

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 equipment within them. [[IMP 341](#)]

Topics this month:

- **851 -- New Rule, Old Codes and Standards**
- **LANL Standards Issued in September**
- **DOE Technical Standards Actions**

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

851 -- NEW RULE, OLD CODES AND STANDARDS

Many have heard about 10 CFR 851, Worker Safety and Health Program. Effective February this year, it's a corollary to the 10 CFR 830 nuclear rule in that it authorizes civil and contract penalties under Price-Anderson for violations of its non-nuclear requirements. Modeling DOE Order 440.1, rule 10 CFR 851 addresses safety in the areas of construction, fire protection, explosives, pressure, firearms, ind. hygiene, biohazards, Occ Med, vehicles, and electrical. 851 also requires a DOE-approved site WS&H program that describes how LANL meets (or will meet) 851 requirements.

Similar to the Welding Program PAAA lack-of-compliance issues in the September Update, those hoping to ward off fines of up to \$70,000 per 851 violation per day may wish to read and follow 851 and the corresponding LANL policies. In doing so, you'll notice that the rule lists a number of required national codes and standards in several of the subject areas. This by itself isn't a problem, since the Engineering Standards Manual and other LANL policies have invoked these documents for years. But actually following the codes, standards, and other 851 requirements to the letter can be quite challenging.

Recent efforts to inventory and ensure the safety of pressurized systems (vessels, piping) through proper design, configuration management, and maintenance is probably the most notable example of how this rule is impacting LANL -- ultimately in a positive way.

A lesser but real legal issue arises because 851 also cites the code and standard edition dates that were current at the time of authorship. This has the apparent effect of locking DOE sites into versions that are regularly superseded. In looking at § [851.27](#) Reference Sources, several have since been revised.

Fortunately, one Headquarters staffer has stated that it was not their desire or intent to restrict contractors to older, inaccessible, and sometimes less-safe codes and standards; HQ was forced to do this for legal reasons. And Kathy McCarty in the most-important Office of Enforcement

indicated yesterday that, in her opinion, we can use the new standard if we update our site Worker Health and Safety Plan accordingly.

The Standards Program will work with ES&H to ensure the LANL WS&H program authorizes use of the latest codes and standards.

For more Information:

[LANL 851 webpage](#)

[HSS 851 webpage](#)

[LANL ESH 851 Answers by E-mail](#)

LANL STANDARDS ISSUED IN SEPTEMBER

LANL Master Specifications Manual http://engstandards.lanl.gov/New_Home.html#spec

03 3053 R3 Miscellaneous Cast In Place Concrete --Added testing exclusion for selected work at 3.4E (thanks to Smithour, Hudson, Pappas)

26 0533 R1 Raceways and Boxes for Electrical Systems

- Changed the term "RGS" to "RMC" to agree with NEC
- Changed the term "PVC" to "RNC" to agree with NEC.
- Added titles for several referenced standards.
- Added NEMA OS3 as an outlet box selection reference.
- Replaced material requirements for flush outlet boxes that had been lost from previous versions of this specification.
- Added more detailed material requirements for pull boxes, junction boxes, and handholes for various environments.
- Clarified requirements for demolition of raceways and for restoration of ratings of walls and floors.
- Added references to NECA 101 and 111.
- Corrected/updated some references to other LANL Master Specifications.
- Clarified EMT permissible uses for EMT.
- Added requirements for conduits containing medium-voltage wiring systems.
- Deleted use of RNC in concrete or masonry walls.
- Added requirements for conduits installed under concrete floor slabs.
- Added requirement for minimum 7-1/2" separation between parallel underground conduits.
- Added requirement to use water-resisting fittings where conduits enter tops of enclosures in structures with automatic sprinkler fire protection systems.
- Clarified criteria for concrete used for encasing conduits: pointed Section 03_3053, Miscellaneous Cast-in-Place Concrete.

26 5200 R1 Emergency Lighting

- Updated general instructions to reflect revised LANL Management Level structure.
- Changed "UL-listed" to "NRTL-listed" throughout the document.
- Modified the WARRANTY paragraph, pointing to the warranty periods specified for each product.
- Added references to the NECA/IESNA 500 and 502 installation standards.
- Clarified installation environment and temperature limits applicable to each product.
- Updated catalog numbers.
- Updated emergency light and exit sign self-diagnostic performance features.
- Broadened permissible sealed battery types (lead-acid and lead calcium) to promote competitive bidding for emergency lights.
- Broadened permissible lamp types (T-5 or PAR-36) to promote competitive bidding for emergency lights.
- Broadened permissible enclosure materials (painted steel or thermoplastic) to promote competitive bidding for emergency lights.
- Added requirement for wall-mounting plates or brackets for emergency lights.
- Added specification for "severe-duty" emergency exit sign.

27 1000 R2 Structured Cabling --Change from Cat 5e to Cat 6A cable. Conduit changes due to larger diameter of Cat 6A cable.

27 3000 R2 Voice Communications

- Paging system electronic equipment (e.g. paging controllers and power amplifiers) are no longer furnished and installed by the LANL Telecommunications Group; added material and installation requirements for this equipment.
- Added submittal requirements related to the paging system electronic equipment (e.g. catalog data, calculations, wiring diagrams).
- Revised requirements for coordination with the LANL Telecommunications Group.
- Specified conduit types, maximum conduit fill, and outlet box size.
- Added 12 AWG and 14 AWG speaker cables.
- Clarified types of speakers to use in various locations.
- Added non-metallic wiring duct for managing cables at the paging system electronic equipment location.
- Revised terminal block specification to accommodate the larger speaker cables.
- Indicated that terminal blocks are to be installed on the telecommunications room plywood backboard.
- Added requirements for spacing of speakers in rooms and corridors.
- Added identification requirements for cables and terminal block positions.

DOE TECHNICAL STANDARDS ACTIONS

<http://www.hss.energy.gov/NuclearSafety/techstds/standard/recappts.html>

DOE-STD-1138-2007, Industrial Hygiene Functional Area Qualification Standard, 29 pages

[<http://www.hss.energy.gov/NuclearSafety/techstds/standard/std1138/doe-STD-1138-2007.pdf>]

LAST MONTH'S UPDATE TOPICS

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

- **Building Codes Changing in 2008**
- **Welding Audit Shows Standards Non-Compliance**
- **Last Call for National Standard Participation**
- **LANL Standards Issued in September**
- **DOE Technical Standards Actions**

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