Permit Required Confined Space Entry Syllabus

Time: 24 hours

Maximum Class Size: 12

Prerequisites: None

Course Description: The Permit-Required Confined Space Entry course will train the participant to perform regular and permit-required confined space entry. The course covers the following topics: definition of confined space versus *permit required* confined space, hazardous atmospheres, pre-entry testing, controlling hazardous atmospheres, heat stress and cold stress, types of respirators and use, personal protective equipment and rescue equipment, duties of members of the entry team and how to fill out a permit. Hands on training will be given in using air monitors, personal protective equipment, ventilation, communication and rescue procedures.

Goals/Objectives/Student Learning Outcomes:

- Describe at least three characteristics of a confined space.
- Identify two factors that lead to fatal injuries in confined spaces.
- Describe the four characteristics of a permit-required confined space.
- Define and describe the three types of atmospheric hazards found in confined spaces.
- List the five types of airborne hazards.
- List and describe the six types of physical hazards found in confined spaces.
- List and describe four types of health effects.
- List the three most common routes of entry through which chemicals to enter the body.
- Define an acute exposure.
- Define a chronic exposure.
- List and describe the four types of heat stress.
- Describe ways to prevent heat stress.
- Explain and compare the differences, advantages, and disadvantages of direct-reading instruments (DRIs) vs. laboratory analysis of workplace samples.
- Identify two situations where atmospheric monitoring would typically be required during confined space entry operations.
- Given the proper equipment, conduct the required workplace monitoring for a mock (practice) permit-required confined space entry.
- Given various sample chemicals and the proper equipment, demonstrate the use and interpret the readings of colorimetric detector tubes and a multi-gas meter.
- List and explain the appropriate responses if a personal monitoring device or sampling pump fails.
- List the components of a permit-required confined space entry program.
- Explain the purposes of an entry permit.

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- List at least 5 of the 15 required elements of an entry permit.
- List the required elements of a pre-entry atmospheric testing.
- Identify the members of a confined space entry team and describe the duties of each.
- Describe at least two instances when training is required for confined space entry.
- Define ventilation.
- List and describe at least three problems associated with ventilating a confined space.
- List at least four controllable atmospheric hazards and the method to control them.
- Explain supply and exhaust ventilation; explain the advantages and disadvantages of each.
- List at least five planning considerations to be given when ventilating confined spaces; explain why each in important.
- Given a mock confined space, ventilation blower, and manufacturer's purge chart, calculate the amount of time to ventilate the confined space.
- Evaluate a mock confined space for atmospheric hazards; plan and set up ventilation to remove hazards for the space in the time specified on the purge chart.
- Define the following terms:
    - Affected employee
    - Authorized employee
    - Energy-isolating device
    - Energy source
    - Lockout
    - Lockout device
    - Tag/out
    - Tag/out device
- Identify the four categories of hazardous energy and the means for controlling each.
- Define the roles of affected and authorized employees when working under an energy control program.
- Given a scenario, identify potential sources of hazardous energy and a method for controlling each.
- Explain the term 'assigned protection factor' (APF) and 'maximum use concentration' (MUC) for a respirator.
- Explain the differences between an air-purifying respirator and an atmosphere-supplying respirator.
- Describe the following three air-purifying respirators and list the APF for each:
    - ½ face APR
    - FFAPR
    - PAPR
- List and explain at least six limitations of APRs.
- List and explain the three-filter series and three filter-efficiency levels for particulate filters.
- Explain the terms 'breakthrough" and 'warning properties' and list four steps that should be taken if breakthrough occurs.
- Explain the differences between the three delivery systems for breathing air:
    - Continuous flow
    - Demand
    - Pressure demand

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- Explain how a supplied airline respirator works. List three limitations of the SAR and APRs and both the SAR and the SAR with escape
- Explain how a self-contained breathing apparatus works, its limitations, and APF.
- Explain the difference between a qualitative and quantitative fit test, and give two examples of each.
- Demonstrate the proper procedures for inspecting and donning a FFAPR.
- Explain and demonstrate the proper procedure for performing a positive and negative user seal check on an APR.
- Demonstrate the proper procedures for inspecting and donning a SCBA.
- Complete the 25-question Permit-Required Confined Space Exit Exam with a score of 80% or above.

Standards Addressed:

California Code of Regulations, Title 8, Section 5156:	Scope, Application and Definitions
California Code of Regulations, Title 8, Section 5157:	Permit Required Confined Spaces
California Code of Regulations, Title 8, Section 5158:	Other Confined Space Operations
29 CFR 1926 1200-1213 Subpart AA:	Confined Spaces in Construction

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm
- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Textbooks/Readings/Materials

- *LIUNA: Permit Required Confined Space Entry* IG/PG
- 25-question Permit-Required Confined Space Exit Exam
- PowerPoint: *Permit-Required Confined Space Entry*
- Permit Required Confined Space Entry Student Handout Packet
- Video: Confined Space Entry
- Federal and California standards handouts

Tools/Equipment/Other Materials

- MS Altair

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- MS Altair User Manual
- MS Altair calibration kit
- Bottle of ammonia
- Bowl for ammonia
- Detector tube for carbon monoxide
- Mason jar-2
- Saran Wrap
- Combustible Gas Indicator (CGI)
- Plastic cup
- Butane lighter
- PIC
- Tripod
- Harness
- Confined space simulation site with ventilation equipment
- Straight edge (ruler or stick)
- SCBA
- Face-piece
- Wall-mounted mirror
- Cleaning and disinfecting supplies
- FFAPR
- P-100 filter cartridge
- One probed FFAPR
- Small bag, box, or hat

Personal Protective Equipment

- 12 pairs of gloves
- 12 pairs of Safety Glasses
- 20 pairs of Ear plugs
- 12 hard hats

Course Requirements

To receive credit for the course, participants must:

- Be present for full 24 hours
- Participate in all classroom exercises
- Pass a 25-question written exit exam

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Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment
- Participants who are on “light duty” are not allowed to take this course due to the physically demanding requirements.

Assessment and Grading

Participants will be assessed on the following:

- All written exams must be passed with a score of 80% or above.
- All hands-on exercises are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.