COMMONWEALTH of VIRGINIA

DEPARTMENT OF LABOR AND INDUSTRY

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VIRGINIA SAFETY AND HEALTH CODES BOARD

BRIEFING PACKAGE

FOR DECEMBER 14, 2004

Respiratory Protection Standard, §1910.134; Revisions to Appendix A -- Controlled Negative Pressure REDON Fit Testing Protocol

I. Action Requested.

The Virginia Occupational Safety and Health (VOSH) Program requests the Safety and Health Codes Board to consider for adoption federal OSHA's revised Appendix A: Controlled Negative Pressure REDON Fit Testing Protocol, to the Respiratory Protection Standard, §1910.134, as published in 69 FR 46986 on August 4, 2004.

The proposed effective date is for March 15, 2005.

II. Summary of the Amendment.

Federal OSHA has approved an additional quantitative fit testing protocol, the controlled negative pressure (CNP) REDON fit testing protocol, for inclusion in Appendix A of its Respiratory Protection Standard, §1910.134. The CNP REDON protocol will assess respirator fit effectively and also will train employees to detect leakage while donning and doffing a respirator. (69 FR 46989) The CNP REDON protocol is not expected to replace existing fit testing protocols, but instead is an alternative to them. Federal OSHA has adopted its protocol under the provisions of the Respiratory Protection Standard that allow individuals to submit evidence for including additional fit testing protocols in this standard. (67 FR 46986)

The CNP REDON protocol requires the performance of three different test exercises followed by two redonnings of the respirator. The three test exercises, listed in order of administration, are normal breathing, bending over, and head shaking. (69 FR 46986) The CNP protocol previously approved by federal OSHA specifies eight test exercises, including one redonning of the respirator. In addition to amending the Respiratory Protection Standard to include the CNP REDON protocol, federal OSHA also made several editorial and non-substantive technical revisions to the standard associated with the CNP REDON protocol and the previously approved CNP protocol. The technical revisions include the following:

A. Paragraph 14(a) of Part I.A in Appendix A of the Respiratory Protection Standard would exempt both the previously approved CNP protocol and the CNP REDON protocol from the test exercises specified for the other approved fit testing protocols listed in the appendix. OSHA deemed this revision necessary because the CNP REDON protocol consists of a test exercise procedure that differs substantially from the procedure required for the other OSHA-approved fit testing protocols. (69 FR 46987)

B. In the introductory paragraph in Part I.A. of Appendix A, the outdated reference to the CNP instrument manufacturer as "Dynatech Nevada" was corrected to "Occupational Health Dynamics of Birmingham, Alabama" to accurately identify the current manufacturer of this instrument.

C. Paragraph (c) of the previously approved CNP protocol under Part I.A.4 of the Respiratory Protection Standard was revised to include the screen tracing currently provided on the CNP test instrument as a visual warning device to detect test subjects' non-compliance with the breath-hold procedure.

D. In paragraph (a)(5) of the previously approved CNP protocol, the breath-hold requirement was corrected to 10 seconds from 20 seconds because implementing correct fit test procedures would improve the assessment of respirator fit factors using the previously approved CNP protocol as well as the new CNP REDON protocol. (*Id*.)

III. Basis, Purpose and Impact of the Amendment.

A. Basis.

The Respiratory Protection Standard includes the following three quantitative fit testing protocols: Generated-aerosol; ambient-aerosol condensation nuclei counter; and controlled negative pressure (CNP). Part II of Appendix A of the Respiratory Protection Standard specifies, in part, the procedure individuals must follow to submit new fit testing protocols for OSHA's consideration. The criteria OSHA uses for determining whether to propose adding a fit testing protocol to the Respiratory Protection Standard include:

(1) a test report prepared by an independent government research laboratory; or

(2) an article published in a peer-reviewed industrial-hygiene journal describing the protocol and explaining how test data support the accuracy and reliability of the protocol. When

the protocol meets one of these criteria, OSHA conducts a notice-and-comment rulemaking under Section 6(b)(7) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 655). The CNP REDON protocol met the second of these criteria. (69 FR 46986)

B. Purpose.

The purpose of the new quantitative fit-testing protocol is to give employers an additional protocol to assist workers and employers in the proper fit and selection of respirators based on the conditions in the workplace.

