

## **6. Visual Inspection Procedure Instructor**

### **6.1 Introduction**

This course provides the training of visual inspectors to a level whereby they can teach the SDI Visual Inspection Procedure to others. The course is to teach inspector instructor candidates proper inspection techniques including; inspecting steel, aluminum and composite cylinders. Valve rebuilds, cleaning compressors and basic safe handling protocols. . A great deal more emphasis is placed on the knowledge base of the instructor candidate than is normally required of a cylinder inspector.

### **6.2 Qualifications of Graduates**

Upon successful completion of this course, graduates may:

1. Teach others to visually inspect high-pressure cylinders, rebuild valves, clean cylinders and components, understand compressors and know some of the rules and regulations for inspecting high pressure cylinders and their components. Certification is valid for three years. Completion of a refresher/update is required to renew the rating.

### **6.3 Who May Teach**

1. Any active SDI VIP Instructor Trainer may teach this course
2. A non-diving professional who has the written permission of SDI and has a vast knowledge of high pressure cylinders. Examples may be hydro testers, fire fighters or others involved with the high pressure gas industry. Such individuals must complete the Non-Diving Specialty Instructor course along with this course.

### **6.4 Student to Instructor Ratio**

1. Maximum 3 instructor candidates per demonstration setup; tools and cylinders for the practical
2. Maximum 25 candidates per active SDI Instructor Trainer

## 6.5 Student Prerequisites

1. Minimum age 21
2. Minimum certification, SDI Assistant Instructor or Non-Diving Specialty Instructor
  - a. Non – diving professionals with the written permission of SDI
3. Affiliated with an organization that has a high pressure air compressor and fill station
4. Provide proof of having inspected at least 50 high-pressure cylinders. Proof will be in the form of the completion of written visual inspection documents.
5. Visual Inspector for a minimum of 6 months

## 6.6 Course Structure and Duration

### The student must able to:

1. Teach how to visually inspect high-pressure cylinders for defective conditions that could cause a cylinder failure using the SDI program

### Course Structure

1. SDI allows instructors to structure courses according to the number of students participating and their skill level
2. Classroom lectures and demonstrations
3. Each student must have a cylinder in their possession during the course

### Duration

1. Suggested minimum number of training hours is 6

## 6.7 Administrative Requirements

### Administrative Tasks

1. Collect the course fees from all the students
2. Ensure that the students have the required equipment
3. Communicate the schedule to the students
4. Have the students:
  - a. Complete the *SDI Liability Release and Express Assumption of Risk Form*

### Upon successful completion of the course the instructor trainer must:

1. Issue the appropriate SDI certification by submitting the appropriate SDI Dive Leader Registration form and other required paperwork to SDI Headquarters

## 6.8 Required Equipment

**The following equipment is the minimum required per inspection group while performing the visual inspection procedure. The instructor trainer may provide the required equipment.**

1. Steel, Aluminum or composite cylinder
2. A right angle mirror with a magnification of 2 times, and having a diameter small enough to enter the cylinder neck
3. An inspection light of sufficient size and intensity to illuminate the mirror and threads being inspected
4. A light wand or other light source to illuminate the interior surfaces of the cylinder being inspected
5. A straight and right angle pick and method pit reference gauge to estimate the depth of any pitting noted on the cylinder walls

## 6.9 Required Subject Areas

**The *SDI Visual Inspection Procedures Student Manual* and the *SDI Visual Inspector Instructor Manual* are mandatory for use during this course. SDI offers the following support materials:**

1. *SDI Visual Inspection Procedures Student Manual*
2. *SDI Visual Inspection Procedures Instructor Manual*
3. *SDI Visual Inspection Procedures PowerPoint presentation*

**Instructor trainers may use any additional text or materials that they feel help present these topics. The following topics must be covered:**

1. Purpose.
2. Rules and Regulations
3. Safe Handling of Cylinders
4. Fill Station Operator Rules and Recommendations
  - a. Identification of the various cylinder markings
  - b. Filling procedures
  - c. Use of EOI stickers and interpretation of EOI stickers
5. Tools and Their Uses
6. Visual Inspection Indications
  - a. Proper identification of the various defect conditions
7. Criteria for Rejection and Condemnation of a Cylinder
8. Other Services
  - a. Valve inspection and cleaning
  - b. The basis for cylinder cleaning
9. Visual Inspection Procedure using an inspection form
  - a. Step by step walk-through of the inspection process

## 6.10 Required Skill Performance and Graduation Requirements

The student is required to display a degree of competency in the identification of various defect conditions presented to him by the instructor using actual cylinders with known defective conditions. In order to complete this course, the student is required to:

1. Inspect 3 cylinders with at least 1 having a defective condition
2. Satisfactorily complete the SDI Visual Inspection Provider written examination
3. Satisfactorily complete the SDI Visual Inspection Instructor written examination
4. Demonstrate the ability to identify those conditions in a cylinder that would reject or condemn it