

Process Hazards Analysis

Problem Statement

Unexpected releases of toxic, reactive, or flammable liquids and gases in processes involving highly hazardous chemicals have been reported for many years. Incidents continue to occur in industries that use toxic, reactive, flammable, or explosive chemicals, or that use chemicals that exhibit a combination of these properties.

The protection of people, property, and the environment at these processing and manufacturing facilities and the surrounding community is a serious concern. Process safety standards require companies that handle hazardous materials to perform Process Hazard Analyses (PHAs) to ensure that potential hazards have been identified and appropriate safeguards have been implemented to eliminate or reduce the risk of a catastrophic event. Federal regulations requiring PHAs include the following:

- OSHA 29 CFR 1910.119 (Process Safety Management)
- EPA 40 CFR Part 68 (Risk Management Plan)

Process and manufacturing facilities are challenged to maintain their edge in a highly competitive culture while facing continual scrutiny from the public and government to improve the safety of processes involving hazardous materials. In addition to eliminating or reducing the risk of a catastrophic event, an effective PHA will identify potential hazards and enable appropriate safeguards to be implemented prior to installation and startup, preventing costly corrective action after the fact. The standards also require that PHAs be revalidated at set intervals and that PHAs be considered when making modifications to the process.

The GP Solution

A PHA is an in-depth review of a process by a team composed of members who have the required expertise and experience to identify potential hazards of a process or hazards that may result from abnormal operation, equipment failure, or human error. GP delivers a full range of services for program development and facilitation.

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- ▶ Covered Process Definition
 - ▶ PHA Methodology
 - ▶ Process Information Development
 - ▶ Hazard Identification and Risk Assessment
 - ▶ Resolution and Tracking



Covered Process Definition

GP assists facilities in establishing and documenting the rationale for covered process boundaries. Our engineers develop criteria to categorize processes as covered by the regulations or otherwise critical to safety, environmental protection, or operations. We assist facilities in prioritizing processes and establishing a program for performing initial PHAs and subsequent revalidations.

PHA Methodology

GP works with clients to determine the method of PHA analysis appropriate for the complexity of their processes. We assist the client in assembling a team of experts with the experience required to ensure that a thorough analysis is performed.

Process Information Development

GP develops the process information, such as piping and instrumentation diagrams, operating procedures, emergency response procedures, electrical classification documentation, and relief system design analysis, required to perform an effective PHA.



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Hazard Identification and Risk Assessment

GP offers objective expertise in facilitating PHAs, leading the PHA team through the hazard identification process, ensuring that abnormal operation, equipment failure, and human error in all modes of operation are considered. GP develops risk matrices to evaluate the effectiveness of safeguards and to aid in prioritizing corrective actions.

Resolution and Tracking

A crucial component of the PHA is ensuring that recommendations made during the PHA are resolved in a timely manner. GP develops tracking systems to ensure that each recommendation is correctly addressed and the resolution is documented in compliance with regulatory requirements.

About GP

For 40 years, GP has been a leading provider of engineering, workforce development, and technical training services to U.S. process companies. Our background includes long-term involvement with regulated facilities in the chemical, food and beverage, pharmaceutical, nuclear power, metals, refining, and defense industries.

Since the inception of Process Safety Management and Risk Management Plan regulations, GP has provided process safety services at more than 100 client sites. GP offers a proven, systematic, value-added approach to regulatory compliance. Our approach is based on maximizing performance and achieving compliance by leveraging existing resources to minimize implementation costs. To learn more, visit www.gpworldwide.com.



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For more information,

email: process_safety@gpworldwide.com, call 866.341.1291
or visit our web site at: www.gpworldwide.com/process_safety

General Physics Corporation
6095 Marshalee Drive • Elkridge • MD 21075 USA

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