Respiratory Protection

1. Purpose

The purpose of this policy is to prevent occupational respiratory illness by protecting employees from potentially harmful exposure to airborne contaminants.

This policy will also provide guidance and information for the selection, fitting, safe use, training, and maintenance of respiratory protection equipment.

2. Scope

This policy applies to all USPL employees who are required to wear a respirator to perform routine duties or during emergency activities. It also applies to employees who may voluntarily request a respirator at their own discretion.

3. Minimum Requirements

	Minimum Requirements	Supporting Documentation
1.	Respiratory protection shall be worn whenever airborne contaminant concentrations exceed exposure limits.	Section 6 and Appendix I & III
2.	Prior to using any respirator, employees shall receive initial training and annual training thereafter, on the hazards of airborne contaminants they may be exposed to and the proper use and care of respirators including donning and respirator limitations.	Section 7
3.	Employees who will use respirators shall be evaluated and approved for respirator use by local USPL approved medical providers. In addition, they shall receive an annual medical evaluation thereafter.	Section 6.5.
4.	Prior to the required use of any tight-fitting face-piece respirator, employees shall have successfully completed a valid fit-test for the particular face-piece to be used.	Section6.6 and Appendix V
5.	Users shall inspect, maintain, clean, disinfect, and store reusable respirators according to the manufacturer's recommendations and the requirements of this policy.	Sections 6.7 and 6.8
6.	USPL employees are not permitted to enter an atmosphere determined to be Immediately Dangerous to Life or Health (IDLH) except for gauging crude tanks and assessing spills.	Section 6.2.

4. Definitions

Air-purifying respirator (APR)—A respirator with a filter, cartridge or canister that removes specific air contaminants by passing air through an air-purifying or filtering element

Assigned protection factor (APF)—The level of respiratory protection that a respirator or class of respirators is expected to provide when an effective respiratory protection program is implemented. The protection factor for an air-purifying, half-mask respirator is 10. Therefore, it provides adequate protection up to 10 times the exposure limit.

Supplied-Air Respirator (SAR)—A respirator that supplies the user with clean breathing air from a source independent of the ambient atmosphere. This includes air line respirators and self-contained breathing apparatus (SCBA) units.

Canister or cartridge—A container with a filter, sorbent, catalyst, or combination of these items which removes specific contaminants from the air passed through the container.

Emergency situation—Any occurrence (such as, but not limited to; equipment failure, rupture of containers, or failure of control equipment), that may or does result in an uncontrolled significant release of airborne contaminants.

Employee exposure—Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection

Escape-only respirator—A respirator intended to be used only for emergency exit from a contaminated environment. .

Facial hair —A beard, mustache, sideburns, low hairline, or stubble growth that is more than 24 hours old and interferes with the sealing surface of the respirator's face-piece.

Filtering face-piece (dust mask)—A negative-pressure particulate or nuisance level organic vapor respirator with a filter as an integral part of the face-piece or with the entire face-piece composed of the filtering medium. A 3M disposable dust mask is an example of a filtering face-piece.

Fit test— A test to qualitatively or quantitatively evaluate the fit of a respirator on an individual. *See also* Qualitative fit test and Quantitative fit test.

High-Efficiency Particulate Air Filter (HEPA)—A type of filter that is at least 99.97% efficient in removing particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N-100, R-100, and P-100 filters.

Hood—A device completely covering the head, neck and may also cover portions of the shoulders and torso, and will also supply filtered or clean air to the wearer.

Immediately Dangerous to Life or Health (IDLH)—An atmosphere that poses an immediate threat and would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Non-Routine Operations—Operations in which a trained individual enters an unknown atmosphere in response to a spill or leak. These operations are performed to do the following:

- Determine the concentration of airborne contaminants to identify the level of respiratory protection needed to perform emergency response containment activities in a specified area.
- Isolate the source of the spill if unable to do so remotely.

Oxygen-deficient atmosphere—An atmosphere in which the oxygen content is below 19.5% by volume.

Permissible Exposure Limit (PEL)—The maximum amount or concentration of a toxic substance to which an employee may be exposed under OSHA regulations during any 8-hour shift of a 40-hour week. These

values are often expressed in parts per million (ppm), in milligrams per cubic meter (mg/m^3), or micrograms per cubic meter of air ($\mu g/m^3$).

Physician or other Licensed Health Care Professional (PLHCP)—An individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of OSHA 29 CFR 1910.134.

Pressure-demand respirator—A positive-pressure, atmosphere-supplying respirator that admits breathing air to the face-piece as the wearer reduces positive pressure inside the face-piece by inhaling.

Qualitative Fit Test (QLFT)—An assessment of the adequacy of respirator fit that relies on the individual's response to the test agent such as irritant smoke or an odorant. .

Quantitative Fit Test (QNFT)—An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Routine Operation/task—A normal, planned operation or task such as the gauging tanks or sampling.

Self-Contained Breathing Apparatus (SCBA)—An atmosphere-supplying respirator for which the source of breathing air (tank or cylinder), is designed to be carried by the user.

Service life—The period of time that a respirator, filter, sorbent, or any respiratory equipment provides adequate protection to the wearer.

Supplied-Air Respirator (SAR) or airline respirator—An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-fitting face-piece—A respirator face-piece that forms a seal with the face.

Time-Weighted Average (TWA)— A value that represents the average exposure measured over a typical workday (usually an 8, 10 or 12-hour shift).

User seal check—An action conducted by the respirator wearer to determine if the respirator is properly seated to the face.

