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April 13, 1995

OSHA
DOCKET OFFICER
DATE APR 13 1995

Mr. Tom Hall
Division of Consumer Affairs
Docket H-049
Occupational Safety and
Health Administration
Room 3647
200 Constitution Avenue, N.W.
Washington, D.C. 20210

Re: Notice of Proposed Rulemaking
Respiratory Protection, 59 FR
58884, November 15, 1994

Dear Mr. Hall:

Organization Resources Counselors, Inc. (ORC) appreciates this opportunity, and is pleased to submit its comments on OSHA's Notice of Proposed Rulemaking on Respiratory Protection, which was published in the Federal Register (59 FR 58884) on November 15, 1994.

Organization Resources Counselors, Inc. (ORC) has specialized in occupational safety and health issues since shortly after the passage of the Federal Occupational Safety and Health Act of 1970. Working with approximately 135 mostly Fortune 200 companies in diverse industries, all of which have a strong commitment to employee safety and health, ORC addresses health and safety standards development and compliance activities of federal and state governments. ORC also works with companies in the successful planning and implementation of occupational safety and health programs.

ORC supports OSHA in its efforts to revise and update §1910.134. Section 1910.134 has served industry and OSHA well, providing solid guidance for employers and employees alike in the proper use of respirator protective equipment in the workplace.

Mr. Tom Hall
April 18, 1995
Page 2

1910.134 was in many ways a "performance Standard" one that was highly adaptable to many different circumstances. As OSHA proceeds with its revision of §1910.134, ORC would like to suggest that the revised standard be truly a "generic" standard that can be applied whenever and wherever respirators are used in the workplace.

ORC appreciates this opportunity to comment on OSHA's Proposed Rule on Respiratory Protection and looks forward to working with OSHA in the future.

Sincerely,

Daull W. Mattheis
for
Frank A. White

ORGANIZATION RESOURCES COUNSELORS INC.
COMMENTS ON OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
NOTICE OF PROPOSED RULEMAKING, FOR RESPIRATORY PROTECTION
59 FR 58884, NOVEMBER 15, 1994

INTRODUCTION

Respirators are an important means of protecting employees from exposure to potentially toxic substances. As such, it is appropriate that OSHA update its Respiratory Protection Standard, 1910.134 to reflect changes that have taken place both in the nature of the equipment and how it is used. ORC commends OSHA for the thoroughness of its efforts on the preparation of this NPR.

FORMAT OF ORC'S COMMENTS

In its Notice of Proposed Rulemaking (NPR) OSHA has asked many questions dealing with virtually every aspect of respirator use and technology. ORC appreciates the opportunity to comment on these issues. In its comments, ORC has attempted to respond in a similar manner to each OSHA question. Where appropriate, we have reproduced (and placed in italics) the exact text of OSHA's questions so it will be clear to reviewers to which question ORC is responding. OSHA's question is followed by ORC's "SUGGESTIONS", and third, by "Comments", if any, elaborating on the issue.

KEY ISSUES

Among the issues discussed in ORC's comments, there are several key points that we would like to emphasize:

- ▶ OSHA should make 1910.134 a true generic standard.
- ▶ NIOSH's failure to complete revision of 30 CFR Part 11.
- ▶ The impact of NIOSH's revision of many IDLH Values.
- ▶ Voluntary use of respirators.
- ▶ The practical utility of Alternative Three for medical surveillance.

A TRUE GENERIC STANDARD

This is an ideal time for OSHA to tailor its Respiratory Protection Standard to be a true generic standard. 1910.134 should be "dovetailed" to fit with the building block standards that OSHA is currently developing. A revised 1910.134 should be flexible enough that it can be applied to every Permissible Exposure Limit and or 6(b)(5) standard that is developed. There should be no need for OSHA to develop separate respirator provisions for any future health standards or PELs. Current standards should have their respirator provisions modified so that requirements for respirator programs are uniform across all OSHA standards, old as well as new.

NIOSH REVISION OF 30 CFR PART 11

OSHA began its efforts at revision of 1910.134 over ten years ago, and NIOSH has been involved in the revision of the respirator testing and certification requirements for longer than that. NIOSH's failure, over this extended period of time, to complete and publish its revision of 30 CFR 11 has needlessly complicated both OSHA's task in writing this NPR, and employer's attempts to respond. Because NIOSH has not developed and published up-to-date Assigned Protection Factors (APF), OSHA has proposed the required use of NIOSH's outdated Respirator Decision Logic (RDL) to arrive at APFs for various respirators. For example, the use of NIOSH's RDL would assign some types of respirators such as hooded/helmeted Powered Air Purifying Respirators (PAPR) APFs that are not supported by the proven capability of these pieces of equipment. It should not be necessary for OSHA to propose the use of outdated, and questionable documents such as NIOSH's RDL in the update of its respirator standard. To do so is an effective negation of the rationale for revision of 1910.134 in the first place. OSHA should reject the use of NIOSH's RDL and instead develop its own set of selection criteria, or use that in Table I, ANSI Z88.2, 1992.

NIOSH REVISION OF IDLH VALUES

In the June 1994 update of its Pocket Guide To Chemical Hazards NIOSH changed Immediately Dangerous To Life and Health (IDLH) values for many chemicals. Since the NIOSH RDL uses IDLH values as a key criterion for the selection of a respirator, and how and where it may be used for a particular chemical, lowering IDLHs will have a sharp impact on respirator use. NIOSH requested comments and data on IDLHs December 1, 1993, (58 FR 63379) but did not make an effective effort to involve the health and safety community, including other Federal Agencies, in this important project. NIOSH is not officially a regulatory agency, yet its IDLH's have a far-reaching impact on all users of respiratory protective equipment. The Pocket Guide To Chemical Hazards is a useful document. However, because NIOSH is a non-regulatory agency, NIOSH IDLHs should not be simply incorporated into OSHA's Respiratory Protection Standard. Regulatory limits such as IDLHs should be proposed by OSHA, and public hearings held on those values, just as OSHA must for PELs, or for this revision of 1910.134.

VOLUNTARY USE OF RESPIRATORS

OSHA should not require a complete respirator program for the voluntary use of respirators by employees, where not required by an OSHA standard, or by the employer. Some employees will wish to use respirators even though they are not required to protect against overexposure to a toxic hazard. In these instances the employer

should be required only to inform the employee of the safe and proper use of such respirators and any associated limitations on the particular device chosen.

ALTERNATIVE THREE FOR MEDICAL SURVEILLANCE

The administration of an appropriate medical screening questionnaire to all employees who are being asked to wear a respirator, is both protective and cost effective. A properly designed medical questionnaire can screen out those individuals who might need medical surveillance to determine if they can safely use a respirator from those who have no problem. This simple and effective tool, because it is easy to administer and inexpensive, can assure that more respirator wearers with potential problems will be detected because it is more likely to be used than expensive, comprehensive medical screening for all potential users. OSHA should seriously consider requiring only Alternative Three for medical screening for its revision of 1910.134.

ISSUES IDENTIFIED FOR COMMENT FROM THE PREAMBLE

OSHA PREAMBLE COMMENT: Economic Impact and Feasibility

OSHA assessed the potential economic impacts and has preliminarily determined that the standard is economically feasible for each of the major industry groups that will be affected. OSHA conducted its analysis at the two-digit SIC level.

Request For Comments: Economic Analysis-Two Digit Level

(3) If any interested person has information to show that the analysis at the two-digit level is not representative of the potential economic impact of the proposal, OSHA requests the following information:

(a) Reasons why the preliminary regulatory impact analysis is not reflective of the actual anticipated costs in any particular sector;

(b) Specific information as to why the analysis at the two-digit level fails to adequately represent the economic impact; and,

(c) Specific information to help OSHA to better predict the impact on the sector in question.

ORC Comment

ORC suggests that OSHA re-analyze the incremental costs of this regulation using Standard Industrial Classification Manual codes at the 4-digit level instead of the 2-digit level. The current 2-digit analysis appears to underestimate the incremental costs for chemical manufacturing and petroleum refining. For example, for one ORC member company, additional fit-testing along at six company facilities would cost \$220,000, or an average of \$37,000 per establishment. This figure does not include higher costs for employee training, respirator use during confined space entry, and other program elements associated with OSHA's proposed respirator standard. (1)

(a) SCOPE OF THE STANDARD

ORC Comment On Paragraph (a)(1)

ORC recommends that OSHA rewrite Section (a)(1) to read as follows:

This standard applies when the use of a respirator, by an employee, is necessary to reduce exposure to a toxic substance that exceeds a Permissible Exposure Limit, or is required by an employer.

OSHA QUESTION (a) (2): Voluntary Use of Respirators

OSHA is seeking comment on the appropriateness of the scope of the respirator standard, and on whether the scope of the standard should go beyond required respirator use to include voluntary respirator use situations as well. (P-58896)

ORC SUGGESTION

OSHA should not include voluntary respirator use in the scope of 1910.134.

ORC Comment

Where respiratory protective devices are worn on a voluntary basis, airborne exposures are not above an OSHA PEL, and the employer has not required their use, employees should be informed of the most suitable kind of respirator, its proper use and limitations, and proper maintenance. Voluntary respirator use is defined by OSHA on p.58895 as existing when a respirator is used by an employee but its use is not required by OSHA standards or by the employer. ORC supports the position expressed by OSHA's Directorate of Compliance Programs in several published letters of interpretation. Copies of these letters are attached as appendix (A).

If the scope of this standard covers the voluntary use of respirators, an employee attempting to avoid possible exposure by using a respirator voluntarily, would be discouraged from doing so because of the many steps that would be required prior to respirator use, such as medical approval and fit-testing. Such requirements would also discourage employers from allowing the voluntary use of respirators in the workplace.

OSHA REQUEST FOR COMMENTS: Low Risk Respirator Use

OSHA requests comments on whether there are certain low risk respirator use situations which could justify the reduction or elimination of certain provisions in the mandatory respirator program in order to provide additional compliance flexibility. (P-58896)

ORC SUGGESTION

In situations where a respirator is not needed to meet an OSHA Permissible Exposure Limit (PEL) but the employer requires that it be worn to reduce unnecessary exposure, program elements such as selection, fit testing, training and medical surveillance

(questionnaire) should be required. If the type of respirator worn, such as a PAPR or disposable dust respirator, does not subject the employee to substantially increased physiological burden, provisions of the respirator standard such as fit-testing and medical screening could be relaxed. If however the respirator is being worn voluntarily by an employee, and an OSHA PEL is not being exceeded, the employer's only obligation should be to train the employee in the proper use and care of the respirator and its limitations.

(b) DEFINITIONS

OSHA DEFINITION: Adequate Warning Properties

Means the detectable characteristics of a hazardous chemical including odor, taste, and/or irritation effects which are detectable and persistent at concentrations at or below the hazardous exposure level, and exposure at these low levels does not cause olfactory fatigue.

ORC SUGGESTION

This definition should be rewritten or removed from the standard. ORC recommends that OSHA adopt the definition used in ANSI Z88.2-1992 and rewrite Sections (d)(8) and (d)(9)

"Poor Warning Properties: Means a substance whose odor, taste, or irritation effects are not detectable or not persistent at concentrations at or below the exposure limit."

ORC Comment

When an individual is required to wear a respirator to protect against exposure to a potentially toxic substance, it seems foolish to depend on the sense of smell to warn the user that the respirator is no longer giving protection. If the hazards associated with exposure to a material are great enough to warrant the required use of a respirator, they are sufficient to require that mandated change schedules for cartridge/canisters be implemented regardless of odor threshold. Similarly, failure to be able to "smell" a chemical is a poor criterion for not using a respirator of any type.

The ability to smell varies widely among individuals, and even in the same person over time. Olfactory fatigue is an important issue when considering the warning properties of a chemical. We know that the phenomenon of olfactory fatigue exists, but it is difficult to measure, is variable among individuals and substances, and is virtually impossible to predict a threshold for. There is no way to be guarantee that an individual will be able to "smell" a chemical if it enters into a respirator.

OSHA DEFINITION: Hazardous Exposure Level

Means (1) Airborne concentrations above the permissible exposure limit (PEL) for the hazardous chemical in 29 CFR Part 1910, Subpart Z, of the General Industry Standards of the Occupational Safety and Health Administration (OSHA).

(2) If there is no PEL for the hazardous chemical, the Threshold Limit Values (TLV) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) in the latest edition of Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment: or,

(3) If there is no PEL or TLV for the hazardous chemical, the NIOSH Recommended Exposure Limit (REL); or,

(4) If there is no PEL, TLV, or REL for the hazardous chemical, an exposure level based on available scientific information including material safety data sheets. (P-58938)

ORC SUGGESTION

ORC suggests that OSHA change the wording on this definition to read as follows:

Respirator Use Initiation level: Means: (1) Airborne concentrations above the Permissible Exposure Limit (PEL) for the hazardous chemical in 29 CFR Part 1910, Subpart Z, of the General Industry Standards of the Occupational Safety and Health Administration (OSHA). If no PEL exists, the employer should use professional judgement based on available hazard information.

ORC Comment

ORC agrees with OSHA that it is necessary to have a clear point at which respirator use should begin, and also agrees that OSHA PELs are appropriate to use for that purpose. Where there is no PEL for a chemical, OSHA should allow employers flexibility in selecting which exposure limits they will use, rather than requiring the use of the TLV or REL. Additionally, to avoid potential confusion, OSHA should make it clear that employers are not required to develop and set their own exposure limits. The present language in the preamble could easily be interpreted to imply that employers must set an exposure level, even though the preamble indicates otherwise.

OSHA DEFINITION: Immediately Dangerous to Life or Health or IDLH

Means an atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere.

OSHA REQUEST FOR COMMENTS: Definition of IDLH

Comment is requested on this definition of Immediately Dangerous to Life or Health, and on its appropriateness for respiratory protection standards. (P-58897)

ORC SUGGESTION

OSHA should replace its definition of IDLH with that found in ANSI Z88.2-1992 as follows:

"Immediately dangerous to life or health (IDLH): Any atmosphere that poses an immediate hazard to life or poses immediate irreversible debilitating effects on health."

ORC Comment

An IDLH atmosphere by OSHA's definition, if taken literally, includes chronic toxins such as asbestos since a delayed adverse health effect is possible from a high exposure. ANSI's definition is more accurate. Non-acute effects are not immediately dangerous to life and health.

ORC Comment: NIOSH IDLH Values

ORC is concerned that at the present time, the main organization setting IDLH values is NIOSH. These values are published in NIOSH's "Pocket Guide to Chemical Hazards" and were developed with limited industry input and limited peer review. The industrial hygiene community was not actively involved in peer review of these values prior to their publication. Many of the IDLH values were lowered, some significantly, which will have a direct impact on compliance with OSHA's proposed respirator standard. The Emergency Response Planning Guidelines (ERPGs), developed under the auspices of the American Industrial Hygiene Association, are a credible source of IDLH values and they were developed with a high degree of peer review. If OSHA is to adopt NIOSH generated IDLH values, this action should be subject to the rules of administrative procedure.

(2)

OSHA DEFINITION: Oxygen deficient Atmosphere

Means an atmosphere with an oxygen content of less than 19.5% by volume at altitudes of 8000 feet or below. (For altitudes above 8000 feet, see the oxygen deficient IDLH atmosphere definition.)

ORC SUGGESTION

ORC recommends that OSHA follow the ANSI definition which is as follows:

Oxygen deficient atmosphere: Means an oxygen partial pressure of 95 to 122 mm Hg that is not immediately dangerous to life.

Note: At 10,000 feet or higher, an ordinary, supplied-air respirator or SCBA that provides 20.9% oxygen cannot generate 121 mm Hg oxygen partial pressure. Therefore, in cases in which a respirator is required because of oxygen content of less than 20.9 % oxygen, use of a specially designed and approved respirator supplying enriched oxygen or a re-breather SCBA should be used. At least 23% oxygen is required at 10,000 feet and 27% at 14000 feet.
(3)

OSHA DEFINITION: Oxygen deficient IDLH atmosphere

Means an atmosphere with an oxygen content below 16% by volume at altitudes of 3000 feet or below, or below the oxygen levels specified in Table III for altitudes up to 8000 feet, or below 19.5% for altitudes above 8000 up to 14,000 feet.

