

**DEVELOPING A COMPREHENSIVE
RESPIRATORY PROTECTION PROGRAM
FOR ALLEGHENY COUNTY HEALTH DEPARTMENT**

by

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ABSTRACT

This essay details how a comprehensive respiratory protection program can be developed for a local health department. Possibly due to a lack of federal requirements, many health departments do not have a respiratory protection program or, if they do, they are based on the federal standard for general industry and construction. This represents a public health concern because health departments are unique environments that have different needs for their respiratory protection programs than general industry, construction, or even the medical care industry for both regular and emergency health department operations. The unusual blend of environmental, occupational, and biological respiratory hazards that local health departments face create a unique situation that calls for a specifically formatted respiratory protection program that includes a written program, training materials, and evaluation materials. This essay demonstrates how one such comprehensive program was created for Allegheny County Health Department to prepare their employees to use proper respiratory protection during their daily and emergency operations and services.

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1.0 INTRODUCTION

Health departments are unique environments with diverse requirements for their respiratory protection programs. These requirements combine the needs of a hospital with the needs of general industry creating an unusual blend of environmental, occupational, and biological requirements that must be addressed by any competent respiratory protection program. Unfortunately, most local health departments do not have a respiratory protection program or they use the federal OSHA standard for general industry if their state department of labor has adopted its use for local governments.¹ Neither of these program options properly address the unique blend of respiratory hazards that health departments face. The program² that existed at Allegheny County Health Department (ACHD) in the summer of 2016 is one such program that failed to address the specific needs of its health department.

The existing respiratory protection program deferred to the Allegheny County respiratory protection program³ which in turn deferred to the federal OSHA standard 29 CFR 1910.134 for general industry.⁴ While this federal OSHA standard is fairly comprehensive, it fails to properly address the specific needs of ACHD. Since it is primarily written for use in general industry and construction, it largely focuses on occupational respiratory hazards such as chemical fumes and hazardous gases. While these hazards are occasionally faced by ACHD employees, they are not encountered in the industrial manner addressed by this standard. Additionally, there are many

respiratory hazards that are regularly faced by ACHD employees that are not touched upon at all in this federal standard.

It became clear that ACHD needed a respiratory protection program that was tailored to their specific needs and that addressed more than just their occupational respiratory concerns. However, the OSHA standard is stringent and adapting it for use by a health department while still meeting all of the federal requirements would take time and knowledge of the legal components of the federal program. After analyzing the services offered by the health department and determining the types of additional environmental and biological hazards that may be faced by employees, a new respiratory protection program and educational materials were created that addressed the specific concerns of the ACHD while still obeying the OSHA regulations for respiratory protection programs.

2.0 REVIEW OF RELEVANT LITERATURE, POLICIES, AND SERVICES

In 2006, the North Carolina Office of Public Health Preparedness and Response implemented a statewide Respiratory Protection Preparedness Training Program in response to their state Department of Labor adopting the federal OSHA standard for respiratory protection. Because this standard was written for an industrial working environment, all published training materials on this standard were focused on industrial working environments. The Office of Public Health Preparedness and Response collaborated with the industrial hygienists of the Public Health Regional Surveillance Team to create training program materials tailored for use by North Carolina's local health departments in order to ease their transition to this new standard for respiratory protection and insure that the complex standard was being properly followed.⁵

A similar approach was taken with the development of a respiratory protection program for Allegheny County Health Department (ACHD) with one major exception. While North Carolina focused on developing health department specific training and evaluation materials for the published OSHA standard, the program development for ACHD started with the modification of the standard itself before creating tailored training and evaluation materials. The published OSHA standard is in the public domain it is designed to be modified for use by the implementing agency or business. Guidelines have been published on how to modify this standard but all of them are worded for use in general industry and construction.⁶ The approach taken with ACHD's respiratory protection program started with modifying this standard for

health department use without a published guideline but with prior experience of the legal requirements of the standard. In order to make these modifications to the federal standard, a review of ACHD's activities was conducted in order to determine what relevant environmental, occupational, and biological components needed to be in the new respiratory protection program.

ACHD's mission is to protect, promote, and preserve the health and well-being of the more than 1.2 million Allegheny county residents in southwestern Pennsylvania that they serve.⁷ Their 357 employees offer multiple services to the residents of Allegheny County and these services are combined by similar subject matters into broader bureaus. To determine the respiratory protection needs for each bureau, the bureaus were asked what hazards they believe that they face. People in leadership positions within the bureaus and programs were contacted and asked to provide a list of respiratory hazards they and their coworkers encounter or could possibly encounter during daily and emergency operations. The responses gathered were combined with a review and analysis of all the offered services and policies of each department to determine a list of potential respiratory hazards or contaminants that each department might face during operations.

Programs like the Air Quality Department and Healthy Homes & Lead Poisoning Prevention Program offer extensive services in home and industrial environments that may lead to exposure to environmental, occupational, and biological respiratory hazards. These were determined to be contaminants such as asbestos, dust particles, lead, volatile organic compounds, construction and demolition pollutants, chemical fumes, and aerosolized pathogens such as molds and rodent-borne diseases like Hantavirus and Leptospirosis that can be contracted by inhaling dust contaminated with rodent urine or feces.⁸ Other divisions like Solid Waste Management face highly specific respiratory threats like exposure to human wastes and the

infectious diseases that can be contracted from inhaling fecal fumes such as gastroenteritis.⁹ Additionally, departments that might not regularly face respiratory hazards such as the Legal Department or Fee & Permit Office might be called in to the field to assist with emergency operations that may require airborne precautions to prevent the responders from contracting airborne infections such as Anthrax, Measles, or Tuberculosis.¹⁰

This review of services served as the basis for the development of a respiratory protection program tailored to address ACHD's specific needs. By determining the various environmental, occupational, and biological hazards that ACHD employees may face, it was possible to address the concerns employees may have when faced with respiratory contaminants in both their daily work and emergency operations.

Care was also taken to review the existing respiratory protection culture already in place at ACHD. While the established respiratory protection program was minimal and non-inclusive of the environmental and biological respiratory protection needs of the health department, it did provide a solid occupational respiratory protection basis. This was particularly evident within the Air Quality Department which was the only entity of ACHD to annually perform respiratory fit testing to ensure that the half-face respirators they used in regular operations were being used properly and were well fitted to the face of the user in order to create a proper seal and ensure proper function of the respirator. This annual testing was typically a contracted service until recent years and was not done in-house. The change to performing in-house testing showed that ACHD had the knowledge and ability to engage in proper respiratory protection protocols in a bureau with frequent exposure to respiratory hazards and it became a goal of this new respiratory protection program to expand this proper behavior to other programs that have less frequent exposure to respiratory contaminants.

The review of the existing safety culture also highlighted the need for a two-pronged approach from this point on. Programs with services that require frequent contact with respiratory hazards or contact with more severe respiratory hazards need more intensive quantitative respiratory fit testing while programs with services that have minimal or emergency contact with respiratory hazards need the less resource and time intensive qualitative fit testing. These two exposure groups would primarily use one of two main air purifying respirator types that filter the air as the wearer draws the air through the mask and into their lungs.

