

Interoffice
Communication

TO: EOIC Executive Committee

FROM: T. G. Grumbles
DATE: August 8, 1989

SUBJ: OSHA PROPOSED RULE: METHODS OF COMPLIANCE

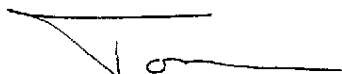
VISTA

The subject rule has multiple questions and requests for comments and/or data regarding the use of respiratory protection for compliance with occupational exposure limits. Specifically, there are many references to the EO EL rulemaking record regarding the use of respirators to comply with the 5.0 ppm EL. I believe EOIC needs to comment on at least the EO specific issues, particularly the use of respirators for EL compliance, as well as some of the general issues raised.

I've attached a copy of the proposal with the question raised by OSHA numbered in the margins. I believe we need to comment on at least the following: 1, 2, 4, 7, 8, 10, 13, 14, 15, 17, 20, 22, and 25.

These questions deal with the cost/benefits of respirator use, specific jobs where respirators can be used solely, and additional data to support specific changes to the Ethylene Oxide standard.

We need to review our comments in the EL rulemaking records and determine what we believe we could add to reemphasize our prior position or new information to address OSHA's questions.



T. G. Grumbles

dlj

cc's: R. Romano
S. Schotland

VVV 000009610

from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, Stock No. 050-001-00308-2. The FHWA both receives and initiates requests for amendments to the MUTCD. The MUTCD is a promulgation of uniform national traffic control devices standards and applications for use on all streets and highways open to public travel regardless of type or class or the governmental agency having jurisdiction.

Issued on: May 30, 1989.

R. D. Morgan,
Executive Director.

[FR Doc. 89-13280 Filed 6-2-89; 8:45 am]

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DEPARTMENT OF LABOR

Occupational Safety and Health
Administration

29 CFR Part 1910

[Docket No. H-180]

RIN 1218-AA28

Health Standards; Methods of
Compliance

AGENCY: Occupational Safety and
Health Administration (OSHA), Labor.
ACTION: Proposed rule.

SUMMARY: By this notice the Occupational Safety and Health Administration (OSHA) proposes to modify the existing provisions for controlling employee exposures to toxic substances found in 29 CFR 1910.1000(e) and 29 CFR 1910.134(a)(1). The Agency proposes to incorporate additional flexibility in its methods of compliance requirements by more explicitly setting forth the circumstances under which respiratory protection may be used in lieu of engineering controls. While some additional approaches are not reflected in actual proposed regulatory language, comment is requested on the appropriateness of addressing all of the various areas discussed by this notice in a final methods of compliance rule. This action is being taken based on data the Agency has received in response to an Advance Notice of Proposed Rulemaking (ANPR) published in February, 1983 (48 FR 7473) that solicited comment on its policy relating to the use of engineering controls and respirators and on data found in OSHA's 6(b) rulemaking records addressing the methods of compliance issue (Ex.4).

Notice is also given, herein, that certain modifications to the compliance

requirements with respect to short-term exposures in the recently promulgated standards for benzene (52 FR 34460), formaldehyde (52 FR 46168), and ethylene oxide (53 FR 11414) may result from this rulemaking.

DATE: Comments and requests for a hearing should be submitted by October 3, 1989.

ADDRESSES: Comments should be submitted in quadruplicate to the Docket Officer, Docket No. H-180, Room N-3670, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210.

Requests for a hearing should be submitted in quadruplicate to Mr. Tom Hall, OSHA, Division of Consumer Affairs, Docket No. H-180, Room N-3637, U.S. Department of Labor, 200 Constitution Ave., NW., Washington, DC, 20210.

FOR FURTHER INFORMATION CONTACT: Mr. James F. Foster, Occupational Safety and Health Administration, Office of Public Affairs, Room N-3649, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210. Telephone: (202) 523-8151.

SUPPLEMENTARY INFORMATION:

I. Background

OSHA's methods of compliance policy, first adopted by OSHA from national consensus standards in 1971, and subsequently included in OSHA substance specific health standards, requires that employers rely primarily on feasible engineering controls to prevent employee exposures from exceeding permissible levels. This requirement, in particular, is stated in the OSHA Respiratory Protection Standard, 29 CFR 1910.134(a)(1), which applies to all exposures to airborne toxic substances, and in the Air Contaminant Standard, 29 CFR § 1910.1000(e), which applies to exposures to 600 substances listed in Tables Z-1, Z-2, and Z-3. Thus, 29 CFR 1910.1000(e) requires employers to first implement engineering and administrative controls to comply with the permissible exposure limits for substances listed in the above Tables. Similar language appears in OSHA's generic respirator standard which set forth the conditions of respirator use required to protect the health of employees. (29 CFR 1910.134(a)(1)). These standards were adopted without full rulemaking proceedings to allow OSHA to quickly put into place a body of workable regulations, pursuant to section 6(a) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 655 et seq.).

