

ENGINEERING STANDARDS UPDATE  
Trying to Make Standards Exciting Since 2001

This is the monthly newsletter of the LANL Engineering Standards Program. The Standards are mandatory documents that define the minimum design criteria, fabrication, and installation practices for the alteration, repair, and construction of LANL facilities and the programmatic and process equipment within them. [[P341](#)]

Topics this month:

- **Fuel Gas Purging**
- **Complex, Fruity Overtones, and Well-Aged -- or Gone to Vinegar?**
- **LANL Standards Issued in April**
- **What Happens When Conduct of Engineering Isn't Followed**
- **DOE Technical Standards Actions**

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

### **FUEL GAS PURGING**

Last month, MSS-MP issued Requirements Notice RN 1001 establishing that fuel gas (natural gas, LPN) purging will no longer be allowed indoors or into a confined space without specific approval of the LANL Fire Marshal. Read it [here](#).

LANL's Notice grew out of a US Chemical Safety Board (CSB) recommendation regarding a gas explosion at a North Carolina Slim Jim factory last year and others. A similar accident happened this year at a power plant on Super Bowl Sunday morning. About the Slim Jim incident:

“Hopefully, whenever workers die, businesses are destroyed, and livelihoods are affected, we learn from that and strengthen regulations so that just wasn't another event.”

Jackie Nowell, director of occupational safety for the union representing workers at the North Carolina factory

The Standards Program tie is that Master Specification 23 1123 was revised to address purging in March. Other LANL documents are to be updated this year.

### **COMPLEX, FRUITY OVERTONES, AND WELL-AGED -- OR GONE TO VINEGAR?**

On a personal note, last month marked 10 years at this job. That's a long time, but Mike Nicolini did it for 20 years so there's a legacy of stability and Nambe Ware. Still, if you're pining for the position, talk to me – I may tire of defending a best-in-class program.

Anyway, here's some cheese with that whine -- the proud history of the program!

1983 ENG-2 began in-house design and drafting standards creation effort; from 1983-84, H&N Calif office produced 9 volumes; Mike Nicolini helped lead effort

1990 Expanded standards issued, included Design & Construction Manual with volumes for the major engineering disciplines; organized as 100 Codes and Standards, 200 Engineering Requirements/Guides, and 300-Drawings; also had Specs, Std Details, and Drafting Standards

1996 Standards put online internal and external to LANL; e-mail notification of updates

1998 LIR 220-03-01, Facility Engineering Manual, makes standards institutional policy

1999 Standards revised and re-issued as Facility Engineering Manual, Construction Specs Manual, and Drafting Manual to support LIR

1999 DNFSB letter on the design of LANL safety-class or safety significant electrical, instrumentation and control, and fire protection systems and lack of related standards

1999 Nicolini retires; Oruch hired in 2000, rehires Nicolini for a few summers

2000 Electrical Standards 17998 first formal class by Powell

2000 Technical Committees and ESM Review Board created (AEs added to TCs later)

2000 National standards online via Library IHS subscription (CDs previously)

2001 Engineering Standards Working Group of DOE Energy Facility Contractors Group founded by Oruch

2001 LIR title became LANL Engineering Manual (FEM became LEM); made most POCs the AHJ rep; added programmatic scope

2001 E-mail on changes titled Update, expanded to include articles (became monthly by 2004)

2001 New Chapter 1 sections on system and component numbering

2002 Revised Fire, Arch, Mech, Elec Chapters and new I&C Chapter with bases, nuclear, programmatic requirements from DOE O 420.1 Facility Safety; new B31.3 Piping Guide

2002 Intro to LANL Engineering Standards Course 24140 launched

2003 Revised LIR title to Engineering Standards; LEM became ESM

2003 New Hazardous Process and Nuclear chapters

2004 New Chapter 1 Section Z10 - General Requirements for All Disciplines; allows streamlining of other chapters

2004 Revised Structural Chapter to reference IBC, DOE-STD-1020; added bases; sectioned by PC category; programmatic requirements for equipment

2004 New Rad Protection Chapter; completes LANL standards implementation of DOE O 420.1

2004 Revised Civil Chapter to include bases; completes effort to add ESM bases and organize chapters by UniFormat (both DOE firsts)

2004 New LANL Welding Program as Chapter 13 (major LANL first, answers PAAA); SSS welder database goes labwide

- 2005 Elevated Sustainable Design to Chapter 14; required LEED for line items (a DOE first; NNSA PP Best-in-Class Award; LEED Gold by Order in 2008)
- 2005 Revised ESM to include International Existing Building Code for alterations, etc.
- 2006 Standards Program challenged; independent program review finds “The LANL ESM compares very favorably with standards from other DOE sites and from other Government agencies.”
- 2006 Specifications renumbered/retitled to CSI MasterFormat 2004 (a DOE first)
- 2006 Presentation on standards programs to 50th CSI Show, LANL as example
- 2006 LANS takes over as M&O; WSS gone from contract; expectations on compliance and inspection grow
- 2006 New Security Chapter (a DOE first)
- 2006 Complete IBC Program issued as Chapter 16 (a DOE first)
- 2007 Added Design Guides as first new document set since 1990
- 2008 Pressure Notice RN0803 issued by engineering superseding parts of ES&H LIR; PSOs identified; implements 10CFR851
- 2009 New, comprehensive Pressure Safety Program as Chapter 17 (major LANL first)
- 2009 Standards Program challenged; parent company assessment, about ESM: “...in general, it is a very good document”
- 2009 Welding & Joining Chapter expanded to include NDE
- 2010 New Commissioning Chapter issued
- 2010 Standards Program challenged...

### **LANL STANDARDS ISSUED IN APRIL**

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

IBC Program Chapter 16: Updated LBO Approval Listing (added Terracon) and LBO Organization Chart

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

- |  |                          |
|--|--------------------------|
| 33 0513 R4 Manholes and Structures             | Submittal clarification. |
| 33 3000 R4 Sanitary Sewerage Utilities         | Submittal clarification. |
| 33 3200 R4 Wastewater Utility Pumping Stations | Submittal clarification. |
| 33 5100 R3 Natural Gas Distribution            | Submittal clarification. |

**DOE TECHNICAL STANDARDS ACTIONS**

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

DOE-STD-1158-2010, Self-Assessment Standard for DOE Contractor Criticality Safety Programs

DOE-STD-1193-2010, Safety Functions and Other Features of Lethal Activated Denial Systems

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



**LAST MONTH'S UPDATE TOPICS**

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

- **CGD Video – Best Picture Award**
- **Gas Pains**
- **IBC Program Changes**
- **New Commissioning Chapter !!!**
- **LANL Standards Issued in March**
- **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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