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New CalOSHA Respiratory Protection Standard

In August 1998 CalOSHA adopted the revised FedOSHA Respiratory Protection Standard. The intent of the revision is to enhance the protection of worker health, promote more effective use of respirators, provide employers with greater flexibility, and clarify the policies and procedures that employers must follow when implementing their respiratory protection program. One important feature of the new standard is the consolidation of the many respirator-related provisions of substance-specific health standards (e.g. lead standard, asbestos standard, cadmium standard, etc.,) into one standard to make these provisions easier for employers to administer. Likewise, future health standards will reference the revised final rule for many respirator requirements.

New CalOSHA Respiratory Protection Standard Q&A

Q: What are the main changes to the standard?

A: The following sections of the standard involve changes:

- Scope and Application is now called “Permissible Practice”
 - This provision is essentially unchanged. Engineering controls are still to be considered first when working in hazardous atmospheres and respirators are only to be used when engineering controls are not feasible.
- Definitions
 - Important terms used in respiratory protection are now included in the standard. Some of these terms adopt ANSI or NIOSH definitions and criteria verbatim, while others were changed for clarification. This should make it easier for employers to develop and implement their programs since they can use OSHA as the official definition source.
- Respiratory Program
 - If employees are required to wear respirators (i.e. required by the employer or by specific health standards), a written program must be developed and implemented. The general elements of the written program have been expanded, but all program elements remain performance based so that employers can develop procedures that are unique and specific to their workplace. More detail on the specific program requirements are provided later in this document.
- Selection of Respirators
 - Changes discussed later in this document
- Medical Evaluations
 - Before an employee is fit-tested or wears a respirator *for any reason*, he/she must first be given a medical evaluation to determine the employee’s ability to use a respirator. The medical evaluation must be performed by a physician or other licensed healthcare professional using a questionnaire in Appendix C of the standard. Follow up medical exams are only necessary if an employee answers “Yes” to certain questions on the questionnaire. Additional medical evaluations are only required under specific conditions (more on this later in this document).

- Fit Testing
 - Another regulatory enhancement is that fit testing protocols are now found in one standard. Appendix A of the standard gives specific details for performing qualitative and quantitative fit tests. More on this subject later in this document.
- Facial Hair
 - OSHA has finally clarified the prohibition on facial hair. The standard now reads, “*the employer shall not permit respirators with **tight-fitting** facepieces to be worn by employees who have facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function*”. More on this later in this document.
- Maintenance and Care of Respirators
 - Respirators must now be *cleaned and disinfected* using the procedures found in Appendix B-2 at the following frequencies:
 - ✓ Exclusive use respirators – as often as necessary to remain sanitary
 - ✓ Shared respirators – before being worn by the next individual
 - ✓ Emergency use respirators – after each use
 - ✓ Respirators used for fit testing or training – after each use
- Inspection
 - Inspection frequencies and procedures are also now specified. These frequencies are discussed later.
- Training and Information
 - Employers must now provide initial training to employees before they are required to wear a respirator, and *at least annually thereafter*. Retraining is also also required if changes in the workplace occur that make prior training obsolete, or if an employee demonstrates inadequacies in their knowledge or use of respirators. Additionally, the basic advisory information found in Appendix D must be provided to employees who wear respirators voluntarily. This information can be provided in either written or oral format.

Q: What are the required components of a written respiratory protection program?

A: Affected employers are required to develop and implement a written respiratory program with required worksite-specific procedures and elements for required respirator use. A **suitably trained program administrator** must administer the program*. In addition, certain program

elements may be required for **voluntary use*** to prevent potential hazards associated with the use of the respirator. The employer shall include in the program the following provisions:

- ✓ Procedures for **selecting respirators*** for use in the workplace
- ✓ **Medical evaluations*** of employees required to use respirators
- ✓ **Fit-testing*** procedures for tight-fitting respirators
- ✓ Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations
- ✓ Procedures and schedules for **cleaning, disinfecting, storing, inspecting, repairing, discarding and otherwise maintaining*** respirators
- ✓ Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators
- ✓ Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations
- ✓ Training of employees in the proper use of respirators, including putting them on and removing them, any limitations on their use, and their maintenance
- ✓ Procedures for regularly evaluating the effectiveness of the program

Q: What is required when respirator use is voluntary?

A: An employer 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 the employer determines that any voluntary respirator use is permissible, the employer shall provide the respirator users with the information contained in Appendix D of the standard (see enclosed attachments) **and** the employer must establish and implement those program elements of a written respiratory protection program necessary to 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 hazard to the user. *** Employees whose only use of respirators involves the voluntary use of filtering facepieces (dust masks) are not required to be included in any written respiratory protection program.**

Q: What is a suitably trained program administrator?

A: The employer shall designate a single program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct evaluations of program effectiveness. The written respiratory program should include the rationale behind selecting a program administrator and their credentials.

