LESSON PLAN #	TOPIC	RSO or Work Party Both Training Frequency	SUBJECTS
1	Fire Prevention	RSO & Work Party Annual Intial Assignment	**Fire prevention plans (Subpart E – Exit Routes and Emergency Planning)** 1910.39 Fire prevention plans (Subpart E – Exit Routes and Emergency Planning) Fire Protection and Prevention 1926.150 Fire protection 1926.155 Definitions applicable to this subpart 1910.155 Fire protection (Subpart L – Fire Protection) 1910.157 Portable fire extinguishers (Subpart L – Fire Protection)
2	Emergency Action Plan	RSO & Work Party Annual Intial Assignment	**1910.38 Emergency action plans (Subpart E – Exit Routes and Emergency Planning)** 1926.35 Employee emergency action plans
3	Occupational Noise Exposure	RSO & Work Party Annual Intial Assignment	**Subpart G – Occupational Health and Environmental Control** 1910.95 Occupational noise exposure 1926.52 Occupational noise exposure
4	Lead, Toxic, Hazardous Substances	RSO & Work Party Annual Intial Assignment	**Subpart Z – Toxic and Hazardous Substances** **1910.1025 Lead**
5	Accident Prevention Signs & Tags Personal Protective & LifeSaving Equipment Hazard Communication Plan	RSO & Work Party Annual Intial Assignment	**Subpart J – General Environmental Controls** 1910.145 Specifications for accident prevention signs and tags **Subpart E – Personal Protective and Life Saving Equipment** 1926.102 Eye and face protection **OSHA 29 CFR 1910.1200** Hazard Communication Plan
6	Respiratory Protection	Work Party Annual & As Requred Intial Assignment	**Personal Protective Equipment** 1910.134 Respiratory protection 1926.103 Respiratory protection 1910.134 Respiratory protection
7	Welding, Cutting, Brazing	Work Party Annual Intial Assignment	**Subpart Q – Welding, Cutting, and Brazing** 1910.252 General requirements 1910.253 Oxygen-fuel gas welding and cutting 1910.254 Arc welding and cutting 1926.350 Gas welding and cutting 1926.351 Arc welding and cutting 1926.352 Fire prevention
8	General Safety & Health Provisions	Work Party Annual Intial Assignment	**1926.20 General safety and health provisions** 1926.21 Safety training and education 1926.32 Definitions.
9	Medical Services & First Aid Tools (Hand and Power)	Work Party Annual Intial Assignment Work Party Annual Intial Assignment	**Occupational Health and Environmental Controls** 1926.50 Medical services and first aid **Tools – Hand and Power** 1926.300 General requirements 1926.302 Power-operated hand tools
10	Electrical	Work Party Annual Intial Assignment	**Electrical** 1926.416 General requirements 1910.147 The control of hazardous energy (lockout/tagout).
11	Motor Vehicles, Mechanized Equip Operations	Work Party Annual & As Requred Intial Assignment	**Motor Vehicles, Mechanized Equipment, & Marine Operations** 1926.602 Material handling equipment 1910.178 Powered industrial trucks
12	Stairways and Ladders	Work Party Annual	**Stairways and Ladders** 1926.1060 Training requirements

LESSON PLAN 1

Fire prevention plans (OSHA 1910.39, 1926.155, 1910.155, 1910.157)

1. Major Fire hazards/Ignition Sources

    a. Ammunition Fired down range (Tracers/Ricochet)
    b. Ammunition
    c. Smoking on Range
    d. Firearm Usage on the Range
    e. Black Powder usage on the Range
    f. Welding (Arc and Gas)
    g. Grinding of metals

2. Control of Fire Hazards

    a. Ammunition restrictions (Tracers)
    b. Ammunition handling procedures
    c. Designated smoking areas
    d. Clean berms of all vegetation (Scheduled Maintenance procedure)
    e. Clear firing lines of all vegetation for 50 feet for Black Powder.
    f. Clear Welding area of all vegetation
    g. Clear Grinding area of all vegetation

3. Types of Fires

    a. Class “A” – Combustible materials (Wood, Paper or textiles)
    b. Class “B” – Flammable Liquids (gas, diesel, paint or oils)
    c. Class “C” – Flammable Gases (Hydrogen, Butane, Methane)
    d. Class “D” – Combustible Metals (Magnesium, Aluminum or Potassium)
    e. Class “E” – Electrical Fires (Electrical Equipment)
    f. Class “F” – Cooking Oils (Deep Fat Fryers)