ORC SUGGESTION

ORC suggests that OSHA substitute the definition from ANSI Z88.2-1992 as follows:

"Oxygen Deficient IDLH Atmosphere means:

(1) A confined space containing less than the normal 20.9% oxygen unless the source of the oxygen reduction is understood and controlled, or,

(2) An oxygen partial pressure of 95 mm Hg or less. The oxygen deficiency may be caused by either a reduction in the normal 20.9% oxygen content, by reduced total atmospheric pressure to 477 mm Hg (8.6 psi) equivalent to 14,000 feet elevation) , or any combination of reduced percentage of oxygen and reduced pressure."

ORC Comment

Any reduction in atmospheric oxygen is potentially IDLH unless the reason for it is understood and controlled. OSHA is defining an IDLH atmosphere as a partial pressure of 100 mm Hg. OSHA states that their definition is the same as the ANSI Z88.2(1980) standard, but has erred in reading the ANSI definition. ANSI defines IDLH as a partial pressure of 100 mm Hg in the upper portion of the lungs. Above 9,000 feet in altitude, OSHA would allow someone to enter a space with an oxygen content of 19.5% without any supplementary air supply. This results in partial pressures in the upper lung less than the ANSI Z88.2-1980 definition of oxygen deficiency. At altitudes greater than 12,000 feet OSHA would allow someone to enter a Z88.2-1992 IDLH atmosphere. OSHA needs to rethink the definition of oxygen deficient atmospheres.

ORC believes that the ANSI 1992 definition is correct and provides a greater margin of safety than the proposed rule. Any deviation from the normal atmospheric concentration of oxygen is considered an IDLH atmosphere. Rarely would someone allow entry into any space where the concentration is lower than expected, since it would be unusual for the cause of the reduced oxygen content to be both known and controlled.

OSHA DEFINITION: Maximum Use Concentration (MUC)

Means the maximum concentration of an air contaminant in which a particular respirator can be used, based on the respirator's assigned protection factor. The MUC cannot exceed the use limitations specified on the NIOSH approval label for the cartridge, canister, or filter. The MUC can be determined by multiplying the assigned protection factor for the respirator by the permissible exposure limit for the air contaminant for which the respirator will be used.

ORC SUGGESTION

OSHA should either delete paragraph (d)(7) or change the definition of "maximum use concentration" to read as follows:

"Maximum Use Concentration: Means the maximum concentration of an air contaminant in which a particular respirator can be used, based on the respirator's assigned protection factor."

ORC Comment

Since NIOSH no longer specifies Maximum Use Concentrations on approval labels, OSHA should not require their use. OSHA's definition of MUC states that "The MUC cannot exceed the use of limitations specified on the NIOSH approval label for the cartridge, canister, or filter." This is no longer a definition, but a regulation and does not belong with definitions.

OSHA DEFINITION: Quantitative fit test (QNFT)

Means an assessment of the adequacy of respirator fit by numerically measuring concentrations of a challenge agent inside and outside the facepiece. The ratio of the two measurements is an index of leakage of the seal between the respirator facepiece and the wearer's face.

ORC SUGGESTION

OSHA should change its definition to the following:

Quantitative fit test (QNFT): Means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

ORC Comment

OSHA's definition could eliminate the use of the condensation nuclei counter (Porta-count) and the controlled negative pressure fit tester. ORC finds the inclusion of the words "challenge agent" to be too restrictive. OSHA has already accepted the use of Porta-count, although cautioning that its use is still considered to be a de minimus violation. If OSHA limits quantitative fit testing to only those methods using "challenge agents" it runs the risk of stifling innovation.

OSHA's definition should be broadened so that use of QNFT methods that do not use a challenge agent will not result in a de minimus violation, assuming they meet the other requirements for acceptable fit test methods.

OSHA DEFINITION: Service life of a chemical or organic vapor cartridge or canister. Means the period of time it takes for a specified concentration of a specific substance to break through the cartridge or canister. This concentration is determined by the manufacturer for each type of cartridge or canister for particular substances.

ORC SUGGESTION

Rewrite the title and the second sentence so that it reads as follows:

Break through of a chemical or organic vapor cartridge or canister: Means the period of time it takes for a specified concentration of a specific substance to break through the cartridge or canister.

and add:

"**Cartridge Service Data:** means that the cartridge service life is either known by direct measurement of the service life through breakthrough studies conducted at the use concentration, or is estimated by some means. This includes, but is not limited to, measurement of breakthrough in the lab or in the field."

ORC Comment

OSHA's definition better describes breakthrough time than service life. The rationale for ORC's suggested change is to allow testing of cartridges to be done by organizations other than the manufacturer. This is important because the cartridge/canister manufacturer may be unwilling to test chemicals that are not widely used in industry. Often an employer will need to have cartridges/canisters tested against specific chemicals to determine their ability to supply adequate protection to respirator users. This practice should be specifically allowed.

There are several methods for obtaining service life of a cartridge. For example, the service life could be estimated by calculations relating one concentration to another, or calculated from the characteristics of a particular cartridge and a specific chemical of concern. It could also be estimated by analogy to other compounds. If the concentration is reduced by a factor of 10, the service life (generally) will be increased by a factor of 5. With these types of general rules, calculations or direct measurements, the service life of a respirator cartridge or canister may be estimated. (4)

ORC SUGGESTION

OSHA should add to its definition list, the definition of a tight-fitting facepiece as used in ANSI Z88.2-1992 as follows:

"**Tight-fitting facepiece:** A respiratory inlet covering that is designed to form a complete seal with the face. A half-facepiece (includes quarter masks, disposable masks, and masks with elastomeric facepieces) covers the nose and mouth; a full facepiece covers the nose, mouth, and eyes."

(C) RESPIRATORY PROTECTION PROGRAM (P-58939)

OSHA REQUEST FOR COMMENTS: Minimum Training Requirements.

OSHA invites further comments on whether specific minimum training requirements for program administrators should be set, and on what the training should be. (P-58899)

ORC SUGGESTION

There should be no specific minimum training for program administrators required in the standard. ORC supports OSHA's comments in the Preamble on (P-58899) and recommends that OSHA add the following sentence taken from the preamble to the standard:

"The level of training for the respirator program administrator/supervisor must be adequate to deal with the complexity of the respirator program." Specific training courses are not required.

(d) SELECTION OF RESPIRATORS (P-58939)

OSHA REQUIREMENT (D) (2)

Where elastomeric facepiece respirators are to be used, the employer shall provide a selection of respirators from an assortment of at least three sizes for each facepiece type, and from at least two different manufacturers.

ORC SUGGESTION

Replace Section (d)(2) with the following:

"(d)(2) Where respirators that rely on a tight facial seal are used, the employer shall provide sufficient sizes and models as necessary to provide an acceptable fit."

ORC Comment

Given the improved size range of respirators available from respirator manufacturers, it makes little sense to continue to require that employers have respirators from two different manufacturers available for selection. This is especially true for sites that have SCBAs for use during emergencies, and for sites that have only a few people in their respirator program. First, it would be impossible to store and maintain an adequate selection of SCBAs with different facepiece sizes and assure that during an emergency an employee would be able to find the specific size that fitted them. Second, the cost of purchasing, and maintaining adequate numbers of SCBAs from two different manufacturers would be excessive; it would essentially double the cost of using SCBAs.

Finally, OSHA has not demonstrated any benefit from having multiple sizes from different manufacturers available for fit testing or employee use. In sites with few wearers, fewer respirators, perhaps even a single size from one manufacturer, may fit all employees.

OSHA REQUIREMENT: (d) (3)

"In addition, the employer shall obtain and evaluate the following information for each work situation:..."

ORC SUGGESTION

OSHA should rewrite this sub-paragraph as follows:

"(d) (3) In addition, the following factors shall be considered when selecting a respirator:

- (i) The nature of the hazard;
- (ii) The physical and chemical properties of the air contaminant;
- (iii) Warning properties of the contaminant;
- (iv) The adverse health effects of the respiratory hazard;
- (v) The nature of the work operation or process;
- (vi) Results of workplace sampling or estimates of the concentration of the contaminant;
- (vii) The relevant exposure limit;
- (viii) Respirator guidelines/requirements if a specific standard exists for the contaminant;
- (ix) The work activities, and potential stress of these work conditions, when wearing a respirator;
- (x) Respirator assigned protection factors;
- (xi) The period of time the respirator must be worn;
- (xii) Fit test results; and,
- (xiii) The physical characteristics, functional capabilities, and limitations of the various types of respirators."

ORC Comment

It is appropriate that OSHA require these elements for the program as a whole, but not separately, for every instance of respirator use. This distinction needs to be made clear. If the information originally mandated by OSHA in this sub-paragraph were required in writing for every instance of respirator use, it would be an

impossible burden that would provide little or not benefit to the respirator wearer. The intent of this sub-paragraph is to require what good programs accomplish for the workplace.

OSHA REQUIREMENT (D) (4)

The employer shall select appropriate respirators from among those approved and certified by the National Institute for Occupational Safety and Health (NIOSH).

ORC SUGGESTION

ORC suggests that OSHA clarify the language addressing selection of "appropriate" respirators in the standard by rewording this paragraph, adding "when available" to the end of the sentence.

ORC Comment

OSHA has included this language in the Preamble in two places: 59 CFR 58900 and 59 CFR 58901, and we believe it is important that it should also be part of the compliance language. We are concerned that, as written, employers would not be permitted to use an organic vapor cartridge/canister for protection from a given chemical unless NIOSH has tested the cartridge/canister against that specific chemical.

Currently, NIOSH "approval and certification" of an organic vapor device applies to "organic vapors". The "approval and certification" process is completed by performing one of three challenge tests (carbon tetrachloride, heptane or pentane). These three materials serve only as a "surrogate" for the general class of "organic vapors". Thereafter, the appropriate application of the organic vapor device is a determination most appropriately made by the employer.

Employers must have the flexibility to conduct and apply independent breakthrough testing results. Without this allowance, OSHA would effectively eliminate the use of air-purifying respirators in the workplace.

OSHA REQUIREMENT: (d) (5)

"The employer shall make types of respirators available for selection and shall assure that employees use respirators in accordance with the assigned protection factor tables in the NIOSH Respirator Decision Logic..."

ORC SUGGESTION

Rather than relying on NIOSH's Respirator Decision Logic (RDL) OSHA should publish an Interim Assigned Protection Factor table based upon the functional effectiveness of different types of

respirators. If OSHA cannot assign different APFs to different types of respirators within a class, ORC suggests that instead of NIOSH's RDL, OSHA use the protection factors listed in ANSI Z88.2-1992 Table 1.

ORC Comment

Such decisions could be based upon credible published data demonstrating the capability of different kinds of respirators to provide protection to their wearers. For instance, filtering facepiece respirators which are widely used throughout industry are given a maximum APF of 5 in NIOSH's RDL. Based upon work done in the United Kingdom and Australia, this number may be both too low and too high! For those filtering facepiece respirators having approval for dust/mist, an APF of 5 is probably too high, for those with approval for dust/mist/fume it is probably correct, and for those with HEPA approval it is probably too low. (5)

ORC believes that the NIOSH RDL is outdated, and no longer accurate. The protection factors assigned by NIOSH are often questionable based upon newer research. This is particularly true for PAPRs with loose fitting hoods and helmets, and does not represent the level of performance that these pieces of equipment are routinely capable of achieving. NIOSH in its RDL, (p-17) has assigned to any powered air-purifying respirator (PAPR) equipped with a loose-fitting hood or helmet, or any supplied-air respirator equipped with a hood or helmet and operated in a continuous flow mode, a protection factor of 25. PAPRs equipped with a tight-fitting facepiece and appropriate cartridges are assigned a protection factor of 50. The Assigned Protection Factors used in Table 1, ANSI Z88.2-1992, are more realistic than those recommended by NIOSH in its 1987 RDL.

NIOSH, in developing its RDL, based its decisions on averaged data, lumping the performance of all types of PAPRS together. By reducing the Assigned Protection Factors for all PAPRS to the level achievable by the least protective devices, NIOSH has placed at a significant disadvantage, those manufacturers who produce equipment capable of supplying a higher level of protection. Worse still, from the health and safety perspective, NIOSH's RDL often prevents the use of PAPRS in situations where they are arguably the best and safest choice. Indeed, they are usually the respirator of choice from a public health perspective for those employees who cannot achieve an adequate facepiece to face seal.

Workplace Protection Factor (WPF) studies conducted over the last several years have demonstrated that loose fitting, helmet/hood PAPRs properly used, can deliver WPF in excess of 1000, and do so reliably. One excellent study was presented at the May 1990 American Industrial Hygiene Conference in Orlando, Florida. This study, reported by Keys, Guy and Axon from Syntex (U.S.A.), Inc., used loose-fitting, hood/helmet type PAPR with double bibbed capes and without lift-up visors. The protocol included use of Liu

sampling probes, in-facepiece probe placement, collection of quality control samples and statistical analysis of the data. The study was performed during the manufacture of potent steroidal compounds. Over 60 sets of inside/outside samples were collected and analyzed by a radioimmunoassay technique capable of quantitating 50 picograms of the active material on a sampling filter. The analysis performed for this study demonstrated that the PAPR used provided a fifth percentile WPF above 1000. (6)

OSHA could restore to all respirator users, including those who must use PAPRs, the right to chose the most effective respiratory protective device for a particular job, by assigning Interim Protection Factors for different types of PAPRs, based upon their proven performance.

On May 24, 1994, NIOSH published in the Federal Register (59 FR, 26850) a Notice of Proposed Rulemaking (NPR) for Respiratory Protective Devices. NIOSH stated that their action was

"...the first of a series of modules which will, over the next several years, upgrade current respirator requirements. This modular approach will allow improvements to be implemented on a priority basis as well as facilitate adaptation to new requirements by the manufacturers and users of respirators."

On page 26851 NIOSH published a table listing the "Anticipated Timetable for proposed rulemaking. The Assigned Protection Factors module was listed for late 1994, but by April 10, 1995, NIOSH has still not published the final rule for the first module, Particulate Filter Tests. There is little reason to believe that NIOSH will meet any of the other target dates listed. NIOSH further notes that: "Except for the particulate-filter requirements, most requirements of existing regulations would be incorporated into the new regulations without change."

ORC believes however, that there is room for significant improvement in the way that NIOSH arrives at the Assigned Protection Factors that it publishes. ORC suggests that OSHA work closely with NIOSH in the preparation of its NPR for the module dealing with Assigned Protection Factors. Users of respiratory protective equipment assigned an APF by NIOSH should be able to have a high level of confidence that it accurately represents the level of performance a particular piece of equipment is capable of. ORC suggests a simple approach to certifying the protection that a particular respirator is capable of supplying:

NIOSH should require that every respirator submitted for approval be quantitatively tested in a simulated workplace environment, against the most penetrating particle, under conditions of elevated heat and humidity, while performing realistic work for 2-3 hours continuously. Individual types of respiratory protective equipment should be assigned a protection factor consistent with the average level of protection achieved over the test period.

OSHA REQUIREMENT: (d) (7)

"The employer shall not allow use of any respirator where the maximum use concentration for an air contaminant exceeds the limitations specified on the NIOSH approval label for the cartridge, canister or filter for such respirators."

ORC SUGGESTION

OSHA should delete this section.

ORC Comment

In (d) (7) OSHA states that respirators may not be used where the maximum use concentration exceeds the manufacturers recommended limitations. Since manufacturers are no longer required to provide airborne concentration limits on their cartridges, canisters, etc., and most do not, ORC has suggested that OSHA delete this Subpart.

OSHA REQUIREMENT: (D) (8)

"Air purifying respirators shall not be used for a hazardous chemical with poor or inadequate warning properties..."

ORC SUGGESTION

ORC suggests that OSHA should rewrite section (d) (8) as follows and eliminate (d) (9):

"(d) (8) Air-purifying respirators shall not be used for a hazardous chemical with poor warning properties unless either:

- (i) Their use is permitted under the provisions of a substance specific OSHA standard, or
- (ii) The respirator has an end of service life indicator approved by NIOSH for use with the specific chemical, or
- (iii) A change schedule has been implemented to assure that air-purifying cartridges, canisters and/or filters are replaced before an estimated 80% of their useful service life has expired, based upon documented break-through data, the nature of the chemical, airborne concentration of the chemical and duration of exposure, and experience."

