EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

COMPREHENSIVE SAFETY PLAN

15. SUBJECT: Respiratory Protection Program

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REGULATORY STANDARD: OSHA - 29 CFR 1910.134 (Revised 1998)
ANSI - Z88.2, 1992

BASIS: About 32 million workers are potentially exposed to one or more chemical hazards on a daily basis. There are an estimated 575,000 existing chemical products, and hundreds of new ones being introduced annually. This poses a serious problem for exposed workers and their employer. The OSHA Respiratory Protection Standard establishes uniform requirements to make sure that the respiratory hazards of all U.S. workplaces are evaluated, and that engineering controls, and work practice controls are implemented, and where not feasible, a respiratory protection program instituted.

GENERAL: Embry-Riddle Aeronautical University will ensure that respiratory hazards within our facility are evaluated, and that information concerning these hazards is transmitted to all employees. This standard practice instruction is intended to address comprehensively the issues of; evaluating the potential respiratory hazards, communicating information concerning these hazards, and establishing appropriate engineering, work practice, or respiratory protective measures for employees.

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Embry-Riddle Aeronautical University Respiratory Protection Program

1. Written Program. Embry-Riddle Aeronautical University will develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program will be administered by a suitably trained program administrator. The program administrator will review and evaluate this standard practice instruction:

1.1 On at least an annual basis.
1.2 When changes occur to governing regulatory sources that require revision.
1.3 When changes occur to related company procedures that require a revision.
1.4 When facility operational changes occur that require a revision.
1.5 When there is an accident or close-call that relates to this area of safety.
1.6 Anytime the procedures fail.

NOTE: Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals and objectives.

2. Employer and Employee Responsibility.

2.1 Employer's Responsibility.

2.1.1 Respirators will be provided by The University when they are necessary to protect employee health.

2.1.2 The respirator provided will be suitable for the intended use.

2.1.3 The University will offer at least three types of respirators for employees to select from.

2.1.4 The University will be responsible for establishing and maintaining a respiratory program whenever respirators are used.

2.2 Employee's Responsibility.

2.2.1 The employee will use the respiratory protection in accordance with instructions and training received or contracted by Embry-Riddle Aeronautical University.

2.2.2 The employee will guard against damage to the respirator, and immediately replace suspect respirators.

2.2.3 The employee will report any trouble with or malfunction of the respirator to his/her supervisor.

3. Policy Statement.

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3.1 Engineering controls. To control and/or minimize the threat of occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors. The primary objective of this program will be to prevent atmospheric contamination. This will be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators will be used.

3.2 Respirators. Respirators will be provided by The University when such equipment is necessary to protect the health of the employee. The University will:

3.2.1 Provide the respirators which are applicable and suitable for the purpose intended.

3.2.2 Be responsible for the establishment and maintenance of a written respiratory protective program which will include the requirements outlined in 29 CFR 1910.134.

3.3 The employee will use the provided respiratory protection in accordance with instructions and training received.

3.4 Respirators will be selected on the basis of hazards to which the worker is exposed.

3.5 The user will be instructed and trained in the proper use of respirators and their limitations.

3.6 Respirators will be regularly cleaned and disinfected. Those used by more than one worker will be thoroughly cleaned and disinfected after each use.

3.7 Respirators will be stored in a convenient, clean, and sanitary location.

3.8 Respirators used routinely will be inspected during cleaning. Worn or deteriorated parts will be replaced. Respirators for emergency use such as self-contained devices will be thoroughly inspected at least once a month and after each use.

3.9 Appropriate surveillance of work area conditions and degree of employee exposure or stress will be maintained.

3.10 There will be regular inspection and evaluation to determine the continued effectiveness of the program.

3.11 Employees will not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment.

3.12 NIOSH approved or accepted respirators will be used when they are available. The respirator furnished will provide adequate respiratory protection against the particular

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hazard for which it is designed.