Particulate masks, or dust masks, that fit over the nose and mouth are best for minimal or emergency contact with respiratory hazards. There are multiple grades of dust mask but standard issue within the healthcare industry and ACHD is the N95 mask which is not resistant to oil and filters 95% of particulates larger than 0.3 micrometers in size.¹¹ The lack of oil resistance is not expected to be an issue in this population since exposure to oil-based aerosols, such as spray paints, is not anticipated.¹² Most particles are also larger than the 0.3 micrometer limit. Some exceptions to this are Parvoviruses and prions, neither of which are aerosolized, and asbestos which can be aerosolized and requires special abatement protocols that would not be the responsibility of ACHD.¹³ This is also a disposable mask which enables employees to simply use the particulate mask once before disposing of it which eliminates the maintenance of respirators component of respiratory protection. They also tend to be easier to breathe through than other mask types and are simple to use after a brief demonstration of proper usage. Special surgical particulate masks are also made which provide droplet protection to the wearer in addition to respiratory protection. These special N95 masks would be needed in emergency operations where infectious diseases requiring droplet protection are encountered by ACHD staff. These

diseases include Influenza, Meningitis, Mumps, Pertussis, Pneumonic Plague, Rubella, and Severe Acute Respiratory Syndrome (SARS)¹⁴

The second experience group would require half-face respirators to protect them from the more severe and frequent respiratory hazards that they face. Half-face respirators also fit over the nose and mouth like dust masks but they have multiple filters that can be attached to the face piece. The default filter for this mask is the high-efficiency particulate air (HEPA) filter which filters 99.97% of aerosolized particles larger than 0.3 micrometers.¹⁵ This offers slightly better protection than the N95 particulate masks but the real benefit of this type of facemask is the ability to simultaneously use multiple filter types. A gas filter can be used in conjunction with a HEPA filter to protect the wearer from the hazardous fumes and gases that employees in the Air Quality Department and other higher risk bureaus might face during operations. These masks are also more durable and are made to be issued to a single wearer who adjusts the fit of the mask to them specifically and maintains the respirator for their individual and repeated use. Any operations that would require 100% particulate filtration would necessitate the use of supplied air respirators, which provide a clean air supply for the wearer rather than filter the air in the environment. These operations are not anticipated at ACHD but if they are, the quantitative fit testing and education for the severe risk group would be adequate to insure the proper operation of this respiratory equipment.

While the knowledge base required to properly use respiratory protection devices would need to be the same for both these experience groups, the different fit testing procedures take a substantially different time commitment. The quantitative testing for half-face respirators typically takes an hour per individual while qualitative fit testing for particulate filters can be completed in less than twenty minutes per person. While developing the respiratory protection

program, it would be important to keep this time difference in mind to keep the burden on respiratory protection training staff low. All ACHD employees could be educated on the respiratory protection program requirements as well as on the proper procedures for wearing respiratory protection, but each department could be delegated to quantitative or qualitative fit testing for their respirators depending on the earlier review of their services offered. Those with more exposure to respiratory hazards or exposure to hazards requiring a HEPA or gas filter would be delegated to the more intensive quantitative fit testing and those needing only a particulate filter for emergency operations would be delegated to the less intensive qualitative fit testing. This would cut the amount of time required for fit testing substantially after enforcement of the new respiratory protection program requirement that all employees must have respiratory protection training and be properly fit tested begins.

3.0 METHODS

The federal OSHA standard 29 CFR 1910.134 for respiratory protection was used as the backbone of the new Allegheny County Health Department (ACHD) respiratory protection program (Appendix A). This standard was heavily modified to address the specific needs of the ACHD bureaus as determined by the earlier review of current ACHD policies and services.

Construction specific components or references were removed or adapted to environmental references that might be encountered by ACHD employees while providing their services or executing their duties. For example, a section detailing the proper use of respiratory protection when using paint thinners was removed due to its irrelevance for ACHD employees. Additional components were also added to address the biological hazards that ACHD employees may face during emergency operations and response. In particular, airborne pathogens are a concern with these operations. These diseases include Herpes Zoster, Measles, Monkeypox, SARS, Smallpox, and Tuberculosis.¹⁶ When any one of these diseases are suspected to be present during emergency operations it is imperative that all ACHD responders have proper respiratory protection such as a N95 mask or a previously issued and fit tested half-face respirator.

This respiratory protection program, unlike some that are written for general industry or construction, does not establish the guidelines for what to do in every situation that might require respiratory protection. That level of detail in a respiratory protection program is impractical for

an environment with changing and unexpected respiratory hazards and is therefore outside the scope of this program. Instead, the program establishes the responsibilities of the ACHD leadership and the ACHD employees in regards to respiratory protection procedures that are effective against respiratory threats that do not require a more intensive hazardous materials response. The leadership is responsible for conducting any necessary hazard assessments and determining when respiratory protection is needed outside of daily operations while the subject matter experts in each of the departments are best able to determine the hazards that are faced by their operations on a daily or regular basis. The ACHD leadership, in particular the respiratory protection program administrator, is also responsible for conducting fit testing and training on the respiratory protection program guidelines, requirements, and proper respirator use.

On the employee level, the program provides the knowledge of what must be done by ACHD employees on an individual basis to protect themselves from respiratory hazards. This includes how to properly use, clean, maintain, and store their assigned respirator. The program also establishes periodic annual evaluations for all employees to ensure that the provisions of the program are being implemented properly.

While the operations and services of general industry can be enumerated and detailed in their respiratory protection programs, the services and operations of local health departments are prone to changing with the health needs of the population that they serve. Because of these dynamic workforce requirements, the respiratory protection program relies on subject matter experts instead of detailing respiratory protection for all current operations. Wording the program this way will allow the program to endure despite any future changes in operations and services within ACHD.

The respiratory protection program was also reviewed to ensure it complies with all responsibilities of the 29 CFR 1910.134, while still serving the health department's needs. This compliance, while currently not a legal requirement in Pennsylvania, will allow ACHD to maintain its existing program should Pennsylvania decide to adopt the federal OSHA standard of respiratory protection.

4.0 RESULTS

After the respiratory protection program was developed, additional gaps were detected within the educational system currently in place to deliver the program to the Allegheny County Health Department (ACHD) employees. As specified by the new program, annual training and evaluation are required of every employee. Because of this, updated training materials were needed to address the specifics of the new program and an evaluation component needed to be created to test the retention of knowledge by the employees after the training is administered per the requirements of the respiratory protection program.

A new training program (Appendix B) was developed that included information on the basics of the respiratory protection program including how to properly use, clean, maintain, and store various types of respirators. In order to give the information learned more importance to the ACHD employees, emphasis was also placed on why respirator use is important and what health consequences can arise from not using them when needed. This is not something that the respiratory protection program includes and adding it into the training gives the subject of respiratory protection more relevance to the employees who will be using respirators than if they had just been told the training was required.