4. Fire Fighting Equipment

    a. Shovels – Located near each range or in the RSO building
        i. Effective for Class A type fires that can be smothered with dirt

    b. Fire Extinguishers – One per Range near the RSO building

        i. Fire Extinguishers are the Dry Chemical type. (Checked Annually)

            1. Operation, “PASS”
                P – Pull the Pin
                A – Aim at the base of the fire
                S – Squeeze the trigger to release extinguishing agent
                S – Sweep the fire from side to side at base of fire

ii. Dry Chemical will cover the following type of fires
    1. Class “A” – Combustible materials (Wood, Paper or textiles)
    2. Class “B” – Flammable Liquids (gas, diesel, paint or oils)
    3. Class “C” – Flammable Gases (Hydrogen, Butane, Methane)
    4. Class “D” – Combustible Metals (Magnesium, Aluminum or Potassium)
    5. Class “E” – Electrical (Dry chemical will destroy the electrical components)
        Note: Securing power will turn a Class “E” fire into a Class “A” Fire.

c. Fire Watch with Fire Extinguisher near welding location

5. Exit Routes

    a. North on Marron Valley Road to HW-94

    b. South on Marron Valley Road to Otay Truck Trail
        Note: Not suitable for most vehicles

LESSON PLAN 2

EMERGENCY ACTION PLANS (OSHA 1910.38)

Emergency Action Plan is in each RSO building in the SOP metal compartment/folder

Cover all areas listed below: (Areas covered in the Emergency Action Plan)

1. Emergency Action Plan – Cover/Intro
    - Directions to Range Complex
    - Location for Helicopter Operations
    - Club Points of Contact
    - Emergency Phones numbers
    - Utility (Electric, Gas and Telephone)

2. Emergency Equipment
    - AED
    - First Aid
    - First Aid Trauma Kits/1st Responder Kit
    - Emergency Phone
    - Fire Extinguisher
    - Shovels/Rakes

3. First Responders
    - Primary Personal
    - Scene Safety
    - Emergency Equipment
    - Call Emergency Responders
    - Direct Emergency Responders

4. Medical Emergency
    - Call 911
    - Perform

5. Fire Emergency
    - On Range
    - Off Range

6. Active Shooter
    - Evaluate
    - Hide Out
    - Resist
    - When Law Enforcement/Sheriff Deputies Arrive

7. Weather / Approaching Fire / Natural Disasters
    - Weather
    - Approaching Fire

8. Natural Disaster

9. Evacuation of Personal
    - Head count of all personal
    - Direct evacuation of range to HWY-94
    - Direct evacuation of ranges to Otay Truck Trail
    - Shelter in Place

EMPLOYEE EMERGENCY ACTION PLANS (1926.35)

Training.

1. Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

2. The employer shall review the plan with each employee covered by the plan at the following times:

    a. Initially when the plan is developed,
    b. Whenever the employee's responsibilities or designated actions under the plan change, and
    c. Whenever the plan is changed.

3. The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.

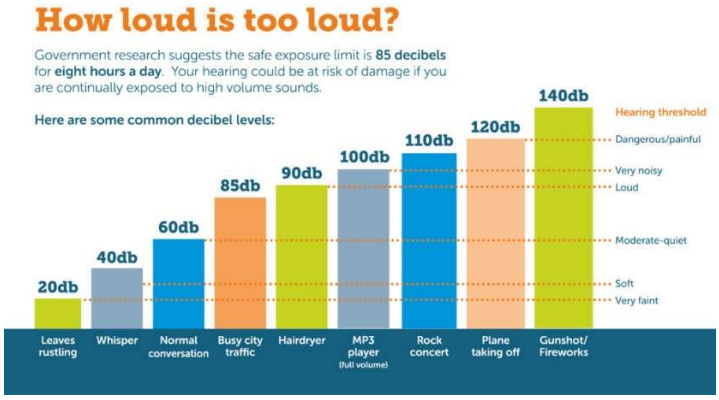
LESSON PLAN 3

OCCUPATIONAL NOISE EXPOSURE (OSHA 1910.95)

Noise Exposure: With noise, OSHA's permissible exposure limit (PEL) is 90 dBA for all workers for an 8 hour day. The OSHA standard uses a 3-dBA exchange rate. This means that when the noise level is increased by 3 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half.

