PURPOSE/APPLICATION

The purpose of this Code of Practice to provide guidance to worker that would be working in an environment where there are at risk atmospheric conditions or air borne contaminants may pose a threat to a worker's health.

All reasonable measures will be taken to implement engineering techniques, work practices and other controls to eliminate or reduce contaminants to acceptable exposure levels so that respiratory equipment will not be needed. When this cannot be accomplished, and hazardous airborne contaminants or oxygen deficient atmospheres continue to exist, then proper Respiratory Protective Equipment (RPE) will be provided and used by fit tested, trained and competent workers. The employer will ensure Respiratory Equipment is kept in a convenient and sanitary location when not in use, and that is not exposed to extremes of temperature.

PPE

- Canadian Plains Energy Services (CPES) minimum requirements
- Respiratory Protective Equipment (RPE)

TRAINING

- Fit testing
- Use, selection, and care of RPE

HAZARDS

- Toxic Atmosphere
- Fire/explosion
- Respiratory disease/distress
- Oxygen deficiency

PRECAUTIONS

1. Request a pre-job meeting with the client

- The meeting should be held well enough in advance of the work, to allow for the sourcing of the right labour, equipment, material and for proper planning to take place.
- Engage client to identify the hazard sources and hazards for the job/project.

2. Conduct a site-specific hazard assessment

- Client/Customer must confirm the presence of, and name all hazardous products and/or substances on their worksite (review potential hazard sources and hazards).
- Identify the hazardous products and/or substances that are Immediately Dangerous to Life and Health (IDLH).
- Identify risks associated by activities on site such as:

- Grouting
- Heating
- Painting
- Internal combustion engines
- Epoxies
- Welding and/or cutting and grinding
- Identify all other potential hazards sources and hazards – confined spaces, worksite congestion, over and/or under facilities, etc.
- Apply hierarchy of controls with respect to hazard sources and hazards identified.
- Identify all PPE required.

3. Control the Hazards

- Engineer control measures to enclose, confine or ventilate contaminants from the work area**.**
- If contaminants cannot be completely eliminated or reduced to acceptable exposure limits, then suitable respiratory protection must be provided and worn in full compliance with manufacturer specifications and instructions.
- All workers required to wear RPE must be adequately trained on how to use it and fit tested, prior to undertaking any work in areas where hazardous products and/or substances exist or have the potential to exist.
- Test atmospheric conditions prior to entry into any confined space (refer to Confined Space Entry COP-03)
- Ensure continuous monitoring of atmospheric conditions with correct monitoring devices.

4. Select the appropriate equipment

- Where and when hazardous products and/or substances "<u>are</u>" Immediately Dangerous to Life and Health (IDLH), use:
- Positive pressure (only), Supplied Air Breathing Apparatus (SABA), for sustained work in oxygen deficient or H_2S atmospheres.
- Positive pressure (only), Self-Contained Breathing Apparatus (SCBA), for short duration work, and rescue or emergency situations.
- Ensure continuous atmospheric monitoring.
- Where and when hazardous products and/or substances **"<u>are not</u>"** IDHL, use:
- Breathing apparatus with mechanical filter respirators, disposable filter masks or chemical cartridge respirators depending on the substance in the environment that needs to be filtered.
- Ensure approval selection, use and care meet the requirements of CSA Standard Z94.4-02.

5. Inspection/Maintenance/Care

- The following components of all RPE must be inspected before each use, for wear and tear, contamination, fit for purpose use, connector/adaptor tightness, etc.

See Schedule A – Daily Use Checklist

- Cylinders (must be full before each days use)
- Face masks
- Breathing tubes
- Connectors
- Head straps and/or harnesses
- Exhalation valves
- Air purifying elements (canister, cartridge, filter)
- Apparatus carrying harnesses
- Supply lines
- Carrying cases