This methods of compliance policy has also been incorporated in every health standard adopted pursuant to section 6(b) of the Act after OSHA's evaluation of the related rulemaking records. All substance specific health standards (except for the 13 carcinogen standards, 29 CFR 1910.1003-1016, which mandate specific engineering controls) and the carcinogen policy (29 CFR Part 1990) recite a generalized preference for engineering and work practice controls. However, in each such standard OSHA has identified circumstances or operations where the record shows the infeasibility or impracticality of installing engineering controls and has allowed reliance on respiratory protection as well. However, the generic standards, 29 CFR 1910.1000(e) and 134(a)(1), do not set out most of these modifying circumstances in their regulatory texts.

In certain recognized situations and conditions under OSHA's substance specific standards, engineering controls are not required and respirator use is permitted. For example, the following standards permit the use of respiratory protective devices during installation of feasible engineering controls, where engineering controls are not feasible, and where it is necessary to supplement engineering controls in order to achieve full compliance: asbestos, arsenic, lead, coke ovens, cotton dust, DBCP, acrylonitrile, and ethylene oxide. Other specific allowances for respirator use can be found in standards for arsenic (maintenance and repair), lead (for employees exposed less than 30 days per year), coke ovens (maintenance and repair), acrylonitrile (maintenance, repair, and vessel cleaning), and ethylene oxide (collection of quality assurance samples, removal of biological indicators, loading and unloading of tank cars, changing ethylene oxide tanks, vessel cleaning, and maintenance and repair activities). These examples provide a clear indication of the Agency's realistic expectations with respect to the implementation of engineering controls and of the flexibility implied with respect to the meaning of "feasible engineering controls." In addition, in an enforcement context, it may be demonstrated that for specified operations engineering controls are infeasible. OSHA seeks comment on whether these specific types of allowances should be explicitly built into the general methods-of-compliance provisions.

OSHA's policy has been criticized by some as too inflexible, not cost-effective, often unnecessary for health

protection and outdated based on the argument that sufficient progress has been made in respirator technology and application to permit their use on a wider scale.

In order to address these criticisms OSHA published an ANPR on February 22, 1983, to solicit public comment on issues such as preference for engineering controls, comparative protectiveness of respirators and engineering controls, total costs of respirators and engineering controls, and the use of engineering controls even if such controls fail to reduce levels to below the PEL. OSHA was also seeking information that would help the Agency to focus on three primary policy considerations:

The first consideration was health protection. It had been postulated that there may be many instances where respirators would provide protection to employees equivalent to engineering controls, and that their routine use should be permitted.

The second consideration was that respirator technology and use practices have progressed significantly since initial adoption of OSHA's compliance requirements in 1971. As a result of many of these advances, the consensus among many occupational health professionals concerning what constitutes a reasonable effective respirator program has changed. This point is demonstrated by the issuance of the American National Standards Institute (ANSI) Z-88.2-1980 standard, entitled "Practices for Respiratory Protection," a revision of the 1969 ANSI standard. In addition, improved respiratory protection programs are currently being addressed in a proposed revision of OSHA's respiratory protection standard (29 CFR 1910.134). It was suggested, therefore, that, in the presence of such programs, respirators would be capable of taking a more significant role in air contaminant protection than they have had before.

The third consideration was cost-effectiveness. There may be instances where the costs of engineering controls would exceed the expected costs of respiratory protection, and where the routine use of respirators may provide adequate employee protection. Should such instances exist, reasonable allowances for the use of respiratory protection should be made.

For the foregoing reasons, it was felt to be timely and appropriate to reexamine OSHA's policy on methods of compliance.

Over 135 ANPR comments were received, with a wide range of responses from industry, labor, health organizations, and others. In addition,

rulemaking records from other standards which OSHA has promulgated have been re-examined and relevant exhibits have been placed in this record. Labor unions opposed any change in the role of respirators in current programs. In addition, NIOSH, and Los Alamos and Lawrence Livermore research laboratories, highly respected for their expertise and experience in exposure control technology, also opposed changing the existing policy.

The preponderance of data in this and other rulemaking records (ethylene oxide, cotton dust, DBCP, acrylonitrile, arsenic, lead, asbestos, cancer policy) support the industrial hygiene principle that engineering controls, where feasible, are more effective in controlling exposure than other means.

Commenters representing unions, (2-53, 2-102, 2-122, 2-98), universities (2-120), research organizations (2-128, 2-138, 2-131, 2-81), and health associations (2-89), contended that the requirement to implement feasible engineering controls should be maintained. Industry representatives that acknowledged the superiority of feasible engineering controls include AT&T (2-59), DOW (2-71), Monsanto (2-88), and ALCOA (2-103).

These commenters agreed that engineering controls provide reliable and consistent levels of protection to a large number of workers and are not dependent on individual human performance. Data submitted to the record support this assertion. Performance of engineering controls can be monitored continually, inexpensively, and can be predicted at the design stage. As stated by DOW, "The primacy of engineering controls for controlling exposure is an accepted principle of occupational health" (2-71). AT&T commented that "Engineering controls should always be given primary consideration" (2-59). Los Alamos' Industrial Hygiene Group has stated,

That . . . there are no analytical results to indicate that respirators offer equal or better protection than engineering controls and with very few exceptions . . . respirators simply cannot offer the same degree and reliability of protection to employees, as properly designed and operated engineering controls (2-131).

