

EV-270 Sampling and Monitoring Procedures

4 Credit Hours

Prerequisites: EV-100 Occupational Safety and EV-200 Waste and Remediation; in addition, the student should have a knowledge of the following: CH-110 Basic Chemistry; and MA-095 Intermediate Algebra or equivalent

This course introduces students to a variety of sampling procedures used in industrial settings and for emergency response. Topics to be covered include sampling and monitoring devices, industrial hygiene monitoring, water and waste stream monitoring, ambient air sampling, soil, surface water, and ground water sampling. Emphasis will be placed on collecting and preserving representative samples, interpreting laboratory results, and on complying with relevant industry standards and federal regulations.

Course Objectives

At the end of this course, you should be able to:

1. Differentiate sampling and monitoring and identify situations requiring each. You will place present sampling and monitoring practices into historic and regulatory perspective and will additionally recognize the function of the hazardous materials technician relative to other environmental professionals. Finally, you will clarify the role of mathematics in sampling, monitoring, and laboratory analysis.
2. Operate various monitoring devices that provide information about environmental, workplace, and emergency response hazardous materials exposures. Based upon real and hypothetical monitoring data, you will analyze the information to make judgments about a recommended "next" course of action for a given situation.
3. Investigate the principles of and reasons for collecting representative samples, analyze issues related to sampling bias, calculate sampling frequency using the EPA SW-846 method, and determine sampling locations using a random numbers table and systematic gridding.
4. Select appropriate equipment for intrusive sampling of various media and wastes and be able to use the equipment safely and in a way that maintains the integrity of the samples. You will interpret laboratory reports and evaluate the results against regulatory requirements.
5. Apply sampling and monitoring practices to a hypothetical field situation. Emphasis shall be on site measurement, gridding, and marking as well as on development of the documentation/communication skills associated with fieldwork. Additionally, you will interpret a topographical map, interpret lab reports and evaluate their results against regulatory requirements.

Note: In this course the objectives do NOT include hands-on sampling of actual hazardous materials but do require students to simulate sampling and monitoring in exercises.