Evaluation of Accident Investigations Conducted by Regulatory Authorities and Advisory Agencies

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ABSTRACT

Due to the large quantities of hazardous chemicals, an accident at a chemical process facility can have serious consequences. The owner/operator of a chemical process facility has a great interest in investigating the cause of any accident as a basis for corrective action. The lessons learned from an accident investigation can be instrumental in preventing a recurrence. But there can be many other stakeholders in a chemical process accident, including regulatory authorities (e.g., the Occupational Safety and Health Administration and the United States Environmental Protection Agency), and advisory agencies (e.g., the Chemical Safety and Hazard Investigation Board and the National Transportation Safety Board). How well do these organizations investigate chemical accidents? What can we learn from their recent investigations?

This paper critically examines investigations conducted by OSHA, USEPA, CHSIB and NTSB. The scope of this investigation is restricted to a representative sample of published reports available during the five year period 1995-1999. The survey of reports includes an analysis of the chemicals involved in the accidents as well as the types of equipment and work activities. Consideration is given to the identification of causal factors and the proposed corrective actions. The analytical tools used in the investigations are compared and the overall methodology is assessed. Finally, the lessons learned from these investigations are reviewed and compared with case studies drawn from the chemical process safety literature.