

Chilworth

Asia

Experts in Environment, Health
and Process Safety



Issue: 2

Newsletter, January 2007

Welcome to Chilworth Asia January 2007 Newsletter. This issue outlines:

- ◆ Behavioral Safety
- ◆ Environmental Due Diligence
- ◆ Electrostatic Hazards in Chemical Process Units
- ◆ Equator principle

From Director's Desk:



Hello Friends,

Happy New Year 2007!

Chilworth has completed four years of operation in India. Thanks to your continuing patronage and support, we have been able to acquire world-class status and have over 150 customers.

In addition to our core competence in Process Safety, we have ventured into new products such as Comprehensive Safety Assessment & Capacity Building, Behavioral Safety and have also established ourselves as pioneers in carrying out various Environmental studies for both public and private institutions.

Our plans for this year are introduction of more world class Process Safety related services and are aiming at providing all solutions of EHS under a single roof.

This is our second issue of the newsletter and it shall be our endeavor to keep you informed and abreast of the latest developments in the area of EHS.

We look forward to your continuing support. In case of any feedback, you can directly respond to me at info@chilworth.co.in.



Chilworth India HQ at New Delhi

P.K. Sharma
Director

BEHAVIORAL SAFETY

Since the early 1990's behavioral safety has fast become an established weapon in the war on workplace accidents, as its use has helped many companies to dramatically slice through their accident plateau, something that hitherto could only be dreamed of. A vast body of scientific research testifies to the effectiveness of behavioral safety initiatives across a wide range of industries in many countries. Many companies, for example, have experienced 40-75 percent falls in their accident rates within six to twelve months as a direct consequence of implementing the techniques associated with behavioral safety.

Outcomes from a well planned & implemented Behavioral Safety System:

- Lower number of accidents, incidents, near- misses and property damage
- Improved levels of quantified safety behaviors
- Reduced accident rates and accident costs
- Acceptance of the System by all concerned and ongoing improvement to safety Management Systems
- Better communication between Management and workforce
- Regular and rapid follow-up of remedial actions
- Increased reporting of abnormalities, near-miss incidents and accidents

Salient features of the programme:

- It involves significant workforce participation.
- It targets specific unsafe behaviors.
- It is based on observational data collection.
- It involves data- driven decision- making processes.
- It involves a systematic, observational, improvement intervention.
- It involves regular focused feedback about on- going performance.
- It involves visible on- going support from managers and frontline supervision.

Chilworth Safety & Risk Management Pvt Ltd

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A two-day training programme by CHILWORTH was organised
On 17 & 18 Feb 2006 at **GODREJ & BOYCE, MUMBAI**

Chilworth's role:

Chilworth Safety and Risk Management P. Ltd. can assist your organization in implementing the Behavioral Based System. The key activities involved would be: Training Personnel/ Preparation of site map/ Formation of steering committee/project team/coordinators/ Selection & Training of observers/ Identification of unsafe and risk behaviors/ Creation of base-line data.



CHILWORTH INDIA TEAM

Following personnel joined Chilworth in year 2006:

- Nilesh Parashar, Sr. Manager – Business Development
- Alok Agrwal, Manager – Technical
- Adapa Subramanyam, Sr. Consulting Engineer
- Pramod Shindu, Sr. Engineer – Projects
- Vinod Wagh, Consulting Engineer

ENVIRONMENTAL DUE DILIGENCE

In vibrant Indian economy, consolidation through merger and acquisition (M&A) has become order of the day. Corporate find brown field acquisition, an easier way of rapid growth rather than going by traditional expansion or business optimization. Before any such amalgam, companies ensure the viability of project in terms of its legal, financial, technical and geopolitical aspects. Due diligence is one such tool, that surfaces potential liabilities and risks involved in perspective property and helps buyer to take informed decision. Environmental Due Diligence (EDD) is the process that looks after environmental issues.

If environmentally acceptable, cost of risk mitigation is determined for leveraging negotiations or apportioning liabilities between buyer and the seller. Scope of EDD can be widened to take into account the social and OH&S (occupational health & safety) issues as well. Environmental liabilities are often associated with historical contamination of ground water or soil that may have long lasting repercussions. Corporate undertake EDD not only to ward off unwarranted liabilities but also to take safeguard against any future change in legislation or to meet with their international protocols.

Environmental liability could result in adverse impact on business continuity due to the regulatory fines; social in-acceptance; loss of production, customer satisfaction and the reputation. EDD can be divided into three parts i.e. Phase I: Primary Site Assessment, Phase II: Contamination Profiling and Phase III: Site Remediation

Phase I comprises of doing reconnaissance survey, comparing past records with practices, finding evidences for historical contamination and identifying the need of additional monitoring/measurement, to be done under next phase. Phase II accordingly, if required, deals with sampling and analysis of soil and groundwater, ascertain extent of contamination and remediation required with cost. Phase III involves the actual site remediation to meet applicable standards/protocols.

Though EDD process largely depends on client's requirements, it can also be done as per the ISO 14015, ASTM E-1527 and the guidelines given by IFC. Chilworth with the strong backup of GLP certified laboratory and thousand of projects & clientele worldwide, offers its customers a tailor-made EDD that suits best to their requirements. In India, Chilworth has served elite customers in public and private sector.

