	<b>RESPIRATORY PROTECTION</b> ALL-HSE-PRC-151	Retention Code: CG01 - CA
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## 1.0 Purpose

The purpose of this Procedure is to meet regulatory Code of Practice (COP) requirements, set requirements for inclusion in the program and define the minimum requirements for the use of respiratory protective equipment (RPE) in ConocoPhillips Canada operations.

RPE must be used as a last defense where a worker may be exposed to:

- Respiratory hazards exceeding occupational exposure limits.
- Oxygen-deficient atmospheres (less than 19.5% oxygen by volume).
- Emergency situations.
- Where no other reasonably practical means exists for controlling exposure.

## 2.0 Hazards to Mitigate

The following are examples of operations where oxygen-deficient or otherwise hazardous atmospheres may be present at ConocoPhillips Canada sites: Welding, buffing, grinding (especially inside vessels)

- Vessel washing
- Vessel entry
- Glycol and amine filter changes
- Sampling sour gas
- Manual sampling of condensate and crude oil
- Spill and leak cleanup
- Handling or working in the vicinity of friable asbestos containing materials (ACM)
- Spray painting
- Herbicide or pesticide application
- Chemical handling

## 3.0 Procedure-Specific Roles and Responsibilities

### 3.1. Supervisors

- Implement this Procedure (see Procedure Review, section 4.10).
- Make this Procedure readily available to all employees and contractors.
- Use substitution, engineering, work practice, and other controls to minimize exposure to airborne hazards before RPE is used.
- Ensure that RPE is selected in accordance with Section 4.2 of this Procedure.
- Ensure that appropriate RPE is readily available on site, maintained effectively, in operable condition, and used as required.
- Prior to initial use, ensure all employees are fit tested on the various makes, models and sizes of RPE worn. Repeat fit testing as per the requirements of Section 4.5.
- Write RPE requirements into work Permits and business unit or functional unit operating procedures.

- Assist employees with visual problems or if a concern arises regarding an employee's ability to function safely while wearing RPE. Contact the Health Services team for assistance.
- Ensure that all employees:
  - Are trained as described in this Procedure.
  - Comply with all requirements of this Procedure.
- Ensure training and fit-test records are maintained.

### **3.2. Workers**

- Be medically fit to wear respirators and complete medical self-evaluation form prior to being fit tested.
- Wear the RPE provided.
- Understand the types of RPE available and their limitations regarding respiratory hazards.
- Report to the supervisor if a concern exists regarding an employee's ability to use a respirator safely.
- Inspect, clean, and maintain RPE as described in this Procedure.
- Perform field seal checks and obtain an acceptable fit prior to every use of RPE.
- Tag defective respiratory equipment out of service.
- Obtain replacement equipment when worn or defective.
- Must be clean-shaven at the start of each working day (see Section 4.2 for further details).
- Report any respiratory hazards and other RPE issues that may not have been documented, and work with the supervisor to correct these issues.
- Be familiar with and comply with all other requirements of this Procedure.
  - New employees must be trained before starting work that may require use of RPE.

### **3.3. CPC Health Services**

- Assess employee's medical condition as it relates to their ability to perform safely while wearing a respirator.
- Notify employee and supervisor when limitations are required.
- Provide information strictly on the ability to use (or not use) a respirator and the limitations required.
- Retain medical information as confidential unless the employee provides written consent otherwise.

### **3.4. CPC Industrial Hygienist**

- Assist sites with respirator selection.
- Provide support for evaluating air contaminant exposure levels.
- Review this Procedure on an annual basis.

## **4.0 Procedure**

### **4.1. Inclusion in Respiratory Protection Program**

If a CPC employee's normal job duties or emergency response activities require or might require them to wear a respirator, which requires that they be in the respiratory protection program, the employee shall be clean-shaven in the area of the mask seal. Participation in the program for CPC employees shall be determined by the competency requirements in OExpress. Contractor Employees working in the following capacities for CPC shall be clean shaven and provide proof of fit test record upon request by CPC. Examples are including but not limited to:

- Production Operations
- Mechanical/Millwrights
- Instrumentation/Electrical
- Scaffolders/Insulators
- Emergency Response
- Brownfield Construction Projects
- Well Drilling/Completions/Well Servicing
- Fluid/Waste transfer activities

Persons conducting greenfield construction projects, those on site as visitors or persons providing a service or delivery who have been oriented, escorted while at site, or not under CPC operational control shall not be required to be clean shaven. Examples are including but not limited to:

- Greenfield projects personnel
- Dignitaries
- Regulators
- Auditors
- Office Personnel
- Delivery personnel
- Camp/Catering personnel
- Warehouse personnel
- Security personnel
- Medical personnel

### **4.2. Respirator Selection**

- Identify work operations which may present a respiratory hazard (e.g. oxygen deficiency, H<sub>2</sub>S, dusts, solvent vapors).
- Perform a hazard assessment of each work operation to determine the type and severity of the respiratory hazards.
- Select RPE in accordance with the current version of CSA Standard Z94.4 and provincial regulations. A simplified respirator selection flow chart is shown in Appendix B.

