

Process Risk Analysis



TSM TheSafetyMaster Private Limited

TheSafetyMaster™ is a young organization with a dedicated team of young, innovative, research driven & experienced professionals, who want to create value for their customers by providing ingenious services in the field of Safety.

Our mission is to deliver Safety Services to our Customers with High Customer Satisfaction & priority and making safety a priority for everyone.

1. Process Risk Analysis

Process safety risk analysis could be a system which concentrate on the preventing fires, explosions and accidental chemical releases in chemical process facilities or other facilities managing hazardous materials such as refineries, pharmaceutical and oil and gas production.

Process safety must be considered individually from occupational safety.



The process risk analysis incorporate recognize and quantifying unreliability, estimating their influence on outcomes that we care about,

building a risk analysis model that expresses these elements in quantitative form, exploring the model through sensitivity analysis, and making risk management decisions that can help us avoid, weaken, or otherwise cope with risk.

Process risk analysis could be a process that has various steps and applied at an exact status of plant design or plant operation. Within risk analysis, target is also the identification of failures/faults that have the potential for hazard (risk), analysis of hazardous events, estimation of frequencies and consequences, meeting legal or regulatory requirements or standards and calculating employee risk, (health, environmental) and financial risk.

Case Study

Chlorine leak on Mumbai Port Trust's Sewri Yard

The leakage of chlorine gas at the **Mumbai Port Trust warehouse** at Hay Bunder near Sewri. More than 120 people — including students of a close-by maritime college, labourers, port workers, and fire-fighters involved in rescue operations — were admitted to numerous city hospitals.

17 of these affected were in a very critical condition. The impact of the leak was so deadly that flora and fauna within the vicinity turned white, said officials.



Chlorine may be a hazardous element. Sustained exposure thereto at high concentrations can cause corrosion of lung lining & skin. What's shocking is that the cylinder from which chlorine leaked out, together with another 140 such canisters, had been lying abandoned at the Mumbai Port Trust with no precautions or safeguards whatsoever. Given the **total absence of safety precautions**, it is only providence that a tragedy of a bigger magnitude hasn't happened yet.

It was only during rescue and relief operations that the authorities realised that as many as six cylinders, including the one that was compromised, contained chlorine gas. Each cylinder weighed a tonne. The Mumbai Port Trust has launched an exploration on

why the cargo was left unattended and exposed to the elements in such a careless manner.

Acc. to Mumbai Port Trust officials, the leak occurred at around 3 a.m. from one in every of 141 cylinders stored on the storage plot, which is adjacent to the LBS College of Advanced Maritime Studies and Research. An enormous expanse of sea and vacant land lies on the otherside. An Mumbai Port Trust fire station located on the warehouse got a call from a guard around 3.13 a.m., the guard employed by a private agency that's responsible of security at the warehouse.

For over six hours, rescue and relief teams struggled to bring matters in check. It took fire officials, BMC's disaster management team and experts from Herdillia Chemicals, Rashtriya Chemicals and Fertilizers, over six hours to spot, seal and clamp the leaking and other cylinders. "There was a cloud of chlorine that was spreading because of the leakage. Armed with breathing device, our fire-fighters created water curtains, thus diluting the gas. The gas pressure thus created helped push the clouds of chlorine towards the ocean," said chief fire officer Uday Tatkare.

The neutralisation process of the remaining chlorine-filled cylinders was dispensed by the National Disaster Response Force, which arrived on the scene only in the afternoon. "

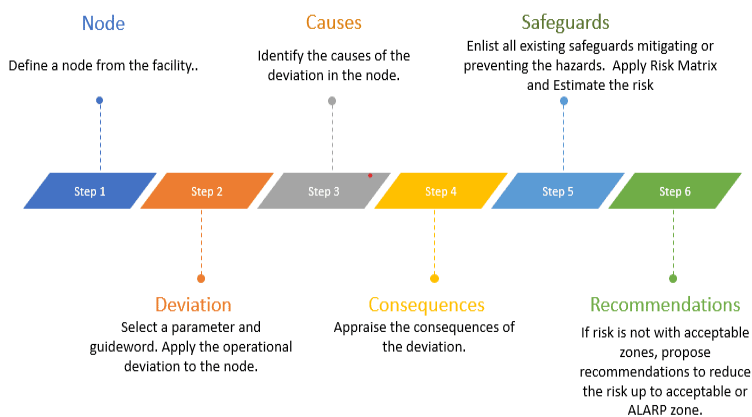


HAZOP Study

A HAZOP is a systematic assessment tool used to identify and address potential hazards in industrial processes before an incident occurs that could affect the Safety of people.

HAZOP studies are typically performed while new facilities are being designed and constructed, when new processes are added or when processes change.

The HAZOP assessment is typically performed by a small team that breaks each step of a process down for individual review to identify potential deviations from the original process design.



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Our Mission

Our mission is to deliver Safety Services to our Customers with High Customer Satisfaction & priority and making safety a priority for everyone.

Our Services

- HIRA
- HAZOP
- QRA
- Process Hazards Analysis
- LOPA
- SIL

Our services include Audits, Trainings-Certification, Safety Management System, Risk Assessments, Safety Culture, Software, Products, Online Training, and Campaigns.

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PHA (Process Hazard Analysis)

PHA (Process Hazard Analysis) is a thorough, step-by-step review of chemical and manufacturing plant operating procedures. The goal is to identify potential causes and evaluate the consequences of hazardous chemical releases. The process helps organizations identify a range of risks from equipment failures to human factors to improving safety, preventing downtime and protecting the surrounding environment.



The following steps in conducting the PHA process:

1. Set a priority order for analyses.
2. Conduct analyses according to a required schedule.
3. Use an appropriate method to determine and evaluate process hazards
4. Address process hazards, previous incidents, engineering and administrative controls applicable to the hazards, consequences of failure of controls.
5. Perform the PHA using a team with expertise in:
 - Engineering and process operations,
 - The process being evaluated, and
 - The PHA methods used
6. Establish formal procedures to: promptly address findings and recommendations
7. Update and revalidate PHAs at least every 5 years.