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NAVSUPPACT NAPLES INSTRUCTION 5100.8

From: Commanding Officer, U.S. Naval Support Activity, Naples, Italy

Subj: RESPIRATORY PROTECTION PROGRAM

Ref: (a) 29 CFR 1910.134, Occupational Safety and Health Administration Respiratory Protection Standard
(b) OPNAVINST M-5100.23, Navy Safety and Occupational Health Manual
(c) NMCPHC Technical Manual NMCPHC-TM6290.91-2, Industrial Hygiene Field Operations Manual
(d) NMCPHC Technical Manual NMCPHC-TM OM 6260, Occupational Medical Surveillance Procedures Manual and Medical Matrix
(e) BUMED Notice 6110, Tracking and Reporting Individual Medical Readiness Data

Encl: (1) Respiratory Protection Program

1. Purpose. To establish a command Respiratory Protection Program, provide policy and requirements for the implementation of the program, and establish procedures on respiratory protection and prevention for U.S. Naval Support Activity (NSA), Naples, Italy personnel as required by references (a) and (b).

2. Scope. This command has made a commitment to establish and maintain a respiratory protection program for the protection of employees where respirators are used. This commitment covers a number of conditions: (1) as an interim measure until proper engineering controls can be installed; (2) where engineering controls are not feasible; (3) where emergency respirators are required; (4) where respiratory protection must be worn in addition to engineering controls.

3. Applicability. This instruction is applicable to military personnel, DoD civilian personnel, and Local National (LN) personnel who utilize respirators in the performance of their assigned duties on NSA Naples, Italy, installations per references (a) through (e).

4. Action. Compliance with this program is effective immediately.

5. Records Management

a. Records created as a result of this instruction, regardless of format or media, must be maintained and dispositioned per the records disposition schedules located on the Department of

the Navy Assistant for Administration, Directives and Records Management Division portal page at: https://portal.secnav.navy.mil/orgs/DUSNM/DONAA/DRM/Records-and-Information-Management/Approved%20Record%20Schedules/Forms/AllItems.aspx.

b. For questions concerning the management of records related to this instruction or the records disposition schedules, please contact the local records manager or the OPNAV Records Management Program (DNS-16).

6. Review and Effective Date. Per OPNAVINST 5215.17A, NSA Naples will review this instruction annually on the anniversary of its effective date to ensure applicability, currency, and consistency with Federal, Department of Defense, Secretary of the Navy, and Navy policy and statutory authority using OPNAV 5215/40 Review of Instruction. This instruction will be in effect for 10 years unless revised or cancelled in the interim and will be reissued by the 10-year anniversary date if it is still required, unless it meets one of the exceptions in OPNAVINST 5215.17A, paragraph 9. Otherwise, if the instruction is no longer required, it will be processed for cancellation as soon as the need for cancellation is known following the guidance in OPNAV Manual 5215.1 of May 2016.

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Respiratory Protection Program

1. Background.

a. The primary goal of the NSA Naples Respiratory Protection Program (RPP) is to provide a safe and healthful work environment in compliance with all Navy and Federal standards with respect to respirator operations. In order to protect employees from inhalation hazards produced during worksite operations, engineering controls will be used whenever possible to control air contaminants at their source of generation. This will be accomplished through a comprehensive and dynamic RPP that applies risk management and mitigation strategies in support of force preservation, optimization, and operational readiness.

b. The RPP will include written Standard Operating Procedures (SOPs) for hazard assessment, respirator selection and assignment, cartridge change out schedules, fit testing, medical surveillance, equipment cleaning, storage, inspection, maintenance, and program evaluation.

c. SOPs must be developed for the specific respiratory protection requirements of each workplace/shop. Workplace/shop SOPs will be posted in the work areas and will include applicable attachments which include a summary of the command respiratory protection program standard operating procedures, shop-specific details concerning respirator selection, maintenance and inspection procedures, breathing-air quality (if applicable), emergency use respirators, and respirator cartridge change out schedules. The appendices to this enclosure provide a go-by for the framework of a workplace/shop SOP.

2. Responsibilities

a. Safety is a measure of how invested we are in our mission and our shipmates. Leaders at every level must endeavor to ensure their personnel are consummate professionals in order to effectively and safely operate in all we do. Compliance with the references safeguards against complacency and deviant or risky behavior. Personal responsibility and accountability play a key role towards prevention of mishaps.

b. Commanding Officer (CO). The CO is responsible for establishing a Respiratory Protection Program and designating/appointing a qualified Respiratory Protection Program Manager (RPPM). Appendix B is a sample appointment letter as specified in reference (b), paragraph B1513.

c. RPPM. The RPPM must complete the requisite training course as specified in paragraph 1513 of reference (b).

(1) The responsibility for administration of this program resides with the RPPM.

(2) The specific duties of the RPPM include, but are not limited to:

(a) Select and recommend appropriate, approved respiratory protection based on industrial hygiene survey reports, references (a) through (c), and available literature. Additionally, ensure commands, units, and activities issue only respirators approved by the National Institute for Occupational Safety & Health (NIOSH), or jointly by NIOSH and Mine Safety Appliances (MSA) as specified in reference (b), paragraph B1513.

(b) Develop respirator cartridge change out schedules.

(c) Train personnel in proper use, limitations, and maintenance of respirators. Provide initial and annual respiratory protection training per reference (b), paragraph B1511, for all respirator users including emergency first responders, their supervisors, and personnel who issue and maintain respirators.

(d) Conduct respirator fit testing.

(e) Develop procedures for regular cleaning and inspection.

(f) Designate appropriate storage locations and procedures.

(g) Develop procedures for inventory control.

(h) Establish a medical surveillance program based on Bureau of Medicine (BUMED) industrial hygiene surveys and medical recommendations.

(i) Annual evaluation (audit) of the program by the RPPM and modification of the written respirator program and standard operating procedures per reference (b), paragraph B1515(a).(8). These responsibilities are further described in the enclosures of this instruction.

d. Supervisors. Supervisors must have a thorough understanding of every aspect of the command SOP and of chapter 15 of reference (b). They must ensure that:

(1) Respirators are properly worn and maintained by workplace/shop personnel.

(2) A copy of the command SOP is available in each workplace/shop office.

e. Respirator Issuers. Respirator issuers are responsible for issuing, inspecting, maintaining, and inventorying respirators. Additional information is provided throughout this instruction and in enclosures (1), (4), and (5).

f. Employees. Employees are responsible for inspecting their respirators and notifying the RPPM of any defects. Each employee must perform positive and negative user seal checks on tight fitting respirators before each use per Appendix A, Section I, paragraph 13. Employees must also maintain and store their respirators according to procedures established in this instruction. At a minimum employees must perform actions specified in this instruction.

g. Commander, Medical Treatment Facility (MTF). The local supporting BUMED command is required by reference (b) to provide the following services:

(1) Perform periodic industrial hygiene survey according to reference (b) paragraph B1503.a to identify the workplace hazards and recommend respiratory protection.

(2) Provide the RPPM with a written evaluation of the effectiveness of the respirator program at the time of the periodic industrial survey.

(3) Medically evaluate personnel identified to wearing respiratory protection.

3. Respiratory Protection Program Elements

a. Respirator Selection

(1) Respirator selection is based on the hazards to which the employees are exposed, as determined by annual industrial hygiene surveys. Respirators are selected by the RPPM using the guidelines in Appendix C and reference (b) Table 15-1.

(2) Only respirators jointly approved by the NIOSH or NIOSH and Mine Safety and Health Administration (MSHA) will be worn.

b. Cleaning, Disinfecting, Issuing, and Inventory Control. Procedures for cleaning, disinfecting, issuing and inventorying respirators are in Appendix D.

c. Inspection, Repair and Storage

(1) Inspection. Respirator inspections will be conducted by the respirator issuer as they disassemble respirators for cleaning. Detailed procedures for inspecting half mask, full-face piece, gas mask, airline, self-contained breathing apparatus, and hooded respirators are provided in Appendix E. These procedures will be included in individual worksite SOPs, as appropriate. Employees must inspect their respirators prior to donning them. They are also responsible for ensuring that cartridges are inserted correctly into the respirator (e.g., not cross- threaded). Defective or dirty respirators must not be used.