- Only use NIOSH approved respirators and components, including associated breathing air hoses and fittings.
- Take the following factors into account in assessing RPE requirements:
  - Oxygen content of atmosphere.
 

**Note:** In oxygen-deficient atmospheres, where oxygen content is less than 19.5% oxygen SABA with escape bottle or SCBA must be worn.
  - Presence of light hydrocarbon gases above 10% LEL; air purifying respirators NOT allowed.
 

**Note:** Where LEL is above 10%, SABA with escape bottle or SCBA must be worn.

**Note:** No entry allowed above 20% LEL due to the explosion hazard.
  - Physical properties of contaminant (dust, mist, fume, vapor, or gas).
  - Likely concentration of contaminant.
 

**Note:** If contaminant concentration is unknown or immediately dangerous to life or health (IDLH) or otherwise exceeds use limitations specified on cartridges, SABA with auxiliary air supply escape bottle or SCBA must be worn.
  - Protection factor of respirator.
  - Duration of exposure.
  - Toxicity, irritancy/corrosiveness and skin absorption of contaminant.
  - Warning properties (e.g. odor and odor threshold) of contaminant.
  - Respirator cartridge breakthrough properties of the contaminant.
  - Need for emergency escape.
  - Effectiveness of available cartridges for the contaminant of concern (air purifying respirators only).
  - Other personal protective equipment that might prevent an adequate respirator seal.
- If employee exposure cannot be estimated and may exceed occupational exposure limits, ensure they are measured before respirator selection. For additional information, contact the CPC Industrial Hygienist.
- A SABA with escape bottle or SCBA must be worn for any operation where the following hazards exist:
  - Oxygen deficiency (less than 19.5%).
  - Hydrogen sulphide gas above 10 ppm (i.e. sour operations).
  - Light hydrocarbon gas concentrations greater than 10% lower explosive limit (LEL).
 

**Note:** No entry allowed above 20% LEL due to the explosion hazard.
  - Atmospheres which are immediately dangerous to life or health (IDLH).

### 4.3. Respirator Use

- Ensure RPE is only used by employees who are medically fit to do so, have been trained, and have been successfully fit tested on the equipment.
- Use only self-contained breathing apparatus (SCBA) or SABA respirators with egress bottle in the pressure-demand mode for work in oxygen-deficient atmospheres or other immediately dangerous to life and health (IDLH) environments.

**Note:** In BC, the use of RPE (SCBA or SABA) in inert atmospheres to control flammability hazards is only permitted after obtaining a variance from the appropriate regulatory authority.

- Use only compressed breathing air that meets the requirements of the current version of CSA Standard Z180.1 (see Appendix C).
- Wear a full face piece style respirator (or half face piece style with splash goggles) if the contaminant is an eye irritant or is readily absorbed through the eyes/skin.
- If the respirator becomes defective or there is reason to believe that the contaminant concentration has exceeded the maximum use concentration, leave the area immediately and notify the supervisor in charge.
- Ensure workers who are identified as being in the respiratory protection program are clean shaven where the face piece seals to the face<sup>1</sup>. The following are not permitted:
  - Sideburns which extend forward into the face piece seal area.
  - Moustaches which extend down below the corners of the mouth.
  - Beards
  - Stubble

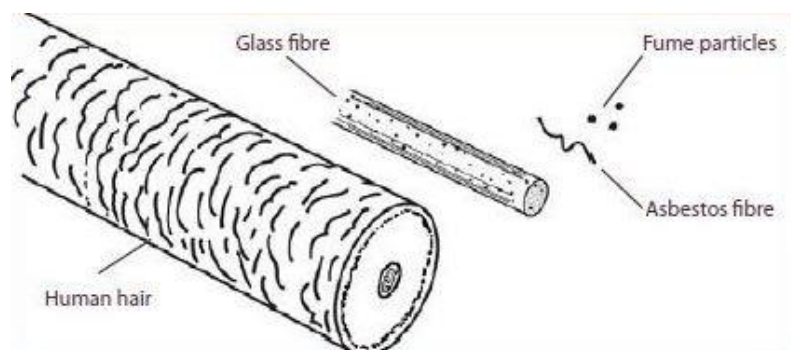
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<sup>1</sup> Applies to half and full face piece styles; not required for respirators using a shroud or bag over the head.