4. Program Requirements. This program as a minimum will include the following program elements:

4.1 Procedures for selecting respirators for use in the workplace;

5. Use of Respirators. The University may provide respirators at the request of employees or permit employees to use their own respirators, if it is determined that such respirator use will not in itself create a hazard. If voluntary respirator use is permissible, The University will provide the respirator user(s) with the necessary information for safe and effective use. In addition, we will ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user. The University will provide respirators, training, and medical evaluations at no cost to the employee. There are five conditions under which respirators must be used:

1. In regulated areas within the facility;
2. In emergencies;
3. Where engineering and work practice controls are inadequate;
4. Where exposures exceed permissible limits, and;
5. During maintenance and repair activities during brief or intermittent operations where engineering and work practice controls are not feasible or required.

5.1 This document will specify standard procedures for respirator use. These will include all information and guidance necessary for their proper selection, use, and care. Possible emergency and routine uses of respirators will be, where possible, anticipated and planned for.

5.2 Fit instructions. Every respirator wearer will receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. Respirators will not be worn when conditions prevent a good face seal. Such conditions may be a growth of beard, sideburns, a skull cap that projects under the facepiece, jewelry or temple pieces on glasses. Also, the absence of one or both dentures can seriously affect the fit of a facepiece and interfere with the face-to-facepiece seal or valve function.

5.3 Fit Evaluation (wearer). The facepiece fit will be checked by the wearer each time he/she puts on the respirator. This will be done by following the manufacturer's facepiece fitting instructions.

5.4 Fit Evaluation (company). Periodic checks of employees while wearing respirators will be done to assure proper protection. This will be done in accordance with the manufacturer's facepiece fitting instructions.

5.5 Hair/apparel. If hair growth or apparel interfere with a satisfactory fit, then they will be altered or removed so as to eliminate interference and allow a satisfactory fit. If a

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satisfactory fit is still not attained, the employee must use a positive-pressure respirator such as powered air-purifying respirators, supplied air respirator, or self-contained breathing apparatus.

5.6 Corrective vision requirements (full-face respirators). Full-face respirators having provisions for optical inserts will be reviewed for use by this company. These inserts when used will be used according to the manufacturer's specification. When employees must wear optical inserts as part of the facepiece, the facepiece and lenses will be fitted by qualified individuals to provide good vision, comfort, and a gas-tight seal.

5.7 Use of personal protective equipment. If an employee wears corrective glasses or goggles or other personal protective equipment, the equipment must be worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

5.8 User seal check procedures. The follow procedures must be performed to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and/or negative pressure checks listed below will be performed, or the respirator manufacturer's recommended user seal check method is to be used:

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I. Facepiece Positive and/or Negative Pressure Checks.

A. Positive pressure check. Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

B. Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

II. Manufacturer's Recommended User Seal Check Procedures.

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that it can be demonstrated that the manufacturer's procedures are equally effective.

6. Hazard Evaluation. The University will identify and evaluate the respiratory hazard(s) in the workplace this evaluation will include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where exposure cannot be identified or reasonably estimated, the area or location will consider the atmosphere to be immediately dangerous to life or health (IDLH).

6.1 Respirators for IDLH atmospheres. The University will provide the following respirators for employee use in IDLH atmospheres:

6.1.1 A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or

6.1.2 A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

6.1.3 Respirators provided only for escape from IDLH atmospheres will be NIOSH-certified for escape from the atmosphere in which they will be used.

6.1.4 All oxygen-deficient atmospheres will be considered IDLH. Exception: If it can be demonstrated that, under all foreseeable conditions, the oxygen concentration can be maintained within the acceptable ranges specified in 29 CFR 1910.134 (i.e., for the altitudes set out in the table), then any atmosphere-supplying respirator approved by the Safety Officer may be used.

6.2 Respirators for atmospheres that are not IDLH. The University will provide a

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respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

6.2.1 The respirator selected will be appropriate for the chemical state and physical form of the contaminant.

7. Inspection, Maintenance, and Care of Respiratory Equipment. The University will provide for the cleaning and disinfecting, storage, inspection, and repair of respirators used by our employees. Equipment will be properly maintained to retain its original state of effectiveness.

