

Report of the Secretary of Labor's Advisory Committee on the Elimination of Pneumoconiosis Among Coal Mine Workers



Submitted by the Committee to:

U.S. Department of Labor
Robert B. Reich, Secretary

Mine Safety and Health Administration
J. Davitt McAteer, Assistant Secretary

October 1996



*Secretary of Labor's
Advisory Committee on the Elimination of Pneumoconiosis
Among Coal Mine Workers*

November 14, 1996

The Honorable Robert B. Reich
Secretary of labor
Washington, DC 20210

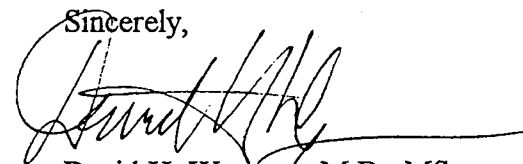
Dear Mr. Secretary:

I am pleased to transmit to you the Report of the Advisory Committee on the Elimination of Pneumoconiosis Among Coal Mine Workers. This report, which is the final product of the Advisory Committee that you established, contains the committee's recommendations on this issue. These recommendations are the result of many days of discussion and debate over the more than six months the Committee deliberated. The recommendations and associated findings reflect the Committee's best judgment on how to eliminate coal workers pneumoconiosis and silicosis which have plagued our Nation's coal miners for far too many years.

I have had the pleasure of serving on a number of expert scientific committees, advisory groups and task forces during my career. I can state unequivocally that no group with as much diversity of views has made a greater effort at reaching consensus than this Advisory Committee. I believe this effort is well reflected in the carefully considered recommendations as well as the fact that the majority of the recommendations were unanimously approved.

The Committee believes that the recommendations contained in this report are worthy of serious and immediate attention by the Department so that coal miners will be better protected.

Sincerely,



David H. Wegman, M.D., MS
Chair

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REPORT OF THE ADVISORY COMMITTEE ON THE ELIMINATION OF
PNEUMOCONIOSIS AMONG COAL MINE WORKERS

I. SUMMARY

The Advisory Committee on the Elimination of Pneumoconiosis Among Coal Mine Workers (Committee) was established by the Honorable Robert B. Reich, Secretary of Labor, on January 31, 1995. The Committee was chartered 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" 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 charged 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."

The Committee met five times for a total of 12 days over approximately five months, beginning on February 21, 1996, during which it reviewed technical material and heard formal presentations from a number of scientific experts on respirable dust control and measurement, and from members of the National Black Lung Association. As a scheduled part of each meeting, members of the public representing all segments of the mining community addressed the Committee. The majority of the nearly seventy-five speakers who addressed the Committee were working miners. These miners, many of whom traveled considerable distances to attend Committee meetings, reported that in their opinions, the respirable dust program in this country was in need of drastic revisions to better protect miners. These miners presented testimony on practices that they reportedly observed or participated in that would result in the collection of nonrepresentative dust samples. They called for extensive changes to the respirable dust program to restore its credibility. The Committee also visited three operating coal mines (two underground mines and one surface mine) to observe firsthand the conditions under which the Nation's coal miners work. Finally, the Committee visited the research facility of the Pittsburgh Research Center (PRC), Department of Energy, to learn about current technology in continuous monitoring of respirable coal mine dust and the parameters used in its control.

In an overall approach to this highly complex subject, the Committee identified a number of issues and developed findings and consensus recommendations relative to each issue. In developing consensus recommendations, the Committee operated under a set of ground rules that defined "consensus" as "a majority of the votes cast are in favor of or against the resolution on an issue"

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and "majority" as "a simple majority of the votes cast except that abstentions are not counted." Members not affirming a resolution to an issue were required to state their rationale for their position.

On the issue pertaining to permissible exposure limits (PELs) for respirable coal mine dust and silica, the Committee recommended the following:

MSHA should develop and enforce separate PELs for exposure to silica and coal mine dust and should explore appropriate methods for determining compliance with exposure limits for mixtures of silica and coal mine dust.

