1.0 INTRODUCTION

This standard provides general guidelines for the proper selection, use and care of respirators. All use of respiratory protection shall meet the requirements of CSA Z94.4-11 (R2016), Selection, Use and Care of Respirators.

2.0 SCOPE

This Standard applies to all NB Power employees and contractors who have been assigned or may be assigned tasks requiring the use of respiratory protective equipment.

3.0 REFERENCES

General Regulation 91-191	Occupational Health and Safety Act
CSA Z94.4-2016	Use and Care of Respirators.
NIOSH Publication 87-108	NIOSH Respirator Decision Logic
NIOSH Publication 96-101	NIOSH Guide to the Selection and Use of Particulate Respirators certified under 42CFR84.
CSA Z180.1	Compressed Breathing Air and Systems
CGA G-4.3	Cleaning Equipment for Oxygen Service
NIOSH Publication 2005-149.	NIOSH Pocket Guide to Chemical Hazards,

4.0 TERMS AND DEFINITIONS

Air-Purifying Respirator	A respirator that purifies inhaled air by passing it through a filter or chemical cartridge.
Air Supplied Respirator	A respirator that supplies breathable air to facepiece from a compressor or cylinder
Assigned Protection Factor (APF)	The anticipated level of respiratory protection that would be provided by a properly functioning respirator, or class of respirators, to properly fitted and trained users.
Bioaerosol	a liquid droplet (generated, for example, by coughing or sneezing) or a solid particle (generated, for example, by sweeping or shoveling) suspended in the air that is living or originates from living organisms. Bioaerosols include living or dead micro-organisms, fragments, toxins and particulate waste products from all varieties of living things. They are capable of causing infection or responses that are adverse or allergic in nature.
Competent	A person who is qualified, based on knowledge, training and experience, to do the work assigned in a manner that will ensure the health and safety of persons

Facepiece	The part of the respirator which covers the user's mouth and nose. Half facepieces cover the nose and mouth to below the chin. Full facepieces cover the entire face including below the chin. Hoods and helmets generally cover the entire head
Fitness for Duty	Fitness for Duty is a physical and mental health status that permits the performance of essential job duties in an effective manner and protects the health and safety of other workers, the public, and the environment. Fatigue is impairment to Fitness for Duty.
Immediately Dangerous to Life or Health (IDLH)	an atmosphere that poses an immediate threat to life or that will cause irreversible adverse health effects or impair an individual's ability to escape
Maximum Use Concentration (MUC)	the maximum concentration of a contaminant for which a given type of respirator may be used. MUC is determined by multiplying the "assigned Protection Factor" by the Occupational Exposure Limit. The outcome must be less than the Assigned Protection Factor of the given respirator
Negative Pressure Respirator	Any filter or cartridge equipped respirator where the facepiece pressure becomes negative to the surrounding area during inhalation
Occupational Exposure Limit (OEL)	the maximum concentration of contaminants to which employees may be exposed for specific lengths of time as defined by regulations
Oxygen Deficiency	atmospheres containing less than 19.5% oxygen by volume
Powered Air Purifying Respirator (PAPR)	A cartridge or filter respirator equipped with continuous flow blower to pull air through the filters and blow it into the facepiece.
Positive Pressure Respirator	Any air-supplied or powered respirator designed to always maintain a positive pressure in the facepiece.
Qualitative Fit Test	A respirator fit test where the person wearing a respirator is exposed to a test agent that can readily be detected by the wearer. The respirator passes or fails depending on whether the wearer can detect any of the test agents in the mask
Quantitative Fit Test	A fit test, using instrumentation, that measures the concentration of a challenge agent outside and inside the mask and gives a numerical fit factor
Seal Check	an action conducted by the respirator user to determine if the respirator is properly seated to the face
Simulated Workplace Protection Factor (SWPF)	A study performed under controlled conditions to measure the actual protection factor achieved by a respirator.
Tight-fitting Respirator	Any respirator requiring a tight seal between the facepiece and skin to function properly.

5.0 ROLES AND RESPONSIBILITIES

5.1 Employer

The employer shall ensure each division and/or site maintains a respiratory protection code of practice to:

- assign program roles to competent persons
- evaluate hazards and eliminate or minimize them
- ensure appropriate respiratory protection is made readily available to users
- ensure workers are provided with training required to develop competencies required as part of this standard.

