

	<b>San Mateo County Health System</b> <b>Environmental Health Services Division</b>	Effective Date:  <b>13Apr09</b>
	Procedure - Safety	
<b>Respirator Use</b>		

## **1.0 PURPOSE**

This document describes the requirements for the use of respiratory protection and constitutes a written Respiratory Protection Program. Its purpose is to ensure that employees adhere to the requirements of the respiratory protection program administered and maintained by the San Mateo County Health System, Environmental Health Services Division.

## **2.0 SCOPE**

The County of San Mateo operates a Household Hazardous Waste (HHW) facility. The duties of full time, extra help, and contracted employees may include working with chemicals which may, in turn, require respiratory protection. This document applies to all full time and extra help employees that are required to wear any type of respirator. Contracted employees have their own respiratory protection program and should follow the procedures as directed by their employer. Additionally, this document applies to full time and extra help employees that use respirators voluntarily.

## **3.0 DESCRIPTION FOR RESPIRATOR USE**

All full time and extra help employees shall understand the job requirements and conditions below and are required to wear their respirators as specified in Section 10.1 (Conditions for Use). However, if any employee cannot perform the job function or if a Physician or Licensed Health Care Professional (PLHCP) recommends that an employee cannot perform their job function, the HHW Coordinator or Specialist will accommodate to the employee's or PLHCP's request.

### **3.1 Respirator Manufacturer:**

- North 7600 Series Full-Face Respirator – a five strap head harness, made of a soft silicone, and contains a wraparound polycarbonate lens for a 200 degree field of vision. Approximate weight = 2.0 pounds.
- Appropriate North Cartridges are utilized for job specific tasks.

### **3.2 Duration and Frequency of Respirator Use:**

- Employees can expect to perform specific job duties utilizing a full face respirator between 2-4 hours per day, 2 days per week.

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3.3 Expected Physical Work Effort:

- The employees' expected physical work effort would be considered heavy (>350 kcal/hr). Some of the heavy physical work efforts include lifting up to 40 pounds.

3.4 Additional Protective Clothing:

- Employees are expected to wear proper Personal Protective Equipment (PPE) during all job specific duties. Some of the PPE to be worn while wearing a respirator includes steel toed shoes, coveralls, gloves, and aprons.

3.5 Environmental Conditions

- Typical weather temperatures for the County of San Mateo ranges from the low 40 degrees to low 80 degrees Fahrenheit.
- Typical percent humidity for the County of San Mateo ranges from the mid 80's in the morning hours to the low 60's in the afternoon hours.

#### 4.0 RESPONSIBILITIES

**Household Hazardous Waste Coordinator and Specialist** is responsible for:

- Maintaining this document as needed
- Determining the proper selection of respiratory protection to be used by full time and extra help employees
- Providing initial respiratory protection training and annual refresher training to affected employees and contractors
- Administering fit tests for tight fitting respirators
- Providing information related to the proper cleaning, disinfecting, storing, inspecting, repairing, discarding, and general maintenance for respirators being used
- Maintaining records of medical evaluations, and fit tests
- Reviewing and revising as necessary the respiratory protection program
- Acting as a program administrator to oversee the respiratory protection program
- Approving all respiratory protection purchases
- Identifying employees requiring the use of respiratory protection and employees requiring qualification for the use of respiratory protection

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- Ensuring that affected employees receive respiratory protection training and fit testing
- Providing respirators for affected employees
- Ensuring that workers using respiratory protective equipment comply with all safety regulations and instructions for proper use
- Determining lower explosive levels (LEL) at the flammable materials bulking area on a regular basis

**Full time and extra help employees** are responsible for:

- Wearing the proper respirator for all tasks that require the use of respiratory protection
- Ensuring that the use of safety glasses or other personal protective equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user
- Completing the annual respiratory training requirement

## **5.0 REFERENCES**

California Code of Regulations, Title 8, Section 5144, Respiratory Protection

ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989

## **6.0 SPECIAL REQUIREMENTS**

- 6.1 The possibility of heat illness can be a concern due to the combination of environmental conditions, protective clothing, physical work effort, and respirator use. Full time and extra help employees have been trained in Heat Illness Prevention as part of the Injury and Illness Prevention Program. All employees are trained to acknowledge the symptoms of heat illness and are encouraged to take breaks often and replenish fluids. In addition, employees are trained to call 911 in the event of a medical emergency.
- 6.2 Full time and extra help employees using respirators voluntarily and not as a requirement must be included into the respiratory protection program.
- 6.3 Voluntary users of respirators must be provided with the information contained in Appendix D (Figure 1) of CCR Title 8, Section 5144. Respiratory Protection.

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- 6.4 Full time and extra help employees who routinely wear a tight fitting respirator must maintain a facial surface consistent with a proper fit for the respirator being used (i.e. beards or facial hair that comes in contact with the seal that a tight fitting respirator makes with the face is not allowed).
- 6.5 All filtering cartridges and canisters must be labeled and color-coded with the NIOSH approval label. The label must not be removed and must remain legible.
- 6.6 Canisters and cartridges used for protection against gases and vapors must be discarded and replaced with new ones when the user detects odor or different resistance breathing through the cartridges.