MSHA should consider lowering the level of allowable exposure to coal mine dust. Any reduction in the level should include a phase-in period to allow allocation of sufficient resources to the compliance effort.

The Committee suggests that MSHA cause the lowering of the silica exposure of miners. In this effort, MSHA should seek input from NIOSH and collaborate with OSHA. However, the Committee recommends that MSHA move forward with these efforts and not await possible action by OSHA. MSHA efforts to lower silica exposures below the current PEL might include rulemaking, targeted compliance efforts, encouragement of operator efforts to lower silica exposures below the current PEL, and more extensive silica hazard surveillance. Additionally, MSHA must confirm the accuracy of its analytical procedures to assure that actual exposures are recognized and documented.

The Committee also considered the issue of sampling and continuous monitoring for the purposes of determining noncompliance with the PELs, and for verifying the adequacy of the mine ventilation plan in controlling dust levels. In the area of sampling, the Committee made several recommendations, including:

The Committee considers it a high priority that MSHA take full responsibility for all compliance sampling at a level which assures representative samples of respirable dust exposures under usual conditions of work. In this regard, MSHA should explore all possible means to secure adequate resources to achieve this end without adverse impact on the remainder of the Agency's resources and responsibilities. Compliance sampling should be carried out at a number and frequency at least at the level currently required of operators and MSHA. The miner's representative would be afforded the opportunity to participate in these inspection activities as provided in Section 103(f) of the Mine Act.

The Committee believes that any MSHA resource constraints should be overcome by mine operator support for MSHA compliance sampling. The Committee recommends that to the degree that MSHA's resources cannot alone serve the objective identified, resource constraints should be overcome by mine operator funding for such incremental MSHA compliance sampling. One means for obtaining this support could be a reasonable and

fair operator fee, based on hours worked, or other equivalent means designed to cover the costs of compliance sampling. Any operator fee program should include an accountability system to ensure the uniform applicability of the program throughout the industry. The fee should only be utilized for the specific purposes of required compliance sampling.

MSHA should increase the number of samples collected by the Agency to determine compliance with respirable dust standards. MSHA should place major emphasis on the use of personal monitoring for determining compliance with PELs. However, MSHA should continue the practice of designated occupation sampling for determining noncompliance.

MSHA should change the compliance sampling program to allow use of single full shift samples for determining compliance.

MSHA should complete research (in consultation with other agencies such as NIOSH) to study the relation between indices collected from continuous monitors and the traditional methods of assessing exposure to respirable dust when these different methods are applied to the function of hazard surveillance as well as when developing other potential uses of continuous monitoring data (for example, compliance activity).

Once the technology for continuous dust monitors has been verified, these monitors should be broadly applied in conjunction with other sampling methods for surveillance and determination of dust control at all MMUs and other locations at high risk of elevated dust exposures.

Once verified as reliable (as in (1) above), MSHA should use continuous monitor data for assessing operator compliance efforts in controlling miner exposures, and should consider use of continuous monitor data directly in compliance.

MSHA should develop an initiative to ensure the protection of mine construction workers, contract drillers, and other contractor employees with respirable coal mine dust and silica exposures.

MSHA should take whatever action possible to expedite the development and field testing of a continuous personal monitor to serve a variety of purposes, among them identifying sources and levels of exposure to respirable dust and, as appropriate, for compliance.

The Committee heard testimony from miners who described a number of unfortunate examples where mine dust sampling programs appeared to have been operated improperly. In some mines, dust samples collected by the mine operators were reported to be uncharacteristic. As a result of these instances and related legal cases, it appears that many miners have lost confidence in the dust sampling program. The Committee also heard testimony regarding instances where there was concern with the MSHA sampling program as well. The Committee recognized a need for

miner participation in the dust sampling program as well as the ventilation plan approval process and developed the following recommendations:

During this (plan) verification visit, miners and their representatives should have the same paid 103(f) walkaround rights as they do under MSHA inspections.