ORC Comment

Most air purifying respirators are worn to protect against the myriad of single or mixed solid or liquid aerosols, gases, or vapors for which neither specific substance regulations nor odor nor other warning properties apply. In these situations, a well thought-out change schedule is an employee's best assurance of adequate respirator protection.

There are many ways to estimate, calculate or measure the service life of a cartridge. Without this alternative very few respirators will be legally used, since nearly all chemicals lack respirator cartridge/canister end of service life indicators. There is also a huge variation in human ability to smell and in individual sensitivity to olfactory fatigue. Allowing employers to make use of cartridge change schedules makes good, practical, sense.

(e) MEDICAL EVALUATION (P-58940)

ORC SUGGESTION

ORC supports Alternative Three, and recommends that OSHA modify the text of its medical surveillance requirements as follows:

- (1) **Health Screening:** Before respirator use starts, for each employee required to wear a respirator, the employer shall administer a health screening questionnaire, and if needed, a medical evaluation, to determine whether an employee has a health problem that may interfere with his/her ability to wear a respirator. This determination shall be reviewed periodically.
 - (i) Prior to respirator fit-testing, the employee shall be required to complete a health screening questionnaire.
 - (ii) The questionnaire shall be administered by a person trained in its administration by a licensed health professional, and it shall be reviewed by, or under the direction of, a licensed health professional
- (2) **Medical Evaluation:** A medical examination shall be required for any employee who gives a "yes" answer on the questionnaire. In addition:
 - (i) Employees who are assigned to emergency or rescue operations while wearing a SCBA, shall receive a medical evaluation.
 - (ii) Medical examinations shall be performed by a licensed physician, or by a health professional under the direction of a physician.
 - (iii) If a medical examination is given, the employer shall obtain from the examining physician, a written opinion which states whether the employee has any detected medical condition which would place the employee's health at increased risk of

material impairment for respirator use and any recommended limitations upon the use of respirators. A copy of this written opinion shall be provided to the examined employee.

- (iv) The individual performing the medical evaluation shall be informed of the employee's work environment, the types of respirators that are required to protect the employee from exposure to potentially hazardous substances, and the physical demands of the job.
 - (v) The procedures used in the medical evaluation shall be left to the judgement of the individual performing the evaluation.
 - (vi) The employee and the employer shall be notified of any restrictions on respirator wear.
- (3) In the case of new employees, employers may accept an already existing medical examination or written opinion from a physician provided it was conducted within a year of the date of employment, covered the same type of respirator under similar use conditions, and meets the requirements of (e)(1).
- (4) The employer shall have the employee's medical status reviewed periodically by, or under the supervision of, a licensed physician, and at any time the employee experiences unusual difficulty breathing while being fitted for or while using a respirator. The employer shall have the responsible, licensed, physician provide a written opinion resulting from the review as required under (e)(1).

ORC Comment: Validation of Questionnaire Use

One of ORC's member companies, a large, diversified, manufacturing organization, recently reviewed approximately 700 records of employee respirator medical examinations in an attempt to determine the effectiveness of using a questionnaire as a screening tool. This company currently gives all respirator users a full medical examination in addition to having them fill out a questionnaire. The records review revealed that out of 700 examinations, 10 (less than 2%) had medical limitations. These limitations were for claustrophobia, asthma, and heavy smoking. All of these limitations could have been identified by their questionnaire, and then brought in for a complete medical review. By using the questionnaire as a screening tool, this company could have eliminated unnecessary examinations for 98% of the population.

(7)

ORC Comment: Other Health Professionals

ORC supports OSHA's proposal to allow many portions of the medical evaluation to be performed by non-physician health professionals such as occupational health nurses, nurses, nurse practitioner, physicians assistant, and others, working under the direction of a physician who determines the necessary procedures.

ORC also supports OSHA's efforts to keep its medical surveillance requirements for respirator wearers simple. ORC believes that the largest benefits from the medical surveillance requirements of OSHA's Respiratory Protection standard will come from their broadest possible application. To assure that the largest number of employers comply with its proposed medical surveillance requirements for respirator wearers, OSHA must focus its standard on the minimum level of medical surveillance that is needed to allow respirators to be worn safely.

The simpler a standard is, the less expensive it will be, and the more likely that it will be complied with. Employers wishing to perform more rigorous medical surveillance than that required by OSHA, are free to do so. But all employers, small as well as large, should be required to make available to their employees a minimum program that is adequate to the needs of each workplace.

ORC SUGGESTION

ORC suggests that OSHA place in a non-mandatory appendix to its Respiratory Protection standard, examples of screening questionnaires that have been used by various business organizations.

ORC Comment

ORC has included in Appendix B. several examples of screening questionnaires that could be used as examples.

ORC SUGGESTION: New Definitions

ORC suggests that OSHA place in Paragraph (b) Definitions, of its proposed standard for Respiratory Protection, new definitions addressing medical evaluations. ORC's recommended language is as follows:

Health Screening means the administration of a written health questionnaire by a health professional, or someone trained by a health professional, to determine the ability of an individual to safely wear respiratory protective equipment as part of their normal job related duties, or whether a medical evaluation is necessary.

Medical Evaluation means a review of the screening questionnaire and additional history, and/or a focused examination, and/or tests as appropriate, done by or under the direction of a licensed physician.

ORC Comment

It is important to differentiate between health screening and medical evaluation because they are very different procedures. A health screening is designed to detect those individuals that may have a problem wearing a respirator. A medical evaluation is designed to focus attention on potential problems identified in the screening, and to determine whether, or to what degree, the identified individual is at increased risk of material impairment from the required wearing of a respirator. Every individual required to wear a respirator should receive a health screening as described above. However, a medical evaluation should only be performed for those individuals whose responses on the questionnaire show that they may have a problem with the potential to place them at increased risk of material impairment from wearing a respirator.

OSHA REQUEST FOR COMMENTS: Five Hour Per Week Threshold

The proposal contains a threshold of five hours of respirator wear in any work week before a medical evaluation must be obtained. Is a five hour threshold appropriate, or should it be larger, and if so, what specific situations would serve to justify a larger time threshold? Should there be any time limit, or should any respirator use trigger medical provisions? (P-58896)

ORC SUGGESTION

If OSHA selects Alternative Three for medical surveillance, the five hour exclusion from paragraph (e)(1) is not necessary. If OSHA selects either Alternative One or Two, then ORC recommends keeping the five hour exclusion from the medical surveillance required in these options. For those individuals who may be required to wear respirators less than five hours in any workweek, ORC suggests that OSHA require their coverage under Alternative Three.

ORC Comment

The existence of an individual physical or mental problem associated with the wearing of a respirator is not eliminated by the five hour exclusion. If an individual has a problem, and needs a medical evaluation to determine their ability to safely wear a respirator, they need it regardless of whether they wear the respirator 30 minutes or five hours. A five hour exclusion is neither good medicine nor good industrial hygiene.

OSHA REQUEST FOR COMMENT: Use of Screening Tests

A study of clinical pulmonary function and industrial respirator wear by Raven, Moss, Page, Garmon, and Skaggs recommended that a standard clinical pulmonary function test, the 15 second maximum voluntary ventilation (MVV.25), may be the test of choice for determining worker capability to wear a respirator. A ``conservative'' score on this test, along with other clinical data from the medical evaluation would form the basis for screening respirator wearers. (25) OSHA requests information and comment on the use of the (MVV.25) as a screening test for respirator use, and whether it should be added to the nonmandatory recommendation for FEV1 and FVC testing.

(P-58908)

ORC Comment

The use of appropriate screening tests can be an effective part of a medical surveillance program for respirator wearers. However, ORC finds the MVV.25 test to be neither useful or predictive of an individual's potential to have problems associated with the wearing of a respirator under normal conditions of employment.

OSHA REQUEST FOR INFORMATION: Problems With Tachycardia

OSHA requests any information on problems that have occurred with tachycardia for wearers of closed circuit SCBAs, and comment on whether this recommendation should be included (either as a mandatory requirement or in Appendix C only) for those who will be using closed circuit SCBAs. (P-58908)

ORC Comment

ORC agrees with OSHA that tachycardia associated with respirator use is not a problem, and should not be addressed in this standard.

OSHA REQUEST FOR COMMENTS: Hearing Ability & Respirator Use

OSHA seeks further comment on the necessity of assessing hearing ability when wearing respirators and on the appropriateness of this recommendation to the respirator standard. (P-58908)

ORC SUGGESTION

OSHA should not include provisions dealing with hearing acuity in its respiratory protection standard.

ORC Comment

ORC Agrees with OSHA, that while the ability to hear is important, it has little to do with achieving an appropriate level of protection from respiratory protective equipment.

OSHA REQUEST FOR INFORMATION: Tympanic Membrane Defects

OSHA requests any information and data regarding problems with respirator use associated with tympanic membrane defects, and any evidence for the need for checking for perforated eardrums for respirator wearers. (P-58909)

ORC Comment

ORC agrees with OSHA that there is no basis for concern over the potential for the intake of toxic fumes or gases through a hole in the tympanic membrane. (8)

OSHA REQUEST FOR COMMENTS: Endocrine System Assessment

OSHA requests further comment on the need for assessing the endocrine system, and on determining which endocrine system conditions would preclude the use of respirators. (P-58909)

ORC SUGGESTION

OSHA should not require specific consideration of endocrine problems as part of respirator related medical surveillance.

ORC Comment

Medical surveillance requirements for OSHA's Respiratory Protection should be directed toward assuring that every worker required to wear a respirator as a condition of employment can do so safely. Endocrine system problems have not been reported to be a major problem among respirator wearers. Whether or not a particular individual receives a general medical examination should be of no concern to OSHA where the requirements of this standard are concerned. This is a standard for respiratory protection, and is not intended to be a medical surveillance standard. OSHA should not make an attempt to address all medical problems that may affect an employee.

OSHA REQUESTS FOR COMMENT: Exercise Stress Tests

OSHA is seeking further comment on the appropriateness of the exercise stress test, the most cost effective method of performing such testing and alternative methods of determining an individuals physical ability to wear SCBAs and re-breather respirators. (P-58909)

ORC SUGGESTION

OSHA should not include stress tests as a required part of the medical surveillance for those required to wear SCBAs.

ORC Comment

This is a basic fitness for duty question and it is not properly addressed in this standard. Further, the exercise stress test, while useful as a diagnostic tool in individual cases, is not of use as a general predictive tool for risk or ability to perform under highly stressful conditions.

OSHA REQUEST FOR COMMENTS: Recommendations For Appendix C

OSHA is seeking general comment on which recommendations should be retained as part of Appendix C, and whether certain provisions such as pulmonary function testing and exercise stress testing should be kept in the nonmandatory appendix or made mandatory provisions of the standard. (P-58909)

ORC SUGGESTION

OSHA should not address specific tests in mandatory requirements of its Respiratory Protection Standard.

ORC Comment

OSHA should leave the issue of specific tests for a particular condition or problem to the discretion of the attending physician. If OSHA wishes to bring attention to specific tests, their discussion in a non-mandatory appendix should be sufficient.

OSHA REQUEST FOR COMMENTS: Disabling Medical Conditions

Comments on whether such information would be of use for evaluating the ability to wear respirators and which medical conditions and diseases should be on such a list. (P-58910)

ORC SUGGESTION

OSHA should not attempt to compile a listing of medical conditions and diseases that may preclude the use of respirators.

ORC Comment

Whether a particular condition or disease is disabling in a particular individual depends on a large number of variables. Any such list could not account for all the variables that might apply.

OSHA REQUEST FOR COMMENTS: Annual Review of Medical Status

The objective of this provision is to provide a mechanism which necessitates routine review of any difficulty an employee may be experiencing. Other than being performed by or under the supervision of a physician, the specific nature of this annual review is left to the physician to determine. OSHA invites comments as to the appropriateness of this provision. ((P-58910))

ORC SUGGESTION

OSHA should not require an annual review of employee medical status. A review of medical status is appropriate when an employee reports difficulty while using a respirator during normally assigned duties.

ORC Comment

The medical status of all employees wearing respirators should be reviewed periodically. The proper interval for such a medical review may vary, and should be determined by the employer. The ANSI and NIOSH guidelines are just that, and their use should be at the discretion of the employer.

OSHA REQUEST FOR COMMENTS: Other Health Professionals

OSHA has revised the language for this alternative to permit other health professionals to perform whatever medical evaluation procedures the physician chooses to delegate to them. OSHA requests comments on this issue and on the extent of the role that should be given to these health professionals. (P-58910)

ORC SUGGESTION

ORC supports OSHA's position on the use of other health professionals such as occupational health nurses, nurse practitioners and physicians assistants, under the direction of a licensed physician.

OSHA REQUEST FOR COMMENTS: Burden of Medical Evaluation

OSHA requests comments on whether the medical evaluation provisions should be less extensive for less burdensome respirators, such as positive pressure respirators or single use dust masks, and if so, what provisions could be reduced or eliminated. (P-58910)

ORC Comment

If Alternative Three is selected for medical surveillance, ORC does

not see any reason to reduce the medical surveillance burden for particular kinds of respirators. Under Alternative One or Two, however, the requirement for annual medical surveillance, for all classes of respirator wearers would be excessive.

(f) FIT TESTING (P-58940 Reg. Text)

OSHA REQUIREMENT: (f) (2)

"The employer shall ensure that an employee is fit tested prior to initial use of the respirator, whenever a different make or size respirator is used, and annually thereafter."

ORC SUGGESTION

OSHA should modify (f)(2) to read:

The employer shall ensure that an employee is fit tested prior to initial use of a tight fitting air-purifying respirator, whenever a different make or size respirator is used, and periodically, such as every two years thereafter.

ORC Comment

In (f)(2) OSHA states that fit-testing must be conducted prior to the initial use of the respirator. As written this statement would require fit-testing of all respirators, including loose fitting ones. While ORC supports the required fit testing of tight fitting air purifying respirators, the inherent problems associated with fit testing loose fitting respiratory protective equipment would make such a requirement difficult to accomplish, expensive and yet provide little benefit to the respirator wearer.

For tight-fitting, air-purifying respirators, a requirement to repeat fit testing annually would not result in significant improvements in the protection offered to employees. Events such as a large weight gain/loss that may result in loss of an adequate seal are rare. Employees should be trained on those factors that may cause the loss of an adequate seal. Therefore, if an acceptable respirator program has been developed and implemented by the employer, controls would already be in place for determining whether or not an employee needs to be refitted prior to their regular fitting.

In addition, OSHA's argument that an annual fit test would reinforce respirator training by having employees review the proper methods of donning and wearing the respirator is insufficient to justify the additional burden that this requirement would impose upon employers. Employees should be sufficiently trained during

required training so that they are proficient in these areas. If they are not, that is a training issue and not a reason for requiring annual fit testing. In addition, comfort, fit, donning, etc. can be reviewed by the program administrator during the periodic employee consultations that are required by the proposed standard. To rely upon more frequent fit testing as a training tool would be redundant and a poor use of limited employee protection resources.

OSHA REQUIREMENT: (f) (3), (f) (6) (iii) Tight Fitting Respirators

"The employer shall fit test employees required to wear tight-fitting air-purifying respirators and tight-fitting atmosphere supplying respirators." (P-58940)

ORC SUGGESTION

OSHA should rewrite section (f)(3) to read as follows:

The employer shall fit test employees required to wear tight-fitting air-purifying respirators.

ORC SUGGESTION

OSHA should delete section (f)(6)(iii).

ORC Comment

It is doubtful that fit testing of pressure demand and continuous flow respirators provides any additional benefit beyond what is received in training, which in any case should include instruction in procedures for donning and removal of respirators. By design, atmosphere-supplying respirators are positive with respect to ambient air so any small leaks will be outward rather than inward. As long as the user has received appropriate instructions in donning, he/she should be able to determine if the respirator is fitting properly, and as a result gross leaks caused by improper donning are unlikely to occur.

OSHA has not provided any data demonstrating that fit testing of pressure demand and continuous flow respirators will provide any benefit. There have been two studies of the effect of momentary leakage on protection. Neither of these studies found that momentary leakage led to a significant deterioration in performance. Campbell et.al., (9) provide information on the likelihood of negative pressure spikes occurring during the wearing of a SCBA. Only 4 times out of 57 did any negative pressure excursions occur. They calculated the possible protection factor and concluded it could be orders of magnitude higher than the assigned protection factor of 10,000.

