



PETITION FOR RULEMAKING  
TO AMEND  
30 C.F.R. PART 70  
MANDATORY HEALTH STANDARDS --  
UNDERGROUND COAL MINES  
TO ALLOW  
USE OF AIRSTREAM HELMETS  
OR OTHER NIOSH-APPROVED POWERED  
AIR-PURIFYING RESPIRATORS  
AS A SUPPLEMENTAL MEANS OF COMPLIANCE  
WITH RESPIRABLE DUST STANDARDS

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Huntington Office:  
(801) 687-9821  
Fax (801) 687-2695  
Purchasing Fax (801) 687-9092

Deer Creek Mine:  
(801) 381-2317  
Fax (801) 381-2285

Cottonwood Mine:  
(801) 748-2319  
Fax (801) 748-2380

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INTRODUCTION

Energy West Mining Company ("Energy West") hereby petitions the Secretary of Labor (the "Secretary"), pursuant to section 553(e) of the Administrative Procedure Act (the "Act")<sup>1/</sup> and section 101 of the Federal Mine Safety and Health Act of 1977 (the "Mine Act"),<sup>2/</sup> to amend the mandatory health standards for underground coal mines contained in the Secretary's regulations at

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<sup>1/</sup> Section 553(e) of the APA provides that: "Each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule." 5 U.S.C. § 553(e).

<sup>2/</sup> Section 101 of the Mine Act provides, among other things, that:

(a) The Secretary shall by rule in accordance with procedures set forth in this section and in accordance with [5 U.S.C. § 553] . . . develop, promulgate, and revise as may be appropriate, improved mandatory health . . . standards for the protection of life and prevention of injuries in coal . . . mines.

30 U.S.C. § 811(a).

30 C.F.R. Part 70 in order to allow the use of airstream helmets or other powered air-purifying respirators ("PAPRs") approved by the National Institute for Occupational Safety and Health ("NIOSH") as a supplemental means of compliance with the respirable dust standards of Subpart B of Part 70. As explained more fully below, the use of airstream helmets, in accordance with the provisions of the improved mandatory health standards proposed herein, will afford significantly enhanced health protection for affected miners.<sup>3/</sup>

Energy West is a wholly owned independent operating subsidiary of PacifiCorp. Energy West operates two large underground coal mines (Trail Mountain Mine and Deer Creek Mine) located near Huntington, Utah. These mines produce coal for PacifiCorp power plants located in Emery County, Utah, and utilize continuous miner and longwall mining methods. Energy West employs 623 employees and produces approximately 8 million tons of coal per year.

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<sup>3/</sup> Energy West acknowledges that airstream helmets are categorized as "powered air-purifying respirator[s]" pursuant to the regulations of the Secretary of Health and Human Services regarding approval of respiratory protective devices by NIOSH found at 42 C.F.R. Part 84 (see 42 C.F.R. 84.2(2)(z) and the provisions of Subpart KK thereof). Energy West, however, submits that the use of airstream helmets should also be considered to be an environmental control, because it is not a conventional respirator. The device, in essence, provides a virtually dust-free, and almost self-contained filtered atmosphere for the wearer, without most of the features that weigh against reliance on respirators. See discussion at 10-11, 30-33.

Section 2 of the Mine Act, in setting forth its findings and purposes, states:

Congress declares that --

\* \* \*

[ ] there is an urgent need to provide more effective means and measures for improving the working conditions and practices in the Nation's coal . . . mines in order to prevent death and serious physical harm, and in order to prevent occupational disease originating in such mines;

\* \* \*

[ ] [Therefore,] it is the purpose of this Act . . . to establish interim mandatory health . . . standards and to direct the Secretary of Health and Human Services and the Secretary of Labor to develop improved mandatory health . . . standards to protect the health and safety of the Nation's coal . . . miners.

30 U.S.C. § 801 (emphasis added).

To implement these findings and purposes, the Congress established in Title II of the Mine Act (sections 202 through 206) a series of interim mandatory health standards and then provided in section 201(a) of the Mine Act that:

The provisions of sections 202 through 206 . . . shall be interim mandatory health standards applicable to all underground coal mines until superseded in whole or in part by improved mandatory health standards promulgated by the Secretary under the provisions of section 101 of this Act.

30 U.S.C. § 841(a) (emphasis added).

Sections 202 and 205 of the Mine Act contain those interim mandatory health standards established by the Congress for allowable concentrations of respirable dust,<sup>4</sup> and section 202(h) of the Mine Act provides that:

Respiratory equipment approved by the Secretary of Labor and the Secretary of Health and Human Services shall be made available to all persons whenever exposed to concentrations of respirable dust in excess of the levels required to be maintained under this Act. Use of respirators shall not be substituted for environmental control measures in the active workings. Each operator shall maintain a supply of respiratory equipment adequate to deal with occurrences of concentrations of respirable dust in the mine atmosphere in excess of the levels required to be maintained under this Act.

30 U.S.C. § 842(h) (emphasis added). This interim mandatory health standard is essentially repeated verbatim in 30 C.F.R. § 70.300 which provides:

**§ 70.300 Respiratory equipment; respirable dust.**

Respiratory equipment approved by NIOSH under 42 CFR part 84 shall be made available to all persons whenever exposed to concentrations of respirable dust in excess of the levels required to be maintained under this part. Use of respirators shall not be substituted for environmental control measures in the active workings. Each operator shall maintain a supply of respiratory equipment adequate to deal with occurrences of concentrations of respirable dust in the mine atmosphere in excess of the levels required to be maintained under this part.

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<sup>4</sup> The interim mandatory allowable concentrations of respirable dust for underground coal mines are replicated in the Secretary's regulations at 30 C.F.R. §§ 70.100 and 70.101.

**THE SECRETARY'S POLICY POSITION AGAINST  
THE USE OF AIRSTREAM HELMETS OR OTHER  
APPROVED PAPRS AS A MEANS OF COMPLIANCE  
WITH THE STANDARDS FOR ALLOWABLE  
CONCENTRATIONS OF RESPIRABLE DUST**

Since section 202(h) of the Mine Act (and its corresponding regulation at 30 C.F.R. § 70.300) requires operators to maintain an adequate supply of respiratory equipment and to make such equipment available to all persons exposed to concentrations of respirable dust in excess of the standard, it is logical to conclude that respirators should be accepted as a means of compliance with the Mine Act's standards for allowable concentrations of respirable dust under appropriate circumstances. Nevertheless, for years the Secretary (through the Secretary's delegates the Assistant Secretary of Labor for Mine Safety and Health and officials of the Mine Safety and Health Administration ("MSHA")) has taken the policy position that, because Mine Act § 202(h) states the "use of respirators shall not be substituted for environmental control measures," it altogether prohibits the use of respirators (even as a supplement to environmental controls) as a means of compliance with the respirable dust standards of Title II of the Mine Act. This position has been succinctly stated as follows:

Existing [MSHA] policy requires enforcement personnel to consider only the operator's efforts to implement adequate environmental controls to abate a violation of the dust standard and the use of approved respiratory protection equipment cannot be considered in determining whether the abatement time should be extended.