5.2 Program Administrator

Each division and/or site must establish a program administrator who shall ensure:

- qualified personnel have been assigned the roles defined in this standard;
- assessments for respiratory hazards are conducted by competent persons;
- a list of respirators selected for use in the workplace is maintained for each respiratory hazard;
- procedures are established for respirator user screening and, where required, a medical assessment (Appendix A)
- procedures are established for the issuance of selected respirators;
- all persons required to use respirators
  I. complete user screening;
  II. receive written instructions, training, and fit testing prior to initial use of a respirator;
  III. are able to demonstrate ongoing competency in respirator use and receive additional training where required; and
  IV. are fit tested again at designated intervals or when required (see Fit testing section)
- the use of respirators is monitored, including that
  I. selected equipment is being used;
  II. respirators are being worn properly and are in good working condition;
  III. problems and corrective actions are documented and implemented; and
  IV. maintenance of the respirators is in accordance with manufacturer's instructions;
- the program is reviewed at least annually to assess its effectiveness;
- written instructions and records required by this Standard are maintained;
- procedures for emergency and rescue operations are developed; Note: These procedures should address the following:
  I. the consequences of equipment or power failures, uncontrolled chemical reactions, fire, explosion, or human error;

II. an analysis of emergency and rescue uses of respirators that might occur in each operation;
III. consideration of past occurrences requiring emergency or rescue uses of respirators;
IV. rescue in IDLH environments;
V. the appropriate types and numbers of respirators that need to be maintained and stored so that they are readily accessible and operational when needed.

5.3 Industrial Hygienist

VI. Provide subject matter expertise and support on this standard and respiratory protection
VII. Conduct periodic reviews of the implementation of the Respiratory Code of Practice at divisions and/or sites
VIII. Review incidents related to respiratory protection and ensure any learnings are captured in this standard.

5.4 Supervisor

The supervisor shall monitor respirator use in relation to workplace conditions to ensure that respiratory protection program requirements are being met and shall ensure that

- hazard assessments are reviewed or performed prior to selecting respirators
- Respirators are selected in accordance with Section 6.1.1.j (Selecting a Respirator)
- Workers are, fit for duty when assigning work requiring respiratory protection.
- users demonstrate competency in the use of the respirator;
- respirators are cleaned, sanitized, inspected, maintained, repaired, and stored in accordance with written instructions and the manufacturer's recommendations;
- the respirator is used in accordance with the instructions, the training received, and the safe operating procedures established for the workplace, i.e., to manage work tasks requiring the use of a respirator;
- in the case of a tight-fitting respirator, respirator users will ensure they are clean shaven (Attachment 1) and ensure they do not have any object or material on their person that would interfere with the seal or operation of the respirator;
- the program administrator is notified of respirator users' concerns, changes in processes, equipment, or operating procedures that have an impact on environmental conditions, and respiratory protection requirements; and
- the Industrial Hygienist is notified of investigation reports that indicate that the use of a respirator could have prevented or contributed to an incident or injury
- shall select respirators in accordance with section 6.1.1.j (Selecting a Respirator)
- selecting respirators shall base selection on the requirements of the respiratory protection program and shall

5.5 Employee

Respirator users shall use and care for respirators in accordance with the written instructions and training received and shall

- report to their supervisor or other responsible person when there is any condition that can impair their ability to safely use a respirator;
- Be clean shaven while wearing a tight fitting respirator, without exception. They shall also refrain from having any object or material on their person that would interfere with the seal or operation of the respirator.
- check that the respirator is clean and in good operating condition prior to each use and at intervals that will ensure that it continues to operate effectively;
- perform user seal checks after each donning of a tight-fitting respirator (see Annex A);
- remove from service any respirator that they determine to be defective and report it to their supervisor or other responsible person; and
- report to their supervisor or other responsible person when there is any condition or change that could impact their ability to safely use the selected respirator

5.6 Fit Tester

- Be competent through training to conduct fit tests appropriate for those respirators selected for use in the workplace.
- Perform fit tests following accepted protocols identified in the CSA Standard Z94.4-11.
- Ensure that fit tests are only performed on clean-shaven users, applying the program requirements regarding interface concerns (see Appendix B)
- Only perform fit-tests on workers who have documented medical clearance.
- Document individual user’s competency and corresponding fit test results.
- Provide a card to employee documenting the date, make, model and sizes of fit-tests achieved.
- Verify that the user is trained and competent in respirator inspection, donning and doffing, and ensure that they obtain an acceptable fit and effective respirator seal.
- Ensure the proper cleaning and sanitizing of fit testing equipment and respirators used for fit testing.
- Document the maintenance, calibration and repair of fit test equipment.
- Notify the Program Administrator of respirator users’ concerns.