(2) Repair. The RPPM must ensure that respirator issuers are trained to perform respirator repairs. Respirator issuers will make no attempt to replace components or make adjustments beyond the recommendations of the manufacturer. Reducing or admission valves, alarms, and regulators must be returned to the manufacturer or to a factory certified, trained technician for adjustment or repair.

(3) Storage. Each employee will store their respirator in a clean plastic bag in their locker. Storage in tool boxes is prohibited. Respirators will be laid flat in a natural position, and will be protected from sunlight, chemicals or excessive temperatures. Emergency respirators will be stored in the shop location specified in the shop's SOP, see Appendix A, Section D.

(4) Emergency Respirators. Emergency respirators will be cleaned and inspected after each use according to the manufacturer's instructions, see Appendix A, Section E. Emergency respirators will be inspected monthly and a written record, Appendix A, Section D, will be maintained with the respirator.

d. Compressed Breathing Air Requirements. Sources of compressed breathing air for atmosphere supplying respirators will be tested quarterly to ensure that air quality meets the minimum grade D requirements of the Compressed Gas Association Commodity Specification for Air, Pamphlet G-7.1-2004. Test results must be provided to the Safety Office. Records of such air quality monitoring must be maintained for five years as required by reference (b) paragraph B1505 (b).

(1) The Fire Department, equipped with breathing air compressors, is tasked with conducting quarterly tests on a representative sample of the breathing air. The selected samples are then sent to a certified company for analysis and verification of air quality compliance. Results of these tests will be recorded in Appendix A, Section F, for each shop using breathing air compressors and must be sent to the RPPM.

(2) The Fire Department is responsible for recording the breathing air test results and ensuring that the air compressors' carbon dioxide alarm systems, high temperature alarms, sorbent beds and filters are maintained and inspected before each use; carbon dioxide monitor and alarm systems are calibrated per manufacturer’s recommendations; and that the inspection results are recorded on Appendix A, Section G. The Fire Department can be reached by telephone 624-5172. Current copies of Appendix A, Sections F and G will be kept at the applicable workplace/shop office.

e. Medical Evaluation. The MTF, Occupational Health Department, will make all decisions regarding the medical evaluation and determination of the employees' physiological and psychological ability to wear a respirator according to the protocols for respirator users (Medical Matrix Program 716) in reference (d).

(1) Each individual must be medically qualified by the MTF Occupational Health Department before initial fit testing.

(2) For civilians, shop supervisors will complete the top portion of the medical clearance form, Appendix A, Section H, and shop personnel will hand carry the form with them to their respirator medical evaluation at the MTF. Upon completion of the medical evaluation, attending medical treatment personnel will complete the medical clearance form, and shop personnel will hand carry the form back to the shop supervisor, who places the data into the Enterprise Safety and Management System (ESAMS).

(3) The RPPM will ensure the correct recording of the medical clearance information on the employees' record, Appendix F.

(4) Military personnel, who have been confirmed as “fit for full duty” and having a current annual periodic health assessment, are deemed medically qualified for use of all types of

respirators. The phrase “fit for full duty” is interpreted as having no deployment-limiting conditions. This is consistent with a “fully or partially medically ready status” of the individual medical readiness classification described in reference (e). Military personnel will provide written documentation of "fit for full duty" status prior to training and fit-testing and will not be trained or fit-tested without this documentation. The RPPM will ensure the correct recording of the medical clearance information in the employees' record, Appendix F. Questionable cases will be referred to the MTF for a Respirator User Certification Exam (Medical Matrix Program 716).

f. Training. Respirator training requirements are specified in Appendix G. Shop SOPs for training are in Appendix A, Section I. All training must be entered into ESAMS’s individual training record prior to fit testing.

g. Fit Testing. Fit testing procedures must be performed as stated in Appendix H. Fit test operator training and evaluation will be conducted according to Appendix H, paragraph 5.

h. Workplace Surveillance and Program Evaluation

(1) Workplace Surveillance. Personal air samples must be collected to determine eight hour time weighted average exposures and short term exposures. Air sampling is performed by BUMED industrial hygienists. Air sampling results will be made known to the employees within five days after they are received by this command.

(a) Shop supervisors will immediately contact the cognizant BUMED industrial hygienist when there are any changes in operations. The industrial hygienist will reevaluate the process and collect additional air samples if necessary.

(b) Shop supervisors will immediately notify the cognizant BUMED industrial hygienist when ventilation systems are installed or changes to the systems implemented. The industrial hygienist will evaluate the system and reevaluate the requirements for respiratory protection.

(2) Program Evaluation. The RPPM will:

(a) Conduct an annual audit of the respirator program per reference (b), paragraph B1513.a.(8). Appendix I is provided as guidance.

(b) Conduct periodic random, inspections of work areas where respirators are worn to ensure that the correct respirators are being used, that they are being worn properly, and that they are in good working condition. The RPPM will maintain a record of inspection dates and findings using Appendix J and ensure that copies are provided to the appropriate shop supervisors.

(c) The RPPM must act immediately to correct all faults found in the program and/or procedures.

i. Record Keeping. The program manager will document the medical clearance, training, and fit testing, to include the type of respirator, brand name and model, method of fit test, test results, test date, and person performing the fit test in ESAMS (Appendix F). Completed Medical Clearance Forms, Appendix A, Section H, and printouts from quantitative fit testing must be attached to Appendix F. Employees will be issued a card, Appendix K, indicating which model and size respirator(s) they are qualified to wear. This card must be presented at the time of respirator issue. Employees will immediately report lost or stolen cards to the RPPM so that a replacement can be issued.

j. Facial Hair, Contact Lenses, and Voluntary Use of Respirators

(1) Facial hair. Per paragraph 5.a.(1)(b) of reference (c), no respiratory protection equipment, except positive pressure supplied-air hoods, or loose fitting powered air purifying respirators where appropriate, will be worn by personnel when conditions such as beards, sideburns, etc., may prevent a good face seal.

(2) Contact Lenses, Corrective Eye Glasses, and Spectacle Kits. Wearing contact lenses in contaminated atmospheres with respiratory protection is permitted as long as eye and face protection is worn as appropriate for workers exposed to eye injury hazards. If wearing corrective eye glasses with half mask respirators, lenses must meet the American National Standards Institute (ANSI) Standard Z87.1 requirements. Corrective eye glasses must not interfere with the fit of half mask respirators. Spectacle kits will be provided for personnel needing vision correction who are required to wear full face respirators. If work processes require full face respirators with impact protection, check with the respirator manufacturer to ensure respirator lenses comply with ANSI Z87.1 impact testing requirements.

(3) Voluntary use of Respirators. Per paragraph B1503(g) and page 20 of the glossary in reference (b), the Command RPPM may issue NIOSH approved filtering face piece respirators for voluntary use. Voluntary respirator use is defined as personnel choosing to wear respirators when they are not required to control exposures or when respirators are not required by this command. Voluntary use respirators can be issued without fit testing and medical examination. Issue of these respirators must be under the control of the RPPM. Voluntary respirator users will be trained annually on the limitations stated on the respirator approval label and the information contained in appendix D of 29 CFR 1910.134, Appendix L. The RPPM must ensure these respirators are not dirty or contaminated and that they do not interfere with working safely. All other respirator usage requires enrollment in the complete respirator program. NIOSH approved respirators must be selected appropriately for the perceived inhalation hazard.

k. Respirator Cartridge Change-out Schedules. Reference (a) no longer allows reliance on odor thresholds and other warning properties as the sole basis for determining that an air-purifying respirator will afford adequate protection against exposure to gas and vapor contaminants. When available, respirator cartridges with end-of-service-life-indicators (ESLI) must be worn. The ESLI must be visible either on the cartridge from eye level or ESLI cartridges must be worn on plenum respirators that are attached to the belt for visibility. Reference (a) requires change out schedules for chemical cartridges be based on objective information or data that will ensure that cartridges are changed before the end of their service

life. The preamble to reference (a) states that the basis for cartridge change out schedules should ideally be based on tests of breakthrough studies that are conducted under worst-case conditions of contaminant concentration, humidity, temperature and breathing rate. SOPs for establishing, verifying, and implementing respirator cartridge change out schedules are in Appendix M. Chemical cartridge air-purifying respirators may be used (up to their maximum use concentration) for protection against substances without good warning properties, as long as a cartridge change out schedule is developed and implemented.