Bently et. al. (10) measured pressure and fit factors for people wearing SCBAs. They recorded 173 instances of negative pressure during 400 time periods. However the fit factors they measured were all greater than 54,000. Thus available data demonstrates that although negative pressure can occur inside the facepiece of pressure demand SCBAs, the length of the excursion is usually so brief that the effect on protection is limited.

This effect would even be less for pressure demand airline respirators that are given an assigned protection factor of 1000 by ANSI (and a proposed 2000 by OSHA). For these reasons we believe OSHA has not demonstrated a need for fit testing of all tight-fitting respirators.

We agree that negative pressure respirators need to be fit-tested, but not all air supplied nor powered air purifying respirators.

OSHA REQUIREMENT: (f) (9) QNFT Exemption For Outside Testers

"Where an employer relies on an outside contractor/party to conduct quantitative fit testing and the contractor is not readily available, and where assigned protection factors greater than ten are necessary, the employer may administer a qualitative fit test to enable the selection of a respirator provided that a quantitative fit is administered in accordance with Appendix A within 30 days."

ORC SUGGESTION

ORC supports OSHA's provision of additional flexibility on this requirement, but it should be for 90 days, not 30, and should include an outside party, even if employed by the same organization, and not residing at that particular location.

ORC Comment

The exemption for QNFT for a time period, besides adding additional flexibility is not likely to increase employee risk. OSHA's proposal would provide at least an equivalent fit factor of 100 by using a QLFT as an interim measure.

OSHA REQUEST FOR COMMENTS: QNFT Exemption For Outside Testers

OSHA is also asking for comments on whether this provision should be broadened to cover other situations, such as when the QNFT equipment is out of service for repairs, where the thirty day exemption would prove useful. (P-58914)

ORC Comment

ORC supports increased flexibility for the QNFT provision, as suggested by OSHA above. Such flexibility would allow more effective use of personnel and equipment, and would still assure that all employees needing a fit test prior to wearing a respirator, would in fact receive one. It would also help assure that employees who need a respirator get one.

OSHA PREAMBLE COMMENT: Record of Fit Tests

In its preamble comments, on pages 58916 and 58917, and in the Appendix (A)(II)(C)(3)(d) (P-58946) OSHA implies that employers performing respirator fit testing, should maintain a paper record of the test, i.e., a strip chart, or computer integration.

ORC SUGGESTION

OSHA should delete any requirement for the use of a strip chart recorder or any other specific recording method.

ORC Comment

Several of the newer fit testing technologies, such as Portacount, do not require a strip chart recorder. ORC agrees that employers must maintain a record of fit tests performed and the results obtained, but does not believe that such records must be on paper. Increasingly, records of every kind, are generated, and maintained electronically. This documentation can be called up, and readily made available to OSHA and requesting employees. ORC believes that there is no logical reason for OSHA to continue to require that fit test records be maintained on paper.

It is rare that an employer will have only one set of medical records for an employee. In many cases multiple sets of records are kept, and maintaining fit-test records is more costly and time consuming than certifying that the fit testing has been completed. To maintain fit test records, one ORC member company spends an average of \$0.50 per record, per year. Certifying those same records would involve no additional expense. Fifty cents per record does not sound like a lot, but when done for approximately 25,000 employees with two respirators each, it adds up quickly. Each dollar spent on record keeping is one dollar less that is available for more cost effective elements of health and safety programs. (1)

PORTACOUNT FIT-TESTING METHODS

ORC SUGGESTION

ORC recommends that condensation nuclei quantitative fit-testing methodology, (TSI Portacount,) be recognized as an approved QNFT

method and that it be included in Appendix A. ORC also recommends that the term "test chamber" (P-58946) be changed to "environment."

ORC Comment

The TSI Portacount is widely used in industry at the present time. Many third parties that perform fit testing for employers use the TSI Portacount. OSHA, by classifying the use of the TSI as a "de minimis" violation has recognized that the method is an effective QNFT method. The Condensation Nuclei fit testing methodology is widely used and accepted. As such, a protocol for its use should be included in the regulation rather than being adopted through procedures to be established by the proposed regulations. The inclusion of a protocol for the administration of quantitative respirator fit-tests using the condensation nuclei methodology (Portacount) would also eliminate the necessity at some future time, to change the standard, eliminating references to "test chambers". See Appendix C for OSHA letters concerning Portacount.

OSHA APPENDIX REQUIREMENT: Aerosol Gas Generator

In Appendix (A) (I) (C) (2) (a) OSHA requires the use of an "aerosol gas generator". (P-58943)

ORC SUGGESTION

OSHA should delete the requirement for an "aerosol gas generator".

ORC Comment

OSHA is aware of at least two new technological advances for respirator fit testing, TSI Portacount and Frontier Dynatech controlled negative pressure tester, both of which have been around for years, and neither one of which uses an aerosol generation system.

OSHA APPENDIX REQUIREMENT: Test Chamber

In Appendix (A) (II) (C) (3) (g-h)) OSHA refers to the use of a "test chamber" as part of the required protocol.

ORC SUGGESTION

OSHA should consider eliminating any references to "chambers" in its fit testing protocols, or in the body of the standard.

ORC Comment

The use of a chamber is not necessary with many of the more recent QNFT methods, and to avoid confusion over whether or not a test

chamber is required, OSHA should remove from the standard any mention of a "chamber" for fit testing.

OSHA APPENDIX REQUIREMENT: The Grimace & Bending Over

In Appendix (A) (II) (14) (f), (P-58945), OSHA requires that "The test subject shall grimace by smiling or frowning". In (A) (II) (14) (g) (P-58945) OSHA requires that "The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as the shroud type QNFT units which prohibit bending at the waist."

ORC SUGGESTION

OSHA should eliminate the mandatory use of the grimace, bending over or jogging in place.

ORC Comment

OSHA requires that the test exercise include a grimace. In the preamble, OSHA explains this requirement as being necessary to break the seal of the respirator and re-confirm that the respirator re-seats itself on the face. If this exercise is performed while conducting a fit test using new technology like the TSI Portacount, the instrumentation would automatically average in a failed fit factor for that exercise, which could potentially fail a user from an otherwise acceptable fit. OSHA could change this section to require that the grimace be performed at the completion of the other test exercises. However, OSHA has not demonstrated either a need for, or a benefit associated with the grimace, bending from the waist, or jogging in place.

OSHA REQUEST FOR COMMENTS: Three Fit Tests Required

In Appendix (A) (II) (C) (4) (h) OSHA requests comments on the three quantitative fit test requirement and any data on alternative ways of measuring continued protection levels for individual respirator wearers. (P-58920)

ORC SUGGESTION

OSHA should require only one quantitative fit-test rather than three as it proposes in Appendix A, Section C., Quantitative Fit Test (QNFT) Protocol at 59 FR 58947. If a QNFT results in a fit factor greater than 10 times the assigned protection factor, the fit test should be considered successful.

ORC Comment

ORC believes that there is insufficient evidence to demonstrate that three consecutive QNFTs select a correct fitting respirator any better than a single QNFT. This requirement is so burdensome to employers that it can discourage the use of QNFT, and is counter-productive to good industrial hygiene practice. The purpose of fit testing is to assure that an individual can achieve a proper respirator fit, and that having passed the fit test, will be adequately protected against airborne contaminants. Three tests add appreciably to the time and cost of conducting quantitative fit testing without adding value to the process.

QLFT is a pass/fail process; it provides no numerical fit factor, no strip chart or print-out for documentation. QNFT, the way it is used in the proposed rule, is itself a pass/fail test. The only requirement is to achieve a fit factor that is at least ten times the assigned protection factor. No use is made of individual fit factors, (nor does the record demonstrate that fit factors can be used in any fashion other than a pass/fail criteria).

OSHA INTENTION: IRRITANT FUME PROTOCOL

OSHA intends to require that the irritant fume test be performed using a low-flow air pump to deliver 200 milliliters per minute of fume to the test chamber.

ORC SUGGESTION

OSHA should delete the requirement for an automated pump to aspirate a smoke tube. Users of smoke tubes should be reminded to take steps to prevent cuts from the jagged glass at the end of the tube, and that irritant smoke should not be used in a small chamber, for instance an inverted plastic bag.

ORC Comment

Where irritant smoke is used in a small enclosed area such as an inverted plastic bag, it is possible to generate high concentrations of stannic chloride in short periods of time. Under conditions of high concentration it is possible that some individuals may experience an adverse reaction to irritant smoke.

Therefore it is advisable that hoods, bags, small chambers not be used for the irritant (fume) smoke qualitative fit testing protocol. The irritant fume protocol is one of the easiest, cheapest, and quickest qualitative fit testing protocols available, as well as being one of the most effective. The use of this valuable tool should not be made more expensive or more complicated.

(g) USE OF RESPIRATORS (P-58941)

OSHA REQUEST FOR COMMENTS: Provision of Non-tightfitting Resp.

OSHA invites comments on this issue and the wording of the proposed provision of the standard, and whether OSHA should require that employers provide respirators which do not rely upon a tight facepiece fit in such circumstances. (P-58921)

ORC SUGGESTION

OSHA should allow employers the option of offering employees the use of a non-tightfitting respirator.

ORC Comments

Because each workplace is unique, and the needs of each situation different, the decision to provide an employee a respirator with a loose fitting facepiece should not be mandated by OSHA; this decision should be left to the employer.

OSHA COMMENT ON CORRECTIVE GLASSES OR GOGGLES. (g) (3) & (4)

These must also be worn in such a way that they do not interfere with the seal of the facepiece to the face. Although the employer is free to choose any option to comply with this, OSHA suggests that full facepiece respirators be worn where either corrective glasses or eye protection are required, since corrective lenses can be mounted into the full facepiece respirators. In addition, the full facepiece may be more comfortable, and less cumbersome, than wearing a half mask and chemical goggles which seal to the face as well. (P-58921)

ORC SUGGESTION

ORC recommends that Section G(4) be expanded to specify that prescription sports goggles such as Criss MAG spectacles be permitted with full facepiece respirators. This approval should be based upon the successful completion of a quantitative fit test while wearing the sports goggles with the respirator of choice.

ORC Comment

In reading Section (g)(4) it appears that prescription sports goggles are allowed as long as they do not interfere with the seal of the facepiece. However, Section (g)(3) gives examples of conditions that prevent a good facepiece to face seal that includes

"headgear that projects under the facepiece seal". This could be interpreted to include sports goggles such as the Criss MAG Spectacle.

the use of prescription sports goggles with respiratory protection would improve the vision of many employees while working in potentially hazardous areas. With the mask mounted kits presently available, employees' peripheral vision is extremely limited. In many cases the spectacles are mounted so far from an employee's eyes that it appears as if they are looking through binoculars. Compound this with an aging workforce which results in the use of bi or tri-focal lenses, and the value of prescription sports goggles becomes quite apparent!

A copy of a study comparing fit test results with and without Criss MAG Spectacles on three different brands of full facepiece respirators has been submitted to Docket H049 by Phillips Petroleum Company. The results of this study showed that all six employees included in the study were able to achieve successful quantitative fit tests while wearing Criss MAG Spectacles with full facepiece respirators. One employee was unable to achieve a successful fit with the MAG spectacles and a Scott Model 65 respirator. However, he was also unable to achieve a successful fit without the MAG spectacles with the Scott Model 65. For those employees tested, those that could achieve a fit without the MAG spectacles, were able to achieve a successful fit while wearing the goggles. (11)

OSHA REQUEST FOR COMMENTS: Using Contact Lenses With Respirators
OSHA requests any comments or information as to the appropriateness of using contact lenses with respirators, and any problems that have occurred with the use of contact lenses in the workplace.

ORC SUGGESTION

ORC recommends that there be no restriction on the use of contact lens with half or fullface respirators.

ORC Comments

The use of contacts greatly improves vision, especially peripheral, when compared to alternative methods currently available. There is no evidence to support any restrictions on the use of contact lenses under full or half-face respirators. OSHA should allow the use of contact lenses without restriction.

OSHA PREAMBLE COMMENT: Skin Irritation (g) (5)

In dealing with skin irritation and contamination, the proposal would require the employer to permit employees to leave the respirator use area as necessary to wash their faces and respirator

facepieces. The preproposal draft provision permitted employees to leave the work area as necessary to wash their faces and respirators. Several commenters asked that the phrase "work area" be changed to "respirator area" OSHA agrees with the commenters that employees do not necessarily need to leave the work area to clean their faces and respirators, and the wording of the provision has been changed from work area to respirator use area. (P-58922)

ORC SUGGESTION

ORC supports OSHA's change of the words "work area" to "respirator area".

OSHA REQUIREMENT: Limits On Use of Disposable Respirators (g) (9)

OSHA proposes to require that disposable respirators which cannot be cleaned and sanitized be discarded at the end of the task or work shift whichever comes first.

ORC SUGGESTION

OSHA should consider using the following:

"Disposable respirators which cannot be cleaned or sanitized shall be assigned to only one person for their useful life."

ORC Comment

OSHA should not limit the use of disposable respirators to one task or shift, because there are many operations where they are not used in a dirty environment and can be safely reused. ORC recommends that OSHA differentiate in its regulations between disposable respirators with elastomeric face pieces, and disposable respirators without elastomeric facepieces.

Each employer must make the decision as to how long a disposable respirator can safely be used. Even disposable respirators that can be sanitized, do not need such treatment if they are worn by the same individual. Such equipment should be sanitized as necessary, not necessarily after each use.

OSHA REQUEST FOR COMMENTS: Use Of Buddy-Breathing Devices

Their use is still allowed for fire brigades under the fire brigades standard. OSHA seeks comment on this decision and on the performance of such devices in industry. (P-58923)

ORC Comment

ORC supports OSHA's position on buddy-breathing devices.

OSHA REQUIREMENT: Low Flow Alarms For PAPRs

OSHA has decided not to require the use of low flow alarms or indicators for PAPRs.

ORC Comment

ORC supports OSHA's decision to not require low flow alarms or indicators for PAPRs.

OSHA REQUEST FOR COMMENTS: Employee Choice On Use of PAPRs

OSHA asks for comments on whether employees should be able to choose PAPRs rather than negative pressure respirators because of their reduced breathing resistance. OSHA has permitted this in several standards such as the coke oven emissions (29 CFR 1910.1029) and cotton dust (29 CFR 1910.1043). However, OSHA's experience is that few employees make the request. (P-58923)

ORC SUGGESTION

ORC recommends that the decision to make a Powered Air Purifying Respirator (PAPR) available to an employee should be left to the employer.

ORC SUGGESTION (g) (8), (9), (10), (11): "The Employer Shall Ensure"

The word "ensure" is used many times in Paragraphs (g) and (h) to describe OSHA mandated employer responsibilities. In many cases it is used in reference to things that the employer has little or no control over, and therefore cannot "ensure". For instance, (g)(10) states that, "the employer shall ensure that employees upon donning the respirator perform a facepiece seal check prior to entering the work area..." Clearly, some of the control over this action rests with the employee. The employer can ensure that each employee is trained in conducting facepiece seal checks, and instructed to conduct them before each use, and can make every effort to reinforce that behavior. The absolute control implied by the words "ensure" however, does not exist. ORC would like to suggest that use of the word "ensure" be limited to actions over which the employer legitimately has control, and that "make every effort" language be used where the employer has influence, but not complete control.

(h) MAINTENANCE AND CARE OF RESPIRATORS (P-58941)

OSHA REQUEST FOR COMMENTS: Storage of Respirators

OSHA invites comment on whether this approach is appropriate, or whether the conditions of storage should be specified in more detail. (P-58924)

ORC Comment

The language used in the current standard is adequate, and allows for flexibility in the various work conditions found in industry.

OSHA REQUEST FOR COMMENTS: Maintenance & Care of Respirators

OSHA invites comments on the provisions related to the maintenance and care of respirators, including suggestions for other items which should be considered for inclusion in or deletion from this section based on the experience of those currently implementing respiratory protection programs.