The developed evaluation material is a fifteen question quiz (Appendix C) to be administered post-training. The quiz focuses on the key takeaway points of the training and serves to reinforce concepts that are vital for the proper implementation of the respiratory

protection program. Justifications for the correct and incorrect answers for each question are provided to further deliver the key messages of the program.

These educational materials were developed with the understanding that they would eventually be transformed into an online training module by ACHD. The training staff at ACHD gives numerous trainings every year and this was done in an effort to reduce the burden upon the training staff. To comply with this idea, narration was provided for both the training program and the evaluation component of the respiratory protection program to better enable the transition of the materials from a lecture format into an online training module.

5.0 DISCUSSION

The Commonwealth of Pennsylvania has not adopted the federal OSHA standard for respiratory protection¹⁷. As a result of this, the private sector must adhere to the minimum federal guidelines of respiratory protection while state and local government employees must obey the 34 PA Code 39.584 for respirators which is severely underdeveloped, far less comprehensive than even the federal standard, and hasn't been updated since March 15, 1970.¹⁸ Allegheny County Health Department's desire for a comprehensive respiratory protection program shows initiative, especially given the lack of a legal requirement for this program, and should serve as a model for other local health departments in states with similarly inadequate respiratory protection laws or regulations. While the products developed here may or may not be directly applicable to other local health departments, the process of developing a respiratory protection program that was demonstrated could be repeated at other local health departments to form a program that is fitting for their operations and services.

Now that ACHD has a functional and comprehensive program, it needs to be properly implemented. Occupational, environmental, and biological respiratory hazards are well understood to be harmful, but proper protection against these threats is not always used despite this acknowledged danger. Recent reports of serious respiratory illness developing among first responders to the World Trade Center attacks have highlighted the importance of having and implementing proper respiratory protection among first responders.¹⁹ As a health department that

may be called on to assist with emergency responses and as a health organization that regularly provides services under hazardous conditions, ACHD must be vigilant in the implementation of its newly created respiratory protection program to ensure the safety of its employees.

The new respiratory protection program, training program, and evaluation component combine to form one comprehensive respiratory protection program that is tailored to fit the specific needs of ACHD. Since this new program now requires all ACHD employees to undergo training on the program, there will be a period of transition as this change is implemented but all employees will be better prepared for the operations and services that may be asked of them that require proper respiratory protection.

In order to prepare for the implementation of this new program, additional steps are being taken now that the program and educational materials are ready for distribution. These materials provide a large proportion of the respiratory protection program but respiratory fit testing must be done in person on an annual basis for every employee. ACHD previously had the proper equipment for the more intensive quantitative fit testing but with the addition of qualitative fit testing for a large number of individuals, additional fit testing equipment was purchased by ACHD to enable training staff to properly test all employees. It was suggested that each bureau have an individual trained to administer qualitative respiratory fit testing, as this procedure is fairly quick and simple to perform. It is also the most frequently required fit testing for ACHD employees. Dispersing responsibility for qualitative fit testing to the individual departments instead of just the training staff will help ensure that fit testing is done regularly without too much of a burden upon the training staff or the department fit testers. Quantitative fit testing is done with complex equipment and will be done by the ACHD training staff as was done before

the new respiratory protection program. This new respiratory protection program is currently an ongoing effort by the ACHD and should be implemented completely in the upcoming year.

6.0 CONCLUSION

By identifying the specific environmental, occupational, and biological respiratory hazards faced by the Allegheny County Health Department (ACHD) employees when performing their duties and executing their offered services, the creation of an inclusive respiratory protection program for ACHD was possible. To better implement this program, training and evaluation materials covering the key points for the employees were created to help ease the transition into a new program and to help meet the training and evaluation demands of the new program. Execution of this program is currently underway and the quick adoption of these materials highlights the need for health departments to have a competent respiratory protection program tailored to their unique environments. A health department is not general industry or a hospital, and as such, it has diverse demands for its respiratory protection program as illustrated by the materials presented here.

APPENDIX A: RESPIRATORY PROTECTION PROGRAM

Respiratory Protection Program



Bureau of Emergency Preparedness & Response
Allegheny County Health Department
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PREFACE

Allegheny County Health Department has adopted the following Respiratory Protection Program. This program establishes comprehensive guidelines to assist in reducing the risk of exposure to various respiratory hazards. These guidelines apply to all employees of the Allegheny County Health Department due to the recognized risk of potential exposure to respiratory hazards during emergency and specific daily operations. The health and welfare of each employee of the Allegheny County Health Department is of concern and the goal of this program is to provide all employees with the best possible protection from occupational exposure to respiratory hazards.

Please address all questions, comments, or suggestions to:

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1. Purpose

Allegheny County Health Department has determined that all employees may potentially be exposed to respiratory hazards during potential emergency operations. Additionally, employees in specific positions are exposed to respiratory hazards during routine daily operations. These hazards may include dust particles, particulates, vapors, chemicals, and biological agents and in some cases represent Immediately Dangerous to Life or Health (IDLH) conditions. The purpose of this program is to ensure that all Allegheny County Health Department employees are protected from exposure to these respiratory hazards.

Engineering controls, such as ventilation and substitution of less toxic materials, are the first line of defense at Allegheny County Health Department; however, engineering controls have not always been feasible for some of our operations, or have not always completely controlled the identified hazards. In these situations, respirators and other protective equipment must be used. Respirators may also be needed to protect employees' health during emergency operations. The job titles requiring respirator use at Allegheny County Health Department are outlined in Table 1 in the Scope and Application section of this program.

In addition, some employees have expressed a desire to wear respirators during certain operations that do not require respiratory protection. As a general policy Allegheny County Health Department will review each of these requests on a case-by-case basis. If the use of respiratory protection in a specific case will not jeopardize the health or safety of the employee(s), Allegheny County Health Department will provide respirators for voluntary use. As outlined in the Scope and Application section of this program, voluntary respirator use is subject to certain requirements of this program.

2. Scope and Application

This program applies to all employees who are required to wear respirators during normal work operations, and during some non-routine or emergency operations such as a spill of a hazardous substance or a biological event. All employees must be enrolled in the company's respiratory protection program for the respirator that fits their job title per Table 1 below.

In addition, any employee who voluntarily wears a respirator when a respirator is not required (i.e., in certain maintenance and emergency operations) is subject to the medical evaluation, cleaning, maintenance, and storage elements of this program, and must be provided with certain information specified in this section of the program. Those voluntarily wearing disposable particulate masks are exempt from these requirements.

TABLE 1 – in development

3. Responsibilities

Program Administrator: the Program Administrator is responsible for administering the respiratory protection program. Duties of the program administrator include:

- Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
- Ensuring adequate air quantity, quality, and flow of breathing air for atmosphere-supplying respirators. *(See (c)(1) of the standard.)*
- Selection of respiratory protection options.
- Monitoring respirator use to ensure that respirators are used in accord with their certifications.
- Arranging for and/or conducting training.
- Ensuring proper storage, cleaning, inspections, and maintenance of respiratory protection equipment.
- Conducting quantitative fit testing.
- Administering the medical surveillance program.
- Maintaining records required by the program.
- Evaluating the program.
- Updating written program, as needed.
- The Program Administrator for Allegheny County Health Department is Norm Tonti.