6.0 STANDARD

6.1 General

6.1.1 Requirements for Respirator Use

a) Restrictions on Respirator Usage

Respirators are intended for use when engineering or administrative exposure control measures are not practicable, while such controls are being instituted, or during shut-down for maintenance, repair or emergency. Respirators are not to be used as a substitute for proper, reliable control measures. Respirators may be used in addition to other control measures for worker comfort.

b) Respirator Approvals

Only NIOSH approved respirators may be used. In some cases equivalent approvals are allowed. Complete Form 0645 Deviation Request from THS Standards.

c) Respirator Use Pre-requisites

Prior to using a respirator, the individual must obtain documentation to prove the following:

• Medical clearance

• Fit test on the type and size of mask to be used

• Training on respirator use and these requirements

d) Respirator Seal

Where a respirator uses a tight fitting facepiece that relies on a tight seal against the skin, nothing is permitted between the facepiece and the skin.

Anything that compromises the form, fit or function of a respirator is strictly prohibited.

i. Facial Hair

Anyone wearing a respirator with a tight fitting facepiece shall be clean shaven while wearing the respirator, without exception. All staff required to be able to wear a respirator on an emergency basis, such as emergency responders and fire-fighters shall be clean shaven at all times, while on the job. Facial hair shall comply with Appendix A.

ii. Eye Glasses

Eyeglasses may not be used where the arms would pass through the respirator seal. Special arrangements may be made to incorporate prescription insert glasses into the facepiece where corrective lenses are required with a full facepiece. Insert must be compatible with facepiece.

e) IDLH Atmospheres

Only self-contained breathing apparatus (SCBA) or air-line, escape bottle combinations operated in pressure-demand mode may be used for work in potentially IDLH atmospheres.

f) Breathing Air Purity

Compressed breathing air shall meet or exceed the requirements of CSA Standard CSA Z180.1. Compressed breathing oxygen shall meet the purity requirements of CGA G-4.3.

g) Buddy Breathing

Buddy breathing on a self-contained breathing apparatus is prohibited. Buddy breathing is defined as any situation where two or more users are sharing the same air cylinder. Where the need for an extended air supply is anticipated a portable supplementary air supply should be used.

h) Contact Lenses

Contact lenses may be worn with all types of respirator provided the user can demonstrate that the lenses do not cause a problem. Contact lenses are not protective eyewear and any required eye protection must be used in conjunction with the contacts. Where contacts are to be worn with a full facepiece respirator of any design the mask shall be worn on a trial basis, in a safe atmosphere to ensure that the lenses will stay in place and not cause user discomfort

i) Hazard Assessment

Where work is not covered in the Respiratory Protection Program (RPP) Code of Practice (CoP), a hazard assessment of the work area shall be performed by the supervisor directly responsible for the job. Hazard assessment assistance can be provided by Total Health & Safety.

The hazard assessment must consider the hazard(s); their state; applicable exposure limits; the oxygen level; whether the task or space could be immediately dangerous to life and health (IDLH); and skin or eye absorption and irritation.

The airborne concentration of inhalation hazards should be determined or estimated to establish the appropriate level of respiratory protection. As a precautionary measure, it is often necessary to wear a respirator with a higher level of protection until the actual concentration of the atmosphere is measured, and the required respiratory protection is established.

The following are examples of tools that can be used to perform and/or document a hazard assessment:

- Job Hazard Analysis (JHA)
- Work Methods
- Safety Data Sheets (SDS)
- Industrial Hygiene exposure monitoring
- Confined Space Assessments

- Gas detection direct reading instruments

j) Selection of Respirators

The selection of respirators should only occur after the hazards are understood and must all follow accepted procedures as outlined in CSA Z94.4. Some respirator selections have been established by Industrial Hygiene in Appendix C and in various HS Standards. In addition, Industrial Hygiene is fully equipped to assist with the respirator selection process.

i. When the nature of inhalation hazard has been determined use the table and flow diagrams in the above mentioned guides to select a suitable respirator. Special notice shall be taken of upper use limits, assigned protection factors, poor warning properties and poor filter adsorption characteristics when selecting a device. Reference to the most recent 3M or MSA Respirator Selection Guides and the NIOSH Pocket Guide to Chemical Hazards is particularly helpful in selecting a suitable device.

ii. Assigned protection factors (APF) are used to determine the maximum airborne concentration, of a contaminant, that the respirator can used to protect against. The maximum usage concentration is determined by multiplying the APF times the exposure limit for the contaminant. Other factors such as contaminant toxicity or filter limitations may dictate the use of a lower concentration. Under no circumstances may higher APF's be used regardless of the results of an individual fit test. The following assigned protection factors shall not be exceeded during respirator usage.

