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Occupational Health

RESPIRATORY PROTECTION PROGRAM



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(1Lt Raymond A. Lewis)
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The OPR for this instruction is 437th ADOS/SGGB (1Lt Lewis). It supersedes CAFBI 48-137, 28 September 2000. This Charleston AFB instruction implements Occupational Safety and Health Administration (OSHA) standard 29 Code of Federal Regulations (CFR) 1910.134, *Respiratory Protection*, and AFOSH Standard 48-137, *Respiratory Protection*. The purpose of this program is to control occupational exposures by ensuring that all respirator users are medically qualified, trained, and fitted with the correct respirator to protect them from workplace specific inhalation hazards. This instruction applies to all military and civilian personnel employed in areas where respiratory protection is used, and it must be maintained in all work areas where respirators are available. It applies to reserve personnel with the exception that fit testing and training are accomplished by the 315th Medical Squadron, and it applies to contractors only if it is specifically noted in the contract. It does not apply to military-unique respiratory protection devices, which are designed for use in nuclear, biological, or chemical warfare environments.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

The revision also renumbers the instruction to align it with the current series title, and provides a glossary of references, terms and supporting information, [Attachment 1](#), for user convenience.

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1. Responsibilities:

- 1.1. 437th Airlift Wing Commander will: Establish a Charleston AFB Respiratory Protection Program (RPP) consistent with 29 CFR 1919.134 and AFOSH Standard 48-137.
- 1.2. 315th Airlift Wing Commander will: Ensure that reserve personnel comply with CAFB RPP requirements as applicable.
- 1.3. Unit Commanders, Directors and Functional Managers will:
 - 1.3.1. Ensure that a RPP that meets the requirements of this instruction and all applicable OSHA/Air Force standards is properly established within all organizations where respirators are used.
 - 1.3.2. Ensure that supervisors schedule personnel for medical qualification and respirator fit testing/training through Bioenvironmental Engineering (BE) prior to allowing/requiring them to perform tasks that require the use of respirator.
 - 1.3.3. Provide respirators and manufacturer-specific spectacle inserts, without cost to workers, once the requirement has been approved by BE.
 - 1.3.4. Ensure that supervisors of work areas that use respirators develop and maintain a current work center operating instruction (OI) on respiratory protection and that it is reviewed and approved annually by BE.
- 1.4. Bioenvironmental Engineering (BE) will:
 - 1.4.1. Oversee the CAFB RPP and ensure that it meets all applicable OSHA and AF requirements.
 - 1.4.2. Evaluate workplace hazards and determine the need for respiratory protection based on expected worker exposures and air sampling results.
 - 1.4.3. Ensure that the proper respirators are used for the hazards associated with the tasks/operations.
 - 1.4.4. Conduct initial and annual respirator fit testing and training in accordance with AFOSH Standard 48-137.
 - 1.4.5. Periodically visit work areas using respirators, evaluate the effectiveness of the section's RPP, and provide guidance/assistance to ensure program compliance.
 - 1.4.6. Coordinate with base supply to ensure that "suitable substitutes" are not issued in place of the respirators identified on the AF Form 2772, **Certificate of Respirator Fit Test**. There are no "suitable substitutes" for respirators or respirator parts.
- 1.5. Supervisors of respirator users will:
 - 1.5.1. Identify all processes or tasks that may result in workplace inhalation hazards to BE so that the need for respiratory protection can be evaluated.
 - 1.5.2. Develop and maintain a current section OI on respiratory protection. This OI must contain information on proper respirator selection, use, care, maintenance, and cleaning. Each OI will be dated/kept current and submitted to BE for review/approval upon initial publication and whenever significant changes occur. BE has an electronic OI template that should be used/adapted to meet this requirement, and a copy of the template is provided in **Attachment 2**. A documented annual review and update, as needed, of this OI is also required.

- 1.5.3. Ensure that workers performing tasks that require respirators are medically qualified, fit tested, and trained on respirator use prior to performing these tasks.
- 1.5.4. Contact BE whenever workplace operations change to ensure that appropriate evaluations are made when new chemicals are introduced, processes or procedures are changed, or engineering controls are modified or added.
- 1.5.5. Maintain current copies of AFOSH Standard 48-137, this CAFBI, and the workplace OI in a binder available for review by BE at all times.
- 1.5.6. Schedule initial and annual respirator medical reviews/exams, fit testing, and training with BE by contacting Bioenvironmental Engineering or coming to building 631. Personnel will not wear respiratory protection without a current certificate of respirator fit test (AF Form 2772), issued from Charleston AFB BE.
- 1.5.7. Ensure respiratory protection fit testing and training are tracked via existing computerized training databases or workplace specific tracking mechanisms. The means of tracking shall be included in the workplace OI. Ultimately, it is the supervisor's responsibility to ensure that fit testing/training is completed before the certification expires or the mission is adversely affected.
- 1.5.8. Document initial and annual training on AF Form 55, **Employee Safety And Health Record**, or electronic equivalent. This training shall be documented as "Initial Respirator Fit Testing and Training" or "Annual Respirator Fit Testing and Training" as applicable.
- 1.5.9. Ensure monthly respirator inspections are performed and documented on the AF Form 1071, **Inspection/Maintenance Record**, and that any identified discrepancies are corrected expeditiously.
- 1.5.10. Appoint an individual to be responsible for the maintenance, inspection, and care of common use or emergency/escape respirators as appropriate.
- 1.5.11. Advise all respirator wearers that they may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other condition that might jeopardize safety.
- 1.5.12. Notify BE (437th ADOS/SGGB) in writing if there are workers that desire to use filtering face piece devices. Provide and document (on the AF Form 55 or equivalent) initial and annual training to all personnel in the workplace that wear "elective use" filtering face piece devices. Training consists of the limitations of these devices and potential hazards from improper use. This training will be documented as "Limitations of Filtering Face piece Devices". See [Attachment 3](#) for a sample training outline.
- 1.5.13. Ensure that respirator supply sources (base supply, local purchase, bench stock) do not provide "suitable substitutes". There is no such thing as a "suitable substitute" for respirators or respirator parts.
- 1.5.14. Arrange for training on self-contained breathing apparatuses (SCBA) through the Fire Protection Flight if applicable. The supervisor shall document this training on the AF Form 55.
- 1.5.15. Establish quality control of respirator breathing air according to Technical Order (T.O.) 42B-1-22, *Quality Control of Compressed Breathing Air*, as applicable. If breathing air sources are used, the supervisor will also do the following:

1.5.15.1. Ensure that BE is contacted for base sample numbers to be used for quality control of respirator breathing air IAW T.O. 42B-1-22. Base sample numbers should be obtained from BE prior to shipping samples. This requirement applies to compressed gaseous air, compressed gaseous oxygen, liquid air, and liquid oxygen used for respirators. All breathing air must meet of Grade D breathing air requirements and be tested as described in T.O. 42B-1-22 and Attachment 13 of AFOSH Standard 48-137.

1.5.15.2. Maintain a copy of compressed breathing air results in the work center for one year.

1.5.15.3. Ensure all compressed breathing air cylinders meet requirements of T.O. 42B5-1-2, *Use, Handling, and Maintenance —Storage Type Gas Cylinders*, regarding labeling, storage, and transportation requirements.

1.5.15.4. Ensure all compressors for supplied-breathing air meet requirements found in AFOSH Standard 48-137, paragraph 8.3.3 and all ambient or free-air pumps meet the requirements in paragraph 8.3.4.

1.6. Respirator Users will:

1.6.1. Know and follow the procedures in the section specific OI.

1.6.2. Use the respiratory protection provided according to the instructions and training received. Understand the purpose and limitations of the respirator(s) needed for their job and wear only those respirators for which they have received fit testing and training. Respirators must be used only for the tasks identified in the workplace specific OI.

1.6.3. Inspect, clean, and maintain any respirator issued to them for individual use. Document respirator inspections on the AF Form 1071, and identify problems/deficiencies to their supervisor.

1.6.4. Guard against damage to the respirator, and maintain the integrity of the certification by not mixing parts from different manufacturers or performing unauthorized maintenance.

1.6.5. Immediately identify respirator problems or requirements to their supervisor and/or BE as appropriate.

1.6.6. Not have facial hair that interferes with the face piece-to-face seal while wearing a respirator.

1.7. Unit Safety Representatives will: Evaluate workplace respiratory programs for compliance with this CAFB instruction during routine inspections. Advise unit commanders, BE, and Ground Safety of Respiratory Protection Program compliance problems, as appropriate.

1.8. Base Safety will: Evaluate workplace Respiratory Protection Programs for compliance with this CAFB instruction during routine inspections and advise unit safety representative, commanders, and BE of RPP compliance problems, as appropriate.

1.9. Base Supply will:

1.9.1. Control the issue of respirators, and ensure that BE has approved the respirator request prior to issuing the respirators. This may be accomplished by having the work center supply proof of a current (within 12 months) AF Form 2772 for each individual requiring a respirator. Ensure that “suitable substitutes” are not issued in place of respirators noted on the AF Form 2772 or replacement parts. Respirators will not be obtained through local purchase channels without BE approval.

NOTE: The manufacturer of the given respirator and spare parts shall be the same. Using a different manufacturer's part invalidates the certification.

1.9.2. Provide a listing to BE of all respirators and associated parts issued on a quarterly basis. This listing will include the shop name and supply account code, the national stock number (NSN) and nomenclature of the item, and the quantity ordered. This process will ensure there are enough respirators for trained personnel, as well as help identify respirator wearers who have not been properly trained and fit tested.

1.10. Force Health Management (FHM) will:

1.10.1. Contact BE when medical clearance forms are completed and ready for pick-up.

1.10.2. Ensure there is no more than a 5-day turnaround for clearance of medical questionnaires.

1.11. The Chief, Fire Protection Flight will:

1.11.1. Provide annual training on the use and maintenance of self-contained breathing apparatuses (SCBA) used by base organizations (Fire Departments and EOD).

1.11.2. Conduct quarterly breathing air quality control samples on compressed breathing air and provide results to BE.

1.11.3. Provide copies of compressed breathing air results to other work centers that have been provided breathing air from the Fire Department compressor(s).

1.12. Contracting will. Ensure that training on the purchase of respirators and respirator parts on IMPAC cards is conducted. This training should stress that respirators may not be purchased via IMPAC without prior approval from BE.

