

NOTICE!

The following procedure is currently under revision.

If you need to refer to this procedure and have questions regarding applicability, please contact the Safety Office at 425.388.3549.

RESPIRATORY PROTECTION PROGRAM

I. PURPOSE

- A. Snohomish County is committed to controlling employee exposure to hazardous chemicals or substances in the air. The first attempt to accomplish this prevention will be by using accepted engineering control measures. When effective engineering controls are not feasible, or while they are being instituted, appropriate respiratory protection may be required. Our primary goal is to protect all Snohomish County employees and at the same time, meet the Federal and State regulations relating to respiratory protection.

II. SCOPE

- A. This procedure will apply to all employees who use respirators to control exposures to harmful air contaminants and to comply with permissible exposure limits or to protect employees in oxygen-deficient atmospheres, and when respirators are utilized for emergency rescue use.

III. DEFINITIONS

- A. "Facepiece" means that portion of a respirator that covers the wearer's nose and mouth and chin in half-mask facepiece or that covers the nose, mouth, and eyes in a full facepiece. It is designed to make a gas-tight or particle-tight fit with the face and includes the headbands, exhalation valve(s), and connections for an air-purifying device or respirable gas source, or both.
- B. "Fit check" means a test conducted by the wearer to determine if the respirator is properly seated to the face.
- C. "Hazardous atmosphere" means any atmosphere, either immediately or not immediately dangerous to life or health, which is oxygen deficient or which contains a toxic or disease producing contaminant.
- D. "High Efficiency Particulate Air (HEPA) Filter" means a filter that removes from the air 99.97% or more of particles having a mean particle diameter of 0.3 μ m.

- E. “Immediately Dangerous to Life or Health (IDLH)” means any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health.
- F. “NIOSH” means National Institute for Occupational Safety and Health
- G. “N95” means a class of non-powered respirators certified for use in protecting against transmission of tuberculosis.
- H. “Oxygen deficiency” means an atmosphere containing less than 19.5 percent oxygen by volume.
- I. “Respirator” means a device designed to protect the wearer from the inhalation of harmful atmospheres.

IV. AUTHORITY/RESPONSIBILITIES

- A. The County Safety Office will be the designated respirator program coordinator. It is responsible for providing a respirator program that meets all applicable regulations and includes the following:
 - 1. Provision for appropriate respirators.
 - 2. Implementation of training and instruction programs.
 - 3. Administration of the overall program.
 - 4. Provision for technical assistance in the selection of respirators.
 - 5. Provision for surveillance of ordinary conditions and periodic evaluation of the respirator program.
 - 6. Provisions for respirator education.
 - 7. Provision of educational materials to be used in employee training.
 - 8. Maintenance of employee respirator training records and medical evaluations.

B. Department Responsibilities

1. The Department Managers and Supervisors are responsible for ensuring the employees wear their respirators as required and ensure that only properly trained employees assume jobs that require use of respirators.

C. All employees are responsible for:

1. Using the respirator supplied to them in accordance with instructions and training.
2. Cleaning, disinfecting, inspecting, and storing (in accordance with the written policy) respirators checked out to them.
3. Reporting a respirator malfunction to their supervisor.
4. Guarding against damage to the respirator.
5. Inspecting the respirator before and after use.
6. Performing a negative and positive fit check before each use.

D. Policy

1. Any personal protective device used to protect a wearer from inhalation of contaminated air shall be called a respirator. These include: dust masks, half-masks with cartridges, full-face masks with cartridge or canister, air-supplied masks, half-face piece, air-supplied hoods or suits, or self-contained breathing apparatus.
2. Respirators may be utilized to reduce exposure where that exposure is already below the mandated levels. It may be necessary to wear respiratory protection in conditions where the exposure could exceed the mandated levels or where there is no feasible way to control the exposure due to conditions.
3. The reasons for requiring respirator use must be included in the training of the wearer. An employee cannot wear a respirator unless properly trained and the conditions for the use properly evaluated.

4. Respirators shall not be worn when conditions prevent a seal of the respirator to the wearer. This will include employees who have hair in the way of getting a tight seal on the respirator including moustaches, sideburns, beard, low hairline, bang, and stubble, which passes between the face and the sealing surface of the facepiece of the respirator.
5. Leaving a hazardous area: A respirator wearer shall be permitted to leave a hazardous area for any respirator-related cause. Reasons which may cause a respirator wearer to leave a hazardous area include, but are not limited to, the following:
 - a. Failure of the respirator to provide adequate protection.
 - b. Malfunction of the respirator.
 - c. Detection of leakage or air contaminate into the respirator.
 - d. Increase in resistance of respirator to breathing.
 - e. Severe discomfort in wearing the respirator.
 - f. Illness of respirator wearer, including dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever, and chills.