7.1 Cleaning and disinfecting. The University will provide each respirator user with a respirator that is clean, sanitary, and in good working order. The University will ensure that respirators are cleaned and disinfected using OSHA approved procedures or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators will be cleaned and disinfected at the following intervals:

7.2 Exclusive use respirators. Respirators issued for the exclusive use of an employee will be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.

7.3 Respirators issued to more than one employee. Respirators issued to more than one employee will be cleaned and disinfected before being worn by different individuals.

7.4 Respirators maintained for emergency. Respirators maintained for emergency use will be cleaned and disinfected after each use.

7.5 Respirators used in fit testing. Respirators used in fit testing and training will be cleaned and disinfected after each use.

7.6 Storage of respirators. Respirators will be stored as follows:

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

8. Inspection. Respirators will be inspected as follows:

8.1 All respirators used in routine situations will be inspected before each use and during cleaning in accordance with manufacturer's specifications.

8.2 All respirators maintained for use in emergency situations will be inspected at least monthly and in accordance with the manufacturer's recommendations, and will be checked for proper function before and after each use; and

8.3 Emergency escape-only respirators will be inspected before being carried into

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the workplace for use.

8.4 A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters; and

8.5 A check of elastic parts for pliability and signs of deterioration.

8.2 Repairs. Respirators that fail an inspection or are otherwise found to be defective will be removed from service, and discarded, repaired or adjusted only by persons appropriately trained to perform such operations and will use only the respirator manufacturer's NIOSH-approved parts designed for the respirator.

8.3 Specific procedures for disassembly, cleaning and maintenance of respirators used by this company will be done according the manufacturer's written instructions.

8.4 Random inspections. Respiratory protection is no better than the respirator in use, even though it may be worn conscientiously. Frequent random inspections will be conducted to assure that respirators are properly selected, used, cleaned, and maintained.

8.3 Routine use respirators. All routine use respirators will be inspected before and after each use. The respirator manufacturer's inspection criteria will be used as the basis for the inspection. Routinely used respirators will be collected, cleaned, and disinfected as frequently as necessary to ensure that proper protection is provided for the wearer.

8.3.1 Routine use respirators. Routinely used respirators, such as dust respirators, may be placed in plastic bags. Respirators having removable cartridges with imbedded compounds that could evaporate into a sealed bag should be removed so as not to permeate into the rubber parts of the respirator. Respirators should not be stored in such places as lockers or tool boxes unless they are in carrying cases or cartons.

9. Respiratory Protection Training Program. This company will develop a standardized training format to meet the requirement for a respiratory protection training program. The training will be comprehensive, understandable, and recur annually, and more often if necessary.

9.1 Previous training. If a new employee is able to demonstrate that he or she has received training within the last 12 months that addresses the training required by 29 CFR 1910.134 the employee will not be required to repeat the training provided that the employee can demonstrate knowledge.

10. Continuing Respirator Effectiveness. Appropriate surveillance will be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, The University will reevaluate the continued effectiveness of the respirator.

10.1 The University will ensure that employees leave the respirator use area under the following conditions:

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10.1.1 To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use; or

10.1.2 If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; or

10.1.3 To replace the respirator or the filter, cartridge, or canister elements.

10.1.4 If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, The University must replace or repair the respirator before allowing the employee to return to the work area.

11. Respirator Fit Testing. The University will conduct fit testing using the procedures found before an employee is required to use any respirator. The employee must be fit tested with the same make, model, style, and size of respirator that will be used.

11.1 The University will establish a record of the qualitative and quantitative fit tests administered to an employee including:

- Date of test;
- Type of fit test performed;
- The name or identification of the employee tested;
- Specific make, model, style, and size of respirator tested;
- Fit test records will be retained for respirator users until the next fit test is administered;
- The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

11.2 Tight-fitting facepiece respirators. The University will ensure that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT). Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators will be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection. Additionally, we will ensure that an employee using a tight-fitting facepiece respirator is fit tested;

- Prior to initial use of the respirator
- Whenever a different facepiece (size, style, model or make) is used
- At least annually thereafter.

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