Miners' participation in the interim operator dust sampling program should be increased to provide assurances that a credible and effective dust sampling program is in place. To that end, miners at each mine should select designated representatives who are employed at that mine for compliance sampling. Miners designated as representatives of the miners should be afforded the opportunity to participate in all aspects of respirable dust sampling for compliance at the mine. That participation would include protection against loss of pay as provided under Section 103(f) of the Federal Mine Act.

Miners' representatives should have the right to participate in dust sampling activities that would be carried out by the employer for verification of dust control plans at no loss of pay. Miners' representatives should also have the right to participate in any activities involving any handling of continuous dust monitoring devices or the extraction of data from continuous dust monitoring devices without loss of pay.

Miners' representatives should receive training and certification to conduct respirable dust sampling paid by the employer. Miners' representatives should be afforded the opportunity without loss of pay from the mine operator to participate in the training of the miners.

A description of work activities and dust exposures on sampling days would be provided to the affected miners by those taking the dust samples.

Miners being sampled should receive in writing by mine operators data on their dust exposure along with any pertinent information on the sampling activities and dust control parameters/production rate, etc. once the sample is analyzed. Written data on the dust exposure of miners being sampled along with any pertinent information on the sampling activities and dust control parameters/production rates should be posted on the mine bulletin board.

The Committee placed strong emphasis on the need for operator-developed ventilation plans that are designed to control the respirable dust to which miners are exposed and the adequacy of which has been verified by both the operator and MSHA under typical mining conditions and is routinely monitored. The Committee made several recommendations on this issue, including the following:

MSHA should develop an administrative review process for timely approval of new or revised plans to permit testing of the adequacy of the plan.

MSHA should define the range of production levels which must be maintained during sampling to verify the plan. This value should be sufficiently close to maximum anticipated production to reasonably assure the operator and the miner that the plan will be effective under typical operations. MSHA should review compliance and production records to determine when there is need for plan modification and verification.

MSHA should require operators to collect respirable dust samples to evaluate the adequacy of a new or revised plan under typical mining conditions within 30 days of granting provisional approval of the new or revised plan parameters.

Within 30 days of receipt of operator verification data documenting that the plan is effective, MSHA should, in consultation with the operator, perform scheduled independent dust monitoring to verify the operator's plan. Final, minimum operating dust control parameters of the dust control plan should incorporate values measured by MSHA during sampling and, if needed, appropriate data from operator sampling.

MSHA should develop specific performance requirements for operator sampling relative to documentation of continued adequacy of the plan parameters. MSHA should require that the results and monitoring of dust control parameters and production be recorded in order that correlation of dust control parameters with dust measurements is facilitated.

MSHA should specify the circumstances in which dust control plans are needed for surface mines, surface facilities, and surface areas of underground coal mines. MSHA should develop the relevant parameters for surface dust control plans and a process for plan verification.

The Committee determined that surface miners, workers at surface facilities of underground mines, mine construction workers and independent contractors needed to be better protected against the hazards of respirable coal mine dust and silica. In the case of mine construction and independent contracting the Committee concluded that these workers have been neglected under the current coal mine respirable dust program. The Committee made the following recommendations to improve the work environment of workers in these areas:

MSHA should specify the circumstances in which dust control plans are needed for surface mines, surface facilities, and surface areas of underground coal mines. MSHA should develop the relevant parameters for surface dust control plans and a process for plan verification.

Mine operators should continue to measure exposure to respirable dust for DOs, DWPs, and DAs compliance sampling as provided in 30 CFR 70, 71, and 90. Additionally, mine operators should sample as part of plan verification. Operator sampling at surface mines and surface areas of underground mines should be increased to bi-monthly sampling similar to the underground sampling program. Operators should also continue to be

allowed to take samples for purposes other than determining compliance. These samples should be clearly identified in the mine such as by using color code.

Abatement of citations based on MSHA or operator samples should require the operators to sample on multiple shifts as currently required.