- All SABA and SCBA equipment must be inspected and serviced on a regular basis in accordance with manufacturer's instructions and recorded in a Record of Inspections and Service log. *See Schedule B – Record of Inspection and Service.*
- Special attention must be given to the hydrostatic test dates on all breathing air cylinders. When dates are expired, cylinders "must" be taken out of service and either replaced or sent for re-test.
- Service companies providing breathing air must provide documentation confirming refill dates and to verify air quality meets CSA Standard Z180.1.00.
- All RPE must be thoroughly cleaned and/or disinfected after each day's use, or if used by more than one worker on a given day, then after each use. Cleaning procedures must be in accordance with manufacturer's instructions as certain cleaning solutions may degrade the mask and face piece.
- Respiratory protective equipment that is not used routinely but is kept for emergency use must be inspected at least once every calendar month by a competent worker to ensure it is in satisfactory working condition.
- All RPE cylinders and/or canisters must be fully recharged after each use and properly stored in the carrying cases provided and/or in accordance with manufactures instructions.
- All RPE identified as being required during the hazard assessment process must be readily available and in 100% ready to work condition.
- Workers will not share respiratory equipment unless it is clean and sanitized before different workers use it.

Note: All RPE defects or deficiencies identified before, during or after use, must be immediately taken out of service, tagged/flagged, and reported to supervision. The equipment or part so identified cannot be put back into service until it has been properly repaired by a competent person qualified to do so, or it has been replaced with a like part in good working order/condition.

6. Breathing Air and Supply Lines

- Quality of breathing air must meet CSA Standard Z180.1-00, Compressed Breathing Air and Systems – Table 1.

Supply lines must be:

- Hydrocarbon & chemical resistant
- Non-kinking
- Rated for at least 1750 KPa (250 psi)
- Minimum 6mm (1/4") I.D.
- Less than 90m (300 ft) in length

7. Fit for Use

- Workers required to wear RPE must be clean shaven to ensure an effective facial seal.
- Negative pressure fit testing must be done in all cases where the use of respiratory equipment will be in areas of H_2S, oxygen deficiency and/or confined spaces:
    - Seal the end of the mask air hose.
    - Inhale, causing mask to collapse slightly.
    - Hold breath for a few seconds.
- If the mask remains collapsed, and no inward leakage is detected, the fit is adequate.

8. Safe Work Permits/Agreements

- Prior to any activity at the job site, obtain a permit/agreement from the Owner/Client/Prime Contractor to proceed with the work.
- CPES is responsible for issuing the safe work permit when we are the Owner/Prime Contractor for the project/job.

9. Develop emergency response and rescue plan (ERP)

Where and when hazardous products and/or substances "are" Immediately Dangerous to Life and Health (IDLH), an ERP must be developed:

- Identify situations that would call for immediate implementation of an Emergency Response/Rescue (e.g. Explosion, H_2S release, Fire, etc.)
- Determine if specialized emergency/safety services are required to be on site.
- Identify fire protection requirements.
- Develop a list of emergency response numbers including: emergency services, client contacts, CPES Supervisors.
- Identify the evacuation and emergency conveyance plan.
- Ensure a buddy system is used and a proper means of direct communication is set-up.
- Set up a life line or static line attached to the worker(s) as required by job conditions.
- Identify first responders and define their roles and responsibilities.
- Identify workers with specific rescue responsibilities and clearly define what they are.
- Ensure that all PPE required to undertake a rescue is on hand, in good working order and the rescue workers are well trained in how to use it.

- Delegate 1st and 2nd First Aid responders.
- Define the roles of all others in managing, controlling or assisting in an emergency situation.
- Determine what alarm and communication systems will be used.
- Determine where the safe muster point will be and account for all workers.
- Ensure that there is a means of safe entry and exit from the work area**. If not, then treat as "Confined Space" (refer and follow Confined Space Entry COP-03).**

10. Worker Exposure to Airborne Material (Silicates, Asbestos)

- Workers will be trained in this Code of Practice, the use of associated respiratory equipment, the effects of asbestos and silica dusts, the potential health risks and the exposure levels workers may experience.
- Worksite leaders and workers will be aware of and keep exposure levels of substances listed as an example in Alberta Schedule 1, Table 2 as low as reasonably possible, particularly related to Silicates and Asbestos. Refer to other jurisdictional regulatory requirements.
- If workers are exposed to large quantities of non-hazardous dusts at a work site, a CPES worksite supervisor will ensure that worker exposure is kept as low as reasonably achievable.
- If substances on the worksite are found in the tables do not have a 15 minute occupational exposure limit or ceiling occupational exposure limit workers will comply with the eight hour exposure limit, and not exceed three times the eight hour occupational exposure limit for more than a total of 30 minutes during a continuous 24 hour period.