C. Impact on Employers.

The protocol affects OSHA Respiratory Protection Standards for general industry, shipyard employment and construction. Employers covered by this revision already must comply with the fit testing requirements specified in paragraph (f) of the Respiratory Protection Standard, § 1910.134. This revision offers employers an opportunity to adopt an additional protocol to use in assessing respirator fit among their employees. (69 FR 46991)

With this final rule, employers now have a choice between the previously approved CNP protocol consisting of eight exercises, including one redonning of the respirator, or the new CNP REDON protocol, which involves three exercises and two redonnings of the respirator. By providing regulatory flexibility to employers, the addition of the CNP REDON protocol may reduce their costs in terms of decreasing the time required to fit test their employees for respirator use. (*Id.*)

D. Impact on Employees.

Selecting the proper respirator is a vital step in protecting a user against potential over-exposures and adverse health effects. The CNP REDON protocol, through effective fit testing and training, will improve employee confidence that their respirators fit properly. (69 FR 46989)

The new CNP REDON fit testing protocol provides employees with protection that is comparable to the protection afforded to them by the existing fit testing provisions. Therefore, OSHA found that the final standard does not directly increase or decrease the protection afforded to employees. (69 FR 46991)

E. Impact on the Department of Labor and Industry.

No impact on the Department is anticipated by this action.

Federal regulations 29 CFR 1953.23(a) and (b) require that Virginia, within six months of the occurrence of a federal program change, to adopt identical changes or promulgate equivalent changes which are at least as effective as the federal change. The Virginia Code reiterates this requirement in § 40.1-22(5). Adopting these revisions will allow Virginia to conform to the federal program change.

F. Technology Feasibility.

The new CNP REDON protocol is a variation of the CNP protocol developed in the early 1990's and which federal OSHA approved for inclusion in paragraphs (a) and (d) of Part I.C.4 of Appendix A when OSHA revised its Respiratory Protection Standard. The CNP REDON protocol has the same fit-test requirements and uses the same test equipment as the CNP protocol previously approved by OSHA. The only difference between the new CNP REDON protocol and the previously approved CNP protocol is the exercise procedure used during fit testing. (69 FR 46986-87)

G. Benefits.

Based on data collected under controlled laboratory conditions, OSHA determined that CNP REDON protocol results consistently produce fit factors that are substantially lower than fit factors obtained using the most commonly used ambient-aerosol fit testing protocol. Lower fit factors indicate that CNP REDON protocol detects more respirator leaks than the ambient-aerosol protocol, thereby providing employees with an increased margin of safety when they select respirators. (69 FR 46987)

Compared to the previously approved CNP protocol, the CNP REDON protocol obtains at least the same overall fit factors with fewer exercises and in less time. (*Id.*)

H. Costs.

OSHA has determined that this revision imposes no additional costs on any private or public sector entity. The substantive content of the revision applies only to employers whose employees use respirators for protection against airborne workplace contaminants, and compliance with the revision would be strictly optional for these employers. The revision would require no additional expenditures by either public or private employers. (69 FR 46992-3)

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RECOMMENDED ACTION

Staff of the Department of Labor and Industry recommends that the Safety and Health Codes Board adopt the Controlled Negative Pressure REDON Fit Testing Protocol in Appendix A of the Respiratory Protection Standard, §1910.134, and related editorial and non-substantive technical revisions, as authorized by Virginia Code §§ 40.1-22(5) and 2.2-4006.A.4(c), with an effective date of March 15, 2005.

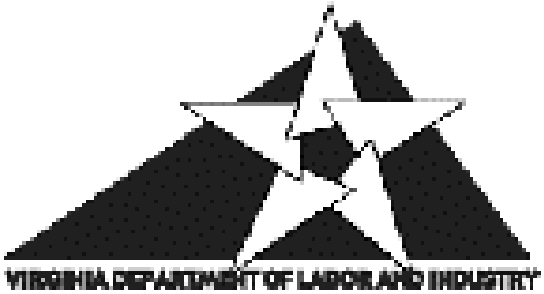
The Department also recommends that the Board state in any motion it may make to amend this regulation that it will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision of this or any other regulation which has been adopted in accordance with the above-cited subsection A.4(c) of the Administrative Process Act.

Respiratory Protection Standard, §1910.134; Revision to Appendix A -- Controlled Negative Pressure REDON Fit Testing Protocol

As Adopted by the

Safety and Health Codes Board

Date: _____



VIRGINIA OCCUPATIONAL SAFETY AND HEALTH PROGRAM

VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY

Effective Date: _____

16 VAC 25-90-1910.134

When the regulations, as set forth in the revisions to Appendix A: Controlled Negative Pressure REDON Fit Testing Protocol of the Respiratory Protection Standard, §1910.134, are applied to the Commissioner of the Department of Labor and Industry and/or to Virginia employers, the following federal terms shall be considered to read as below:

Federal Terms	VOSH Equivalent
29 CFR	VOSH Standard
Assistant Secretary	Commissioner of Labor and Industry
Agency	Department
September 3, 2004	March 15, 2005

PART 1910—[AMENDED]

Subpart I—[Amended]

■ 1. Revise the authority citation for subpart I of part 1910 to read as follows:

Authority: Sections 4, 6 and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, and 657); Section 107, Contract Work Hours and Safety Standards Act (the Construction Safety Act; 40 U.S.C. 333); Section 41, Longshore and Harbor Worker's Compensation Act (33 U.S.C. 941); and Secretary of Labor's Order Nos. 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2002 (67 FR 65008), as applicable.