**7.0 DEFINITIONS**

<b>Administrative Controls</b>	Any procedure which limits exposure by adjustment of the work schedule
<b>Air Purifying Respirator</b>	A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element
<b>Fit Factor</b>	A numeric assessment that represents the effectiveness of a tight-fitting respirator facepiece during a quantitative fit test. It is the ratio of the concentration outside the facepiece to the concentration inside the facepiece
<b>Fit Test</b>	A test that uses a challenge agent to determine an individual's ability to obtain an adequate seal for the type of tight fitting respirator that the individual intends to wear
<b>IDLH</b>	Immediately Dangerous to Life or Health, an environment that poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment
<b>MUC</b>	Maximum Use Concentration is the maximum concentration of contaminant that a given respirator can be effectively used for. It is determined by multiplying the APF with the exposure limit for the specific contaminant

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<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>N95</b>	At least 95% filtration efficiency against particulate aerosols free of oils

<b>P95</b>	At least 95% filtration efficiency against solid and liquid aerosols including oils
<b>P100</b>	A filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter
<b>PLHCP</b>	Physician or Licensed Health Care Professional
<b>QLFT</b>	Qualitative fit testing is accomplished by relying on a subject's sensory response to detect a challenge agent.
<b>QNFT</b>	Quantitative fit testing is accomplished by using an instrument to measure the challenge agent inside and outside the respirator
<b>Tight Fitting (respirator)</b>	A respiratory inlet covering that is designed to form a complete seal with the face. Examples include: filtering facepieces, half mask, and full facepiece respirators.
<b>User Seal Check</b>	An action conducted by the respirator user to determine if the respirator is properly seated to the face. The user seal check requires the positive and negative pressure checks to be performed (see 9.6.1)

## 8.0 MATERIALS AND EQUIPMENT

- Filtering Facepiece Respirator – for exposures to particulates (dusts, powders, etc.) only. NIOSH approved as a P95 respirator
- Full Facepiece Respirator – for exposures to particulates and chemicals (with use of NIOSH approved organic vapors/P100 or acid gas/P100 cartridges)
- Half Mask Facepiece Respirator– for exposures to particulates and chemicals (with use of NIOSH approved organic vapors/P100 or acid gas/P100 cartridges)

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## 9.0 SAFETY REQUIREMENTS

- 9.1 All full time and extra help employees must be medically qualified prior to fit testing and the use of respiratory protection.
- 9.2 Users of respirators must be aware of the limitations for the respirator prior to its use.
- 9.3 Filtering facepieces and other air purifying respirators must not be used for protection against gaseous asphyxiates, i.e., carbon monoxide, areas deficient in oxygen or IDLH environments.

## 10.0 PROCEDURE

### 10.1 Conditions for Use

Household Hazardous Waste Coordinator or Specialist will determine the conditions that require full time and extra help employees to wear respiratory protection or qualification to wear respiratory protection. Respiratory protection shall be used during the time period necessary to perform specific job tasks. The following conditions require that full time and extra help employees wear a respirator or be qualified to wear a respirator:

- Occupational air monitoring results indicate that exposure levels of a hazardous chemical are sufficiently elevated to warrant the use of a respirator
- Performing a specific task for which engineering controls can not be implemented and a reasonable risk exists for an elevated level of exposure to a hazardous chemical
- For protection against an accident or unplanned release involving a potentially hazardous chemical
- During an emergency response action where the responders are required to enter a contaminated area or environment
- Any activities that the Household Hazardous Waste Coordinator or Specialist deems as requiring the use of respiratory protection

### 10.2 Selection of Respirator

Household Hazardous Waste Coordinator or Specialist is responsible for determining the appropriate level of respiratory protection that will be used for any full time or extra help employee that uses a respirator. The selection of respirators will be based on the respiratory hazard(s) to which the worker is

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exposed. For protection against particulates, an air-purifying respirator equipped with a filter certified for particulates by NIOSH must be used.

10.2.1 For protection against organic vapors in areas that are not oxygen deficient (less than 19.5% oxygen is oxygen deficient) or that are not IDLH, at a minimum, a Filtering Facepiece or Half Mask Facepiece respirator with use of organic vapors/P100 cartridges must be used.

10.2.2 Household Hazardous Waste Coordinator or Specialist may assign additional respirator requirements to full time or extra help employees working with special respiratory hazards.

### 10.3 Medical Evaluation

10.3.1 Full time or extra help employees requiring the use of respiratory protection must initially complete a medical. A blank medical questionnaire and Medical Clearance form will be provided to the full time or extra help employee to complete questionnaire (Figure 2). The completed medical questionnaire will be surrendered to the PLHCP for evaluation. Once evaluated, the PLHCP will then complete the Medical Clearance form (Figure 3) and review the results with the full time or extra help employee. The full time or extra help employee will then surrender a copy of the completed Medical Clearance form to the Household Hazardous Waste Coordinator or Specialist for administrative records retention as required as part of the Respiratory Protection Program.