MSHA should develop an initiative to ensure the protection of mine construction workers, contract drillers, and other contractor employees with respirable coal mine dust and silica exposures. This effort should include estimation of the types of contractors, number of workers at risk and their levels of exposure; exploration of means of assuring compliance with permissible exposure limits, the use of dust control plans, sampling and training; delineating responsibility of mine operators and contractors in protecting contractor workers; and implementation of compliance activities to protect this sector of mine workers. MSHA should also improve recordkeeping of exposure to dusts, occupational lung disease, and other hazards that occur to workers of construction and other contractors in order to prevent occupational disease and injury.

MSHA should work with NIOSH to expand medical surveillance to appropriate groups of mine contractor workers and to conduct research pertinent to preventing respiratory disease and respirable dust exposures in mine contractor workers.

MSHA should collaborate with OSHA in bringing similar attention to operations such as exploratory drilling, which fall under OSHA jurisdiction.

Sampling irregularities have been documented involving the collection of samples. Since 1990, more than 150 mine operators, agents and contractors have pled or been found guilty of submitting fraudulent samples to MSHA. To address concerns in this area, the committee made the following recommendations:

MSHA in conjunction with the Department of Labor Solicitors Office should review the current process for investigating and acting on respirable dust practices which result in unrepresentative respirable dust samples and should create a credible, adequately staffed program for such investigations.

MSHA should exercise more oversight on operators' sampling methods and management of samples including periodic audits of dust sampling programs.

The Committee recognizes the problem of miner representation and participation in the dust control programs at mines not represented by a recognized labor organization and recommends that MSHA target such mines for compliance sampling. MSHA targeting should be active in nature and should consider many factors including miner input, compliance history, and medical surveillance data. Given the seriousness of this problem, MSHA should immediately start auditing and appropriately targeting these types of operations.

On the issue of medical surveillance, and improvements in this area, the Committee recommended the following:

Medical testing of underground coal miners should be extended to surface miners.

MSHA should work with NIOSH to expand medical surveillance to appropriate groups of mine contractor workers and to conduct research pertinent to preventing respiratory disease and respirable dust exposures in mine contractor workers.

In addition to the chest radiographs at the time of employment and then at the specified intervals thereafter, spirometry and questionnaire data should be collected periodically during a miner's employment. Testing with these modalities will allow the identification of those miners with possible early dust-related health effects.

NIOSH should share the findings of the medical surveillance data with MSHA.

A plan should be developed by NIOSH in consultation with MSHA to determine which cases should be followed-up considering, for example, the severity of findings, clustering of abnormalities and the potential for primary prevention. This plan should assure that the confidentiality of the miner is protected.

MSHA should examine the effectiveness of controls operating at work sites represented by these miners.

Miners identified with abnormal screening tests may benefit from appropriate secondary prevention efforts and appropriate miner education regarding the nature of mining-related lung diseases.

NIOSH should oversee the provision of confidential periodic medical examination programs for all mine workers including surface miners in order to achieve at least 85% participation rate.

NIOSH should specify performance standards for medical testing; collect data on medical testing, perform ongoing analysis of surveillance data as well as to locate "hot spots", perform field investigations when warranted by hot spots or other surveillance findings in conjunction with MSHA.

MSHA should mandate operator medical examination programs, and supply appropriate MSHA-collected exposure and employment data to NIOSH for surveillance purposes. In cooperation with NIOSH, MSHA should consider what additional exposure or employment data should be obtained from the operator to further the objectives of medical surveillance, and perform field investigations when warranted by hot spots or other surveillance findings.

Mine operators should pay for the mandated medical testing.

Miner participation should be improved by arranging convenient access to examinations, effective education about the purposes of the testing, timely notification of results of the testing, and maintenance of confidentiality. Additional benefit will be gained by promoting the development of effective and accurate exposure classification.

NIOSH should develop a program to track ex-miners and provide them with the same tests available to active miners.

