RESPIRABLE DUST SAMPLING REQUIREMENTS UNDER THE FEDERAL COAL MINE HEALTH AND SAFETY ACT OF 1969

By Donald P. Schlick and Robert G. Peluso

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RESPIRABLE DUST SAMPLING REQUIREMENTS UNDER THE FEDERAL COAL MINE HEALTH AND SAFETY ACT OF 1969

by

Donald P. Schlick[1] and Robert G. Peluso[2]

ABSTRACT

Respirable dust provisions of the Federal Coal Mine Health and Safety Act of 1969 are designed to protect the most important resource of the coal mining industry--its workers. The Act imposes two respirable dust standards of 3.0 milligrams per cubic meter of air after June 30, 1970; and 2.0 milligrams per cubic meter of air after December 30, 1972.

Under Federal regulations, each operator is required to carry out a dust sampling program established by the Secretary of the Interior and the Secretary of Health, Education, and Welfare. This program features the sampling of "high risk" face workers to establish that the exposure of each miner is below the dust standard. Mining sections, continuously in compliance with the regulations, may sample at less frequent intervals.

In addition to requiring the mining company to take respirable dust samples, the Bureau of Mines will perform in-depth dust inspections twice a year, as well as frequent "spot inspections."

The Bureau has established a semiautomatic computerized operation capable of processing over 1 million samples per year. This facility will be linked to various Bureau offices by a telecommunications system to provide automatic data printouts within hours after samples have been weighed.

INTRODUCTION

The inhalation and retention of coal mine dust in the lungs can result in the development of coal workers' pneumoconiosis. Results of a recent study by the Publich Health Service, Department of Health, Education, and Welfare, indicates that 3 percent of the active miners in underground bituminous-coal mines and 9 percent of the inactive miners have a complicated form of coal

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workers' pneumoconiosis. The results also indicate that 10 percent of the active miners and 19 percent of the inactive miners have some form of the disease. When examining the relationship between the incidence of the disease and the years of exposure, the results indicate that the incidence of the disease in the active workers increase sharply for those who have worked more than 30 years underground and in the inactive workers a sharp increase is indicated after 20 years of underground work. These results suggest that the accumulation of coal mine dust in the lungs of the miners is responsible for the development of the disease.

To establish the concentration of respirable dust to which coal miners were being exposed, the Bureau of Mines in April 1969 initiated a study of dust exposures in selected underground bituminous-coal mines. At that time, the basic reason for implementing this study was to develop, on an occupational basis, respirable dust exposures. These concentrations, determined on an occupational basis, would provide valuable data to the Public Health Service in correlating X-ray evidence to the incidence and prevalence of coal workers' pneumoconiosis.

Primary findings of this study indicated that occupations involved in the extraction of coal were exposed to the highest dust concentrations. Table 1 lists the distribution of dust concentrations by occupation as measured with the personal sampler.

TABLE 1. - Mine mean dust concentrations by occupation: Samples taken with the personal sampler

Occupation	No. of mines	No. of samples	Dust concentration, mg/m³				Concentration, mg/m³		
			<1.6	1.61-2.4	2.41-2.9	>2.9	Low	High	Mean
Continuous miner operator	21	178	2	2	4	13	0.02	21.44	4.08
Continuous miner helper..	19	131	4	3	2	10	.44	18.90	3.47
Cutting machine operator.	15	98	1	6	2	6	.71	15.42	3.69
Cutting machine helper...	8	37	1	3	-	4	.77	14.70	4.45
Coal drill operator.....	9	59	3	-	1	5	.42	12.94	3.55
Loading machine operator.	18	97	2	1	2	13	.25	39.56	3.75
Loading machine helper...	6	31	-	3	-	3	.50	14.48	3.17
Roof bolter operator.....	25	296	6	9	6	4	.09	38.50	2.46
Shuttle car operator.....	27	463	17	7	3	-	.12	10.50	1.45
Beltman.....	7	32	2	3	1	1	.42	4.97	1.85
Boomboy.....	6	20	5	-	-	1	.23	5.88	1.30
Timberman.....	12	49	7	1	-	4	.38	11.74	2.49
Shotfirer.....	12	83	5	2	2	3	.62	56.97	3.15
Supplyman.....	8	24	5	1	1	1	.05	9.36	1.59
Mechanic.....	19	142	17	2	-	-	.06	5.43	1.10
Section foreman.....	28	236	19	4	2	3	.14	14.51	1.69
Total.....	29	1,976	96	47	26	71	-	-	-
Percent of total....	-	-	40	19	11	30	-	-	-

THE RESPIRABLE DUST STANDARDS

The Congress established in the Federal Coal Mine Health and Safety Act of 1969 the first respirable dust standard ever written in any coal mining law in the United States. The Act set dust standards which are mandatory in each underground coal mine in the United States. The dust standards set were as follows:

1. Effective June 30, 1970, each operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner is exposed at or below 3.0 milligrams per cubic meter (mg/m^3) of air.

2. Effective December 30, 1972, each operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner is exposed at or below 2.0 mg/m^3 of air.

Any operator who determines that he will be unable, using available technology, to comply with the standards and adequately fulfills the requirements established by the Compliance Panel established by the Act may be granted a permit to maintain continuously the average concentration at a level the Compliance Panel sets, but in no event shall the level exceed 4.5 mg/m^3 of air when the 3.0 mg/m^3 of air standard is in effect or 3.0 mg/m^3 of air when the 2.0 mg/m^3 of air level is in effect.

The average respirable dust concentration of 4.5 mg/m^3 of air, 3.0 mg/m^3 of air, and 2.0 mg/m^3 of air refer to dust concentrations measured with an MRE instrument, or equivalent concentrations if measured with another device approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare.

In order to comply with dust standards, the Act requires that the operator of each coal mine take accurate dust samples and that the representative of the Secretary of the Interior make periodic and spot dust inspections. The samples shall be collected by the MRE instrument or a device approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare and in accordance with such methods, at such locations, at such intervals, and in such a manner as the Secretaries prescribe.

PERMITS OF NONCOMPLIANCE

The Act establishes the Interim Compliance Panel which is composed of five members as follows:

1. Assistant Secretary for Wage and Labor Standards, Department of Labor, or his delegate;

2. Director, Bureau of Standards, Department of Commerce, or his delegate;

3. Administrator, Consumer Protection and Environmental Health Service, Department of Health, Education, and Welfare, or his delegate;

4. Director, Bureau of Mines, Department of the Interior, or his delegate; and

5. Director, National Science Foundation, or his delegate.

The Interim Compliance Panel shall issue permits and renewal permits for noncompliance. Permits will be issued if the applicant satisfies the following requirements, and if the Interim Compliance Panel determines that the applicant will be unable to comply with the standard.

1. A statement by the applicant and a certified engineer that the applicant will be unable to comply with the applicable dust standard due to the unavailability of technology for reducing the respirable dust.

2. Identification of the working places for which the permit is requested, the results of an engineering survey in the section by a certified engineer, and a description of the engineering parameters affecting respirable dust concentrations.