The University of North Carolina commented that:

All industrial hygiene practice indicates feasible engineering controls should take precedence . . . (Ex. 2-120).

ALCOA, addressing the reliability of engineering controls and respirators, provided the following:

Engineering controls generally provide better and more reliable methods of protecting employee health . . . Improperly wearing respirators can be a continual problem. While we believe this occurs less than 5% of the time in many of our plants, we expect it occurs more frequently in some plants—possibly in the order of 30% or more of the time. (Ex. 2-103).

Many industry commenters, however, called for increased flexibility in OSHA's compliance policy; still others for abandonment of the preference for engineering controls. For example, the Chemical Manufacturers Association stated (Ex. 2-72), in response to the question of whether OSHA should require the use of feasible engineering controls "in preference" to the use of respirators, as follows:

As long as the employer meets a permissible exposure limit (PEL), controls the skin contact, or meets the appropriate biological levels that are consistent with employee health and safety, OSHA should not require any specific control strategy (sic). Means for achieving such standards will often involve engineering controls and the use of respirators as well as administrative and work practice controls. Methods of reducing exposure to the desired level will be different in each workplace and the combination of engineering, administrative, and work practice controls and use of respirators should be left to the employer.

Representing a broad cross section of industry, the National Association of Manufacturers (Ex. 2-91) similarly stated, arguing that OSHA's current methods policy was actually counterproductive to worker safety and health, as follows:

The threshold question is whether current OSHA standards requiring employers to implement feasible engineering controls to maintain air contaminants in the workplace to within prescribed permissible exposure limits and permitting engineering controls are not feasible, not yet installed, or are inadequate is conducive to the "most effective" protection of workplace health. It is the NAM's belief that almost exclusive reliance on engineering controls while not accounting for situational variations is neither the most effective approach nor in the best interest of overall worker protection.

Few professionals in industry would argue that engineering controls are not the "ideal" means for the elimination or mitigation of workplace hazards. However, ideal solutions rarely work as well as expected in practice and practical concerns must also be considered. These practical concerns include all hazards rather than a single hazard and must be viewed in relation to and interacting with a total workplace safety and health program. Under this total program, the ideal solution for the control of one hazard may likely limit an employer's ability to address the remaining segments of the program. Thus, preference for one form of control over another, unmindful of the variables involved,

we believe, is counterproductive to the effectiveness of a balanced and truly effective overall safety and health program. For this reason, the feasibility of an engineering control should not be the sole determinant of its use and OSHA policy should not reflect this short-sighted goal.

Specific companies reflected similar concerns. Thus, the DOW Chemical Company [Ex. 2-71] noted:

The prime concern in any reconsideration of the methods-of-compliance provisions must be maintenance of safety and health protection for employees to prevent work-related injuries, illness and death. Such protection cannot be achieved by mandating a hierarchy of control techniques. Dow recommends that OSHA delete or modify any mandatory preference to allow employers greater flexibility to use their professional judgment to determine the balance of engineering controls, work practices, operator training and personal protective equipment that is most effective for them in achieving the appropriate level of protection.

Another major chemical company, Du Pont, emphasized the effectiveness of respirators together with the need for greater flexibility:

Much has changed since the current methods of compliance policy was adopted. Data obtained from research on the performance of respirators in the workplace, much of it performed by DuPont, lend strong support to the conclusion that respirators provide reliable employee protection when used in a good respirator program.

Recent research on workplace protection factors demonstrates that respirators provide effective control for exposure to airborne chemicals when they are used correctly in a good respirator program. In many cases they provide the most cost effective means of control. Accordingly, DuPont believes that respirators, like engineering and administrative controls, have a proper role to play in the protection of employees. Therefore, DuPont recommends that each employee's personal work environment be maintained at a safe exposure level through implementation of cost-effective engineering controls augmented as necessary by personal protective equipment and/or work practice controls. The choice of methods should depend on the factors in each specific situation.

The choice of the proper method(s) of compliance involves, therefore, far more than the simple dichotomy of engineering controls versus respirators. For this reason, the question "Which are better, engineering controls or respirators?" cannot be satisfactorily answered in the abstract. As the information and comments offered by Du Pont in the enclosure will indicate, the choice of the proper method(s) of compliance is best made on an individualized basis by industrial hygiene professionals. So long as the two criteria identified above have been met, an employer should not be needlessly constrained from choosing the control strategy that makes sense for his particular operation.

Atlantic Richfield Company [Ex. 2-80], in endorsing comments submitted by the American Petroleum Institute [Ex. 2-73], noted:

Employers should have the option to select a protective control strategy rather than being mandated to adhere to the current rigid hierarchy of exposure controls. The ultimate goal of any control strategy must be the adequate protection of workers exposed to contaminants. Varying control strategies will achieve that goal at least equally well, and often more cost-effectively, as the fixed controls provided by current policy.

In support of this recommendation we want to emphasize that the statutory language of the OSH Act does not mandate the primacy of engineering controls. Support for this conclusion is fully developed in API's comments.