Supervisors: supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas and those that are assigned to them. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the workers under their charge. *Note: Workers participating in the respiratory protection program do so at no cost to themselves.* Duties of the supervisor include:

- Ensuring that employees under their supervision (including new hires) have received appropriate training, fit testing, and annual medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection when necessary.
- Conducting qualitative fit testing
- Ensuring that respirators are properly cleaned, maintained, inspected, and stored according to the respiratory protection plan.
- Ensuring that respirators fit well and do not cause discomfort.
- Continually monitoring work areas and operations to identify respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program.
- Ensuring adequate air quantity, quality, and flow of breathing air for atmosphere-supplying respirators. *(See (c)(1) of the standard.)*

Employees: each employee has the responsibility:

- To wear his or her respirator when and where required and in the manner in which they were trained.
- Care for and maintain their respirators as instructed, and store them in a clean, sanitary location.
- Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.
- Inform their supervisor of need for a medical reevaluation.

4. Program Elements

Selection Procedures – The Program Administrator:

- Will select respirators to be used on site, based on the hazards to which workers are exposed and in accord with all applicable OSHA standards.
- Will conduct a hazard evaluation for each job title where airborne contaminants may be present in routine operations or during an emergency.
- Monitoring services will be provided by the work areas where airborne contaminants may be present in routine operations. Monitoring during an emergency will be provided by the Allegheny County Health Department.
- The hazard evaluation will include:
 - Identification and development of a list of hazardous substances used in the workplace, by department or work process.
 - Review of work processes to determine where potential exposures to these hazardous substances may occur. This review is to be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.
 - Exposure monitoring to quantify potential hazardous exposures.
 - If worker exposures have not been, or cannot be, evaluated they must be considered IDLH.
 - Respirators are selected based on the workplace hazards evaluated, and workplace and user factors affecting respirator performance and reliability.
- Respirators are selected based on the Assigned Protection Factors (APFs) and calculated Maximum Use Concentrations (MUCs).
- A sufficient number of respirator sizes and models must be provided to the employee during fit testing to identify the acceptable respirator that correctly fits the users.
- For IDLH atmospheres:
 - Full facepiece pressure demand SARs with auxiliary SCBA unit or full facepiece pressure demand SCBAs, with a minimum service life of 30 minutes, must be provided.
 - Respirators used for escape only are NIOSH-certified for the atmosphere in which they will be used.
 - Oxygen deficient atmospheres are considered IDLH.

Respiratory Protection Program

- For Non-IDLH atmospheres, respirators are:
 - Selected as appropriate for the APFs and MUCs.
 - Selected as appropriate for the chemical nature and physical form of the contaminant.
 - Equipped with end-of-service-life indicators (ESLIs) if the respirators (APRs) are used for protection against gases and vapors. If there is no ESLI, then a change schedule must be implemented.
 - Equipped with NIOSH-certified HEPA filters (or other filters certified by NIOSH for particulates under 42 CFR part 84) if the respirators (APRs) are to be used for protection against particulates.

Department	Contaminants
Public Health Lab	Aerosolized pathogens, chemical vapors, dust particles, components of reagents and biological media, emergency operations
Budget & Fiscal Management	Emergency operations
Careers	Emergency operations
Facility Management	Dust particles, cleaner & chemical fumes, construction and demolition pollutants, emergency operations
Fee & Permit	Emergency operations
Biostatistics	Emergency operations
Epidemiology	Aerosolized pathogens, emergency operations
Chronic Disease	Emergency operations
Home Visiting Network	Aerosolized pathogens, dust particles, asbestos, lead, emergency operations
Infectious Diseases	Aerosolized pathogens, emergency operations
Injury Prevention	Emergency operations
Maternal & Child Health	Emergency operations
Pediatric Dentistry	Emergency operations
STD & HIV/AIDS	Emergency operations
Women, Infants, Children	Emergency operations
Air Quality	Asbestos, dust particles, lead, VOCs, VOC HAPs, PM, CO, NOx, SOx, HAPs, ozone, construction and demolition pollutants, chemical fumes, emergency operations
Healthy Homes & Lead Poisoning Prevention	Aerosolized pathogens, dust particles, asbestos, lead, emergency operations
Housing & Community Environment	Aerosolized pathogens, dust particles, asbestos, lead, emergency operations

Respiratory Protection Program

Food Safety	Aerosolized pathogens, dust particles, asbestos, lead, emergency operations
Plumbing	Asbestos, dust particles, lead, VOCs, construction and demolition pollutants, chemical fumes, human waste, emergency operations
Public Drinking Water	Asbestos, dust particles, lead, VOCs, construction and demolition pollutants, chemical fumes, emergency operations
Recycling	Asbestos, dust particles, lead, VOCs, chemical fumes, emergency operations
Solid Waste Management	Asbestos, dust particles, lead, VOCs, construction and demolition pollutants, chemical fumes, human waste, emergency operations
Water Pollution Control	Asbestos, dust particles, lead, VOCs, chemical fumes, emergency operations
Emergency Preparedness & Response	Asbestos, dust particles, lead, VOCs, VOC HAPs, PM, CO, NOx, SOx, HAPs, ozone, construction and demolition pollutants, chemical fumes, emergency operations
Legal	Emergency operations
Public Information Office	Emergency operations

Updating the Hazard Assessment – The Program Administrator:

- Must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, he/she is to contact his or her supervisor or the **Program Administrator**. The Program Administrator then:
 - Will evaluate the potential hazard, arranging for outside assistance as necessary.
 - Will then communicate the results of that assessment back to the employees. If it is determined that respiratory protection is necessary, all other elements of this program will be in effect for those tasks, and this program will be updated accordingly.
 - Will ensure that all respirators are certified by the National Institute for Occupational Safety and Health (NIOSH) and are used in accord with the terms of that certification.
 - Will also ensure that all filters, cartridges, and canisters must be labeled with the appropriate NIOSH certification label. The label must not be removed or defaced while it is in use.
- Regarding **Voluntary Respirator Use**, the following statement is needed: Allegheny County Health Department will provide respirators at no charge to employees for voluntary

use when it is deemed by the **Program Administrator** that use of respirators will not be detrimental to the work being performed or the health of the workers.

- Authorize voluntary use of respiratory protective equipment as requested by all other workers on a case-by-case basis, depending on specific workplace conditions and the results of the medical evaluations. Voluntary use does not require compliance with these specific provisions of the standard.

Medical Evaluation: All employees must pass a medical exam before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician or other licensed health care professional (PLHCP) has determined that they are medically able to do so. PLHCPs include physicians, registered nurses, nurse practitioners, physician's assistants, and other licensed health care providers. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use. An Allegheny County Health Department affiliated PLHCP will provide the medical evaluations at no cost to the employee.