3. Statements by the applicant and a certified engineer of the future plans for reducing the respirable dust concentrations.

Permits must be filed 60 days prior to the effective date of the applicable respirable dust standard and in the case of renewal permits, 60 days before the permit expires. Permits or renewals shall not exceed a maximum time period of 1 year. When the 3.0 mg/m^3 of air standard is in effect, no permit or renewal shall be extended beyond June 30, 1971. When the 2.0 mg/m^3 of air standard is in effect, no permit or renewal shall be extended beyond December 30, 1975.

The Interim Compliance Panel regulations for obtaining a permit of noncompliance were published in the Federal Register (appendix A).

See appendix B for samples of Interim Compliance Panel forms and the directions for completing these forms. Inquiries concerning the Interim Compliance Panel should be addressed to:

Interim Compliance Panel
1730 K Street, N.W.
Suite 800
Washington, D.C. 20006

APPROVED SAMPLING DEVICES

Heretofore, in the United States, dust concentrations were measured by sampling with the midget impinger and counting the number of particles less than 10 microns in diameter. The concentration was expressed in the number of millions of particles of dust per cubic foot of air. Recent studies have led investigators to believe that the mass concentration of respirable dust is a more meaningful factor for correlation with pneumoconiosis than the previously used counting technique. An important discovery, leading to this conception,

is that the mass of respirable dust extracted from a miner's lungs in an autopsy parallels the miner's severity of pneumoconiosis based on X-ray evidence prior to death.

Although the entire scientific community is not in full agreement with the respirable mass concept, there now seems to be a general agreement that the main factor associated with bituminous-coal workers' pneumoconiosis is the mass of respirable dust inhaled and retained.

If the mass of respirable dust in the atmosphere is the parameter used for hygienic evaluation of dust exposure, then the instruments used to evaluate the atmosphere should simulate the respiratory tract in selecting the dust particles.

At present, there are two criteria accepted for defining respirable dust: The first was recommended and adopted by the Pneumoconiosis Conference in 1959; the second resulted from work performed by the United States Atomic Energy Commission.

Gravimetric sampling devices have been developed that sample in accordance with each of these acceptable criteria. One is called the MRE (Mines Research Establishment) instrument and another is the personal sampler. The MRE samples in accordance with the recommendations of the Pneumoconiosis Conference and the other device simulates the Atomic Energy Commission criteria.

Due to its design and weight, the MRE can best be employed as an instrument to measure the dust concentration in the general environment of the workers, while the personal sampler readily lends itself to measuring the dust concentration in the worker's breathing zone. The two samplers are shown in figure 1. Both instruments are designed to operate over the entire work shift and are usually employed on a portal-to-portal basis. Due to general availability and low cost, more instruments of the personal sampler variety are found employed in bituminous-coal mines in the United States. This particular instrument was designed and constructed in the laboratories of the U.S. Bureau of Mines while the MRE is of British design and manufacture.

Under the Federal Coal Mine Health and Safety Act of 1969, either the MRE or the personal sampler can be used to measure the concentrations of respirable dust. Information concerning specific sampling devices permitted under the Act are discussed later in this report.

OPERATOR'S SAMPLING PROGRAM

In order to discharge its responsibility under the law, the Secretary of the Interior and the Secretary of Health, Education, and Welfare established an industry-wide operator sampling program.

Sampling Requirements

The main feature of this program is that every operator of a coal mine will be required to take samples of respirable coal mine dust in each

FIGURE 1. - Mines Research Establishment Gravimetric Sampler and the U.S. Atomic Energy Commission Personal Sampler.

coal-producing section, as well as in other areas generating respirable dust starting June 30, 1970. Initially, each operator is required to collect 10 valid samples which shall constitute a basic sampling cycle in each coal-producing section. Subsequent to this basic sampling cycle, the operator is required to collect five valid samples each month in each coal-producing section which shall constitute a standard sampling cycle.

The operator shall continue to collect a monthly standard sampling cycle during each calendar month, until he is cited for a violation, starts a new section, or the applicable respirable dust standard changes. During each basic or standard sampling cycle, the operator is also required to take one sample of the intake air current to each section. If the Bureau of Mines fails to receive the required valid samples each calendar month, the operator will be advised to submit additional samples to make up the deficiency.

Based on the data and evaluation of its previously mentioned environmental study in bituminous-coal mines, the Bureau of Mines has developed the "high risk" concept. This concept states that if the dust concentration of the worker exposed to the highest respirable dust concentration is below the legislative standard, then it is assumed that all other section workers will be below the standard. The Bureau has determined the "high risk" miner for each coal mining operation.

In conventional coal-producing sections, samples shall be collected in the working environment of the coal cutting machine operator and a sample will be taken in the intake air current to the section.

In continuous coal-producing sections, samples shall be collected in the working environment of the continuous mining machine operator and a sample shall be taken in the intake air current of the section.

In longwall coal-producing sections, samples shall be collected in the working environment of the last miner on the return air side of the longwall face and a sample shall be collected in the intake air current of the section.

In a hand-loaded section, samples shall be collected in the working environment of the hand loader. At least one sample shall be collected on each section; and where there are more than 10 loaders working, additional samples at the rate of one for every 10 men shall be collected. A sample shall also be collected in the intake air current of the section.

The "high risk" occupation can be changed by an authorized representative of the Secretary when data indicates such a change is necessary.

In addition to those samples taken in the section in the environment of the "high risk" miner, all underground miners, regardless of where they work, shall have a number of respirable dust samples collected in their individual working environment.

The schedule for taking these non-high-risk samples is as follows:

1. Non-high-risk workers employed in the section--every 120 days.

2. Nonsection workers employed in other underground occupations--every 180 days.

3. Workers who are advised that they show evidence of pneumoconiosis and exercise their option of moving from a dusty area to a less dusty area--every 90 days.

In multisection mines, the sampling procedure shall be staggered permitting the continuous monitoring of the mine environment. For instance, in a two-section mine, the sampling cycles may be taken during the first half of a calendar month in one section and in the second half of the calendar month on the second section. In non-coal-producing areas, samples may be taken at any time. All respirable dust samples shall be collected over a full shift, portal to portal.

Reduction in Standard Sampling Cycle

Where analysis of the samples from a basic sampling cycle and a standard sampling cycle from any section of a mine establish that the cumulative respirable dust concentration is below 30 mg/m^3, the Secretary of the Interior or his authorized representative may establish an alternating sampling cycle for such section in accordance with the following schedule:

1. First month, samples from basic sampling cycle in compliance.

2. Second month, samples from standard sampling cycle in compliance.

3. Third month, no sampling cycle required.

4. Fourth month, samples from standard sampling cycle in compliance.

5. Fifth month, no sampling cycle required.

6. Sixth month, repeat cycle as provided in item 2 above.

The operator shall revert to the standard sampling cycle if, at any time during a modified sampling cycle, analysis of the samples from the most recent sampling cycle shows the average dust concentration in such section to be in excess of the applicable standard.