The [Mine Act], and current regulations, require coal mine operators to make approved respiratory equipment available whenever miners are exposed to respirable dust concentrations above the permissible level. While personal protective equipment can offer respiratory protection when properly selected, worn, used and maintained, it is not recognized by current MSHA regulations for extended use . . . . Instead, the regulations require mine operators to rely on environmental controls to continuously maintain the active workings within the permissible exposure level.<sup>5/</sup>

Over the years, representatives of Energy West (and its predecessors) and other representatives of the coal mining industry have questioned this narrow, overly restrictive policy interpretation in both public forums and in informal dialogue with MSHA officials.<sup>6/</sup> As best as can be ascertained by those representatives, MSHA apparently adheres to this view because of the belief within the Agency that the industrial hygiene principle known as the "hierarchy of controls" must be interpreted very conservatively in order to prevent coal mine

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<sup>5/</sup> Letter of December 28, 1990, from then MSHA Assistant Secretary of Labor William J. Tattersall to Mr. Dave D. Lauriski of Energy West, rejecting Energy West's proposal to allow a pilot program for the use of airstream helmets "to be utilized as an interim measure to control the miner's dust exposure whenever the mine atmosphere cannot be maintained within the permissible exposure level." A copy of the letter is attached as Appendix I to this Petition.

<sup>6/</sup> See, excerpts from: testimony at MSHA Public Hearing on Respirable Coal Dust, July 18, 1978, Denver, Colorado; testimony at MSHA Public Hearing on Proposed Air Quality Rule, September, 1990, San Francisco, California; and presentation on use of airstream helmets at meeting of the Secretary's Advisory Committee on the Elimination of Pneumoconiosis Among Coal Mine Workers, June 20, 1996, Salt Lake City, Utah. These excerpts are attached to this Petition as Appendix II.

operators from relying on personal protective equipment (e.g., airstream helmets or other approved PAPRs) instead of preferred environmental/engineering controls.<sup>77</sup> This conservative view, however, fails to take into account the reality of the fact that even with the most diligent applications of feasible environmental/engineering controls, such applications will not always be sufficient to achieve compliance with applicable respirable dust standards. The use of airstream helmets or other approved PAPRs in such instances is not a "substitute" for environmental/engineering controls.<sup>87</sup> It is a supplement for such controls. Further, as will be demonstrated below, the protection afforded miners by the

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<sup>77</sup> According to the hierarchy of controls, exposure control measures to assure compliance with permissible exposure limits should first be engineering controls (engineering and environmental controls are interchangeable terms); next administrative controls; and last, use of personal protective devices. See "Report of the Secretary of Labor's Advisory Committee on Pneumoconiosis Among Coal Mine Workers," November 1996 at 59. It is a well understood precept of industrial hygiene, however, that:

adequate control program[s] must embrace a proper mix of process and/or engineering control, personal protective equipment, and administrative control. No single design can be made to fit all circumstances. Rather, each program must be tailored to fit the individual situation without violating the basic tenets of industrial hygiene practice.

Lewis J. Cralley, et al., Rationale, in Volume 3A, Patty's Industrial Hygiene and Toxicology, Ch. 1, 23 (2d ed. 1985) (emphasis added). Theory and Rationale of Industrial Hygiene Practice: The Work Environment (emphasis added).

<sup>87</sup> Substitute is defined as "one that takes the place of another; replacement." The American Heritage Dictionary, 2d College Ed., 1982.

appropriate use of airstream helmets is so substantial that these devices should be permitted to be used continuously (in conjunction with feasible environmental/engineering controls) to achieve compliance with applicable respirable dust standards.

Regrettably, in the Federal Register for April 8, 1980, MSHA discusses, with some skepticism but no articulated rationale, its rejection of the use of airstream helmets.

During the course of the public hearings, MSHA was urged [by industry representatives] to accept the use of a particular type of personal protective device as a means of compliance with the respirable dust standard in certain longwall mining operations. [The industry representatives] argued that in these operations it has not been proven feasible at this time to institute engineering controls adequate to reduce dust to within permissible concentrations without substantially impairing coal production. MSHA has begun a careful study of the device -- known as the "airstream helmet" -- to determine its potential usefulness under very limited circumstances. It is currently being field tested under close MSHA scrutiny in a coal mine in New Mexico. Until testing is completed and the results evaluated, MSHA will continue to require implementation of engineering controls in coal mines as the means of achieving compliance with the applicable dust standard.

45 Fed. Reg. 23993. To our knowledge the referenced field test was never completed.

Energy West recognizes that almost 30 years ago, when what is now Mine Act § 202(h) was originally enacted, the House of Representatives' authors of that provision stated:

The bill expressly prohibits the use of personal respirators as a substitute for environmental control of the active workings of a mine. Respirators to date have been of such a nature as to be extremely uncomfortable to the workers and impracticable for the type of operations he [sic] must generally perform. It is for this reason, as well as the knowledge that some states have placed restrictions on the use of such respirators, that the committee chose to preclude their use . . . .

H.R. Rep. No. 563, 91st Cong., 1st Sess. 15, reprinted in 1969 U.S. Code Cong. & Admin. News 2503, 2517 (emphasis added).

The statement that respirators are "extremely uncomfortable to the workers and impracticable for the type of operations he [sic] must generally perform" was expressly limited to the types of respirators developed "to date" in 1969. As Energy West will demonstrate below, that legislative rationale is no longer applicable today because of new and improved technology. Airstream helmets are comfortable and practical for use in underground coal mines. Restrictions on comfort, workability, speech, vision, and movement inherent in respirators available in 1969 have been eliminated or substantially reduced in airstream helmets. Indeed, Energy West believes that appropriate use of airstream helmets should be considered an environmental/engineering control. In addition, as we show below, the position of MSHA is inconsistent with the Secretary's current implementation of related regulations under the Occupational Health and Safety Act of 1970 (the "OSH Act"). 29 U.S.C. §§ 651, et seq. Furthermore, as we also show below, with regard to the use of respirators, MSHA itself is more in line with

modern industrial hygiene practices in its current regulations for metal and nonmetal mines and in its proposed rule for air quality, chemical substances, and respiratory protection standards.

Energy West believes that amending 30 C.F.R. Part 70 to allow use of airstream helmets or other approved PAPRs as a means of compliance with respirable dust standards will enhance the protection of miners. In this regard, it is important to be mindful of the prescript in section 101(a)(6)(A) of the Mine Act stating that:

Development of mandatory [health] standards . . . shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of the highest degree of health and safety protection for the miner, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experience gained under this and other health and safety laws.

