

Lone Peak Ventures
ASSE Medical Gas Course

Course Description

This course is an overview and refreshed of the latest edition of NFPA 99 and the new changes and technologies. In addition we will review the basics of the NFPA 99 sections as they relate to medical gas in a healthcare setting. The class will be taught via webinar in 2-4 sessions.

Instruction provides information (2018 Edition of NFPA 99 Gas and Vacuum Systems and ASSE 6000) related to the material, components and equipment that the student might find themselves in contact with regarding the Medical Gas Pipeline System in Category 1, 2 and 3 Healthcare Facilities.

Course Outline – Length: 12 Hours

1. Installation of Piping –
 - A. Sizing
 - B. Protection
 - C. Location
 - D. Support
 - E. Underground
 - F. Branch Takeoffs

2. Qualification of Installers –
 - A. Who is a qualified Installer
 - B. Qualification of Brazing Procedures and Brazing
 - C. Employer Brazer Qualification Records

3. Labeling and Identification –
 - A. Piping
 - B. Shutoff Valves
 - C. Source Valves
 - D. Main Line Valves
 - E. Riser Valves
 - F. Service Valves
 - G. Station Outlets & Inlets
 - H. Alarm Panels

4. Installer Performed Tests –
 - A. General

Lone Peak Ventures
ASSE Medical Gas Course

- B. Blow Down
 - C. Pressure Test
 - D. Cross Connection
 - E. Piping Purge
 - F. Standing Pressure Test for Positive Pressure Medical Gas Piping
 - G. Standing Vacuum Test for Vacuum System
5. Performance Criteria & Testing –
Level I Gases, Medical Vacuum, WAGD
- A. General
 - B. Which Facilities need testing
 - C. What areas of each Facility need testing
 - D. Who is the responsible authority at each Facility
6. System Verification – Section Quiz # 2
- A. General
 - B. Standing Pressure Test
 - C. Cross-Connection Test
 - D. Individual Pressurization
 - E. Pressure Differential
 - F. Valve Test
 - G. Alarm Test
 - H. Master Alarms
 - I. Area Alarms
 - J. Piping Purge Test
 - K. Piping Particulate Test
 - L. Piping Purity Test
 - M. Final Tie-In Test
 - N. Operational Pressure Test
 - O. Medical Gas Concentration Test
 - P. Medical Air Purity Test (Compressor System)
 - Q. Labeling
 - R. Source Equipment Verification
 - a. General
 - b. Gas Supply Sources
 - c. Medical Air Compressor Systems
 - d. Medical-Surgical Vacuum Systems
 - e.
 - S. Level I Operation and Management
 - a. Special Precautions – Piped Patient Gas/Vacuum Systems

Lone Peak Ventures
ASSE Medical Gas Course

b. Gas/Vacuum Systems Information and Warning Signs

7. Central Supply Systems - -
 - A. Ventilation
 - B. Design & Construction
 - C. Identification and Labeling
 - D. Location
 - E. Emergency Oxygen Supply Connection
 - F. Bulk Oxygen
 - G. Manifolds

8. Medical Air Compressors –
 - A. Reciprocating
 - B. Rotary Vane
 - C. Liquid Ring
 - D. Aftercoolers
 - E. Receivers
 - F. Dryers
 - G. Filters
 - H. Regulators
 - I. Local Alarms/Operating Alarms
 - J. Piping Arrangements
 - K. Dew Point

9. Medical Vacuum Systems –
 - A. Locations
 - B. Receivers
 - C. Alarms
 - D. Piping
 - E. Exhaust
 - F. WAGD Sources, Alarms, Exhaust

10. Instrument Air
 - A. Sources
 - B. Intake
 - C. Filters
 - D. Piping
 - E. Alarms

11. Valve Types -

Lone Peak Ventures
ASSE Medical Gas Course

- A. Types
 - B. Source
 - C. Main
 - D. Riser
 - E. Service
 - F. Zone Valves
 - G. In-Line Valves
12. Station Outlets/Inlets –
- A. Station Outlets/Inlets configuration description
 - B. Station Outlets/Inlets using Non-Standard Operating Pressures
13. Manufactured Assemblies -
- A. Surface Mounted Medical Gas Rails
 - B. Pressure and Vacuum Indicators
 - C. Pressure and Vacuum Indicator Locations
14. Level I Warning Systems -
- A. General Information
 - B. Master Alarm
 - C. Area Alarm
 - D. Local Alarms
15. Level I Distribution -
- A. Positive Pressure Medical Gas Piping
 - B. Medical Vacuum and WAGD
 - C. Vacuum Tubing Marking
 - D. Fittings
 - E. Brazed Joints – cutting, cleaning
 - F. Dissimilar Metals – Inspection
 - G. Nitrogen Purge
 - H. Welded Joints, Prohibited Joints
16. Level I, II & III Source Systems & Distribution
- A. Level I Support Gases
 - B. Level 2 Piped Gas and Vacuum Systems
 - C. Level 3 Piped Gas and Vacuum Systems

Lone Peak Ventures
ASSE Medical Gas Course

- 17. Written - Sample Final Exam – 100 Questions (Closed Book) -
 - A. Sample Final Exam Discussion -

- 18. Copper Tubing Brazing
 - A. Instruction and demonstration on the following Medical Gas Piping Brazing Techniques
 - a. Heating a Joint
 - b. Applying Brazing Filler Metal
 - c. Making Horizontal Joints
 - d. Making Vertical Joints
 - e. Safety Measures
 - B. Discuss Medical Gas Piping Course Brazing Technique and Horizontal & Vertical Brazing Procedure

Objective

The main objective of this 12 hour Medical Gas Course is to provide training and testing regarding the operation, application and code requirements to individuals who are responsible for the medical gas pipeline systems.