11. Airborne concentration measurements

- Site hazard assessments will include the measurement of airborne concentrations, if the potential of exposure to workers exist. If the assessment identifies that a related hazard exists, controls will be implemented to ensure compliance with exposure limits. If there is no analytical method to determine worker exposure, direct reading instruments for measuring airborne concentrations of a substance may be used.

12. Potential worker exposure

- Hazard Assessments (HIAC) and Tailgate meetings will be used to inform workers if they may be exposed to a harmful substance at a work site, including the health hazards associated with exposure to that substance and the maximum exposure level(s).

13. Worker Overexposure

- Regulatory bodies determine the occupational exposure limits and define when a worker is over exposed.
- When it is suspected that a worker has been over exposed to an airborne contaminate, work will be stopped until the source can be identified, and a method of control can be implemented.
- Worksite supervisors will treat over-exposure as an incident and follow CPES Incident Reporting protocols (HSEMS Section 10). The report will identify the steps taken to control the overexposure.

14. Worker Decontamination

- If a worker may be contaminated by a harmful substance, facilities will be provided on the worksite, so the worker can remove the contamination before the worker leaves the work site. As well facilities must be available to properly decontaminate or clean clothing at the work site.
- Where the material may get into workers eyes and on their skin, emergency showers and eye wash stations, or other equipment appropriate for the potential level of exposure, will be made available prior to the start of work.

15. General Provisions

- Where asbestos or silica-based products are used on the worksite, signs that clearly indicate that these materials are on the worksite will be posted; and controls to enter the storage area will be implemented. This is a requirement of the owner of the facility and/or client.
- Workers will use protective clothing to protect the worker from contamination by asbestos or silica, dust, that ensures that the workers street clothing is not contaminated or that the worker doesn't leave the restricted area until they have decontaminated their street clothes.
- Where possible the amount of material, or waste, on a worksite that contains asbestos or silica will be kept to a minimum.

16. Release of Asbestos

- Where there is a potential for workers to be exposed to asbestos fibres, the area will be assessed by qualified personnel, with controls put in place to ensure workers completing maintenance, repair or installation of materials are not exposed to the fibres.
- Where workers may have to work on facilities that are coated with asbestos base materials, the worksite supervisor will ensure the materials are removed or encapsulated by qualified personnel before work commences.
- A person must not remove or abate asbestos or demolish or renovate a building or equipment containing asbestos if a Director of Inspection has not been notified.
- Where asbestos is to be removed from the site the worksite supervisor responsible for removing or abating asbestos, or for demolishing or renovating a building or equipment containing asbestos, will notify the CPES Health and Safety Department at least 72 hours before beginning the activities.

17. Health Assessments

- Workers that are identified as "exposed" or "potentially exposed" workers will complete health checks as per provincial guidelines, prior to the start of work, and on a 2-year frequency thereafter until they are no longer determined to be "exposed workers".

18. Conduct a pre-job safety meeting and/or tailgate meeting

Depending on the complexity of the scope of work and prior to the start of work, conduct either a pre-job safety meeting, or a tailgate meeting to:

- Define the scope of work in general terms
- Review the observations and findings of the worksite Hazard Identification, Assessment and Controls Process.
- Review applicable safe works practices, procedures and codes

- Define hours of work
- Identify labour and equipment requirements
- Identify all PPE requirements
- Review Emergency Response Plan
- Document on CPES CF-S-03 and CF-S-04

REFERENCES / ADDITIONAL INFORMATION

- CSA Standard Z94.4_02, Selection, Use & Care of RPE
- CSA Standard Z180.1-00, Breathing Air Quality
- COP-03 Confined Space Entry
- Alberta Occupational Health and Safety Code Schedule 1 Chemical Substances
- Saskatchewan Occupational Health and Safety Regulations Table 21: Contamination Limits
- American Conference of Governmental Industrial Hygienists: "*Threshold Limit Values and Biological Exposure Indices"*

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