Noise level (dB)	Maximum exposure time per 24 hours
85	8 hours
88	4 hours
91	2 hours
94	1 hour
97	30 minutes
100	15 minutes
103	7.5 minutes
106	3.7 minutes
109	112 seconds
112	56 seconds
115	28 seconds
118	14 seconds
121	7 seconds
124	3 seconds
127	1 second
130–140	Less than 1 second
140	No Exposure

Source: (NIOSH, 1998)[11]



South Bay Rod & Gun Cub currently falls in the Industry standard. (There is no standard for gun ranges) Note: The dB ratings level is for continuous noise over an 8-hour period.

The noise must be monitored over 8-hour time weighted average of 85 decibels
Gun Shots are an impulse noise, not continuous noise.

Personal who are exposed to noise at or above an 8-hour time weighted average of 85 decibels shall be paced on the hearing conservation program.

When to wear hearing protection

- If you have to raise voice to speak to a person 2-3 feet away
- If your ears “Ring” after noise exposure
- If after leaving the noise area, and sounds are “dull, flat or muffled”
- If noise is measured at 85dB(A) and above

Effects of Noise on Hearing:

- Exposure to high levels of noise can cause permanent hearing loss. Neither surgery nor a hearing aid can help correct this type of hearing loss. Short term exposure to loud noise can also cause a temporary change in hearing (your ears may feel stuffed up) or a ringing in your ears (tinnitus)

Hearing Protectors

a. Purpose of Hearing Protectors: Hearing protection devices reduce the noise energy reaching and causing damage to the inner ear.
   - A device worn to reduce the level of sound entering the ear
   - Considered last choice against hazardous noise

- Generally, provide greatest protection from high frequency noise and less in low frequency noise.

b. Disadvantages of Hearing Protections
   - Interferes with objects close to the hearing protection. (Rifles, Hats etc.)
   - Requires something to be in the ear or on the ear
   - One size doesn't always fit all
   - If not properly inserted, or placed on the ear the amount of attenuation is reduced
   - Reusable on a limited basis, Not washable & Can be hard to fit
   - If not properly cared for, it can insert dirt, infection into ear

c. Factors determining user acceptance of HPD's (Hearing Protection Devices)
   - Convenience, availability and choices
   - Beliefs that the protector
   - Can be worn correctly
   - Will prevent hearing loss
   - Will not impair important sounds
   - Comfort & Ease of fit
   - Adequate noise reduction
   - Compatible with other personal protection equipment

Ear muffs and earplugs are the most common types of Personal Protection Equipment (PPE)

- Earplugs (Attenuation of approx. 33 dB)
  - 1/4"-1/2" foam/fiber – rolled, inserted and held (30-40 Sec.) to expand, to fill ear canal
  - Available in standard sizes
  - Generally comfortable to wear
  - Refusable on a limited basis

- Ear Muffs (Attenuation of approx. 25 dB)
  - Ear cushions that seal against head and directly over outer ear
  - Require periodic replacement
  - One size fits most
  - Generally, provide greater protection
  - Can be uncomfortable in hot work areas, or vigorous work activity

Audiometric Testing

- An audiometry exam tests your ability to hear sounds. Sounds vary, based on their loudness (intensity) and the speed of sound wave vibrations (tone). Hearing occurs when sound waves stimulate the nerves of the inner ear. The sound then travels along nerve pathways to the brain

OCCUPATIONAL NOISE EXPOSURE (1926.52)

- In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered.

LESSON PLAN 4

Lead, Toxic and Hazardous Substances (OSHA 1910.1025)

Lead levels in the human body can increase from the following means

- Breathing lead dust particles.
- Ingesting lead when smoking, eating, and drinking items that have lead residue on them.

Lead Exposure locations:

- When primers are denotated then Lead is exposed as a fine powder from the muzzle end of the firearm forward toward the impact berm covering the table tops, benches and the firing line. Small amounts are also deposited on the cartridge case which will generally be handled by personal.
    - Lead residue that is deposited on the Table Tops, Benches or Firing line will be picked up by touch and can be ingested.
    - There are signs posted in the lead exposure area that state: No Smoking, Eating or Drinking on the firing line.
    - Personal who touch table tops, benches or handle cartridges will transfer lead to other surfaces (Door knobs to restrooms, etc.)
- Lead projectiles may leave small traces of solid lead at the firing line and the lead projectile will be retained in the impact berm. (This is the most secure form of Lead)

Permissible Exposure Limit (PEL)

- The standards sets a permissible exposure limit (PEL) of fifty micrograms of lead per cubic meter of air (50 ug/m(3)), averaged over an 8-hour work-day.

