Industrial Health, Environment, Safety and Security (HESS)

CFFS and its partners can provide consultancy and specialist professional services to manage industrial Health, Environmental, Safety and Security (HESS) risks in the Oil & Gas Industry. CFFS resources are particularly suited to service the Industry's crude oil and products refining, storage and Logistics activities. CFFS offers the services and expertise of highly technical and experienced consultants who are accomplished professionals in their respective areas of expertise within HESS. They are strategically located to serve clients in the Asia-Pacific, Middle East and the Subcontinent region. Led by an effective management team, CFFS and its partners are poised to undertake projects at cost effective rates and with short lead times. CFFS has the unique capability to leverage upon its close collaboration with professional institutions and national bodies (such as World Safety Organization, National Fire Protection Association (NFPA), The Institution of Fire Engineers - UK , Institute of Risk Management – UK, National Safety Council of Singapore); and other emergency response and safety related private organizations in a number of countries (the United States, United Kingdom, United Arab Emirates, Oman, India, Indonesia, Malaysia, Thailand, Vietnam and China) to augment its resources to manage projects.

Our Services:

1. Industrial Pre-Incident Planning

Pre-Incident Planning is primarily a process of proactively identifying potential hazardous events and documenting relevant data, strategies and tactics to safely mitigate those events. The product of such a process is the Pre-Incident Plan (PIP).

Introduction

The Pre-Incident Plan is the successor to 'Pre-Fire Plan' that came into existence perhaps in the 1970s. Closer to the turn of the century, the precept that "All incidents are predictable and preventable" gained global traction across the industrial world. This gave rise to the notion that pre-planning could indeed be applied to all conceivable undesirable occurrences as part of the Risk Management framework of industrial organizations. Progressive organizations soon extended the pre-planning process to industrial safety, security and quality scenarios. Around the same timeframe, similar rationale started evolving in the United States arising from the joint initiatives of the public fire department and the Insurance industry. A distinct impetus to this development was the major fire loss in 1987 involving a sprinklered warehouse in the state of Ohio. Although recommended practices and guidelines soon evolved for Pre-Incident Planning in the public fire services dominion, it was not until 2014 that a full-blown PIP Standard emerged. Aside from providing structured guidance to responding personnel, a major benefit of the Standard is the emphasis it has brought about on Emergency Responder Health & Safety and the introduction of Risk Management principles and practices to the US public fire services. These two important elements in the Safety of responders were generally overshadowed by misplaced importance attached to speed over caution and prone to seemingly impetuous actions.

The concept of Pre-Incident Planning is largely in its nascent stages in most other parts of the world.

Purpose & Benefits of PIP

The purpose and benefits of PIPs are manifold and more important of them are:

a) Predetermined and well-rehearsed response to incidents in conformity with relevant Company policies and procedures with particular emphasis on Safety.

b) Standardization of Emergency Response terminology & communications

c) Fire Protection adequacy verification through site evaluation as part of PIP development process. Where gap is identified, interim measures are instituted.

d) Assurance of ready availability of logistical requirements ('Man, Machine & Material') including through Mutual Aid arrangements

e) Enhancement of structure, realism and consistency in periodic Fire Drills and exercises. Facilitates the use of e-learning via company intranet to self-prepare in readiness for Drill/Exercise.

f) Objective assessment and de-brief of Fire Drills and Exercises on basis of adherence to the PIP .

g) Structured process of hand-over to state/municipality response agencies (e.g. Civil Defence) where required

h) Enhanced visualization of potential scenarios with graphical representation during training and drills for ERT and Crisis Management Team (CMT) members.

i) Clear delineation of roles and responsibilities of ERT members.

j) The PIP serves as common reference for On-Scene Commander and Incident Commander/Command Centre thus enhancing emergency communications and coordination.

2. Incident Management and Response Training:

A. Incident Commander Training

The Course is aimed at equipping or refreshing those personnel who may be required or called upon to perform the role and tasks of the Incident Commander (IC) with a good blend of Emergency Response technical, leadership, organizational, public relations skills. The Training is designed to serve as a refresher for current incumbents and also to develop future candidates for the role of Incident Commander. A highly participative approach is adopted in delivering the Training and participant are expected to readily contribute and share their own learning and experiences.