Respiratory Protection Program Appendices

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Appendix A

Worksite/shop Standard Operating Procedures

The Worksite/shop Standard Operating Procedure is composed of ten sections:

Appendix A

Section A - Respirator Standard Operating Procedure (SOP)

Workplace/shop number/name

1. Type of respirators were chosen as protection against contaminant during the type of operation. Rationale for selecting the respirators used in this operation is in Appendix A, Section B.

2. The respiratory protection program manager (RPPM) will conduct inspections of this shop to ensure that the correct respirators are being used; that they are being worn properly; and that they are in good working condition. The RPPM's written record of inspection dates and findings must be maintained with the shop standard operating procedure.

3. Before wearing respirators, all shop number/name personnel must be medically qualified, fit tested, and trained. It is the responsibility of shop number/name personnel to notify the respiratory protection program manager of any of the changes listed below or other circumstances that might interfere with the facial seal of the respirator:

a. Weight change of 20 lbs

b. Facial scarring in area of face seal

c. Any dental changes

d. Any reconstructive surgery or cosmetic surgery

4. Each employee is responsible for properly wearing and maintaining their respirator. Respirator maintenance procedures are in Appendix A, Section C.

5. If airline respirators are used, refer to the shop's records (Appendix A, Sections F and G) to ensure that grade D breathing air quality and compressor integrity have been maintained.

6. The RPPM is RPPM name. The RPPM is located in building number and can be reached by phone at telephone number, or email at email address.

Appendix A

Section B - Respirator Selection Criteria

Workplace/shop number/name

1. Air sampling has revealed contaminant concentrations of number times the number (mg/m3 or ppm) Navy Occupational Exposure Limit (OEL) during the type of operation.

2. Name of contaminant causes biological effect. The physical and chemical properties of contaminant include incompatibilities with names of incompatible chemicals.

3. This particular hazard will be corrected by implementing appropriate engineering controls, which will include an exhaust ventilation system. As an interim measure until the system can be installed, respiratory protective equipment will be used. If engineering controls are not feasible during this operation, respiratory protective equipment will be used.

4. For less than immediately dangerous to life and health or non-oxygen deficient atmospheres, the minimum protection factor needed will be calculated by the hazard ratio. This is determined by dividing the time-weighted average (TWA) exposure concentration, which is TWA concentration of contaminant by the OEL for the contaminant value of the OEL. For contaminants with a ceiling or short term limit, divide the contaminant concentration by the ceiling or short term limit. The required protection factor is value of protection factor.

5. Respirators approved by either National Institute for Occupational Safety & Health (NIOSH) or NIOSH/ Mine Safety and Health Administration must be used. Class of respirators were selected based on their assigned protection factor of number as set forth in Table 9-1 of reference (c). This will provide protection up to number times the permissible exposure level. Name of manufacturer and/or name of manufacturer respirators were selected based on successful employee fit testing. The respirators available to employees for the type of operation are as follows:

a. Name of manufacturer, Type of respirator, TC - number, model number (Small)/(Medium)/(Large). Example: ACME Company, N95 respirator, TC-84A - 1099, model 7706N95 (Medium).

Appendix A

Section C - Respirator Maintenance

Workplace/shop number/name

1. General

a. Respirator inspection is performed by the respirator issuer in building number while disassembling the respirators for cleaning. The respirator issuer is name and can be contacted at phone number, respectively. The RPPM is located in building number and can be reached by phone at telephone number, or email at email address.

b. Each employee is responsible for inspecting their respirator and notifying the respirator issuer of any defects. Each employee must perform positive and negative user seal checks on tight fitting respirators before each use. Respirators which user seal checks (Appendix A, Section I) cannot be performed must not be worn.

c. Respirators will be returned to the respirator issuer in building number for cleaning and disinfecting according to the schedule indicated by the following code number: number.

(1) Code numbers: 1 = Daily; 2 = Weekly; 3 = Monthly; 4 = Other

2. Inspection. Respirators used in this shop will be inspected as follows: insert procedure(s), as appropriate, from Appendix E.

3. Storage

a. Each employee will store their respirator in a clean plastic zip-lock bag in their locker. Storage in tool boxes is prohibited. The respirator will be laid flat in a natural position, and will be protected from sunlight, chemicals, or excessive temperatures. Emergency respirators will be stored in the shop location specified in Appendix A, Section D.

b. Employees must present a valid Respirator Qualification Card (Appendix K) when requesting issue of a respirator.

Appendix A

Section D - Emergency Use Respirators Inspection Record

Workplace/shop number/name

Name of manufacturer Type of respirator, TC - number, model number

The emergency respirator will be stored location of emergency respirator.

Date	Inspection Findings	Repairs/ Comments	Inspector's Signature

Appendix A

Section E - Emergency Use Respirators Manufacturer's Inspection Instructions

Workplace/shop number/name

Name of manufacturer Type of respirator, TC - number, model number

(Attach manufacturer's inspection instructions here or staple to this page)

Appendix A

Section F - Results of Quarterly Air Quality Testing of Breathing Air Compressor

Compressor Model:_____ Date:_____

Serial No:_____

COMPONENT ANALYZED	SPECIFICATION	RESULTS
Oxygen	19.5 - 23.05 %	%
Carbon Dioxide	1000 PPM Max	ppm
Carbon Monoxide	10 ppm Max	ppm
Oil 5	mg/m3	mg/m3
Water Vapor	18 mg/m3 (24 ppm v/v)	mg/m3 or ppm

*Or moisture content corresponding to the dew point at 1 atm that is at least 100 F lower than the temperature in which the respirator will be worn (see note 3 to Table 1 and Table 3 of CGA G-7.1-2004)

Odor Not Objectionable

This is to certify that the above referenced sample DOES / DOES NOT meet the Grade D air purity standards for compressed breathing air per CGA G-7.1-1997.

Sample Taken By:_____

Next Sample Due on:_____

Results of Quarterly Air Quality Testing of Breathing-Air Compressors Tracker

Workplace/shop number/name

Date	Passed/Failed Grade D Air	Air Line Pressure Measured at Respirator	Signature

Appendix A

Section G - Inspection of Breathing-Air Compressors: Carbon Monoxide Monitor, Carbon Monoxide, and High Temperature Alarms, Filters, Desiccant & Sorbent Beds

Workplace/shop number/name

Date	CO/High Temp. Alarm Operational? Calibration?	CO Monitor Reading	Condition of Air Purifiers	Air Purifiers Changed (date)	Signature

Appendix A

Section H - Medical Clearance for Respiratory Protection

Workplace/shop number/name

Note: Combine this page with Appendix F to provide a complete respirator history record.

Employee:_____ EDIPI:_____ Position:_____
Supervisor:_____ Phone: _____ Code:____ Department:_____

1. Circle the type of respirator(s) to be used:

   Air-Supplied (tight fitting) Air Purifying/Powered (tight fitting)
   Air Supplied (hooded) Air Purifying/Powered (hooded)
   Open-Circuit SCBA Air Purifying/Non-Powered

2. Filtering face piece or elastomeric: (circle one)

   Closed-circuit SCBA N, R, P95, 99, 100

3. Type of chemical cartridge: (circle one)

   Combination Airline SCBA

4. Work effort: (circle one)

   Light Moderate Heavy Strenuous

5. Extent of usage: (circle one)

   On a daily basis
   Occasionally - but more than once a week
   Rarely - or for emergency situations only

6. Length of average work day in respirator:

7. Special work conditions: (i.e., confined spaces, high places, temperature/humidity extremes, hazardous materials, other protective clothing worn, climbing, etc.)