V. USE OF RESPIRATORS & SELECTION

- A. Personnel shall wear an SCBA or SAR (supplied airline respirator) when operating in any of the following circumstances.
 1. In an atmosphere that is suspected of being contaminated and oxygen deficient.
 2. In an atmosphere that may rapidly become hazardous or oxygen deficient.
 3. In an atmosphere that is oxygen deficient due to smoke and smoke By-products during fire suppression or search and rescue.
 4. When an individual is suspected to have or is confirmed to have infectious TB. (HEPA mask may be acceptable depending upon the exposure level)
- B. Respirators will be used in the following areas:
 1. Disposable dust masks for protection against particulate, but not for asbestos.

2. Half-mask respirators with organic vapor cartridges for use against vapors for cleaning solvents, liquids, and other volatiles for which they are appropriate.
 3. Half-mask respirators with dust or high efficiency filters will be used against hazardous dust concentrations, toxic particulates, or asbestos fibers.
- C. A "fit check" shall be done by the employee every time the respirator is put on to assure that an adequate seal is achieved and that the respirator is adjusted and worn properly. Seal check procedures are listed in Appendix A, 3.0..
- D. Respirators shall be selected according to the characteristics of the hazards involved, capabilities and limitations of the respirators, and the ability of each respirator wearer to obtain a satisfactory fit with a respirator. Also take into account capability and limitation of the respirators and the results of the respirator fit tests. Refer to Appendix A for further information regarding the use and selection of specific respirators depending upon the application.

VI. SELF CONTAINED BREATHING APPARATUS (SCBA)

- A. Employees using a properly functioning SCBA shall not compromise the protective integrity of the SCBA by removing the facepiece for any reason in a hazardous atmosphere or in atmospheres where the quality of the air is unknown.
- B. Employees using SCBA's shall operate in teams of two or more during fire suppression.
- C. When the County purchases compressed breathing air from a vendor, the vendor will be required to provide certification and documentation of breathing air quality quarterly.
1. The air quality from compressors and cascade system cylinders shall be tested at least quarterly.
 2. Breathing air in the SCBA cylinder shall meet the requirements of ANSI/CGA G-7 Commodity Specification for Air with a minimum air quality of D as well as meeting a water vapor level of 24 ppm.

- D. SCBA's are not SCUBA gear and are not approved or safe for that use. SCBA's shall not be used in pools or other unusual circumstances without written permission of the manufacturer.
- E. When exchanging air supply bottles during suppression or overhaul activities, reasonable precautions shall be taken to ensure contaminated atmosphere does not enter the breathing zone and facepiece supply hose.
- F. Anytime members are working inside a permit required confined space, they may need to wear SCBA or a supplied air line respirator (SAR) with (5 minimum capacity) escape bottle, unless the safety of the atmosphere can be established by testing and continuous monitoring.
- G. Refer to WAC 296-305-04001 and NFPA for additional SCBA requirements used for fire suppression and rescue.

VII. FIT TESTING

- A. Employees shall be properly fitted and tested for a face seal prior to use of the respirator in a hazardous atmosphere or contaminated area.
 - 1. Qualitative or quantitative fit testing is required.
 - 2. Fit testing shall be repeated:
 - a. At least once every twelve months.
 - b. Whenever there are changes in the type of SCBA or respirator used.
 - c. Whenever there are significant physical changes in the user. Example: Weight change of ten percent or more, scarring of face seal area, dental changes, cosmetic surgery, or any other condition that may affect the fit of the facepiece seal.
- B. Fit test procedures and test exercises shall follow procedures detailed in Appendix A.
- C. Facial hair shall not be permitted to come between the sealing periphery of the facepiece and the face or interfere with the valve function of self-contained breathing apparatus, or any respirator used by the department.

- D. Contact lenses shall be permitted with SCBA use provided the employees or department physician determines that the risk of eye damage is not increased by their use.
- E. If a spectacle, goggle, or face shield must be worn with a facepiece, it shall be worn so as to not adversely affect the seal of the facepiece to the face.
 - 1. Straps or temple bars shall not pass between the seal or surface of the respirator and the user's face.
- F. Employees will only be allowed to use the make, model, and size respirator for which they have passed a fit test within the last twelve months.
- G. An employee shall not wear respiratory protection unless the proper size facepiece is available and inspected by the wearer to ensure the equipment is in proper working condition according to the manufacturers specification.
- H. An employee that has not received respiratory protection training, medical approval, and applicable fit testing in accordance with this policy, shall not be assigned to any duty where respiratory protection is required.