Table 1 Assigned Protection Factors for Respirators

Type of Respirator	Assigned Protection Factor
Air purifying, half-facepiece	**10**
PAPR, loose fitting facepiece or visor	**25**
PAPR, helmet or hood, with no SWPF study	**25**
Airline, continuous flow, loose fitting facepiece or visor	**25**
Airline, continuous flow, helmet or hood, with no SWPF study	**25**
PAPR, half-facepiece	**50**
Air purifying, full facepiece	**50**
Airline, pressure demand or continuous flow, half-facepiece	**50**
PAPR, full-facepiece	**1000**
PAPR, helmet or hood, with SWPF study	**1000**
Airline, pressure demand or continuous flow, full-facepiece	**1000**

Airline, continuous flow, helmet or hood, with SWPF study	**1000**
SCBA, pressure demand, full-facepiece or tight fitting hood	**10000**
Multifunctional SCBA/airline	**10000**

k) Cartridge Change-Out Schedule:

The Program Administrator is responsible for establishing a cartridge change-out schedule. Only qualified personnel shall establish a change-out schedule for the replacement of air-purifying filters or cartridges before their useful service life is ended (see Attachment V).

Note: Warning properties, such as odour detection or symptoms of irritation, of the containment shall not be relied on for cartridge/canister change-out but actions must be taken immediately if these properties are present.

- Employees wearing an air purifying respirator for protection against gasses or vapours must change their cartridges when indicated on the change-out schedule, or sooner, in the event that breakthrough is detected.
- Should workers detect odour or experience any irritation symptoms before the end of the change-out schedule, the Respirator Program Administrator shall be informed and shall re-evaluate this respirator use, (i.e. the change out schedule, the workplace concentrations, or other conditions of use [relative humidity (RH), work rate, etc.]).
- For contaminants with poor warning properties, an atmosphere-supplying respiratory shall be selected

l) Particulate filter Change-Out Schedule:

Particulate filters shall be replaced when:

- They become damaged, unhygienic, difficult to breathing through or as recommended by the manufacturer.
- In the case of powered air-purifying respirators (PAPRs), particulate filters shall be replaced when the airflow does not meet manufacturer's requirements
- If used in environments containing oil aerosols, dispose of cartridge/filter after 40 hours of use or 30 days, whichever comes first.

m) Fit Testing

Tight fitting respirators shall not be used unless the fit of the device has been verified using accepted protocols and equipment. A successful fit test is required for each make, model, and size of respirator to be used by an individual. Many employees will require fit-tests on multiple styles of masks, In some cases employees will be unable to wear respirators requiring a tight seal against the face. In this situation loose fitting respirators may be selected if appropriate, contact the Industrial Hygiene for advice.

All fit tests must conform to CSA Z94.4-11 which requires 7 exercises to be completed as part of the fit test.

i. Quantitative Fit Tests

The preferred test method is a quantitative fit test conducted in accordance with CSA Z94.4. NB Power employees and contractors should make every reasonable effort to have fit-tests conducted quantitatively.

ii. Qualitative Fit Tests

Qualitative fit test methods may be used where quantitative test are unavailable. This could include new hires, contractors and unanticipated respirator usage. Qualitative tests may be done using isoamyl acetate (banana oil), irritant smoke tubes, saccharin aerosol or Bitrex aerosol. The qualitative method to use depends on the type of respirator to be tested. The last three methods listed may be done on any mask equipped with high efficiency filters. Banana oil testing must be done on masks equipped with organic vapour cartridges.

Any negative pressure respirator fitted using a qualitative fit test shall be limited to an APF of 10.

Qualitative fit-tests are not permitted for SCBA and multi-functional SCBA airline applications.

iii. Fit Test Records

Fit test records will be maintained by the Station or Division with a copy at the employees work location. Supervisors shall verify that an individual has been fit tested on a respirator before allowing it to be used.