The Committee also made a number of recommendations in the areas of education and training, hazard surveillance, and research. On the issue of education and training, the Committee recommendations included the following:

MSHA should consider changes to assure that the training program is appropriately structured and staffed to carry out education and training functions related to dust control issues. MSHA should conduct these activities in a manner that provides quality assistance to the mining industry and oversight of training programs. When cases of overexposure occur to respirable dusts, education and training personnel should be assigned to investigate possible failures in the education and training of miners and mining personnel at mines where these overexposures occur. In addition, MSHA should place high priority on filling the director of training position as soon as possible.

It is likely that adequate training cannot be delivered in the current time frames allowed to train, therefore, MSHA should review and consider restructuring as well as expanding its existing training programs to better meet the objective of a workforce with a comprehensive understanding of the potential long-term hazards of dust exposure, able to recognize dust sources and be effective partners with the operators in the routine maintenance of the dust control parameters.

MSHA should evaluate the content, duration, adequacy and methods of training for each content area. The evaluation must specifically include the adequacy of treatment of the following topics which should be included in initial training in addition to annual training.

- health hazards of respirable coal mine dust overall
- health hazards of respirable silica dust
- objectives and content of a model dust control plan
- the specifics of the dust control plan at the specific mine
- MSHA process for approval of dust control plan
- sources of dust generation
- control of dust sources
- dust control parameter ranges approved for the mine operations

- relative effectiveness of various dust control measures included in the plan
- mechanisms for reporting deficiencies and implementing corrective actions
- function and importance of monitoring exposure
- function and importance of medical surveillance, including local resources (e.g., company, NIOSH)
- how to review reports of exposure monitoring
- sources of additional information and assistance

The review should also include the methods of delivery; where not currently applied, proven, effective interactive methods of adult learning should be incorporated into program revisions.

MSHA should explore ways in which inspectors, during their normal work detail, might function to improve understanding of the role of enforcement activities in control of dust and disease.

MSHA should review, revise, and update the program to train and certify persons for taking dust samples. MSHA should require annual update training for certification and maintenance for the purpose of keeping these persons up to date with sampling methods and regulations, and for maintaining their expertise. If certified persons do not perform their duties properly, MSHA should consider retraining and/or de-certification.

On the issue of hazard surveillance the Committee recommended that:

Hazard surveillance guidelines should be developed with the assistance of NIOSH for use by operators in maintaining and improving dust controls. These guidelines should directly and effectively utilize sampling results and measures related to control of respirable dust. These guidelines should specifically identify any trends or exposure levels that indicate deteriorating or marginally adequate conditions. A report of these findings should be included in MSHA's report of respirable dust samples results provided to the operator and to the miners' representative, and alert them that there is a need for a systematic reexamination of the continued effectiveness of existing control measures.

Hazard surveillance guidelines should also be developed for ventilation plan parameters that are regularly reviewed. These should be designed to assist operators in early identification of adverse trends in the parameters that, if not corrected, may cause miners to be exposed to higher dust levels.

In addition to specific recommendations for medical and epidemiologic research, research on the mechanisms of coal mine dust generation and control, applied engineering control research, and

research into dust sampling methods and surveillance, the Committee made the following general recommendation on the issue of needed research:

The NIOSH Criteria Document lists research needs pertinent to coal miner respiratory health and prevention of disease in the following areas: engineering control methods, respiratory protection, sampling devices, sampling strategy, medical screening and intervention, adverse health effects of dust exposure, characterization of dust, and training and education. The primary focus of NIOSH with regard to the prevention of CWP needs to be ongoing analysis of the medical surveillance program data for hot spots, in order to direct primary prevention efforts where they are most likely to be of direct and immediate benefit to miners. To the degree that research activities do not take precedence over or detract from resources devoted to meaningful administration of the medical surveillance program, the Committee concurs with these research needs. The Committee recommends increased funds for research into fundamental and applied aspects of respirable dust control as well as health effects research.

