Identifying Safety Culture Deficiencies in Facilities with the Potential for High Consequence/Low Probability Events

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Abstract

One of the key underlying causes of most major accidents can be traced to deficiencies within the organization’s safety culture. The Chemical Safety Board (CSB) has directly identified safety culture deficiencies in their recent investigations including the March 2005 BP Texas City accident and the June 2013 Williams Geismar Olefins Plant accident.

There are many reasons as to why safety culture deficiencies exist within an organization and are not identified and corrected by those working within the organization. An example could be Drift to Danger that is often addressed in Resilience Engineering related discussion. Another concern is that high consequence/low probability events are rare, which results in a low risk perception by employees within systems that have the potential for severe events.

One could argue that full compliance with current PSM regulations should be sufficient and would have prevented the major events that have drawn industry’s attention. However, organizations, especially those that handle highly hazardous materials, should strive to go beyond compliance. This is because regulations are designed as minimum requirements and in principle cannot cover all possibilities. Additionally, all organizations should strive in gaining knowledge (i.e., don’t know what you don’t know) to improve their operation and safety. Implementation of a well-designed safety culture program that includes periodic assessment and continuous improvement can address this concern.

A well-designed safety culture program should have certain key elements. In this paper the authors put forward the elements of a safety culture program that they have develop and assisted in implementation at their client sites. To achieve the goal of establishing a positive safety culture management should be cognizant of certain concepts. Although each organization has its own specific culture (i.e., habits and practices), safety culture related issues can be grouped into a limited set. These issues include but are not limited to management involvement, communication, competing goals, follow through, etc. In this paper the authors discuss these issues with specific examples from their observations when assisting clients. Safety culture programs implemented at their client site are summarized.
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