30 U.S.C. 811(a)(6)(A) (emphasis added). It is this provision which is the foundation upon which improved mandatory health standards must be built. Granting Energy West's Petition firmly comports with that foundation.

#### THE EFFECTIVENESS OF AIRSTREAM HELMETS

Research, demonstrations, and experiments show the effectiveness of airstream helmets. These data also identify some limitations on the use of

airstream helmets, the need for regular maintenance of the devices, and other areas that must be addressed to ensure their efficacy, as discussed below.

The prototype of the airstream helmet was developed in 1975 by the United Kingdom's Safety in Mines Research Establishment ("SMRE"), and the device became commercially available for surface use in early 1977. It was described by the SMRE's G.K. Greenhough (the primary developer of the device) as a "novel type of respirator . . . in which a fan and filter system are incorporated so as to supply the wearer with filtered air."<sup>9/</sup> Interestingly, almost 20 years ago, Greenhough dealt head-on with the very concern MSHA apparently has about the use of airstream helmets for compliance resulting in a deterioration of environmental/engineering controls.

The development of personal protection has often been hampered in the past by the view that management should make the environment acceptably safe so that personal protection is unnecessary: such protection has been regarded as a last resort. There was also a view that reliance on personal protection would diminish efforts to improve the environment. Happily such extreme views are now heard less frequently and opinion is strengthening that dust control alone cannot eliminate pneumoconiosis in the foreseeable future, and that dust control should be supplemented, where necessary, by personal protection . . . . [P]ersonal protection has a vital role to play; whilst the provisions of an acceptable working environment will continue to be the aim there will always be circumstances, particularly in the short

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<sup>9/</sup> G.K. Greenhough, "Trials of the Dust Helmet in Coal Mines," The Mining Engineer at 559, February 1979.

term; where personal protection will offer a safe 'micro-environment' at a low cost.<sup>10/</sup>

The SMRE dust helmet field trials in underground coal mines described by Greenhough showed favorable reactions from miners wearing the devices.

Greenhough concluded that:

[T]here can be little doubt that the concept of the dust helmet for mining use is basically sound and that, with development, it will be acceptable to a significant proportion of miners performing a wide variety of underground jobs; the probability of a wearer contracting pneumoconiosis would be very remote.<sup>11/</sup>

A copy of Mr. Greenhough's article is attached in Appendix III.<sup>12/</sup>

Indeed, the field trials described by Greenhough have been followed by a number of research projects, demonstrations and experiments showing the effectiveness of airstream helmets.

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<sup>10/</sup> Id.

<sup>11/</sup> Id. at 565.

<sup>12/</sup> See also, G.K. Greenhough "The Helmet Respirator - Protection for Head, Eyes and Lungs," Health and Safety Executive Technical Paper 1978; "User Notes and Servicing Notes for the SMRE Dust Helmet Mining Prototype 4," SMRE, February 1978; B. Bancroft, "Dust Helmets at Kellingley Colliery - The First Year," Health and Safety Executive Research and Laboratory Services Division Dust Control Technical Note 1, 1979; Bancroft, et al., "Measurement of the Dust Protection and Airflow of a Helmet Respirator," 23 Annals of Occupational Hygiene 295 (1980); and Greenhough "Experience with the Airstream Helmet-Respirator in Mining," International Symposium on Occupational Health and Safety in Mining and Tunnelling, 1982. Copies of these papers are also contained in Appendix III.

For example, in Bureau of Mines Report of Investigation 8591, Protection Factors of the Airstream Helmet (1981), Andrew B. Cecala, et al., reported on a field study to determine the helmet protection provided to the miner as he would normally wear it in his working environment. The Report concluded:

The Racal airstream helmet was field tested on coal mine longwall sections. Under normal velocity conditions (under 400 fpm), the helmet was 84 pct effective at reducing respirable dust in the wearer's breathing zone. Most longwall face velocities are below 400 fpm but when higher velocities are encountered, the helmet's efficiency is reduced. For the mine test a mean dust reduction of 49 pct was obtained in a section with a velocity of 1,200 fpm as compared to an average of 84 pct below 400 fpm. The laboratory findings for both low and high air velocities supported the field results.

Id. at 11.

MSHA Informational Report 1130, Laboratory Evaluation of RACAL "Airstream" Helmet (1981), Harry N. Treaftis, et al., reported on a laboratory study "conducted to ascertain the feasibility of its use in selected mining operations" because "the helmet offers the potential of providing acceptable personal protection in certain mine operations where technology is not available to reduce dust to acceptable levels." Id. at 1. The MSHA Report concluded:

The results of this study showed that the efficiency of the RACAL Airstream dust helmet, Models AH-1 and AH-5, was essentially 100 percent when used in coal dust aerosols having a total dust concentration up to 37.6 mg/m<sup>3</sup>. Tests with the AH-5 model using silica dust aerosols showed that the efficiency of the helmet was approximately 99 percent for aerosol concentrations up to approximately 176 mg/m<sup>3</sup>; however, for total aerosol

concentrations exceeding  $40 \text{ mg/m}^3$ , the concentration of respirable silica in the filtered air generally was near or exceeded the  $0.1\text{-mg/m}^3$  TLV for silica. Therefore, when used in atmospheres containing high concentrations of free silica, it is recommended that the total dust concentration and the percentage of free silica be taken into consideration before the RACAL Airstream Helmet is used as a personal protective device.

The results of this study also showed that the helmet would perform in accordance with the manufacturer's specifications over an 8-hour work shift in coal dust aerosols having total dust loadings in excess of  $100 \text{ mg/m}^3$ ; however, when used in atmospheres with dust levels of this magnitude both the coarse and fine filter in the helmet will require changing every shift to insure that the volumetric flow rate is maintained above the recommended 170 liters per minute. If the helmet is routinely used (as opposed to infrequent use) to provide protection for personnel working in dusty atmospheres, it is essential that a program be established to check the performance of the unit before and after each shift to insure that battery capacity and flow rate are within specifications.

Id. at 7.

A report of MSHA field studies on the Application of the RACAL Airstream Helmet in Four Underground Coal Mines was published at 5 Applied Industrial Hygiene 126 (May 1989) by MSHA's Paul S. Parobeck, et al. The authors stated:

Studies were conducted on the RACAL Airstream Helmet in four mines to evaluate user acceptance to determine the helmet's applicability to the coal mine environment and to determine the life expectancy of its final filter. In general, the miners who participated in the study felt that the helmet afforded them personal protection against dust. However, use of the helmet on a continuing basis does present specific problems. For instance, miners refused to wear the helmet when doing

heavy labor (e.g., timbering, shoveling, and pulling cables) because of visor fogging. The helmet was found to be difficult to wear when working in low coal situations. However, effectiveness was found to be increased when there was a structured helmet maintenance program at the mine.