Permissible Sampling Device

Respirable dust samples shall be collected with an MRE instrument, or any other device approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare. The following personal respirable dust samplers and sampling heads are approved devices that can be used until December 31, 1970, to measure the dust concentrations.

1. Approved battery-operated sampling pump

   A. Casella Mark II Model B
      Willson Products Division
      P.O. Box 622
      Reading, Pennsylvania 19603

   B. MSA Monitaire Sampler, Model G
      Mine Safety Appliances Company
      201 North Braddock Avenue
      Pittsburgh, Pennsylvania 15208

   C. UNICO Model C110 Pump
      UNICO Environmental Instruments, Inc.
      150 Cove Street
      Fall River, Massachusetts 02720

2. Sampling head

The sampling head consists of a 10-millimeter nylon cyclone and filter assembly mounted in a suitable holder for attaching to the worker. The following equipment meets these requirements.

   A. MSA Gravimetric Dust Sampler
      Mine Safety Appliances Company
      201 North Braddock Avenue
      Pittsburgh, Pennsylvania 15208

   B. Respirable Mass Lapel Sampler
      UNICO Environmental Instruments, Inc.
      150 Cove Street
      Fall River, Massachusetts 02720

After December 31, 1970, only those pumps which fulfill the specifications published by the Secretaries of the Interior and Health, Education, and Welfare in the Federal Register (appendix C) shall be permissible.

An approved coal mine dust personal sampler unit shall be operated at a flow rate of 2.0 liters of air per minute. An MRE instrument shall be operated at a flow rate of 2.5 liters of air per minute.

The concentration of respirable dust expressed in milligrams per cubic meter of air shall be determined by dividing the weight of dust in milligrams collected on the filter by the volume of air in cubic meters passing through the filter. To convert a concentration of respirable dust as measured with an approved coal mine dust personal sampler unit to an equivalent concentration of respirable dust as measured with an MRE instrument, the concentration of respirable dust measured shall be multiplied by a constant factor of 1.6 and the product shall be the equivalent concentration as measured with an MRE instrument.

MINE DATA CARD

CASSETTE NO. _____

INITIAL WT. _____

MINE ID NO. _____

FINAL WT. _____

SECTION ID NO. _____

SAMPLING TIME (MIN) _____

MINER'S SSA NO. _____

OCCUPATION _____

TONS THIS SHIFT _____

TYPE OF SAMPLE

HIGH RISK _____ INTAKE AIR _____

NON-HIGH RISK:

FACE ____ NON-FACE ____ 203 (B) (1) _____

FACE VENTILATION

EXHAUST _____ BLOWING _____

AUXILIARY _____ BRATTICE _____

TYPE OF MINING

DEVELOPMENT _____ RETREAT _____

METHOD OF MINING

CONTINUOUS _____ CONVENTIONAL _____

LONGWALL _____ OTHER _____

_____ CHECK IF SECTION WILL CLOSE BEFORE NEXT SAMPLING CYCLE.

SIGNATURE: DATE _____

(MINER SAMPLED) _____

(MINE OFFICIAL) _____

FIGURE 2. - Mine Data Card.

Location of Sampling Device

The personal sampling device may be worn by the miner with the sampling head attached to his clothing at the chest, or it may be located in the working environment of the miner. If the sampling device is located in the working environment of the designated miner, it shall be positioned on the mining equipment. In this case, the sampling device shall be located on the mining equipment not more than 36 inches from the operator's normal working position, but in no instance shall the device be located outby such operator.

In hand-loading sections when the sampler is not located on the miner, it shall be placed near the miner where the maximum concentration of respirable dust exists.

The sampling device used to take respirable dust samples in the intake ventilating air current shall be located as close to the working face as practicable, but in no instance shall the sampling device be located more than 200 feet outby the face.

The operator shall exercise care with respect to the location of the sampling device to assure that representative respirable dust samples of the mine atmosphere are taken. The MRE instrument shall be kept in a near level position, and the sampling head and cyclone of the personal sampler shall be kept in an upright position while samples are being taken.

Purchase and Transmission of Samples

A preaddressed mailing container containing the filter cassette must be purchased by the mining company from the dust sampler manufacturer or the filter cassette manufacturer. Each sample shall be transmitted promptly, along with the mine data card, furnished by the filter cassettee manufacturer, certifying specified data as shown in figure 2, to the Bureau of Mines, Pittsburgh Field Health Group, Pittsburgh, Pennsylvania 15213.

Each mine data card accompanying each sample must be filled out accordingly.

1. Cassette Number--Furnished by the filter manufacturing company and must be the same as the number on the filter cassette.

2. Mine Idenfification Number--Furnished to the mining company by the Bureau of Mines.

3. Section Number--A three-digit number assigned by the mining company to each operating section. When the section works out, the mine shall retire this number and assign a new number to the new section.

4. Occupation--The miner's occupation; that is, continuous miner operator, shuttle car operator, etc.

5. Initial Weight--Furnished by the filter manufacturer.

6. Final Weight--Furnished by the Bureau of Mines after weighing.

7. Sampling Time (minutes)--The actual time, portal to portal, that the machine was running (in minutes).

8. Date--Date sample was taken.

9. Tons This Shift--Tons of new coal mined while the sample was being taken.

10. Type of Sample--Check appropriate box. "High risk" is discussed earlier in this report. "Section 203(b)(1)" refers to workers having evidence of pneumoconiosis who elect to work in less dusty areas.

11. Face Ventilation--Check as many boxes as appropriate concerning face ventilation.

12. Type of Mining--Check appropriate box.

13. Method of Mining--Check appropriate box.

14. Check if Section Will Be Closed--This box is to be marked if the section will be closed before the next sampling cycle.

15. Signature--Miner Sampled--Signature of the miner whose environment was sampled.

16. Mine Official--Signature of mine official who was responsible for taking the sample.

Analysis, Records, and Results

The Bureau of Mines has established in its Pittsburgh field office a semi-automatic weighing facility capable of weighing over 1 million samples per year. The heart of the operation is four electronic balances each on a line with a key tape unit which is programed with the Bureau's computer located in

Denver, Colo. The computer will store the many bits of respirable dust data until called for by the Bureau. This computer is linked to 13 key Bureau locations via telecommunication so that within hours following the Bureau analysis of samples, an automatic data printout shall be available to every Bureau coal mining district and subdistrict office. The printout shall contain the following information.

1. Mine identification number.

2. Section identification number.

3. Results of each sample in mg/m^3.

4. Cumulative total of all samples in current sampling cycle.

5. Result of sample of intake air current.

6. Social Security number of miners sampled.

Violations

If, during samples taken by the operator, in the high risk operation, it is determined that the allowable cumulative concentration of respirable dust is ever exceeded, the Secretary or his authorized representative shall take action in accordance with provisions of Section 104(i) of the Act. For example:

1. If the 3.0 mg/m^3 of air standard is in effect, then during the basic 10-sample sampling cycle the average respirable dust concentration must not accumulate more than 30 mg/m^3 of air (3.0 mg/m^3 $\times$ 10 samples = 30 mg/m^3) to be in compliance. If, and as soon as the average respirable dust concentration exceeds this value, the section is in violation. Thus, if on the first sample 15 mg/m^3 of air is recorded, and on the second sample 16 mg/m^3 of air is recorded, then the section is in violation.