Sections 29 CFR 1910.132, 1910.134, and 1910.138 also issued under 29 CFR part 1911.

Sections 29 CFR 1910.133, 1910.135, and 1910.136 also issued under 29 CFR part 1911 and 5 U.S.C. 553.

■ 2. Amend Part I in Appendix A to § 1910.134 as follows:

■ A. In Section A, revise the introductory text of paragraph 14(a).

■ B. In Section C, paragraph 4, 8th sentence, remove the name "Dynatech Nevada" and add, in its place, "Occupational Health Dynamics of Birmingham, Alabama."

■ C. In Section C, revise paragraphs 4(a)(5) and (6).

■ D. In Section C, revise paragraph 4(c)(1).

■ E. In Section C, add paragraph 5 at the end of Part I.

The revised and added text reads as follows:

§ 1910.134 Respiratory protection.

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Appendix A to § 1910.134: Fit Testing Procedures (Mandatory)

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Part I. OSHA—Accepted Fit Testing Protocols

A. Fit Testing Procedures—General Requirements

* * * * *

14. Test Exercises. (a) Employers must perform the following test exercises for all fit testing methods prescribed in this appendix, except for the CNP quantitative fit testing protocol and the CNP REDON quantitative fit testing protocol. For these two protocols, employers must ensure that the test subjects (*i.e.*, employees) perform the exercise procedure specified in Part I.C.4(b) of this appendix for the CNP quantitative fit testing protocol, or the exercise procedure described in Part I.C.5(b) of this appendix for the CNP REDON quantitative fit-testing protocol. For the remaining fit testing methods, employers must ensure that employees perform the test exercises in the appropriate test environment in the following manner:

* * * * *

C. * * *

* * * * *

(4) * * *

(a) * * *

* * * * *

(5) The employer must train the test subject to hold his or her breath for at least 10 seconds.

(6) The test subject must don the test respirator without any assistance from the test administrator who is conducting the CNP fit test. The respirator must not be adjusted once the fit-test exercises begin. Any adjustment voids the test, and the test subject must repeat the fit test.

* * * * *

(c) * * *

(1) The test instrument must have an effective audio-warning device, or a visual-warning device in the form of a screen tracing, that indicates when the test subject fails to hold his or her breath during the test. The test must be terminated and restarted from the beginning when the test subject fails to hold his or her breath during the test. The test subject then may be refitted and retested.

* * * * *

5. Controlled negative pressure (CNP) REDON quantitative fit testing protocol.

(a) When administering this protocol to test subjects, employers must comply with the requirements specified in paragraphs (a) and (c) of Part I.C.4 of this appendix (''Controlled negative pressure (CNP) quantitative fit testing protocol''), as well as use the test exercises described below in paragraph (b) of this protocol instead of the test exercises specified in paragraph (b) of Part I.C.4 of this appendix.

(b) Employers must ensure that each test subject being fit tested using this protocol follows the exercise and measurement procedures, including the order of administration, described below in Table A–1 of this appendix.

TABLE A–1.—CNP REDON QUANTITATIVE FIT TESTING PROTOCOL

Exercises[1]	Exercise procedure	Measurement procedure
Facing Forward	Stand and breathe normally, without talking, for 30 seconds	Face forward, while holding breath for 10 seconds.
Bending Over	Bend at the waist, as if going to touch his or her toes, for 30 seconds	Face parallel to the floor, while holding breath for 10 seconds
Head Shaking	For about three seconds, shake head back and forth vigorously several times while shouting.	Face forward, while holding breath for 10 seconds
REDON 1	Remove the respirator mask, loosen all facepiece straps, and then redon the respirator mask.	Face forward, while holding breath for 10 seconds.
REDON 2	Remove the respirator mask, loosen all facepiece straps, and then redon the respirator mask again.	Face forward, while holding breath for 10 seconds.

[1] Exercises are listed in the order in which they are to be administered.

(c) After completing the test exercises, the test administrator must question each test subject regarding the comfort of the respirator. When a test subject states that the respirator is unacceptable, the employer must ensure that the test administrator repeats the protocol using another respirator model.

(d) Employers must determine the overall fit factor for each test subject by calculating the harmonic mean of the fit testing exercises as follows:

$$\text{Overall Fit Factor} = \frac{N}{\left[1/FF_1 + 1/FF_2 + \ldots\ 1/FF_N\right]}$$

Where:

N = The number of exercises;
FF_1 = The fit factor for the first exercise;
FF_2 = The fit factor for the second exercise; and
FF_N = The fit factor for the nth exercise.

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