5. Roles and Responsibilities

A. **HSE&C Manager** serves as the overall Respiratory Protection Program Administrator and is responsible for the following:

1. Annually evaluating the effectiveness of the Respiratory Protection Program
2. Communicating the criteria that determine when respiratory protection is required
3. Assist in selecting the type of respirator to be used for the specific types and levels of contaminants

B. **Safety Coordinators** are responsible for the following:

1. Administering the Respiratory Protection Program for his or her area
2. Ensuring respirators are NIOSH approved and appropriate for the concentrations and contaminants in the workplace
3. Anticipating potentially hazardous work environments, participating in exposure assessments and specifying the appropriate level of respiratory protection

C. **Supervision** is responsible for the following:

1. Ensuring that
   a) Respirators are available, inspected, functioning properly, and used when needed

b) Respirator users have received the necessary medical approval before using the equipment

c) Respirator users have current fit tests and are properly trained in respirator use and the hazards of airborne contaminants

2. Providing input for the evaluation of the Respiratory Protection Program
3. Approving resources necessary to accomplish the program's objectives
4. Providing written information on respirators to employees who voluntarily wear filtering face piece type respirators (e.g., single-use dust masks) when not required (see Appendix X.).
5. Enforcing all other requirements of this policy

D. **Individual employees** are responsible for the following:

1. Identifying or anticipating situations which will require respiratory protection.
2. Using respiratory equipment only if medically qualified, trained and authorized to do so by Supervision.
3. Selecting and using the proper respiratory equipment.
4. Reporting to Supervision any respiratory equipment malfunctions or physical/health changes that may alter their original medical evaluation and/or fit test.
5. Respirators are properly stored, cleaned, and disinfected after each use according to the manufacturer's recommendations.
6. Ensuring that facial hair does not interfere with the sealing surface of the respirator's face piece
7. Complying with all instructions provided by the manufacturer on use, limitations, maintenance and care of respiratory equipment

E. The **USPL Health Services Advisor** is responsible for the following:

1. Coordinate the appropriate medical evaluations for all BP employees who are required to use respiratory protection or use respirators voluntarily.
2. Based on the medical evaluation, assess the employee's ability to use respiratory protection, determine individual limitations and the frequency of follow-up medical evaluations.

6. Program Requirements

6.1. Respirator Selection and Use

A. Respirators will be selected based upon; type of contaminant, concentration, work activity, spill volume, ventilation, and exposure limits.

1. Approved respiratory protection applications based on contaminant concentration are listed in Appendix I.
2. Respiratory protection requirements for specific jobs/tasks, based on exposure monitoring, is provided in Appendix II A&B.

B. Half mask, air-purifying respirators will generally provide protection in environments with concentrations up to ten times (10X), the exposure limit. Full-face, air purifying respirators can provide protection in environments with concentrations up to fifty times (50X) the exposure limit. Full-face respirators shall be used if the contaminant is also an eye irritant.

C. If there is the potential for overexposure to airborne contaminants for a particular job or task, and no exposure data exists (see Appendix III), the Safety Coordinator shall be contacted to coordinate an exposure assessment of the planned job activities. The hazards shall be identified and described to the Safety Coordinator so any appropriate respiratory protection can be prescribed prior to the start of the job.

D. Air monitoring may be conducted to verify the proper level of respiratory protection is provided and/or to develop data for similar job exposure assessments.

E. Full-face supplied-air respirators used in cold-weather areas shall be equipped with nose cups to reduce fogging of the respirator.

F. Prior to using a respirator with a tight–fitting face piece, employees are to perform a user seal check. This can be done by covering the exhalation valve with the palm of the hand while exhaling. If a slight positive pressure can be built up in the face piece, a successful seal is achieved. A negative seal check can be performed by closing off the inlet opening(s) to the canister or cartridges and inhale gently. If the face piece remains in a slightly collapsed condition with no inward leakage, a successful seal is achieved.

G. If a condition preventing an acceptable seal between the face and the face-piece cannot be corrected or eliminated, the worker shall not be assigned to any duty that may require the use of respiratory protection.

6.2. IDLH Environments

A. Atmospheric concentrations that cannot be reasonably estimated or measured and for which the concentration of the contaminant is suspected to be significantly above exposure limits, will be considered to be Immediately Dangerous to Life and Health (IDLH). With the exception of gauging crude tanks and assessing spills, USPL employees are not permitted to enter an atmosphere determined to be IDLH.

The following are IDLH environments:

1. The atmosphere is oxygen deficient (i.e., the oxygen content is below 19.5% by volume).
2. Even though a 10% LEL atmosphere is not technically IDLH, the USPL considers concentrations at or above 10% LEL to be an IDLH atmosphere.
3. Toxic airborne substances (e.g. hydrogen sulfide) that may be present in concentrations at or above the IDLH See the Hydrogen Sulfide policy for more information on crude oil tank gauging procedures and working safely in known or suspected H_2S environments.

Note: USPL does not allow work in an actual IDLH atmosphere.

6.3. Voluntary (not required) Use of respirators

A. When air monitoring of the work environment confirms that exposures are below occupational limits, respiratory protection is not required. However, any employee, providing he/she is medically qualified to use respiratory protection, may request to use a respirator at his or her discretion. A copy of Appendix X, Information for Employees Using Respirators When Not Required, shall be provided to the employee. Medical Qualification is not required for the voluntary use of filtering face pieces (e.g. single use 3M dust masks).

6.4. Respirator Cartridge Life

1. In order to ensure that filtering cartridges are changed before the end of their service life, all chemical cartridges shall be replaced at the beginning of each shift. Other indicators that cartridges need to be replaced are;

    a) If breathing resistance becomes excessive

b) The wearer detects either an odor or taste while wearing the respirator.