Exposure Monitoring

- The average airborne exposure level on the firing line at outdoor gun ranges is not readable due to extremely low levels.
- The average contact exposure level on the firing line tables and benches is low. Personal are required to use De-Lead soap to remove lead from their contact points

Methods of Compliance

- Restricted access to lead hazard zones (Impact Berm)
- Lead Monitoring of exposure areas (Firing line)
- Open air ranges help minimize exposure to concentration of lead dust.
- No Sweeping is allowed on firing line
- No personal are allowed in the impact zone unless wearing PPE equipment.

Respiratory Protection

- Required when the Permissible Exposure Limit is exceeded in a lead hazard zone

Protective Work Clothing and Equipment.

- Required when the Permissible Exposure Limit is exceeded in a lead hazard zone.

Housekeeping

- Lead Clean up Wipes are used on shooting benches as required.
- Professional Lead Recyclers are used to clean the impact berms.

Hygiene Facilities and Practices

- Emergency Shower is available at the Range 6 restroom facility (Outside Only)
- De-Lead Soap is available at the Range 6 restroom facility
- Signs posted on firing line: “No Smoking, No Eating & No Drinking on the Firing Line.

Medical Surveillance

- Biological Monitoring when required
- Medical Examinations when required

Medical Removal Protection

- When a employee exceeds the Maximum Lead Exposure level they will be removed from work in that location and placed on a lead monitoring levels via blood level measurement by medical personal.

General Information for each employee is listed below:

- The specific nature of the operations which could result in exposure to lead above the action level;
  - Breathing dust from the bullet impact zones without proper protective equipment.

- The purpose, proper selection, fitting, use, and limitations of respirators
  - This will be accomplished by the medical facility that issues the respirators for a specific purpose once the employee assigned to a project/job that requires exposure to lead.
  - Respirators will be only used when actively engaged in lead removal from head hazard zones.
  - Individuals are not authorized to obtain respirators unless part of the Lead Monitoring Program and receive a medical referral based on a Blood Level measurement by medical personal to establish a base line.

- The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females)
  - South Bay Rod & Gun Club personal will not be allowed to enter lead hazard zones. Normal day to day operation at the range does not require that a person enter a lead hazard zone. Impact zone lead mining.

- The engineering controls and work practices associated with the employee’s job assignment; None required
  - There are no requirements for South Bay Rod & Gun Club Range personal or maintenance personal to enter a lead hazard zone for the purpose of lead mining.

- The contents of any compliance plan in effect. None in place – No requirement

- Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician. If lead levels are exceeded, then the individual will be under control of a license physician.

LESSON PLAN 5

Accident Prevention Signs and Tags (OSHA 1910.145)

Classification of signs according to use

- Danger signs.
  - Danger signs indicate immediate danger and that special precautions are necessary.

- Caution signs.
  - Caution signs indicate a possible hazard against which proper precautions should be taken.

- Safety instruction signs.
  - Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.

- **Danger Tags and/or Electrical Lockout** – When electrical work is scheduled or in progress, Red Danger tags or Electrical Lock out will be placed on the affected circuit.

- **Red lines on the Concrete/Walls** – Indicates that a danger is present when forward of the line during Live Fire of Firearms.

- **Yellow Lines on the Concrete/Walls** – Indicates that you are entering into a caution zone where firearms are handled with live ammunition.

Personal Protective and Life Saving Equipment

Eye and Face Protection (OSHA 1926.102)

General

(2) Eye and face protection equipment required by this Part shall meet the requirements specified in American National Standards Institute, Z87.1-1968, Practice for Occupational and Educational Eye and Face Protection. [SEE: ANSI Z87.1 – 1968 Section 4.9 “When limitations or precautions are indicated by the manufacturer, they shall be transmitted to the user and care taken to see that such limitations and precautions are strictly observed.”

South Bay Rod & Gun Club
Hazard Communication Plan

Hazard Communication Plan is broken up into nine sections:

1. General
2. Container Labels
3. Safety Data Sheets
4. Employee Information and Training
5. Hazardous Non-Routine Tasks
6. Chemicals in unlabeled Pipes
7. Multi-Employee Work Sites
8. Hazardous Chemical Section
9. Applicability of Policy

SDS Should include the following sections. **(See MSDS/SDS Book in Range 6 RSO Bldg)**

1. Identification
2. Hazard(s) Identification
3. Composition/Information on ingredients
4. First-Aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and stowage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal Considerations
14. Transport information
15. Regulatory information
16. Other information, including date of preparation or last revision.