Life expectancy of the final filter could not be directly determined from data obtained during this study. The data obtained show, however, that the field data correlate fairly well to laboratory data obtained for filter life versus total airborne dust exposure. Thus, the laboratory data can be used as an indicator for filter life. This study also shows that, with proper use, the RACAL indicator disc provides a generally reliable indicator for determining decreased air flow through the helmet and the resulting necessity for changing the helmet's final filter.

\* \* \*

In conclusion, although [the Treaftis] laboratory evaluation has shown that the airstream helmet has the capability to provide adequate protection in mine environments where the total dust concentration ranges from 9.5 to 37.6 mg/m<sup>3</sup>, this field study suggests that adequate protection is not absolutely ensured in underground coal mines because, among other things, face shields were not always maintained in a "closed" or down position, mine personnel had tendencies not to wear the helmet when it interfered with job performance, and power supply failures reduced the effectiveness of the helmet's performance. In addition, the helmet's filtration system was not always maintained. If the airstream helmet is used on longwall sections where miners are exposed to dust levels in excess of the 2.0 mg/m<sup>3</sup> respirable dust standard, procedures for their maintenance and use are necessary to ensure that adequate protection is provided.

At the 3rd Symposium on Respirable Dust in the Mineral Industries, the proceedings of which were published by the Society for Mining, Metallurgy, and Exploration, Inc. in 1991, Bureau of Mines researchers J. Drew Potts and Edward F. Divers presented a paper entitled Powered Dust-Filtering Helmet Reduces Exposure to Diesel-Size Particulate. The authors reported that:

Powered dust-filtering helmets (dust helmets) have become increasingly prevalent in the underground mine environment in recent years. Many longwall operations use dust helmets to reduce the respirable dust exposures of miners required to work downwind of crusher, roof support and shearer operations. While continuous mining sections are usually less dusty, use of diesel equipment represents a new potential health problem. The U.S. Bureau of Mines recently conducted a study to determine the efficiency of a dust helmet on diesel-size particulate.

Two underground evaluations were conducted on continuous mining sections that were using diesel haulage vehicles.

\* \* \*

Results from this study showed that the dust helmet was 94% ( $\pm 3\%$  at 95% confidence level) efficient on submicrometer particles. Typically, very little coal dust is observed in the submicrometer size range, therefore, these particles were assumed to be from diesel exhaust. Results from this study indicated that proper use of the dust helmet on continuous mining sections that are using diesel haulage vehicles may be beneficial to the health of miners.

\* \* \*

Powered dust-filtering helmets have become increasingly prevalent in the mining industry for two

primary reasons. First, previous underground and laboratory evaluations (Cecala, Volkwein, Thimons, and Urban, 1981) (Treatis, Tomb, and Carden, 1981) show that the dust helmet can dramatically reduce the respirable dust exposure of its wearer. Second, employee acceptance of the helmet tends to be much higher than that of other respirators. The helmet allows some verbal communications and does not restrict breathing. It also permits facial hair growth without decreasing performance. A full-face shield provides some facial protection against solid and chemical projectiles.

Symposium Proceedings at 105.

The authors concluded:

Based on the findings of this study and previous research, the authors believe that proper use of the dust helmet can provide significant protection against diesel soot on continuous mining sections that are using diesel haulage vehicles. Data collected during this study showed the helmet to be 94% ( $\pm 3\%$  at 95% confidence level) efficient on submicrometer particles.

Implementation of a respirator plan is commendable and should be encouraged. However, the effectiveness of any personal protection device is highly dependent on proper maintenance and use of the equipment, therefore, any respirator plan should include employee training in these areas. Training should also be used to ensure that proper attitudes toward engineering controls and work practices are not relaxed due to enhanced personal protection. It will probably be necessary to assign at least one person to manage the maintenance of a dust helmet plan and to oversee its successful implementation.

Id. at 107. These MSHA and Bureau of Mines reports are also attached to this Petition in Appendix III.

In addition, publications by NIOSH researchers reporting on a NIOSH test protocol and study results of workplace protection factor measurements on powered air-purifying respirators at a secondary lead smelter and on a NIOSH field test of powered air-purifying respirators at a battery manufacturing facility are included in Appendix III.<sup>13/</sup> These reports showed that workers wearing airstream helmets were exposed to levels significantly less than the OSHA lead standard PEL of 50 micrograms/m<sup>3</sup>.

**APPROPRIATE USE OF AIRSTREAM  
HELMETS SHOULD BE CONSIDERED  
AN ENVIRONMENTAL/ENGINEERING CONTROL**

At the previously noted meeting of the Secretary's Advisory Committee on the Elimination of Pneumoconiosis Among coal Mine workers on June 20, 1996, in Salt Lake City (supra, note 6 at 6), Mr. Lauriski of Energy West urged the Committee to recognize the proper use of airstream helmets as a de facto environmental control. Meeting Transcript at 161-163. Mr. Lauriski stated that the airstream helmet:

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<sup>13/</sup> Warren R. Myers, et al., "Workplace Protection Factor Measurements on Powered Air-Purifying Respirators at a Secondary Lead Smelter -- Test Protocol," 45 American Industrial Hygiene Journal, 236 (April 1984); Myers, et al., "Workplace Protection Factor Measurements on Powered Air-Purifying Respirators at a Secondary Lead Smelter: Results and Discussion," 45 American Industrial Hygiene Journal, 681 (October 1984); Myers, et al., "Field Test of Powered Air-Purifying Respirators at a Battery Manufacturing Facility," 4 Journal of the International Society of Respirator Protection 62 (January-March 1986).

. . . is truly an environmental control. To make my point, . . . if we were to take the concept behind an airstream [helmet] and incorporate it outside the helmet it would be fully acceptable to the agency. To be more specific, if I were to take the filters out of the helmet, enlarge them, hang them across a longwall face, find a power source, power up and flow contaminated air through the filters and discharge the air on the other side, that would be wholly acceptable to the agency.

Id. at 161. This view is consistent with that offered by Greenhough (who developed the device) in his 1979 description of the helmet as a "safe micro-environment." Supra, at 560.

The unique nature of the airstream helmet, which justifies treating it more like an engineering/environmental control than a conventional respirator, was summarized at a 1980 NIOSH respirator research workshop as follows:

Take the case of a worker in a uranium mine who is wearing a high efficiency respirator with a [protection factor] of 500. This means that the filtered air he breathes through this respirator contains only 1/500th or 0.002 of the hazard in the outside air. Consider this worker's eight-hour day in the mine. He has to work and communicate with his supervisor, monitor his machines, speak to a friend, wipe his face because his respirator is tight, and so on. Even a diligent man could easily need to spend ten minutes communicating with a supervisor, ten minutes examining his machine closely, five minutes talking to a friend, and five minutes mopping his face. What has happened to the [protection factor] of this respirator? Remember, it is nominally 500. But in the relatively short removal spans, our worker has been unprotected and exposed to the full contamination in the air. His experience protection is much less than 500. It is even less than 100. It is, in fact, less than 20.

