Podium Session 141

International Applications of Occupational Hygiene

Thursday, May 23, 2013, 8:30 AM – 10:30 AM

CS-141-01
Application of Industrial Hygiene Risk Assessment Model at Nine sites in Six countries in Asia
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Situation/Problem: An Industrial Hygiene Risk Assessment was conducted at 9 different sites in Algeria, India, Indonesia, Kuwait, Saudi Arabia and UAE. More than 1000 risk assessments were performed for chemical, physical and biological agents. Operations such as Welding, Plasma and High Velocity Oxy fuel Coating, Aluminum Oxide Grit Blasting and Rotor Winding were performed at the sites. Challenges faced were: a) The selection of sentinel agent from chemical mixtures and process by-products b) Correlating between Standard Operating Procedures and the observed operating practices c) Interpretation of duration and frequency of non-routine operations like Spray Painting and Parts’ Repair and d) Overcoming linguistic barriers for effective reception of information at the site.

Resolution: An effective risk assessment tool was utilized for performing the Industrial Hygiene Risk Assessment at sites. The parameters used were duration frequency factor, inhalation hazard ranking, airborne risk, skin exposure and ingestion risk. Engineering controls and past monitoring results were taken into consideration. Activities were observed with Unit Production Leaders for understanding process details. Operators were interviewed and encouraged to elaborate on their routine jobs. Review of Material Safety Data Sheets (MSDS) was performed while entering data into the tool.

Results: More than 60 high risk and 150 medium risk level activities were identified based on the risk assessment tool. Hexavalent chromium exposure during stainless steel and chromium based alloys’ welding primarily contributed to high risk operations.

Lessons Learned: Industrial Hygiene Risk Assessment was a powerful tool in segregating activities at the sites into potentially high, medium and low risk levels. It helps the site in prioritizing implementation of controls and limits the requirement of exposure monitoring to high and/or medium risk activities, which will be a cost effective option for the site.

CS-141-02
IHSE Issues between Western and Chinese Construction Companies on International Infrastructure Projects
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Major international infrastructure projects such as mining, railroad, hydroelectric are being increasingly subcontracted to Chinese companies.

Situation/Problem: The situation/problem is that many Owners and Supervising Engineers are wary of Chinese firms due to fears about their industrial hygiene, safety, and environmental (IHSE) track records. The author was the HSE Manager for a Chinese construction company on two recent infrastructure projects.

Resolution: The resolutions to this problem were two-fold. The first was careful observation in practice of the IHSE management systems of Owners, Supervising Engineers, and of the Chinese subcontractor. These observations included the specific cultural and IHSE behaviors of Chinese supervisors and workers and local workers. The second resolution was a grounded research methodology using field notes, photographs, inspection and accident reports to analyze the situation/problem. The results from these two projects indicate that Chinese management gave full authority to the western-trained IHSE manager to achieve a workplace free of accidents, severed injuries, and fatalities. The IHSE behavior of Chinese workers is based on “protecting myself and protecting others,” including teaching inexperienced local workers. The principle weakness is that the IHSE Management Systems are based more on
improvisation and a case-by-case resolution of problems rather than strategic planning. Chinese supervisors and foremen tend to believe that IHSE planning is not their own responsibility but is solely that of the IHSE department. Western companies tend to rigidly rely on their documented IHSE procedures and do not easily take into account that there is typically more than one way to solve IHSE problems.

**Lessons Learned:** In this cultural divide between two styles of IHSE, the principal lessons learned are that Chinese senior management needs to learn from systems such as the ANSI Z10. Western Owners and Supervising Engineers need to rethink the cultural and communication specifics of international collaboration.

**CS-141-03**

**Pesticide Management System in Samsung Everland, Korea**


**Objectives:** Pesticides are regarded as the most widely used chemicals for protecting plants from insects and diseases in farms, golf courses, households, etc. They can cause harm to human, and some affect the nervous system or may irritate the skin or eyes or may be carcinogens. Samsung Everland in Korea has some workplaces including golf courses and landscaping gardening in which various pesticides are used, so their potential risks have been suggested continuously. However, there is few training and handling program for pesticide workers in Korea, and it is needed to set up our own pesticides management system for protecting workers’ safety and health in our company.

**Methods:** We gathered the toxicological information of all the pesticides in our company. We also analyzed the pesticide handling process including choosing, storage, mixing, loading, applying and disposal activities. Therefore, risk grades of pesticides were classified based on the benchmarking, literature reference, and team discussion.

**Results:** At first, we established the life-cycle assessment system for pesticides including all the steps of pesticide handling process and also induced training program with pesticide application license for over 5 hundreds of pesticides applicators or supervisors in our company. Life-cycle assessment system included selection, storage, usage and disposal for pesticides, and proper handling process and personal protective equipments in each step were suggested. In addition, training program was divided into two categories, such as PAL (pesticide applicator license) basic and intermediate. It has been demonstrated that this system is effective through our own survey.

**Conclusions:** This system can lead to protect the health and safety of employees who use pesticides in our company, and if it will be applied to other company or worksites effectively, it can help to reduce the risk of pesticides in Korea.

**CS-141-04**

**REACH and Product Stewardship, A Case Study**

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**Situation/Problem:** When it comes to managing chemicals and hazardous substances, the European market faces the world’s most stringent regulations. In short, REACH poses some significant content management and collaboration challenges for manufacturers. Many companies have multiple locations that flow into a single legal entity and others with many legal entities. Typically larger companies have silos of data stored at each individual location. While ERP systems are in use, they typically don’t handle substance level data which is the main focal point of the REACH legislation.

**Resolution:** This case study will focus on one company’s process to comply with REACH reporting deadlines up to 2013. To comply with REACH, the case study company needed to track chemical substances across a range of products, including the paint on its products, and the glues or lubricants that are accessories for some of its products.

**Results:** A web based system was used as the main repository for REACH compliance being the central collection and data repository for substance information. Data was collected through a series of focused email campaigns directed at specific suppliers. While data from suppliers typically needs to be reviewed, compliancy checks can be run in seconds across all locations and legal entities.

**Lessons Learned:** With a centralized web-based system for REACH collaboration, compliance is an ongoing process that requires data whenever products, materials, or suppliers are changed or added, which tends to be frequently in a large company with thousands of products and hundreds of new products each year. Lowering the cost of compliance by automating communication with suppliers is the primary concern with REACH, but it’s also important to remember that the same IT foundation can help with the customer communication aspects of REACH and help achieve sustainability objectives with clear and accurate data.