2. If the 3.0 mg/m^3 of air standard is in effect, then during the first standard sampling cycle the first sample will be combined with the 10 samples taken in the basic sampling cycle. After adding this sample, the first sample of the basic sampling cycle will be dropped. The last 10 samples shall be considered to determine compliance. If the total of these 10 samples exceed 30.0 mg/m^3 of air, the section is in violation.

Thereafter, as each subsequent sample (second, third, fourth, or fifth) is received during a standard sampling cycle, the oldest sample will be discarded and compliance will be determined on the last 10 samples. Thus, every time a new sample is added, a determination is made as to which of the sections are in compliance. The Bureau of Mines computer with a telecommunications system will greatly assist the quick dissemination of this information.

BUREAU OF MINES DUST INSPECTION PROGRAM

In addition to requiring the operator of a coal mine to establish a respirable dust sampling program, the Bureau of Mines will conduct semiannual respirable dust inspections of each underground coal mine. These inspections may, at the discretion of the District Manager, be made in conjunction with the regular safety inspections or as a separate inspection.

Respirable Dust Samples

Respirable dust samples shall be collected (1) for miners in all coal-producing sections of the mine and (2) for a representative number, 10 percent, of the miners employed outside the face.

A sampling cycle shall be up to five samples or until the average respirable dust concentration of the high-risk miner has been determined to be in or out of compliance by table 2, 3, or 4, depending upon which standard is in effect. The Bureau will take at least two samples in determining compliance according to these tables.

TABLE 2. - Average of n samples: 3.0 mg/m^3 standard

Sample	Greater than out of compliance	Equal to or less than in compliance
1.....	15.0	0.0
2.....	7.5	1.0
3.....	5.0	1.6
4.....	3.8	2.4
5.....	3.0	3.0

TABLE 3. - Average of n samples: 4.5 mg/m^3 standard

Sample	Greater than out of compliance	Equal to or less than in compliance
1.....	22.5	0.0
2.....	11.3	1.7
3.....	7.5	2.6
4.....	5.7	3.6
5.....	4.5	4.5

TABLE 4. - Average of n samples: 2.0 mg/m^3 standard

Sample	Greater than out of compliance	Equal to or less than in compliance
1.....	10.0	0.0
2.....	5.0	.6
3.....	3.4	1.1
4.....	2.5	1.6
5.....	2.0	2.0

The respirable dust samples collected during a shift shall be promptly weighed by the inspector on a suitable balance after the shift is completed.

All respirable dust samples and accompanying data cards from each working section shall be sent to the Pittsburgh Field Health Group for chemical and physical analyses by standard methods to determine the quartz, ash, and metal content of the respirable dust.

The operator will not be required to collect dust samples on coal-producing sections while an authorized representative of the Secretary of the Interior is making a dust inspection of the section.

Spot Inspections

The Bureau of Mines shall conduct frequently spot inspections of active workings of coal mines. During such inspections, the inspector shall not collect any respirable dust samples. The inspector shall (1) check the dust control program in the section for its overall effectiveness and (2) check the operator's dust sampling program.

Violations of the Bureau's Inspection Program

If, during a Bureau of Mines dust inspection, an inspector determines, based on a sampling cycle of up to five samples, that the average concentration of respirable dust exceeded the applicable limits listed in table 2, 3, or 4, whichever is in effect, he shall promptly take action in accordance with provisions of Section 104(i) of the Act.

Records

In addition to collecting respirable dust samples, the inspectors will be required to keep accurate notes and records pertinent to the dust inspection. This shall include:

1. Accurate measurements of the quantity and velocity of the air reaching the last open crosscut between entries or rooms and in the entries or rooms inby the last open crosscut, at the intake end of pillar lines.

2. The method, system, and equipment used for ventilating the face.

3. The quantity and pressure of the water used for dust control.

4. The number, manufacturer, type, and location of water sprays used in the spray system for dust control.

5. The inspector should observe any unusual or successful dust control methods that may be in effect at a mine, and he should forward such information to the District Manager, Bureau of Mines.

6. The inspector shall check the dust control program at the mine for its overall effectiveness. This includes checking the operator's sampling

pumps for the correct flow rate as specified by the Department of Health, Education, and Welfare and the Bureau of Mines.

SECTION 104(i) OF THE ACT

Section 104(i) of the Federal Coal Mine Health and Safety Act of 1969 states that if, based upon samples taken during a Bureau of Mines inspection by an authorized representative of the Secretary, the applicable limit on the concentration of respirable dust required to be maintained under this Act is exceeded and thereby violated, the Secretary or his authorized representative shall issue a notice fixing a reasonable time for the abatement of the violation. During such time, the operator of the mine shall cause samples described in Section 202(a) of the Act to be taken of the affected area during each production shift.

If, upon the expiration of the period of time as originally fixed or subsequently extended, he shall find the extent of the area affected by the violation and shall promptly issue a withdrawal order until the Secretary or his authorized representative has reason to believe, based on actions taken by the operator, that such limit will be complied with, upon the resumption of production in such mine. As soon as possible after an order is issued, the Secretary, upon request of the operator, shall dispatch to the mine involved, a person or team of persons to the extent such persons are available, who are knowledgeable in the methods and means of controlling and reducing respirable dust. Such person or team of persons shall remain at the mine involved for such time as they shall deem appropriate to assist the operator in reducing respirable dust concentrations. While at the mine, such persons may require the operator to take such actions as they deem appropriate to insure the health of any person in the coal mine.

The law requires each operator to report and certify to the Secretary as to the condition in the active workings of the coal mine. The report form number, 6-1497, enclosed in appendix E, is available at each Coal Mine Health and Safety District and Subdistrict Office.

CONTROL OF DUST, MISTS, OR FUMES

Permissible dust collectors are those dust collectors that are approved by the Bureau of Mines under Schedule 21-B and maintained in permissible condition. When water or water with a wetting agent is used to control dust from drilling in rock, the water shall be applied directly to the drill bit through a hollow drill steel or stem. If vertical holes are being drilled in the floor, flooding the holes with water will suffice as a dust control method.

Any ventilating air current used to disperse dust caused by drilling in rock shall be so directed that the dust is readily dispersed and carried away from the drill operator or any other worker in the area. Respirators, approved for use in coal mines, shall be provided to persons exposed for short periods to high dust concentrations, to mist inhalation hazards, and to harmful or toxic fumes.

When the exposure is for prolonged periods, other methods such as water or water with a wetting agent or ventilation shall be used to control respirable dust to legislative limits. Mists and fumes created by roof sealing compounds, compounds used to seal stoppings, cleaning fluids, paints, and oil mists created by percussion drills and machinery shall be controlled by ventilation.