B. On Scene Commander Training:

The Course is aimed at equipping or refreshing those personnel who may be required or called upon to perform the role and tasks of the On-Scene Commander (OSC) with the essential elements of frontline Incident Management. The Training is designed to serve as a refresher for current incumbents and also to develop aspiring candidates for the role of On-Scene Commander. The Training is highly participative in the classroom setting and participants are expected to readily contribute and share their own learning and experiences. In the field settings, the Training is

physical hands-on oriented, both in the command and leadership aspect as well as in tactical roles to provide a rounded learning experience.

C. **Fire & Hazardous Materials (HazMat) Response Training:**
We are experts in conducting customized training for industrial emergency responders in all aspects and levels of oil and gas fire and hazardous materials response at both tactical and leadership roles.

3. Risk Management

Our associates are a global partner of CGE Risk Management of The Netherlands who are developers and distributors of the barrier-based risk management tool BowTieXP® distributes risk management, incident analysis, risk & compliance and operational safety software solutions and services. For our customers we work with the best software solutions via a global network of experienced consultancy partners. We have thorough knowledge of methodologies for training, applying and implementing these solutions in your organization.

4. Incident Investigation & Root Cause Analysis

Our partners represents System Improvements Inc. of the United States in providing training and consultancy in one of the most structured root cause analysis methodology utilizing the patented **TapRooT® Software.** The software is designed to streamline and organize the incident investigation process for powerful results. The software combines incident identification, analysis, and dynamic report writing into one seamless process. The TapRooT® Enterprise Software helps organize a team's responsibilities, tracks each stage of the investigation process, and allows report approvals and corrective action tracking. The TapRooT® Single User Software takes the proven TapRooT® System and delivers it in a Windows application. This means that you have the full advanced human performance and equipment troubleshooting technology of TapRooT® in an easy-to-use patented program. The TapRooT® Software has a large number of pre-developed reports that allow you to easily print, retrieve and trend your data.

5. Fire Investigation

Our unique Fire Investigation approach is derived from the combined capability of the techniques and methodologies of NFPA 921: Guide for Fire and Explosion Investigations and TapRooT® Root Cause Analysis System. Our general strategy for conducting investigations is to work with client's in-house subject matter resources to deliver accurate opinions as to incident initiation, causal factors and preventive measures. Our additional deliverables are consensus based Corrective Actions Register complete with mechanisms for validation, verification, completion tracking and responsibilities.

6. Fire Protection Review

Our extensive experience with major oil and gas fire incidents has equipped us with the capability to realistically evaluate the effectiveness of installed fire protection systems and assured availability during credible scenarios. Very often organizations tend to underestimate the severity and challenges of

potential incidents thus resulting in a lack of contingencies cope with system malfunction and operational difficulties. Periodic fire protection system reviews are a cost-effective means of averting major losses due to design errors and unexpected underperformances.

7. Emergency Preparedness Assessment

Given our partners extensive experience with major oil and gas fire incidents, we are well placed conduct comprehensive Emergency Preparedness Assessment (or Audit) of the various elements that together determine the efficacy of emergency preparedness framework in client organizations. Based on our experience, many organizations are easily lulled into complacency over their level of preparedness only to realize the inherent inadequacies in the heat of the moment.

8. Establishment of Industrial Fire Brigade

Our partners have several successful Brigade set up projects, both new establishment and re-structuring. At least three of these projects were major in nature. Set up invariably entails detailed planning, recruitment of skilled personnel; procurement of appliances & equipment; station and ancillary facilities; materials & logistics; personal accoutrements; policies, procedures, pre-incident plans; training systems, shift schedules; maintenance programs, etc.

Prior Fire Brigade Establishment Project Experience:

- Full-fledged Industrial Fire Brigade with 8-bay fire station building on Shell Bukon Refining Complex, Singapore.
- Full-fledged Industrial Fire Brigade with 6-bay fire station building on Singapore Refining Company Refining Complex.

9. Management of Industrial Fire Brigades & Response Teams for Clients

We have extensive experience in the management of industrial fire brigades. These were generally located on off-shore installations on Singapore's outlying islands. These brigades have ranged from 25 to 40 officers and men. Whilst our overseas involvement has largely been confined to establishing in-house Emergency Response Teams (ERT), we have had extensive involvement in training industrial fire brigades & ERT personnel in several countries, including, China, India, Indonesia, South Korea, Taiwan, Thailand, United Arab Emirates, and Vietnam.