Where applicable fit-test records should be maintained in the Learning Management System (LMS).

iv. Choice of Respirators

As many products in as many sizes as necessary will be made available to ensure all respirators users have a properly fitted device.

v. Testing Frequency

- Fit testing must be performed prior to initial use of a tight-fitting respirator
- When there are changes to a user's physical condition (weight change or changes to facial or dental features)
- When there is a change in respirator used
- When there is a change in PPE use that could affect the respirator
- At least every 2 years.

n) Respirator Donning

The respirator shall be fully inspected before each use and any defects corrected before using the device. The mask shall be donned following the manufacturer's instructions and the instructions given during the training. After donning, the facepiece seal shall be verified where possible, using the positive and negative pressure tests. If a proper seal cannot be established the device shall not be used.

o) Maintenance

All respirators and breathing air cylinders shall be inspected and maintained as required by the manufacturer's instructions and CSA Z94.4-11. Defective respirators shall be removed from service until repaired or replaced.

i. Storage

Self-contained breathing apparatus shall be stored as indicated in CSA Z94.4-11. Respirator facepieces shall be stored in a clean location, preferably in a plastic bag. Respirator facepieces shall not be stored in such a fashion as to deform or distort the rubber.

ii. Cleaning

Respirator facepieces intended for use by more than one user shall be cleaned and sanitized after every use. Respirators used by only one person shall be cleaned when soiled, usually at the end of a work shift and sanitized as required.

p) Medical and Physical Fitness

Prior to fit testing and respirator use, documentation must be completed that confirms that the individual is free from any condition that could preclude them from safely using a respirator.

i. Confidentiality

The results of medical and physical evaluations are strictly confidential and shall not be released to the employer. Management will be informed if the employee is fit to wear a respirator, not fit, or fit with restrictions. Additional information shall be made available only with a medical release signed by the employee and only if there is a legitimate need for the additional information, such as a Worker's Compensation claim

ii. Medical Pre-screening

A medical questionnaire (Appendix A) shall be filled out by the employee before undergoing a fit test. If medical problems that could affect the individual's ability to wear a respirator are indicated, the employee shall have a physician assess their ability to use a respirator before being allowed to wear a respirator.

The medical screening form must be documented and retained with the fit test records.

q) Code of Practice

As required under General Regulation 91-191, a site specific Code of Practice shall be developed. This Code shall be in compliance with this Standard and CSA Z94.4. The CoP must include all of the information in Appendix D, which includes

- The name, phone number and title of the Program Administrator
- If not covered I appendix C, the respiratory hazard; its form (aerosol, gas); the type of respirator to be used (make/model); the change out schedule.
- It should also include site specific roles; where to obtain and store respiratory equipment and any other helpful site information.

7.0 TRAINING

Training shall be given to respirator users, the supervisor of respirator users, person issuing respirators, fit testers, and any persons maintaining respirators. The training shall be sufficient that the person involved can properly perform the necessary tasks. Respirator users must understand the respiratory hazard to which they may be exposed, the limitations, capabilities and operation of the respirator and the proper donning, care maintenance of the device. No person shall use, issue, fit test or maintain a respirator unless adequately trained to do so. Records of such training will be maintained.

Powered Air Purifying Respirators (PAPR) and SCBA require make and model specific training prior to use. Refresher training will be completed every 2 years unless a competency assessment determines they still have sufficient competency to continue using the PAPR or SCBA.

Respiratory Protection training competency shall be validated every 2 years prior to a fit-test. If the required competency is not maintained, training will be required prior to respirator fit-test and use.

Records: Training records shall be maintained in NBP's Learning Management System.

8.0 APPENDIX

Appendix A - Health Screening for Respirator Users Form 1035 and Fit Testing Record Form 0651

Appendix B - Facial Hair Policy (as per CSA Standard)

Appendix C – Respirator Change out Schedule

Appendix D – Respiratory Protection Program Code of Practice Example

Director of Total Health & Safety

DOCUMENT APPROVAL/REVISION RECORD

Revision #	**Date** yyyy/mm/dd	**Revision Summary**	**Author**	**Reviewed By**	**Approved By**
	2013-09-01				
1	2022-02-28	Updates were to provide clarification	Matt MacFarlane	TH&S	Roland Roy

Appendix A – Health Screening for Respirator Users Form 1035 and Fit Testing Record Form 0651

LAST Name:	**FIRST Name:**	**Employee #**
Company/Employer & Site (if applicable):		**Department:**

Respirator USER completes WHITE boxes. Fit Tester / Health Care Professional complete GREY boxes

Respirator USER's Health Conditions

Important: Medical information is **NOT** to be recorded on this form.