1.13. The Occupational Health Working Group (OHWG) will. Be the base level authority on medical surveillance of respirator users.

1.14. The 315th Medical Squadron BE Will. Conduct respirator fit testing and training for non-active reservists and oversee the reserve RPP.

2. CAFB Program Elements. The basic elements of the CAFB Respiratory Protection Program are described below:

2.1. Workplace Exposure Monitoring and Surveillance. During routine and periodic industrial hygiene surveys, BE evaluates workplace hazards and determines the need for respiratory protection based on expected worker exposures and air sampling results. Workers and supervisors should, however, identify additional processes or operations that may result in inhalation hazards to BE and request special hazard evaluations.

2.2. Respirator Selection Criteria. Since each brand of respirator is unique, the specific respirator identified on the AF Form 2772 is the only respirator that the individual is allowed to use for that particular task. There is no such thing as a "suitable substitute" for a respirator, and using a different make, model, cartridge, or size may endanger the worker's health.

2.3. Fit Testing:

2.3.1. No individual will be fit tested if it appears they have any hair on the face that interferes with a normal face-to-respirator seal. This includes beards, sideburns, mustache, goatees, stubble, or more than one day's facial hair growth. If the individual has a shaving waiver, they must bring

the waiver with them at the time of the fit test. If an acceptable fit factor is achieved, they are qualified to wear that respirator. If an acceptable fit can't be achieved, the respective commander will be advised and other options will be discussed.

2.3.2. Fit testing will be accomplished using quantitative protocols. The workplace supervisor will ensure that once the worker's medical evaluation has been completed that BE is contacted to schedule fit testing. BE will NOT schedule or fit test without having a copy of the worker's AF Form 422, **Physical Profile Serial Report** in-hand showing that the individual has been medically cleared for fit testing.

2.3.3. BE performs respirator fit testing after the respirator user has been medically cleared and properly trained. Since there are differences among approved respirators and one type may be more acceptable to a worker than another, BE maintains a selection of different respirator brands, models, and sizes. Once a worker has been satisfactorily fitted with a particular respirator, the brand, model, and size are documented on an AF Form 2772, and this combination is the only respirator that the individual is allowed to use for that particular task.

2.4. Training. Several types of training are done here at CAFB. The various types are described below:

2.4.1. Supervisor Training. BE provides initial training for all supervisors who are responsible for overseeing work activities for one or more persons who must wear respirators. This training will be repeated if the supervisor has a permanent change of station or becomes the supervisor of a different work place. It will be the supervisor's responsibility to arrange this training with BE. This training must be documented on the individual's AF Form 55 as "Supervisor's Initial Respiratory Protection Training".

2.4.2. Respirator Users' Training. BE provides initial and annual training for all respirator users on CAFB. This training has been tailored specifically for CAFB using the guidance in AFOSH Standard 48-137.

2.4.3. Emergency and Rescue Team Training. Teams that are established for the purpose of responding to emergencies or rescues, such as the fire department and EOD, shall be properly trained in the use of respirators. The CAFB Fire Department will provide this training annually. BE needs a copy of training documentation. The supervisor of the work-center requiring training is responsible for arranging the training with the Fire Department and for documenting it on the AF Form 55.

2.5. Written OIs will:

2.5.1. Address annual training requirements. A copy of the lesson plan used for training shall be included with the work center OI. Sample lesson plans are available and both electronic and hard copies can be obtained by contacting BE.

2.5.2. Explain the procedures for medical evaluation, training and fit-testing process and the locations of blank medical evaluation questionnaires within the work center. Give the location of the cartridge change-out log.

2.6. Inspection of Air Purifying Respirators. Individual respirator wearers will inspect the respirator every 30 days and/or immediately before each use, and after cleaning to ensure it is in proper working condition. As a minimum, this inspection will include inlet valve assemblies, tightness of connections,

abnormal wear or defects, and the proper installation of filters, canisters, or cartridges. Inspections shall be documented on the AF Form 1071 or electronic equivalent.

2.7. Medical Surveillance. 29 CFR 1910.134 authorizes the local physician to determine which health and physical conditions are pertinent and should consequently be addressed in the medical evaluation. The CAFB Occupational Health Working Group (OHWG) makes work area specific medical surveillance determinations based on exposures hazards. Respirator users' complete medical questionnaires and these documents are used to help determine individual medical surveillance requirements. Medical exams and pulmonary function tests will be given to respirator wearers as determined appropriate by the flight medicine physician. Individual responses on the questionnaires and OHWG exam recommendations are also used by the provider to make these decisions. Supervisors and workers are welcome to attend the OHWG meetings.

3. CAFB Task Specific Respiratory Protection Requirements. BE will determine appropriate respiratory protection to be worn while painting with isocyanates paints, spraying pesticides, fuel tank entries, abrasive blasting or sanding, and potential tuberculosis (TB) exposures IAW AFOSH Standard 48-137. CAFB policies for these operations are summarized as follows:

3.1. Isocyanate Hazards. The isocyanate components of polyurethane paints and foam-in-place products can be very hazardous. Thus, there are specific respiratory protection requirements when using these products. These requirements are outlined below:

3.1.1. Indoor Polyurethane Spray or Touch-up Painting: In accordance with HQ AF policy guidance, supplied air respirators will not be required automatically for spraying of isocyanate-containing paints. BE will determine respiratory protection for these operations based on process evaluation, measured exposure levels, and assigned protection factors (APF). Until BE is able to collect a representative number of air samples to indicate otherwise, personnel conducting these operations will wear air-supplied respirators equipped with back-up organic vapor and P100 cartridges along with coveralls and gloves. These back-up filters are required along with the air-supply to ensure personnel are protected in the case of mechanical failure, power outage, or a kink in the air hose. Personnel may wear hooded powered air-purifying respirators (PAPR) upon specific BE approval. These may be equipped with temperature regulators to decrease thermal stress.