### Preventing interference with the respirator seal

Where your respirator seals with your face, nothing must come between the respirator and your skin. Eyeglass frames, head coverings, beards, sideburns, and stubble must not interfere with the seal.

You must be clean-shaven where the respirator seals with the face, because stubble prevents the mask from forming a good seal and protecting you from inhaling contaminants.



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- Do not chew (e.g. gum or tobacco) while wearing a respirator since facial movements can disturb the seal.

#### 4.4. Air Purifying Respirators

**Only air supplying respirators** such as SCBA or SABA are approved for use for hydrogen sulfide since odor cannot be relied on as a warning property for H<sub>2</sub>S gas.

- Air purifying respirators are assigned for personal use.
  - Employees are responsible for correct use, cleaning, and maintenance.
- Air purifying respirator cartridges are available for:
  - Organic vapors (OV)
  - Acid gases
  - Ammonia/amines
  - Mercury vapor
  - Dusts, mists, aerosols, fumes
- Combination cartridges are also available, for example P100 (particulate) with OV and Acid gas.

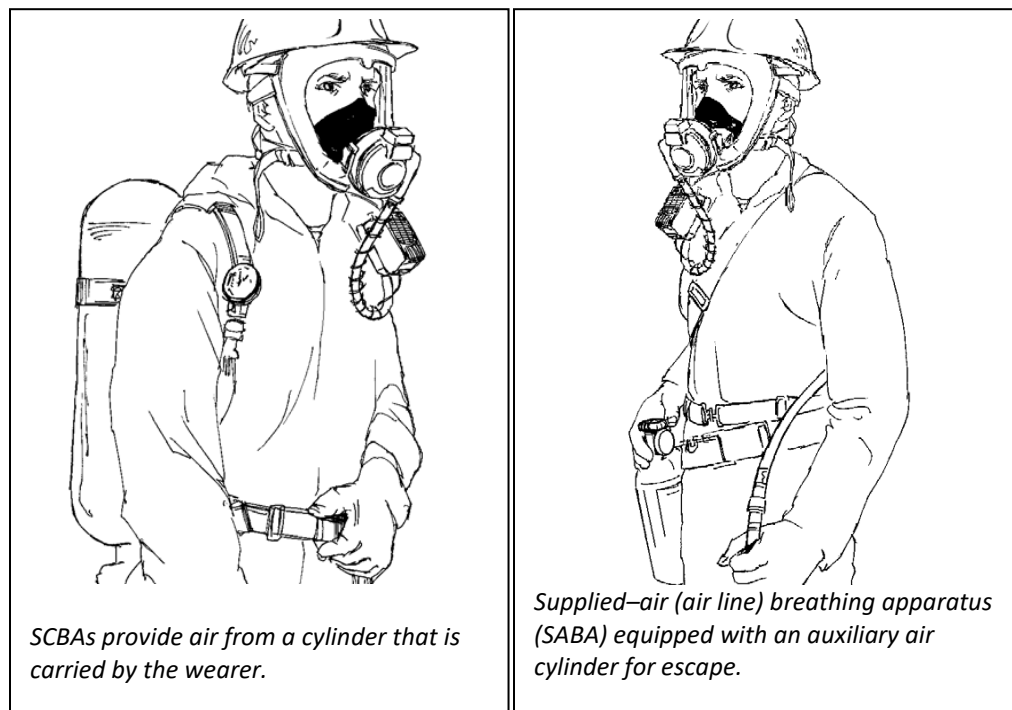
- Make sure to select the correct cartridge for the contaminant, and if in doubt check with your supervisor, HSE Specialist or CPC Industrial Hygienist.
- Ensure contaminant concentrations do not exceed either the use limitations specified on the cartridge or the maximum use concentration, as determined by the protection factor (contact CPC Industrial Hygienist for additional information).
- All respirators, including disposable particulate (dust) masks, must have NIOSH approval. Generally, disposable masks do not fit as well as cartridge respirators and should only be used for low toxicity dusts such as sawdust, general floor sweeping and mild steel welding (light rod). Disposable particulate (dust) masks must not be used for protection against the following, which require a minimum of a dual cartridge respirator:
  - Asbestos
  - Fungal spores
  - Mouse, bird, or bat droppings
- Install a new cartridge:
  - At the beginning of the shift the respirator will be used.
  - If breathing resistance increases, or
  - If the odor of the contaminant is detected inside the face piece (cartridge breakthrough).

