

**PURPOSE/APPLICATION**

Canadian Plains Energy Services will do everything reasonable and practicable to protect workers from injury or illness while working in H<sub>2</sub>S Environments through effective training, planning and communication.

- PPE**
- Combustible gas monitor
  - Respiratory Protective equipment

- TRAINING**
- H<sub>2</sub>S Alive
  - First Aid/CPR

- HAZARDS**
- Oxygen deficiency
  - Toxic atmosphere
  - Fire/explosion

**PRECAUTIONS**

A work area shall be determined an "H<sub>2</sub>S environment" when the occupational exposure limit of 10 ppm or a ceiling limit of 15 ppm is present in that area or if the potential for exposure exists.

Hydrogen Sulphide (H<sub>2</sub>S) occurs naturally in the earth in crude petroleum and natural gas reservoirs. Workers can encounter H<sub>2</sub>S in the following areas:

- During drilling and production of natural gas and oil.
- Vessels and piping systems.
- Well sites and oil/gas facilities.
- Sewers and sewage treatment plants.

***Supervisor Responsibility***

- Ensure a Hazard Assessment is conducted to identify hazards and appropriate controls.
- Ensure controls are implemented.
- Assign worker responsibilities and ensure that each worker is trained for his/her responsibility.
- Ensure workers are properly instructed.
- Ensure that all applicable permits are in place before work begins.
- Determine the muster point for all workers and communicate this information.
- Depending on the complexity of the scope of work, conduct a pre-job safety meeting and/or daily tailgate meetings.
- Establish and communicate the traffic control measures required.
- Ensure that other workers are aware of ongoing work in the H<sub>2</sub>S environment prior to starting work.
- Ensure that proper respiratory equipment is available and that the workers are properly trained and competent to use it.

- Ensure that proper monitoring is in place and that workers are properly trained and competent to utilize this equipment.
- Establish and communicate an alarm system to the workers.

***Worker Responsibility***

- Install hazard controls.
- **Do not** enter the work area unless you are properly trained and competent to do so.
- Be aware of wind direction.
- Control traffic.
- Be aware of all egress points from the work area and muster area location.
- Understand permit requirements and limitations.
- Fully understand your role in the work, either as a person entering the area to complete the work, a safety watch, or a responder.
- **Refuse to do work where on reasonable and probable grounds, an unsafe condition exists or may be caused to exist.**

**DEFINITIONS**

**8-Hour Occupational Exposure Limit (OEL)** - The maximum amount of H<sub>2</sub>S (measured in ppm) that a worker can be exposed to for a maximum of 8 hours without respiratory protective equipment. The OEL value for H<sub>2</sub>S is 10 ppm.

**Ceiling Occupational Exposure Limit (COEL)** - The maximum amount of H<sub>2</sub>S (measured in ppm) that a worker may be exposed to before respiratory protective equipment is required. The COEL value for H<sub>2</sub>S is 15 ppm.

**SCBA/SABA** - Self-Contained Breathing Apparatus/Supplied Air Breathing Apparatus.

**Alarm** - Mechanism utilized to notify workers of imminent danger.

**Lock Out** - The use of a locking mechanism to positively secure devices used to control energized systems.

**Muster Point** - Gathering area in case of an emergency.

**Traffic Control** - Refusing entry of persons into a hazardous area.

**1. Determine the Scope of Work, Conduct Hazard Assessment and Tailgate Meeting**

- a. Examine the work area and the mechanism to be worked on. If at all possible, have the H<sub>2</sub>S removed completely from the area using lock outs, tag outs, purging and blinding.
- b. If H<sub>2</sub>S exists in the work area, determine the levels in all areas of the work area and use the maximum obtained level for Occupational Exposure Limits. When determining these levels, ensure that the person inside the work area is using an SCBA or SABA.
- c. Establish and communicate the roles and responsibilities of all people involved in the work. Designate a safety watch, rescue personnel, physical workers, Incident coordinators, etc. as required. \*Note\* that people must be adequately trained and competent to complete their

- responsibilities in the event of an emergency. Depending on the work area, special training such as high angle rescue or confined space rescue may be required.
- d. Establish a muster point and means of egress from the work area.
  - e. Set up traffic controls for your work area. This may include signs, caution ribbon or manned areas, depending on the job. Ensure that other workers in the area are aware of your job prior to starting to avoid someone inadvertently entering the work area.
- 2. Obtain necessary permits to complete the work.**
- a. Determine the types of permits required (hot work, cold work, confined space, ground disturbance, etc.) and ensure that these permits are completed and reviewed with the workers.
  - b. Follow Safe Work Permit requirement procedures.
- 3. Exposure to H<sub>2</sub>S greater than the Ceiling Occupational Exposure Limit at any time during the work**
- a. All workers entering the work area shall don SCBA's or SABA's.
  - b. A safety watch will be in visual contact with the workers at all times and have an Alarm Mechanism and Breathing Air Apparatus readily available in case of an emergency.
  - c. When required, specially trained individuals will be on site to assist with rescue and First Aid.
- 4. Exposure to H<sub>2</sub>S less than or equal to the Occupational Exposure Limit during the work**
- a. All work will be completed using constant monitoring. If conditions change and the H<sub>2</sub>S levels rise, then the workers will leave the work area to don SCBA, SABA or re-assess the job.
  - b. A safety watch will be in visual contact with the workers at all times and have an Alarm Mechanism and Breathing Air Apparatus readily available in case of an emergency.
  - c. When required, specially trained individuals will be on site to assist with rescue and First Aid.
- 5. Proceed with the work**
- a. Complete the work as per the scope listed on the Tailgate.
  - b. If conditions change within the work area or due to outside factors, stop work and re-assess the job.
  - c. It is the workers right and obligation to refuse unsafe work.

