

COURSE TITLE:	Detection and Analysis In-Service	Course No. & Version:	HAZ032
TOPIC AREA:	Hazardous Materials	LEVEL:	Technician or Mission Specific
SOURCE:	Internal	Course No.	
PRIMARY DOMAIN:	<input type="checkbox"/> Didactic <input type="checkbox"/> Psychomotor <input checked="" type="checkbox"/> Combination		
DELIVERY METHOD:	30 % Lecture 70 % In Class Hands-on		
DURATION:	Hrs 7	SCHEDULING:	0830 – 1730
PROGRAM GOAL:	<p>This program is designed to provide the participants with an understanding of the basic principles and proper use of specific air monitoring/detection instruments during hazardous materials emergency response to transportation and fixed facility incidents. This program is scheduled for 1 day of classroom and hands-on instruction involving working with the equipment in a table top mode of operation. This program specifically addresses the selection, care, and use of the following instruments. Radiological survey and dosimeter instruments, four and five gas detectors and photo/flame ionization detectors.</p>		
TARGET AUDIENCE:	<p>The target audience for this program includes emergency response personnel responsible for the implementation of air monitoring procedures during the initial stages of a hazardous materials emergency response.</p>		
COURSE DESCRIPTION:	<p>This one day program begins in the morning with a basic review of the principles of air monitoring instrumentation and their application process. This is followed by workstations designed to reinforce the start-up, use and interpretation of instruments in a table-top fashion using actual material samples.</p>		
MAX STUDENTS:	24	MAX INST. RATIO:	1:8
STANDARDS MET:	<p>This program addresses related competencies of NFPA 472 Chapter 6.7.3.1 & 2 Florida SERC Competency OPS AMS 1.1 & 1.2</p>		
APPROVALS			
Organization	No. / Date	Conditions	
NOTES			

EDUCATIONAL OBJECTIVES

Prerequisite: Core Operations; mission-specific competency in the use of PPE as required to support air monitoring and sampling

Training: 8 hours in classroom and physical skills lab

Refresher: Competencies include:

- Selecting detection or monitoring equipment suitable for solid, liquid, or gaseous hazardous materials/WMD
- Describing capabilities and limitations of local monitoring, field testing and maintenance procedures associated with each monitoring device
- Describing the local procedures for technical decontamination of themselves and their detection and monitoring devices

Annual refresher recommended to include retesting of air monitoring and sampling skills and re-demonstrating how to field test and operate each monitoring device, along with how to interpret readings based on local procedures.

OPS-AMS—1.1
NFPA 472 6.7.3.1

Given the air monitoring and sampling equipment provided by the AHJ, the operations level responder assigned to perform air monitoring and sampling shall select the detection/monitoring equipment suitable for detecting or monitoring for solid, liquid, or gaseous hazardous materials/WMD.

OPS-AMS—1.2
NFPA 472 6.7.3.2-3

Given detection/monitoring devices(s) provided by the AHJ, the operations level responders assigned to perform air monitoring and sampling shall describe the operation, capabilities and limitations, local monitoring procedures, field testing, and maintenance procedures associated with each device.

PROGRAM SCHEDULE

Topic	Objective	Process or Standard
Air Monitoring Plan	Identify the steps in the analysis process for identifying unknown atmosphere.	Florida SERC Unknown Analysis Procedures
	Describe the contents of an effective air-monitoring plan.	
	Select proper equipment types depending upon DOT hazard classification and initial hazard risk assessment.	Select equipment for both qualitative and quantitative analysis.
Radiological Instruments	Given radiological survey instruments, identify the capabilities, limitations, startup, use and interpretation procedures for each instrument.	Classroom presentation
	Given stimulant materials, demonstrate the ability to use and interpret readings provided by the radiological survey instruments and to apply the concepts of time, distance and shielding to determine appropriate risks and mission duration.	Instructor led learning lab with equipment and various samples
Multi Gas and PIDs	Identify the basic principles of photo-ionization as a detection principle.	Lecture on basic PID principles
	Identify the capabilities and limitations of photo-ionization and flame ionization detectors to include lamp energy, effects of humidity, concentration ranges, ionization potentials, presence of mixtures and relative response.	Lecture on basic PID principles
	Given readings from a PID and FID detector responding to the sample, identify the considerations for interpretation of the results obtained.	Instructor led learning lab with equipment and various samples
	Given contained samples of at least 3 unidentified hazard environments, develop hazard/risk assessment considerations based upon data gathered from both a PID and FID.	Small group activities using table top
Flame Ionization Detectors (FID)	Given a flame –ionization detector, the participant will be able to prepare, start operate and properly interpret the information provided by the instrument.	Lecture on basic principles of operation

Topic	Objective	Process or Standard
	Given stimulant materials, demonstrate the ability to use and interpret readings provided by the PID & FID detectors.	Instructor led learning lab with equipment and various samples
Summary Evaluation	Given the detection instruments addressed in this training program and scenarios involving both transportation and fixed location incidents, identify the appropriate equipment and properly interpret the detectors in accordance with the Florida SERC model procedure for air monitoring analysis.	Hands on simulation in lab classroom environment.