Medical evaluation procedures are as follows:

- The medical evaluation will be conducted using the questionnaire provided in *Appendix C of the Respiratory Protection standard* or using an initial medical examination that obtains the same information as the medical questionnaire.
- The **Program Administrator** or a **Supervisor** will provide a copy of this questionnaire to all employees requiring medical evaluations.
- To the extent feasible, the company will assist employees who are unable to read the questionnaire (by providing help in reading the questionnaire). When this is not possible, the employee will be sent directly to the physician for medical evaluation.
- The Allegheny County Health Department will re-administer the evaluation when an employee reports medical signs or symptoms that are related to the ability to use a respirator, when a supervisor notices that an employee needs to be reevaluated, or when a change in workplace conditions results in an increase in the physiological burden placed on the employee.

Employees will:

- Be permitted to fill out the questionnaire on company time.
- Be granted follow-up medical exams as required by *the Respiratory Protection standard*, and/or as deemed necessary by the Allegheny County Health Department PLHCP.
- Be granted the opportunity to speak with the physician about their medical evaluation, if they so request.

The **Program Administrator** has provided the Allegheny County Health Department PLHCP with:

- A copy of this program, and a copy of *the Respiratory Protection standard*.
- The list of hazardous substances by work area, and for each employee requiring evaluation, his or her work area or job.
- The employee's title, proposed respirator type and weight, length of time required to wear the respirator, expected physical work load (light, moderate, or heavy), potential temperature and humidity extremes, and any additional protective clothing required.

Any employee required for medical reasons to wear a positive pressure air purifying respirator will be provided with a powered air purifying respirator. After an employee has received clearance and begun to wear his or her respirator, additional medical evaluations will be provided if:

- The employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
- The Allegheny County Health Department PLHCP or **Supervisor** informs the **Program Administrator** that the employee needs to be reevaluated, additional medical evaluation will be provided.
- Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation.
- An example of the PLHCP's or the supervisor's observations that additional medical evaluation is needed could be that there has been a change in workplace conditions that may result in an increased physiological burden on the employee. All examinations and questionnaires are to remain confidential between the employee and the physician.

Fit Testing:

- Fit testing is required for all employees wearing a respirator except for voluntary use of dust masks and for the use of escape-only respirators.
- Employees voluntarily wearing half mask APRs may also be fit tested upon request.
- Employees who are required to wear respirators will be fit tested:
 - Prior to being allowed to wear any respirator with a tight fitting facepiece,
 - Annually,
 - Whenever a different respirator facepiece is used,
 - When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).
- Employees will be fit tested with the make, model, and size of respirator that they will actually wear.
- Employees will be provided with several models and sizes of respirators so that they may find an optimal fit.
- Fit testing of PAPRs is to be conducted in the negative pressure mode.
- The **Program Administrator** and **Supervisors** will conduct fit tests following the OSHA approved Bitrex Solution Aerosol QLFT Protocol in *Appendix A of the Respiratory Protection standard*. The **Program Administrator** has determined that *Appendix A* approved QNFT is only required for those using half mask APRs under current conditions at Allegheny County Health Department. If conditions affecting respirator use change, the **Program Administrator** will evaluate on a case-by-case basis whether QNFT is required and will perform the fit testing if required.

Respirator Use: Responsibilities for Employees are that they:

- Will use their respirators under conditions specified by this program, and in accord with the training they receive on the use of each particular model. In addition, the respirator must not be used in a manner for which it is not certified by NIOSH or by its manufacturer.
- Must conduct user seal checks each time that they wear their respirator.
- Must use either the positive or negative pressure check (depending on which test works best for them) specified in *Appendix B-1 of the Respiratory Protection standard*.
- Must leave the work area to maintain their respirator for the following reasons:
 - to clean their respirator if the respirator is impeding their ability to work;
 - to change filters or cartridges, or replace parts; or
 - to inspect the respirator if it stops functioning as intended.
- Should notify their supervisor before leaving the area.
- Not wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good seal.
- Not wear headphones, jewelry, or other articles that may interfere with the facepiece-to-face seal.

Emergency Procedures

- Respirator use may be required during certain emergency operations. Employees will be notified by management staff if and when emergency respirator use is required.
- Respiratory protection in these instances is for personal protection only. Allegheny County Health Department employees are not trained as emergency responders, and are not authorized to act in such a manner.

Respirator Malfunction

- **APR Respirator Malfunction:**
 - For any malfunction of an APR (e.g., breakthrough, facepiece leakage, or improperly working valve), the respirator wearer must inform his or her supervisor that the respirator no longer functions, and go to the designated safe area to maintain the respirator. The supervisor must ensure that the employee receives the needed parts to repair the respirator, or is provided with a new respirator.
- **Atmosphere-Supplying Respirator Malfunction:**
 - All workers wearing atmosphere-supplying respirators will work with a buddy.
 - Buddies should assist workers who experience an SAR malfunction. If one of the employees experiences a respirator malfunction, he/she shall signal this to their buddy. The buddy must immediately stop what he or she is doing to escort the worker to the staging area where the worker can safely remove the SAR.

IDLH Procedures

- Subject matter experts and the **Program Administrator** will identify IDLH operations.

Air Quality:

- For supplied-air respirators, only Grade D breathing air is to be used in the cylinders.

- The **Program Administrator** will maintain a minimum air supply of one fully charged replacement cylinder for each SAR unit. In addition, cylinders may be recharged as necessary from the breathing air cascade system located near the respirator storage area.
- The air for this system is provided by Allegheny County Health Department's supplier, and deliveries of new air are coordinated by the **Program Administrator**.

Cleaning, Maintenance and Change Schedules and Storage:

Cleaning

- Respirators are to be regularly cleaned and disinfected.
- Respirators issued for the exclusive use of an employee are to be cleaned as often as necessary.
- Atmosphere-supplying and emergency use respirators are to be cleaned and disinfected after each use.
- The following procedure is to be used when cleaning and disinfecting respirators:
 - Disassemble respirator, removing any filters, canisters, or cartridges.
 - Wash the facepiece and associated parts in a mild detergent with warm water. Do not use organic solvents.
 - Rinse completely in clean warm water.
 - Wipe the respirator with disinfectant wipes (70% Isopropyl Alcohol) to kill germs.
 - Air dry in a clean area.
 - Reassemble the respirator and replace any defective parts.
 - Place in a clean, dry plastic bag or other airtight container.
- **Note:** The **Program Administrator** will ensure an adequate supply of appropriate cleaning and disinfection material at the cleaning station. If supplies are low, employees should contact their supervisor, who will inform the **Program Administrator**.

Maintenance

- Respirators are to be properly maintained at all times to ensure that they function properly and adequately protect the employee.
- Maintenance involves a thorough visual inspection for cleanliness and defects.
- Worn or deteriorated parts will be replaced prior to use.
- No components will be replaced or repairs made beyond those recommended by the manufacturer.
- Repairs to regulators or alarms of atmosphere-supplying respirators will be conducted by the manufacturer.
- The following checklist will be used when inspecting respirators:
 - Facepiece:
 - cracks, tears, or holes
 - facemask distortion
 - cracked or loose lenses/faceshield
 - Valves:
 - Residue or dirt

- Cracks or tears in valve material
- Headstraps:
 - breaks or tears
 - broken buckles
- Filters/Cartridges:
 - approval designation
 - gaskets
 - cracks or dents in housing
 - proper cartridge for hazard
- Air Supply Systems:
 - breathing air quality/grade
 - condition of supply hoses
 - hose connections
 - settings on regulators and valves
- Employees are permitted to leave their work area and go to a designated area that is free of respiratory hazards when they need to wash their face and respirator facepiece to prevent any eye or skin irritation, or to replace the filter, cartridge or canister, or when they detect vapor or gas breakthrough or leakage in the facepiece or detect any other damage to the respirator or its components.