Chapter V—Interim Compliance Panel (Coal Mine Health and Safety)

SUBCHAPTER A—COAL MINE HEALTH

PART 501—PERMITS FOR NONCOMPLIANCE

Section 202 of the Coal Mine Health and Safety Act of 1969, which applies to bituminous coal, lignite and anthracite mines, provides that the Interim Compliance Panel may issue permits for noncompliance with the respirable dust standards specified therein. This Part 501, reading as set forth below, is promulgated to prescribe the requirements which must be met by each applicant for an initial permit for noncompliance with the respirable dust standard prescribed for underground coal mines in section 202(b)(1) of the Act and for renewals of such permit. In addition, it sets forth the requirements which must be met by each person requesting a public hearing with respect to the issuance of any permit or renewal thereof.

This Part 501 shall become effective upon its publication in the FEDERAL REGISTER.

CHARLES F. BROWN,
Chairman, Interim Compliance Panel (Coal Mine Health and Safety Act).

Sec.

AUTHORITY: The provisions of this Part 501 issued under Title V, sec. 508, Pub. Law 91-173, Stat. 803.

§ 501.1 Application of part.

This part applies to applications for permits for noncompliance and renewals thereof submitted in accordance with the provisions of Title II of the Federal Coal Mine Health and Safety Act of 1969, and to requests for hearings conducted with respect to such applications.

§ 501.2 Definitions.

As used in this part:

(a) "Act" means the Federal Coal Mine Health and Safety Act of 1969 (Public Law 91-173);

(b) "Panel" means the Interim Compliance Panel established by section 5 of the Act;

(c) "Applicant" means any operator of an underground coal mine who files an application with the panel for an initial or renewal permit for noncompliance with the respirable dust standard set forth in section 202(b)(1) of the Act;

(d) Unless otherwise specified in this part, "permit" means an initial permit for noncompliance issued to an applicant, or a subsequent renewal thereof, which entitles the applicant to exceed the respirable dust standard set forth in section 202(b)(1) of the Act with respect to working places designated in such permit or renewal;

(e) "Respirable dust standard" means the average concentration of respirable dust prescribed by section 202(b)(1) of the Act;

(f) "Average concentration of respirable dust" means the average concentration of respirable dust, expressed in milligrams per cubic meter of air, as measured by an MRE instrument or an equivalent concentration if measured with another device approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare.

(g) "Working places" means those areas in a single working section which are at any given time inby the last open crosscut;

(h) "Working section" means all areas of the coal mine inby the loading point of the section to and including the working faces;

(i) "Qualified person" means a person who has satisfactorily completed a course in sampling and evaluation of respirable coal mine dust concentrations approved by the Secretary of the Interior with sampling devices approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare;

(j) "Certified engineer" means an engineer certified or registered by the State in which the coal mine is located to perform duties prescribed by title II of the Act, except that, in a State where no program of certification or registration is provided or where the program does not meet at least minimum Federal standards established by the Secretary of the Interior, such certification or registration shall be by the said Secretary;

(k) "Respirable dust level" means the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the active workings of the mine is exposed;

(l) "Engineering survey" means a determination by a certified engineer of the respirable dust levels of the working places of the mine with respect to which an application is filed together with a statement of the applicant's ability to reduce the dust levels therein.

§ 501.3 Filing procedures.

(a) Applicants shall file an application on ICP Form 1 for each mine which shall include a Statement of Working Section Information on ICP Form 1(a) for the working places in each section for which a permit is requested. Except as provided in § 501.4(d), one copy of each form shall be filed on or before May 1, 1970, with the Interim Compliance Panel, Suite 800, 1730 K Street NW., Washington, D.C. 20006, in the form and content prescribed in § 501.4.

(b) The original of each ICP Form 1 shall be signed by the applicant and the original of each ICP Form 1(a) shall be signed by the applicant and by the certified engineer responsible for the engineering survey.

(c) At the time an application is mailed or delivered to the panel, the applicant shall post on the mine bulletin board a notice that such application has been filed and that the application and all related ICP Forms 1(a) are available at the mine office for inspection by any interested person during usual working hours. In addition, the applicant shall furnish a copy of the application to the union or other representative of the miners of the mine to which such application applies.

(d) A copy of each application and all related ICP Forms 1(a) received by the panel will be available at the office of the panel in Washington, D.C., for inspection by any person during usual working hours.

(e) Application forms may be obtained from Coal Mine Safety Offices of the U.S. Bureau of Mines or from the Interim Compliance Panel, Suite 800, 1730 K Street NW., Washington, D.C. 20006.

§ 501.4 Contents of applications for permits.

(a) Each application for a permit (ICP Form 1) shall contain the name and address of the mine and the operator thereof and a list of working sections with respect to which such permit is requested, including any working section for which an ICP Form 1(a) can be completed on or before June 30, 1970.

(b) Each Statement of Working Section information (ICP Form 1(a)) shall contain a representation by the applicant and the certified engineer conducting the engineering survey as defined in § 501.2 (l) that the applicant is unable to comply with the respirable dust standard in those working places within each working section identified in the application:

(1) Because technology for reducing the respirable dust level at such places is not available; or

(2) Because of the lack or other effective control techniques or methods; or,

(3) Because of any combination of such reasons.

The representation shall be accompanied by an explanation of the reasons therefor.

(c) Each statement of working section information shall include the following:

(1) Identification of each working section in which are located the working places for which a permit is requested;

(2) The number of men regularly employed on each production shift and the usual number of production shifts per day;

(3) The type and method of mining, including haulage;

(4) The results of an engineering survey as defined in § 501.2 (l). The determination of respirable dust levels included in such a survey shall be made in accordance with the procedures set forth in this subparagraph (4)

(i) All measurements of respirable dust levels shall be conducted by a qualified person using an MRE instrument or other dust sampling device approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare in accordance with the provisions of Part 74 of this title.

(ii) One sample of respirable dust shall be taken in each working section on the same production shift on each of 5 consecutive working days at the following locations:

* (*a*) Where conventional mining methods are employed, the sample shall be taken on the cutting machine operator or on the cutting machine within 36 inches by the operator's normal working position;

* (*b*) Where continuous mining methods are employed, the sample shall be taken on the continuous miner operator or on the continuous miner within 36 inches by the operator's normal working position;

(*c*) Where long wall mining methods are employed, samples shall be taken on the miner who works nearest the return air side of the long wall face or on the return-air side of the long wall face no farther than 48 inches from the corner;

(*d*) Where hand loading methods are employed, samples shall be taken on 10 percent of the hand loaders, but in no case less than one hand loader, or at a site which represents the average concentration of respirable dust to which all hand loaders are exposed;

(*e*) Where two or more mechanized mining operations are engaged in the production of coal in a single working section, each such mechanized mining operation shall be considered a separate working section. Samples of respirable dust shall be taken from each such mechanized mining operation in accordance with the provisions of this subparagraph.

(*f*) A sixth sample shall be taken in the intake air of each working section at a location within 200' outby the working faces of the section within one working day of the completion of the sampling cycle required in this subparagraph.

