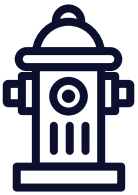




MIDSTREAM SERVICES

THE PRACTICE OF SAFETY DESIGN IS CONTINUALLY EVOLVING IN THE INDUSTRY; THE BUSINESS IS MOVING FROM A PRESCRIPTIVE APPROACH TO MORE EFFECTIVE RISK-BASED TECHNIQUES. **SURETY CONSULTANTS** CAN SUPPORT MIDSTREAM OPERATORS IN THE APPLICATION OF A RISK-BASED APPROACH TO PROCESS SAFETY AND RISK MANAGEMENT.



FIRE HAZARD ANALYSIS (FHA)

Fire Hazard Analysis (FHA) is an evaluation performed to understand the hazards in an installation. The evaluation allows the quantification or qualification of the fire hazard in the facility to have a decision-making tool for fire protection systems and features.

The main objectives of an FHA are to:

- ◆ Identify and understand fire hazards and potential scenarios.
- ◆ Evaluate the performance of fire protection systems against the fire scenarios
- ◆ Review emergency response strategies for diverse fire scenarios.

The FHA allows a synergy between the fire protection systems design and the emergency response actions.

These assessments can be performed for specific client needs or project requirements, e.g., Fire Safety Analysis from NFPA 58.



CONSEQUENCE MODELING

Consequence modeling is a method of prediction that calculates the potential outcomes of hazardous situations (e.g., pool fires, jet fires, explosions, gas leaks). These calculations estimate the effect distances to known thresholds, e.g., disperse concentrations, incident heat flux, overpressure.

These consequence modeling can be performed to support a particular study, e.g., FHA, EPA Risk Management Plan (RMP). Additionally, it can be used to understanding the situation and implement risk controls, e.g., to determine which areas of the facilities would be affected and to what degree (facility siting). These studies can be tailor for a particular operator's requirements or follow the industry recommended practices (e.g., API RP 752 and 753).



HAZARD IDENTIFICATION AND RISK ANALYSIS

Hazard identification and risk analysis are methods to determine the potential events that could produce an unsafe condition during the facility operations. These methods combine their potential severity with their likelihood of occurrence to determine a degree of importance of the evaluated event (risk). The Decision-making process uses these approaches to control the risk and maintain it at acceptable levels. There are diverse types of methods that can be used, including:

- ◇ Hazard Identifications (HAZID)
- ◇ Process Hazard Analysis (PHA)
- ◇ Layer of Protection Analysis (LOPA)
- ◇ Bowtie Analysis
- ◇ Consequence Analysis
- ◇ Quantitative Risk Analysis (QRA)
- ◇ Facility Siting



CODE AND BEST PRACTICE REVIEW

Review Operations and design basis to ensure compliance with industry best practice (e.g., NFPA, API) and applicable codes and regulations (e.g., PHMSA). These evaluations can have diverse formats,

- ◇ Gap Assessment Review.
- ◇ Audits
- ◇ Fire Protection Systems
- ◇ Support on the design of different fire protection systems including:
 - ◇ Fire and Gas Detection System.
 - ◇ Water-Based Suppression Systems (including foam systems).
 - ◇ Gas Suppression Systems (e.g., CO2 systems).
- ◇ Hazardous Area Classification.



EMERGENCY RESPONSE PLANNING

Emergency Response needs to reduce the potential outcome of an event. For that reason, the emergency response requires a pre-planning effort to determine the best actions to take on different scenarios. Surety Consultants can support emergency response planning in diverse ways, including but not limited to:

- ◇ Define emergency response strategies and Emergency Response Plans (ERP).
- ◇ Support drills, exercises and training.
- ◇ Consequence Analysis to improve response strategies.
- ◇ Gap assessments with good practices (e.g., API 1174, CCPS)
- ◇ Emergency Management Audits and program review.



SAFETY MANAGEMENT SYSTEM AND GENERAL PROJECT AND OPERATION SUPPORT

Risk management needs to be considered during all stages of the facility life cycle to reduce the risks to people and the facilities, from design to operation.

Surety Consultants have the capabilities to support projects and operations in all aspects related to SMS (or PSMS).

GET IN TOUCH

We are here to help you achieve operational excellence.



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