6.5. Medical Evaluations

A. All employees who are required to use respiratory protection or who voluntarily request a tight-fitting respirator shall obtain medical evaluation to determine the employee's physical ability to wear a respirator. A medical evaluation shall be completed prior to fit testing and initial use of a respirator and be performed by an approved occupational medical provider staffed with licensed health care professionals.

Exception: No medical evaluation is needed for using filtering face pieces/disposable dust masks.

B. Respirator users shall receive a medical evaluation annually. Additional evaluations may be required based on the following conditions and observations:

1) The employee reports medical signs and symptoms related to the ability to use a respirator.

2) An approved health care professional, supervisor or the respiratory program administer reports that the employee should be re-evaluated.

3) Information from field observations or the program administrator indicates a need for re-evaluation.

4) A change occurs in the workplace conditions that may result in an increased physiological burden placed on the respirator wearer.

C. As part of the medical evaluation, the respirator user shall complete OSHA's respirator medical evaluation questionnaire (see Appendix III) or undergo a medical examination. Medical examinations shall obtain the same information as the questionnaire and evaluate possible medical conditions that could increase the risk of adverse health effects for a respirator user.

D. As part of the annual medical examination and/or evaluation, the respirator user shall complete a modified respirator medical evaluation questionnaire (See Appendix IV), and undergo a medical evaluation. Medical evaluations shall obtain the same information as the questionnaire and evaluate possible medical conditions that could increase the risk of adverse health effects for a respirator user.

E. Approved occupational medical providers staffed with licensed health care professionals in conjunction with the Health Services Advisor and/or third party administrator will determine an employee's physical ability to perform routine tasks with the respiratory equipment assigned.

1. Before the employee is fit-tested or required to use a respirator, the employee shall have been medically cleared to wear a respirator within the same calendar year prior to Fit Testing and use. Medical Clearance with written recommendations regarding fitness to wear a respirator will be provided to the employee's supervisor after the employee's biennial physical examination and/or annual medical evaluation prior to the Fit Test and use of designated respirator. The document provided is a Physician's Written Opinion (PWO).

2. The USPL Health Services Advisor and/or third party administrator shall be consulted regarding guidelines for physical acceptability. Documentation of the ability to wear a respirator shall be kept on file with the employee's medical record.

F. Employees are responsible for notifying their Supervision if they have experienced a physical symptom, illness, or injury that may temporarily or permanently affect their health and safety when wearing a respirator.

6.6. Fit Testing and Facial Hair Restrictions

A. Respirators with tight fitting face pieces shall not be worn in hazardous atmospheres when conditions prevent a satisfactory face-to-face-piece seal.

Note: These conditions may include temple bars on glasses, absence of dentures, hard-to-fit facial structures or facial hair such as long sideburns and beards.

B. Respiratory protection wearers in hazardous environments shall not have facial hair that passes between the sealing surface of a respirator face-piece and their face or that interferes with the functioning of the respirator valves. See Appendix V for illustrations of facial hair rules.

C. An approved Health & Safety contractor, USPL Safety Coordinator, or Training Coordinator shall provide an OSHA acceptable qualitative or quantitative fit test to ensure a proper respirator fit for all employees who are required to wear respirators of the tight-fitting filtering face piece type and for N95 filtering facepiece and surgical N95 respirators. This test shall be performed prior to the initial wearing of a respirator with the same make, model, style and size of the respirator to be used. The Fit test report shall be completed at the time of the test (see Appendix V).

D. Fit tests shall be done annually, within one calendar year of the required use of a respirator. Fit testing of full-face respirators intended for SCBA use (in demand mode) are required to be quantitatively fit tested, annually.

E. Additional fit tests shall be performed if there is a change in the respirator user's physical condition that could affect respirator fit. Examples of physical conditions affecting face piece fit would include dental changes, cosmetic surgery or a significant change in body weight.

F. When an employee wearing corrective glasses is assigned to duties that require the use of a full-face respirator, if needed, USPL shall provide the employee with special corrective glasses suitable for wear with the type of respirator provided.

G. Employees shall complete and sign the Respirator Wearer's Statement (see Appendix VII) at the completion of the fit test.

6.7. Respirator Inspection

A. Before using any respirator, each user shall perform an inspection to determine that it is in good working order and ready to use. The following shall be checked:

1. Tightness of all connections
2. Face-piece is pliable, intact and not deteriorated.
3. Head straps are pliable, intact and not deteriorated.
4. All valves and gaskets are present and functioning
5. If using an air-purifying respirator, the proper cartridges are securely affixed

B. Where SCBAs are maintained for emergency use, they shall be thoroughly inspected once per month and after each use.

1. A record shall be kept of when and by whom the inspection was performed and any deficiencies found. Inspection records shall be maintained with the respirator. (See Appendix VIII, "Monthly Self-Contained Breathing Apparatus Inspection Record") At a minimum, the inspector shall check the following:

a) Respirator and warning devices (if applicable)

b) Tightness of connections

c) Condition of face-piece, headbands, valves, connecting tubing, and cartridge or canisters as applicable

d) Cylinder pressure (if applicable) and volume

e) Hydrostatic test date

6.7.2. Care and Maintenance

Respirators shall be maintained and repaired according to the requirements of this policy and manufacturer's specifications.

All unserviceable respirators shall be clearly tagged (or otherwise marked) to prevent use until the necessary maintenance has been performed.

Supervision shall consult with the Safety Coordinator to determine where supplied-air respirator maintenance will take place and who shall perform the maintenance.