(iii) Each sample of respirable dust taken in accordance with the provisions of subdivision (ii) of this subparagraph shall be weighed and the results found shall be converted and reported in accordance with the methods set forth in (*a*) and (*b*) of this subdivision.

(*a*) Approved sampling devices shall be operated at a flow rate of 2.0 liters of air per minute and the MRE instrument shall be operated at a flow rate of 2.5 liters of air per minute.

(*b*) The respirable dust level shall be determined by dividing the weight in milligrams of dust collected on the filter during a full production shift by the volume of air in cubic meters passing through the filter. To convert a concentration of respirable dust as measured with an approved sampling device to an equivalent concentration of respirable dust as measured with an MRE instrument, the concentration measured by the approved sampling device shall be multiplied by a constant factor of 1.6 and the product shall constitute the equivalent concentration as measured with an MRE instrument.

(5) A description of the ventilation system of the working section and its capacity;

(6) The quantity and velocity of air regularly reaching the working faces;

(7) The amount and pressure of water, if any, reaching the working faces;

(8) The number, location and type of sprays, if any;

(9) A description of any action taken to reduce the respirable dust level;

(10) A description by the applicant and the certified engineer who conducted the engineering survey under subparagraph (4) of this paragraph of the means and methods to be employed to achieve compliance with the respirable dust standard, the progress made to date, and an estimate of the date when compliance can be achieved.

(d) Where an applicant is unable to comply with all of the requirements set forth in this section with respect to any working place for which a permit for noncompliance has been requested, he shall specifically state the reasons for his failure to comply and indicate the date on which he expects to meet such requirements and complete his application.

(e) All applications timely filed in accordance with the provisions of this part shall be considered by the panel in the order in which completed applications are received and the panel shall make its determination on the basis of the evidence of record. Each applicant shall, however, upon written request by the panel, submit such additional evidence as the panel deems necessary to its determination, including, but not limited to, evidence in support of representations made under the provision of paragraph (b) of this section or evidence in support of claims that the survey required under the provisions of paragraph (c)(4) of this section cannot be completed on or before May 1, 1970.

§ 501.5 Issuance of initial permits.

(a) The panel will issue initial permits for working places within working sections based upon applications which are timely filed and complete in all material respects in accordance with §§ 501.3 and 501.4.

(b) No initial permit will be issued for working places in a working section that is not in existence on June 30, 1970.

(c) Each initial permit will be issued for the period specified by the panel but in no case for more than 1 year. Each permit will specify the average concentration of respirable dust which the applicant will be entitled to maintain, but in no case shall the level be greater than 4.5 mg/m^3.

(d) If a permit is issued, such permit will be forwarded to the applicant. If a permit is denied, the panel will advise the applicant in writing of the reasons therefor and give the applicant an opportunity for a public hearing.

(e) A copy of every permit for noncompliance shall be posted by the applicant in the manner and place prescribed by section 107(a) of the Act.

(f) No initial permit or renewal thereof shall be valid beyond June 30, 1971, or the date on which section 202(b)(1) is superseded by improved mandatory health standards, whichever first occurs.

§ 501.6 Applications for renewal permits.

(a) To be considered by the panel, every application for a renewal permit must be:

(1) Filed with the panel not more than 90 days, nor less than 30 days prior to the expiration date of a permit;

(2) Submitted on the forms and in the manner prescribed in §§ 501.3 and 501.4.

(b) When an application for a renewal of a permit for noncompliance is received, the panel shall cause to be published in the FEDERAL REGISTER a notice giving any interested person an opportunity to file with the panel a request for a public hearing.

(c) On or before the 15th day after publication of notice in the FEDERAL REGISTER that an application for renewal has been accepted for consideration, any interested person may file a request with the panel for a public hearing.

(d) Requests for hearing shall be submitted in triplicate to the panel, shall be in writing, and signed by the person making the request.

(e) A request for hearing shall be accepted only if:

(1) It states the interest in the application of the person making the request;

(2) It alleges specific facts which raise a substantial issue and, if established at the hearing, would result in the denial or modification of the permit.

(f) If the request for hearing is denied, the panel shall inform the person making the request in writing of the reasons therefor.

(g) If the request for hearing is granted, the panel shall publish in the FEDERAL REGISTER a notice of hearing which sets forth the date, time and place of such hearing. Notice of such hearing will be mailed to the person requesting the hearing. Notice of hearing will also be mailed to the applicant at his last known address together with a copy of the request for hearing.

(h) After public hearing, or if no hearing has been requested pursuant to paragraph (c) of this section, the panel shall make its determination.

§ 501.7 Request for hearing on renewal permit by applicant.

(a) Where the panel has not received a timely and sufficient request for hearing by an interested person and has reason to believe that it will deny a renewal permit on the basis of the evidence of record, it will, prior to the denial of such permit, give notice in writing, to the applicant, of its intention to deny the permit, the reasons therefor, and an opportunity to request a public hearing.

(b) On or before the 15th day after such notice, the applicant may file a request with the panel for a public hearing.

(c) Requests for hearing shall be submitted in triplicate to the panel, shall be in writing, and signed by the applicant.

(d) A request for hearing shall be accepted only if it contains allegations which, if established, would result in the issuance of the renewal permit at a respirable dust level greater than that shown in the application to be possible.

[F.R. Doc. 70-3980; Filed, Mar. 30, 1970; 10:23 a.m.]

*Change the word "by" to "inby".

APPENDIX B.--INTERIM COMPLIANCE PANEL FORMS

Directions for Filling Out Interim Compliance Panel Forms, ICP Form 1 and 1(a)

1. Use typewriter or ball-point pen to fill out the application forms. If done by hand, print, except for signature.

2. Submit the original and one copy of ICP Form 1, signed by the operator or his authorized representative. Form ICP 1 needs to be made out once for each mine each time an application for noncompliance is submitted.

3. Submit the original and one copy of ICP Form 1(a) for each working section for which a permit for noncompliance is being requested. Each of these is to be signed by a certified engineer and by the operator or his authorized representative.

4. If additional space is needed for explanation or for plans, use extra sheets (original plus one copy).

5. Regarding Part F "Dust Samples," comply with all parts of ICP Regulation Section 501.4(c)(4). Sample locations are:

   A. Intake air--one sample--within 200' outby the working faces of the section.

   B. Conventional Mining: All samples shall be taken on the operator of the cutting machine or on the cutting machine within 36" inby the operator's normal working position.

   C. Continuous Mining: All samples taken on the operator of the continuous miner or on the continuous mining machine within 36" inby the operator's normal working position.

   D. Long Wall Mining: Samples taken on miner who works nearest return air side of the long wall face or at a site located in the return air current no farther than 48" from the corner of the return side on the long wall face.

   E. Hand loading: Sample 10% of hand loaders but in no case less than one, or locate at site of maximum concentration of dust in which the miners work.

   F. If two or more mechanized units are used in a working section, sample each unit as in B and C, above.

6. If approved personal samplers are used for dust survey, multiply results by 1.60 to convert to the MRE equivalent.

7. Additional copies of the application forms (ICP Form 1 and ICP Form 1(a)) may be obtained from the Interim Compliance Panel, 1730 K Street, N.W., Washington, D.C. 20006, or from the U.S. Bureau of Mines Coal Mine Safety District and Subdistrict offices.

