Abstract:

An Approach for Converting Major Accident Investigations into Prevention

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The frequency of United States chemical process accidents reported to EPA does not appear to be decreasing as rapidly as hoped for over the last 20 years since Bhopal. This is disappointing given the development of new technical preventive measures by organizations such as CCPS, NFPA and ASTM and extensive industry and regulatory initiatives aimed at promoting the use of these measures. Accident investigations by various government agencies have tended to focus on the technical causes of these accidents and identifying deviations from regulatory requirements and recommended practices.

The CSB adopted prevention as the major focus of its accident investigations in 1999. The author comments on the approach the CSB uses to rank the prevention potential of accident investigations and how they use such rankings in selecting the limited number of investigations they conduct. CSB accident reports and recommendations have been commended for this emphasis on prevention. It is pertinent to note that the CSB has identified the ‘Root’ causes of almost all of the accidents it has investigated as some deficiency in the content or administration of facility process safety management systems.

The paper argues that while the measures taken by the CSB are exemplary and, with some suggested modifications should be considered for use by other government investigatory agencies, they are not in and of themselves capable of fully realizing the prevention potential of accident investigations.

Examination of programs that have had some measure of success in preventing the Low Probability – High Consequence events such as car accidents causing driver deaths, storm and earthquake damage to structures ecological damage due to poor waste disposal practices by citizens, etc., shows that they all aimed primarily at commanding individual practitioner attention.

The literature identifies ‘individual attention’ is a ‘scarce’ resource. Good process safety management systems require both a satisfactory specification of needed technical measures and appropriate attention from managers via training, audits, performance reviews and educational
measures. However, given the competing ‘crises, and pressures that exist even in large sophisticated companies, attention to LP-HC events tends to diminish even at the highest management levels

A proposal for increasing attention to the prevention of LP – HC events is outlined in the paper. The proposal calls for achieving the required increase in attention by graphically portraying the consequences described in major accident investigation reports in a focused campaign aimed narrowly at raising facility managers and practitioner’s awareness, rather than at conveying knowledge per se. There is reason to believe that ‘dreaded’ consequences can capture practitioner’s attention and cause them act more effectively: i.e., not to postpone needed maintenance for quite so long, adhere better to management of change procedures when they do a ‘temporary’ repair, etc. In other words do all the things they haven’t been doing as well or as often as they know they ought to because their attention has been captured by more immediate demands that they can not postpone as ‘easily’.

For a variety of reasons, this type of prevention program needs to be financed and executed by a group of private agents who can hope to obtain a good ROI from such a socially desirable effort in addition to emotional satisfaction and ‘good will’.

The paper concludes that insurance companies and particularly re-insurance companies might be the group of agents most likely to have the motivation, financial incentives and the positioning to organize, undertake and successfully execute this type of prevention promotion program

The likelihood that they will happen will be greatly increased if regulatory bodies would cooperate in sponsoring such an effort (as has done with other prevention programs) and shape their investigation programs to support the effort.