



## Environmental Management Systems and Sustainability

Introduction to Environmental Management Systems Based on Sustainability Principles

1 Day

### COURSE DESCRIPTION

This seminar is a comprehensive overview of the environmental management systems (EMS) that are effective for sustainable mining and oil and gas operations. Due to the large areas, volumes of raw materials, and magnitudes of environmental impacts, natural resource operations require unique EMS. Rigorous, comprehensive environmental management systems (EMS) are necessary to properly manage affects on the environment and minimize corporate liability. Operating personnel must take ownership of environmental management by incorporation into standard work practices and procedures. Employee incentives cannot override environmental management goals. Conceptual framework based on sustainability principles through tactical implementation will be discussed. The objective of this seminar is to provide examples of robust EMS and the steps required to develop them. You will learn to:

- ◆ Identify appropriate environmental goals
- ◆ Establish compliant work practices
- ◆ Develop effective monitoring and reporting systems
- ◆ Provide for continuous improvement

### COURSE TOPICS

#### Overview of Sustainability Principles:

The conceptual framework for sustainability will be reviewed, starting with the principles outlined by the Bruntland Commission. Implications of the principles, which have been embraced by most environmental advocacy organizations and non-governmental organizations, for mining and oil and gas operations will be discussed. Special emphasis will be placed on extracting practical value for industrial operations from these broad concepts.

#### EMS Development:

While an EMS must necessarily be unique, it shares many common attributes with quality, safety, accounting and other compliance-oriented programs. Recognizing the corporate culture in which the EMS must function is a critical first step. Incorporation of that culture, or acknowledging and committing to a culture change, will ensure the success of the EMS. The EMS will become another notebook on the shelf if it does not resonate with the way the operation functions. The appropriate conceptual framework is essential.

Development of an EMS has been addressed by many initiatives, ranging from the US EPA's National Environmental Performance Track

(NEPT) to the International Standard Organization's 14000 series environmental management performance standards (ISO 14000). One of the standardized programs such as ISO might be appropriate for the operation or required by customers. Typically, an effective EMS is developed by adapting the standardized program to the individual entity.

#### EMS Implementation:

Implementation requires management commitment, a careful roll-out plan, persistence, and the aptitude to modify components that are ineffective. Practical measures to ensure success include clear communication of program objectives and implications to operations management, training of support staff and front-line supervisors responsibly for day-to-day implementation, and operations personnel. The successful EMS underscores sound business practices such as reduction in raw material costs be minimizing waste and reducing downtime lost to upsets, releases, or other environmental incidents.

#### A Sample of What Is Covered:

- Compliance with legal requirements and voluntary commitments
- Pollution prevention
- Continuous improvement in environmental

performance • Sharing information with the community  
Identification of significant aspects and impacts • Measurable objectives and targets • Active, documented programs to achieve objectives • Established roles and responsibilities • Established roles and responsibilities • Procedures for maintaining compliance and meeting performance objectives • Procedures for maintaining compliance and meeting

performance objectives • Procedures for communicating relevant information throughout the organization • Procedures for providing incentives to meet EMS requirements • Procedures for document control • Environmental training programs • Documentation of key EMS elements • Operation and maintenance programs for equipment • Emergency preparedness program

### **Biography of Instructor(s)**

The course coauthor and instructor, Mark Taylor, PG, is president of FGI and leads FGI's mining and forest products practice. This includes consulting for Holcim (US) Inc., Hanson, Chemical Lime, International Paper, Georgia-Pacific, and other major natural resource based companies. He was educated in geochemistry at Harvard (BA) and Michigan (MSc). Mark worked in minerals exploration and production for the first 12 years of his career. While with St. Joe Minerals Corporation, one of the largest international mining houses in the world, he was a research geochemist, mine geologist, mine engineer, and Assistant to the Vice President of Exploration. In that capacity, he was responsible for planning and tracking worldwide exploration projects and expenditures, and compiling reports for the board of directors. Mark's 17 year consulting career has focused on natural resource based industries. His experience includes hydrogeologic and geotechnical investigations, solid waste management, and regulatory negotiations. Mark has broad environmental experience directing projects that involve RCRA, CERCLA, SARA, NPDES, and state solid waste regulations. He provides expert testimony in support of litigation in the areas of geology, geochemistry and environmental science. His national practice includes major industrial facilities located across the Southeast and Gulf Coast to California and Minnesota.

The course is coauthored by Eric Snider, Ph.D., P.E., DEE, senior consultant with FGI. With more than 30 years of experience in the environmental consulting field, has attained prominence in the pollution prevention/process improvement discipline. His consulting career has spanned the municipal, industrial, and Federal government sectors. His areas of expertise include industrial wastewater engineering, pollution prevention/waste minimization, strategic environmental services, hazardous waste site remediation, and environmental communications/community outreach. Dr. Snider is an Adjunct Associate Professor of Environmental Engineering and Science at Clemson University, Clemson, South Carolina. He earned his degrees in chemistry and chemical engineering at Clemson.

### **WHAT IS INCLUDED**

- Course materials
- Lifetime no-charge consultation with the instructor by telephone
- Certificate of Attendance and Continuing Education Units