

TerranearPMC Safety Share

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After the second earthquake that hit California a few weeks ago (epicenter, Ridgecrest – a small desert community), Governor Gavin Newsom announced that there would be a re-assessment of the State's building codes to ensure structures will be able to withstand future earthquakes of even greater magnitudes. This decision was the result of seismologists and other subject-matter experts asserting that the State can expect more seismic events that may cause greater devastation than the recent events. Updating building codes in California after an earthquake is nothing new. Damaged structures are examined and analyzed for failure points as an ongoing effort to protect communities during such potential disasters. As a result, new buildings are constructed while existing structures, such as bridges and overpasses, are modified with improved design features to withstand the next earthquake. And, inevitably, after the anticipated event, the improvements did not provide the intended protections.

A more tragic example of miscalculating structural protection factors was New York's World Trade Center on September 11, 2001. While the two towers were designed to withstand impacts from an airplane (or jet), no one anticipated that a plane would be fully fueled and thereby, become a sizable explosive, causing overwhelming fires with such high temperatures that the steel framework – protected by extensive fire-retardant materials – would not have the ability to properly ensure both building's structural integrity.

Modifying and updating safety codes or regulations is nothing new. While an existing safety standard is designed to protect people, all too-often, after an incident the safeguards were not adequate. We see this continuously within the field of occupational safety and health where permissible exposure limits (PELS) – regulated by the Occupational Safety and Health Administration and the American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLVs) are continuously being revised. Airborne contaminants such as beryllium, silica, cadmium and hexavalent chromium are just a few examples where evidence has shown that the existing health standards did not provide the necessary protections for workers exposed to these materials and therefore, needed to be amended.

In recent years, S&H professionals have watched PELs and TLVs be redefined from being a “value of a chemical substance for which it is believed to be a level to which a worker can be exposed day after day for a working lifetime without adverse effects,” to being strictly a compliance requirement or a guideline to be used by S&H professionals to assist in their evaluation of occupational exposures to workplace contaminants.

It is a misunderstanding to think that when a S&H assessment is performed, and data determines that workers are not exposed to a contaminant's OEL (OSHA PEL, ACGIH TLV, etc.) that an adverse health effect will not occur. Toxicological and epidemiological data continues to be collected and reviewed and, in many instances, existing standards is determined to be inadequate. This can, in many cases, result in the recognition of the necessity to revise current OELs.

The point is, while it is important to ensure organizations comply with the law (i.e. regulations, standards, etc.), meeting compliance is no guarantee that workplace hazards are properly controlled and, in turn, cannot ensure the health and safety of exposed workers. Thus, a work



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task may be performed within regulatory requirements, yet, mere compliance cannot be an assurance that a worker will not sustain an injury or suffer an occupational illness.

This is the reason why each task, each scenario, as well as the work practice for each worker, needs to be evaluated – by a S&H professional as well as those performing the task– to ensure occupational hazards are properly controlled.

An example that I recall that demonstrates how various individuals who are performing the same task while working under the same workplace conditions – and therefore, exposed to the same hazards – were found to have exposures to the same airborne contaminant (in this case, lead) that varied significantly. The specific work task called for size reduction of pipes that were being prepared for disposal. Because of their size, size reduction was necessary so that the piping could be placed in the containers (bins) that would then be shipped to the appropriate disposal site. Size reduction was performed by torch cutting and because the pipe (which was quite old) contained lead, there was a concern of worker exposure to the inhalation of lead fumes. Industrial hygiene sampling was performed on a daily basis and upon receiving the laboratory analytical results, there was one specific worker that consistently had airborne exposure concentrations that significantly exceeded the PEL (as well as TLV) of 0.05 milligrams per cubic meter while every other worker had exposure levels well within PEL/TLV. All workers donned the same PPE (full face PAPRs, anti-C coveralls, work gloves over nitriles and work boots) and had the same equipment for torch cutting. An inspection of the work practices revealed that the one worker with the elevated inhalation exposure was performing his work with his head placed within a few inches of the contact point, while the other workers had their breathing zones (nose/mouth region) over 12-inches away. Thus, while specifying work controls via such S&H documents as a S&H plan and Job Hazard Analyses, the actual field work controls did not produce consistent workplace exposures.

Applying “canvass-type” S&H controls may provide a basic framework but cannot fully address the specifics for a work task where such factors as location (indoors vs. outdoors), individual work practices and even climate and terrain can be considerable influences. Therefore, it is important that everyone needs to take an active role in workplace safety. While certain controls can be implemented and documented in S&H plans, persons performing the work need to be part of the hazard analysis and control process and maintain a questioning attitude in the field. Reporting an unsafe condition or unhealthful scenario before it turns into an accident should never be overlooked. In short, those that witness an unsafe condition, or believe something doesn’t look right need to speak out. Remaining silent is nothing but a passive consent for a coworker to get hurt.

Real integrity is doing the right thing, knowing that nobody's going to know whether you did it or not - Oprah Winfrey