OSHA should recognize the significant advances in both technology and applicability of respirators in the last decade. New methods and procedures for fit-testing and respirator fit reliability have been developed.

Other commenters expressed similar concerns. (See Cast Metals Federation [Ex. 2-49], Horston Lighting & Power [Ex. 2-21], the American Gas Association [Ex. 2-77], SCM Corporation [Ex. 2-21], and National Agricultural Chemicals Association [Ex. 2-77]. National Paint and Coatings Association, Inc. [Ex. 2-78], Motor Vehicles Manufacturers Association [Ex. 2-95], and The Health Industries Manufacturers Association [Ex. 2-110].

This rulemaking does not address the assessment and reduction of any absolute existing risks but rather addresses the possible change in risk abatement associated with the use of respirators instead of engineering controls. The nature of the risks involved concerns differences in degree of protection between respirators and engineering controls as applied in various types of work situations involving different air contaminants.

The Proposal

OSHA proposes to modify its existing requirements in 29 CFR 1910.1000(e) and 134(a)(1) that specify primary reliance on feasible engineering and work practice controls, by further clarifying the circumstances, based on experience with OSHA's 6(b) standards and data and information submitted for the record, under which more extensive use of respirators may be appropriate.

The record does identify specific situations where engineering controls generally may not be feasible, and where respirators may have to be used (Exs. 2-51, 2-72, 2-131). OSHA, therefore, is proposing to specify five sets of circumstances where there will be no need for employers to show that engineering and work practice controls

are not feasible before an employer can rely on respirators to reduce employee exposure to required levels.

In large part, these circumstances reflect the current application of the two standards involved and circumstances recognized in substance-specific standards. By setting out explicit situations OSHA hopes to make future application of the methods of compliance policy more uniform and understandable.

It is noted that provisions adopted under this standard will not change the compliance provisions found in OSHA's existing substance specific standards with the possible exceptions of the STEL provisions in the ethylene oxide (29 CFR 1910.1047), benzene (29 CFR 1910.1028) and formaldehyde (29 CFR 1910.1048) standards. The preamble to those standards indicated that if evidence were to be submitted during this rulemaking, appropriate to ethylene oxide, benzene or formaldehyde on the STEL compliance issue OSHA would consider making appropriate changes to each rule. If information developed in the course of this rulemaking demonstrates that changes should be made in any of the existing substance specific standards, OSHA will amend these standards to permit employers to elect to use either respirators or engineering controls to achieve compliance with those existing short term limits.

The circumstances listed define concrete situations where OSHA has or would have treated the primary reliance on engineering controls as infeasible in most cases. Within these circumstances employers will be able to use any combination of engineering or work practice controls and respiratory protection to effectively reduce employee exposures to required levels.

OSHA also notes that as under the current standards, OSHA's enforcement of the hierarchy of controls provision is on a case-by-case basis. Other situations where engineering controls may be infeasible can be more easily identified because of the explicit examples provided in the proposed provisions.

OSHA has recognized other circumstances where respirators are essential to guarantee employee health in some substance-specific standards. Thus, OSHA has provided that in work operations such shutdown and repair activities respirators may be used as a primary control strategy. (See 29 CFR 1910.1048(a)(1)(ii), Formaldehyde; 1910.1047(g)(1)(ii), Ethylene oxide (EtO); 1910.1043(f)(1)(ii), Cotton dust; 1910.1029(g)(1)(b), Coke Oven emissions;

1910.1018(h)(1)(ii), Inorganic arsenic; 1910.1001(g)(ii), Asbestos, tremolite, anthophyllite, and actinolite).

OSHA has not proposed an explicit exclusion for maintenance activities for the generic standards. As OSHA observed in the preamble to the carcinogen policy, based on its review of that voluminous record, although these activities are "intermittent, often unpredictable and often undertaken when engineering controls break down . . . some maintenance activities are feasibly controlled by engineering and work practice controls" 45 FR 5228. Moreover, the Agency believes that routine activities that are performed on a repeated or scheduled basis can be controlled through implementation of feasible engineering and work practice controls. Compliance plans can be developed and engineering controls implemented for predictable activities, including routine maintenance. However, OSHA raises for comment the question of whether it is necessary to require that all feasible engineering controls such as ventilation systems be installed solely for maintenance activities. Specifically, OSHA would like to receive examples of instances which would demonstrate that an engineering control requirement exclusively for maintenance exposures would or would not be appropriate. (For activities such as shutdown and repair, which are necessary due to unexpected or unpredicted occurrences, respirators would be permitted as they would be the only available source of protection against exposure.)

The Agency does agree, however, that there may be some activities that are considered to be maintenance that may have to be performed with respirators due to the absence of other controls. Nevertheless, as discussed above, the Agency believes many maintenance activities lend themselves to control by engineering means. OSHA does not have sufficient information to list specific maintenance jobs commonly performed in general industry that may require widespread use of respirators. Therefore, the Agency is interested in receiving comment on the practicality of listing specific maintenance jobs for which engineering controls are generally infeasible or maintenance activities where respirator use is otherwise appropriate based on consideration of duration, frequency and whether routine or not.