_____
_____
_____
_____
_____

8. Medical written evaluation: (circle one)

No restrictions on the respirators circled above
Respirator use with some restrictions
No respirator use allowed
Alternate respirator recommended

9. Comments/restrictions:

_____
_____
_____
_____
_____

under 35 35-45 over 45

10. Routine follow-up medical evaluation required: 5 yrs 2 yrs 1 yr

Or due to medical findings return: _____

11. Date:_____ employee has been given a copy of this recommendation.

12. Healthcare professional's signature:_____ Date:_____

Sections 133, 1071-87, 3012, 5031, and 8012, Title 10 USC & Exec. Order 9397 (Privacy Act of 1974) Apply

Appendix A

Section I - Respirator Training

Workplace/shop number/name

1. Respirators are required to be worn because the contaminant concentration in the work area is above the occupational exposure limit (OEL).

2. Contaminant causes biological effect.

3. Respirators are only an interim measure until proper ventilation can be installed to capture the contaminant at the source of generation. If engineering controls are not feasible during this operation, respiratory protective equipment will be used.

4. Contaminant concentration is number to number times the OEL and the respirators were chosen because they provide a protection factor that is number times the OEL.

5. Limitations of different respirators:

a. Air-purifying respirators do not provide protection against oxygen deficiency and cannot be worn when there is less than 19.5% oxygen in the air.

b. Air-purifying respirators cannot be used in immediately dangerous to life and health (IDLH) atmospheres.

c. Particulate filters remove particles in the air.

(1) N series filter respirators cannot be worn in oil aerosol atmospheres. R series filter respirators can be worn eight hours in oil aerosol atmospheres. P series filter respirators can be worn in oil aerosol atmospheres up to a time limit set by the respirator manufacturer.

(2) Particulate filters cannot remove gas and vapor contaminants.

d. Chemical cartridges remove gases and vapors but will not remove particulates.

(1) Chemical cartridges have a maximum use concentration that is calculated by multiplying the OEL by the assigned protection of the respirator or set by the respirator manufacturer.

e. Airline respirator hoses are limited to a maximum hose length of 300 feet but not all airline respirators have been approved for 300 feet of hose.

(1) Airline respirators are not approved for IDLH atmospheres. Loss of the breathing air source eliminates any protection to the respirator wearer.

f. SCBAs are limited by service time of the air cylinder and weight of the unit.

6. Explain how to don the respirator, how to maintain and inspect the respirator, and how to perform positive and negative pressure user seal checks according to Appendix A, Section I.

7. Filters must be changed when increased breathing difficulty is first experienced and chemical cartridges must be changed according to the cartridge change out schedule.

a. Explain chemical cartridge change out schedule and breakthrough (smelling the vapor/gas of concern inside the respirator).

b. Give any odor characteristics that may help employees identify when breakthrough occurs (e.g., isoamyl acetate smells like bananas; hydrogen sulfide smells like rotten eggs, etc.).

c. Change your cartridge time interval. Chemical cartridges must be changed if breakthrough is experienced before scheduled change out time.

8. Inform employees what to do in emergency situations.

9. Explain shop-specific respirator problems concerning:

a. Communications

b. Vision

c. Use in excessive heat or cold

d. IDLH and oxygen deficient atmospheres

e. Confined spaces

10. Explain command policies concerning:

a. Medical evaluation

b. Facial hair

c. Contact lenses

d. Issue of voluntary use respirators

11. Emergency rescue teams and all personnel required to enter IDLH atmospheres will receive training in the use of the emergency respirators by the manufacturer's technical representatives.

a. The gas free engineer will teach these individuals emergency IDLH atmosphere entry procedures and provide emergency practice scenarios.

12. Breathing air from closed-circuit escape only respirators can be very hot and dry. The temperature allowed by National Institute for Occupational Safety and Health for ten minute escape devices is 135o F. Breathing this air will be uncomfortable but is a small tradeoff for escaping from an IDLH atmosphere.

13. User Seal Checks. The user must check the seal of the respirator by using positive and negative pressure user seal checks every time a respirator is donned. These pressure checks are not substitutes for quantitative or qualitative fit tests. It is essential to adequately train respirator users to perform these checks. User seal checks should be done according to the manufacturer's recommendations, or by using the following procedures:

a. Negative pressure user seal check

(1) The inlet opening of the respirator's canister(s), cartridge(s), or filter(s) is closed off by covering with the palm of the hand(s) or by squeezing a breathing tube or blocking its inlet so that it will not allow the passage of air.

(2) The wearer is instructed to inhale gently and hold their breath for at least 10 seconds.

(3) If the face piece collapses slightly and no inward leakage of air is detected, the respirator has been properly donned and the face piece is not leaking.

b. Positive pressure user seal check

(1) The exhalation valve or breathing tube, or both, is closed off and the wearer is instructed to exhale gently.

(2) If a slight positive pressure can be built up inside the face piece (e.g., face piece bulges slightly outward) without detecting any outward leakage of air between the sealing surface of the face piece and the wearer's face, the respirator has been properly donned.

(3) For some respirators, this test method requires that the respirator wearer to first remove the exhalation valve cover from the respirator, and then replace it after completion of the test. These tasks are often difficult to carry out without disturbing the fit of the respirator. OSHA states in the preamble to reference (a) that there are respirators that user seal checks cannot be performed and that these respirators cannot be used to control exposure.

Appendix A

Section J - Respirator Cartridge Change Out Schedule Worksheet

Operation:_____ Location:_____
Respirator Model:_____ Cartridge:_____

Chemical	Exposure Limit	Concentration	Boiling Point*

*Chemicals with boiling points less than 65o C (149o F) may be desorbed from sorbent during periods of non-use.

Operation Parameters:

Frequency per week:_____ Duration of respirator wear:_____
Estimated work rate: [ ] Light [ ] Moderate [ ] Heavy

Environmental Hazard:

Highest temperature:_____ Highest humidity:_____

CALCULATE BREAKTHROUGH TIME OF COMPONENTS BASED ON THEIR PROPORTION OF THE MIXTURE				
Mixture Component	$UTL_{95\%, 95\%}$ Concentration (ppm)	Mole Fraction[1]	Cartridge Service Life Calculator Estimated Breakthrough Time for Single Component (Hours)	Breakthrough Time of Components Based on Mixture (Hours)
		0.0		0
		0.0		0
		0.0		0
		0.0		0
		0.0		0
		0.0		0
Total ppm	0			

[1]Mole Fraction = ppm contaminant / total ppm of the mixture components Change Out Schedule including safety factor of ten percent:
[ ] Every____ hours [ ] After each shift [ ] Weekly [ ] Other (specify):_____

Appendix B

Respiratory Protection Program Manager Appointment Letter

From: Commanding Officer, (Name of Command)
To: Name of Appointee

Subj: RESPIRATORY PROTECTION PROGRAM MANAGER APPOINTMENT OR CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR RESPIRATORY PROTECTION PROGRAM MANAGER APPOINTMENT

Ref: (a) OPNAVINST M-5100.23, Navy Safety and Occupational Health Manual
(b) 29 CFR 1910.134, Respiratory Protection
(c) NAVSUPPACTNAPLESINST 5100.8, Respiratory Protection Program

1. As required by reference (a), you are appointed as the Respiratory Protection Program Manager (RPPM) for this command.

2. You will be familiar with all of the requirements of the references and ensure their implementation. Duties include, but are not limited to, respirator selection, cartridge change out schedules, respirator purchase, personnel training and fit testing, respirator program oversight and evaluation, and maintenance/revision of command instructions and standard operating procedures for respiratory protection.

3. Chemical, biological, radiological, and nuclear RPPM variation. In addition to your responsibility for administering the industrial respirator program, you also have cognizance over the respirator program for first responders to chemical, biological, radiological, and nuclear (CBRN) incidents. The CBRN Respirator Program requires additional program requirements for respirator selection, respirator use and limitations, respirator inspection, cleaning and decontamination, respirator training, fit testing, program evaluation, and respirator cartridge change out schedules. You must ensure that all of the prerequisite requirements for wearing respiratory protection including medical evaluation, respirator selection, fit testing, and training is completed for the command's first responders prior to responding to a CBRN incident. You are allowed to have as many assistants as necessary to implement this respirator program.