Change Schedules

- Employees wearing APRs or PAPRs with P100 filters for protection against wood dust and other particulates need to change the cartridges on their respirators when they first begin to experience difficulty breathing (i.e., resistance) while wearing their masks.
- Employees voluntarily wearing APRs with organic vapor cartridges must change the cartridges on their respirators at the end of each work week to ensure the continued effectiveness of the respirators.

Storage

- Respirators must be stored in a clean, dry area, and in accord with the manufacturer's recommendations.
- Each employee will clean and inspect their own air-purifying respirator in accord with the provisions of this program, and will store their respirator in a plastic bag in their own locker.
- Each employee will have his/her name on the bag, and that bag will only be used to store that employee's respirator.
- Atmosphere-supplying respirators will be stored in the department of the employees using the respirators.
- The **Program Administrator** will store Allegheny County Health Department's supply of respirators and respirator components in their original manufacturer's packaging in the equipment storage room.

Defective Respirators

- Respirators that are defective or have defective parts must be taken out of service immediately.
- If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his or her supervisor.
- Supervisors will give all defective respirators to the **Program Administrator**.
- The **Program Administrator** will decide whether to:
 - Temporarily take the respirator out of service until it can be repaired.
 - Perform a simple fix on the spot such as replacing a headstrap.
 - Dispose of the respirator due to an irreparable problem or defect.
- When a respirator is taken out of service, the respirator will be tagged out of service, and the employee will be given a replacement of the same make, model and size.
- If the employee is not given a replacement of the same make, model and size, then the employee must be fit tested.
- All tagged out-of-service respirators will be kept in the storage cabinet inside the **Program Administrator's** office.

Training:

- The **Program Administrator** will provide training to respirator users and their supervisors on the contents of the Allegheny County Health Department Respiratory Protection Program and their responsibilities under it, and on the *OSHA Respiratory Protection standard*.
- Workers will be trained prior to using a respirator in the workplace.
- The training must be comprehensive, understandable and recur annually, and more often if necessary.
- As with any employee, supervisors must be trained prior to using a respirator in the workplace; they also should be trained prior to supervising workers who must wear respirators if the supervisors themselves do not use a respirator.
- Supervisors will provide the basic information on respirators in *Appendix D of the Respiratory Protection standard* to employees who wear respirators when not required by the employer to do so.
- Supervisors will ensure that each employee can demonstrate knowledge of at least the following:
 - Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
 - What the limitations and capabilities of the respirator are;
 - How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
 - How to inspect, put on and remove, use, and check the seals of the respirator;
 - What the procedures are for maintenance and storage of the respirator;
 - How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
 - The general requirements of *the Respiratory Protection standard*.

- Supervisors will ensure that employees will be retrained annually or as needed (e.g., if they change departments and need to use a different respirator).
- An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements above is not required to repeat such training provided that the employee can demonstrate knowledge of those element(s).
- Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.
- Retraining shall be administered annually, and when the following situations occur:
 - Changes in the workplace or the type of respirator render previous training obsolete;
 - Inadequacies in the employee's knowledge or use of the respirator indicate that the worker has not retained the requisite understanding or skill; or
 - Any other situation arises in which retraining appears necessary to ensure safe respirator use.
- The basic advisory information on respirators, as presented in *Appendix D of the Respiratory Protection standard*, shall be provided by the employer in any written or oral format to employees who wear respirators when such use is not required by this section or by the employer.

5. Program Evaluation

- The **Program Administrator** will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented.
- The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records.
- Factors to be assessed include, but are not limited to: respirator fit, appropriate respirator selection for the hazards to which the employee is exposed, proper respirator use under the workplace conditions the employee encounters, and proper respirator maintenance.
- Problems identified will be noted in an inspection log and corrected by the **Program Administrator**.
- These findings will be reported to Allegheny County Health Department management, and the report will list plans to correct deficiencies in the respirator program and target dates for implementing those corrections.

6. Documentation and Recordkeeping

- A written copy of this program and the OSHA standard is kept in the **Program Administrator's** office and is available to all employees who wish to review it.
- Also maintained in the **Program Administrator's** office are copies of training materials.
- Copies of fit test records administered to employees shall include the name or identification of the employee tested; the type of fit test performed; the specific make, model, style, and size of the respirator tested; the date of the test; and the pass/fail results

for QLFTs or the fit factor and strip chart or other recording of the test results for QNFTs. This records will be maintained until the next fit test is administered.

- These records will be updated as new employees are trained and as existing employees receive refresher training.
- The **Program Administrator** will also maintain copies of the records for all employees covered under the respirator program (except medical records).
- The completed medical questionnaire and the PLHCP's documented findings are confidential and will remain at Allegheny County Health Department. The company will only retain the physician's written recommendation regarding each employee's ability to wear a respirator.

APPENDIX B: RESPIRATORY PROTECTION PROGRAM TRAINING



Program Administrator, Norm Tonti

Why do I need this training?

- ▶ To protect your lungs.
- ▶ It can save your life!
- ▶ It's required every year.



Hazardous materials can enter your body in three ways: ingestion, skin absorption, and inhalation. This training will go over ways to protect yourself from inhalation threats which are most common route of exposure. This training could save your health and your life!

It's also required annually if those other reasons aren't enough incentive for you.

Why do I need to wear a respirator?



Breathing in dust, fumes, oil mist, and vapors from solvents and various gases can damage the delicate structure of your lungs. Damaged lungs are much more susceptible to respiratory diseases which are often incurable and eventually lead to death.

Hazards include the following:

- Dusts – formed whenever solid material is broken down into tiny particles like with sanding and grinding
- Vapors – created when a solid or liquid material evaporates like paint thinner, solvents, and gasoline
- Fogs – vapors that have condensed into airborne particles like insect foggers
- Mists & Sprays – very small droplets of liquid material suspended in the air like those caused by spray and coating operations
- Gases – materials that become airborne at room temperature and may be odorous or odorless, seen or invisible, and can travel for great distances
- Fumes – occur whenever a metal, plastic, or polymer is subjected to high heat like with welding and soldering
- Smoke – small particles produced by the incomplete combustion (burning) of any material that has carbon in it
- Biological agents – a bacterium, virus, protozoan, parasite, or fungus that can be used purposefully as a weapon in bioterrorism or biological warfare

When should I use a respirator?



- ▶ When your supervisor tells you to
- ▶ When a safety officer tells you to
- ▶ When your experience tells you to

When you should use a respirator will be determined by your supervisor or safety officer. The decision to use respirators will be made if engineering controls are not enough to ensure that you will have an adequate supply of oxygen that is free from harmful dusts, fogs, fumes, mists, gases, smokes, sprays, vapors, or biological agents.