Thus, data are solicited regarding circumstances, conditions, frequency, and duration of the types of industry-wide maintenance activities that typically require the use of respirators

due to the general infeasibility of engineering control implementation or for which respirators would, in any case, provide sufficient protection.

The five sets of circumstances that have been identified by OSHA from data in the record where engineering controls may generally be infeasible include:

1. During the time necessary to install feasible engineering controls;
2. Where feasible engineering controls result in only a negligible reduction in exposure;
3. During emergencies, life saving, recovery operations, repair, shutdowns, and field situations where there is a lack of utilities for implementing engineering controls;
4. Operations requiring added protection where there is a failure of normal controls; and
5. Entries into unknown atmospheres.

A provision-by-provision discussion of the proposed revisions follows:

1. OSHA is proposing to allow primary reliance on respiratory protection during the time necessary to install or implement feasible engineering controls. This circumstance was specifically identified in submissions to the ANPR (Exs. 2-91, 2-50), and in all substance specific standards (see e.g. 29 CFR 1910.104(g)(1)(i), EtO; 1910.1045(h)(1)(i), cotton dust).

2. OSHA is proposing to allow primary reliance on respiratory protection where engineering control implementation would result in only a negligible reduction in exposures. OSHA requests comment on whether setting forth this additional explicit regulatory language is necessary in light of existing provisions requiring that only feasible engineering means be implemented to reduce exposures. Current OSHA enforcement policy and practice recognize that the degree of expected exposure reduction is part of the determination of feasibility. Therefore, OSHA feels that it may be unnecessary to supplement the current compliance requirements with specific language as suggested above. Further, to define in regulatory terms on a broad basis what a "negligible" reduction in exposure level is in general industry as a result of engineering control implementation, as opposed to defining it on a case-by-case enforcement basis, may prove to be confusing to employers and impractical to OSHA. Nevertheless, since the potential success of exposure reduction is considered in determining feasibility, proposing specific language to that effect would not change current OSHA policy and therefore, may be

appropriate for clarification purposes. Comment is requested on this issue.

OSHA points out that this exception does not cover the required supplemental use of respirators when feasible engineering controls do not "achieve full compliance" pursuant to 29 CFR 1910.1000(e). Rather, it refers to situations where engineering controls would achieve exposure reductions only to a negligible degree.

Comments in response to the ANPR identified some operations which may be covered by this proposed provision. However, further case-by-case analysis still will be required (Exs. 2-131, 2-118, 2-132). Thus, for example, the American Foundrymen's Society (AFS) asserts that "technical limitations prevent the control of dust exposures to within permissible exposure limits by engineering means at most chipping and grinding operations." (Ex. 2-44). Spray painting booths were also cited as virtually impossible to engineer to achieve substantial exposure reduction (Ex. 2-38). OSHA notes however, that engineering controls may be feasible to implement, and the issue may be the degree to which they are effective. The proposed provision would allow reliance on respirators when feasible engineering controls only achieve negligible exposure reduction. If in the case of foundries, the installation of local exhaust hoods and increased housekeeping make little difference in the employee's exposure because of unalterable difficulties in hood placement, then the provision may apply. If however, engineering controls can reduce exposures, although not down to the PEL's, the unrevised supplemental respirator use provision of § 1910.1000(e) would, as now, come into play and require a combined control strategy, and not total reliance on respirator protection.

OSHA also notes that confining discussion about the effectiveness of feasible engineering controls to "conventional" controls may dictate unwarranted conclusion of infeasibility, loss of productivity or ineffectiveness. NIOSH has pointed out that, for example, in the plastics and resins industry, implementing controls for cotton dust, and in silica flour milling, engineering control modifications and innovation increased production and control effectiveness over "conventional" technology. (Ex. 2-81). Innovative controls which are available will have to be assessed before this exception may be relied on.

3. The third provision proposed by OSHA to permit reliance on respiratory equipment encompasses several

circumstances where total reliance on engineering controls would be ineffective or inappropriate. These are emergencies, recovery operations, unscheduled repairs shutdown, and in field situations where there is a lack of utilities for implementing engineering controls.

OSHA believes that in these circumstances, respiratory protection has proven itself generally as the most and often the only practical means to minimize employee exposure. Respirators may be the only means of protection in situations where engineering controls cannot be implemented due to the remoteness of the locale, other configuration of the site, or the characteristic of the work operation. Further, some of the defects of respirators, i.e., lack of employee acceptance and degradation of fit over time are greatly reduced by the short time they may be worn during emergencies, recovery operations, unscheduled repairs and shutdown. Most submissions supported respirator use in circumstances similar to exception three. For example, Monsanto noted that during emergencies (liquid spills, fire fighting, etc.) respirators are used in operations where routine protection is achieved by engineering controls (Ex. 2-88). API noted that respirators are the only means to provide emergency protection in the event of an equipment failure (Ex. 2-93).

Most substance specific standards permit primary respirator use in these situations (See e.g. §§ 1910.1018(h)(1)(ii), arsenic; § 1910.1029(g)(1)(d), coke oven emissions; and § 1910.1044(h)(1)(iv), DBCP).