3.1.2. Outdoor Polyurethane Touch-up Stenciling. Personnel shall wear air-purifying respirators equipped with organic vapor and P100 cartridges as a minimum until further air sampling may be accomplished to dictate otherwise. Personnel may opt to wear air-supplied respirators for thermal stress factors.

3.1.3. Polyurethane Brush or Roll-On Painting. Personnel shall wear air-purifying respirators equipped with organic vapor and P100 cartridges as a minimum until further air sampling may be accomplished to dictate otherwise. Personnel may opt to wear air-supplied respirators for thermal stress factors.

3.1.4. Foam-In-Place Operations. Personnel shall wear air-purifying respirators equipped with organic vapor and P100 cartridges as a minimum until further air sampling may be accomplished to dictate otherwise. Personnel may opt to wear air-supplied respirators for thermal stress factors.

3.2. Fuel tank/cell Entries. In accordance with AFOSH Standard 91-25, *Confined Spaces*, and T.O. 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*, personnel will wear air-supplied respirators when entering fuel tanks/cells for repairs, cleaning, or inspection. Back-up organic

vapor cartridges are required along with the air-supply to ensure personnel are protected in the case of mechanical failure, power outage, or a kink in the air hose.

3.3. Pesticide Applications. Personnel will wear half-face air-purifying respirators, as a minimum, equipped with appropriate pesticide pre-filters/P100 filters while mixing or applying pesticides.

3.4. Abrasive Blasting Operations. Personnel will wear NIOSH approved air-supplied hoods for abrasive blasting accomplished inside a blasting booth. The booth must be equipped with carbon monoxide detectors incorporating both audible and visible alarms for personnel accomplishing blasting operations.

3.5. Sanding Operations. As required by BE, personnel will wear, as a minimum, air-purifying respirators equipped with P100 filters while conducting sanding operations. Full - or half-face respirators will be work center and operation specific, as dictated by BE.

3.6. Tuberculosis (TB). A respiratory protection program, as described in AFOSH Standard 48-137, will be implemented to the extent required by OSHA. CAFB has been identified as a low-risk installation for TB infection (Reference MGI 48-16), and there is no active TB program at CAFB. There is however, always the potential for TB exposure in any patient-care facility and the requirements of AFOSH Standard 48-137, section 4.2.2.18. will be followed whenever patients with suspected or confirmed TB are treated.

3.7. Vision. When a respirator user must wear corrective lenses, safety glasses or goggles, a face shield, welding helmet, or other eye and face protective device, the item shall be fitted to provide good vision and shall be worn in such a manner as not to interfere with the seal of the respirator. Spectacle inserts for respirators will be purchased by the government using a prescription provided by the user. Spectacle inserts used for the MCU-2A/P (military gas mask) may not be worn with industrial use respirators. Wearing these inserts voids the respirator certification.

4. Program Evaluation:

4.1. BE will periodically conduct workplace respiratory protection program evaluations to ensure the written respiratory protection program is being properly implemented. These evaluations will be conducted in accordance with the guidelines in 29 CFR 1910.134, and AFOSH Standard 48-137. Evaluations may be unannounced, and findings may be briefed to unit commanders, the Occupational Health Working Group (OHWG), and the Wing Combined Safety Council as appropriate.

4.2. Workplace supervisors should conduct annual self-inspections of their Respiratory Protection Program to ensure that all requirements are being met. Self-inspections should include all of the requirements in this instruction as well as other applicable standards and should be documented.

5. Safety. Putting safety first, everyday, everywhere, every mission and balancing risk with operational necessity is one of the 437th Airlift Wing's primary goals. The proper use of respiratory protection and understanding and following this CAFB Instruction are critical to attaining this goal. Put safety first!

BROOKS L. BASH, Colonel, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFOSH STD 48-137, *Respiratory Protection Program*, 1 November 1998

AFOSH STD 91-25, *Confined Spaces*, 1 February 1998

AFOSH STD 91-501, *Air Force Consolidated Occupational Safety Standard*, 16 September 2002

AFOSH STD 48-8, *Controlling Exposures to Hazardous Materials*, 1 September 1997

AFOSH STD 161-21, *Hazard Communication*, 23 January 1989

OSHA 29 CFR 1910, *Occupational Safety and Health Standards:*

OSHA 29 CFR 1910.134, *Respiratory Protection Program*

OSHA 29 CFR 1926.1101, *Asbestos*

OSHA 29 CFR 1910.1025, *Lead*

OSHA 29 CFR 1910.1027, *Cadmium*

T.O. 42B5-1-2, 30 December 1987, Change 20 – 15 April 2002, *Use, Handling, and Maintenance Instructions— Storage-type Gas Cylinders*