#### **4.5. Self-Contained Breathing Apparatus (SCBA) and Supplied Air Breathing Apparatus (SABA)**

- **Only properly trained, medically cleared personnel are permitted to use SCBA or SABA for routine maintenance, operations or emergency response work.**
- Use SCBAs only in the pressure-demand mode.
- Use SABAs only in the pressure-demand mode or continuous flow mode, as appropriate.
- Ensure that a watch person is present ('buddy' system) where oxygen deficiency or any IDLH atmosphere is encountered. If necessary to affect a rescue, other personnel and equipment must be immediately available.
- If the low-pressure alarm activates, cease work and leave the hazard area immediately.
- Ensure that an employee who may be required to enter an atmosphere that is oxygen deficient or otherwise IDLH is attended by at least one other worker stationed at or near the entrance to the contaminated area; one who is in communication with the employee, is similarly equipped, and is capable of affecting a rescue.
- Ensure safety and function checks are performed on SCBAs and SABAs at least once per month by a qualified person. Never manifold the breathing air supply to SABAs unless a qualified person confirms that flow rates will not exceed the manufacturer's specifications. This can lead to freeze-up in cold weather.
- Never use oxygen as breathing air.



- Prevent cross-connection of breathing air with other compressed air/gas lines. For example:
  - Reserve quick connect-disconnect couplers for breathing air lines (incompatible with the connectors on other lines).
  - Use only quick connect-disconnect locking couplers approved by the manufacturer – refer to the user manual.
  - Color-code breathing air couplers with adhesive tape or paint.
  - Tag breathing air couplers (color-coded or bearing the words "breathing air").
- Secure all breathing air cylinders in accordance with manufacturer's recommendations.
- Transport cylinders secured in a vertical position, valve up with protective caps in place.



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#### 4.6. Fit Tests and Seal Checks

- Workers must be able to obtain satisfactory facial seals on assigned RPE before use in a hazardous atmosphere.

##### 4.6.1. Seal Checks

- Seal checks are quick checks of a face piece seal done by a worker just before starting any task which might require a respirator. Seal checks *do not replace* fit testing; they are -n addition.
- There are two types of seal checks, positive pressure check and negative pressure check, and both must be done each time the respirator is used.

- For both the positive and negative pressure seal checks, put on the respirator face piece and adjust it for normal use.
- For positive pressure test:
  - Block the exhalation valve with the palm of the hand, exhale slightly, and note a positive pressure in the face piece.
  - If leakage occurs around the seal, adjust the face piece location and retest.
- For negative pressure test:
  - Block the breathing tube, cartridge faces, or remove cartridges and block apertures connecting to the face piece.
  - Inhale slightly to create a negative pressure inside the face piece. Hold breath for approximately 10 seconds.
  - If leakage occurs around the seal, adjust face piece location and retest.
- Ensure a satisfactory fit is obtained with both positive and negative pressure tests before proceeding with the work.
  - If a fit cannot be achieved, withdraw the respirator from service and tag for repair. Use alternative RPE for which a fit can be obtained.

#### **4.6.2. Fit Testing**

- Either quantitative fit testing or qualitative fit testing is acceptable provided it is carried out in accordance with CSA Standard Z94.4-02. In the case of quantitative fit testing using a particle counting instrument (e.g. TSI Portacount), the pass level for a full face piece mask must be an overall fit factor of 1000/1. For a half face piece respirator, the pass level must be an overall fit factor of 100/1. (See Appendix D for further information on respirator fit testing requirements.)
- Perform respirator fit testing using assigned respirators before its initial use and at least every 2 years in Alberta and Saskatchewan, annually in B.C. (see Appendix D).
- Repeat fit testing if a new respirator is assigned or if the employee experiences a change in facial shape; for example due to:
  - Significant gain or loss of weight.
  - Facial injury.
  - Facial/dental surgery.
- Use only trained personnel to perform fit testing.
- Fit test records must be retained on file for each employee who uses a respirator.