4. OSHA is also proposing to allow reliance on the use of respirators in operations involving materials which are primarily controlled by engineering devices to protect employees in the case of control breakdown. OSHA's intent is to allow respiratory protection to be used as a redundant control system where redundancy is considered necessary either because of the toxicity of the substance or the possibility of engineering breakdown. For example, Conoco, Inc. stated that "standby or back-up respiratory protection is normally maintained in all locations where hydrogen sulfide (H₂S) gas is produced in case of accidents" (Ex. 2-60).

5. The fifth circumstance proposed to allow reliance on respiratory protection is for entries into unknown atmospheres. Preliminarily, OSHA intends to cover confined spaces or vessel entry and tank cleaning and vessel cleaning. Most commenters who addressed this issue agreed that respiratory protection was

essential for these activities, and that engineering controls were, in the main, infeasible (Ex. 2-112).

OSHA believes that employees will be effectively protected in the situations envisioned in provisions 4 and 5, by the proper selection and use of respiratory protection.

(6) The Agency requests comments on all aspects of these proposed provisions. In particular, the clarity of the "exception provisions" is of concern to the Agency, because one reason for these provisions is to provide certainty and uniformity of application to employers and OSHA enforcement personnel.

In addition to requesting comment on the appropriateness of allowing the use of respirators during the activities discussed above, OSHA requests data, views, and comment on other situations, as discussed below, where it may be acceptable to use respirators in lieu of engineering controls, and which should be allowed for, as part of this rulemaking, in a final methods of compliance rule.

(7) Specifically, comment is sought on the appropriateness of permitting the use of respirators for work situations in which the hazardous exposure is of very brief duration. OSHA permits the use of respirators in specific activities in a number of its existing section 6(b) standards based, in part, on the short duration of the activity. For example, respirator use is permitted under the ethylene oxide standard (29 CFR 1910.1047) during the collection of quality assurance samples, removal of biological indicators, and changing of ethylene oxide tanks or cylinders. These activities are typically brief in nature. The concept of according acceptability of respirators for intermittent use is also found in the benzene (52 FR 34480) and lead (29 CFR 1910.1025) standards which, in general, permit their use where the regulated substance is used in the workplace less than a total of 30 days per year. These exceptions to implementation of engineering controls were adopted in each specific standard based on data that demonstrated the acceptability of the use of respirators for those particular circumstances in those particular substance using industries. Thus, it is not presently clear to OSHA whether such exclusions can be appropriately applied generally. Another regulatory agency, the Mine Safety and Health Administration (MSHA), is also exploring the issue of ways to permit more flexibility in required exposure control methods for unusual situations. For example, MSHA is considering permitting the use of respirators in "tasks such as maintenance or investigative activities [which] require

occasional entry into hazardous atmospheres." Comments submitted to the Methods of Compliance record also argued for incorporation of flexibility in respirator use under certain conditions. One commentor stated that respirator use should be permitted in lieu of feasible engineering controls for a certain percentage of time per individual, per work station (Ex. 2-43). This suggests, perhaps, that employers should be allowed to establish a "respirator budget" to allocate a certain number of days per year or hours per day for employees to wear respirators in lieu of feasible engineering controls. Comment and data is sought that demonstrate that "budgeted" respirator use will result in reliable and predictable control equivalent to that afforded by engineering controls. Others supported allowing employers to rely on respirators to control exposures for short term tasks (Ex. 2-61), and for high exposure variability, infrequent and small exposed population job tasks (Exs. 2-88, 2-93). None of these comments, however, provided substantial data to the record demonstrating that employee protection would not be compromised by permitting the use of respirators in these instances in lieu of feasible engineering controls. Receipt of such data is requested by OSHA. (9)

As indicated above, however, OSHA is not convinced based on available data that it is appropriate for the Agency to adopt broadly applicable generic exposure control provisions incorporating intermittency or short duration of operation as a basis for permitting the use of respirators in lieu of engineering controls, as found in the specific standards discussed above. Therefore, comment and data are solicited that demonstrate or refute the appropriateness of adopting this approach into a final rule on OSHA's methods of compliance requirements, based on the frequency and duration of the activity, that could be applied to general industry. Comment is also specifically requested on whether actual final regulatory language which would reflect this approach should incorporate specific time limitations as to the duration and frequency of use per work shift and what these specific time limitations should be, or should, rather, such language be phrased in general, flexible terms such as "brief duration," "short duration," or "brief intermittent use" without specific time limitations. If a time limitation is suggested, the Agency requests data and information as to the appropriate time period and why adequate protection would be (10)

provided by respirators during that period.