Compressed air used for supplied-air respirators shall meet at least the following requirements:

1) Breathing air will meet Grade D breathing air described in ANSI/CGA Commodity Specification for air G-7.1 – 1989 (see Appendix IX.).
2) A certificate of air quality shall be obtained from the vendor for each air bottle and be available for review by users.
3) Air line couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of air line respirators with non-respirable gases or oxygen.
4) Compressed air cylinders will be stamped with the date of the last hydrostatic test. Hydrostatic testing will be conducted every 5 years for steel, aluminum and fully wrapped carbon fiber cylinders. Hydrostatic testing shall be conducted every 3 years for all "hoop-wrapped" cylinders and fully wrapped fiberglass and Kevlar cylinders.

Cleaning and Disinfecting

A. All supplied air respirators designated for emergency use shall be cleaned, inspected and all necessary maintenance completed after use, before returning the respirator to its normal storage place.

B. Respirators used for fit testing shall be cleaned and disinfected after each use.

C. Respirator users shall clean their assigned reusable respirators with mild soap and warm water and an appropriate disinfectant or according to the manufacture's recommendation whenever needed.

Note: Hot water, harsh or abrasive cleaners, and solvents can severely damage a respirator.

6.8. Storage

A. Respirators shall be stored in a manner that protects them from dust, sunlight, extreme heat or cold, excessive moisture, or damaging chemicals. Ziploc plastic bags provide suitable protection from damaging chemicals.

B. Respirators shall be protected from physical abuse in storage. For example, respirators should not be carried in a toolbox unless placed in a compartment or carton strong and large enough to prevent crushing or distortion of the respirator's face piece.

Note: As an alternative to maintaining, cleaning, and storing reusable respirators, the use of filtering face piece units designed to provide protection against only nuisance level organic vapors or disposable or low maintenance tight-fitting respirators should be considered. These types of respirators will not require cleaning or maintenance.

6.9. Evaluation of Respiratory Program Effectiveness

A. The HSE&C Manager shall evaluate the Respiratory Protection Program annually. The program evaluation will address wearer acceptance on factors such as comfort, fit, selection, proper use, maintenance, adequate visibility, and the protection afforded.

7. Training

A. Prior to using any respirator, employees shall receive initial training and annual training. Topics may include:

1. Nature of the hazard and expected airborne concentrations
2. When and where respiratory protection is required
3. Overview of the Respiratory Protection Program
4. Capabilities and limitations of respirators
5. Respirator fitting and use
6. Respirator cleaning, maintenance, inspection and storage
7. Importance of using respirators in accordance with instructions and training

B. Training shall provide the opportunity for the wearers to do the following:

1. Handle the device.
2. Read the labels on the respirator, on the container, and the instructions for its use and care.
3. Perform a fit check (especially its face piece-to-face seal), by positive and negative pressure tests prior to each use.
4. Wear the device in an uncontaminated atmosphere (normal air) for a familiarity period.

C. Training sessions shall be documented.

8. Record Keeping

A. USPL Document Coordinators shall provide guidance and assistance for maintaining the following documents:

1. Employee fit test reports (Appendix V)
2. Respirator Wearer's Statement (Appendix VII)

B. Monthly SCBA inspection reports (Appendix VIII) shall be maintained with the respirators.

C. Completed Medical Evaluation Questionnaires (Appendix III), are to be maintained as part of the employee's personal medical records.

9. References

1. Compressed Gas Association, G-7, 2003 , "Compressed Air for Human Respiration"
2. OSHA, Department of Labor, 29 CFR 1910.134, "Respiratory Protection"; 29 CFR 1910.155, "Scope, Application, and Definitions (Fire Protection)"

Appendix I
Respirator Selection and Limitations

Contaminant	Respiratory Protection not needed	P-100 Particulate Pink filters ½ Mask APR	Organic Vapor Black Cartridges ½Mask APR	Organic Vapor/Acid Gas combo Yellow cartridges ½ Mask APR	Ammonia Green cartridges ½ Mask APR	Full-face Air-Purifying Respirator	Supplied Air	IDLH*
Oxygen (%)	19.5 to 23.5	Do not use	Do not use	Do not use	Do not use	Do not use	<19.5or>23.5 **	<19.5 or >23.5
Benzene (ppm)	< 1.0	Do not use	1.0 - 10	1.0 - 10	Do not use	10-50	>50	> 500
Hydrogen Sulfide (ppm)[2]	< 10	Do not use	Do not use[2]	Do not use[2]	Do not use	Do not use	>10	> 100
Total Hydrocarbons (as gasoline/distillate) (ppm)	<300	Do not use	300-1300	300-1300	Do not use	300-1300	>1,300 **	>1,300**
Ethanol (ppm)	<1,000	Do not use	1,000-3,300	1,000-3.3000	Do not use	1,000-3,300	>3,300 **	>3,300**
Carbon Monoxide (ppm)[3]	<35	Do not use	Do not use	Do not use	Do not use	Do not use	>35	>1200
Nitrogen Dioxide (ppm)[3]	<3	Do not use	Do not use	Do not use	Do not use	Do not use	>3	>20
Sulfur Dioxide (ppm)	<2	Do not use	Do not use	2-20	Do not use	20-100	>100	>100
Diesel	<25	Do not use	25-250	Do not use	Do not use	150 -600	>500	>600
Toluene (ppm)	<20	Do not use	20-200	20-200	Do not use	20-500	>500	>500
Xylene (ppm)	<100	Do not use	100-900	100-900	Do not use	100-900	>900	>900
Ammonia (ppm)	<25	Do not use	Do not use	Do not use	25-50***	20-300	>300	>300
Asbestos (fibers/cc)	<0.1	0.1-1.0	Do not use	Do not use	Do not use	0.1-5.0	>5.0	NA
Lead fumes/dusts (mg/m3)	<0.05	0.05-0.5	Do not use	Do not use	Do not use	0.05-2.5	>2.5	>100
Sand Blasting, non-silica abrasives[4] (mg/m3)	<10	10-100	Do not use	Do not use	Do not use	100-500	>500	NA