4. This appointment remains effective until your detachment or reassignment.

Commanding Officer

_____
Name of appointee

Appendix C

Respirator Selection Criteria

1. The Assigned Protection Factors in Table 15-1 of reference (b) must be used for selecting respirators for protection against hazardous substances and oxygen deficient atmospheres and for providing the necessary criteria to support this selection. Respirators will be National Institute for Occupational Safety and Health (NIOSH) or NIOSH/Mine Safety and Health Administration approved. Respirator selection for specific types of hazards adheres to the following criteria:

2. Fire brigades must use NIOSH approved full face pressure demand self-contained breathing apparatus (SCBA) that meets NFPA 1981 requirements rated for at least 30 minutes.

3. Respirators used for entry into and escape from oxygen deficient or immediately dangerous to life and health (IDLH) atmospheres must be full face pressure demand SCBAs or combination full face pressure demand airline respirators with auxiliary SCBA.

4. For less than IDLH or non-oxygen deficient atmospheres, the minimum protection factor needed will be determined by the hazard ratio, which is calculated by dividing the time-weighted average exposure concentration by the occupational exposure limit for the contaminant. For contaminants with a ceiling or short term limit, divide the contaminant concentration by the ceiling or short term limit.

a. Select the appropriate class of particulate, gas/vapor, or combination particulate and gas/vapor respirator in Table 9-1 of reference (c). Make sure that the assigned protection factor is greater than the calculated hazard ratio.

b. Airline respirators or cartridges with end-of-service-life indicators must be used for gas/vapor contaminants. The end-of-service-life indicators must be visible to the respirator wearer. Alternatively, a chemical cartridge change schedule out must be established according to Appendix M.

c. Chemical cartridge/canister air-purifying respirators may be used (up to their maximum use concentration) for protection against gas and vapor contaminants, including substances without good warning properties, including isocyanates, if a cartridge change out schedule is developed and implemented.

5. Special considerations must be made for escape only respirators such as the distance to the nearest area with breathable air.

6. Respirators are selected on the basis of the hazards to which the employees are exposed, as determined by the BUMED industrial hygiene surveys. Documentation for shop specific respirator selection is provided in Appendix A, Section B.

7. Follow reference (b), Chapter 26, paragraph B2607, for CBRN respirator selection.

Appendix D

Respirator Maintenance

1. It is imperative commands select and recommend appropriate, approved respiratory protection based on industrial hygiene survey reports, references (a) through (c), and available literature. RPPMs will ensure commands, units, and activities issue only respirators approved by National Institute for Occupational Safety & Health (NIOSH), or jointly by NIOSH and MSA as specified in reference (b), paragraph B1513.

2. General Information

a. Cleaning, disinfecting, drying, issuing, and inventory of respirators will be conducted in building number. The respirator issuer is responsible for disassembling, cleaning, disinfecting, and reassembling all respirators. The respirator issuer will retain respirator manufacturer user manuals and inspect, clean, disinfect, store, maintain, and repair respirators per manufacturers' instructions.

b. All respirators are cleaned and disinfected according to the following coded schedule:

1 = Daily 2 = Weekly 3 = Monthly 4 = Other_____

c. Cleaning codes are specified in each shop standard operating procedure (Appendix A, Section C).

3. Emergency Respirators

a. Emergency respirators will be cleaned and inspected after each use. Emergency respirators will be inspected monthly and a written record (Appendix A, Section D) will be maintained with the respirator. The manufacturer's instructions for cleaning, disinfecting, and inspecting emergency respirators (Appendix A, Section E) will be followed. Also inspect emergency use respirators for proper function before and after each use. Examining emergency respirator performance before and after each use is not intended to be as extensive and thorough a process as the monthly inspection. This is a basic examination conducted prior to each use to assure the wearer that the respirator which they are about to don in an emergency situation will work properly (e.g., that the cylinders on the self-contained breathing apparatus are charged, that air is available and flowing).

4. Disassembling Half Mask and Full Face Respirators

a. Remove filter and filter housing; discard filters.

b. Remove both inhalation valves.

c. Remove exhalation valve and exhalation valve guard.

d. Remove elastic straps and set aside for separate cleaning.

Note: Some manufacturers recommend immersion of head straps along with the face piece.

5. Cleaning

a. Use warm soap and water solution, not to exceed 110°F.

b. Immerse all parts, excluding straps, in the solution.

c. Remove all dirt and grime.

d. Rinse in warm water, not to exceed 110°F, to remove all soap residue.

6. Disinfecting

a. Use a 72 ppm hypochlorite ion (OCl^-) solution by mixing 2 ml 5.25% bleach per liter of water, or by mixing 2 teaspoons 5.25% bleach per gallon of water.

b. Immerse all parts, excluding straps, in the solution for two minutes.

c. Wipe straps, using a cloth dampened in the disinfectant solution.

d. Rinse all parts, excluding straps, in warm water (not to exceed 110F) to remove disinfecting solution.

Note: Some manufacturers recommend immersion of head straps along with the face piece.

7. Drying

a. Place parts in the drying unit at a temperature not exceeding 110°F, or let respirators air dry for several hours.

b. Place respirators such that there is no distortion of the rubber and other elastomeric parts.

c. Reassemble the respirator when parts are completely dry, or ensure respirators are dry by wiping with a clean, dry lint-free towel or cloth.

8. Issuing and Inventory Control

a. The respirator issuer is designated to issue respirators and is responsible for inventory control. The respirator issuer must be trained and thoroughly knowledgeable in the following areas:

(1) Respirator selection for each shop listed in Appendix A, Section B

(2) Respirator cleaning, disinfection, and storage

(3) Respirator inspection Appendix E

(4) Respirator inventory

b. Shop personnel will present their respirator qualification card (Appendix K) to the respirator issuer when requesting respirators.

c. Respirator issuers will ensure that:

(1) The correct brand and type of air purifying cartridge is issued with the respirator (i.e., North organic vapor cartridges are issued with North respirators).

(2) Cartridges are free of dents and cracks.

(3) Cartridge shelf life has not expired.

Appendix E

Respirator Inspection Procedures

1. Half Mask

a. Name of manufacturer Type of respirator, TC 84A-number, model number (Small) (Medium) (Large)

(1) Visually inspect face piece for cracks, deformities, tears, dirt, and any modifications.

(2) Inspect straps. Straps must be elastic, pliable, and not frayed. Straps must have points of attachment for the face piece. No modifications are allowed.

(3.) Inspect inhalation and exhalation valves for tears, cracks, distortion, and foreign materials (e.g., hair, lint, or dirt). Make sure valves lay flat on valve assembly. Assure that exhalation valve cover is in place and not cracked or broken.

(4) Inspect cartridges, cartridge holders, O-rings, threads, etc.

2. Full Face

a. Name of manufacturer Type of respirator, TC 84A-number, model number (Small) (Medium) (Large)

(1) Ensure that the lens is not scratched, cracked, or broken.

(2) Ensure that the lens is completely sealed.

(3) Ensure the area where the lens holder comes in contact with rubber is not cut or torn.

(4) If the respirator has a speaking diaphragm, ensure that it is in place and not punctured. Also, ensure the gasket is in the proper position/place.

(5) Straps must be elastic, pliable, and not frayed. Straps must have points of attachment for the face piece. No modifications are allowed.

(6) Make sure all the clips are present and the straps are attached securely to the mask.

(7) Ensure that the inhalation and exhalation valves are present and in good working order.

3. Gas Masks, Airline Respirators, and Self-Contained Breathing Apparatuses

a. General

(1) Ensure that the lens is not scratched, cracked, or broken.

(2) Ensure that the lens is completely sealed.

(3) Ensure the area where the lens holder comes in contact with rubber is not cut or torn.

(4) If the respirator has a speaking diaphragm, ensure that it is in place and not punctured. Ensure the gasket is in the proper position/place.

(5) Straps must be elastic, pliable, and not frayed. Straps must have points of attachment for the face piece. No modifications are allowed.