\* \* \*

This is the secret dilemma of respirator design. High protection factors can be achieved by engineering techniques leading to better face fits, tighter clamping actions, and so on. But the very features that improve the [protection factor] are the same features that reduce wearability. And low wearability will destroy [protection factors]. Human face variations need complex facepiece profiles, increasing the possibility of hyperventilation. Restrictions on comfort, workability, speech, vision, communication, movement and, yes, even socializing are just not acceptable to users. And the associated loss of productivity should be unacceptable to owners.

The solution for respiratory protection is to accept that conventional designs have the inherent clash between protection and wearability, and then to force technology to meet the demands of new concepts.

The key to the design of a device that avoids the problems associated with conventional respirators, is the successful engineering of a powered air-purifying system and the subsequent packaging of this system into a wearable, comfortable product. The basic concept of Airstream came out of the Safety in Mines Research Establishment in Sheffield; a concept which was patented, licensed exclusively [sic] to us at Racal for further development and engineering, production, and marketing.

In its most usual configuration, this powered air-purifying device consists of a safety helmet with an integral faceshield and a built-in double filtration system, the second and main filter being located inside the hardhat above the wearer's head. Contaminated air is drawn from the back of the helmet through the filters, delivered to the breathing zone, and, after passing across the wearer's face, flows through a space at the bottom of the faceshield.

This has maximized the inherent advantages of powered air-purifying respirators. It is easy fitting. Since the positive pressure behind the faceshield tends to prevent contamination entering the breathing zone, the faceseals were made very light and still are effective. The powered airflow itself is used to eliminate the need for tight fitting, nose and mouth clamping seal arrangements. Other user advantages have resulted from the technological emphasis on comfort and wearability.

\* \* \*

[T]he acceptability and performance of certain PAPRs should be cause to review the now outdated distinction between engineering controls and respirators. There is a need for the acceptance of certain PAPR configuration as permanent elements of conformance programs in the workplace. The absence of such acceptance is inhibiting technological advance. Worse, it is causing workers to remain exposed to risks.

K.V. Vaughn, "The Powered Air Purifying Helmet, A Product of Research," Papers from the NIOSH International Respirator Research Workshop, September, 1980 at 401, 405-406 (emphasis added). See Appendix IV for a copy of Mr. Vaughn's paper. Furthermore, in discussing industrial hygiene engineering controls, Pattv's Industrial Hygiene and Toxicology states:

The industrial hygiene engineering control principles are deceptively few: substitution, isolation, and ventilation, both general and localized.

\* \* \*

Ventilation can be defined as a method for providing control of an environment by strategic use of airflow. The flow of air may be used . . . to dilute the concentration of a contaminant to acceptable levels. Ventilation is by far the most important

engineering control available to the industrial hygienist. Applied either as general or local control, this principle has industrial significance in . . . the maintenance of concentrations of airborne contaminants at acceptable levels in the workplace.<sup>14/</sup>

Energy West believes that the localized ventilation provided to the breathing zone of the wearer by the airstream helmet demonstrates that the device is an environmental/engineering control.

**THE SECRETARY'S EXPERIENCE  
UNDER THE OSH ACT AND IN METAL  
AND NONMETAL MINES UNDER THE MINE ACT**

MSHA's policy of not allowing airstream helmets as a means of complying with respirable dust standards for underground coal mines is inconsistent with the more flexible approach taken by the Secretary in implementation of the OSH Act and the Mine Act itself with regard to metal and nonmetal mines.

OSH Act regulations at 29 C.F.R. § 1910.134(a) provide for respiratory protection as follows:

- (a) Permissible practice.
  - (1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished

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<sup>14/</sup> Robert D. Soule, Industrial Hygiene Engineering Controls, 771, 772, 774 in Patty's Industrial Hygiene and Toxicology, supra (emphasis added).

as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to the following requirements.

- (2) Respirators shall be provided by the employer when such equipment is necessary to protect the health of the employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protective program which shall include the requirements outlined in paragraph (b) of this section.
- (3) The employees shall use the provided respiratory protection in accordance with instructions and training received.

Emphasis added.

The OSH Act air contaminants rule provides at 29 C.F.R. 1910.1000(e) that:

To achieve compliance with [the exposure limits in] paragraphs (a) through (d) of this section, administrative or engineering controls must first be determined and implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or any other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and/or technical measures used for this purpose must be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with 1910.134.

Emphasis added.

Similarly, MSHA's current requirements for control of exposure to airborne contaminants found in the Mine Act's safety and health standards for surface and underground metal and nonmetal mines provide:

Control of employee exposure to harmful airborne contaminants shall be, insofar as feasible, by prevention of contamination, removal by exhaust ventilation, or by dilution with uncontaminated air. However, where accepted engineering control measures have not been developed or when necessary by the nature of work involved (for example, while establishing controls or occasional entry into hazardous atmospheres to perform maintenance or investigation), employees may work for reasonable periods of time in concentrations of airborne contaminants exceeding permissible levels if they are protected by appropriate respiratory protective equipment. Whenever respiratory protective equipment is used a program for selection, maintenance, training, fitting, supervision, cleaning, and use shall [be implemented].

30 C.F.R. §§ 56.5005 and 57.5005 (emphasis added).

Thus, under the OSH Act, when effective engineering controls are not feasible to achieve full compliance or while they are being instituted, appropriate respirators can be used as a means of compliance with air contaminants exposure limits. And under the Mine Act's regulations for metal and nonmetal mines, appropriate respiratory protective equipment can be used for compliance with MSHA's airborne contaminant exposure limits where accepted engineering control measures have not been developed or when necessary by the nature of the work involved.

Consequently, by requiring implementation of environmental/engineering controls in underground coal mines as the only means of compliance with applicable dust standards, MSHA is failing to provide coal miners with the same degree of protection afforded metal and nonmetal miners and workers in OSH Act regulated workplaces.<sup>15/</sup>

**THE SECRETARY'S PROPOSED RULE  
FOR AIR QUALITY, CHEMICAL SUBSTANCES,  
AND RESPIRATORY PROTECTION STANDARDS  
IN COAL AND METAL/NONMETAL MINES**

Energy West also notes that in 1989, the Secretary published a proposed rule in the Federal Register which would revise MSHA's existing standards for air quality and chemical substances at coal and metal/nonmetal mines and would establish respiratory protection programs. 54 Fed. Reg. 35760, August 29, 1989. With regard to control of exposure to airborne substances, the proposed rule, at section 72.100(e), provided as follows with regard to means of control:

(e) *Means of control.* (1) The mine operator shall use feasible engineering or administrative controls to maintain exposure of all miners at or below the

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<sup>15/</sup> The Nation's leading nongovernmental safety and health organization, the National Safety Council, states: "Too often [personal protective equipment] is considered the last thing to do in the scheme of hazard control. It should not be. Personal protective equipment can provide that added protection to the employee even when the hazard is being controlled by other means . . . . In some situations the only available protection will be the use of [personal protective equipment] . . . ." National Safety Council, "Supervisors' Safety Manual," 7th Ed. at 109.

permissible exposure limits [PELs] in this section. When appropriate controls do not reduce exposure to the PEL, they shall be used to reduce exposure as low as feasible and supplemented with respiratory protection.