* A qualified backup person must be present whenever entering an IDLH atmosphere.
** IDLH atmosphere based on 10% LEL.
*** If eye irritation occurs at concentrations less than 25 ppm, upgrade to a full face or supplied-air respirators.
[2] Use indicated respirators for escape purposes only.
[3] No air-purifying respirator provides any protection against these contaminants.
[4] A sand blast hood is another acceptable respirator to the ones listed in the chart.

NA Not Applicable

Half mask, air-purifying respirators can be used to provide protection against contaminants up to 10 times the exposure limit. Full-face respirators may be used for levels 50 times the exposure limit, providing the atmosphere is less than 10% of LEL.

Appendix II A
Respirator Selection by Job or Task
(Pipeline activities – Products & Crude)

Job/Task	Chemical Hazard(s)	Exposure Limits and NIOSH IDLH*	Range of Results	Respiratory Protection
Tank gauging (light & heavy crude)	Hydrogen Sulfide (H2S)	10 ppm (8hr.TWA) 15 ppm (15min.STEL) 20 ppm (OSHA Ceiling) 50 ppm (OSHA Peak) 100 ppm* (IDLH)	8 – 1275 ppm (@ hatch face) ND-> **300** ppm (in breathing zone)	**REQUIRED:** Supplied-air respirator (see H2S Safety Policy)
Meter Proving (benzene line)	Benzene	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH)	<.07 – **1.1** ppm	**REQUIRED:** Half-face or full-face APR with organic vapor cartridge
Emergency Response (Spills/Leaks)	Benzene Total Hydrocarbon vapors (THC) H2S	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3) 10 ppm (8hr.TWA) 15 ppm (15min.STEL) 20 ppm (OSHA Ceiling) 50 ppm (OSHA Peak) 100 ppm* (IDLH)	0.25**-3.7 ppm** (8-hr. TWA) Note: 3 of 5 results > 1.0 ppm 20 mg/m3 NA	**REQUIRED:** For determining unknown concentrations of contaminants, use supplied-air respirators (SCBA or airline w/5 min. escape bottle), & standby person. For conditions where other types of respiratory protection may be suitable, consult Core Plan/Emergency Response Manual. After determination of contaminant levels, respiratory protection may be downgraded to ½ mask or full-face, APRs for THC or benzene only.
Station rework	Benzene	1 ppm (TWA) (15min.STEL) 500 ppm* (IDLH)	ND–0.14 ppm (TWA) 1 ppm (STEL)	**NOT REQUIRED** Half-face or full-face APR with organic vapor cartridge
Strainer cleaning	Benzene	1 ppm (TWA)	< 0.25 ppm	**NOT REQUIRED**
	Benzene	1 ppm (8hr.TWA)	ND–0.35 ppm	**NOT REQUIRED**

Scraper or pig retrieval	THCs	5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	37 – 70 mg/m3	Half-face APR with organic vapor cartridge
Scraper or pig retrieval	Total Hydrocarbon (THCs)	300 ppm** (900 mg/m3)	37–70 mg/m^3	**NOT REQUIRED** Half-face APR with organic vapor cartridge
P/L pressure test (drain and blind)	Total Hydrocarbon (THCs)	300 ppm** (900 mg/m3)	2–90 mg/m^3	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Loading or offloading trucks (crude, condensate)	Total Hydrocarbon (THCs)	300 ppm** (900 mg/m3)	2–18 mg/m^3	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Sediment and water sampling	Benzene Total Hydrocarbon (THCs)	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	0.05–0.13 ppm 7 - 17 mg/m3	**NOT REQUIRED** Half-face or full-face APR with organic vapor cartridge
Routine duties (SWAT –P/L drain-up)	Benzene	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH)	0.06–0.5 ppm	**NOT REQUIRED** Half-face or full-face APR with organic vapor cartridge
Tank Cleaning or Inspecting	Benzene Total Hydrocarbon (THCs)	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	ND-0.81 ppm 323 mg/m3	**NOT REQUIRED** Half-face or full-face APR with organic vapor cartridge
Valve repair	Benzene	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH)	ND–0.02 ppm	**NOT REQUIRED** Half-face or full-face APR with organic vapor cartridge
Welding of stainless steel or other materials containing toxic metals (galvanized metal, lead, cadmium, etc.)	Heavy metals (respiratory protection to be determined prior to beginning work)	Various (for lead, see the BP PLBU Lead Management Program)		**REQUIRED IN CONFINED SPACE** Half-face APR with HEPA filters to supplied-air respirator

Asbestos pipe wrap or removal (intact)	Asbestos fibers	0.1 fibers/cc (negative exposure assessment exists)	ND	**NOT REQUIRED** Optional: half-face APR with N100 or HEPA filter
Sandblasting	Silica, particulate, nuisance dust	Various		**REQUIRED** Abrasive blast hood with atmosphere supplying air
Paint coating or spraying	Solvents	Various		**NOT REQUIRED** Half-face APR with organic vapor cartridge
Oxygen deficiency	Below 19.5% oxygen*			Supplied-air respirator (airline or SCBA)