(6) Make sure all the clips are present and the straps are attached securely to the mask.

(7) Ensure that the valves are present and in good working order.

4. Airline Respirators

a. Name of manufacturer Type of respirator, TC 19C-number, model number (Small) (Medium) (Large)

(1) Ensure that the correct airline hose is used with supplied-air respirators.

(2) Ensure airline connections are correct.

(3) Check hose integrity for cuts, deterioration, tears, etc.

5. Self-Contained Breathing Apparatus (SCBA)

a. Name of manufacturer Type of respirator, TC 13F-number, model number (Small) (Medium) (Large)

*Follow manufacturer's recommended inspection procedures (Appendix A, Section E).

(1) The technician, who is trained and certified by the SCBA manufacturer, will use the Biosystems PosiChek3 equipped with software from the SCBA manufacturer to test SCBA per NFPA 1852, and SCBA manufacturer’s requirements.

(2) The qualified technicians will perform DOT hydrostatic test dates, and other related air cylinder maintenance, according to NFPA 1404, NFPA 1500, and SCBA manufacturer’s requirements.

6. Corrugated Breathing Tube

a. General

(1) Stretch out the corrugated breathing tube.

(2) Inspect for cuts and abrasions.

(3) Ensure there are no pin holes in the corrugations.

7. Gas Masks

a. Name of manufacturer Type of respirator , TC 14G-number, model number (Small) (Medium) (Large)

(1) Make sure that all required clamps are present.

(2) Ensure gaskets are present in both ends of the breathing tube.

(3) Check for cuts, gouges, and scratches on the threads.

(4) Make sure that the canister is approved and that the shelf life has not expired.

(5) Ensure that the back- and front-mounted canisters have a harness assembly.

(6) Ensure that the inhalation and exhalation valves are present and in good working order.

8. Respirator Inspection Procedures Hoods

a. Name of manufacturer Type of respirator, TC 19C-number, model number (Small) (Medium) (Large)

(1) Examine the hood and its shroud for rips, tears, and seam integrity.

(2) For abrasive blasting hoods (TC 19CE-number), examine the integrity of the protective headgear and the suspension inside the headgear.

(3) Examine the protective face shield for cracks, breaks, or impaired vision.

(4) Abrasive blasting hoods must have a cape or a shroud that is not ripped or torn.

(5) Ensure the buckles or snaps on the cape or shroud are present and in good working condition.

(6) Ensure the collar is present under the shroud. It must fit tight around the neck by either a drawstring or an elastic collar.

(a) The collar must be in good working condition with no tears or rips.

(b) Inspect belts and hoses for tears or deterioration.

(c) Check airline connections and valves.

Appendix F

Respirator Training, Fit Testing, and Medical Clearance Record

Employee:_____ EDIPI:_____ Shop:_____

Medical Clearance

Date	Clearance for Respirator Type	Restrictions

Fit Testing

Date	Respirator Make, Model, Size	Fit Test Method	Fit Test Operator	Pass/Fail/ Fit Factor

Training

Date	Type of Training	Instructor

Appendix G

Training

1. Respirator training is required to ensure everyone required to wear a respirator is properly informed of respiratory hazards, and the possible consequences resulting from not wearing their respirator. Training includes the reason for wearing a particular type of respirator; the capabilities and limitations of the respirator; the method of donning the respirator and checking its operation; methods of respirator maintenance; and recognizing and dealing with emergency situations.

2. Responsibility

a. The Respiratory Protection Program Manager (RPPM), appointed by the Commanding Officer, will establish a Standard Operating Procedure (SOP) for all aspects of the training and the fit testing process.

b. The RPPM will ensure all training and fit testing is done according to this SOP. The RPPM is responsible for maintaining and repairing all fit testing equipment.

3. Training

a. The RPPM will ensure employees required to wear respirators, their supervisors, and respirator issuers receive at least one hour of initial training developed specifically for using and maintaining the respirators selected for their shop operation(s). In addition, annual refresher training is required. Personnel who are required to wear respirators must be trained prior to initial fit testing.

b. Respirator wearers must receive the training specified in the shop specific respirator training (Appendix A, Section I) which includes:

(1) Why respirators are required, including specific workplace hazards and respirator selection for their shop.

(2) Status of engineering controls.

(3) Respirator capabilities and limitations.

(4) How to don the respirator and perform positive and negative user seal checks and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.

(5) Respirator cleaning, disinfection, and storage procedures.

(6) Respirator inspection.

(7) Respirator issue.

(8) Breathing air quality, inspection and maintenance (if atmosphere-supplying respirators are used in the shop).

(9) When to change filters (if air-purifying respirators are used in the shop).

(10) Location of the shop respirator SOP in the workplace.

(11) What to do in emergency situations.

(12) Shop specific respirator problems, including communications, vision, use in excessive heat or cold, immediately dangerous to life and health (IDLH) and oxygen deficient atmospheres, and confined spaces.

(13) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

(14) Wearing contact lenses in contaminated atmospheres with respiratory protection is permitted as long as eye and face protection is worn as appropriate for workers exposed to eye injury hazards.

(15) Use of emergency respirators for emergency rescue teams and for all personnel required to enter IDLH or oxygen deficient atmospheres. The gas free engineer will provide training on emergency IDLH atmosphere entry procedures and provide practice emergency scenarios.

c. Inform employees that Chapter 15 of OPNAVINST 5100.23 Series is the U.S. Navy regulation for respirator use, and inform them of general requirements. Also inform employees that a copy of Chapter 15 and of the Command Respirator SOP are located in each shop office.

Appendix H

Fit Testing

1. Employee Selection of Respirators

a. Each individual must be medically qualified and have Appendix A, Section H completed before initial fit testing.

b. Employees will be instructed how to don respirators and perform positive and negative pressure user seal checks prior to respirator selection. Employees will wear the respirator at least five minutes prior to fit testing to assess comfort.

c. When safety glasses or goggles must be worn with half mask respirators the respirator will be fit tested while wearing the eye-ware. All other required personal protective equipment will be worn with the respirator during fit testing procedures.

d. The following respirators will be provided for employees to select the best fitting and most comfortable respirator:

(1) Name of manufacturer Type of respirator, TC-number, model number (Small) (Medium) (Large)

(2) Name of manufacturer Type of respirator, TC-number, model number (Small) (Medium) (Large)

(3) Name of manufacturer Type of respirator, TC-number, model number (Small) (Medium) (Large)

2. Qualitative Fit Testing Protocol

a. Qualitative fit testing will be performed according to Appendix A of 29 CFR 9110.134.

b. If an employee cannot pass the threshold test for isoamyl acetate, then the irritant smoke fit testing protocol will be used.

c. Organic vapor cartridges will be used for the isoamyl acetate fit testing procedure.

d. HEPA filter cartridges (N, R, or P 100) will be used for the irritant smoke fit testing procedure.

3. Quantitative Fit Testing Protocol

a. Full face air-purifying respirators are allowed to be worn in contaminated atmospheres up to 50 times the occupational exposure limit (OEL). Full face, negative pressure, air purifying respirators must be quantitatively fit tested to be worn in atmospheres between 10 and 50 times

the OEL (minimum passing fit factor for full face respirators is 500). Either the controlled negative pressure Dynatec Fit Tester 3000; or the Portacount® condensation nuclei counter; or the TDA-99M (JSMLT) forward light scattering photometer will be used for fit testing. The fit tests will be performed as recommended by the manufacturer's instruction manual and per the quantitative fit test protocols in Appendix A of reference (a). Half mask respirators may be quantitatively fit tested at the discretion of the RPPM.

b. HEPA (N, R, or P 100) filters will be used for quantitative fit testing with the Portacount® and the TDA-99M (JSMLT). Filter cartridges are replaced with leak-tight test adapters when fit testing with the Fit Tester 3000 to seal the normal air pathways into the respirator.

(1) The passing criteria for full face respirators is a fit factor of 500.

(2) The passing criteria for half mask respirators is a fit factor of 100.