#### **4.7. Cleaning, Inspection, Maintenance, and Storage**

- Follow the manufacturer's instructions for cleaning, inspection, maintenance, and storage of respirators.

- Follow the manufacturer's instructions for cleaning, inspection, maintenance, and storage of air lines and fittings.
- Perform routine replacement of parts authorized by the manufacturer, such as headbands, nose cups, cylinders, filters, and cartridges, as required.
- **For air purifying respirators only**, change inhalation and exhalation valves as required, following manufacturer's instructions.
- Repairs other than the above must only be performed by trained persons authorized by the manufacturer.
- Ensure that compressed breathing air cylinders are hydrostatically tested in accordance with CSA Standard Z94.4-02, Selection, Use, and Care of Respirators. Remove from service and label any cylinders which do not pass these tests.

#### **4.8. Cylinder Recharge and Breathing Air Quality**

- Slowly bleed down compressed air cylinders which have not been used over a 1-year period and replenish with clean respirable air (i.e. minimum recharge frequency is 1 year).
- Obtain a breathing air analysis report whenever cylinders are recharged; keep a copy available for inspection by SCBA/SABA wearers.
- The quality of the breathing air must comply with CSA Standard Z180.1-00, "Compressed Breathing Air Systems" (see Appendix C for summary of requirements).
- Follow manufacturer's instructions for use of SCBA in low temperatures.
- Ensure that the atmospheric dew point of the breathing air is at least -65°C or lower. This will help to prevent regulator freeze-up in severe winter temperatures.

#### **4.9. Medical Assessment of Respirator Users**

- Each worker who is required to use RPE must have a medical assessment by an occupational health professional before using a respirator in order to identify conditions that could prevent the safe use of a respirator.
- Assessments must be performed along with pre-placement, periodic, and special assessments according to the schedules stipulated by the Health Services team.
- Prior to being fit tested, employees are required to complete a medical self-assessment form, available from CPC Health Services, and submit this confidential medical record to the CPC Occupational Health Nurse, either by inter-office mail in an envelope marked "Confidential" or by email to the Occupational Health Nurse.
- The Occupational Health Nurse must review the information and provide the employee's supervisor with a notification as to whether the employee is approved or not approved to wear a respirator.
- Based on a review of the employee's medical self-assessment form, the Occupational Health team may determine that further medical evaluation is required, and will notify the supervisor of additional steps that may be required.

- If there is a change in the employee's condition which could affect the wearing of a respirator (e.g. pregnancy) the employee should notify their supervisor and the Health Services team.

#### **4.10. Vision Requirements**

- All employees required to wear a full face piece respirator must be able to do so without wearing regular glasses.
- Employees requiring visual correction must contact their supervisor to determine the best option for ensuring safe work performance. These options include:
  - Prescription optical kit fitting inside the face piece using adapters available from the respirator manufacturer.
  - Supervised working test to demonstrate ability to function safely without usual visual correction.
  - Contact lenses for those who can tolerate the drying effects of positive pressure masks.
  - Exclusion from duties requiring the wearing of RPE.

#### **4.11. Procedure Review**

- The Industrial Hygienist must review this Procedure annually to ensure it is current and appropriate to the work operations and RPE on site.
- The review must include an assessment of the following:
  - Exposure control measures.
  - Need for further control.
  - Adequacy of training.
  - Adequacy of exposure monitoring data.
  - Need for further monitoring.

### **5.0 References**

- Alberta Occupational Health and Safety Code, Sections 162, 244-255
- Assigned Protection Factors for the Revised Respiratory Protection Standard, OSHA 3352-02 2009
- BC Occupational Health Safety Regulation Part 8, Sections 8.32-8.45
- Work Safe BC Manual – Breathe Safer, How to Use Respirators Safety and Start a Respirator Program
- CSA Standard Z94.4 Selection, Use and Care of Respirators
- CSA Standard Z180.1 Compressed Breathing Air and Systems
- Work Safe Alberta Bulletin - Respiratory Protective Equipment: An Employer's Guide
- Work Safe Alberta Bulletin - Guideline for the Medical Assessments of Fitness to Wear Respirators

## 6.0 Document Retention

Records must be retained in accordance with ConocoPhillips' Document Retention Schedule.