Note: All respirators shall be NIOSH-approved. Substance-specific policies for Asbestos, Benzene, Hydrogen Sulfide, and Lead Management should also be referenced in this safety manual for additional respiratory protection guidance. In an OSHA memo to Regional Administrators dated 05/21/96, Area Offices were advised that the NIOSH Pocket Guide to Chemical Hazards (1990) shall be used for enforcement.

mg/m3 – Milligrams per cubic meter

NA= Not applicable

ND=Not detected

*NIOSH IDLH (1994)

ppm – Parts per million

THC = Total Hydrocarbon Vapor

TWA – Time Weighted Average

STEL – Short Term Exposure Limit (15 minutes)

** Based on Gasoline

NOT REQUIRED – Based on the existing exposure data, respiratory protection is not required for these tasks. However, respirators can be worn on a voluntary basis for comfort and odor control.

Appendix II B
Respirator Selection by Job or Task

(Product Distribution Terminals)

Job/Task	Chemical Hazard	Exposure Limits and NIOSH IDLH*	Range of Results	Respiratory Protection
Tank gauging (Gasoline)	Benzene Total Hydrocarbon	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 300 ppm** (900 mg/m3	ND – 0.12 ppm ND – 6.6 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Meter Proving (Loading Rack)	Benzene Total Hydrocarbon Ethanol	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3) 1,000 ppm (8hr.TWA)	ND – 0.062 ND- 5.4 0.17 – 0.72	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Gasoline sampling testing	Benzene Total Hydrocarbon vapors (THC)	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	ND – 0.98 ppm ND – 22.0 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Gasoline Tank water drawing	Benzene Total Hydrocarbon vapors (THC)	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	ND–0.0298 ppm ND	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Batch change (products)	Benzene	1 ppm (TWA) (15min.STEL) 500 ppm* (IDLH)	0.094–0.48 ppm (15 min. STEL)	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Performing first-time, initial air monitoring for Storage Tank entry	Benzene H2S		Not Determined	**REQUIRED** For determining unknown concentrations of contaminants, use supplied-air respirators (SCBA or airline w/5 min. escape bottle), &

				standby person.
Job/Task	**Chemical Hazard**	**Exposure Limits and NIOSH IDLH**	**Range of Results**	**Respiratory Protection**
Off loading gasoline tankers	Benzene Total Hydrocarbon vapors (THC)	1 ppm (TWA) (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	0.22 ppm 31.0 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Unloading Invigorate Additive	Benzene Total Hydrocarbon vapors (THC	1 ppm (TWA) (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	ND ND	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Loading Dye (BK50) to diesel fuel	Benzene Total Hydrocarbon vapors (THC	1 ppm (TWA) (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	ND 2.7 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Offloading Ethanol	Benzene Total Hydrocarbon Ethanol	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3) 1,000 ppm (8hr.TWA)	ND–0.083 ppm 0.48–1.0 ppm ND-4.0 ppm	**NOT REQUIRED** Half-face or full-face APR with organic vapor cartridge
Gasoline Barge Loading (disconnecting loading lines)	Benzene Total Hydrocarbon vapors (THC)	1 ppm (TWA) (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	0.19 – 1.1 ppm 33 – 100 ppm	**RESPIRATOR REQUIRED** Half-face or full-face APR with organic vapor cartridge
Filter change		1 ppm (TWA)	0.11–1.1 ppm	**RESPIRATOR REQUIRED**

(Gasoline)	Benzene	(15min.STEL) 500 ppm* (IDLH)	(TWA) 0.03–1.9 ppm (STEL)	Half-face or full-face APR with organic vapor cartridge
Job/Task	**Chemical Hazard**	**Exposure Limits and NIOSH IDLH***	**Range of Results**	**Respiratory Protection**
Line repair (products)	Total Hydrocarbon vapors (THC	300 ppm** (900 mg/m3)	31 mg/m3	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Loading Rack **Calibration & Adjustment**	Benzene Total Hydrocarbon Ethanol	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3) 1,000 ppm (8hr.TWA)	ND 0.28-0.94 ppm ND	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Loading Rack **Draining Vapor Lines**	Benzene Ethanol	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 1,000 ppm (8hr.TWA)	0.28 ppm 7.1 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Loading Rack **Changing vapor recovery Lines**	Benzene Ethanol	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 1,000 ppm (8hr.TWA)	0.07 ppm 1.2 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Loading Rack **Reading Gauges**	Benzene Total Hydrocarbon	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	ND 0.9-2.2 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge

Tank Cleaning or Inspecting	Benzene Total Hydrocarbon	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	ND-0.81 ppm 323 mg/m3	**Respiratory protection is based on air monitoring results per the Confined Space Entry Checklist** Half-face APR with organic vapor cartridge
Station rework	Benzene	1 ppm (TWA) (15min.STEL) 500 ppm* (IDLH) 500 ppm*	ND–0.14 ppm (TWA) 1 ppm (STEL)	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Valve repair	Benzene	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH)	ND–0.02 ppm	**NOT REQUIRED** Half-face APR with organic vapor cartridge
Emergency Response (Spills/Leaks)	Benzene Total Hydrocarbon vapors (THC)	1 ppm (8hr.TWA) 5 ppm (15min.STEL) 500 ppm* (IDLH) 300 ppm** (900 mg/m3)	0.25-3.7 ppm (8-hr. TWA) Note: 3 of 5 results > 1.0 ppm 20 mg/m3	**REQUIRED:** **For determining unknown concentrations of contaminants, use supplied-air respirators (SCBA or airline w/5 min. escape bottle), & standby person. For conditions where other types of respiratory protection may be suitable, consult Core Plan/Emergency Response Manual.**