4. Fit Testing Frequency

a. Employees wearing respirators will be fit tested initially and annually. The RPPM will ensure employee fit testing is recorded on Appendix F. Employees will not be fit tested unless they have been medically evaluated.

b. Fit testing will also be performed when the employee has experienced:

(1) weight change of 20 pounds or more

(2) facial scarring or facial jewelry in area of face seal

(3) any dental changes

(4) any reconstructive surgery or cosmetic surgery

c. It is the employee's responsibility to notify their supervisor and the RPPM of any of the above changes or other circumstances that might interfere with the facial seal of the respirator.

d. Personnel with facial hair that could interfere with face seal or valve function will not be fit tested because the length and condition of facial hair changes daily and would necessitate daily fit testing.

5. Qualifications for Fit Test Operators

a. The RPPM is responsible for ensuring fit test operators are properly trained and possess the necessary skills for performing fit testing, per ANSI Z88.10. The RPPM can either train fit test operators in-house, or send them to commercially available training courses. The RPPM will use the Fit Test Operator Evaluation Form, paragraph 6, modified from Annex A of ANSI Z88.10, to evaluate and verify fit test operators' qualifications. Fit test operators must demonstrate mastery of the fit test procedures in Appendix A of reference (a) along with being

proficient in the appropriate sections of the Command Respiratory Protection Instruction concerning respirator fit testing, inspection, cleaning, and storage. Fit test operators will receive training and demonstrate proficiency in the following areas:

(1) Respiratory protective devices used in activity workplaces:

(a) Respirator components and their function

(b) Respirator inspection, cleaning and maintenance

(c) Brands and models of respirators worn

(d) Respirator capabilities and limitations

(e) Proper donning/doffing procedures along with positive and negative pressure user seal checks

(2). Fit Test methods:

(a) Purpose of fit testing (be able to explain the fit test purpose and procedures to personnel being fit tested)

(b) Fit testing procedures

(c) Limitations of the test methods (e.g., sensitivity tests and subjective responses of qualitative methods)

(d) Fit test results

(e) Proper respirator cleaning and sanitizing

(f) Proper cartridges/filters for each fit test method used

(g) Probes or fit test adapters used in quantitative fit testing

(h) Qualitative fit test materials

(i) Quantitative fit test equipment, including assembly and operational checks

(j) Understand when not to perform fit testing based on facial characteristics, features, jewelry, or other problems, such as facial hair, that would interfere with the face piece sealing surface

(k) Evaluating and recording fit test results

6. Fit Test Operator Evaluation Form

Name of fit test operator evaluated:_____
Date: _____ Fit test method:_____
Evaluated by (Respiratory Protection Program Manager): _____

Demonstration of knowledge and performance	**Acceptable**	**Not Acceptable**
Demonstrates knowledge of respirators to be fit tested:		
– Respirator components and their function.	□	□
– Respirator inspection, cleaning, and maintenance.	□	□
– Different make, model, style, & size respirators.	□	□
– Respirator capabilities and limitations as related to respirator fit testing.	□	□
– Proper donning and doffing procedures including user seal checks.	□	□
Demonstrates knowledge of the fit test method:		
– Purpose of respirator fit testing.	□	□
– Fit test procedures.	□	□
– Limitations of the fit test method.	□	□
– Questionable fit test results.	□	□
– Health and safety hazards associated with the chemicals and equipment used in the fit test.	□	□
Demonstrates ability to set up fit test equipment:		
– Selection of proper cartridges or filters for the fit test method.	□	□
– Preparation of required equipment and materials.	□	□
– Performance of operational checks.	□	□
– Proper installation of probes or fit test adapters used in quantitative fit test methods.	□	□
Demonstrates the ability to conduct the respirator fit test:		
– When to refuse to conduct a fit test.	□	□
– Explanation of fit test purpose and procedures to person being fit tested.	□	□
– Observation and evaluation of unassisted donning procedure.	□	□
– Observation that user seal checks are performed according to manufacturer's recommended procedures.	□	□
– Observes the person being fit tested throughout the entire fit test procedure to ensure it is conducted correctly.	□	□
– Conducts the fit test method according to Appendix A of 29 CFR 1910.134.	□	□
– Properly interprets and records results.	□	□
– Performs respirator cleaning, sanitizing, or disposal.	□	□
- Identifies likely causes of fit test failure.	□	□

Appendix I

Respiratory Protection Program Audit

1. In addition to the checklist in this enclosure, the RPPM audit includes examination of respirators in the workplace. The RPPM performs a complete inspection of all workplaces where respirators are worn to ensure proper respirator use.

2. Besides the annual audit, the RPPM performs frequent, random inspections to assure that respirators are properly selected, used, cleaned, and maintained. The RPPM must keep records of these ongoing surveillance findings.

3. In addition to workplace inspections, the RPPM performs an annual audit of all records associated with the respirator program including respirator training, medical evaluation, fit testing, cartridge change out schedules, monthly inspection of emergency respirators, and compressor inspection and maintenance including testing for Graded D air quality. Included in this audit is a review of the periodic Bureau of Medicine and Surgery (BUMED) Industrial Hygiene Surveys which contain the written records documenting hazard assessment and the logic on which respirator selection is based. All problems identified during the RPPM audits and the periodic BUMED program evaluations must be corrected as soon as possible.

4. Checklist for Respiratory Protection Program Manager Audit

PROGRAM ELEMENT		YES	NO	N/A
PROGRAM ADMINISTRATION:				
A.	**Is a Respiratory Protection Program Manager (RPPM) appointed in writing by the commanding officer or officer in charge?** Section 1513.a. of OPNAVINST 5100.23 Series			
B.	**Does the RPPM maintain a roster of individuals that require respiratory protection?** Section 1503.d. of OPNAVINST 5100.23 Series			
C.	**Are there written standard operating procedures (SOPs) governing all aspects of the respirator program, including worksite SOPs posted in the general area?** Section 1513.a.(2) of OPNAVINST 5100.23 Series			
D.	**Do SOPs include emergency and rescue guidance, as necessary?** Section 1513.a.(2) of OPNAVINST 5100.23 Series			
E.	**Do SOPs include cartridge change out schedules as appropriate?** Section 1513.a.(2) of OPNAVINST 5100.23 Series			
F.	**Is there an annual audit performed by the RPPM?** Section 1513.a.(8) of OPNAVINST 5100.23 Series			
G.	**Does the cognizant BUMED industrial hygiene office provide review/ evaluation of the respirator program according to the periodicity specified in Appendix 8-B?** Section 1513.b.(2)(a) of OPNAVINST 5100.23 Series			
SPECIAL PROBLEMS:				
A.	**Are personnel not allowed to wear tight fitting respirators with any personal protective equipment or condition that interferes with the face piece seal or exhalation valve, including facial hair?** Section 1503.e. of OPNAVINST 5100.23 Series			
B.	**Are provisions made for respirator use in hot or cold environments, such as use of nose cups to control lens fogging and reduce physiological stress, special gaskets that retain elasticity at low temperatures, and use of vortex tubes for heating or cooling?** Annexes 11 and 12 of ANSI Z88.2			
C.	**Does vision correction not interfere with the respirator seal?** Clause 7.5 of ANSI Z88.2			
D.	**Are contact lenses allowed to be worn with respirators?** Clause 7.5.3.3 of ANSI Z88.2 **Note: Suitable eye/face protection must be provided for all workers exposed to eye injury hazards, regardless of contact lens wear.**			
E.	**Have personnel practiced with and demonstrated that they can successfully wear contact lenses with respirators?** Clause 7.5.3.3 of ANSI Z88.2			