(2) The following factors shall be used to determine whether an engineering or administrative control is feasible:

(i) Nature and extent of the overexposure.

(ii) The demonstrated effectiveness of available technology.

(iii) Whether committed resources would be wholly out of proportion to the expected results.

(3) Respiratory protection shall be used when --

(i) The concentration of an airborne substance exceeds the PEL in [sic] areas where controls are being established;

(ii) Controls to reduce exposure to the PEL are not feasible; or

(iii) Occasional entry into hazardous atmospheres is required to perform maintenance, investigation, or emergency cleanup.

Id. at 35830 (emphasis added).

The preamble to the proposed rule explained this change in MSHA policy by specifically contrasting it to MSHA's existing policy regarding respiratory protection in underground coal mines.

Existing coal standard § 70.300 requires respirators to be made available to all miners underground when concentrations of respirable dust in excess of the applicable standard are known to exist.

The standard specifically prohibits the substitution of the use of respirators for environmental control measures in the active workings.

The proposed rule would require mine operators to reduce worker exposure to airborne substances through feasible engineering or administrative controls. When appropriate controls do not reduce exposure to the PEL, they would have to be used to reduce exposure as low as feasible and be supplemented with respiratory protection.

Id. at 35773. This proposed rule has been pending at MSHA for almost seven years since its publication in the Federal Register. Whatever the reasons may be for the length of the Agency's deliberations on this proposal, it should not be due to any controversy regarding a control strategy which would bring MSHA into conformance with modern industrial hygiene precepts.

REVIEW OF THE PROGRAM TO CONTROL  
RESPIRABLE COAL MINE DUST IN THE  
UNITED STATES - REPORT OF THE COAL  
MINE RESPIRABLE DUST TASK FORCE

Demonstrating MSHA's own recognition that its policy should be changed is the discussion of primacy of controls found in the June 1992 Report of MSHA's Coal Mine Respirable Dust Task Group, Review of the Program to Control Respirable Coal Mine Dust in the United States, as follows:

The most effective dust control strategy to minimize the potential for miner overexposure to respirable dust is the application and use of environmental control methods. Control of the work environment gives reasonable assurance that all miners in the area will be adequately

protected. This is consistent with the [Mine] Act, and may serve to encourage the development of new dust control technology. However, the Task Group has concluded, based on its review of selected dust control plans, that there is a growing trend toward the use of administrative controls when additional feasible environmental controls could be implemented, primarily at mines employing longwall mining systems. While administrative controls may be attractive to mine operators because they may be easier and less costly to apply and maintain in the short term than environmental controls, they have the potential to be less reliable.

Currently, operators are required to make available approved respirators to miners during periods of noncompliance, although miners are not required to wear them. While current MSHA policy requires inspectors to consider the use of respirators in determining the gravity of violations of the applicable dust standard, the Agency has no guidelines for evaluating the effectiveness of an operator's respirator practices.

Accordingly, the Task Group recommends:

- MSHA consider ways to improve the effectiveness of its existing policy that operators implement all feasible environmental controls before resorting to administrative controls.
- Approved respirators, such as the powered air purifying type, can be effectively used as an interim method of protecting miners when properly selected, and maintained. Therefore, MSHA should consider developing policy setting forth guidelines for evaluating the effectiveness of operator respirator programs, to give reasonable assurance miners are protected when such personal protective devices are used, while preserving the primacy of engineering controls.

Respirable Dust Task Force Report at 47-48.

**NIOSH CRITERIA FOR A RECOMMENDED  
STANDARD - OCCUPATIONAL EXPOSURE  
TO RESPIRABLE COAL MINE DUST**

In September 1995, NIOSH published a Criteria for a Recommended Standard - Occupational Exposure to Respirable Coal Mine Dust (the "Criteria Document"). The Criteria Document was received by MSHA on November 7, 1995, and in a notice published in the Federal Register for January 10, 1996,<sup>16/</sup> MSHA announced that it is considering the Criteria Document pursuant to its obligations under section 101 of the Mine Act.<sup>17/</sup>

With regard to the hierarchy of controls, the Criteria Document states:

The mine operator shall use engineering controls and work practices to keep worker exposures at or below the RELs for respirable coal mine dust and respirable crystalline silica.

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<sup>16/</sup> 61 Fed. Reg. 731.

<sup>17/</sup> Section 101(a)(1) of the Mine Act, 30 U.S.C. § 811(a)(1) provides:

When the Secretary receives a recommendation, accompanied by appropriate criteria, from the National Institute for Occupational Safety and Health that a rule be promulgated, modified, or revoked, the Secretary must, within 60 days after receipt thereof, refer such recommendation to an advisory committee pursuant to this paragraph, or publish such as a proposed rule pursuant to paragraph (2), or publish in the Federal Register his determination not do so, and his reasons therefor.

Respirators shall be used when engineering controls and work practices are not effective in maintaining worker exposures at or below the RELs . . . . Respirators may be used as an interim control measure, but they shall not be used in lieu of feasible engineering controls and work practices. Whenever respirators are used, the mine operator shall institute a respiratory protection program conforming to the recommendations [herein].

\* \* \*

Engineering controls should be the primary method used to control exposures to airborne contaminants. Respiratory protection is the least preferred method of controlling worker exposures and should not be used routinely to prevent or minimize exposures. Respirators should be used by workers only in the following circumstances:

- During the development, installation, or testing of required engineering controls
- When engineering controls are not feasible to control exposures to airborne contaminants during short-term operations such as maintenance and repair
- During emergencies.

Criteria Document, at 5-6, 138. Thus, NIOSH recognizes that respirators have utility as a means of compliance with respirable dust standards in circumstances where feasible environmental/engineering controls are not entirely effective to control or remove respirable dust from the working environment.