II. INTRODUCTION

The Advisory Committee on the Elimination of Pneumoconiosis Among Coal Mine Workers (Committee) was established by the Honorable Robert B. Reich, Secretary of Labor on January 31, 1995 in accordance with the provisions of the Federal Advisory Committee Act (FACA) and Sections 101(a) and 102(c) of the Federal Mine Safety and Health Act of 1977 (Mine Act), (See the Advisory Committee Charter, included as Appendix A of this Report; and the Federal Register Notice of Establishment of Advisory Committee [60 FR 5947, January 31, 1995], included as Appendix B of this Report).

The Committee was chartered 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" 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 charged 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."

Nominations for Committee membership were solicited by the Mine Safety and Health Administration (MSHA). As required by Section 102(c) of the Mine Act, a majority of the Committee members were individuals who had no economic interest in the mining industry and who were not operators, miners, or officers or employees of the Federal Government or any state or local government ("neutrals"). The nine-member Committee was comprised of two labor representatives, two industry representatives, and five neutrals.

The members selected to serve on the Committee provided a diverse range of collective professional experience in the field of occupational health. The following is a list of the Committee members. A summary of the background of each member of the Committee indicating their respective affiliations at the time they served is provided in Appendix C.

NEUTRALS

David Wegman, M.D., Chairperson
Professor and Chair
Department of Work Environment
College of Engineering
University of Massachusetts Lowell
Lowell, Massachusetts

John Dement, Ph.D., C.I.H.
Assistant Professor
Division of Occupational and Environmental
Medicine
Duke University Medical Center
Durham, North Carolina

Kathleen Kreiss, M.D.¹
Professor and Residency Director
Dept. of Preventive Medicine and Biometrics
University of Colorado Health Sciences Ctr.
Denver, Colorado

Raja V. Ramani, Ph.D., P.E.
Professor and Head
Department of Mineral Engineering
The Pennsylvania State University
University Park, Pennsylvania

Joseph Main
Administrator
Department of Occupational Health and
Safety
United Mine Workers of America
Washington, D.C.

John Gibbs, M.D.
Vice President of Health Management and
Corporate Medical Director
Kerr McGee Corporation
Oklahoma City, Oklahoma

Carol Rice, Ph.D., C.I.H.
Associate Professor of Environmental Health
Kettering Laboratory
University of Cincinnati
Cincinnati, Ohio

James Weeks, Sc.D., C.I.H.
Associate Research Professor
Division of Occupational and Environmental
Medicine
George Washington University
Washington, D.C.

Joseph Lamonica
Vice President for Health, Safety, and
Training
Bituminous Coal Operators' Association
Washington, D.C.

LABOR

INDUSTRY

¹ On August 5, 1996 Dr. Kathleen Kreiss advised the Chair of the Committee that she was expecting to receive an offer of employment from NIOSH and that if the offer was acceptable, she intended to accept it. She withdrew from active participation on the Committee at that time. Dr. Kreiss subsequently wrote to Dr. Wegman on August 16, 1996, advising him that she had received and accepted an offer of employment from NIOSH. Both communications have been submitted to the record of the Committee.

Staff assistance was provided to the Committee by MSHA, the National Institute for Occupational Safety and Health (NIOSH) and the Pittsburgh Research Center (PRC), Department of Energy. A list of technical staff members indicating their respective affiliations at the time they served follows:

MSHA

Edward J. Miller, P.E., Designated Federal Official
Senior Engineer
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Arlington, Virginia

Edward Sexauer, Esq.
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Robert A. Haney, M.S., P.E.
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Bruceton Safety and Health Technology Center
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Pamela King
Program Analyst
Office of Standards, Regulations, and Variances
Arlington, Virginia

Jon Kogut, M.S.
Mathematical Statistician
Office of Program Policy Evaluation
Golden, Colorado

NIOSH

Gregory Wagner, M.D.
Director
Division of Respiratory Disease Studies
Morgantown, West Virginia

Maude Morgan
Secretary
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