LESSON PLAN 6

Respiratory Protection (OSHA 1910.134)

Training and information. This paragraph requires the employer to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur **annually**, and more often if necessary. This paragraph also requires the employer to provide the basic information on respirators in Appendix D of this section to employees who wear respirators when not required by this section or by the employer to do so.

(1) The employer shall ensure that each employee can demonstrate knowledge of at least the following:
   i. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
   ii. What the limitations and capabilities of the respirator are;
   iii. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
   iv. How to inspect, put on and remove, use, and check the seals of the respirator;
   v. What the procedures are for maintenance and storage of the respirator;
   vi. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
   vii. The general requirements of this section.

(2) Training shall be conducted in a manner that is understandable to the employee.

(3) The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.

(4) An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified in paragraph (1)(i) through (vii) is not required to repeat such training provided that, as required by paragraph (1), the employee can demonstrate knowledge of those element(s). Previous training not repeated initially by the employer must be provided **no later than 12 months** from the date of the previous training.

(5) Retraining shall be administered annually and when the following situations occur:
   i. Changes in the workplace or the type of respirator render previous training obsolete;
   ii. Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
   iii. Any other situation arises in which retraining appears necessary to ensure safe respirator use.

(6) The basic advisory information on respirators, as presented in Appendix D of this section, shall be provided by the employer in any written or oral format, to employees who wear respirators when such use is not required by this section or by the employer.

Respiratory Protection (OSHA 1926.103)

Note: The requirements applicable to construction work under this section are identical to those set forth at 29 CFR 1910.134 of this chapter.

Respiratory Protection (OSHA 1910.134)

(a) Permissible Practice

(2) A respirator shall be provided to each employee when such equipment is necessary to protect the health of such employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program, which shall include the requirements outlined in paragraph (c) of this section. The program shall cover each employee required by this section to use a respirator.

(c) Respiratory protection program. This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator. The Small Entity Compliance Guide contains criteria for the selection of a program administrator and a sample program that meets the requirements of this paragraph. Copies of the Small Entity Compliance Guide will be available on or about April 8, 1998 from the Occupational Safety and Health Administration's Office of Publications, Room N 3101, 200 Constitution Avenue, NW, Washington, DC, 20210 (202-219-4667).

(1) In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The employer shall include in the program the following provisions of this section, as applicable:

(i) (vii) Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;

(ii) (viii) Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and

(2) The employer shall designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

(3) The employer shall provide respirators, training, and medical evaluations at no cost to the employee.

(k) Training and information. This paragraph requires the employer to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually, and more often if necessary. This paragraph also requires the employer to provide the basic information on respirators in Appendix D of this section to employees who wear respirators when not required by this section or by the employer to do so.

(1) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(i) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;

(ii) What the limitations and capabilities of the respirator are;

(iii) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;

(iv) How to inspect, put on and remove, use, and check the seals of the respirator;

(v) What the procedures are for maintenance and storage of the respirator;

(vi) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and

(vii) The general requirements of this section.

(2) The training shall be conducted in a manner that is understandable to the employee.

(3) The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.

(4) An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified in paragraph (k)(1)(i) through (vii) is not required to repeat such training provided that, as required by paragraph (k)(1), the employee can demonstrate knowledge of those element(s). Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.

(5) Retraining shall be administered annually, and when the following situations occur:

(i) Changes in the workplace or the type of respirator render previous training obsolete;

(ii) Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or

(iii) Any other situation arises in which retraining appears necessary to ensure safe respirator use.

(6) The basic advisory information on respirators, as presented in Appendix D of this section, shall be provided by the employer in any written or oral format, to employees who wear respirators when such use is not required by this section or by the employer.