VOLUNTARY USE RESPIRATORS:				
A.	**Are voluntary use respirators only issued where there is no risk of over exposure?** Glossary and Section 1503.g. of OPNAVINST 5100.23 Series			
B.	**Are only NIOSH approved filtering face pieces issued for voluntary use?** Glossary and Section 1503.g. of OPNAVINST 5100.23 Series			
C.	**Are personnel who are issued voluntary use respirators other than filtering face pieces enrolled in the complete respirator program?** Section 1503.g.(2) and Glossary of OPNAVINST 5100.23 Series			
RESPIRATOR USE:				
A.	**Are engineering controls being used to control workplace exposure?** Section 1501.b. of OPNAVINST 5100.23 Series			
B.	**Do contractors provide their own respirators and respirator programs for their employees?** Section 1502.b.(1) of OPNAVINST 5100.23 Series			
C.	**Are all Navy employees, such as employees, inspectors, and visitors, who must enter an area requiring respirators provided with appropriate respiratory protection, medical evaluation, fit testing, and training?** Section 1503. of OPNAVINST 5100.23 Series			

Appendix J

Respiratory Protection Program Site Evaluation

Workplace/shop number/name

Date	Inspection Findings	Comments	Signature

Appendix K

Respirator Qualification Card

Name of Command

RESPIRATOR QUALIFICATION

photo

_____

Name

Shop _____ ID Number _____

Expiration date _____

Type of Respirator _____ _____ _____

_____ _____ _____

Brand of Respirator _____ _____ _____

Model # _____ _____ _____

Size

Appendix L

Sec. 1910.134 (Mandatory), Appendix D, Information for Employees Using Respirators When Not Required Under the Standard

1. Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly, or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards even if the amount of hazardous substance does not exceed the limits set by Occupational Safety and Health Act standards. If the employer provides respirators for voluntary use, it is stressed to take certain precautions to be sure that the respirator itself does not present a hazard.

2. Respirators users will do the following:

a. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.

b. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. The label will identify what the respirator is designed for and how much it will protect the user.

c. Do not wear the respirator into atmospheres containing contaminants for which the respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect against gases, vapors, or very small solid particles of fumes or smoke.

d. Keep track of the respirator to ensure the correct respirator is used and not another employee's respirator by mistake.

Appendix M

Respirator Cartridge Change Out Schedules

1. A copy of Appendix A, Section J, will be filled out by the command RPPM for every operation requiring a respirator cartridge change out schedule to ensure cartridges are changed before breakthrough occurs.

2. Establishing cartridge change out schedules for gas and vapor contaminants will require concerted efforts between RPPMs and MTF industrial hygienists. The RPPM will provide a copy of Appendix A, Section J, to local MTF industrial hygienists to help with the collection of information needed to calculate cartridge change out schedules. The command RPPM will make arrangements with the local MTF Industrial Hygiene Office to:

a. Provide respiratory hazard exposure data in both mg/m^3 and in parts per million.

b. Calculate threshold limit values for mixtures when appropriate.

c. Provide environmental data concerning workplace temperature, humidity, and worker breathing rate.

d. Provide the boiling points of the chemicals of concern. Chemicals with boiling points less than 65°C (149°F) may be desorbed from cartridge sorbent material during periods of non-use or be replaced by chemicals with higher boiling points.

e. Verify cartridge change out schedules by collecting air samples behind the cartridges using air sampling methods supported by the Consolidated Industrial Hygiene Laboratories.

3. When command employees wear air-purifying respirators for protection against multiple contaminants follow the following guidelines for establishing change out schedules:

a. Calculate the mole fraction of each mixture component in the workplace environment.

b. Mole fraction is calculated by dividing concentrations of each mixture component in parts per million (ppm) by total ppm of the mixture.

c. Look up the cartridge service life calculator estimated breakthrough time for each mixture component on the respirator manufacturers' service life software.

d. Multiply mole fraction of each mixture component by its estimated breakthrough time to calculate breakthrough time based on each component's proportion in the mixture.

e. Base change out schedule on the shortest mixture component breakthrough time. Incorporate a safety factor, by establishing a change out schedule that is at least 10% less than the shortest mixture component breakthrough time.

4. These calculations are performed automatically using the built-in spread sheet capabilities of the table in Appendix A, Section J, entitled "Calculate Breakthrough Time Of Components Based On Their Proportion Of The Mixture." First, on computer, make a copy of this worksheet table and use a new copy for each breakthrough calculation. Fill in the "UTL95%, 95% Concentration" and the "Cartridge Service Life Calculator Estimated Breakthrough Time for Single Component." Next, block the "UTL95%, 95% Concentration" column and press F9. This action calculates the total parts per million. Next, block the whole table, then press F9 to complete the mole fraction calculations and breakthrough time calculations.

5. To verify the estimated change out schedules in the field, make arrangements with local MTF industrial hygienists to collect air samples behind the respirator cartridges using a Portacount® mask sampling adapter (Figure 1). These samples must be collected in the same environment where respirator use is required. The air sampling methods supported by the Consolidated Industrial Hygiene Laboratories are sensitive enough to detect concentrations at 25% of the occupational exposure limits (OELs) of the mixture components. Air samples will be collected on sorbent tubes behind the cartridges at the highest flow rate allowed by Industrial Hygiene Sampling Guide For Consolidated Industrial Hygiene Laboratories, latest revision. This permits relatively quick collection of the lowest sample volume, allowed by the Sampling Guide, for laboratory analysis results that can be reported in concentrations down to the limit of detection. Most air samples can be collected behind cartridges in five to ten minutes. Workers will be instructed to take a break for five to ten minutes while wearing the respirator in the worksite during air sample collection so breathing rate will not interfere with collection of the sample. The workers' normal breathing will not adversely influence detection of breakthrough. By the time of air sample collection, all of the varying air contaminant concentrations, varying temperature and humidity, and varying breathing rates throughout the day have already had their influence on respirator cartridge breakthrough. In other words, workers breathing normally right before cartridge change out time would not significantly influence breakthrough - breakthrough would have either already occurred or not occurred.

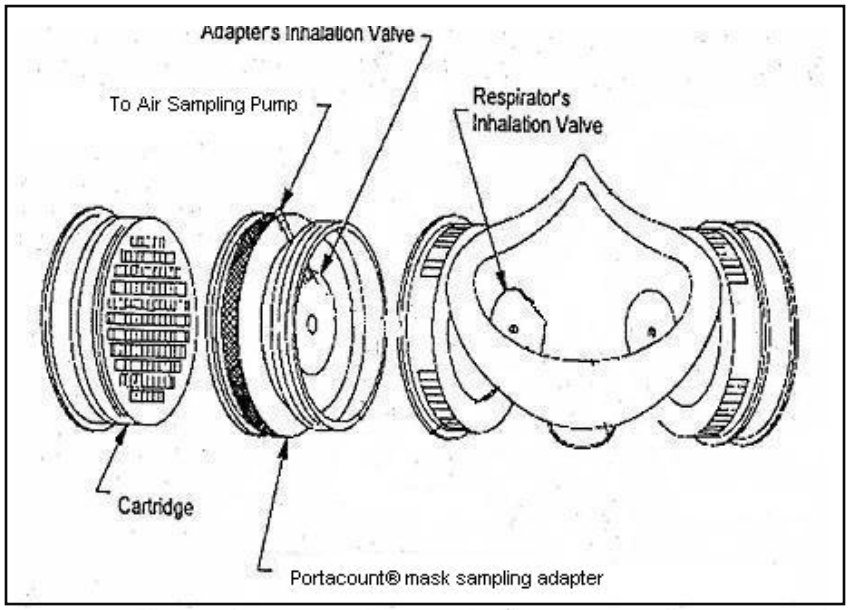

Figure 1

6. The local MTF industrial hygienist will install the Portacount® mask sampling adapter between the respirator face piece and the cartridge. Next, the IH will detach the "Sample Tube" along with the "Suction Cup" and "Clip" and attach tubing to the outside fitting of the Portacount® mask sampling adapter (Figure 1). Then, the IH will close off the end of this tubing with a heavy wire paper clip to prevent contaminated air from entering. The worker will then don the respirator.

7. When back in the workplace, the clip is removed and the sampling device is attached to the end of this tubing. In this arrangement, the air sample will be collected in the chamber between the inhalation valve of the Portacount® mask sampling adapter and the inhalation valve of the face piece. If there are no chemical contaminants detected in the samples then significant breakthrough (<25% OELs) has not occurred and the change out schedule is confirmed. Change cartridges according to the estimated (now verified) change out schedule.