(P-58925)

ORC Comment

Routinely used respirators issued for the exclusive use of one employee should be cleaned and disinfected at least once every week that the respirator is used, and should be maintained in a clean condition between uses. The need for more frequent cleaning will depend on the conditions in each workplace and the judgement of the employer or respirator user.

OSHA PREAMBLE COMMENT: Inspection of Respirators

In order to assure the continued reliability of respirator equipment it must be inspected on a regular basis. The frequency of inspection is related to the frequency of use. Respirators that are used routinely are to be inspected before each use, and during cleaning after each use. Those that are maintained in the facility for emergency use must be inspected at least monthly, and checked for proper function before and after each use. However, respirators used for emergency escape must be inspected before being carried into the workplace. (P-58924)

ORC Comment

Records should not be required for the inspection of non-emergency

equipment. This requirement would be a substantial cost item with little added value for the employee. If this requirement is retained, the added cost should be added to OSHA's estimate of the cost of this standard.

(i) SUPPLIED AIR QUALITY AND USE (P-58942)

OSHA REQUEST FOR COMMENTS: Carbon Monoxide From Compressors

OSHA requests any further information regarding other incidents involving carbon monoxide production by oil lubricated compressors, and any comments on the necessity for carbon monoxide filters and alarms as well as high temperature alarms for air compressors. (P-58926)

ORC Comment

ORC does not believe that there is evidence indicating a need for OSHA to include a requirement in its respirator protection standard for carbon monoxide filters and alarms or high temperature alarms for compressors. A much greater threat to breathing air quality is from the intake of air contaminated with carbon monoxide. The best way to ensure that contaminated air does not enter the intake of a breathing air compressor is to have adequate procedures, awareness, and certification for installations.

(k) TRAINING (P-58942 Reg. Text)

OSHA REQUEST FOR COMMENTS: Frequency of Training

OSHA requests comments on the frequency of training, particularly the need for increased training and more frequent refresher training for employees using SCBAs or emergency use respirators. (P-58929)

ORC SUGGESTION

For SCBA equipment, ORC suggests annual training be implemented if there is no change in process or equipment, more often for infrequently used emergency or fire equipment.

OSHA REQUIREMENT (k) (i)

OSHA has proposed that employers must provide a training program for employees required by the employer to wear respirators, and

that it include the following: "(i) Nature, extent, and effects of respiratory hazards to which the employee may be exposed as required under the Hazard Communication Standard (29) CFR 1910.1200):"

ORC RECOMMENDATION

ORC recommends that OSHA reword this requirement as follows:

(i) Nature, extent, and effects of respiratory hazards to which the employee may be exposed.

ORC Comment

ORC agrees with OSHA that employees should receive training to acquaint them with the nature and extent of the specific respiratory hazards that may be associated with their workplace. However, such training should be justified on the basis of good industrial hygiene practice, and the requirements of this standard, not the Hazard Communications Standard!

Employees who are being required to wear respirators in the normal course of their assigned duties need specific information about the hazards they may be exposed to, and what they can do to adequately protect themselves. Any requirement for generalized hazard awareness training should be left to the Hazard Communications Standard.

OSHA REQUIREMENT (K) (vi)

OSHA has proposed that employers must provide a training program for employees required by the employer to wear respirators, and that it include the following: " (vi) The contents of this section (29 CFR 1910.134, and of the written respiratory protection program, its location and availability."

ORC SUGGESTION

ORC recommends that OSHA rewrite (k)(vi) as follows:

(vi) The general requirements of this section (29 CFR 1910.134) and of the written respiratory protection program, its location and availability.

ORC Comment

OSHA's health standards have traditionally required that employees be trained on the contents of the particular standard being considered. ORC agrees that employees must be familiar with key requirements of this standard, but suggests that to require that

they be familiar with the "...contents of this section..." is counter productive. The experience of ORC member companies that have attempted to train employees on the contents of a given standard has been that most do not demonstrate a keen interest in this information.

The important messages in the training concerning the proper use, capabilities, and limitations of respirators tend to get lost in a sea of excess information. Shorter discussions, focused on important information are more effective at holding the attention of employees, and generally achieve greater employee understanding and retention of that information.

(1) RESPIRATORY PROTECTION PROGRAM EVALUATION

OSHA REQUEST FOR COMMENTS: Program Evaluation

Comments are requested on these requirements. Companies which have instituted similar assessments are encouraged to submit their views. (P-58929)

ORC SUGGESTION

ORC recommends the annual review and frequent random inspection of respirator programs by the program administrator to assure that the program is being carried out as written.

ORC Comment

Input from employees regarding the operations of the respirator program is essential. However, consultation with employees about problems with the equipment would be better addressed during training and fit testing or direct communication with immediate supervision at the time that the problem is identified.

(n) EFFECTIVE DATE (Regulatory Text)

(n) SUBSTANCE SPECIFIC STANDARDS (Preamble)

ORC Note

The regulatory text of the standard, under (n) contains only the effective date. The preamble however, has an extended discussion concerning the effect of proposed changes in this standard on other previously promulgated OSHA substance specific standards. OSHA

asked a series of questions regarding the best way to modify these other standards, and other changes it wishes to make. In the following section we have responded to what we regard as key questions and comments.

OSHA PREAMBLE COMMENTS: Respirator Use in Substance Specific Stds.

This proposed standard will affect OSHA's substance specific health standards. All such standards now incorporate provisions of the existing § 1910.134 as part of their requirements. Moreover, some respirator related provisions in the substance specific standards differ from their counterpart provisions in this proposal, mostly in respirator selection and the events which trigger medical examinations for respirator users. OSHA is proposing to revise all references to § 1910.134 in the existing substance specific standards to conform to the proposed revised standard. (P-58929)

Thus, for standards such as lead, coke oven emissions, asbestos, and others which now require that "the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e), and (f)", the text will read "the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 (b), (c), (d), (f), (g), (h), (i), (j), (k), and (l)." The revised provisions cover program elements, selection criteria for respirators, fit testing, use of respirators, maintenance and care, air quality, training, and program evaluation. (P-58930)

OSHA is including the proposed revised paragraph (e) covering medical surveillance only in the carcinogen standards in 1910.1003-1910.1016. Each of the other substance specific standards now includes in its medical surveillance requirements a provision that the employee be evaluated concerning any potential limitations on respirator use. OSHA believes that the medical surveillance programs established under these substance specific standards are therefore sufficient to protect employees who are not medically able to wear respirators. (P-58930)

Because each medical surveillance requirement in the substance specific standards was designed as a comprehensive program to evaluate employees for conditions and risks unrelated to respirator usage as well, OSHA believes any revision changing the required frequency or content of medical examinations would unnecessarily disturb ongoing medical surveillance programs. (P-58930)

ORC SUGGESTION

ORC recommends that OSHA require the same methods and frequency of fit testing for respirators in all of its substance specific standards.

ORC Comment: Substance Specific Standards

ORC supports OSHA's proposal to establish consistency between the respirator requirements in substance specific standards and the proposed 1910.134, especially for items such as the fit test protocol. We believe that this will minimize confusion. We understand that there will still be a need to have some mention of respirators in the substance specific standards, for example: the ethylene oxide standard does not allow less than a full facepiece respirator. However, we feel that all aspects of fit testing should be generic among the standards, not only in methods but in frequency. We would like the fit testing frequency in all of the substance specific standards to be the same as in 1910.134.

ORC Comment: Frequency of Fit Testing

ORC does not see a need to fit test, every six months, respirators used for inorganic arsenic, lead, acrylonitrile, and asbestos. This additional required testing does not provide any extra protection for the respirator users, and results in significant amounts of lost time for the respirator user who is away from his/her normal job while being fit tested, as well as for the person(s) conducting the fit test.

OSHA REQUEST FOR COMMENTS: Medical Evaluation -Standards

*Comments on this approach are solicited from the public, especially those who have information concerning the sufficiency of medical evaluations for respirator use under substance specific standards.
(P-58930)*

ORC SUGGESTION

For substance specific standards that at present lack a respirator medical surveillance provision, OSHA should require the use of Alternative Three (Questionnaire based).

OSHA PREAMBLE COMMENT: Minimum Respirator Program Levels

OSHA has adopted various approaches to deal with respirator provisions in those substance specific standards which differ from this proposal. Based on the information and data in the respiratory protection docket, OSHA believes in order to maintain an effective respirator program regardless of the contaminant

or workplace conditions, there should be a minimum program level. Thus, for provisions in substance specific standards which are more protective than the counterpart revised provisions of this standard, OSHA does not propose any changes. (p-58930)

In keeping with this principle of not going below the minimum program, in those cases where existing respirator selection options in the substance specific standards are less protective than would be permitted by the proposed NIOSH respirator selection tables, OSHA proposes to revise such permitted respirator selections to conform to paragraph (d).

ORC SUGGESTION

All OSHA substance specific standards should have uniform requirements for respirator related provisions.

OSHA REQUEST FOR COMMENTS: Respirator-Related Issues

In addition to making existing substance specific standards conform to the revised provisions of the respiratory protection standard in general, OSHA is also requesting comments on specific respirator-related issues of three specific standards.

Lead & Asbestos High Efficiency Filters

OSHA is intending to reinstate the provision in the lead standard that requires the use of high efficiency filters for all air purifying respirators used with lead. In 1979, OSHA had stayed that provision to allow further administrative reconsideration (44 FR 5446).

The recent asbestos standard record that has been generated supports requiring the use of high efficiency filters with whatever respiratory protection equipment is used to protect against highly toxic substances. ... Moreover, OSHA believes the use of high efficiency filters does not impose an undue burden on employers in relation to the use of less efficient filters, and that requiring the use of high efficiency filters in the presence of lead-a highly toxic substance-is both appropriate and reasonable. As a result of these considerations, OSHA intends to lift the stay on enforcement of the requirement that high efficiency filters (type III filters as defined under 42 CFR Part 84) be used. (P-58930)

ORC SUGGESTION

Where the particle size of an airborne contaminant is known, OSHA

should allow the employer to select an appropriate respirator to protect against it, including high efficiency filters if necessary.

ORC Comment

Respirators with high efficiency filters are appropriate when used to protect against the inhalation of highly toxic substances with small or unknown particle sizes. However, since the performance of a filter is based on particle size, not toxicity, OSHA should allow the employer, to select the appropriate type of respirator, when the particle size of the airborne contaminant is known. Because of increased pressure drop across the filter, the use of high efficiency filters in respirators requires significantly higher physiological effort on the part of employees who wear them, and this effect must be taken into account when planning for their use.

OSHA PREAMBLE COMMENT: High Efficiency Filters - Asbestos, Elastomeric Facepiece

As a second issue, the OSHA asbestos standard requires the use of high efficiency filters with air-purifying respirators and does not allow the use of disposable respirators with asbestos. However, it has come to OSHA's attention that there are disposable respirators with elastomeric facepieces and high efficiency filters which are said to provide fits as good as provided by half mask elastomeric respirators which have replaceable high efficiency filters. Such disposable respirators can be quantitatively fit tested, and are designed so that fit check procedures can be performed. (P-58930-31)

OSHA REQUEST FOR COMMENTS: Changes In Respirators Allowed; Asbestos
OSHA is asking for comments on whether such respirators should be allowed to be used under the asbestos standard. (P-58931)

OSHA PREAMBLE COMMENT: Inorganic Arsenic; Disposable Respirators

The third issue concerns the OSHA standard for inorganic arsenic. At the time this standard was promulgated in May 1978, disposable respirators with high efficiency filters were not available. Therefore, disposable respirators were not addressed in the respirator selection tables of the standard. Now that there are such respirators, OSHA needs to determine whether they can provide adequate assurance of fit so as to be suitable for inorganic arsenic which is known to be carcinogenic. OSHA is proposing that disposable respirators not be permitted under the inorganic arsenic standard for the same reasons as stated for the asbestos standard. (P-58931)

OSHA REQUEST FOR COMMENTS: Use Of Disposable Respirators; Arsenic
OSHA is seeking comment on whether disposable respirators with and without elastomeric facepieces should or should not be allowed to be used under the inorganic arsenic standard in view of facepiece sealability or any other considerations. (P-58931)

ORC Comment

The use of disposable respirators with elastomeric facepieces and HEPA filters should be permitted under the Asbestos, Arsenic and Lead standards provided that appropriate fit tests are conducted.

FOOTNOTES

1. Private communication: Data collected by BP America in 1994 and 1995 at their U.S. operating locations.
2. NIOSH Pocket Guide To Chemical Hazards U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, June, 1994.
3. ANSI Z88.2-1992, Section 7.3.4.2 "Definition of oxygen-deficiency non-IDLH" P. 11.
4. (1) Yoon, Y.H. and J.H. Nelson: Application of Gas Adsorption Kinetics I., A theoretical Model for Cartridge Service Life, Am. Ind. Hyg. Assoc. J. 45: 509-516 (1984).

(2) Wood, G.O. and E.M. Moyer: A Review and Comparison of Adsorption Isotherm Equations Used to Correlate and Predict Organic Vapor Cartridge Capacities. Am. Ind. Hyg. Assoc. J. 52:235-242 (1991)

(3) Wood, G.O.; Estimating Service Lives of Organic Vapor Cartridges. Am Ind. Hyg. Assoc. J. 55(1):11-15 (1994)

(4) Nelson, G.O., Estimation of Respirator Cartridge Service Life or How to Plan Your Employee's Respirator Cartridge Replacement Schedule. Presentation in Professional Development Course 65, American Industrial Hygiene Association Conference, Anaheim, CA May, 1994
5. (1) Hinds, W.C. and G. Kraske: Performance of dust respirators with facial seal leaks: I. Experimental. Am. Ind. Hyg. Assoc. J. 48:836-841 (1987)

(2) Liu B. R. H. and B. Fardi: A Fundamental Study of Respiratory Air Filtration. [Final Report for NIOSH Grant #R01 OH01485-01A1, University of Minnesota, Particle Technology Laboratory publication No. 680] Minneapolis, Minnesota (September 1988), 6.3., pp. 296-299.

(3) Stevens, G.A. and E.S. Moyer. "Worst Case" aerosol testing parameters: I. Sodium chloride and dioctyl phthalate aerosol filter efficiency and a function of particle size and flow rate. Am Ind. Hyg. Assoc. J. 50:257-264 (1989).

(4) National Institute for Occupational Safety and Health: A Performance Evaluation of DM and DMF Filter Respirators Certified for Protection Against Toxic Dust, Fumes, and Mists [Working Draft] Atlanta, GA. (September 15, 1992).

- (5) Bullock, W. H. and L.T. Laird: A Pilot Study of the Particle Size Distribution of Dust in the Paper and Wood Products Industry. Am. Ind. Hyg. Assoc. J. 55:(9):863-840 (1994).
- (6) Letter to Peter G. Nash, Esq. from Frank A. White, Deputy Assistant Secretary for Occupational Safety and Health dated September 5, 1986.
6. "Workplace Protection Factors of Powered, Air-purifying Respirators" Keys, D.R., Guy, H.P., and Axon, M. Syntex (U.S.A.), Inc., 3401 Hillview Avenue, Palo Alto, California 94303. Presented at the May 1990 American Industrial Hygiene Association Conference, Orlando, Florida.
7. Private communication with the General Electric Company, Mr. Jeffrey W. Goller, Manager, Industrial Hygiene.
8. Shell Oil Company has submitted to Docket H049 the results of a study done to determine whether toxic airborne contaminants could be inhaled through a perforated tympanic membrane.
9. Campbell D.L., G.P. Noonan, T.T. Merinar and T.A. Stobbe: Estimated Workplace Protection Factors for Positive Pressure Self-Contained Breathing Apparatus Am. Ind. Hyg. Assoc. J 55(4):322-329 (1994).
10. Bently R.A., G. J. Bostock, D.J.Longson, and M.W. Roff: Determination of the Quantitative Fit Factors of Various Types of Respiratory Protective Equipment, J. Int. Soc. Respir. Prot. 2(4):313-337(1984)
11. Study submitted to Docket H049 by Phillips Petroleum Company. Dated, February 15, 1993, this study contains preliminary fit testing results conducted on the MAG spectacle. The study also contains raw data computer printouts and charts summarizing and comparing fit factors and mask particle counts. Six subjects were tested on three types of fullface respirators: MSA Ultraview, Scott Model 65, and RACAL Powerflow. Each person was tested once with the MAG and then without the MAG spectacle on each fullface respirator. The fit testing protocol used was the same as for benzene and asbestos.