Note: All respirators shall be NIOSH-approved. Substance-specific policies for Asbestos, Benzene, Hydrogen Sulfide, and Lead Management should also be referenced in this safety manual for additional respiratory protection guidance. In an OSHA memo to Regional Administrators dated 05/21/96, Area Offices were advised that the NIOSH Pocket Guide to Chemical Hazards (1990) shall be used for enforcement.

mg/m3 – Milligrams per cubic meter

NA= Not applicable

ND=Not detected

*NIOSH IDLH (1994)

ppm – Parts per million

THC = Total Hydrocarbon Vapor

TWA – Time Weighted Average

STEL – Short Term Exposure Limit (15 minutes)

** Based on Gasoline

NOT REQUIRED – Based on the existing exposure data, respiratory protection is not required for these tasks. However, respirators can be worn on a voluntary basis for comfort and odor control.

Appendix III
OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

This example of the OSHA Respirator Medical Evaluation Questionnaire is for reference only. For a downloadable version of the questionnaire, go to the HSSE website or DRM. The electronic version may be filled out online or printed and completed as hard copy.

Axiom Medical Consulting, LLC

Appendix C to Sec. 1910.134
OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer:
Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:
Can you read (circle one): ☐ Yes ☐ No

You may complete this form on the computer through a word processor (i.e., Microsoft Word), then save it and e-mail it back to us, or you may print it and fax it back when completed.

Your Employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, only a representative of Axiom Medical Consulting, LLC and your company's Medical/Health Services representative can look at or review your answers. Please forward the completed questionnaire by mail, fax or e-mail to:

Axiom Medical Consulting, LLC
25511 Budde Road, Suite 801
The Woodlands, TX 77380-2080
(281) 419-7063 office
(281) 363-9906 fax

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____
2. Your name: _____
3. Your age (to nearest year): _____
4. Sex (check one): ☐ Male ☐ Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title: _____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire (check one): _____ ☐ Yes ☐ No
11. Check the type of respirator you will use (you can check more than one category):
    a. ☐ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
    b. ☐ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator (check one): _____ ☐ Yes ☐ No
    If "yes," what type(s): _____

© Axiom Medical Consulting, LLC Page 1 revised Jan. 2003

Appendix III B

Periodic Respirator User Questionnaire

This example of the Periodic Respirator User Questionnaire is for reference only. For a downloadable version of the questionnaire, go to the HSSE website or DRM. The electronic version may be filled out online or printed and completed as hard copy.

Axiom Medical Consulting, LLC

PERIODIC RESPIRATOR USER QUESTIONNAIRE

29 CFR 1910.134(e)

Name (Last, First)	Social Security Number	Today's Date

Do you use a respirator for purposes other than 'for escape only'? ***If your answer is 'Yes', please answer questions I through 5 below.*** ***If your answer is 'No', you do not need to answer any other questions.***	☐ Yes ☐ No
1 Have you previously completed the full OSHA Respirator Medical Evaluation Questionnaire (Mandatory)?	☐ Yes ☐ No*
2. Have you experienced medical signs or symptoms (difficulty breathing, chest pain or tightness, dizziness, claustrophobia, etc) that are related to your ability to use a respirator?	☐ Yes* ☐ No
3. Has a Physician or other Licensed Health Care Provider, supervisor or your respirator program administrator informed you that your medical status, as regards your ability to use a respirator, needs to be reevaluated?	☐ Yes* ☐ No
4. Has information from the respiratory protection program, including observations made during fit testing and program evaluation, indicated that your status should be reevaluated?	☐ Yes* ☐ No
5. Has a change occurred in your workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on you?	☐ Yes* ☐ No
*** If you have answered *'No'* to question 1, or *'Yes'* to any of the questions numbered 2 through 5, please complete the full OSHA Respirator Medical Evaluation Questionnaire (Mandatory) and fax (281-363-9906) or send the completed questionnaire to Axiom Medical Consulting, LLC, 24900 Pitkin Road, Suite 308, The Woodlands, TX 77386. Upon receipt and review of your completed questionnaire, your respirator user status will be determined.**	

Employee's Signature	Date of Signature

AXIOM-2270-5-A (AUG. 2007)

Appendix IV
Respirator Fit Test Report

This example of the Respirator Fit Test Report is for reference only. For a downloadable version of the report, go to the HSSE website or DRM. The electronic version may be filled out online or printed and completed as hard copy.

Respirator Fit Test Report

Name:_____

Date _____ Region _____ Location _____

Test Type: Qualitative ☐ Quantitative ☐

Test Agent: Irritant ☐ Smoke ☐ Other_____

Fit Test Administered By _____

Respirator Data:

Size _____

Model _____

Manufacturer _____

Cartridge _____

Test Data

Pass	Fail	The exercises performed were:
☐	☐	a. Normal breathing
☐	☐	b. Deep breathing
☐	☐	c. Turning head side to side between extreme positions while breathing normally
☐	☐	d. Moving head up and down while breathing normally
☐	☐	e. Talking out loud so you could be heard clearly
☐	☐	f. Grimacing (frown and smile) – Not to be performed with Irritant Smoke.
☐	☐	g. Bending over as if touching your shoes and breathing normally or jogging in place
☐	☐	h. Normal breathing

FIT TEST: PASS ☐ FAIL ☐

Appendix V
Facial Hair

UNACCEPTABLE
A full beard is NOT permissible.

UNACCEPTABLE
The mustache extends beyond the corners of the mouth.

UNACCEPTABLE
Any hair below the bottom of the lip and chin is NOT permissible.