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ELECTROSTATIC HAZARDS IN CHEMICAL PROCESS INDUSTRIES

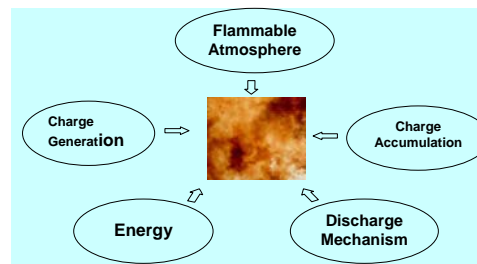
Today, industries are well aware of hazards due to static electricity but still every year fire and explosions, initiated by static electricity cost them dearly. Incidents investigated by Chilworth for industries in Asia since 2001 reveal that static charge caused quite a few fire and explosions despite having all control measures in place. The crux lies with lack of understanding of fundamentals of electrostatics, the lack of systematic approach to the identification and control of ignition hazards and even the common misconception that static electricity is unpredictable. Often those directly responsible for EHS or electrical maintenance in plant take it for granted because their plant is designed as per international norms and it never faced any such incident. Operators may inadvertently slip on their responsibilities due to various functional reasons.

A proper understanding of source of static charge and how it leads to fire or explosion with reference to specific operations is a must. A systematic assessment to identify electrostatic ignition hazards shall clearly be defined in the operational practices, operational procedures and plant designs to minimize electrostatic ignition risk.

Systematic Assessment

Static charge can accumulate from transfer of material, movement of container, mixing of reactants or friction between any two surfaces. The knowledge of static electricity can be useful in identifying electrostatic hazards in plant and process and delineating a mitigation plan. The exercise calls upon answering following five basic questions:

- Is there a flammable atmosphere, if yes what is its sensitivity to ignition?
- Is there an electrostatic charge generation mechanism?
- Can static electricity charge accumulate anywhere?
- Is there a discharge mechanism?
- Could there be enough energy in discharge to ignite the flammable atmosphere?



Process Safety, Environment, Seminar & Training:

From its inception in India, Chilworth has expanded a range of in-company training courses and training packages every year to fulfill smooth and successful training needs of Indian Industries. We offer:

“Technical Training Courses for Engineers \ Short Training Courses for Plant Operators\ Integrated Training Packages for all with responsibility for plant EHS issues“

“Training courses are typically of one or two day duration“

Some of the modules include:

- HAZOP in Practice
- Industrial Electrostatic Hazards: assessment and control of ignition risk
- Dust Explosion Hazards: Prevention and protection
- Explosion Hazards in Handling Flammable Solvents and Gases
- Hazardous Area Classification
- Chemical Reaction Hazard Assessment
- Process Safety Management
- Behavioral Safety
- Safety Integrity Level (SIL) Determination
- Environmental Impact Assessment
- Quantitative Risk Analysis (QRA)
- Environmental Legislation
- Environmental Due Diligence
- Equator Principle



Upcoming
Seminar/training
by Chilworth
international
faculty at New Delhi
and Mumbai:
13th & 14th March
2007

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EQUATOR PRINCIPLE

Taking corporate loans from multinational banks or financial institutions is very common nowadays. Industries may utilize this loan for green field/ brown field expansions, retrofitting and up gradation etc. Whilst banks provide lucrative loans, they take all possible measures to ensure timely repayment and offset any risk involved. With increased awareness and globalization, banks have underlined the importance of environmental & social risk and are gearing up to take every possible safeguard. The Equator Principle is one such safeguard that is a set of sustainability guidelines prescribed by International Finance Corporation (IFC), a private sector lending arm of the World Bank. The principle applies to any project finance exceeding US\$10 million across all industry sectors.

The objectives of Equator Principle are:

- Assess & avoid social & environmental impacts
- Improve sustainability performance of companies

Leading global banks like ABN AMRO, Citigroup Inc., Standard Chartered Bank and many Financial Institutions have already utilized Equator Principle for Environmental & Social benefits. The qualifying project is expected to abide by the nine governing elements of this principle. Equator Principle help:

- avoiding financial loss,
- increased awareness on the risks,
- avoid public pressure and reputation damage
- improve shareholder profits

Thus by adopting Equator Principle, both the banks and lender company benefit by avoiding and mitigating environmental risk and graduating themselves to next level of sustainability performance.

Since Chilworth is already in the business of EHS (Environment, Health & Safety) and has executed several environmental/ social projects, it can help industry/ banks or financial institutions to ensure compliance with Equator Principle.

Further: To learn more about Chilworth, visit www.chilworth.co.in

**Faxback: Please fax back your queries to Marketing at + 91- 11-26135979 / 22- 66942352
Or Email to: info@chilworth.co.in**

Name: Job Title:

Company: Address:

..... Pin code: Country:

Telephone: Fax: E-mail:

My particular interests are:

- | | |
|-----------------------------------|-----------------------------------|
| • Safety Integrity Level (SIL) | • HAZOP |
| • Quantitative Risk Analysis | • Dust Explosion Hazards |
| • Hazardous Area Classification | • Electrostatic Hazards |
| • PreVent | • Safety Audit |
| • Fire & Explosion study | • Training |
| • Environmental Impact Assessment | • Fire & Explosion Safety Testing |
| • Environmental Due Diligence | • Equator Principle |
| • Behavioral Safety | • Initial Environmental Review |

- ✓ I would like a FREE & confidential telecon with a consultant on EHS matters
- ✓ I would like a FREE visit from a consultant next time in my area

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