T.O. 42B-1-22, 15 December 1970, Change 20 – 15 September 1998, *Quality Control of Compressed and Liquid Breathing Air*

T.O. 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*

Abbreviations and Acronyms

AFOSH—Air Force Occupational Safety and Health

APF—Assigned Protection Factors

BEE—Bioenvironmental Engineer

BE—Bioenvironmental Engineering

CAFB—Charleston Air Force Base

CFR—Code of Federal Regulations

FHM—Force Health Management (formerly Physical Exams)

FPM—Physical Exam Section

HEPA—High Efficiency Particulate Air (also P100)

IDLH—Immediately Dangerous to Life and Health

MDI—Medical Group Instruction

NIOSH—National Institute for Occupational Safety and Health

OI—Operating Instruction

OHWG—Occupational Health Working Group

OSHA—Occupational Safety and Health Administration

PAPR—Powered Air-purifying Respirators

PLHCP—Physician or Other Licensed Health Care Professional

RPP—Respiratory Protection Program

SCBA—Self Contained Breathing Apparatus

TO—Technical Order

TB—Tuberculosis

Terms

Shall—Indicates a mandatory requirement

Must—Indicates a mandatory requirement

Will—Indicates a mandatory requirement, which expresses a declaration of intent, probability or determination

Should—Indicates a preferred method of accomplishment

Air-purifying respirator—A respirator which removes contaminants from the ambient air via filters and/or cartridges

Approved respirator—An approved device designed to provide the wearer with respiratory protection against inhalation of harmful atmospheres. Also, the following conditions shall be met:

--The respirator shall be tested and listed by the National Institute for Occupational Safety and Health (NIOSH).

--If a tight-fitting respirator is used, the respirator shall have a design that allows the user to perform positive and negative pressure tests and for BE to conduct fit tests.

Atmosphere supplying respirator—A respirator which provides air from a source other than the surrounding atmosphere

Employer—A commander, director, or functional manager

Supervisor—The supervisor(s), or individual(s) appointed by the supervisor(s), that oversee(s) individuals wearing respiratory protection

Facial hair—Any hair on the face of an individual which interferes with a normal face-to-respirator seal. This includes beards, sideburns, mustache, goatees, stubble, or more than one day's facial hair growth.

Filtering face piece device—A respirator which has a face piece made entirely of filtering or adsorbing materials. These are not considered respirators by AFOSH and they do not have changeable filters or cartridges. This device does not have an inhalation valve, and it may or may not have an exhalation valve.

High efficiency particulate air (HEPA) filter—A filter which is 99.7% percent efficient for particles with an aerodynamic diameter of 0.3 micrometers (also known as P100)

Medical clearance—Two part process for medically certifying personnel for respirator use. It includes medical evaluation and clearance. Accomplished prior to fit testing.

Quantitative fit-test—A fit test that uses an instrument to measure the challenge agent inside and outside the respirator.

Touch-up painting—Minor operations that normally do not exceed five minutes of spray time per hour. (Additional information can be found in T.O. 42A-1-1, para 3-1c). This does not include:

--Brush application (due to the low potential for aerosolization and volatilization)

--Use of highly toxic materials. (Use of these materials may warrant special consideration by BE. Examples include polyurethane/isocyanates, carcinogens, and chromates)

--Enclosed workspace painting. (This may require special evaluation by BE. Examples include wheel-wells and engine intakes)

--Aircraft touch-up operations.

Attachment 2**RESPIRATORY PROTECTION PROGRAM BE LESSON PLAN**

This lesson plan is provided to work centers on the Respiratory Protection Program as a general guide to meet training requirements for this program.

It should be used to supplement training provided annually by BE and attached to the work center Respiratory Protection Operating Instruction.

Direct any questions to Bioenvironmental Engineering @ 3-6289 or 3-4704

Permissible Practice

- The primary means to control occupational diseases caused by breathing contaminated air is through the use of feasible engineering controls, such as enclosures, confinement of operations, ventilation, or substitution of less toxic materials
- When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used
- The Air Force shall provide respirators, when necessary, which are applicable and suitable for the purpose intended
- The work center shall be responsible for establishment and maintenance of a respirator program which includes the requirements of AFOSH Std 48-137 *Respiratory Protection Program* and 29 CFR 1910.134.

Respirator Program Element

- Workplace exposure monitoring and surveillance
- Selection criteria
- Medical evaluation/clearance
- Fit testing and training
- Written OIs
- Use, maintenance and care procedures
- Administrative procedures
- Guidelines for emergency use of respirators
- Program evaluation procedures

Respirator Program

- Must develop a written program with worksite-specific procedures when respirators are necessary or required by the employer
- Must update program as necessary to reflect changes in workplace conditions that affect respirator use
- Must designate a program administrator who is qualified by appropriate training or experience to administer or oversee the program and conduct the required program evaluations
- Must provide respirators, training, and medical evaluations at no cost to the employee
- Must establish and implement those elements of a written program necessary to ensure that employee is medically able to use the respirator and that it is cleaned, stored, and maintained so it does not present a health hazard to the user

Selection of Respirators

- Select a NIOSH-certified respirator that shall be used in compliance with the conditions of its certification
- Identify and evaluate the respiratory hazards in the workplace, including a reasonable estimate of employee exposures and identification of the contaminant's chemical state and physical form
- Where exposure cannot be identified or reasonably estimated, the atmosphere shall be considered IDLH
- Select respirators from a sufficient number of models and sizes so that the respirator is acceptable to, and correctly fits, the user

Category of Usage

- Respirators must be REQUIRED or RECOMMENDED by BE
- REQUIRED—Per a directive or because of air sampling results
- RECOMMENDED—Based on BE observation, sampling, surveys or as an interim measure until engineering controls are put into place

Elective-use Respirators

- Respirators worn just because someone feels like wearing them
- WILL NOT BE WORN IN AIR FORCE WORKPLACES!