ACCEPTABLE
The mustache does not extend beyond the corners of the mouth. The sideburns do not extend below the bottom of the earlobes.

Appendix VI
Respirator Wearer's Statement

This example of the Respirator Wearer's Statement is for reference only. For a downloadable version of the statement, go to the HSSE website or DRM. The electronic version may be filled out online or printed and completed as hard copy.

Respirator Wearer's Statement

I understand that the respirator fit test that was just performed applies only to the model and size tested, which is listed on my fit-test record.

I understand that the respirator is being provided to protect me against: (check any applicable)

☐ A. Particles in the air

☐ B. Organic vapors (i.e., benzene, total hydrocarbons)

☐ C. Other

This protection is required because other controls are not feasible or not adequate.

I understand that no *air-purifying respirator*, such as the one with which I was tested, will supply oxygen. Consequently, if there is an oxygen deficiency or if hydrogen sulfide (H_2S) is present, only an *supplied-air respirator* will provide protection.

I know that the proper cartridge shall be used to provide protection (for example, black cartridge for organic vapors). The contaminant that is filtered out is printed on the cartridge. I will obtain the proper cartridge if protection is needed against another contaminant.

I understand that I shall inspect the respirator before and after I wear it to make sure that all parts are still present and undamaged. I shall perform a positive and negative pressure test each time I put the respirator on to make sure that it is sealed against my face.

I understand that keeping the respirator clean is important to ensure that it is protected against dust, sunlight, extreme heat or cold, moisture, chemicals, and any physical damage.

If breathing resistance becomes excessive or if I smell or taste the air contaminant inside the mask, I will replace the cartridges with fresh ones of the proper type. I will adhere to USPL conservative approach and replace air-purifying cartridges at the beginning of each shift.

_____ _____

Date Signature

Appendix VII
Monthly Self-Contained Breathing Apparatus Inspection Report

This example of the Monthly Self-Contained Breathing Apparatus Inspection Report is for reference only. For a downloadable version of the report, go to the HSSE website or DRM.

Monthly Self-Contained Breathing Apparatus Inspection Report

FACILITY____________________YEAR:__________ PAK MODEL & NO.:____________________

To complete this inspection report, put a check (√) if the item is okay, an (X) if it needs repairs.

Month	Location	*Cylinder Pressure (filled to mfg. specs)*	*Connections (tight)*	*Mask and Headband Condition*	*Mask Straps Extended*	*Harness Straps Extended*	*Condition of Lenses*	*Regulator and Warning Device*	*Bypass Valve Closed*	*Main Line Valve Open**	*Mask Stored in Plastic Bag*	*Inspected by (initials) and Remarks*
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	
			☐	☐	☐	☐	☐	☐	☐	☐	☐	

*Main line valve for MSA 410 should be closed.

Document any repairs made: ____

____

____

Appendix IIX
Grade D Breathing Air Specifications

Grade D Breathing Air Standards

Compressed Air Components	Specifications
Carbon Monoxide	10 ppm (maximum)
Carbon Dioxide	1,000 ppm (maximum)
Oxygen	19.5–23.5% by volume (shall be within this range)
Oil Mist (condensed hydrocarbon)	5 mg/m^3 (maximum)
Odor	Free from pronounced odor
Water	Line pressure dew point should at least be 18°F below the minimum ambient temperature for that location. (See the Moisture Conversion Data table below for further information on acceptable moisture levels in the compressed air.)

Moisture Conversion Data

Dew Point °F	Dew Point °C	PPM (V/V)	MG/L	MG/M^3
-110	-78.9	4.58	0.00045	.45
-105	-76.1	0.94	0.00070	.7
-100	-73.3	1.5	0.0011	.1
-95	-70.5	2.3	0.0017	1.7
-90	-67.8	3.2	0.0024	2.4
-85	-65.0	5.0	0.0037	3.7
-80	-62.2	7.1	0.0055	5.5
-75	-59.4	10.6	0.0079	7.9
-70	-56.7	16.1	0.012	12
-65	-53.9	24.2	0.018	18
-60	-51.1	30.9	0.023	23
-55	-48.3	43.0	0.032	32
-50	-45.6	60.5	0.045	55
-45	-42.8	87.3	0.065	65
-40	-40.0	121	0.09	90
-35	-37.2	161	0.12	120
-30	-34.4	229	0.17	170
-25	-31.6	382	0.21	210
-20	-28.9	403	0.30	300
-15	-26.1	538	0.40	400
-10	-23.3	685	0.51	510
-5	-20.5	900	0.67	670
-0	-17.8	1180	0.88	88

Appendix IX

Information for Employees Voluntarily Using Respiratory Protection

Respirators are an effective method of protection against inhalation hazards when properly selected and worn. Respirator use is encouraged even when exposures are below exposure limits to provide an additional level of comfort, odor control and protection. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the user. Sometimes workers may voluntarily wear respirators to avoid exposures to hazards even if the amount of hazardous substance does not exceed the limits set by OSHA or other exposure limit setting organizations. If you are voluntarily using a company supplied respirator, you need to be sure the respirator itself does not present a hazard.

You should do the following:

1) Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care and warnings regarding the respirator's limitations.
2) 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 appears on the respirator or package. It will tell you what the respirator is designed for and how much it will protect you.
3) Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors or very small solid particles of fumes or smoke.
4) Wearing a respirator can present a physiological stress. Make sure you have been Medically Qualified and if using a tight-fitting face piece, fit tested to safely use a respirator.
5) Keep track of your respirator so that you do not mistakenly use someone else's respirator.