VIII. TRAINING

- A. Employees shall be trained in the proper function, use, cleaning and maintenance of any respiratory protection provided for their use including the step-by-step procedures for putting on and removing respirators and checking the respirator for proper function. The required training shall cover:
 - 1. Recognizing hazards that may be encountered.
 - 2. Understanding the components of the SCBA or respirator.
 - 3. Understanding the safety features and limitations of the SCBA or respirator.
 - 4. Inspecting and cleaning the respirator.
- B. Annual training shall be conducted on the employee's knowledge of respiratory protective equipment operation, safety, and emergency procedures.
- C. Training records shall remain part of the employee's training file.
- D. Annual training will be documented.

IX. MAINTENANCE

- A. Any respirator found damaged or with defective parts, shall be removed from service, tagged and recorded as such, and tested before being returned to service. Repair of the respirator must be done with parts designed for the respirator in accordance with the manufacturers instruction.
- B. SCBA cylinders shall be hydrostatically tested within the periods specified by the manufacturer and the applicable governmental agency.
- C. Respirators shall be kept clean, sanitary, and in good working order. Respirators shall be cleaned and disinfected using the procedures in Appendix B. Respirators shall be cleaned and disinfected at the following intervals:
 - 1. SCBA facepieces or respirators issued for the exclusive use on an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
 - 2. SCBA facepieces or respirators issued to more than one employee shall be cleaned and disinfected before being used by different individuals.
 - 3. Facepieces and respirators used in fit testing and training shall be cleaned and disinfected before being used by different individuals.
- D. A record of inspection dates, findings, and remedial actions will be kept for each respirator maintained for emergency rescue use. Any worn out parts will be replaced immediately prior to being placed back into service.

X. RECORDKEEPING

- A. The County Safety Office will set up and maintain the overall recordkeeping system for the training program. It will be the responsibility of the individual departments to send in the following information:
 - 1. who has been trained;
 - 2. when they received the training;
 - 3. what results were obtained from their fit test;

5. what type of respirator the person wears, including size, etc; and
 6. how long the person wears the respirator during the workshift typically.
- B. The Safety Office will keep a copy of the fit test results and documented training.

XI. MEDICAL SCREENING

- A. Every employee who is being considered for inclusion in the respiratory protection program must participate in the department's medical surveillance program. The employer shall provide a medical evaluation to determine the employee's ability to use a respirator. The employee must pass the medical evaluation before the employee is fit tested or required to use the respirator.
- B. The County Safety Office shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations.
- C. The Safety Office shall ensure that a follow-up medical examination is provided for an employee whose initial medical examination demonstrates the need for a follow-up medical examination.
1. The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.
 2. All respirator user's medical status should be reviewed annually.
- D. The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee.

APPENDIX A

FIT TESTING PROCEDURES

General Requirements.

Snohomish County shall conduct annual fit testing using the following procedures. The requirements in this appendix apply to all WISHA accepted fit test methods, both Qualitative (QLFT) and Quantitative (QNFT).

1.1 The test subject shall be allowed to pick the most acceptable facepiece from a sufficient number of respirator sizes so that the respirator correctly fits the user.

1.2 Prior to the selection process, the test subject shall be shown how to put on a facepiece, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the facepiece. This instruction shall not constitute the subject's formal training on respirator use and limitations, because it is only a review.

1.3 The test subject shall be informed that he/she is being asked to select the facepiece that provides the most acceptable fit. Each facepiece represents a different size and shape, and if fitted and used properly, will provide adequate protection.

1.4 The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.

1.5 The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A-2-1.6. If the test subject is not familiar with using a particular facepiece, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.

1.6 Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the facepiece:

- a. Position of the mask on the nose.
- b. Room for eye protection.
- c. Room to talk.
- d. Position of mask on face and cheeks.

1.7 The following criteria shall be used to help determine the adequacy of the facepiece fit:

- a. Chin properly placed.
- b. Adequate strap tension, not overly tightened.
- c. Fit across nose bridge.
- d. Facepiece of proper size to span distance from nose to chin.
- e. Tendency of facepiece to slip.
- f. Self-observation in mirror to evaluate fit and facepiece position.