Related to the issue of the appropriateness of permitting short duration use of respirators, as discussed above, is the issue of specifically permitting respirators to be used to achieve compliance with short-term exposure limits (STELs). The preambles to the recently promulgated benzene (52 FR 34480) and formaldehyde (52 FR 46168) standards, for which STELs were adopted, and the preamble to the ethylene oxide standard (53 FR 11414), for which an excursion limit was adopted, indicated that OSHA would consider in its Methods of Compliance rulemaking whether different principles should apply as to means of compliance for the STEL or excursion limit, such as using respirators to meet the short-term limit, but not the TWA. Neither the ethylene oxide, benzene nor the formaldehyde standard adopted a provision allowing respirators to be used to achieve compliance with the short-term limit in lieu of feasible engineering controls because data in their specific respective records did not justify such an allowance. It is noted in each standard's preamble that if evidence is submitted in the Methods of Compliance rulemaking, appropriate to ethylene oxide, benzene or formaldehyde on the short-term limit compliance issue OSHA will consider making appropriate changes to each rule. OSHA therefore requests, additional data beyond those received during the specific 6(b) rulemakings, addressing the question of whether the compliance requirements in these standards should be modified with respect to control of short-term exposures. Data and views are solicited on circumstances under which it would or would not be appropriate to permit employers to elect to use either engineering controls or respirators as the primary means of limiting exposure to within the benzene STEL, the formaldehyde STEL, or the ethylene oxide excursion limit.

Based on information received during this rulemaking, that is pertinent to these substances with respect to compliance requirements for control of short-term exposures, OSHA will either amend these standards to permit employers broader discretionary use of respirators regarding STEL compliance in this rulemaking, or will reaffirm the conclusions reached during the previous rulemakings for each of the three substances.

OSHA presently does not have sufficient data to justify proposing to include regulatory language allowing

STEL compliance for all substances to be achieved solely through the use of respirators. Since OSHA has received no documentation that convinces the Agency that respirators can be used as a consistently effective means of routinely meeting STEL's on a widespread basis, the Agency is raising this issue for comment.

The Agency is raising this issue for comment in conformance with statements to that effect in the ethylene oxide, benzene and formaldehyde standards. OSHA therefore requests substantive technical data concerning conditions and situations under which respirators can be employed successfully in lieu of other controls to achieve STEL or excursion limit compliance, and concerning how and why the use of respirators for protection against short-term exposures can be differentiated from protection against TWA exposures with respect to effectiveness.

Comment on another area where broader use of respirators may be acceptable is also being requested by OSHA. As discussed earlier, the question arises whether there are circumstances in the workplace where the protection afforded by respirators would be equal to the protection provided through implementation of engineering controls. In particular, the question arises whether there are circumstances where the costs of the respirator program would be less than those of engineering controls and yet equal protection would be afforded by either. Are there circumstances in which cost effectiveness factors are a legitimate consideration in determining the acceptability of one exposure control method over another. Also, what workplace factors would have to be considered to evaluate the effectiveness of a control method before costs could be taken into account? A number of factors that may be appropriate to consider in determining whether engineering controls or respirators will provide adequate protection in a particular situation were raised for comment in the ANPR. OSHA seeks further comment on how factors such as described below should be taken into account by OSHA or the employer in determining the acceptability of using either engineering controls or respirators. Workplace factors which may affect the performance and degree of protection provided by exposure control means may include: number of exposed employees and number of employees with respirator fitting problems; severity of acute and chronic health effects; length and frequency of

exposure; ability to measure and ensure the adequacy of exposure control; work rate; temperature and humidity of the workplace; ability to assess the probability of protection failure; detectability of control failure before harm; and the extent to which employees may be expected to wear respirators for any required period. Comment received on these factors as set forth in the ANPR revealed that an important role is played by each in determining the suitability of compliance methodology. Engineering controls were suggested as being particularly preferred where health effects are more severe, where there are more lengthy and frequent periods of exposure; where respirator failure warning properties do not exist; where the work rate exertion level is greater, where significant respirator fit problems exist, and where extreme temperature and humidity conditions exist. OSHA again raises for comment the question as to how or if these workplace factors should be viewed in deciding whether engineering controls or respirators are most appropriate and, further, how these factors could be reflected in a final rule to define those circumstances where respirator use would provide appropriate protection and would, thus, be permitted under the rule. How would it be determined that employees would be provided with the desired degree of protection? It is noted here that OSHA is in the process of revising its standard on respiratory protection (29 CFR 1910.134) and that consideration should be given as to whether an increased degree of protection may result where respirators are used in conformance with the new respirator program provisions.

It is not clear to OSHA at this time, however, how it can be determined that respirator use is equally protective as engineering controls, costs notwithstanding. Nevertheless, OSHA seeks comment that would show the appropriateness of allowing cost effectiveness to be incorporated as a control method selection factor.