Some conditions can seriously affect your ability to safely use a respirator. Do you have or do you experience any of the following condition(s) that may affect your respirator use?

Shortness of breath	Breathing difficulties	Chronic bronchitis	Emphysema
Lung disease	Chest pain on exertion	Heart problems	Allergies
Hypertension	Cardiovascular disease	Thyroid problems	Diabetes
Neuromuscular disease	Fainting spells	Dizziness/nausea	Seizures
Temperature susceptibility	Claustrophobia/fear of heights	Hearing impairment	Dentures
Panic attacks	Color blindness	Asthma	Prescription medication to control a condition
Vision impairment	Reduced sense of smell	Reduced sense of taste	
Back/neck problems	Facial features/skin conditions	Pacemaker	

a) Or any other condition(s) affecting respirator use? (Check YES or NO box only. **DO NOT SPECIFY**.) ☐Yes ☐No

b) Have you had previous difficulty while using a respirator? ☐Yes ☐No

c) Do you have any concerns about your future ability to use a respirator safely? ☐Yes ☐No

If you check "YES" to a, b or c - further assessment by a health care professional is required prior to respirator use.

Please contact a Nurse within Corporates Total Health & Safety

Respirator USER

☐ I know of no medical condition that might affect my ability to wear a respirator.

☐ I may have a condition that should be evaluated by a doctor.

Signature _____ Date (yyyy-mm-dd) _____

NB Power Occupational Health Primary Assessment (if required)

Assessment Date (yyyy-mm-dd): _____

Respirator use permitted? ☐ Yes ☐ No ☐ Uncertain

Referred to medical assessment? ☐ Yes ☐ No

Reassessment Date (yyyy-mm-dd): _____

Health Care Professional (HCP) Name (print): _____

Title: _____

Signature: _____

Énergie NB Power

Fit Test Record

Form # 8651 Rev. 2022-01-06

Fit testing shall only be performed when the subject is clean shaven

LAST Name:	FIRST Name:	Employee #
Company/Employer & Site (if applicable):		Department:

Type of Respirator(s)

Make	Model	Size	Pass

Expiry Date (one year): _____ *(Entered by Fit Tester)*
(2) year expiry

Fit Test Performed:
Quantitative ☐ **Qualitative** ☐ **Challenge Agent Used:** _____

PPE Worn During Fit Test
Safety Glasses ☐ **Hard Hat** ☐ **Normal Glasses** ☐ **Safety Glasses** ☐ **Safety Glasses** ☐

Competency Check:
The user understands the components of a respirator, how to don and doff the respirator and any associated limitations of the respirator(s) being fit-tested
Yes ☐ **Fit Tester Name** (print): _____

Fit Tester Signature: _____

No ☐ **Email form to supervisor:** _____
Actions to close gaps:

Appendix B – Facial Hair Policy (as per CSA Standard)

Acceptable

A. Clean-shaven, ideal for a good seal	
B. Amount of facial hair that will typically allow a good seal	
C. Moustache that does not interfere with the sealing surface, valves, or respirator function	
D. Soul patch that does not interfere with the sealing surface, valves, or respirator function	

Unacceptable

E. Soul patch that will interfere with the respirator seal in the chin area on elastomeric facepieces Facial hair and sideburns that will interfere with the sealing surface	
F. This facial "shadow" (not clean-shaven) will interfere with the sealing surface of a half or full facepiece. It will also compromise a secondary seal inside a tight-fitting hood-style respirator. Degradation of fit can occur during cumulative work hours when an individual grows this amount of facial hair.	
G. Moustache is too thick and too long (down around edge of mouth); will contact a sealing surface and interfere with exhalation valve. Sideburns and/or heavy hair under the chin will prevent a good seal.	
H. Moustache is too thick and too long (down around edge of mouth); will contact a sealing surface and could get stuck in an exhalation valve. The hair on the rest of the face will interfere with a sealing surface.	
I. Hair is in sealing region and under the chin. Hair is in chin cup sealing region and on the side of the face.	
J. Moustache is too thick and too long; will contact a sealing surface and interfere with exhalation valve.	