Q: Is the employer required to pay for employee respirators, training and medical evaluations?

A: Yes, the employer shall provide, at no cost to the employee, respirators, training and medical evaluations.

Q: What are the employer requirements for the selection of respirators?

A: Employers are required to evaluate the respiratory hazards in the workplace, including a reasonable estimate of employee exposures to those hazards, identify relevant workplace and user factors, and base respirator selection on these factors. The standard does not specify how the employer is to make reasonable estimates of employee exposures, nor does the standard require the employer to monitor and measure worker exposures. Although CalOSHA is a strong advocate of personal exposure monitoring, other options are discussed. One is to use available information that indicates that handling the product or material cannot, under worst-case conditions, release airborne contaminants at a concentration that would trigger the need for a respirator, or for using a more protective respirator. Another option is a mathematical approach using data on physical and chemical properties of the contaminant combined with room dimensions, air exchange rates, contaminant release rates and other pertinent data. If the employer is unable to determine employee exposures, the atmosphere must be considered Immediately Dangerous to Life and Health (IDLH) and a full facepiece pressure demand SCBA with a minimum service life of 30 minutes used. This portion of the standard also specifies appropriately protective respirators for use in IDLH atmospheres, and limits the selection and use of air purifying respirators. The general requirements governing the selection of respirators are:

- Respirator selection shall be based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability (i.e. temperature, humidity, duration and communication needs)
- The employer shall select a NIOSH-certified respirator and its use shall be in compliance with the conditions of its certification
- The employer shall identify and evaluate the respiratory hazard(s) of the workplace; this evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminants chemical state and physical form. Where the employer cannot identify or reasonably estimate the employee exposure, the employer shall consider the atmosphere to be IDLH

- A sufficient number of respirator models and sizes shall be selected so that the respirator is acceptable to and correctly fits the user
 - ✓ Respirators for IDLH atmospheres – An employer shall provide the following respirators for use in IDLH atmospheres:
 - A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of 30 minutes, **or**
 - A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air
 - Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used
 - All oxygen deficient atmospheres shall be considered IDLH
 - ✓ Respirators for non-IDLH atmospheres - An employer shall provide a 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 for use in non-IDLH atmospheres:
 - The respirator selected shall be appropriate for the chemical state and physical form of the contaminant
 - For protection against gases and vapors, the employer shall provide:
 - ◆ An atmosphere-supplying respirator, or
 - ◆ An air-purifying respirator, provided that the respirator is equipped with a NIOSH certified End-of-Service-Life indicator or the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. In this case, the employer is required to describe in the written respiratory protection program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for the reliance on the data.
 - For protection against particulates, the employer shall provide:
 - ◆ An atmosphere-supplying respirator, or
 - ◆ An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate

air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84

Q: What are the new medical evaluation requirements?

A: Before an employee is fit tested or wears a respirator *for any reason*, they must first be given a medical evaluation to determine the employee's ability to use a respirator. The medical evaluation must be performed by a physician or other licensed health care professional using the questionnaire in Appendix C of the standard (see accompanying documents). Follow-up medical exams are only necessary if an employee answers "Yes" to certain questions on the questionnaire. For example, if an employee who smokes, is diabetic, claustrophobic, has a history of heart problems, asthma, lung cancer, or who has symptoms of pulmonary or lung illnesses will be required to have a medical exam.

Additional (i.e. routine) medical evaluations are required only under specific conditions. These conditions include:

- ✓ When an employee reports they have medical signs and symptoms that are related to their use of a respirator
- ✓ If the health care provider, supervisor, or program administrator determines that an employee needs to be re-evaluated
- ✓ If program information such as respirator fit testing and program evaluations indicate a need for a re-evaluation
- ✓ If changes occur in the workplace that may increase the physiological burden when wearing a respirator (i.e. protective clothing, physical work activities, temperature, etc.)

Q: What are the fit testing requirements?

A: Another regulatory enhancement contained in the new standard is that fit testing protocols are now found in one standard. In the past, fit testing protocols were dispersed throughout various health specific standards. Appendix A (included in the accompanying documents) gives specific details for performing qualitative and quantitative fit tests.

- Summary of Qualitative Fit Tests (QLFT): In addition to the three QLFT protocols already approved under the old standard (isoamyl acetate, saccharin solution aerosol and irritant smoke) OSHA has added the Bitrex protocol. Similar to the saccharin solution aerosol method, it uses a taste aversion agent (bitter tasting) that is endorsed by the American Medical Association of Poison Control Centers. Although there has been much controversy regarding the use of irritant smoke,

OSHA elected to keep this protocol as they determined that if irritant smoke is used according to the protocol (e.g. not used in enclosed room, using as little as possible for the sensitivity method and not repeating the test several times if the fit does not pass, etc.) the product has proven over the years to be a safe and affordable fit test method.