Tight -Fitting Coverings**Loose-Fitting Coverings****Filtering Face piece (Dust Mask)****Use of Respirators****Face piece Seal Protection**

- Respirators with tight-fitting face pieces must not be worn by employees who have facial hair or any condition that interferes with the face-to-face piece seal or valve function
- Corrective glasses or goggles or other PPE must be worn in a manner that does not interfere with the face-to-face piece seal
- Employees wearing tight-fitting respirators must perform a user seal check each time they put on the respirator using the procedures in Appendix B-1 or equally effective manufacturer's procedures

Negative Pressure Respirator**Positive Pressure Respirator****Filter**

- A component used in respirators to remove solid or liquid aerosols from the inspired air. Also called air purifying element.

High Efficiency Particulate Air Filter (HEPA)**Canister or Cartridge, Identification of Filters, Cartridges, and Canisters Service Life****Air-Purifying Respirator (APR)**

- A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Atmosphere-Supplying Respirator

- A respirator that supplies the user with breathing air from a source independent of the ambient atmosphere
- Includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units

Supplied Air Respirator (SAR)

Classes of Atmosphere-Supplying Respirators

- Continuous Flow. Provides a continuous flow of breathing air to the respiratory inlet covering
- Demand. Admits breathing air to the face piece only when a negative pressure is created inside the face piece by inhalation
- Pressure Demand. Admits breathing air to the face piece when the positive pressure inside the face piece is reduced by inhalation. This provides a higher level of protection than Continuous Flow.

Immediately Dangerous to Life or Health (IDLH)

- Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used
- All oxygen-deficient atmospheres are considered IDLH
- Exception: BE may select *any* atmosphere-supplying respirator, provided they can demonstrate, under all foreseeable conditions, that oxygen levels in the work area can be maintained within the ranges specified in Table II (i.e., between 19.5% and a lower value that corresponds to an altitude-adjusted oxygen partial pressure equivalent to 16% oxygen at sea level)

Maintenance and Care

- Provide each user with a respirator that is clean, sanitary and in good working order
- Use procedures in AFOSH Std 48-137 or equivalent manufacturer's recommendations
- Clean and disinfect at the following intervals:
 - As often as necessary when issued for exclusive use
 - Before being worn by different individuals when issued to more than one employee
 - After each use for emergency respirators and those used in fit testing and training

Breathing Air Quality and Use

- Compressed breathing air must meet at least the requirements for Type 1 - Grade D breathing air described in ANSI/CGA G-7.1-1989:
 - Oxygen content (v/v) of 19.5 - 23.5%
 - Hydrocarbon (condensed) content of 5 milligrams per cubic meter (mg/m³) of air or less
 - CO content of 10 parts per million (ppm) or less
 - CO² content of 1,000 ppm or less
 - Lack of noticeable odor
- Compressors supplying breathing air to respirators must be equipped with suitable in-line air-purifying sorbent beds and filters that are maintained and replaced or refurbished per manufacturer's instructions
- For compressors not oil lubricated, CO levels in the breathing air must not exceed 10 ppm
- For oil-lubricated compressors, a high-temperature or CO alarm, or both, must be used to monitor CO levels

-If only high-temperature alarms are used, the air supply must be monitored at sufficient intervals to prevent CO levels from exceeding 10 ppm

--T.O. 42B-1-22

--T.O. 33K-1-100-1

Medical Evaluation Procedures

-BE must provide a medical evaluation questionnaire to determine employee's ability to use a respirator, before fit testing and use

-Must identify a PLHCP to perform medical evaluations using a medical questionnaire

-Medical evaluation must obtain the information requested by the questionnaire in Sections 1 and 2, Part A of App. C (29 CFR 1910.134)

-Follow-up medical examination is required for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of App. C or whose initial medical examination demonstrates the need for a follow-up medical examination

Physician or Other Licensed Health Care Professional (PLHCP)

Medical Evaluation Additional Medical Evaluations

-Annual review of medical status is required by BE but not by directives

-At a minimum, employer must provide additional medical evaluations if:

--Employee reports medical signs or symptoms related to the ability to use a respirator

-PLHCP, supervisor, or program administrator informs the employer that an employee needs to be reevaluated

-Information from the respirator program, including observations made during fit testing and program evaluation, indicates a need

-Change occurs in workplace conditions that may substantially increase the physiological burden on an employee

Training and Information

-Employees who are required to use respirators must be trained such that they can demonstrate knowledge of at least:

--Why the respirator is necessary and how improper fit, use, or maintenance can compromise its protective effect

-Limitations and capabilities of the respirator

-Effective use in emergency situations

-How to inspect, put on and remove, use and check the seals

-Maintenance and storage

-Recognition of medical signs and symptoms that may limit or prevent effective use