Subject matter experts may make the decision to wear a respirator based on their own knowledge and experience.

What respirator should I use?

Air Purifying Respirator



Disposable particulate mask

Air Purifying Respirator



Full face mask respirator

Supplied Air Respirator



Emergency escape breathing apparatus

There are two major categories of respirators: Air Purifying Respirators and Supplied Air respirators. As their names suggest, the former category purifies the air you are breathing with filters or canisters while the latter supplies fresh clean air.

Air Purifying Respirators are primarily used in situations that are not immediately dangerous to life and health. Types of respirator that fall into this category are disposable particulate (dusk) masks, half mask respirators, full face mask respirators, gas masks, and powered air purifying respirators (PAPRs).

When the level of hazard is unknown or when it is immediately dangerous to life and health, Supplied Air Respirators are used. These include airline respirators, emergency escape breathing apparatus, and self-contained breathing apparatus (SCBA).

Which category of respirator you will need and which type of that category will be determined by your supervisor or safety officer based on five things: the type of contaminant present, the form of the contaminant, the toxicity of the contaminant, the concentration of the contaminant, and the duration of exposure to the contaminant.

What are the limitations and capabilities of my respirator?

Air Purifying Respirator



Half mask respirator

Air Purifying Respirator



Powered air-purifying respirator

Supplied Air Respirator



Self-contained breathing apparatus (SCBA)

Different respirators have different limitations. ACHD employees will primarily be using disposable particulate masks and half mask respirators. Both of these respirators use the mechanical action of breathing to draw contaminated air through purifying filters before it reaches the lungs.

Disposable particulate masks are rated by NIOSH standards by two categories: oil resistance and particulate filtering. Masks may be non-oil resistant (N), oil resistant (R), or oil proof (P). They may also filter at least 95% of airborne particles (95), 99% of airborne particles (99), or 99.97% of airborne particles (100). Therefore, a N95 rated particulate mask is not oil resistant and will filter at least 95% of airborne particles while a P100 rated particulate mask will be oil proof and filter at least 99.97% of airborne particles.

Half mask respirators are reusable, you just change the filters or cartridges based on the respiratory hazards that are present. Filters matching the ratings of particulate masks (N95, etc.) can be used or cartridges that remove various combinations of particulates and chemicals can be used. Cartridges use a color coded rating system: white filters acid gas, black filters organic vapors, green filters ammonia gas, yellow filters acid gas and organic vapors, olive filters multiple gases, and magenta is a particulate HEPA filter.

Why are a medical evaluation and fit testing required?

- ▶ Medical evaluation makes sure you are physically capable of using your respirator
 - ▶ Re-evaluate when health changes
- ▶ Fit testing makes sure that the respirator you are using fits you properly and is functioning correctly
 - ▶ Required annually
 - ▶ Re-test with physical changes



A medical evaluation and fit testing are required just like this training. The only exceptions to this requirement are for the use of emergency escape breathing apparatus and for voluntary use of disposable particulate masks.

The medical evaluation checks for pre-existing conditions that may make a respirator difficult for you to use. Most Air Purifying Respirators rely on the mechanical action of breathing to draw air through filters or cartridges. The med eval checks to make sure that this won't be too difficult for the user. If it is, a powered air purifying respirator (PAPR) or Supplied Air Respirator may be required.

The fit testing ensures that the respirator fits you properly. Improper fit renders the respirator ineffective and you might as well not be wearing a respirator at all. Face shape, facial hair, facial scars, and glasses can all affect how a respirator seals to your face and the fit testing ensures that you end up with the best type of respirator for you in the best fitting size.

Medical reevaluation is required when a physical or health change occurs. Fit testing is required annually for tight-fitting respirators or when a physical change affects how the respirator fits, such as with significant weight change.

How do I use a respirator?

- Inspect the respirator
- Don the respirator
- User seal check
- Use the respirator
- Doff the respirator
- Dispose of, or clean and store, the respirator

Always start use with an inspection of your respirator. If it passes, you can don it (put it on) and begin use after your user seal check. When you no longer need to use your respirator you can doff it (remove it) making sure not to touch the filters or cartridges. For detailed instructions on these processes check the manufacturer's instructions for your specific respirator.

Video Time!



This video will demonstrate the proper procedures for using the two most common respirator types, disposable particulate masks and half face respirators. Always follow your specific respirator's manufacturer's instructions but these general principles are widely applicable.

What can go wrong with my respirator?



- ▶ If a respirator malfunctions you may:
 - ▶ Smell or taste the contaminant
 - ▶ Have difficulty breathing
- ▶ Remove yourself from the hazard area
- ▶ Stop using that respirator!
- ▶ Repair or replace it immediately

Something is wrong with your respirator if:

- You can smell or taste the contaminant
- Breathing becomes difficult
- You become dizzy or sick feeling
- The manufacturer's recommended service life of the filters or cartridges expires
- The respirator is damaged

NEVER use or continue to use a respirator that is not working perfectly.

If you suspect something is wrong with your respirator or with someone else's, remove yourself or your coworker from the hazard area immediately. Stop using the defective respirator and repair or replace it before resuming operations.

How should I maintain and store my respirator?

- ▶ For disposable respirators:
 - ▶ Toss it as instructed
- ▶ For non-disposable respirators:
 - ▶ Maintain
 - ▶ Clean
 - ▶ Check for damage
 - ▶ Store
 - ▶ Bag it and label it
 - ▶ Keep somewhere handy but away from sun, heat, and moisture



Disposable respirators should be disposed of as instructed by your supervisor or safety officer. They may be contaminated and require special disposal methods. Be sure to avoid touching the filtering elements when handling the respirator.

A respirator that is not disposable should be cleaned per the manufacturer's instructions. As you are cleaning it, give it another inspection as well. Check:

- Cracks or chips in the faceplate, breathing tube, or airlines
- Worn or frayed straps or fittings
- Bent or corroded buckles
- Improperly seated valves

If something is wrong with your respirator, then have it repaired or replaced immediately. Also make sure that the filters or cartridges are not damaged or too soiled. If they caused noticeably increased breathing resistance it might also be time to replace them. Request new filters or cartridges when you need them and be sure to check the expiration dates.

If you aren't going to be using your respirator again immediately, it needs to be properly stored. Place it in a labeled, sealable plastic bag and keep it somewhere convenient for you but away from dust, sunlight, heat, extreme cold, moisture, or damaging chemicals.

Can I use a respirator when it's not required?

- ▶ Yep!
- ▶ ACHD will provide respirators upon request
- ▶ Med eval and fit testing are still required
 - ▶ except for disposable particulate masks



You may voluntarily use a respirator when you'd like. Allegheny County Health Department will provide a respirator at your request or you may supply your own respirator. However, voluntary users of respirators must still undergo medical evaluation and fit testing to ensure that they are medically able to use the respirator and that it is being used properly. The only exception to this is voluntary use of disposable particulate masks.

What else do I need to know?