In the preceding discussion, OSHA has maintained its support for a continuance of its existing compliance method hierarchy, but has also suggested that, under certain specific sets of circumstances, it may be appropriate to allow respirator use in lieu of feasible engineering controls, thus providing flexibility in determining the appropriate method of compliance. For example, OSHA seeks comment on a requirement to permit respirator use in lieu of feasible engineering controls in certain instances where the employer has submitted a comprehensive written

respirator compliance program to the Agency. This compliance plan would be subject to OSHA approval and would be required to demonstrate to the Agency that the use of respirators under the circumstances described would provide protection to the employee equivalent to that afforded if feasible engineering controls were implemented. OSHA believes, however, that this flexibility may not be appropriate where the substance involved is a carcinogen, has no identified dose-response threshold, continues to pose a significant risk at the PEL, has no respirator breakthrough warning properties, or if there are no means of determining the specific in-use effectiveness of the respirator. On the other hand, if the effectiveness of respirators can be monitored readily in some manner, such as by biological monitoring, it may be appropriate to permit their limited use. The Agency solicits comment on the issue of OSHA approved respirator use. Views are sought on criteria which should be considered and met for respirator compliance program approval and on circumstances, as suggested above, under which respirator use should not be permitted in lieu of feasible engineering controls.

An alternative which would provide even more flexibility with regard to respirator use is to allow employers under any circumstances to comply with exposure limits by any method the employer deems advisable. Some commenters have suggested that establishment and enforcement of a good respirator program will result in effective exposure control where respirators are used in place of engineering controls, and that employers should be allowed to implement such respirator programs under the standard in circumstances deemed appropriate by the employer (Exs. 2-61, 2-88, 2-93, 2-94, 2-109). For example, the Ethyl Corporations states that "The government should not regulate the need for engineering controls but should regulate the use of personal protective equipment, requiring the employer to show that protection is being provided" (Ex. 2-109). The American Petroleum Institute asserts that "The burden should rest on the employer to demonstrate that its employees are protected by whatever [control] strategy is chosen" (Ex. 2-93). Finally, 3M states that "A well written performance standard should satisfy the requirement that OSHA ensure that exposures are within permissible exposure limits while allowing the employer to be concerned with the 'how' of meeting a specific standard" (Ex. 2-88). OSHA is not

convinced that, as suggested by these commenters, implementation of even a strong respirator programs will result in equivalency of protection afforded by respirators as compared to engineering controls. The inherent limitations of respirators preclude their providing equivalent protection to engineering controls for use as the primary means of exposure control in most all circumstances where implementation of engineering controls are feasible. A control method which limits contaminant entrance into the workplace (e.g. engineering controls) has been clearly shown to be a more effective application of industrial hygiene principles than one that does not. Nevertheless, OSHA seeks comment on whether continuance of the control hierarchy is still necessary in any form, and whether adoption of a purely performance oriented compliance provision into a final methods of compliance rule is a viable option. Comments in support of discontinuance of the control hierarchy should describe the specific circumstances under which such a change would be appropriate and how it would result in continued equivalent employee protection. Data and information are also sought that can demonstrate that adoption of a performance oriented compliance requirement will maintain the protection afforded employees under current methods of compliance provisions. If the employer is permitted to choose any mix of control methods to achieve compliance, should choice of the method be at the discretion of the employer or should the method chosen be required to be approved by a professional in the field of safety and health or other technically qualified person? Commenters supporting continuance of OSHA's current policy should provide pertinent data that demonstrate the necessity of maintaining primary reliance on feasible engineering and work practice means of exposure control.

Based on the preceding discussion, OSHA proposes to add a new paragraph 1910.1000(f) that explicitly sets forth circumstances in the workplace where employers may choose to use respirators in lieu of engineering means as a permissible method of controlling employee exposures to toxic substances listed in the Z-tables of section 1910.1000. OSHA also proposes to modify section 1910.134(a)(1) by incorporating a statement of reference that indicates that respirators may be used in lieu of control in the circumstances listed under proposed paragraph 1910.1000(f).

Regulatory Impact

OSHA has not performed a preliminary Regulatory Impact Analysis, Regulatory Flexibility Analysis, or paperwork clearance package for this action since adoption of the proposed requirements would add no new regulatory burdens on employers with respect to either costs or information collection.

II. Pertinent Legal Authority

Authority for this action is found primarily in sections 6(b), 8(c), and 8(g)(2) of the Occupational Safety and Health Act of 1970 (the Act), 29 U.S.C. 655(b), 657(c), and 657(g)(2).

III. Public Participation

Interested persons are invited to submit written data, views, and arguments on this proposed amendment. These comments must be postmarked on or before October 3, 1989, and submitted in quadruplicate to the Docket Officer, Docket No. H-160, U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, NW., Room N-3670, Washington, DC 20210, (202)523-7894. Written submissions must clearly identify the provisions of the proposal which are addressed, and the position taken on each issue.

The data, views, and arguments that are submitted will be available for public inspection and copying at the above address. All timely submissions will be part of the record of the proceeding.

Requests for Hearing

Under section 6(b)(3) of the OSH Act and 29 CFR 1911.11, interested persons who desire that OSHA hold an oral hearing on the proposal may file objections to the proposal and request an informal hearing. The objections and hearing requests should be submitted in quadruplicate and must comply with the following conditions:

1. The objection must include the name and address of the objector;
2. The objections must specify with particularity the provisions of the proposed rule to which objection is taken and must state the grounds therefor;
3. Each objection must be separately stated and numbered; and
4. The objections must be accompanied by a detailed summary of the evidence proposed to be introduced at the requested hearing.

Interested persons who have objections to various provisions or have changes to recommend may, of course, make those objections or