1.8 The test subject shall conduct a user seal check, using the negative and positive pressure seal checks described in Section 3 of Appendix A.

(Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.)

1.9 The test shall not be conducted if there is any hair growth between the skin and the facepiece-sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the facepiece-sealing surface. Any type of apparel that interferes with a satisfactory fit shall be altered or removed.

1.10 If a test subject exhibits difficulty in breathing during the tests, he or she shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a facepiece while performing her or his duties.

1.11 If the employee finds the fit of the facepiece unacceptable, the test subject shall be given the opportunity to select a different facepiece and to be retested.

2.0 EXERCISE REGIMEN

Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The facepiece to be tested shall be worn for at least 5 minutes before the start of the fit test.

2.1 The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use that could interfere with respirator fit.

2.2 The following test exercises are to be performed for all fit testing methods. A separate fit testing exercise regimen is contained if the CNP protocol is followed. The test subject shall perform exercises, in the test environment, in the following manner:

2.3 Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

2.4 Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.

2.5 Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

2.6 Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).

2.7 Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

2.8 Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT.)

2.9 Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.

2.10 Normal breathing. Same as exercise (1).

Each test exercise shall be performed for one minute except for the grimace exercise that shall be performed for 15 seconds.

The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

3.0 USER SEAL CHECK PROCEDURES

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix or the respirator manufacturers recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

3.1 Positive pressure check. Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

-3.2 Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

3.3 Manufacturer's Recommended User Seal Check Procedures

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

RESPIRATOR PROTECTION FACTORS

| TYPE OF RESPIRATOR | PERMITTED FOR USE IN OXYGEN DEFICIENT ATMOSPHERE | PERMITTED FOR USE IN IMMEDIATELY DANGEROUS LIFE OR HEALTH ATMOSPHERE |
|---|--|---|
| Particulate-filter, quarter mask or half mask facepiece | NO | NO |
| Vapor- or gas-removing, quarter mask or half-mask facepiece | NO | NO |
| Combination particulate-filter and vapor- or gas-removing, quarter-mask or half-mask facepiece | NO | NO |
| Particulate-filter, full facepiece | NO | NO |
| Vapor- or gas-removing, full face piece | NO | NO |
| Combination particulate-filter and vapor- or gas-removing, full facepiece | NO | NO |
| Powered particulate-filter, any respiratory inlet covering | NO | NO (yes, if escape provisions are provided) |
| Powered vapor- or gas-removing, any respiratory-inlet covering | NO | NO (yes, if escape provisions are provided) |
| Powered combination particulate-filter and vapor- or gas-removing, any respiratory-inlet covering | NO | NO (yes, if escape provisions are provided) |
| Air-line, demand quarter-mask or half-mask facepiece, with or without escape provisions | YES | NO |
| Air-line, demand full facepiece, with or without escape provisions | YES | NO |
| Air-line, continuous flow or pressure-demand type, any facepiece, without escape provisions | YES | YES |
| Airline, continuous flow, helmet, hood or suit, without escape provisions | YES | NO |
| Airline, continuous flow, helmet, hood or suit, with escape provisions | YES | YES |
| Hose mask, with or without blower, full facepiece | YES | NO |
| Self-contained breathing apparatus, demand type open-circuit or negative-pressure type closed-circuit, quarter-mask or half-mask facepiece | YES | NO |
| Self-contained breathing apparatus, pressure-demand type open-circuit or negative-pressure type closed circuit, full facepiece or mouthpiece/nose clamp | YES | NO |
| Self-contained breathing apparatus, pressure-demand type open-circuit or positive-pressure type closed circuit, quarter-mask or half-mask facepiece, full facepiece, or mouthpiece/nose clamp | YES | NO |
| Combination respirators not listed | The type and mode of operation having the lowest respirator protection factor will be applied to the combination respirator. | |

APPENDIX B

RESPIRATOR CLEANING PROCEDURES

The procedures used here must accomplish the objectives set forth herein and must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

1. Disassemble the SCBA or respirator facepieces by removing speaking diaphragms, pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer.
2. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
3. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.
4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
 - a. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,
 - b. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,
 - c. Commercially available cleansers, if their use is recommended or approved by the respirator manufacturer.
5. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
6. Components should be hand-dried with a clean lint-free cloth or air-dried.
7. Reassemble facepiece.
8. Test the respirator to ensure that all components work properly.

Note: An approved respirator refresher wipe pad can be used to clean respirator when water is not available.