54-424C

APPENDIX A

**OSHA LETTERS OF INTERPRETATION
VOLUNTARY USE OF RESPIRATORS BY EMPLOYEES**

OSHA Documents

STANDARD NUMBER 1910.134
RECORD TYPE Standard Interpretation Letters
INFORMATION DATE 19930304
DESCRIPTION Letter to Mr. James Nickerson
SUBJECT Respiratory protection using single-use dust masks.

March 4, 1993

Mr. James Nickerson
VP, Loss Prevention
Champion
One Champion Plaza
Stamford, Connecticut 06921

Dear Mr. Nickerson:

Thank you for your letter dated October 20, 1992, requesting clarification of the requirements of the Respiratory Protection standard (29 CFR 1910.134), as it pertains to single-use dust masks used at the employee's discretion, and only in concentrations below the permissible exposure limit. The answers to your questions are as follows:

1. What is OSHA's definition of a "single-use dust mask"? How does this definition agree/disagree with OSHA's definition of a "respirator"?

OSHA considers a respirator to be a device designed to protect the wearer from inhalation of harmful substances. Respirators fall into the following three general classifications, according to mode of operation: (1) atmosphere-supplying respirators (2) air-purifying respirators and (3) combination atmosphere-supplying and air-purifying respirators.

Air-purifying respirators include the following three types of respirators: (1) gas and vapor respirators (2) particulate (aerosols including dust, fog, fume, mist, smoke, and spray) and (3) combination gas, vapor, and particulate. Specifically, single-use dust masks are considered to be air-purifying particulate respirators.

2. What is OSHA's position on the use of single-use dust masks in concentrations below the PEL? How does this position agree/disagree with OSHA's position on the use of respirators in concentrations at or above the PEL?

OSHA's policy is that if the respirator itself could present an adverse health condition if a specific requirement of the respiratory protection standard is not observed, then the

requirement applies. Examples may include a dirty respirator that is causing dermatitis, a worker's health being jeopardized by wearing a respirator due to an inadequately evaluated medical condition, or a significant ingestion hazard created by an improperly cleaned respirator. This is so regardless of whether the employee purchases the respirator or the employer provides it.

Failure to establish and maintain a respiratory protection program would be recorded as a de minimis violation, unless there was a hazard associated with the use of the respirator. A de minimis violation is documented in the compliance officer's case file, but the employer is not issued a citation.

OSHA's position on the use of respirators in concentrations below OSHA's exposure limits is presented in the Field Operations Manual, chapter IV, section C.4.a.(2) and (3) [copy enclosed].

For respirator use in concentrations above OSHA exposure limits, compliance with the Respiratory Protection Standard, 29 CFR 1910.134, and/or respiratory protection requirements of other applicable substance specific standards is required.

3. What is OSHA's compliance/enforcement policy and procedures regarding the use of single-use dust masks in the workplace? How do these agree/disagree with OSHA's compliance/enforcement policy and procedures regarding respirator usage?

See response to question #2.

4. It is widely recognized throughout the safety and health professions that single-use dust masks cannot consistently achieve and maintain an effective facepiece-to-face seal, and cannot be adequately fit-tested. How, then, can single-use dust masks be incorporated into an employer's respiratory protection program and effectively comply with the requirements of 29 CFR 1910.134?

When a respirator is not required by OSHA, then OSHA does not regulate the type of respirator that is provided or the face seal of the respirator. The face seal prohibition only applies to personal respiratory protection devices of a design relying on the principle of forming a face to facepiece seal to perform at maximum effectiveness.

Paragraph (e)(5)(i) requires employers to provide respirator wearers with 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, wearing the respirator in normal air for a long familiarity period, and wearing the respirator in a test atmosphere. Employees must be made aware that certain conditions such as growth of a beard, sideburns, a skull cap that projects under the facepiece, temple pieces on glasses and absence of one or

more dentures can affect the fit of a facepiece. In addition, the wearer should follow the manufacturer's facepiece fitting instructions.

5. What is OSHA's position on the use of non-approved "comfort masks" in the workplace for exposures below the PEL? Above the PEL? Champion's respiratory protection program specifies that only appropriate NIOSH/OSHA approved respiratory protection devices are to be used; however, our manufacturing locations receive many sales pitches from vendors for these non-approved "comfort masks".

Only respirators worn to comply with OSHA standards must have OSHA/NIOSH approval. An unapproved respirator cannot be worn if an overexposure is possible.

6. What are OSHA's recommendations/guidelines on the appropriate way(s) to accommodate employee's expressed desire to wear respiratory protection for "comfort" purposes in concentrations below the PEL?

Although OSHA requires the use of respirators only for compliance with permissible exposure limits (PEL's) and respiratory protection requirements of substance specific standards, the voluntary use of respirators and other personal protective equipment at other times may further enhance worker safety and health. However, OSHA discourages the use by employees of any unapproved respiratory protection device.

We appreciate the opportunity to clarify this issue for you.

Sincerely,

Roger A. Clark, Director
Directorate of Compliance Programs

October 20, 1992

Directorate of Compliance Programs
Occupational Safety and Health Administration
U.S. Department of Labor
200 Constitution Avenue, NW, Room N-3468
Washington, DC 20210

Attn: Roger A. Clark, Director of Compliance

Re: Request for Clarification of OSHA Standard: 29 CFR
1910.134, Respiratory Protection

Dear Mr. Clark:

This letter will initiate a formal request for clarification of the requirements of the Respiratory Protection Standard (29 CFR 1910.134), as it pertains to single-use dust masks used at the employee's discretion, and only in concentrations below the permissible exposure limit.

At many of Champion's locations, industrial hygiene monitoring has documented that exposures to dusts and particulates are well below the OSHA PEL's; however, many workers elect to wear single-use dust masks in these areas, for "comfort" purposes. Champion's current respiratory protection guidelines specify that all respirators must be NIOSH/MSHA approved and that each location's respiratory protection program require training, fit-testing, and medical examination for each designated respirator user in compliance with 1910.134.

Complying with the requirements of 1910.134 for fit-testing and medical examination for workers electing to wear single-use dust masks in concentrations below the PEL, has proven inordinately difficult, in that employees themselves are actively resistant to wearing more effective respiratory protection devices in concentrations below the PEL. Our inquiries to various OSHA area offices and state plan offices throughout the country have obtained inconsistent and widely divergent responses on the proper use and management of single-use dust masks, and on OSHA's enforcement policy and procedure. Our telephone conversation with Mr. John Steelnack in the Health Standards office in Washington, served only to magnify the confused state of affairs regarding single-use dust masks, and the lack of a clear, consistent policy on this issue.

Thus, in order to administer Champion's respiratory protection program in the most safe and healthful manner, we are requesting OSHA's clarification and guidance on this matter. Specifically:

- 1) What is OSHA's definition of a "single-use dust mask"? How does this definition agree/disagree with OSHA's definition of a "respirator"?
- 2) What is OSHA's position on the use of single-use dust masks in concentrations below the PEL? How does this position agree/disagree with OSHA's position on the use of respirators in concentrations at or above the PEL?
- 3) What are OSHA's compliance/enforcement policy and procedures regarding the use of single-use dust masks in the workplace? How do these agree/disagree with OSHA's compliance/enforcement policy and procedures regarding respirator usage?
- 4) It is widely recognized throughout the safety and health professions that single-use dust masks cannot consistently achieve and maintain an effective facepiece-to-face seal, and cannot be adequately fit-tested. How, then, can single-use dust masks be incorporated into an employer's respiratory protection program and effectively comply with the requirements of 1910.134?
- 5) What is OSHA's position on the use of non-approved "comfort masks" in the workplace for exposures below the PEL? ... Above the PEL? Champion's respiratory protection program specifies that only appropriate NIOSH/MSHA approved respiratory protection devices are to be used; however, our manufacturing locations receive many sales pitches from

vendors for these non-approved "comfort masks."

- 6) What are OSHA's recommendations/guidelines on the appropriate way(s) to accommodate employee's expressed desire to wear respiratory protection for "comfort" purposes in concentrations below the PEL?

Your clarification and guidance on the issue of single-use dust masks in compliance with the requirements of 1910.134, and your answers to the above listed questions, will serve to enhance the quality of Champion's respiratory protection program(s) and to enhance the safety and health of Champion employees.

We shall be awaiting your response.

Sincerely,

James Nickerson
VP, Loss Prevention

54-424D

OSHA Documents

STANDARD NUMBER 1910.134
RECORD TYPE Standard Interpretation Letters
INFORMATION DATE 19930304
DESCRIPTION Letter to David H. Walk, P.E.
SUBJECT Respiratory protection for comfort use in environments not exceeding OSHA PEL or STEL standards.

March 4, 1993

Mr. David H. Walk, P.E.
Safety Programs Manager
Corporate Risk Management
J.C. Penney
2000 Oxford Drive
Bethel Park, PA 15102

Dear Mr. Walk:

Thank you for your letter dated November 17, 1992, requesting clarification of the requirements of the Respiratory Protection Standard, 29 CFR 1910.134, as it applies to non-NIOSH approved dust masks for comfort use in environments that do not exceed any OSHA PEL or STEL standards for dust or other air contaminants.

1. Is an employer responsible for implementing the program requirements of 29 CFR 1910.134 when providing associates (employees) to wear a non-NIOSH approved single-use comfort mask for dusts and mists?.

Only respirators worn to comply with OSHA standards must have MSHA/NIOSH approval. An unapproved respirator cannot be worn if an overexposure to an OSHA regulated substance is possible.

Although OSHA requires the use of respirators only for compliance with OSHA exposure limits and respiratory protection requirements (when engineering controls are not feasible or in the interim while implementing engineering controls), we do encourage appropriate voluntary use of respirators and other personal protective equipment at other times. However, OSHA discourages the use by employees of any unapproved respiratory protection device.

OSHA's policy is that if the respirator itself could present an adverse health condition if a specific requirement of the respiratory protection standard is not observed, then the requirement applies. Examples may include a dirty respirator that is causing dermatitis, a worker's health being jeopardized by wearing a respirator due to an inadequately evaluated medical condition, or a significant

ingestion hazard created by an improperly cleaned respirator. This is so regardless of whether the employee purchases the respirator or the employer provides it.

Failure to establish and maintain a respiratory protection program would be recorded as a de minimis violation, unless there was a hazard associated with the use of the respirator. A de minimis violation is documented in the inspectors' case file, but the employer is not issued a citation.

OSHA's position on the use of respirators in concentrations below the PEL is presented in the Field Operations Manual, chapter IV, section C.4.a.(2) and (3) (copy enclosed).

2. Is an employer responsible for implementing the program requirements of 29 CFR 1910.134 when allowing associates to provide their own non-NIOSH approved single-use comfort mask for dusts and mists?

See paragraph 4 of question #1 response.

3. Is an employer responsible for implementing the program requirements of 29 CFR 1910.134 for intermittent use (once per month frequency or rarer) of the single-use comfort mask for dusts and mists?

The employer is responsible for implementing the program requirements of 29 CFR 1910.134 regardless of the frequency of use, if the respirator itself could present an adverse health condition if a specific requirement of the respiratory protection standard is not observed.

4. If the answer to any of the above is yes, then how would one meet the requirement for fit-test for face-piece-to-face sealing in 29 CFR 1910.134 (e)(5)? As this type of dust mask are not NIOSH approved or designed by the manufacturer for providing a tight fit, this section would need to be waived.

When a respirator is not required by OSHA, then OSHA does not regulate the face seal of the respirator or the type of respirator that is provided. The face seal prohibition only applies to personal respiratory protection devices of a design relying on the principle of forming a face seal to perform at maximum effectiveness.

Paragraph (e)(5)(i) requires employers to provide respirator wearers with 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, wearing it in normal air for a long familiarity period and wearing it in a test atmosphere. Employees must be made aware that certain conditions such as growth of a beard, sideburns, a skull cap that projects under the facepiece, temple pieces on glasses and absence of one or more dentures can affect the fit of a facepiece. In addition, the wearer should follow the manufacturer's

facepiece fitting instructions.

We appreciate the opportunity to clarify this issue for you.

Sincerely,

Roger A. Clark, Director

Attachment

November 17, 1992

Ms Ruth McCully
OSHA Office of Health Compliance Assistance
Room SL-62
U.S. Department of Labor
200 Constitutional Ave. NW
Washington, DC 20020

Re: Single-use Comfort Dust Masks
29CFR 1910.134

Dear Ms McCully:

This correspondence is seeking guidance regarding the scope and application of 29CFR 1910.134 as it is to be applied for non-NIOSH approved dust masks for comfort use (e.g. 3M Brand Comfort Mask-advertisement enclosed). This request is a follow-up to a November 3, 1992 conversation between Ms Iris Crenshaw and Mr. James O'Neil, Loss Prevention Manager in our Catalog Division. Several of our facilities have contacted OSHA area offices and have received varying responses as to the application of 1910.134 towards these comfort use types of masks.

The following requests are specifically regarding comfort use masks, such as the 3M Brand Comfort Mask, which are not marketed as single-use respirators. Also, the environments to which our associate would be exposed do not exceed any PEL or STEL standards for dust or other air contaminates. Any respirator (non-NIOSH or NIOSH approved) use would be subject to the requirements of the standard.

Please respond specifically to the following:

1. Is an employer responsible for implementing the program requirements of 29CFR 1910.134 when providing associates (employees) to wear a non-NIOSH approved single-use comfort mask for dusts and mists?
2. Is an employer responsible for implementing the program requirements of 29CFR 1910.134 when allowing associates to provide their own non-NIOSH approved single-use comfort mask for dusts and mists?
3. Is an employer responsible for implementing the program requirements of 29 CFR 1910.134 for intermittent use (once per month frequency or rarer) of the single-use

comfort mask for dusts and mists?

4. If the answer to any of the above is yes, then how would one meet the requirement for fit-test for face-piece-to-face sealing in 29CFR 1910.134(e)(5)? As this type of dust mask are not NIOSH approved or designed by the manufacturer for providing a tight fit, this section would need to be waived.

Please accept our gratitude for your attention to these matters.
Please call if you have any questions.

Sincerely,

David H. Walk, P.E.
Safety Programs Manager
Corporate Risk Management

54-424E

STANDARD NUMBER 1910.134
INFORMATION DATE 04/11/90
RECORD TYPE Interpretation
SOURCE DESCRIPT. Letter to D. N. James
COMPANY Chrysler Motors Corporation
SUBJECT Standards applicable where respiratory protection is not required but employees wear respirators on their own accord.
ABSTRACT An interpretation of provisions of standard 29 CFR 1910.134 for respiratory protection that apply in situations where respiratory protection is not required but employees wear respirators on their own accord. The only provisions of 1910.134 that apply are those that would prevent the respirator itself from presenting an adverse health condition. Paragraph 1910.134(b)(10), which requires employers to determine whether employees are physically able to perform the work, and 1910.134(b)(5) and (6), requiring regular cleaning and disinfecting of respirators and storage of them in a clean and sanitary location, would apply. This is so regardless of whether the employee purchases the respirator or the employer provides it.

APR 11

Mr. D. N. James
Health Programs Compliance Executive
Occupational Safety and Health
Chrysler Motors Corporation
12000 Chrysler Drive
Highland Park, Michigan 48288-1919

Dear Mr. James:

This is in response to your letter of February 26, to Mr. Thomas Shepich regarding respiratory protection.

You inquired whether any provisions of standard 29 CFR 1910.134 for respiratory protection apply in situations where respiratory protection is not required but employees wear respirators on their own accord. The only provisions of 29 CFR 1910.134 that apply are those that would prevent the respirator itself from presenting an adverse health condition. This is so regardless of whether the employee purchases the respirator or the employer provides it.

Paragraph 29 CFR 1910.134(b)(10), which requires employers to determine whether employees are physically able to perform the work and use the respirators, would certainly apply. Paragraphs 29 CFR 1910.134(b)(5) and (6), requiring regular cleaning and disinfecting of respirators and storage of them in a clean and sanitary location, would apply if failure to comply with the paragraphs could result in an ingestion hazard or dermatitis caused by a dirty respirator.