-General requirements of AFOSH Std 48-137 and 29 CFR 1910.134

--Training must be provided prior to use

--Retraining is required annually, and when:

----Changes in the workplace or type of respirator render previous training obsolete

- There are inadequacies in the employee's knowledge or use
- Any other situation arises in which retraining appears necessary
- Individual has PCSed within the last 12 months

User Seal Check

Fit Testing

- Employees using tight-fitting face piece respirators must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT):
 - Prior to initial use,
 - Whenever a different respirator face piece (size, style, model or make) is used, and
 - At least annually thereafter
 - Must conduct an additional fit test whenever the employee reports, or the employer or PLHCP makes visual observations of, changes in the employee's physical condition (e.g., facial scarring, dental changes, cosmetic surgery, or obvious change in body weight) that could affect respirator fit

Quantitative Fit Test (QNFT)

Fit Factor

Program Evaluation

- Must conduct evaluations of the workplace as necessary to ensure effective implementation of the program
- Must regularly consult employees required to use respirators to assess their views on program effectiveness and to identify and correct any problems
 - Factors to be assessed include, but are not limited to:
 - Respirator fit (including effect on workplace performance)
 - Appropriate selection
 - Proper use
 - Proper maintenance

Recordkeeping

- Records of medical evaluations must be retained and made available per 29 CFR 1910.1020
- A record of fit tests must be established and retained until the next fit test is administered
- The AFF 2772, Certificate of Respirator Fit Test or local BE equivalent must be maintained with the worker's
- AFF 55 and initial/annual training must be documented on the AFF 55s.
- A written copy of the work center OI must be provided to BE annually for review and approval.
- Written materials required to be retained must be made available upon request to affected employees and BE

Attachment 3**MDG RESPIRATORY PROTECTION PROGRAM OI**

BY ORDER OF THE OFFICE SYMBOL/WORKPLACE HERE OI 48-137

XXXX COMMANDER DATE

RESPIRATORY PROTECTION PROGRAM

PURPOSE: This OI establishes procedures and guidelines to be followed by personnel assigned to the _____ Squadron, _____ Section when using respiratory protection. This OI addresses situations or operations in which respirators are required, inspection, cleaning and storage procedures, the criteria used to identify when filters must be changed, training requirements, documentation and record keeping procedures, and fit-testing frequency.

1. RESPONSIBILITY: All personnel assigned to _____ will comply with this Operating Instruction. All supervisors will be responsible for enforcing the provisions herein. Newly assigned personnel will adhere to the guidelines in the OI in meeting the requirements within 30 days of being assigned to the work center.

2. REFERENCES:

2.1. AFOSH Std 48-137, *Respiratory Protection Program*, 1 November 1998

2.2. 29 CFR 1910.134, *Respiratory Protection*

2.3. CAFBI 48-137, *Respiratory Protection Program*

2.4. OSHA Expanded Standards (if applicable)

2.5. AFOSH Standard 48-8, *Controlling Exposures to Hazardous Materials*, 1 September 1997

2.6. Bioenvironmental Engineering (BEE), Industrial Hygiene Reports

3. PROCEDURES:

The use of respirators is required OR recommended during OPERATION

4. RESPIRATOR INSPECTION, CLEANING, STORAGE, AND MAINTENANCE: Inspection, cleaning, storage, and maintenance of respirators shall be accomplished as written in section 8 of AFOSH Std 48-137.

4.1. All respiratory protection used in the workplace will be inspected at least every 30 days by the workplace supervisor or their appointed representative. This shall be documented on the 1071 or equivalent inspection record. The user shall inspect the respirator immediately before each use to ensure that it is in proper working condition. After the respirator has been cleaned and sanitized it shall be inspected to determine if it is in proper working condition, needs replacement of parts, needs repairs, or should be discarded. Respirator inspection shall include all requirements listed in paragraph 8.3.2. of AFOSH Std 48-137.

4.2. Respirators shall be cleaned and sanitized at the end of each day in which the respirator is used. The respirators will be cleaned with warm soapy water. Each respirator shall be cleaned and sanitized before being worn by a different individual. Emergency use respirators shall be cleaned and sanitized after being used. Attachment 12 to AFOSH Std 48-137 provides a suggested procedure for cleaning and sanitizing.

4.3. Respirators shall be stored in a manner that will protect them from damaging chemical and physical agents such as vibration, shock, heat, and extreme moisture. Respirators are wrapped in a plastic bag and then stored in a cabinet. (OR HOWEVER THEY ARE STORED WITHIN YOUR SHOP)

4.4. Respirators shall be maintained in accordance with manufacturer guidance. Respirator parts will only be replaced with parts from the manufacturer of the respirator. This will ensure that the respirators maintain their National Institute for Occupational Safety and Health (NIOSH) certification.

4.5. P100 HEPA filters shall be changed when the wearer detects an increase in breathing resistance, detects irritant properties or after 8 hours of use, whichever occurs first. Chemical cartridges will be changed every _____ as directed by BE. All filters will also be changed when they are soiled with contaminant or other matter to ensure proper breathing capability.