10.3.2 The medical evaluation only needs to be completed once. However, an additional medical evaluation may be conducted if:

- A PLHCP, supervisor, or the respirator program administrator informs Household Hazardous Waste Coordinator or Specialist that an employee needs to be reevaluated
- An employee reports medical signs or symptoms that are related to the ability to use a respirator
- Observations made during fit testing indicate the need for employee reevaluation
- A change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed on an employee

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10.3.3 If it is determined by the PLHCP that an individual is unable to wear a specific type of respirator, the individual will be notified of this finding by the PLHCP, Household Hazardous Waste Coordinator, or Specialist and must not be required by Household Hazardous Waste Coordinator or Specialist to wear the respirator or must be provided with a different type of respirator that is acceptable as determined by the PLHCP.

10.4 Training

10.4.1 If an employee is medically qualified to wear a respirator, he/she must complete the respiratory protection training offered through Household Hazardous Waste Coordinator or Specialist.

10.5 Fit Testing

Employees that are medically qualified to wear tight fitting respirators and have been trained on respiratory protection must be fit tested for respirator use initially upon issuance and annually thereafter.

10.5.1 Before the initial use of a tight-fitting respirator, full time and extra help employees must be fit tested with the same make, model, style, and size of the respirator that they are required to use.

10.5.2 Additional fit tests must be conducted whenever a full time or extra help employee reports, or the supervisor, or Household Hazardous Waste Coordinator or Specialist makes visual observations of changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

10.5.3 The Household Hazardous Waste Coordinator or Specialist will perform the QLFT using Bitrex (Denatonium Benzoate) as described in California Code of Regulations, Title 8, Section 5144, Appendix A, 4, (a), (1-14) and (b), (1-11).

10.5.4 If the QLFT of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator facepiece.

10.5.5 QLFT may only be used to fit test air-purifying respirators that must achieve a fit factor of 100 or less.



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10.5.6 If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator.

10.5.7 Results of the Fit Test will be recorded on the Fit Test Form (Figure 4) and the filed as part of training documentation.

## 10.6 Respirator Use

Successful completion of the medical questionnaire, respiratory protection training, and fit testing (if required) allows the full time or extra help employee qualification to use the respirator.

10.6.1 Employees must check the fit of tight-fitting respirators every time it is put on and prior to use by practicing the user seal check. The user seal check requires the positive and negative pressure checks to be performed.

10.6.1.1 Perform the positive pressure check by closing the exhalation valve with the thumb or palm of the hand and exhaling gently into the facepiece. The fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage at the seal of the mask. If outward leakage is noted, readjust the facepiece and/or headbands until a satisfactory seal is obtained.

10.6.1.2 Perform the negative pressure check by closing the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or for filtering face piece respirators, by gently cupping the hands around the mask. Continue by inhaling gently so that the facepiece collapses slightly, hold the breath for approximately 10 seconds. The fit is considered satisfactory if the facepiece remains in its collapsed condition with no inward leakage at the seal of the mask. If inward leakage is noted, readjust the facepiece and/or headbands until a satisfactory seal is obtained.

10.6.1.3 If the positive pressure check and negative pressure check cannot be performed without noting leakage, the supervisor must be notified. A respirator must not be

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worn when the positive and negative pressure checks cannot be completed successfully.

- 10.6.1.4 The full time or extra help employee must leave the respirator use area when a vapor or gas breakthrough is detected, a change in breathing resistance occurs, leakage of the facepiece occurs, or as necessary to wash the face to prevent skin irritation associated with respirator use.

**10.7 Maintenance and Care of Respirators**

Cleaning and Disinfecting

- 10.7.1 All filtering facepiece respirators are disposable single use respirators that must be discarded after one use.
- 10.7.2 Respirators issued for the exclusive use of an employee shall be cleaned after each use.
- 10.7.3 Half mask and Full Facepiece respirators must be cleaned with disinfecting wipes.

Storage

- 10.7.4 All respirators must be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they must be packed or stored to prevent deformation of the facepiece and exhalation valve.

Inspection

- 10.7.5 Inspections shall include a check of the condition of the various parts including, but not limited to, the facepiece, head straps, valves, tightness of connections, and respirator function. Damaged or defective respirators must be discarded and replaced with an intact respirator.
- 10.7.6 Filtering facepiece, Half mask, and full facepiece respirators must be inspected before each use.

**11.0 RECORDS, REPORTS, AND FORMS**

Figure 1: Appendix D to Section 5144: (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

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Figure 2: Appendix C to Section 5144: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

Figure 3: Medical Surveillance Form

Figure 4: Fit Test Form

## 12.0 MASTER DOCUMENT APPROVAL

<b>Approver</b>	<b>Title</b>	<b>Signature</b>	<b>Date</b>
Wesley Won	Specialist		
Elizabeth Rouan	Coordinator		
Waymond Wong	Supervisor		
Dean Peterson	Director		



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**Figure 2**

**Medical Questionnaire (*Appendix C to Section 5144:OSHA Respirator Medical Evaluation Questionnaire(Mandatory)*)**

**Figure 3**

**Medical Surveillance Form (see attached)**

**Figure 4**

**Fit Test Form (To be revised) (see attached)**

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