigators), propulsion engineers, and managers, was convened to consider the possibility of executing TCM-5, which was in the schedule. Attendees of the meeting recall an agreement to conduct TCM-5, but it was ultimately not done.

## LAST MONTH'S UPDATE TOPICS

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

- **New Project Engineering Tools!!!**
- **New DOE Document Impact**
- **LANL Standards Issued in December**
- **Engineering Processes Changes**
- **O&M Criterion Changes – New!!!**
- **DOE Technical Standards Actions**
- **When Good Conduct of Engineering Isn't Followed**

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

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Tobin Oruch, Engineering Standards Mgr  
Los Alamos Nat'l Lab, Conduct of Eng Program Office  
TA-16-200 M/S F696 ph (505) 665-8475  
[oruch@lanl.gov](mailto:oruch@lanl.gov) <http://engstandards.lanl.gov/>  
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