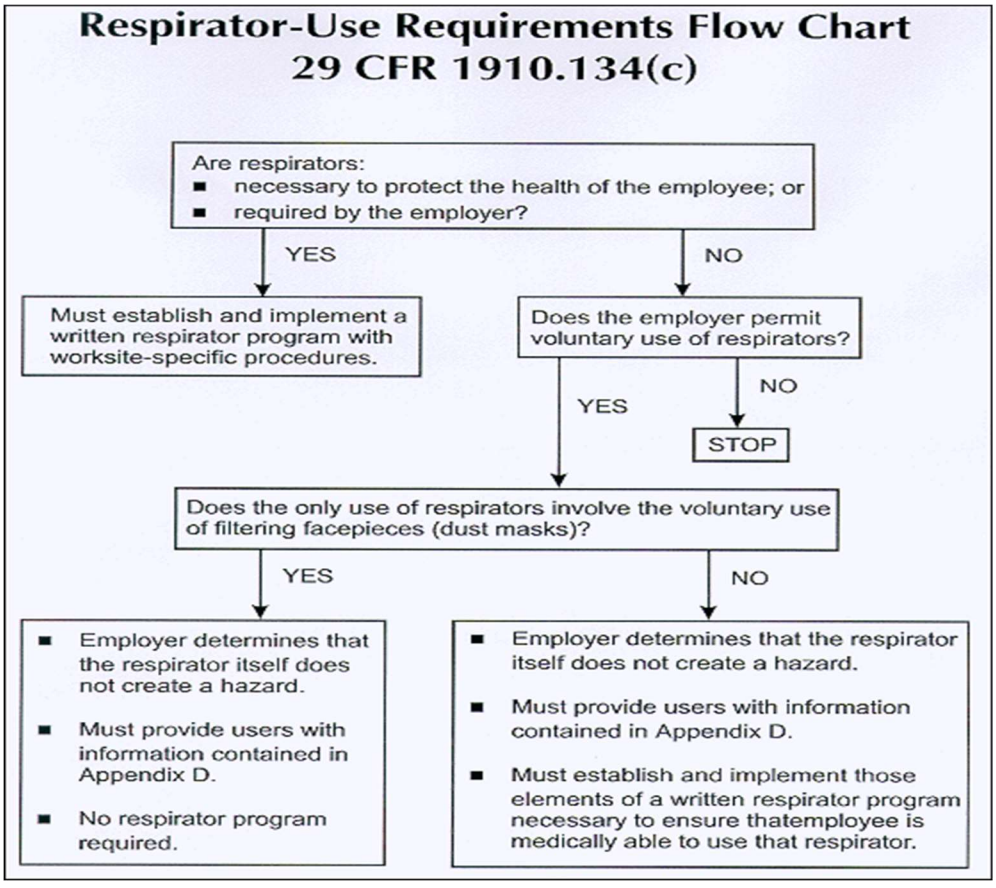
Appendix D – Free On-site Safety and Health Consultation Services for Small Business

OSHA's On-site Consultation Program offers free and confidential advice to small and medium-sized businesses in all states across the country, with priority given to high hazard worksites. Each year, responding to requests from small business owners looking to create or improve their safety and health management programs, OSHA's On-site Consultation Program conducts over 29,000 visits to small business worksites covering over 1.5 million workers across the nation.

On-site consultation services are separate from enforcement and do not result in penalties or citations. Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing safety and health management programs.

For more information, to find the local On-site Consultation office in your state, or to request a brochure on Consultation Services, visit www.osha.gov/consultation, or call 1-800-321-OSHA (6742).

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation includes, but is not limited to, receiving a full-service, comprehensive consultation visit, correcting all identified hazards and developing an effective safety and health management program. Worksites that receive SHARP recognition are exempt from programmed inspections during the period that the SHARP certification is valid.



LESSON PLAN 7

Welding, Cutting, and Brazing

- **General Requirements (OSHA 1910.252)**
  - Fire prevention and protection
    - Special precautions. When the work is away from the approved welding, cutting, or brazing area (Maintenance Area) then additional precautions must be set in place.
      - Rural area has a high probability of fires due the desert climate and the type of brush/vegetation in the area.
        - Clearing of brush/vegetation in the area.
        - Having adequate fire suppression equipment/personal available
        - Posting a fire watch.
    - Cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.
- **Arc Welding and Cutting (OHSA 1910.254)**
  - Workmen designated to operate arc welding equipment shall have been properly instructed and qualified to operate such equipment.
  - Certified Welders and/or job history of Arc Welding.
- **Gas Welding and Cutting (OHSA 1926.350)**
  - Transporting, moving and storing compressed gas cylinders
  - Compressed Gas Cylinders must be in the upright position when transporting, moving, or storing.
  - Protective caps must be installed on Cylinders when not in use.
- **Arc Welding and Cutting (OSHA 1926.351)**
  - Operating instructions. The safe means of arc welding and cutting as follows:
    - When electrode holders are to be left unattended, the electrodes shall be removed, and the holders shall be so placed or protected that they cannot make electrical contact with employees or conducting objects.
    - Hot electrode holders shall not be dipped in water; to do so may expose the arc welder or cutter to electric shock.
    - When the arc welder or cutter has occasion to leave his work or to stop work for any appreciable length of time, or when the arc welding or cutting machine is to be moved, the power supply switch to the equipment shall be opened.
    - Any faulty or defective equipment shall be reported to the supervisor.
- **Fire Prevention (OSHA 1926.352)**
  - When the welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed, and for a sufficient period of time after completion of the work to ensure that no possibility of fire exists. Such personnel shall be instructed as to the specific anticipated fire hazards and how the firefighting equipment provided is to be used.