I have not necessarily identified all the requirements of 29 CFR 1910.134 that could apply. The main point is, if the respirator itself could present an adverse health condition if a requirement is not observed, then the requirement applies.

I appreciate the opportunity to clarify this matter for you. Please do not hesitate to contact me if you require further information.

Sincerely,

Patricia K. Clark
Director Designate
Directorate of Compliance Programs

February 26, 1990

Mr. T. Shepich
Office of Health Compliance Assistance
OSHA US DOL Room N3463
200 Constitution Avenue N.W.
Washington, DC 20210

Mr Shepich:

29 CFR 1910.134 (Respiratory Protection) sets forth highly detailed requirements which must be satisfied for the compliant operation of a respiratory protection program for employees whose exposure to "breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors" exceeds permissible exposure levels. Chrysler Motors respectfully requests a determination of the applicability of 29 CFR 1910.134 to the situations which are described below.

Situation One

An employee has been assigned to a perform a job were it has been determined that there is no need for respiratory protection for the employee. After explaining to the employee that the atmospheric concentration of air contaminants does not warrant the issuance of respiratory protection, the employee persists in a request to be issued a disposable respirator which has been approved for dusts and mists. Subsequently, although not required based on the airborne concentration of air contaminants, a disposable dust and mist respirator is issued to the employee for his own peace of mind.

Please advise us as to whether any aspect of the respiratory protection program under 29 CFR 1910.134 is required under the circumstances described above.

Situation Two

An employee has been assigned to perform a job where it has been determined that there is no need for respiratory protection for the employee. The employee takes it upon himself to obtain a respirator by himself and at his own expense. The employee obtained respirator may lack recognition by Federal Regulatory Agencies as a respiratory protective device. Management identifies the fact that the employee is using a "respirator" which has not been provided through Chrysler's respiratory protection coordinator. The employee is notified that respiratory protection is not required for the assigned job but elects to continue to use the self purchased device.

Please advise us as to whether any aspect of the respiratory protection program under 29 CFR 1910.134 is required under the circumstances described above.

Please let us know as soon as possible, which, if any, requirements of 29 CFR 1910.134 must be complied with under the circumstances described above, where respirators are used by employees, but are not required. Since we sincerely desire to provide Chrysler employees with a safe and healthful workplace, please advise us of OSHA's position on the situations described above. Thank you for your prompt consideration of these issues.

D. N. James
Health Programs Compliance Executive
(313) 351-3736

cc: R. J. Brandt MD
T. R. Cunningham
W. S. Mirkin
G. A. Sattelmeier

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54-424 F

APPENDIX B

**EXAMPLES
MEDICAL SURVEILLANCE QUESTIONNAIRES
FOR RESPIRATOR WEARERS**

RESPIRATORY QUESTIONNAIRE

Name _____
(Last) (First) (Middle)
 Employee No. _____
 Location _____
 Job Title _____

Today's Date _____
 Date of Birth _____ Sex _____
 Height _____ Weight _____
 How Long in this Job Title _____

RESPIRATORY SYMPTOMS AND HISTORY

- | | Yes | No |
|--|-------|-------|
| 1. Do you have a bothersome cough nearly every day? | _____ | _____ |
| 2. Do you have a cough mainly on arising after sleeping? | _____ | _____ |
| 3. Have you had an increased cough during the past two years (other than with a cold, the flu or other temporary illness)? | _____ | _____ |
| 4. Do you usually bring up phlegm or sputum from your chest? | _____ | _____ |
| 5. Do you cough up yellowish or greenish phlegm or sputum? | _____ | _____ |
| 6. Have you coughed up bright red or dark red (coffee ground-colored) phlegm or sputum within the past two years? | _____ | _____ |
| 7. Have you had increased phlegm or sputum during the past two years (other than with a cold, the flu or other temporary illness)? | _____ | _____ |

Have you ever had or do you now have:

- | | Yes | No | | Yes | No |
|---------------------------------------|-------|-------|---|-------|-------|
| 8. Severe pneumonia? | _____ | _____ | 19. Breathing difficulty when wearing a respirator? | _____ | _____ |
| 9. Pleurisy? | _____ | _____ | 20. Claustrophobic or anxiety reaction when wearing a respirator? | _____ | _____ |
| 10. Bronchitis? | _____ | _____ | 21. Hole in ear drum(s)? | _____ | _____ |
| 11. Asthma? | _____ | _____ | 22. Bronchial asthma? | _____ | _____ |
| 12. Tuberculosis? | _____ | _____ | 23. X-ray showing lung disease? | _____ | _____ |
| 13. Emphysema? | _____ | _____ | 24. Low or not normal lung function test? | _____ | _____ |
| 14. Chronic obstructive lung disease? | _____ | _____ | 25. Anemia? | _____ | _____ |
| 15. Heart disease? | _____ | _____ | 26. Constant or frequently recurring cough? | _____ | _____ |
| 16. Heart attack? | _____ | _____ | 27. Impaired or non-existent sense of smell? | _____ | _____ |
| 17. High blood pressure? | _____ | _____ | | | |
| 18. Seizures or epilepsy? | _____ | _____ | | | |

- | | Yes | No |
|---|-------|-------|
| 28. Have you had shortness of breath in the past two years? | _____ | _____ |
| 29. Does shortness of breath ever occur at rest? | _____ | _____ |
| 30. Does shortness of breath ever awaken you from sleep? | _____ | _____ |
| 31. Do you have problems breathing during normal activities? | _____ | _____ |
| 32. Does your shortness of breath make you stop for breath after climbing one flight of stairs? | _____ | _____ |
| 33. Are you frequently aware of whistling or wheezing when you breathe? | _____ | _____ |

Circle the numbers (34. through 39.) of the following statements that describe your use of tobacco.

- 34. Do not smoke and never have.
- 35. Smoke cigarettes now.
- 36. Have smoked cigarettes in past, but stopped.
What year did you stop? _____
- 37. Smoke pipe and cigars now.
- 38. Have smoked pipe and cigars in the past, but stopped.
What year did you stop? _____
- 39. Use snuff or chewing tobacco now or in the past.

If you now smoke or ever have smoked cigarettes, circle the numbers (40. through 49.) that best describe your use.

- | How long? | Packs per day (average)? |
|-----------------------|--------------------------|
| 40. Less than 1 year? | 46. 1/2 or less? |
| 41. 1 to 5 years? | 47. 1/2 or 1? |
| 42. 6 to 10 years? | 48. 1 to 2? |
| 43. 11 to 15 years? | 49. Over 2? |
| 44. 16 to 20 years? | |
| 45. Over 20 years? | |

- 50. Age started regular smoking? _____
- 51. Age stopped smoking? _____

If you now smoke or ever have smoked pipe or cigars, answer the following.

- 52. Number of pipefuls or cigars per day? _____
- 53. Did you inhale? _____
- 54. Approximate number of years smoked? _____

If you now use or ever have used snuff or chewing tobacco, answer the following.

- 55. Approximate number of years used? _____

OCCUPATIONAL HISTORY

- 56. What is your usual occupation? _____

Yes No

- 57. Have you ever worked in mining? _____
- 58. Have you ever worked in a foundry? _____
- 59. Have you ever worked in a quarry? _____
- 60. Have you ever worked in any dusty jobs? _____
- 61. If yes, please specify total number of years in dusty jobs. _____

MEDICATIONS

- 62. Do you take any over-the-counter (OTC) or prescription medication on a regular basis _____
- 63. If yes to question 62., please list the names, amount, and times you take these medications. _____

MEDICAL QUESTIONNAIRE FOR RESPIRATOR USE

NAME	PAY #	SOCIAL SEC. #	DATE
SUPERVISOR	DEPARTMENT	JOB	

MEDICAL HISTORY:

Do you now have, or have you ever had ?	YES	NO
Surgery in the past 6 mths (If yes, describe and the date _____)	_____	_____
Heart attack	_____	_____
Fast or irregular heart beat	_____	_____
Chest pain with exertion	_____	_____
Angina	_____	_____
High blood pressure	_____	_____
Swelling of the ankles	_____	_____
Stroke	_____	_____
Anemia	_____	_____
Allergies (If yes, to what? _____)	_____	_____
Emphysema or chronic bronchitis	_____	_____
Asthma or attacks of wheezing	_____	_____
Shortness of breath during usual activities	_____	_____
Persistent cough (most days for 3 or more months)	_____	_____

MEDICAL QUESTIONNAIRE FOR RESPIRATOR USE P.2

<u>NAME</u>	<u>PAY #</u>		
		YES	NO
Persistent phlegm (most days for 3 or more months)		_____	_____
Collapsed lung		_____	_____
Reduced lung function on a breathing test		_____	_____
Abnormal chest x-ray		_____	_____
An operation or serious injury to your chest		_____	_____
Epilepsy or a seizure disorder		_____	_____
Fainting		_____	_____
Dizziness		_____	_____
A nervous or emotional disorder		_____	_____
Excessive use of alcohol or drug dependence		_____	_____
Claustrophobia (fear of tight or confined spaces)		_____	_____
Hyperventilation (over breathing)		_____	_____
Sensation of choking or smothering		_____	_____
Heat stroke or heat exhaustion		_____	_____
Diabetes		_____	_____
Impaired vision (Do you wear glasses or contact lenses?)		_____	_____
Impaired hearing (Do your use a hearing aid?)		_____	_____
Do you have or ever had a perforated ear drum?		_____	_____
Facial injury, surgery, or deformity		_____	_____

MEDICAL QUESTIONNAIRE FOR RESPIRATOR USE P.3

<u>NAME</u>	<u>PAY #</u>
-------------	--------------

	YES	NO
Do you wear dentures?	_____	_____
Arthritis of hands or wrists	_____	_____
Loss of fingers or difficulty using hands or fingers	_____	_____
Back disorder	_____	_____
Skin disorders or contact allergies	_____	_____
Are you pregnant? Due date _____	_____	_____
Are you currently under a doctor's care? If yes, what is the nature of the problem? _____	_____	_____
Name, address, and phone # of physician:		
Do you take any medications? If so, list:	_____	_____
Do you have any work history of dust exposure?	_____	_____
Do you or did you ever smoke cigarettes, cigars, pipe? If yes, how many per day? ____ Date quit _____	_____	_____
Have you smoked or used a bronchodilator in the last hour?	_____	_____
Have you eaten a heavy meal in the last two hours?	_____	_____
Have you had a respiratory infection (cold, flu) in the last three weeks?	_____	_____

MEDICAL QUESTIONNAIRE FOR RESPIRATOR USE P.4

NAME PAY #

	YES	NO
Have you used a respirator in the past?	_____	_____
___ Disposable Dust Mask (e.g. 3M8710, 3M9920)		
___ Cartridge Type (e.g. Wilson 1200)		
___ Powered-Air Purifying (e.g. Racal Airstream, 3M Airhat)		
___ Supplied Air Halfmask		
___ Supplied Air Hood		
___ Shot Blast Helmet		
___ Self-Contained Breathing Apparatus		
___ Other _____ Type _____		

Did you ever have any difficulty when using a respirator? _____

Do you feel you have now or have had any medical problems that could interfere with proper and safe respirator use? _____

CHECK TYPE OR TYPES OF RESPIRATOR(S) TO BE USED:

___ Disposable Dust Mask (3M8710, 3M9920)	___ Supplied Air Halfmask
___ Cartridge Type (Wilson 1200)	___ Supplied Air Hood
___ Power Air Purifying (Racal Airstream, 3M Airhat)	___ Shot Blast Helmet
	___ Self Contained Breathing Appartu

LEVEL OF WORK EFFORT (Check one):
___ Light ___ Moderate ___ Heavy ___ Strenuous

EXTENT OF USAGE (Check one):
On a daily basis: Hourly ___ Twice/Shift ___
Not daily - but more than once a week ___
Rarely ___ Weekly ___ Monthly ___
Emergency situations only ___

MEDICAL QUESTIONNAIRE FOR RESPIRATOR USE P.5

_____	_____
NAME	PAY #
_____	_____
_____	_____

LENGTH OF TIME OF ANTICIPATED EFFORT IN HOURS: _____

SPECIAL WORK CONSIDERATIONS (high places, extreme temperature, hazardous material, protective clothing, etc.)

Signature _____

EXAMPLE

RESPIRATOR MEDICAL SCREENING

LOCATION	DATE	EMPLOYEE NUMBER
NAME (Last)	(First)	(M.I.)
		DEPARTMENT

RESPIRATOR TYPE

Dust Mask
 Half Mask
 Full Face
 SCBA
 Airline
 Other: _____

	Yes	No
Are you troubled by shortness of breath when hurrying on level ground or walking up a slight hill?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have asthma?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have heart or blood vessel disease?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have chronic lung problems?	<input type="checkbox"/>	<input type="checkbox"/>
Are you bothered with claustrophobia?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have difficulty with taste or smell?	<input type="checkbox"/>	<input type="checkbox"/>
<i>(Only if SCBA will be worn)</i> – Do you have any physical problems which would limit your ability to wear a 35 lb. air pack?	<input type="checkbox"/>	<input type="checkbox"/>
Do you know of any reason why you are not able to wear a respirator?	<input type="checkbox"/>	<input type="checkbox"/>

I understand the questions above and have answered to the best of my knowledge.
 I understand that I have the right to request an examination by a physician.

SIGNATURE OF EMPLOYEE	DATE
-----------------------	------

REVIEWER ONLY

If any of the above questions are answered "Yes", complete "JOB" portion of Form *Respirator Medical Surveillance* and forward to Medical Center.

SIGNATURE OF REVIEWER	TITLE OF REVIEWER
-----------------------	-------------------

EXAMPLE 2

RESPIRATORY SYSTEM QUESTIONNAIRE

	<u>Yes or No</u>	<u>Further Comment on Positive Answers</u>
Have you ever had:		
Asthma	_____	
Bronchitis	_____	
Hay Fever	_____	
Other Allergies	_____	
Pneumonia	_____	
Tuberculosis	_____	
Chest Surgery	_____	
Other Lung problems	_____	
Heart Disease	_____	
Do you have:		
Frequent colds	_____	
Chronic cough	_____	
Shortness of breath when walking or climbing one flight of stairs	_____	
Do you:		
Wheeze	_____	
Cough up phlegm	_____	
Smoke cigarettes	_____	Packs per day _____ How many years _____

Date _____

Signature _____

EXAMPLE 3

Introduction

I understand that I am being given this questionnaire to determine my ability to safely wear a respirator during the normal performance of duties associated with my employment with this organization.

(NOTE: FOR ANY YES - SEE A PHYSICIAN)

NO YES

1. Are you usually short of breath on exertion, such as:
 - a) climbing one flight of stairs,
 - b) walking up a slight hill or
 - c) walking with other people of your own age at an ordinary pace on the level?
2. Have you now, or have you within the last three years had a cough that produced phlegm and lasted for three months or more?
3. Have you ever had severe chest pains?
4. Have you ever had asthma?
5. Do you frequently have difficulty breathing through your nose?
6. Have you ever had a heart attack or other heart condition?
7. Do you have chronic skin problems of the face?
8. Do you faint, blackout, or have you had any periods of unconsciousness in the last three years? (for example epilepsy) Do you have a fear of confined spaces?
9. Do you know of any reason why you are not able to wear a respirator? List reasons if your answer is yes.

I understand the questions above and have answered to the best of my knowledge.

I understand that I have the right to request an examination by a physician.

Signed _____
(Employee)

Date _____

Signed _____
(Person Administering
Questionnaire)

Date _____

EXAMPLE 3 - Continued

SUGGESTIONS FOR MEDICAL EXAMINATION OF INDIVIDUALS WHO HAVE ANSWERED "YES" TO ONE OF THE PARTS OF THE SCREENING QUESTIONNAIRE

For those who have answered "yes" to any of the questions on the screening questionnaire, and who may be required to wear negative pressure respirators and self-contained breathing apparatus, a medical history and physical examination focused on the pulmonary and cardiovascular system should be required.

In addition to the medical history and physical examination, the following tests may be administered:

- (1) Pulmonary Function Tests to include a Forced Vital Capacity (FVC) and Forced Expiratory Volume at one second (FEV 1.0).
- (2) An Electrocardiogram (EKG) for persons over 35 years of age.
- (3) Additional tests as recommended by the examining physician based on the history and (1) and (2) above.
- (4) A check for anemia such as hematocrit or hemoglobin determination if heavy work is involved.