ICP FORM NO. 1

Budget Bureau No. 152-R0001 Approval Expires 6-30-71

For ICP use only

INTERIM COMPLIANCE PANEL APPLICATION FOR A PERMIT FOR NONCOMPLIANCE

with Interim Mandatory Health Standards
Federal Coal Mine Health and Safety Act of 1969

SEND ORIGINAL AND ONE COPY TO ICP.

Check: Application is for

☐ Initial Permit ☐ Renewal of Permit

A. NAME OF MINE OWNER

ADDRESS

CITY COUNTY STATE ZIP

AUTHORIZED REPRESENTATIVE TELEPHONE NO.

B. NAME OF MINE

USBM ID #

ADDRESS

CITY COUNTY STATE ZIP

NAME OF OPERATOR TELEPHONE NO.

C. Date when notice of this application was posted on the mine bulletin board. DATE

D. Request for a permit for noncompliance with the Interim Mandatory Health Standards is made for the working places in the following working section(s): (Attach a separate description for each section listed on forms provided and in the manner specified.)

	Identification of working section (to relate to mine map)	Bureau of Mines Section Identification Number	Estimated life of Section from 7/1/70 (months)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

SIGNATURE OF MINE OPERATOR OR HIS AUTHORIZED REPRESENTATIVE DATE

ICP FORM NO. 1(a)

Budget Bureau Number: 152-R0001 Approval Expires 6-30-71

For ICP use only

INTERIM COMPLIANCE PANEL WORKING SECTION INFORMATION

The following information is provided as a basis for the request for a PERMIT FOR NONCOMPLIANCE for the working section identified below.

A. REASON FOR THIS REQUEST (See 202(c)(1) P.L. 91-173)

(Check appropriate reasons listed below and explain on separate sheet)

1. Technology for reducing the concentration of respirable dust to the interim mandatory standard is not available. ☐
2. Lack of other effective control techniques. ☐
3. Any combination of such reasons. ☐

B. 1. Name of Mine USBM ID No.

2. Working Section USBM ID No.

3. Number of men regularly employed per production shift. 4. Number of production shifts per day.

C.

Mining Practice	Conventional	Continuous	Longwall	Hand Loading	Other (Specify)
Developing					
Retreating					

Haulage	Tractor	Shuttle Car	Belt Conveyor	Chain Conveyor	Track	Other (Specify)
Face						
Secondary						
Main						
Other (Specify)						

D. 1. Section Ventilation Total Air Quantity (cfm)

Number of Entries: Intake:_____ Entering In last open

Return:_____ Section_____ crosscut_____

Stoppings	Metal	Block	Wood	Plastic	Cloth	Other (Specify)
Permanent						
Temporary						

2. Face Ventilation: Entry Size Air at Face

Height_____ Velocity (fpm) _____

Width _____ Quantity (cfm) _____

Direction: Exhausting ☐ Blowing ☐

Additional face ventilation practices: (Specify and describe)_____

Initial ☐
Renewal ☐

For ICP use only

INTERIM COMPLIANCE PANEL

E. OTHER DUST CONTROL PRACTICES

1. Water ☐ 2. Other (Specify) ☐

Describe practice(s) checked above (use additional sheets as needed)

F. ENGINEERING SURVEY (Provide the results of six dust samples obtained in the manner and with the equipment prescribed by ICP Regulations 501.4(c)(4)).

1. Equipment Used (give manufacturer's name and equipment number)

a. Pump Assembly _____

b. Sampling Head _____

Include statement of Applicant's Ability to reduce the dust levels therein.

2. Sample Results

Sampling Date	Sample Location*	mgm/m³
1	Intake	
2		
3		
4		
5		
6		

Average dust concentration (do not include intake air) _____ mgm/m³

*Sample location: (see instructions) INTAKE AIR: within 200' outby working faces. CONVENTIONAL MINING: on cutting machine or on operator of CM. CONTINUOUS MINING: on continuous miner or on operator of CMM. LONGWALL MINING: on miner working nearest return air side or on adjacent wall of return air side of the longwall face. HAND LOADING: on 10% but not less than one hand loader or located at site of maximum dust concentration where miners will work.

For ICP use only

Initial ☐
Renewal ☐

INTERIM COMPLIANCE PANEL

G. Plans to Achieve Compliance (Describe—Include methods and equipment to be used, the estimated date that compliance will be accomplished and attach copies of orders for equipment, if any, including estimated dates of delivery.)

H. I have reviewed the foregoing information and certify that it is true and correct to the best of my knowledge.

(Signature) _____
Operator or his authorized representative

Engineer's Seal and Certificate No. (Signature) _____
Certified Engineer

_____
Engineer's Address

_____
City County State

_____ Zip Code _____
Engineer's Phone No.

Anyone who makes any false statement in this application is subject to the penalties provided in Section 109(d) Federal Coal Mine Health and Safety Act of 1969, P.L. 91-173.

Title 30—MINERAL RESOURCES

Chapter I—Bureau of Mines, Department of the Interior

SUBCHAPTER O—COAL MINE HEALTH AND SAFETY

PART 74—COAL MINE DUST PERSONAL SAMPLER UNITS

Section 202(a) of the Federal Coal Mine Health and Safety Act of 1969 provides for the taking of samples of the respirable dust in coal mine atmospheres by a device approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare. Accordingly, Part 74, reading as set forth below, is added to Subchapter O of Chapter I, Title 30, Code of Federal Regulations. This part sets forth the requirements which must be met by approved coal mine dust personal sampler units. It is important that sampler units meeting these requirements be produced as quickly as possible. Therefore, it would not be in the public interest either to give notice of proposed rulemaking on, or to delay the effective date of, Part 74. Accordingly, Part 74 shall become effective upon its publication in the FEDERAL REGISTER.

WALTER J. HICKEL,
Secretary of the Interior.

ROBERT H. FINCH,
Secretary of Health, Education, and Welfare.

MARCH 6, 1970.

Sec.

AUTHORITY: The provisions of this Part 74 issued under sec. 508, Federal Coal Mine Health and Safety Act of 1969 (83 Stat. 803).

§ 74.1 Purpose.

The regulations in this part set forth the requirements for approval of coal mine dust personal sampler units designed to determine the concentrations of respirable dust in coal mine atmospheres; procedures for applying for such approval; test procedures; and labeling.

§ 74.2 Sampler unit.

A coal mine dust personal sampler unit shall consist of (a) a pump unit, (b) a sampling head assembly, and (c) if rechargeable batteries are used in the pump unit, a battery charger.

§ 74.3 Specifications of sampler unit.

(a) *Pump unit*—(1) *Dimensions.* The overall dimensions of the pump unit, hose connections and valve or switch covers shall not exceed 8 inches in height, 6 inches in width and 4 inches in thickness.

(2) *Weight.* The pump unit shall not weigh more than 4 pounds.