  - When welding, cutting, or heating is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions shall be taken on the opposite side as are taken on the side on which the welding is being performed.

LESSON PLAN 8

General Safety and Health Provisions

- **General Safety and Health Provisions (OSHA 1926.20)**
  - Accident prevention responsibilities
    - It shall be the responsibility of the employer to initiate and maintain such programs as may be necessary to comply with this part.
    - Such programs [as may be necessary to comply with this part] shall provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons [capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who have authorization to take prompt corrective measures to eliminate them] designated by the employers.
    - The employer shall permit only those employees qualified [one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project] by training or experience to operate equipment and machinery.
  - Compliance duties owed to each employee
    - Training. Standards in this part requiring training on hazards and related matters, such as standards requiring that employees receive training or that the employer train employees, provide training to employees, or institute or implement a training program, impose a separate compliance duty with respect to each employee covered by the requirement. The employer must train each affected employee in the manner required by the standard, and each failure to train an employee may be considered a separate violation.

Safety Training and Education (OSHA 1926.21)

- General requirements. The Secretary shall, pursuant to section 107(f) of the Act, establish and supervise programs for the education and training of employers and employees in the recognition, avoidance and prevention of unsafe conditions in employments covered by the act.
- Employer responsibility.
  - The employer should avail himself of the safety and health training programs the OSHA Secretary provides.
  - The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.
  - Employees required to handle or use poisons, caustics, and other harmful substances shall be instructed regarding the safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required.
  - In job site areas where harmful plants or animals are present, employees who may be exposed shall be instructed regarding the potential hazards, and how to avoid injury, and the first aid procedures to be used in the event of injury.
  - Employees required to handle or use flammable liquids, gases, or toxic materials shall be instructed in the safe handling and use of these materials and made aware

of the specific requirements contained in subparts D, F, and other applicable subparts of this part.

- Enclosed Spaces:
  - All employees required to enter into confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. The employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas.
  - For purposes of the above paragraph confined or enclosed space means any space having a limited means of egress, which is subject to the accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere. Confined or enclosed spaces include, but are not limited to, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, pipelines, and open top spaces more than 4 feet in depth such as pits, tubs, vaults, and vessels.

Definitions (OSHA 1926.32)

- "Competent person" means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- "Qualified" means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

LESSON PLAN 9

Medical Services and First Aid (OHSA 1926.50)

- In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

Tools – Hand and Power

General Requirements (OSHA 1926.300)

- Personal protective equipment. Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazard. All personal protective equipment shall meet the requirements and be maintained according to Subparts D and E of this part. [SEE 29 CFR 1926 Subpart E for training requirements.]

Power-Operated Hand tools (OSHA 1926.302)

- Powder-actuated tools (1) Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder actuated tool.

LESSON PLAN 10

Electrical

General Requirements (OSHA 1926.416)

- Protection of employees (3) Before work is begun the employer shall ascertain by inquiry or direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The employer shall post and maintain proper warning signs where such a circuit exists. The employer shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

The Control of Hazardous Energy (Lockout/Tagout) (OSHA 1910.147)

- Scope, application, and purpose
    - Purpose: When other standards in this part require the use of lockout or tagout, they shall be used and supplemented by the procedural and training requirements of this section.

- General
    - Energy control procedure: Procedures shall be developed, documented and utilized for the control of potentially hazardous energy when employees are engaged in the activities covered by this section.

      Note: **Exception**: The employer need not document the required procedure for a particular machine or equipment, when all of the following elements exist:

      (1) The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees;

      (2) the machine or equipment has a single energy source which can be readily identified and isolated;

      (3) the isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment;

      (4) the machine or equipment is isolated from that energy source and locked out during servicing or maintenance;

      (5) a single lockout device will achieve a locked-out condition;

      (6) the lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;

      (7) the servicing or maintenance does not create hazards for other employees; and

      (8) the employer, in utilizing this exception, has had no accidents involving the unexpected activation or reenergization of the machine or equipment during servicing or maintenance.

- Periodic Inspection: The employer shall conduct a periodic inspection of the energy control procedure at least **annually** to ensure that the procedure and the requirements of this standard are being followed.

    - Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the elements set forth in paragraphs below.

- Training and communication.
    - The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of energy controls are acquired by employees. The training shall include the following:

        - Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

        - Each affected employee shall be instructed in the purpose and use of the energy control procedure.

        - All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

    - When tagout systems are used, employees shall also be trained in the following limitations of tags:

        - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock. (B) When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person for it, and it is never to be bypassed, ignored, or otherwise defeated.

        - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

        - Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

        - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

        - Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

    - Employee retraining

        - Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.

        - Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in the knowledge or use of the energy control procedures.

        - The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

    - The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

        - Energy isolation. Lockout or tagout shall be performed only by the authorized employees who are performing the servicing or maintenance.
    - Release from lockout or tagout

        - Lockout or tagout devices removal. Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. Exception to paragraph (e) (3): When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented and incorporated into the employer's energy control program. The employer shall demonstrate that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it.

    - Additional requirements

        - Outside Personnel (contractors, etc.): Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the on-site employer and the outside employer shall inform each other of their respective lockout or tagout procedures.

LESSON PLAN 11

Motor Vehicles, Mechanized Equipment, & Marine Operations.
Material Handling Equipment (OSHA 1926.602)

- Powered industrial truck operator training Note: The requirements applicable to construction work under this paragraph are identical to those set forth at 1910.178(l) of this chapter.

Powered Industrial Trucks (OSHA 1910.178)

Fork Lift (Tractor with Fork Lift attachment Installed) / International Truck (Non-Licensed)

Operator training

(1) Safe Operation.

(i) The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in this paragraph (l).

(ii) Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the employer shall ensure that each operator has successfully completed the training.

(2) Training Program Implementation.

(i) Trainees may operate a powered industrial truck only:

A. Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence.
B. Where such operation does not endanger the trainee or other employees.

(ii) Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.

(iii) All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.

(3) Training program content. Powered industrial truck operators shall receive initial training in the following topics, except in topics which the employer can demonstrate are not applicable to safe operation of the truck in the employer's workplace.

(i) Truck-related topics:

A. Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
B. Differences between the truck and the automobile;
C. Truck controls and instrumentation: where they are located, what they do, and how they work;
D. Engine or motor operation;
E. Steering and maneuvering;
F. Visibility (including restrictions due to loading);
G. Fork and attachment adaptation, operation, and use limitations;
H. Vehicle capacity;
I. Vehicle stability;

J. Any vehicle inspection and maintenance that the operator will be required to perform;
K. Refueling and/or charging and recharging of batteries;
L. Operating limitations;
M. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

(ii) Workplace-related topics:
A. Surface conditions where the vehicle will be operated;
B. Composition of loads to be carried and load stability;
C. Load manipulation, stacking, and unstacking;
D. Pedestrian traffic in areas where the vehicle will be operated;
E. Narrow aisles and other restricted places where the vehicle will be operated;
F. Hazardous (classified) locations where the vehicle will be operated;
G. Ramps and other sloped surfaces that could affect the vehicle's stability;
H. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
I. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

(4) Refresher training and evaluation

(i) Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by paragraph (l)(4)(ii) to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.

(ii) Refresher training in relevant topics shall be provided to the operator when:
A. The operator has been observed to operate the vehicle in an unsafe manner;
B. The operator has been involved in an accident or near miss incident;
C. The operator has received an evaluation that reveals that the operator is not operating the truck safely;
D. The operator is assigned to drive a different type of truck;
E. A condition in the workplace changes in a manner that could affect safe operation of the truck.

(iii) An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.

(5) Avoidance of duplicative training. If an operator has previously received training in a topic specified in paragraph (l)(3) of this section, and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.

(6) Certification. The employer shall certify that each operator has been trained and evaluated as required by this paragraph (l). The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

(7) The employer shall ensure that operators of powered industrial trucks are trained, as appropriate, before the employee is assigned to operate a powered industrial

LESSON PLAN 12

Stairways and Ladders

Training Requirements (OSHA 1926.1060)

The employer shall provide a training program for each employee using ladders and stairways, as necessary. The program shall enable each employee to recognize hazards related to ladders and stairways and shall train each employee in the procedures to be followed to minimize these hazards.

(1) The employer shall ensure that each employee has been trained by a competent person in the following areas, as applicable:

(i) The nature of fall hazards in the work area;

(ii) The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used;

(iii) The proper construction, use, placement, and care in handling of all stairways and ladders;

(iv) The maximum intended load-carrying capacities of ladders used; and

(v) The standards contained in this subpart.

Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with this section.