**THE SECRETARY'S ADVISORY COMMITTEE  
ON ELIMINATION OF PNEUMOCONIOSIS  
AMONG COAL MINE WORKERS**

In November 1996, the Report of the Secretary's Advisory Committee on the Elimination of Pneumoconiosis Among Coal Mine Workers (the "Dust Advisory Committee") was made available to the public. As stated in its charter, the Dust Advisory Committee was established to:

make recommendations for improving the program to control respirable coal mine dust in underground and surface mines in the United States. [The Committee was to] examine how to eradicate pneumoconiosis through the control of coal mine respirable dust and the reduction of miners' exposure to achieve the purpose of the Federal Coal Mine Health and Safety Act of 1969 and the 1977 Mine Act amendments [to protect the health and safety of the Nation's coal . . . miners and to] review information and experience in the United States and abroad concerning the prevention of pneumoconiosis among coal miners; the availability of current state-of-the-art engineering controls to prevent overexposure to respirable coal mine dust; and the existing strategies for monitoring of coal mine dust exposures. [The Committee was to] make recommendations to the Secretary for improved standards, or other appropriate actions, on permissible exposure limits to eliminate black lung disease and silicosis; the means to control respirable coal mine dust levels; improved monitoring of respirable coal mine dust levels and the role of the miner in that monitoring; and the adequacy of the operator's current sampling program to determine the actual levels of dust concentrations to which miners are exposed.

Report at Appendix A.

As previously noted, at the Dust Advisory Committee's meeting in Salt Lake City on June 20 and 21, 1996, the Committee heard testimony on the use of

airstream helmets.<sup>18/</sup> In its Report, the Dust Advisory Committee considered the question of whether changes were needed to assure that exposure control measures follow the hierarchy of controls. The Committee reported as follows:

FINDING

Providing and maintaining a work environment free of excessive levels of respirable coal mine dust is essential to prevent the occurrence of occupational lung disease among coal miners and further progression of disease in those miners with early evidence of its development. According to the Mine Act, respirable dust must be sufficiently controlled to permit coal miners to work over a lifetime without becoming impaired by CWP or any other occupational lung disease. Environmental controls should be the primary means of preventing or minimizing miners' exposure to respirable coal mine dust. The reliance on environmental control measures as the primary means of protecting workers over the past 25 years has resulted in significantly lowering the levels of respirable dust in active mine workers and in decreasing the incidence of occupational lung disease in coal miners. Environmental controls include measures that control the amount of respirable coal mine dust in the air that miners breathe by either reducing dust generation or by suppression, dilution, or capturing the dust. In general, however, improvements in environmental control technology have not kept pace with increases in production technology. The Committee encourages the development and use of improvements in technology to control miners' exposure to respirable coal mine dust.

While the Mine Act and implementing regulations require respirators to be made available to all miners underground when concentrations of respirable dust in excess of the applicable standard are known to exist, the

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<sup>18/</sup> Supra, note 6 at 6.

Mine Act specifically prohibits the substitution of the use of respirators for environmental control measures in the active workings. The Committee was reminded by [its] industry representatives that this prohibition is an interim mandatory health standard which could be changed, if warranted, through rulemaking. However, while acknowledging that advances in personal protective devices (respiratory controls) have been made over the past 25 years, the Committee believes that environmental controls must continue as the primary means of protection for miners.

The Committee saw Airstream helmets (a type of powered air-purifying device that provides a continuous stream of filtered air across the worker's face) being used by miners at both the Dilworth and Deercreek [sic] mines. The Committee discussed use and maintenance of these devices with miners who elected to use them, as well as those who did not. In addition, the Committee heard a presentation on the efficacy of Airstream helmets at its meeting in Salt Lake City. Data, showing the results of field testing at four mines, indicated that under the conditions tested, the helmets afforded an average effective protection of 83.8%. In this regard, the industry representatives on the Committee believe that operators who are already effectively controlling dust with environmental controls and who supplement this with the use of Airstream helmets should benefit and be recognized as making a good faith effort toward compliance.

\* \* \*

#### RECOMMENDATION NO. 4

Environmental control measures should continue to be the primary means of maintaining respirable dust levels in the active workings in compliance. Respiratory protective equipment should not replace these control measures but should continue to be provided to miners until environmental controls are implemented that are capable of maintaining the respirable dust level in

compliance. Administrative controls should only be utilized in situations similar to respiratory controls -- as interim control measures while environmental controls are being installed.

Id. at 59 and 60 (emphasis added). A copy of the Dust Advisory Committee's Report and the University of Utah and Energy West field tests<sup>19/</sup> are attached to this Petition as Appendix V.

#### ENERGY WEST INFORMATION AND STUDIES

In addition to the University of Utah and Energy West field tests, attached as Appendix VI to this Petition are copies of the following Energy West documents: (1) Airstream Helmet - Use, Care, Maintenance - A Sampling Procedure, September 21, 1988, by Jim Behling, et al.; and (2) Study of the Effectiveness of a Racal Airstream Helmet on the Tailgate of a Longwall Mining Section, February 23, 1992, by Steven L. Thornton, President, United Mine Workers of America Local 2176, District 22. Also included in Appendix VI is a copy of the 1996 Instruction Manual for the AH5, AH15, and AH21 model Racal airstream helmets published by Racal Health & Safety, Inc., Frederick, Maryland.

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<sup>19/</sup> "Effective Protection Factors for Racal Airstream Helmets," The University of Utah, Energy West Mining Company, Huntington, UT, 1994.

**ENERGY WEST'S PETITION FOR  
IMPROVED MANDATORY HEALTH STANDARDS  
FOR UNDERGROUND COAL MINES TO  
ALLOW USE OF AIRSTREAM HELMETS OR OTHER  
NIOSH-APPROVED POWERED AIR-PURIFYING  
RESPIRATORS AS A SUPPLEMENTAL MEANS OF  
COMPLIANCE WITH RESPIRABLE DUST STANDARDS**

In light of the research, demonstrations, experiments and other information provided herein and the almost three decades of experience gained since the enactment of Mine Act § 202(h) and its corresponding regulation at 30 C.F.R. § 70.300, it is clear that airstream helmets can afford miners a superior level of health protection, if used properly. Accordingly, Energy West petitions the Secretary to expeditiously propose and promulgate the improved mandatory health standards set forth below as an amendment to 30 C.F.R. Part 70.

Because airstream helmets provide a level of almost dust-free filtered air far beyond what other environmental controls can achieve, MSHA should encourage their use. The best way to do that, without sacrificing MSHA's preference for other environmental/engineering controls, is to adopt improved mandatory health standards which allow operators to use airstream helmets or other NIOSH-approved PAPRs as a supplemental means of control for compliance purposes. These new standards should include: (1) authorization to use PAPRs, pursuant to the approved ventilation plan, as a supplemental means of respirable coal mine dust control in conjunction with all other feasible environmental/engineering controls to achieve compliance with the standards set forth in Subpart B of

Part 70; (2) procedures for the use, care and maintenance of the device; and (3) a compliance sampling procedure that applies effective workplace protection factors specified by NIOSH when PAPRs are used.