Record	Owner	Classification	Retention
Employee training	Human Resources	HR05-CA	Termination of Employment +7 years
Maintenance of SCBAs and SABAs	Supervisors	EF04-CA	Disposition of Equipment/System + 10 Years
Respirator fit testing	Supervisors	HE05 – CA	Termination of Employment +30 years
Exposure monitoring	Industrial Hygienist	HE05 – CA	Termination of Employment +30 years
Medical Assessments	Occupational Health Nurse	HE05 – CA	Termination of Employment +30 years

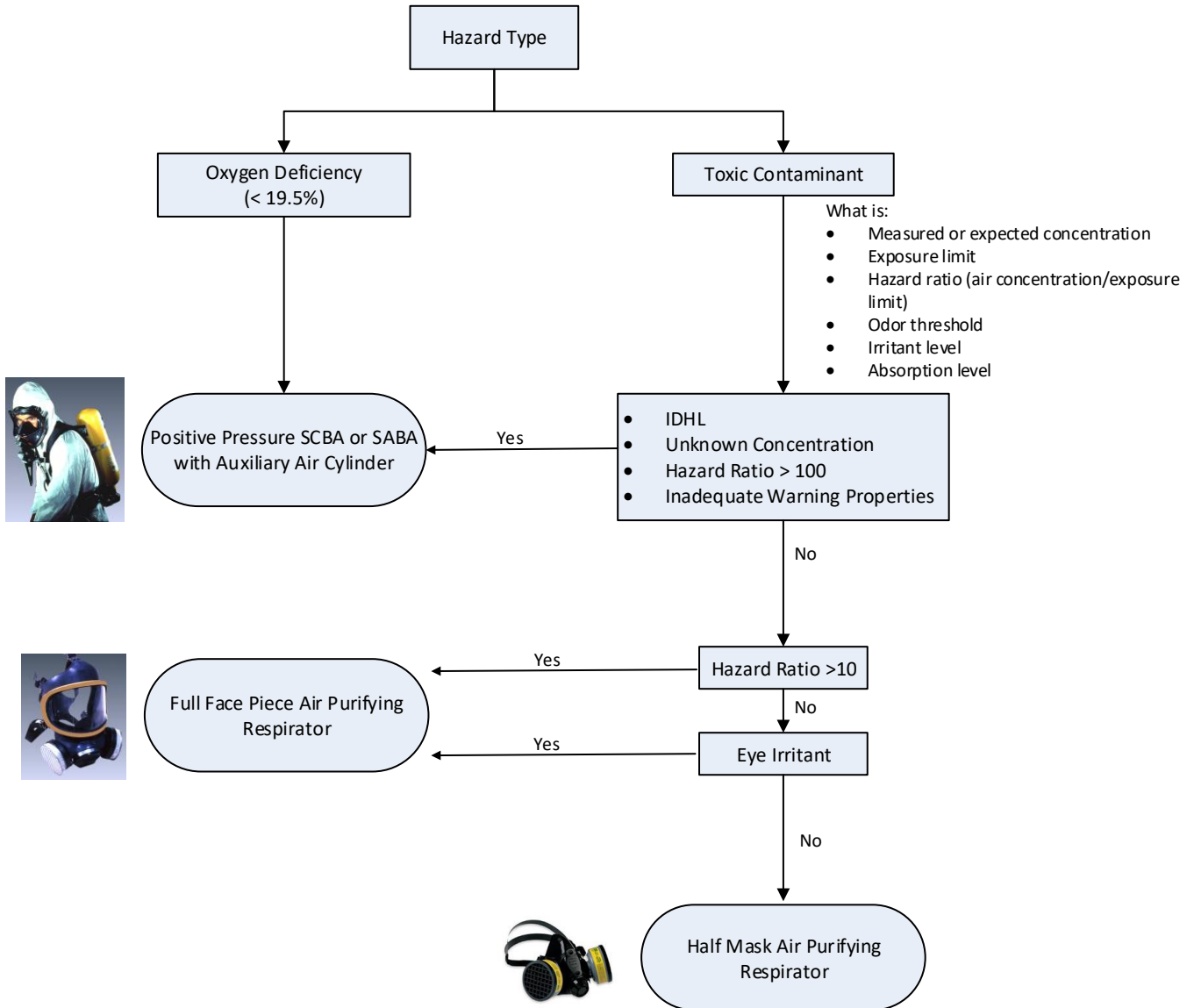
## Appendix A – Terms

Terms that are important to understanding this Procedure are defined below:

<b>Air Purifying Respirator</b>	A respirator which absorbs or filters contaminants from the workplace atmosphere.
<b>Continuous Flow Positive Pressure Regulator</b>	A positive air pressure is maintained inside the respirator face piece at all times during use by a continuous flow of air to the face piece. This type of delivery system is used for hoods (e.g. abrasive blasting hood).
<b>Emergency</b>	A present or imminent event outside the scope of normal operations that requires prompt coordination of resources to protect the health, safety and welfare of people and to limit damage to property and the environment.
<b>Escape Bottle</b>	An auxiliary cylinder of compressed breathing air used in conjunction with an air line respirator. It can be used for emergency egress should the air line become cut or otherwise rendered ineffective. The minimum use duration approved for ConocoPhillips operations is 5 minutes.
<b>Full Face Piece</b>	A face piece which covers the mouth, nose, chin, and eyes.
<b>Half Face Piece</b>	A face piece which covers the mouth, nose, and chin.
<b>Fit Test Qualitative</b>	A test of the seal between the person's face and the respirator face piece in which the person wearing a respirator is exposed to an irritant smoke, odorous vapor, or other suitable test agent. The respirator wearer uses his/her senses to detect leakage of the test agent into the face piece as a means of assessing the effectiveness of the seal to the face.
<b>Fit Test Quantitative</b>	Instrumentation is used to measure the concentrations of a test agent inside and outside the face piece (or pressure differential across the face piece), as a means of assessing the effectiveness of the facial seal.
<b>Hazard Ratio</b>	Only applies to atmospheres which are not oxygen deficient. The concentration of the airborne contaminant present divided by its occupational exposure limit. For example, if the concentration of benzene is 2.5 ppm, and the OEL is 0.5 ppm, the hazard ratio is 5. In order to use a type of RPE, its protection factor must be greater than the hazard ratio.
<b>Immediately Dangerous to Life or Health (IDLH)</b>	Any atmosphere where the concentration of oxygen, flammable or toxic air contaminants would cause a person without RPE to be fatally injured, cause irreversible and incapacitating effects to that person's health, or prevent escape from such an environment.
<b>Maximum Use Concentration</b>	The maximum use concentration (MUC) is the highest contaminant concentration in air for which the respirator can be used. It depends on the protection factor and the exposure limit for the contaminant: $MUC = PF \times \text{Exposure Limit}$
<b>Inert Atmosphere</b>	Addition of nitrogen, carbon dioxide, or similar gas into a confined space (tank or vessel) which contains an explosive atmosphere in order to make the atmosphere non-explosive by depleting the oxygen concentration.
<b>NIOSH Approval</b>	Tested according to a standard developed by the National Institute for Occupational Safety and Health (NIOSH) in the United States for use under the conditions stated. An approval number (e.g. TC-19C-, TC-21C- or TC-23C-) is printed on all NIOSH approved equipment. Older equipment may bear joint approval by NIOSH and the Mine Safety and Health Administration (MSHA) or the Mining Enforcement and Safety Administration (MESA). NIOSH/MSHA and NIOSH/MESA approvals are equivalent to NIOSH approval.
<b>Oxygen Deficiency</b>	An oxygen content in the air of less than 19.5% volume/volume.
<b>Pressure Demand (positive pressure)</b>	A respirator where the pressure in the face piece or hood remains positive with respect to the ambient pressure during both inhalation and exhalation.

<b>Protection Factor</b>	The minimum anticipated protection provided by a properly functioning respirator or class of respirators to a given percentage of properly fitted and trained users.	
	<b>Respirator Type (NIOSH Approved)</b>	<b>Protection Factor from CSA Standard Z94.4-11</b>
	SCBA (full face piece) – positive pressure	10000
	SABA (full face piece) – positive pressure	1000
	Air purifying cartridge respirator - full face piece - half face piece - filtering face piece (dust) mask	50 10 10
<b>Quick Connect Locking Couplings</b>	Quick disconnect fittings used to quickly connect air lines without losing air pressure.	
<b>Respirator (Respiratory Protection, Respiratory Protective Equipment)</b>	A device designed to protect the wearer from inhalation of hazardous atmospheres.	
<b>Seal Check</b>	A field check of the respirator facial seal using positive and negative pressure tests.	
<b>Self-Contained Breathing Apparatus (SCBA)</b>	A respirator providing its own independent supply of breathing air from a cylinder carried by the user, usually on the back.	
<b>Supplied Air Breathing Apparatus (SABA)</b>	A respirator providing its own independent supply of breathing air from a compressor or remote cylinder/s via an air line.	

