

**U.S. Chemical Safety and
Hazard Investigation Board**

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Office of Recommendations
Manuel Gomez, Dr.P.H., CIH, Director



January 30, 2007

Mr. Red Cavaney
President and CEO
American Petroleum Institute
1220 L Street, NW
Washington, DC 20005-4070

Dear Mr. Cavaney:

The CSB is in receipt of your letter of December 12, 2006, in which you conveyed the draft API Recommended Practice 753—*Management of Hazards Associated with Location of Plant Portable Buildings, 1st Edition, December 2006*. The CSB appreciates the efforts of the task force to address this very serious hazard, which, as you know, played a large role in the fatalities and injuries in the incident at the BP refinery in Texas City in 2005. The CSB is also pleased to learn that you are inviting comment for ongoing revisions to the draft. The purpose of this letter is to convey our areas of concern and suggestions.

At the heart of the CSB's recommendation is the fact that trailers and similar temporary structures rarely, if ever, need to be placed near hazardous areas. We are concerned that, in its current form, the draft does not provide guidance that would effectively address this central issue. Our investigation clearly indicates that temporary structures can pose serious risks to occupants when they are sited near hazardous areas. Guidance for the industry in this matter, therefore, should explicitly seek to minimize the use of these structures in hazardous areas, and to provide a substantial degree of safety for the rare occasions when they might be used, because of their high potential to cause serious injury and death in the event of explosions. We are concerned that, in its present form, the draft RP 753 would fall short of providing such guidance in the three main areas covered by the CSB recommendation, namely minimum safe distances for trailers and similar temporary structures, protection from hazards to occupants of such structures, and a methodology for siting those structures separate from that used for permanent structures.

In the remainder of this letter, we detail these concerns regarding the draft. Also attached is a copy of the text of our recommendation.

- 1) ***The draft RP fails to establish "minimum safe distances for trailers and similar temporary structures away from hazardous areas of process plants,"*** which is the explicit purpose of the CSB recommendation. The intent of this recommendation is to define a minimum risk "floor" for placement of these structures. The underlying logic is that these structures are likely to cause serious injury and death to workers in them—in the event of an explosion—yet they are rarely

necessary in any proximity to explosion hazards, and can be moved or placed safely away from hazards relatively easily. In other words, these structures typically pose unnecessary risks that can often be eliminated relatively easily and inexpensively.

- 2) ***The draft RP recommends methods of analysis, but it does not provide explicit guidance to “protect occupants from accident hazards” when an analysis indicates a risk of fatality or injury. Specifically:***
 - a) ***The analysis options do not address when or how to protect occupants of temporary structures.*** Under Section 4.1, the first analysis option, “Consequence-Based Analysis,” only lists factors that must be considered in the analysis. Moreover, this section does not define how “consequence analysis” is to be done, or reference any publications that provide such guidance. The second analysis option simply refers potential users to RP 752 methods for quantitative risk assessment, yet the CSB recommendation seeks to revise or replace the RP 752 approach because it is primarily designed for permanent buildings.
 - b) ***There is no guidance with Table 1 (Pressure Asymptotes for Light Metal-Skinned Wood Trailer) to indicate at what overpressures it is necessary to protect employees from risk of fatalities or injuries.*** The table describes the estimated damage levels to trailers associated with certain overpressures, but it does not describe the potential for fatalities or injuries, or, most importantly, the specific preventive measures that should be taken at different projected damage levels.
 - c) ***There is no definition of “essential” and “non-essential” personnel, or any criteria that employers can use to make the distinction in a manner that optimizes the protection of personnel. The absence of a clear definition substantially weakens the requirement to “ensure that non-essential personnel do not occupy such portable buildings.”***
 - d) ***Section 3 (Portable Buildings Intended for Personnel Occupancy) lists and would apparently allow the use of temporary structures for purposes that are unlikely to be essential in the proximity of hazardous areas, such as orientation, conference and training rooms.*** As written, this section only requires that employers evaluate the siting of temporary structures that might be used for such purposes, instead of explicitly restricting their use near hazardous areas for such activities.
- 3) ***The draft RP does not clearly establish or recommend a “separate methodology,” as the CSB recommended, to “ensure the safe placement of occupied trailers.”*** Specifically, neither the recommended analysis options under Section 4.1, nor any other sections of the draft clearly distinguish and address the especially vulnerable nature of temporary structures, or emphasize that they can be moved or sited away from hazards with relative ease. The second option, in fact, refers users to RP 752, a methodology devised primarily for permanent structures. In general, the relationship between the draft and RP 752 is unclear.

- 4) ***The scope of the draft RP is too narrow and therefore fails to comprehensively address the potential hazards of trailers and temporary structures.***
- a) The scope only includes processes covered by the OSHA PSM standard, and excludes areas containing other hazards such as atmospheric storage tanks. This is inconsistent with the intent of the CSB recommendation, which calls for ensuring “the safe placement of occupied trailers and similar temporary structures away from *hazardous areas of process plants*” (italics added). Explosion hazards may exist in non-PSM areas, including those in the proximity of atmospheric storage tanks.
 - b) The scope excludes fire, jet and toxicity hazards--instead referring users to RP 752--and it does not explicitly address heat or projectile hazards. This appears to be inconsistent with the intent of the CSB recommendation, which focused on protection “from accident hazards,” without any exclusions. The exact intent of referring users to RP 752 is unclear.

In addition to these observations, which are directly related to the CSB recommendation, we would also like to point out that the draft RP could benefit from addressing other issues that would help ensure the “safe placement of occupied trailers,” as follows:

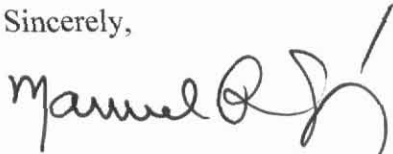
1. ***The draft RP does not include a clear definition of occupancy.*** The language of Section 3 (Portable Buildings Intended for Personnel Occupancy) is confusing regarding the definition of “occupancy” or “occupied.” The draft would benefit from an explicit and protective definition based, for example, on a (small) number of person-hours in any 24-hour period. The definition should be conservative, consistent with the intent of the recommendation.
2. ***The draft RP fails to explicitly include other requirements that would likely be necessary to help ensure the safe design, placement and use of temporary structures, including:***
 - a. Strong emphasis on reducing to a minimum the use of temporary structures as well as the number of personnel authorized to occupy them;
 - b. Strict limitations on the use of portable structures for *any* personnel during periods of increased risk (e.g., start-ups, shutdowns);
 - c. Formal, written approval for the use and location of temporary structures by qualified, senior management;
 - d. Review of siting approvals *prior* to any changes in the manner of use of temporary structures.

The final API recommended practice in this area will have a substantial impact on the hazards related to trailers and similar temporary structures in the refinery industry and beyond. The CSB considers it very important, therefore, to ensure that the final version comprehensively address the issues raised by the recommendation.

**U.S. Chemical Safety and
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We appreciate the opportunity to comment, and we trust that the task force will find our observations useful in the completion of their work. Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Manuel R. Gomez". The signature is fluid and cursive, with a prominent initial "M" and a long, sweeping underline.

Manuel R. Gomez, DrPH, MS, CIH
Director, Office of Recommendations

cc: CSB Board of Directors
CSB Management Council