

**April 18, 2018**

**CHEMICAL AND BIOLOGICAL HAZARDS AND HARMFUL SUBSTANCES**

**PURPOSE/APPLICATION**

To protect workers from injuries associated chemical hazards, biological hazards and harmful substances.

At times, work undertaken by Canadian Plains Energy Services (CPE) may expose workers to chemical hazards, biological hazards and harmful substances. Every effort will be made to ensure that workers are appropriately educated to and protected from the hazards of the worksite.

**PPE**

- Canadian Energy Services (CPE) minimum requirements
- PPE as identified by product MSD

**TRAINING**

- WHMIS

**HAZARDS & CONCERNS**

- Occupational illness and injury
- Property damage



**PRECAUTIONS**

Chemical hazards are any element, chemical compound, or mixture of elements and/or compounds which is a physical hazard or a health hazard. The standard applies to all hazardous chemicals regardless of the quantity or state (i.e. liquid, solid or vapour).

A chemical is a physical hazard if it possesses flammable, combustible, explosive, oxidizing, pyrophoric or reactive properties, or if it is an organic peroxide or compressed gas.

A chemical is a health hazard if it produces acute or chronic health effects in exposed individuals. Types of health hazards include:

- Carcinogens
- Reproductive toxins
- Sensitizers
- Agents that damage the lungs, skin, eyes, or mucus membranes
- Irritants
- Corrosives

A **biological hazard** is an organism, or substance derived from an organism, that poses a threat to human health. This can include:

- Human waste (urine and stool)
- Human fluids (blood, saliva)
- Microorganism, virus or toxin (cold, flu)

Workers may be exposed to chemical and biological hazards throughout the entire work area. Health hazards associated with the exposure to any chemical or biological hazards vary greatly depending on the substance and 5 factors:

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- How toxic the substance is?
- How much substance exists at the work site?
- How quickly the substance burns or evaporates?
- How long workers have been exposed to the substance?
- How the substance reacts with other chemicals?

People are typically exposed to chemical and biological hazards in three ways:

1. Inhalation (breathing)
2. Indigestion (Eating / Swallowing)
3. Injection and absorption

In order to protect workers from the harms of chemical and biological substances:

1. Every worker will be trained in the Workplace Hazardous Material Information System (WHMIS).
2. No worker will be exposed to a substance listed in Schedule 1, Table 2 at a concentration exceeding its ceiling limit at any time. The employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.
3. If a worker may be contaminated by a harmful substance at a work site, the employer shall ensure that a means to decontaminate the worker is available.
4. Employees must be instructed on the proper handling, storage, and disposal of wastes. This may include general instruction on disposal of non-hazardous wastes, trash, or scrap materials.
5. If wastes generated are classified as hazardous, employees must be trained to ensure proper disposal.

If a worker is or may be exposed to a hazardous substance, the employer will ensure that:

1. An assessment will be conducted to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion, and skin contact.
2. A hazard reassessment is conducted when there is a change in work conditions, which may increase the exposure, such as a change in production rate, process, or equipment.
3. If the assessment shows that a worker may be at risk of overexposure to an airborne contaminant, the employer will ensure that air sampling is conducted to assess the potential for overexposure.
  - Workers must wear respiratory protective equipment when airborne contaminants exceed occupational exposure limits. Refer to your provincial regulations for specific OELs.

Workers exposed to hazards that may affect the skin, must wear protective equipment based on MSDS or hazard.

- For chemicals that are harmful to the eyes or skin the worker will have immediate access to baths, showers, and eye flushing equipment in case of emergency.

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- All harmful substances used or stored at the worksite; are to be clearly identified, or its container is clearly identified, and they are used and stored in such a way that the use or storage is not a hazard to workers.
- CPE must also address safe practices related to the immediate storage and handling of waste, scrap, or leftover materials. If PPE or other precautions are necessary to handle waste, these should be identified in the program, this would include but not limited to coveralls, eye protection, specialized gloves, and breathing apparatus.
- A current MSDS must be readily available for all contractors
- CPE utilizes the software titled MSDS Binders to manage our MSDS inventory.

**REFERENCES / ADDITIONAL INFORMATION**

- MSDS Binders <http://strikeenergy.msdsbinders.com>
- Controlled products list CF-S-29
- Material Safety Data Sheets (MSDS)
- Alberta OHS Act, Regulation Code - Schedule 1, Table 2
- British Columbia OHS Act, Legislation 5.2
- Table of Exposure Limits WorkSafeBC

**REGULATIONS**

**Alberta OHS Code** – Part 4 – Chemical Hazards, Biological Hazards and Harmful Substances

***General Requirements***

***Worker exposure to harmful substances 16***

- 1. An employer must ensure that a worker's exposure to any substance listed in Schedule 1, Table 2 is kept as low as reasonably practicable, and does not exceed its occupational exposure limit.*

**British Columbia OHS Legislation** – Part 5 – Chemical Agents and Biological Agents

***5.2 General information requirement***

*If a worker is or may be exposed to a chemical agent, or biological agent designated as a hazardous substance in section 5.1.1, which could cause an adverse health effect, the employer must ensure that*

- a. the identity of the chemical agent or biological agent, its possible effects on worker health and safety and any precautions required to protect the health and safety of the worker are clearly indicated by labels, MSDSs, or other similar means,*
- b. the information required by paragraph (a) is clearly communicated to the worker,*
- c. written procedures are prepared and implemented to eliminate or minimize a risk of exposure to a chemical agent or biological agent by any route that could cause an adverse health effect, and to address emergency and cleanup procedures in the event of a spill or release of a chemical agent or biological agent, and*
- d. the supervisor and the worker are trained in and follow the measures required in this Part and Part 6 of this Regulation for the safe handling, use, storage and disposal of the chemical agent or biological agent, including emergency and spill cleanup procedures.*



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