



Emergency Management Issues Special Interest Group Annual Meeting

Implementation of TEEL Outside Review Recommendations

David Freshwater

DOE/NNSA Office of Emergency Management

May 2-5, 2011 Charleston Marriott • Charleston, South Carolina



20 Years Ago.....

“The emergency classes established by this Order have also been expanded to include a reference standard for non-radiological releases as well as radiological releases.... Because EPA has not promulgated exposure levels for releases of non-radiological material, this Order uses the Emergency Response Planning Guidelines (ERPGs) developed and approved by the American Industrial Hygiene Association in determining the appropriate emergency class for releases of non-radiological material. Generally comparable exposure levels (i.e., no irreversible health effects) should be considered for both radiological and non-radiological hazards....”

• *DOE Order 5500.2B, para. 5b, 4-30-91*

- Development of what became TEELs started shortly thereafter

20 Years Ago....



- Advanced copies of the 5500-series Orders were distributed at the 1991 EMI SIG

Why an Outside Review

- TEELs get broader use than DOE
- There were some identified issues
- Program maturity
- Drop off in number of new TEEL requests
- Look at things from an overall perspective

Outside Review Team

- Ms. Susan Ripple
- Dr. George Rusch
- Dr. Richard Thomas

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TEEL Process Goal

Mirror the AEGL/ERPG development processes, without going to the time and effort that those responsible committees employ in examining studies and calculations

Concentrating on materials that can cause an emergency

TEEL Process Changes

- Updated default process
 - Adjustment Factors converting toxicity data to TEEL values
 - Multiplying Factors – calculating TEEL values from other TEELs
 - Consistent time basis
 - Sources of data
 - Limited routes of exposure
 - Changed species hierarchy

TEEL Process Changes

- No instances where $T-1 = T-2 = T-3$
- Established a Review Panel
 - TEEL development is a default process
 - However there are situations where professional judgment is required
 - Initial Review Panel Members
 - Dr. Douglas Craig
 - Dr. Po-Yung Lu
 - Dr. Jayne-Anne Bond

Additional Change in Rev. 27

- Considering removal of materials that will not cause an acute inhalation exposure hazard
 - *"All substances are poisons: there is none which is not a poison. The right dose differentiates a poison and a remedy." Paracelsus (1493-1541)*
 - Candidates for removal
 - NFPA HHR=0 materials
 - Foods
 - Lab scale items
 - Solids

What About Rev. 27

- It won't be the same old database
 - About 50% affected by changes to Adjustment Factors and Multipliers
 - 10-15% affect by consistent time scaling
 - 10% considered for removal
- Goal – get all the large changes into Rev. 27

Once Rev. 27 Is Published

- Use the New TEELs immediately during emergency response
- Adjust EPHAs and EALs
 - As part of normal review/update cycle
 - As directed/negotiated with Field Element

Bottom Line

- “... the TEEL process has produced guidance for potential accidental exposure to thousands of chemicals that are realistic and protective.”
- TEEL development process is protective
- Process can be improved
 - Need to keep up with changes in the toxicology field

Questions



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