

# Developing an Exposure Control Plan

## Common hazards:

Some common hazards often requiring an exposure control plan include:

- Hydrogen sulfide (H<sub>2</sub>S)
- Asbestos
- Silica
- Lead
- Benzene and other hydrocarbons
- Naturally occurring radioactive materials (NORMs)
- Oil-based drilling fluids (e.g. invert)
- Noise (hearing conservation program)

Other equally important but lesser known hazards that often require an exposure control plan are:

- Welding fumes
- Diesel exhaust
- Mercury
- Isocyanates
- Polycyclic aromatic hydrocarbons (coal tar pitch volatiles)
- Ultraviolet light
- Heat and cold stress
- Toxic process gases (e.g. ammonia)
- Carbon monoxide
- Vibration
- Biological agents

## Introduction:

Occupational disease is a leading cause of workplace-related deaths in the oil and gas industry. This is largely due to exposures to hazards such as chemicals and other hazardous substances. Health effects from some of these exposures may not be identified until weeks, months or years later. Exposure control plans are vital to worker health and safety.

## What is an exposure control plan?

An exposure control plan (ECP) is a formal management strategy used to control exposure to substances that represent significant health risks. While there are specific jurisdictional variations and terms, such as Code of Practice in Alberta, generally an ECP is required when:

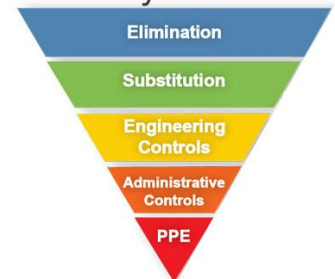
- A hazard is present in the workplace and is a designated substance that cannot be reasonably substituted. Designated substances can be listed by name in the regulations such as in Alberta's regulations or by hazard classification type such as carcinogens, sensitizers, etc. in British Columbia's regulations.
- Exposure is greater than 50% of the occupational exposure limit (OEL) or measurement is not possible at or below 50% of the OEL.

## What is included in an ECP?

ECPs must be:

- Site, task and worker-specific
- Address present risks in your operations
- Clear about where, when and how exposure risk is present, and the controls required
- Based on the hierarchy of controls
- Be implemented, adhered to and reviewed regularly (e.g. annually)

### Hierarchy of Controls



Source: NIOSH

ECPs typically include (jurisdiction variations exist):

- Statement of purpose and roles and responsibilities
- Risk identification, assessment and control
- Education and training
- Written work procedures
- Hygiene facilities and decontamination procedures
- Health monitoring (if applicable)
- Documentation review and retention requirements

## Risk identification:

Review the safety data sheets (SDSs) to identify what products are brought to the work site and those being produced, as well as wastes, fugitive emissions and process intermediates. Consider exposures that could occur during these operational conditions:

- Construction
- Start-up
- Routine operations
- Maintenance
- Turnaround, including confined space entry
- Upset
- Decommissioning

## Routes of exposure:

One of the most common routes of exposure is by inhalation. Airborne hazards can be in the form of dusts, mists, vapours, gases, fumes, fibres, etc. While the airborne route is most common, other routes of exposure such as skin must also be controlled. Review the SDSs to understand the risks of exposure by all routes.

## Risk assessment:

**Qualitative risk assessment** involves reviewing details of the hazard and the work being conducted by a competent professional. This should include a site walk-through and discussions with workers. The information gathered can be used to “control band” the exposures using validated tools. Control banding classifies chemicals in the context of their workplace use and offers direction on proper controls.

**Quantitative risk assessment** involves sampling or measurement by a competent professional, such as the collection of air from a worker’s breathing zone. This can be used to clarify uncertainty about the exposure (e.g. level, pathway, etc.) or as part of an on-going program (e.g. sample or measure every three years to identify unforeseen changes and reinforce exposure controls).

## Present like a pro:

Use these tips to share the information at your next safety meeting.

- **ASK:** What exposure hazards exist in your operations? Do you have a site-specific exposure control plan? Are there any exposures you are not comfortable with? What will be your worksite’s next exposure-related incident?
- **DISCUSS:** Share a time when you were overexposed to an airborne hazard and how you prevented a re-occurrence. Draw from your own company’s experiences when possible.
- **REVIEW:** What exposure control regulatory requirements apply to your worksites?

## References:

- [Controlling Chemical Hazards, A Program Development Guideline, Energy Safety Canada](#)
- [Guideline for developing a code of practice for chemical hazards, Alberta OH&S](#)
- [OHS Regulation Part 5: Chemical Agent and Biological Agents, WorkSafeBC](#)
- [Table 20, The Occupational Health and Safety Regulations, 1996, Saskatchewan](#)



The pump on the worker’s belt connects to a hose (over the shoulder) leading to a sampling cassette.  
Source: WorkSafeBC