- ▶ Review ACHD's Respiratory Protection Program for more details
- ▶ The federal standard for respiratory protection is Standard 29 CFR 1910.134
- ▶ Side note on surgical masks
 - ▶ Not respiratory protection!
 - ▶ They are droplet protection



Review Allegheny County Health Department's Respiratory Protection Program for more information. This can be found with the Program Administrator, Norm Tonti.

The federal standard for respiratory protection can also be found online on the OSHA website under "Standard 29 CFR 1910.134".

As a side note, surgical masks do not provide respiratory protection. They provide droplet protection! There are some surgical masks that are also N95 rated dust masks and do provide both droplet and respiratory protection but these are clearly labeled and tightfitting. Your typical, loose fitting surgical mask will not protect you from respiratory hazards or airborne contaminants.



Quiz time!

APPENDIX C: RESPIRATORY PROTECTION PROGRAM EVALUATION



Program Administrator, Norm Tonti

Question 1

Which of the following is not a respiratory hazard?

- A. Vapors
- B. Droplets
- C. Dusts
- D. Biological agents

B. Droplets

Respiratory hazards are all airborne particles that enter the body through the respiratory system. Droplet hazards are droplets as their name implies and they enter through the mouth, nose, and conjunctive areas. Different precautions are needed for these different threats. Respiratory hazards require respirators and droplet hazards require protective masks, clothing, and gloves.

Question 2

Which of the following is not a symptom of respirator malfunction?

- A. You can breathe normally
- B. You become dizzy
- C. You can smell or taste something unusual
- D. The filters or cartridges are expired

A. You can breathe normally

If your breathing becomes difficult or labored, then your respirator may be malfunctioning.

Question 3

I can voluntarily use a respirator without a medical evaluation or fit testing if the respirator is a dust mask.

- A. True
- B. False

A. True

Voluntary use of disposable particulate masks is the only exception to the medical evaluation and fit testing requirements. All non-voluntary users and those using other respirators (voluntary or not) must be properly evaluated and tested.

Question 4

For non-disposable respirators, which of the following is not a good way to store your respirator?

- A. Bagged and labeled
- B. Somewhere handy
- C. Somewhere moist
- D. Away from heat and extreme cold

C. Somewhere moist

Non-disposable respirators should be kept bagged, labelled, handy, and away from extreme temperatures and moisture when they are not in use.

Question 5

Respiratory protection and droplet protection are the same thing.

- A. True
- B. False

B. False

Respiratory protection protects you from respiratory hazards and airborne contaminants like dusts, vapors, gases, and some biological agents. Droplet protection protects you from droplets that are generated when a contaminated person coughs, sneezes, or talks. These droplets may contain harmful pathogens and can spread up to three feet from the source. These droplets are not respiratory hazards because they are not inhaled, instead they get deposited in the nose, eye, or mouth and are absorbed by the skin.

Question 6

Hazardous materials can enter your body in three ways. Which method is the most common route of exposure?

- A. Ingestion
- B. Skin Absorption
- C. Inhalation

C. Inhalation

Inhalation is the most common route of exposure to hazardous materials. This is one of the reasons why respiratory protection is so important.

Question 7

Which of the following is not a rating of disposable particulate (dust) mask?

- A. N95
- B. R100
- C. W99
- D. P100

C. W99

Dust masks are rated by two categories, oil resistance and particle filtration. Oil resistance is shown with a letter. "N" stands for non-oil resistant, "R" for oil resistant, and "P" for oil proof. "W" like in our question, is not a proper rating for oil resistance. The particle filtration rating is expressed with a number, either 95 or 99 or 100, that shows the percentage of airborne particles that the mask can be expected to filter.

Question 8

Half mask respirators use cartridge filters that are color coded. In this system, what type of filters are magenta cartridges?

- A. Particulate HEPA filters
- B. Acid gas filters
- C. Organic vapor filters
- D. Ammonia gas filters
- E. Multiple gas filters

A. Particulate HEPA filter

In this system, magenta cartridges are particulate HEPA filters. Acid gas filters are white, organic vapor filters are black, ammonia gas filters are green, and multiple gas filters are olive.

Question 9

When should you get fit tested?

- A. Before wearing a respirator for the first time
- B. Annually
- C. After significant weight change
- D. After a change in face shape (scarring, facial hair)
- E. All of the above

E. All of the above

Fit testing should be performed in all of these situations. After the initial fit test, re-testing is required annually and after significant physical changes that may affect how the respirator fits to the face.

Question 10

Which of the following is not a reason why you should wear respiratory protection?

- A. Respiratory hazards can harm the environment
- B. Respiratory hazards damage delicate lung tissue
- C. Respiratory hazards make you more susceptible to respiratory diseases
- D. Respiratory hazards can cause death

A. Respiratory hazards can harm the environment

All of the statements are true, however, only one statement is not a reason why you should personally wear respiratory protection. Some respiratory hazards can harm the environment but this has no bearing on your immediate respiratory health and is not a reason why you should wear respiratory protection.

Question 11

Which of the following is not a respirator?

- A. A dusk mask
- B. SCBA
- C. PAPR
- D. A surgical mask

D. A surgical mask

Disposable particulate (dust) masks, self-contained breathing apparatus (SCBA), and powered air purifying respirators (PAPR) are all respirators that provide respiratory protection. Surgical masks are not respirators since they provide only droplet protection.

Question 12

Which of the following should you do immediately after donning your respirator?

- A. Inspect the respirator
- B. User seal check
- C. Use the respirator
- D. Doff the respirator

B. User seal check

Respirator use should always begin with an inspection of the respirator. If it passes, it can be donned (put on). You should then immediately perform a user seal check to make sure the respirator fits you properly and is functioning correctly. After the user seal check you may enter the hazardous area and use the respirator. When you are finished with your work remove yourself from the hazard area and doff (take off) the respirator before disposing of it or cleaning and storing it if it is reusable.

Question 13

When should I use a respirator?

- A. When your supervisor tells you to
- B. When a safety officer tells you to
- C. When your experience tells you to
- D. All of the above

D. All of the above

The decision to use respirators will be made by your supervisor or safety officer if engineering controls are not enough to ensure that you will have an adequate supply of oxygen that is free from harmful dusts, fogs, fumes, mists, gases, smokes, sprays, vapors, or biological agents. Subject matter experts may also determine when they should wear respirators.

Question 14

When are medical evaluations required for respiratory protection?

- A. Annually
- B. Once
- C. Once with updates when physical or health changes occur
- D. They aren't required

C. Once with updates when physical or health changes occur

Medical evaluations are only required once. If your health changes in a way that may effect your ability to use a respirator, your health will need to be reevaluated with a licensed healthcare provider.

Question 15

If you are in a situation where there are respiratory hazards in the air and not enough oxygen to safely breath filtered air, which type of respirator should you be using?

- A. Air Purifying Respirator
- B. Supplied Air Respirator

B. Supplied Air Respirator

Air Purifying Respirators filter the air around you and remove contaminants from it before you breathe. They do not help with oxygen deficiencies. **Supplied Air Respirators** provide an entirely new supply of air that is properly oxygenated and free of respiratory hazards.

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