These improved mandatory health standards would allow the use of airstream helmets or other NIOSH-approved PAPRs as a supplemental means of control to assist in achieving compliance with the respirable coal mine dust standards set forth in 30 C.F.R. Part 70. The devices could be used for such compliance purposes when all other feasible environmental controls have been installed, are being properly maintained, and are operating in accordance with the methane and dust control provisions of the approved ventilation plan required by 30 C.F.R. § 75.370. Criteria for the term "feasible" are specified in the regulation proposed by Energy West. These criteria are modeled upon those found in the means of control provisions of MSHA's proposed rule for control of exposure to airborne substances. See proposed 30 C.F.R. § 72.100(e), 54 Fed. Reg. 35830. Supra, at 22. The district manager would determine whether the environmental controls in question are feasible by considering these criteria in accordance with 30 C.F.R. § 75.370.

When airstream helmets or other NIOSH-approved PAPRs are utilized pursuant to these improved standards, the operator would be required to have each affected miner use the device. The term "affected miner" is defined as a miner who is working for 50% or more of any production shift in the mechanized

mining unit in which approved PAPRs are being used for compliance purposes. Each affected miner would be provided with an airstream helmet or other approved PAPR for his regular use. A person trained in the care and maintenance of the PAPR would examine each device for operational or structural defects prior to each use, and, if such defects were discovered, the device would have to be repaired or replaced.

To determine compliance with the applicable respirable coal mine dust standard, sampling in areas where PAPRs have been approved for use would be conducted as required by Subpart C of 30 C.F.R. Part 70, and the results of each valid sample would be adjusted by the application of an effective workplace protection factor specified by the Secretary, in consultation with the Secretary of Health and Human Services, for the approved PAPR. The term "effective workplace protection factor" is defined, with the definition derived from the definition of "workplace protection factor" found in NIOSH's "Guide to Industrial Respiratory Protection"<sup>20/</sup> and the University of Utah and Energy West field tests.<sup>21/</sup>

Therefore, a new section 70.306 of Subpart D, Part 70, Code of Federal Regulations should be added as follows:

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<sup>20/</sup> Nancy J. Bollinger and Robert H. Schutz, NIOSH Guide to Industrial Respiratory Protection, Appendix D at 51 (September 1987).

<sup>21/</sup> Supra, note 18 at 30.

**§ 70.306 Supplemental Controls.**

**(a) Notwithstanding any other provision of this part, the operator may, as a supplemental means of control, employ powered air-purifying respirators approved under 42 C.F.R. part 84, to assist in achieving compliance with the respirable dust standards set forth in subpart B of this part, as determined under subsection (b) below, provided that the following requirements are met:**

**(1) All other feasible environmental controls have been installed, are properly maintained, and are operating in accordance with the methane and dust control provisions of the approved ventilation plan required by section 75.370 of part 75 of this subchapter. In determining whether particular environmental controls are feasible, including consideration of mine-specific safety, health, geological and operational factors, the district manager shall, in accordance with the provisions of section 75.370 of part 75 of this subchapter, consider the following criteria:**

- (i) the nature and extent of the overexposures, if any;**
- (ii) the demonstrated effectiveness of available technology in achieving reductions in respirable dust levels; and**
- (iii) whether committed resources would be wholly out of proportion to the expected results.**

**(2) Use, Care and Maintenance. When powered air-purifying respirators approved under 42 C.F.R. part 84 are used pursuant to subsection (b), the use, care and maintenance provisions specified below shall be followed by the mine operator.**

(i) *Use and Care.* The operator shall require each affected miner to use a powered air-purifying respirator approved under 42 C.F.R. part 84. Each affected miner shall be provided with such an approved powered air-purifying respirator for his regular use. The operator shall require that all operational or structural defects shall be reported to the miner's immediate supervisor or the person specified in subparagraph (ii) of this paragraph. If such defects will cause the device to not function properly, the device shall be replaced or repaired before further use. Upon request, each affected miner shall be provided with antifogging agents, an antiglare visor, and clamps to prevent snagging. For the purposes of this subparagraph, an "affected miner" is defined as a miner who is working for 50% or more of any production shift in the mechanized mining unit in which approved powered air-purifying respirators are being used for compliance purposes.

(ii) *Maintenance.* Prior to each use, the operator shall provide for proper examination, maintenance and repair of the approved powered air-purifying respirator being used by miners by a person trained to perform such functions. The device shall be examined for operational or structural defects. If such defects are discovered, the device must be repaired or replaced. Functional components shall be examined and replaced as necessary. Airflow shall be checked as necessary. Power sources shall be checked to ensure they are fully operational. The device shall be thoroughly cleaned.

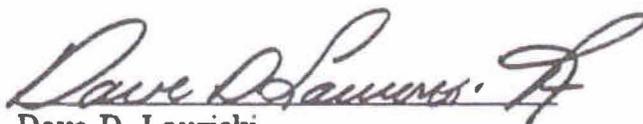
(b) *Compliance Sampling Procedure.*

(1) *Sampling shall be conducted in accordance with the provisions of subpart C of this part. In determining whether samples are in compliance with the applicable respirable dust standard, the results of each valid sample shall be adjusted by the application of an effective workplace protection factor, specified by the Secretary, in consultation with the Secretary of Health and Human Services, for the approved powered air-purifying respirator. In the event the adjusted samples show exposure in excess of the applicable respirable dust standard, a citation shall be issued and the operator shall be required to re-sample in accordance with the provisions of subpart C of this part.*

(2) *For the purposes of this subsection, an "effective workplace protection factor" is a measure of the actual protection provided to the miner, in the workplace and under the conditions of that workplace, by a properly functioning approved powered air-purifying respirator when used, cared for and maintained in accordance with paragraph (2) of subsection (a) of this section. The effective workplace protection factor is the ratio of respirable dust concentrations inside the facepiece to respirable dust concentrations outside the facepiece, considering the total time the device is worn based on samples taken simultaneously, in accordance with the provisions of subpart C of this part, when the miner performs typical work activities and uses the device in a manner typically used by miners during the activities of a typical workday.*

CONCLUSION

Energy West urges the Secretary to consider this Petition favorably, and propose and promulgate the recommended improved mandatory health standards contained herein as expeditiously as possible. Simply stated, the use of airstream helmets is a highly protective method of minimizing the exposure of miners to respirable dust. In combination with the application of all other feasible environmental/engineering controls, allowing the use of airstream helmets and other NIOSH-approved PAPRs, as specified herein, for the purpose of achieving compliance with applicable respirable coal mine dust standards will go far in eliminating pneumoconiosis and other pulmonary diseases. Energy West and other forward-thinking operators use this technology now because it provides superb protection to miners from exposure to respirable coal mine dust. The time has come for MSHA to recognize this technology as a legitimate compliance tool.



Dave D. Lauriski  
General Manager  
Energy West Mining Company  
P.O. Box 310  
Huntington, Utah 84528  
Telephone No. (801) 687-9821

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