- Quantitative Fit Test Method (QNFT): The final rule includes three approved QNFT methods. These are the generated aerosol protocol, the Portacount™ that uses ambient aerosol as the test agent and a condensation nuclei counter as the test instrument, and a controlled negative pressure (CNP) protocol (i.e. Dynatech Fit Tester 3000™). OSHA requires that tight-fitting half face piece and full facepiece respirators meet certain “fit factors”. The fit factor is a numerical value that is based on the protective factor of the respirator using assigned protective factors (ASPs).
- General Fit Testing Requirements:
 - ✓ Before an employee is **required** to wear any negative or positive pressure respirator with a tight fitting facepiece
 - ✓ If a different style, size or make is used
 - ✓ And at least annually thereafter
 - ✓ Whenever changes in the physical condition of the employee could affect respirator fit (e.g. facial scarring, dental changes, cosmetic surgery or an obvious change in employees' body weight)
 - ✓ The fit test shall be administered using an OSHA accepted QLFT or QNFT protocols contained in Appendix A of the standard (see accompanying documents)
 - ✓ QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less
 - ✓ Fit testing of tight fitting atmosphere-supplying respirators and tight fitting powered air-purifying respirators shall 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. This requires the employer to temporarily convert the respirator facepiece into a negative pressure respirator for the QLFT test, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate. OHA notes that SCBA manufacturers such as MSA, Interspiro and Survivair sell fit testing adapters for this very purpose.

Q: What are the requirements regarding facepiece seal protection?

A: The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

- ✓ Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function or any other condition that interferes with the face-to-facepiece seal or valve function.

Although the final standard is quite clear on facial hair when using respirators, this requirement only applies to tight-fitting respirators, thus giving the employer some flexibility.

For example, if the employer's evaluation of the respiratory hazards in the workplace allow respirator facepieces that are not tight-fitting (e.g. respirator hoods or helmets) then facial hair is not prohibited. Bear in mind, though, that according to the standard, any IDLH atmosphere requires an SCBA or SAR, both of which require tight-fitting facepieces. Therefore, **water/wastewater workers who are required to wear an SCBA or an SAR will have to be clean shaven.**

Q: What are the other new requirements regarding respirator use?

A: Employees must also perform user seal checks each time they put on any type of tight-fitting respirator. If both **positive and negative seal checks** cannot be performed on a tight-fitting respirator (including positive pressure respirators), the final rule prohibits using that respirator. Instead of using the seal check protocol found in Appendix B, the employer may use the manufacturer's recommended procedures if the employer demonstrates that the manufacturer's procedures are as effective. OSHA is hoping this that this rule will provide incentives to respirator manufacturers to develop new user seal check methods and to develop respirators for which user seal checks can be performed.

Q: What are the requirements regarding IDLH atmospheres?

A: For all IDLH atmospheres, the employer shall ensure that:

- ✓ One employee or, when needed, more than one employee is located outside the IDLH atmosphere
- ✓ Visual, voice or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere
- ✓ The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue
- ✓ The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue

- ✓ The employer or designee authorized to do so by the employer, once notified, provides necessary assistance appropriate to the situation
- ✓ Employee(s) located outside the IDLH atmosphere are equipped with:
 - Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied air-respirator with auxiliary SBA and **either**:
 - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry **or**
 - Equivalent means for rescue where retrieval equipment is not required

Q: What are the respirator maintenance and care requirements?

A: Respirators must be **cleaned and disinfected** using the procedures found in Appendix B-2 (enclosed) at the following frequencies:

- ✓ Exclusive use respirators → as often as necessary to remain sanitary
- ✓ Shared respirators → before being worn by the next individual
- ✓ Emergency use respirators → after each use
- ✓ Respirators used for fit testing or training → after each use

Q: What are the storage requirements?

A: Respirators must be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals. Also, they must be stored or packed to prevent deformation of the facepiece and exhalation valve.

In addition, emergency respirators must be kept accessible to the work area in containers that are clearly marked as containing emergency respirators.

Q: What are the inspection requirements?

A: Inspection frequencies and procedures are also specified. All respirators must be inspected at the following frequencies:

- ✓ Routine use respirators → before each use and during cleaning
- ✓ Emergency escape-only respirators → before being carried into the workplace for use
- ✓ Emergency use respirators → at least **monthly** in accordance with manufacturer's recommendations and including the following:
 - ✓ Function checks before and after each use
 - ✓ Certifying the respirator by documenting the date, name or signature, findings, any necessary remedial action, and serial number or other respirator identification. This

documentation must be attached to the storage compartment, kept with the respirator or be part of a paper or electronic inspection report.

- ✓ **SCBAs:** In addition to the general checks, the following special inspections must be performed on SCBAs:
 - ✓ Air and oxygen cylinders must be maintained in a fully charged state and be recharged when the pressure falls to **90%** of the manufacturer's recommended pressure level
 - ✓ Function checks on the regulator and warning devices