Attracting Young Engineers to the Industrial Hygiene Profession

Robert D. Soule

Presented at the 39th Annual Meeting of the AIHA-YPSW Section

January 23, 2014

Some Personal Background

- Graduated with degrees in chemical engineering
- Accepted position at The Dow Chemical Company
- Selected for Special Assignments Program
  - Short projects (six weeks – three months)
    - Benzene Pilot Plant designing liquid-liquid extraction column
    - Biochemical Research Lab (industrial hygiene)
    - Product Development in methyl cellulose plant
- Back to BRL as "environmental health engineer"

Conversations with Harold Hoyle

- **Me: "I love the work but regret giving up engineering."**
- **HRH: "You'll use it every day and most days won't even know it."**

- **Me: "Why don't you hire graduates from I.H. programs?**
- **HRH: "Give me an engineer and two years and I'll have the industrial hygienist I need."**
- **Me: "Really?"**
- **HRH: "Look around you!"**

So, why interest in the engineer?

- **inherent similarities in the missions of the engineer and the industrial hygienist**
- **history of partnership in facilities design and operation, e.g., process reviews, start-ups, turn-arounds, etc.**
- **increasing involvement of industrial hygienists (and other safety professionals) in the design of facilities, a primary function of the engineer**
- **recognition by "management" of the need for an effective working relationship among safety/health professionals and engineering**

Engineering is…

- …the art or science of making practical application of the knowledge of pure sciences, as physics or chemistry, in construction of engines, buildings, mines, ships and chemical plants.

dictionary.com

Industrial Hygiene is…

- **…the art or science of anticipating, recognizing, evaluating and controlling health hazards arising from or within the workplace likely to cause harm to workers and the community.**

- paraphrased

Academic Preparation of the Engineer

- curriculum built on a foundation of basic sciences and mathematics
- specialized focus on applied science
- inherent development of specialized skills in problem solving
- intensive experiential component of learning

ABET Criterion 1: Curriculum

- **The curriculum must provide a thorough grounding in the basic sciences including chemistry, physics, and/or biology, appropriate to the objectives of the program. The curriculum must include engineering application of these basic sciences in design, analysis, and control of chemical, physical, and/or biological processes, including the hazards associated with these processes.**

- program criteria (chemical engineering)

ABET Criterion 3: Student Outcomes

Student outcomes include

(c) an ability to design a system, compound or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.

- general engineering criteria

Recent Relevant Developments

- ASSE, Guidelines for Addressing Occupational Risks…
- NSC, Institute for Safety Through Design
- SAChE, a variety of teaching materials
- Design for Construction Safety
- Minerva Safety Management Education
- Emerging mindset of “prevention through design”

Your input, please!

- **How/why did you become interested in engineering?**
- **Why/when did you become interested/involved in industrial hygiene, i.e., what attracted you to industrial hygiene?**
- **How would you suggest going about attracting more young engineers into the industrial hygiene profession (let your thoughts go wild!)?**

Some Possibilities

- Support to Industrial Hygiene programs → outreach to engineering students [academia]
- Develop and encourage campaigns through professional societies, e.g., ASME, AIChE [professional societies]
- Intensify Internship Interest [private sector]
- Industrial Hygiene presence at Career Fairs, etc. [recruiters]