**Appendix B – Respirator Selection Flow Chart**



Note: contact CPC Industrial Hygienist for assistance with multiple contaminants or other questions.



**Appendix C – Breathing Air Quality Requirements of CSA Z180.1-00**

**Allowable Concentrations of Components and Contaminants in Breathing Air**

Component/Contaminant	Allowable Ranges or Maximum Allowable Concentrations (by volume at 21°C and 101 kPa)
Oxygen	20-22 %
Nitrogen and other inert gases	78 - 80 %
Carbon monoxide	5 ppm
Carbon dioxide	500 ppm
Methane	10 ppm
Volatile non-methane hydrocarbons	5 ppm (as methane equivalents)
Volatile halogenated hydrocarbons	5 ppm
Oil, particulate and condensates	1 mg/m <sup>3</sup>
Water (compressed air systems at pressures of 15 to 2216 psig)	Pressure dew point must be at least 5° C below the lowest ambient temperature to which the equipment will be exposed at any time of the year.
Water (compressed air systems at pressures at or above 2216 psig)	Pressure dew point must be at least 5° C below the lowest ambient temperature to which the equipment will be exposed at any time of the year, and  Atmospheric dew point must not be above -53° C*.
Odors	No pronounced odor.

\*Regardless of this, ConocoPhillips Canada requires an atmospheric dew point of -65° C or lower to prevent freeze-up during severe winter conditions.

## **Appendix D – Respirator Fit Testing Requirements**

Workers using RPE that depends on an effective facial seal must be fitted and tested in accordance with CSA Standard Z94.4-02, “Selection, Use and Care of Respirators”.

Service Providers performing fit testing must carry a variety of respirator face pieces or adaptors for the types of respirators in use at the Business Unit, to permit the selection of the make/model/size with the best fit.

### **1. Acceptable Types of Fit Testing**

- Fit testing may be either qualitative or quantitative, as described in Section 7 and Appendices B and C of CSA Standard Z94.4-02. Any of the methods specified is acceptable.
- Neither positive nor negative pressure user seal checks shall be used *in place* of the above. However, *after* fit testing has been done, and the make and model of respirator has been selected, both positive and negative pressure user seal checks must be performed before each use of the respirator (see Appendix A of CSA Standard Z94.4-02).

### **2. Frequency of Fit Testing**

Fit testing must be done:

- a) Whenever the worker is required to use a type of respirator for which he/she has not been fit tested;
- b) When the worker experiences a significant change in facial shape, as may be caused by weight change, surgery or accident; and
- c) According to the schedule below.

**Alberta:** ..... at least every 2 years

**British Columbia:** ..... at least annually

**Saskatchewan:** ..... at least every 2 years

### **3. Pass/Fail Criteria**

#### **a) Qualitative:**

**Pass:** subject does not detect test agent

**Fail:** subject detects test agent

#### **b) Quantitative:**

**Pass:** fit factor of 100 or more for half face piece mask; fit factor of 1000 or more for full face piece mask

**Fail:** fit factors less than the above

#### **4. Exercises**

Exercises must be performed as described in the applicable Appendices of CSA Standard Z94.4-02 in order for the fit test to be valid. The exercises performed must be recorded on the written report of fit testing provided to ConocoPhillips.

#### **5. Reports**

**Reports must include the following information:**

- Date
- ConocoPhillips site
- Name of person conducting test
- Test method
- Name of test subject
- Work classification of subject (e.g. plant operator)
- Makes, models and sizes of face pieces tested
- Exercises performed
- Pass/fail
- Fit factor (in the case of quantitative fit testing)
- Background particulate count (in the case of Portacount quantitative fit testing)
- Type of visual correction worn during testing (if any)
- Comments, as necessary, if unusual circumstances affect test results - for example facial features.

#### **6. Other Issues**

- Fit testing must be done in the negative pressure mode, even for positive pressure respirators.
- Workers must not smoke tobacco for at least 2 hours prior to the start of fit testing, as this may affect the results.
- Fit testing shall not be performed if there is noticeable facial hair in the face piece seal area. All male subjects must be clean-shaven the day of the fit test.
- Visual correction must be addressed during the fit testing session. If the worker requires visual correction, the appropriate spectacle kit, contact lenses, Mag-1 frames or equivalent must be worn during fit testing of all full face piece masks.

**Appendix E – Revision Record**

Page#	February 5, 2018	Previous Information	Change Assessment
4	Added 4.1. Inclusion in Respiratory Protection Program	None.	Minimal impact.
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