5. MEDICAL QUALIFICATION: Standard Form 600, Medical Evaluation Questionnaire (Initial form for newly assigned personnel), will be completed and taken to Force Health Management where a medical physician will review it. Blank copies of these forms may be found _____. The physician will annotate the individual's AF Form 422 as to whether they are medically cleared for fit testing. After the AF Form 422 has been annotated, a copy is provided to BEE, who will then contact our workcenter to schedule personnel for fit testing and training. Fit testing CANNOT be accomplished without medical clearance. Force Health Management will file the questionnaire and the AF FORM 422 in the individual's medical records. BEE will provide a copy of the annotated AF FORM 422 to the

individual at the time of fit test.

6. TRAINING & RECORD KEEPING:

6.1. Training will be conducted by BEE personnel as outlined in section 2.5.4 of AFOSH Std 48-137 and section 2.6 of AFOSH Std 48-8. Personnel will be scheduled for respirator fit testing within 30 days of being assigned to the _____ section, and annually for the remainder of their time within this section. BEE personnel will conduct fit testing as part of the required annual training. Annual Occupational Health and Safety Training, to include respirator training, will be documented on the employees' AF form 55. BEE personnel will issue certificates of competency and sizing upon completion of the fit test. The AF Form 2772 certificate of fit-test or equivalent form issued to the respirator wearer will be maintained with the AF forms 55. The Training Monitor will track Respiratory Fit Training on CAMS (Core Automated Maintenance System). (OR HOWEVER IT IS TRACKED, THIS IS MANDATORY)

6.2. A filter change-out schedule log will be maintained to ensure filters are changed out at least after every 8 hours of use, as directed by BE. (BE will provide your sections specific change-out schedule for inclusion in this OI.) This log is located _____ and is available for BE review at any time.

6.3. Each section using positive pressure, "pump or breathing apparatus" in the performance of their duties will maintain an AF Form 1071 Inspection/Maintenance Record. The pressure or flow gauges will be calibrated as necessary by _____. This will be coordinated through the material control section of _____. (THIS MAY OR MAY NOT APPLY TO YOUR SECTION)

7. RESPIRATOR REQUIREMENTS:

7.1. All respirators shall be selected and maintained in accordance with AFOSH Std 48-137, CAFBI 48-137, and AFOSH Std 48-8.

7.2. Specific type and model of respirators and accessories to be used for _____ are as follows:

(EXAMPLE:)

Respirator: Bullard, 20T Series Tyvek QC Supplied Air Respirator Hood

Air hose: Bullard V10 Series 3/8" I.D. Hose

Air Entry System: Bullard V30 Series W/Quick disconnect

Air Pump: Bullard EDP30 Series Free Air Pump

Model:

Serial #:

Compressor Model:

7.3. Specific type and model of respirators and accessories to be used for
_____ are as follows:

(EXAMPLE:)

Respirator: MSA Standard Comfo II Half Face

Filter Type, P# 460968

Filter Cartridge: MSA Combination Cartridge Filter, P# 464029

JOHN P. SMITH, SMSgt, USAF

_____ Section Chief

Attachments:

BE Lesson Plan (contact BE for this attachment)

Reviewed and approved

RAYMOND A. LEWIS, 1st Lt, USAF, BSC

Industrial Hygiene Element Chief

Attachment 5

INTERIM GUIDANCE MEMORANDUM



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

24 June 1999

MEMORANDUM FOR	HQ ACC/SGOP	HQ AMC/SGPB	HQ AFMC/SGC
	HQ AFSPC/SGPB	HQ USAFE/SGPB	HQ PACAF/SGC
	HQ AFSOC/SGPB	ANGRC/SGPB	HQ AFRC/SGPB
	HQ USAFA/SGPB	11 MDG/SGOAB	HQ AETC/SGPB

FROM: AFMOA/SGOE
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Interim Guidance, Respiratory Protection Requirements During Spray Painting with Isocyanate-Containing Paints

This memo provides interim guidance on selection of respiratory protection for use during spray painting operations with isocyanate-containing paints. This guidance may be used instead of the requirements in AFOSH Std 48-137, *Respiratory Protection Program*, paragraph 4.2.2.12, pending incorporation of this guidance into the Standard.

Background:

a. The Institute for Environment, Safety and Occupational Health Risk Analysis, Industrial Hygiene Branch (IERA/RSHI) has done extensive workplace sampling and research which support a change to respiratory protection policy. Their Air Force workplace data show the mean worker exposures to 1,6-hexamethylene diisocyanate (HDI) monomer are less than one-tenth the American Conference of Governmental Industrial Hygienists (ACGIH[®]) Threshold Limit Value (TLV[®]) Time Weighted Average (TWA) of 34 micrograms per cubic meter (note: the ACGIH[®] TLV[®]-TWA reflects the HDI monomer fraction only, not the oligomer). When supported by air sampling results, appropriate selection of respiratory protection based on assigned protection factors (APFs), and a cartridge change-out schedule, exposure to the monomer (in the vapor) and the oligomer (in the aerosol) can be controlled effectively during spray painting operations by air-purifying respirators.

b. Advances in isocyanate air sampling technology have eliminated a major reason the Air Force historically defaulted to supplied-air respirators for polyurethane spray painting.

c. Additional background information is provided in the attached (Det 1 HSC/OEM) memo, "Respiratory Protection Requirements During Polyurethane Spray Painting Operations," 9 Sep 98.