The physical examination should be performed by or under the direction of a licensed physician and the results of the medical history and tests should be reviewed by a licensed physician.

CONDITIONS THAT MAY PRECLUDE AN INDIVIDUAL FROM WEARING A RESPIRATOR

It is difficult, if not impossible, to precisely define criteria which would preclude an individual from wearing a respirator. However, serious cardiac or pulmonary disease may preclude an individual from safely using certain respirators. The final decision should be based on the clinical judgement of the examining physician.

The following are some conditions which should require a specific waiver by a physician before an individual is allowed to wear certain respirators:

EXAMPLE 3 - Continued

- (1) A FVC less than 60% of predicted.
- (2) A FEV 1.0 less than 60% of predicted.
- (3) A FEV 1.0/FVC ratio less than 60% of predicted.
- (4) Class 2 (or worse) organic heart condition as defined in the American Medical Association, Guides to the Evaluation of Permanent Impairment.

AGGRAVATION OF EXISTING MEDICAL CONDITIONS

In a few instances, use of respirators might aggravate skin conditions or cause allergic skin reactions. In most cases, these problems can be resolved with medications or use of a different respirator. In rare instances, they might preclude the use of respirators.

RESPIRATOR MEDICAL SURVEILLANCE

LOCATION _____ DATE _____

NAME (Last) _____ (First) _____ (M.I.) _____

EMPLOYEE NUMBER _____ BIRTH DATE _____

EXAMINATION (Check one)

- Original Issue
- Periodic Exam
- Special

JOB (Completed by Respirator Program Administrator)

JOB TITLE _____

POTENTIAL CONTAMINANTS IN WORKPLACE _____

ENERGY REQUIRED FOR TASK

- Hand Only
- Hands/Arms
- Whole Body
- Very Heavy

RESPIRATOR WEARTIME FREQUENCY:

- Fulltime: Daily Weekly Monthly Yearly
- Seasonal: Daily Weekly
- WEARTIME: ½ to 2 hours More than 2 hours
- ½ hour or less

TYPE RESPIRATOR REQUIRED

- Dust Mask
- Half Mask
- Full Face
- SCBA
- Airline
- Other: _____

PAST HISTORY (Completed by Examining Nurse or Physician)

PERTINENT OCCUPATIONAL EXPOSURE HISTORY (Include history of respirator wear)

PERTINENT MEDICAL HISTORY (Heart trouble, lung problems, claustrophobia?)

PHYSICAL EXAMINATION

PULMONARY FUNCTION (Complete Form - Pulmonary Function Studies Record)

FEV ₁ (BTPS)	% Pred.	FVC (BTPS)	% Pred.	FEV ₁ /FVC %

CHEST X-RAY _____

BIOLOGICAL MONITORING FOR CONTAMINANT _____

EXAMINATION RESULTS _____

EXAMINER'S SIGNATURE _____

PROBLEM SUMMARY: _____

RECOMMENDATIONS: (Complete Form - Respirator Medical Recommendation)

SIGNATURE OF REVIEWER _____ TITLE OF REVIEWER _____

54-424G

APPENDIX C

**OSHA LETTERS
CONCERNING TSI PORTACOUNT**



Reply to the Attention of

NOV 8 1988

MEMORANDUM FOR: REGIONAL ADMINISTRATORS

THROUGH: LEO CAREY, DIRECTOR
OFFICE OF FIELD PROGRAMS

FROM: THOMAS J. SHEPICH, DIRECTOR
DIRECTORATE OF COMPLIANCE PROGRAMS

EDWARD BAIER, DIRECTOR
DIRECTORATE OF TECHNICAL SUPPORT

SUBJECT: Portacount Fit Testing Device

NOV 14 1988

Several letters of interpretation and memoranda concerning the acceptability of the TSI Portacount Portable Fit Testing Device for quantitative fit testing (QNFT) of respirators have recently been distributed to your attention (see attached). This is to clarify the Agency's compliance policy on the use of this equipment by employers if encountered during the course of an OSHA inspection.

Several OSHA standards specifically require the use of aerosol-generation, dilution and measurement systems that utilize photometer technology which measures the mass of particles leaked through the facepiece (OSHA uses the Dynatech Frontier units to quantitatively fit test our own employees). The TSI Portacount is an instrument that compares ambient air particulate matter concentration inside and outside a respirator facepiece, utilizing condensation nuclei counting technology. As such, the two instruments represent entirely different measuring techniques. Therefore, until such time as a change or correction to the standards that require a specific QNFT protocol to be followed can be made and published, any use of the Portacount for QNFT under a standard that specifies the aerosol generation system is, technically, a violation of that standard.

Recently, however, the Directorate of Technical Support has contracted with the Lawrence Livermore National Laboratory to evaluate the performance of the Portacount device. Attached as "Attachment A" to this memo is a statement from Technical Support that discusses OSHA's evaluation of the Portacount unit's performance and provides additional technical information on its use and limitations. Based on this evaluation, the Agency feels

that the Portacount unit is acceptable to use for respirator fit testing measurements. The use of this type of device instead of the specific instrumentation mandated in currently existing fit test protocols therefore poses no direct or immediate relationship to employee safety or health. Thus, if an employer is utilizing the Portacount unit to fit test respirators that are approved for use when fit factors of less than 1,000 are required and the one-minute in-mask sampling correction has been made, a de minimus violation of the applicable standard would exist.

Additional questions concerning compliance issues may be addressed to Melody Sands, Office of Health Compliance Assistance, (FTS) 523-8036. Technical equipment questions and information on respirator testing devices should be addressed to the Directorate of Technical Support.

Attachments

cc: Health Standards Programs

Attachment A

Portacount Fit Testing Device Technical Considerations

The respirator quantitative fit testing requirements of several OSHA health standards such as asbestos and benzene have specific requirements for instrumentation. They require the use of an aerosol generation, dilution and measurement system which utilizes photometer technology with testing aerosols like corn oil or sodium chloride. The photometer measures the mass of aerosols during the test. The Portacount is basically a continuous flow condensation nuclei counter which counts the particles present at a given time.

Due to the difference in the method of measurement, the Portacount (which counts the number of particles) tends to give lower fit factors during a low leak situation than the Dynatech-Frontier unit, since the amount of particles leaked through the respirator is larger than the mass of particles leaked through. Furthermore, since the Portacount utilizes the ambient aerosol as the challenge agent, two questions remain unanswered: what is the effect of variation in the ambient concentration of aerosols on the fit factor obtained, and, what is the minimum ambient concentration necessary to obtain an acceptable facepiece fit?

Since there is no existing performance standard for the respirator QNFT equipment, OSHA requested that the Lawrence Livermore National Laboratory (LLNL) conduct studies to determine whether the Portacount is acceptable for use in conducting respirator QNFT. LLNL utilized oil mist as a testing aerosol with two other types of QNFT equipment, one a photometer, and the other a full-size condensation nuclei counter. Data from these tests were compared to results achieved utilizing the Portacount equipment.

The preliminary test results indicated that the Portacount has good stability. However, it consistently gave lower fit factors at low leakage rates compared to the oil mist generating equipment, which uses oil mist as a testing aerosol. There was good agreement on the fit factors of 1,000 or less. LLNL recommended that the Portacount be used when fit factors of 1,000 or less are needed, provided that there are at least 10,000 particles present in the ambient air.

Another problem involves the calculation of fit factors. The Portacount uses a computer to calculate the fit factors automatically. The user cannot alter the computer program which controls the time the instrument samples the air inside and outside the mask during the required exercise protocols found in OSHA QNFT procedures. The Portacount instruction book indicates that the inmask sampling time for each exercise is only 10 seconds, which is much less than the minimum one minute time as required for most exercises by OSHA protocols. OSHA has contacted the TSI Portacount company and they have agreed to modify the computer program (in all new devices, and will retrofit all currently existing devices) so that all Portacounts will have a minimum inmask sampling time of one minute, and therefore meet OSHA standards' protocols for sampling time during required exercises to determine respirator fit.

STANDARD NUMBER 1910.1028
INFORMATION DATE 19890406
DESCRIPTION Letter to
SUBJECT Clarification on respirator use relating to the benzene standard.

ABSTRACT The levels stated in the left column of Table I 1910.1028(g) represent airborne concentrations of benzene for which the specific respirator type(s) stated in the right-hand column are meant to provide protection. The use of a half-mask respirator complies with respirator selection requirements where STEL exposures to benzene are 50 ppm and below, and the worker's overall TWA exposure does not exceed 10 ppm. A memorandum was sent to all OSHA Regional Administrators to clarify compliance policy on the use of the Portacount device for quantitative fit testing.

Dr. Richard F. Boggs
Vice President
Organization Resources Counselors, Inc.
1910 Sunderland Place, N.W.
Washington, D.C. 20036

Dear Dr. Boggs:

This is in response to your letter of September 29, 1988, requesting clarification on several issues relating to compliance with the Occupational Safety and Health Administration's (OSHA) final rule on occupational exposure to benzene. Please accept my apology for the delay in response.

I will respond to your questions in the order in which they were raised:

Question 1:

Table 1- Respiratory Protection for Benzene (52 FR 34564) does not indicate whether the airborne concentrations listed in the left column are time-weighted-averages (TWAs) or instantaneous exposure levels. Are the levels indicated in Table 1 TWAs?

Answer:

Yes. The levels stated in the left column of Table I of 29 CFR 1910.1028(g) represent airborne concentrations of benzene for which the specific respirator type(s) stated in the right-hand column are meant to provide protection. The levels in Table I were arrived at by multiplying the permissible exposure limit (PEL) by the protection factor assigned a specific type of respirator (half-mask, negative pressure respirators are usually assigned a protection factor of ten; ten times the PEL of one ppm in ten ppm; etc.).

This is consistent with the values found in the respirator tables of other previously-promulgated OSHA standards such as OSHA's lead standard, which allows the use of, as an example, half-mask negative-pressure respirators for concentrations of lead up to "ten times the PEL." Ten ppm benzene is ten times the PEL of one ppm benzene (ten times the 8-hour, time-weighted average permissible exposure limit of one ppm).

Question 2:

Table 1 referred to in question 1 above does not address respiratory protection for short term exposure levels (STELs). Consequently, according to Table 1 the use of half-mask respirators against STELs exceeding 10 ppm is prohibited. Typically, a half-mask respirator is assigned a protection factor of 10 and considered protective against STELs less than or equal to 50 ppm. Is it correct to assume that OSHA will permit the use of half-mask respirators for STELs less than or equal to 50 ppm?

Answer:

OSHA standards promulgated prior to the final benzene standard do rely on the assignment of a protection factor of ten (10) when permitting the use of half-mask, negative pressure respiratory protection for exposures up to ten times the PEL. OSHA allows the use of a half-mask, negative pressure respirator with air-purifying cartridges when airborne concentrations of benzene are 10 ppm or less, which is ten times the PEL of 1 ppm, measured as an 8-hour time-weighted average exposure. OSHA refers to the STEL as a "PEL" (see 1910.1028(c)). Ten times the STEL of 5 ppm is 50 ppm. Assuming the respirator provides a protection factor of ten, the use of this respirator in concentrations up to 50 ppm would reduce the in-mask concentration to 5 ppm, the STEL, which is not to be exceeded for more than 15 minutes. The use of a half-mask respirator would therefore comply with the respirator selection requirements where STEL exposures to benzene are 50 ppm and below, and as long as the worker's overall

time-weighted average exposure during the 8-hour shift does not exceed 10 ppm.

Question 3:

Technology in the area of respirator fit testing is changing. PORTACOUNT, a relatively new effective methodology for quantitative fit testing does not fulfill all the requirements of the mandatory Appendix E regarding respirator fit testing for two reasons: a) the test agent atmosphere is not generated within a chamber: and b) in-mask samples are taken for less than 1 minute. ORC does not believe that in developing the appendix, OSHA intended to discourage innovative effective approaches to fit testing. How does OSHA intend to address this issue?

Answer:

On November 8, 1988, a memorandum was sent to all OSHA Regional Administrators in order to clarify Agency compliance policy on the use of the Portacount device for quantitative fit testing. A copy of that memo and attachments is enclosed for your reference.

I hope the answers provided above have been responsive to the concerns you raised. If we can be of further assistance, please feel free to contact us again or you may contact Ms. Melody Sands of the Office of Health Compliance Assistance at (202) 523-8036.

Sincerely,

Thomas J Shepich, Director
Directorate of Compliance Programs

Enclosure

HCA:MSands:MSZ:ALM/N3463/523-8036/12-12-88
cc: Smith/Shepich/Sands/DTS/HSP/FSO/OFP/SOL/OCIS/
RAS/N3463 Files(retyped 3/23/89)

File # 7221

STANDARD NUMBER 1910.134(e)(5)
INFORMATION DATE 19901207
DESCRIPTION Letter to Jerry D. Halford
COMPANY Respiratory Protection Services, Inc.
SUBJECT Quantitative fit testing of respirators with
system which uses naturally occurring
particulate

ABSTRACT Interpretation concerning system for
quantitative fit testing of respirators which uses
naturally occurring environmental particulate
matter as the challenge agent. If the system is
used for quantitative fit testing of respirators
worn for protection from any substance other than
asbestos, benzene, or formaldehyde, there is no
existing OSHA regulation to violate. If it is used
for quantitative fit testing of respirators worn
for protection from asbestos, benzene, or
formaldehyde, it will be a technical violation of
an OSHA regulation. The standards for these
substances require that aerosol generation,
dilution, and measurement systems be used for
quantitative fit testing of respirators.

DEC 7 1990

Mr. Jerry D. Halford
President
Respiratory Protection Services, Inc.
Post Office Box 580324
Houston, Texas 77258-0324

Dear Mr. Halford:

This is in response to your letter of March 9, to Gilbert J. Sautler, Regional Administrator of the Dallas Regional Office of the Occupational Safety and Health Administration (OSHA), concerning your system for quantitative fit testing of respirators. Please accept my apology for the delay.

We understand that your system uses naturally occurring environmental particulate matter as the primary challenge agent. You relate that you control the particle count either by releasing carbon particles or generating a corn oil aerosol. This assures that a particle count greater than 10,000 is always maintained during testing. You measure fit factors with TSI Portacount analyzers. It is your opinion that this system is far more accurate than most conventional units. You wish to know whether your firm and/or its clients will be subject to a citation for using the system to conduct quantitative fit testing of respirators, and if so, what additional modification could be made to achieve acceptable compliance.

In general, we can state that your firm would not be subject to citation by OSHA should a fit testing rule be violated in the course of providing fit testing services for one of your clients. Any citation issued for exposure of employees to hazardous conditions would be issued to your client.

If you use your system for quantitative fit testing of respirators worn by employees for protection from any substance other than asbestos, benzene, or formaldehyde, there is no existing OSHA regulation to violate. However, if you use your system for quantitative fit testing of respirators worn by employees for protection from asbestos, benzene, or formaldehyde, your client will be in technical violation of an OSHA regulation. The standards for these substances require that aerosol generation, dilution, and measurement systems be used for quantitative fit testing of respirators. These systems generate particles of a specifically limited range of sizes to challenge the face to facepiece seal of a respirator. Your system deviates from these systems by primarily using naturally existing environmental particles to challenge of the face to facepiece seal of a respirator. There does not appear to be any practical way to modify your system to conform with the systems required by the asbestos, benzene, or formaldehyde standards.

If your system measures respirator fit factors as accurately as the systems specified in the standards for asbestos, benzene, or formaldehyde, the violation for using your system will be classified as de minimis. De minimis violations are documented in the case file but no citations are issued. A copy of our memorandum of November 8, 1988, to OSHA Regional Administrators concerning the use of the TSI portacount fit testing device is attached for your information.

We appreciate the opportunity to clarify this matter for you.

Sincerely,

Patricia K. Clark, Director
Directorate of Compliance Programs

Enclosure

HCA:BRINKERHOFF:bar:10/2/90:N3461:8036
DCP #1027 Due Date: 7/6/90
cc:Brinkerhoff/Smith/Clark/Region VI/OCIS/OTI/HRT/Chron/Subject