Appendix C – Respirator Change out Schedule

Contaminant	Cancer Causing	Eye Irritant[1]	Units	8-hour OEL	STEL / ceiling (c)	IDLH	Concentration	Min. Fit Test[2]	Minimum Respiratory Requirements[3,4]	Change-out[5]
Ammonia	No	Yes	ppm	25	35	300	25 - 250 250-300 >300	Qual Quan Quan	HF + Multigas (goggles)[1] FF + Multigas Supplied Air	2.5 hrs 2.5 hrs N/a
Asbestos	Yes (A1)	No	f/cc	0.1			>0.1	Refer to HSEE-03-36		
Carbon dioxide	No	No	ppm	5000	30000	40000	>5000	Quan	Supplied Air	N/a
Carbon monoxide	No	No	ppm	25		1200	>25	Quan	Supplied Air	N/a
Coal dust (Bituminous or Lignite)	No	No	Mg/mg3	0.9 (R)			0.9-9 9-45 >45	Qual Quan Quan	HF + P100 FF + P100 Supplied Air	3D's 3D's N/a
Dusts (particulate not otherwise regulated)	No	No	mg/m3	10 (I)			10-100 100-500	Qual Quan	HF + P100 FF + P100	3D's 3D's
Dusts (particulate not otherwise regulated)	No	No	mg/m3	3 (R)			3-30 30-150	Qual Quan	HF + P100 FF + P100	3D's 3D's
Hexavalent Chromium	Yes (A1)	No	mg/m3	0.01			0.01-0.1 0.1-0.5 >0.5	Qual Quan Quan	HF + P100 FF + P100 Supplied Air	3D's 3D's N/a
Hydrogen Sulphide	No	Yes	ppm		10 (C)	100	10-100 >100	Qual Quan	FF + Multigas Supplied Air	TBD N/a
Lead	Possibly (A3)	No	Mg.m3	0.05		100	>0.05	Refer to lead standard HSEE-03-62		
Lower Explosive Limit	No	Yes	%			10	<10 >10	N/a Quan	Depends on which specific compounds are present	N/a N/a

Contaminant	Cancer Causing	Eye Irritant[1]	Units	8-hour OEL	STEL / ceiling (c)	IDLH	Concentration	Min. Fit Test[2]	Minimum Respiratory Requirements[3,4]	Change-out[5]
									Supplied Air	
Man Made Vitreous Fibres (MMVF)	Possibly (A3)	Yes	f/cc	1			1-10 10-50 >50	Qual Quan Quan	HF + P100 FF + P100 Supplied Air	3D's 3D's N/a
Paints/Coatings							See SDS and contact THS for advice			
Nitrogen Dioxide	No	Yes	Ppm	3	5	13	3-13	Qual	HF + Multigas (goggles) [1] SCBA	
Refractory Ceramic Fibres	Probably (A2)	?	f/cc	0.2			0.2-2 2-10 >10	Qual Quan Quan	HF + P100 FF + P100 Supplied Air	3D's 3D's N/a
Silica, crystalline (quartz)	Probably (A2)	No	Mg/m3	0.025 (R)			See Silica Standard (TBD)			
Sulfur Dioxide	No	Yes	Ppm	2	5	100	2-20 20-100 >100	Qual Quan Quan	HF + Multigas (goggles) [1] FF + Multigas Supplied Air	8 hrs 8 hrs N/a
Toluene	No	No	Ppm	20		500	20-200 200-500 >500	Qual Quan Quan	HF + Multigas FF + Multigas Supplied Air	4 hrs 4 hrs N/a
Vanadium Pentoxide (as vanadium)	Possibly (A3)	Yes	Mg/m3	0.05 (I)		35	0.05-0.5 0.5-2.5 >2.5	Qual Quan Quan	HF + P100 (goggles) [1] FF + P100 Supplied Air	3D's 3D's N/a

Contaminant	Cancer Causing	Eye Irritant[1]	Units	8-hour OEL	STEL / ceiling (c)	IDLH	Concentration	Min. Fit Test[2]	Minimum Respiratory Requirements[3,4]	Change-out[5]
Wood Dusts Western red cedar	No	No	Mg/m3	0.5 (I)			0.5-5 5-25 >25	Qual Quan Quan	HF + P100 FF + P100 Supplied Air	3D's 3D's N/a
Wood Dusts All other species	Yes (species dependant)	No	Mg/m3	1 (I)			1-10 10-50 >50	Qual Quan Quan	HF + P100 FF + P100 Supplied Air	3D's 3D's N/a
Welding Fumes	Yes (A1)	No	Mg/m3	Varies depending on base metal, rod/stick composition, coatings, work location, etc. See welding standard for respiratory protection requirements for all Hot Work activities						

1. Yes = Contaminant is an eye irritant and chemical goggles or full face respirator will be required to be worn.
2. Qual = Qualitative fit test Quan = Quantitative fit test required to achieve require level of protection.
3. Multi Gas = 3M 60926 Cartridge. Protects against VOC's, Acid Gas and Particulates. Contact IH for assistance.
4. HF = Half face respirator FF = Full face respirator
5. 3D's = change the filter if it is dirty, damaged or difficult to breathe through.

1. **Criteria Input for 3M Service Life Software (Version 3.3):**
   - Cartridge used: 60926 (3M)
   - Relative Humidity: 75% [Humidity >85% can reduce service life by 50%]
   - Pressure: 1.0 mmHg
   - Temperature: 20 degrees C [Every 10 degree increase in temperature relates to a service life decrease by 10%]
   - Work Rate: Medium (Light, medium and heavy are defined as 20, 40 or 60 liters per minute, respectively)

2. **Occupational Exposure Limit (OEL)**
   - The airborne concentration of chemical substances under which it is believed that nearly all workers may be repeatedly exposed, day after day, over a working lifetime, without adverse health effects
   - Unless otherwise noted all OEL values are derived from Reference 1.
   - * adopted best practice limit (TLV, PEL, REL etc.).

3. **Short Term Exposure Limit (STEL)**
   - A 15 minute averaged exposure that should not be exceeded at any time during a work day, even if the full-shift OEL is not surpassed.
   - It is the concentration to which it is believed that workers can be exposed continuously for a short period of time without suffering from irritation, chronic or irreversible tissue damage, dose-rate-dependent toxic effects, or narcosis of sufficient degree to increase the likelihood of accidental injury, impaired self-rescue, or materially reduced work efficiency.

4. **Ceiling Exposure Limit (C)**
   - The concentration that should not be exceeded during any part of the working exposure.

5. **Immediately Dangerous to Life and Health**
   - Circumstances in which the concentration of a harmful substance in the atmosphere:
     - Is an immediate threat to life,
     - May affect health irreversibly,
     - May have future adverse effects on health, or
     - May interfere with a worker's ability to escape from a dangerous atmosphere

6. **Cancer Causing**

Carcinogenicity determinations are taken from Reference 3
A1 - Confirmed Human Carcinogen: the agent is carcinogenic to humans
A2 - Suspected Human Carcinogen: human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as A1.
A3 - Confirmed animal carcinogens with unknown relevance to humans

7. Cartridge Change-out Times

- Respirator cartridges should be replaced/discarded immediately if any odour or breathing resistance is detected, regardless of time worn.
- Document the change-out time on the permit/tailboard
- The maximum duration a specific mask / cartridge combination can be expected to provide protection against a specific concentration of a contaminant.

8. References

1. WorksafeNB General Regulation 91-191
2. IDLH information based on http://www.cdc.gov/niosh/idlh/intridl4.html
3. ACGIH 2016 TLVs and BEIs
4. 3M Respirator Selection Guide 2013
5. 3M Selection and Change-out tool

Appendix D – Respiratory Protection Program Code of Practice Example

Énergie NB Power

Form/Formulaire #: 0649
Revision: 2021/11

Respiratory Protection Program Code of Practice

Respiratory Protection Program Code of Practice for: _____

Program Administrator: _____ Phone: _____ Position: _____

Prerequisites: All workers using respirators must have documented 1) medical clearance 2) training in the COP and the respirator to be used 3) A valid fit-test (within last 2 years) for the make / model and size of respirator used 4) Worker must be clean shaven in accordance with Appendix B

The table below lists where respirators must be worn:

Task (e.g. spray painting)	Location	Airborne Hazard	Type of Respirator and Assigned Protection Factor	Respirator Make and Model	Type of Cartridge/Filter	Cartridge/ Filter Model#	Change out Schedule
Example: Spray painting	*Service Centre*	*Solvents*	*Half mask (10)*	*3M 6000*	*OV/P100*	*60921*	*4 hours*

Supporting Information:

1) **Where will workers obtain respirators and consumables such as cartridges/filters:**
2) **Where and how to store respirators when not being used?**
3) **Where to clean and maintain respirators?**
4) **How will breathing air be maintained?**
5) **Any other respirator specific information for the division / site**