(3) *Construction.* The case and all components of the pump unit shall be of sufficiently durable construction to endure the wear of use in a coal mine and shall be tight fitting, so as to minimize the amount of dust entering the pump case.

(4) *Exhaust.* The pump shall exhaust into the pump case, maintaining a slight positive pressure which will reduce the entry of dust into the pump case.

(5) *Switch.* The pump unit shall be equipped with an on-off switch or equivalent device on the outside of the pump case. This switch shall be protected against accidental operation during use and protected to keep dust from entering the mechanisms.

(6) *Flow rate adjustment.* Except as provided in the last sentence of this subparagraph, the pump unit shall be equipped with a suitable means of flow rate adjustment accessible from outside the case. To prevent accidental adjustment, the flow rate adjuster shall be recessed in the pump case and shall require the use of an adjusting tool. If the pump is capable of maintaining the flow rate consistency required in this part without adjustment, an external flow rate adjuster is not required.

(7) *Battery.* The power supply for the pump shall be a suitable battery located in the pump case or in a separate case which attaches to the pump case by a permissible electrical connection.

(8) *Pulsation.* The irregularity in flow rate due to pulsation shall have a fundamental frequency of not less than 20 Hz.

(9) *Belt clips.* The pump unit shall be provided with a belt clip which will hold the pump securely on a coal miner's belt.

(10) *Recharging connection.* A suitable connection shall be provided so that the battery may be recharged without removing the battery from the pump case or from the battery case if a separate battery case is used.

(11) *Flow rate indicator.* A visual indicator of flow rate (e.g., a flowmeter) shall be provided either as an integral part of the pump unit or of the sampling head assembly. The flowrate indicator shall be calibrated within ±5 percent at 2, 1.8, and 1.6 liters per minute to indicate the rate of air passing through the accompanying sampling head assembly.

(12) *Flow rate range.* The pump shall be capable of operating in or over a range of from 1.5 to 2.5 liters per minute and shall be adjustable over this range.

(13) *Flow rate consistency.* The flow shall remain within ±0.1 liters per minute over an 8-hour period when the pump is operated at 2 liters per minute with a standard sampling head assembly. Not more than two readjustments of the flow rate to 2 liters per minute shall be required to maintain this accuracy.

(14) *Duration of operation.* The pump shall be capable of operating for not less than 8 hours at a flow rate of 2 liters per minute against a resistance of 4 inches of water measured at the inlet of the pump.

(b) *Sampling head assembly.* The sampling head assembly shall consist of a cyclone and a filter assembly as follows:

(1) *Cyclone.* The cyclone shall consist of a cyclone body with removable grit cap and a vortex finder and shall be constructed of nylon or a material equivalent in performance. The dimensions of the components, with the exception of the grit cap, shall be identical to those of a Dorr-Oliver 10 mm. cyclone body, part No. 28541/4A or 01B11476-01 and vortex finder, part No. 28541/4B.

(2) *Filter assembly.* The filter assembly shall meet the following requirements:

(i) *Filter.* The filter shall be a membrane filter type with a nominal pore size not over 5 microns. It shall be nonhydroscopic and shall not dissolve or decompose when emersed in ethyl or isopropyl alcohol. The strength and surface characteristics of the filter shall be such that dust deposited on its surface may be removed by ultrasonic methods without tearing the filter. The filter resistance shall not be more than 2 inches of water at an airflow rate of 2 liters per minute.

(ii) *Capsule.* The capsule enclosing the filter shall not permit sample air to leak around the filter. The capsule shall be made of nonhydroscopic material. Its weight, including the enclosed filter, shall not exceed 5 grams and it shall be preweighed by the manufacturer with a precision of ±0.1 milligrams. Impact to the capsule shall not dislodge any dust from the capsule, which might then be lost to the weight measurement.

(iii) *Cassette.* The cassette shall enclose the capsule so as to prevent contamination. The cassette must be easily removable without causing a loss or gain of capsule weight. Appropriate covers shall be provided to prevent contaminants from entering, or dust from leaving, the capsule when it is not in use.

(3) *Arrangement of components.* The connections between the cyclone vortex finder and the capsule and between the capsule and the ¼-inch (inside diameter) hose mentioned in subparagraph (5) of this paragraph shall be mechanically firm and shall not leak at a rate of more than 0.1 liters per hour under a vacuum of 4 inches of water.

(4) *Clamping of components.* The clamping and positioning of the cyclone body, vortex finder, and cassette shall be rigid, remain in alignment, be firmly in contact and airtight. The cyclone-cassette assembly shall be attached firmly to a backing plate or other means of holding the sampling head in position. The cyclone shall be held in position so that the inlet opening of the cyclone is pointing perpendicular to, and away from, the backing plate.

(5) *Hose.* A 3-foot long, ¼-inch (inside diameter) hose shall be provided to form an airtight connection between the inlet of the sampler pump and the outlet of the filter assembly. A device, capable of sliding along the hose and attaching to the miner's outer garment shall be provided.

(c) *Battery charger*—(1) *Power supply.* The battery charger shall be operated from a 117 volt, 60 Hz power line.

(2) *Connection.* The battery charger shall be provided with a cord and polarized connector so that it may be connected to the charge socket on the pump or battery case.

(3) *Protection.* The battery charger shall be fused, shall have a grounded power plug, and shall not be susceptible to damage by being operated without a battery on charge.

(4) *Charge rates.* The battery charger shall be capable of operating at either a 16-hour or a 64-hour charge rate. The battery charger shall be capable of fully charging the battery in the pump unit in the stated times and shall not overcharge a discharged battery in 16 hours when operating at the 16-hour charge rate or in 88 hours when operating at the 64-hour charge rate.

§ 74.4 Tests of coal mine dust personal sampler units.

(a) The Bureau of Occupational Safety and Health, Department of Health, Education, and Welfare, shall conduct tests to determine whether a coal mine dust personal sampler unit which is submitted for approval under these regulations meets the requirements set forth in § 74.3.

(b) The Bureau of Mines, Department of the Interior, will conduct tests, pursuant to § 18.68 of this chapter, to determine whether the pump unit of a coal mine dust personal sampler unit submitted for approval under these regulations is intrinsically safe.

§ 74.5 Conduct of tests; demonstrations.

Prior to the issuance of a certificate of approval, only personnel of the Bureau of Mines and Bureau of Occupational Safety and Health, representatives of the applicant, and such other persons as may be mutually agreed upon may observe the tests conducted. The Bureau of Mines and the Bureau of Occupational Safety and Health shall hold as confidential, and shall not disclose, principles of patentable features prior to certification, nor shall the bureaus disclose any details of the applicant's drawings or specifications or other related material. After the issuance of a certificate of approval, the Bureau of Mines or the Bureau of Occupational Safety and Health may conduct such public demonstrations and tests of the approved coal mine dust personal sampler unit as the bureau deems appropriate. The conduct of all investigations, tests, and demonstrations shall be under the sole direction of the Bureau of Occupational Safety and Health and the Bureau of Mines and any other persons shall be present only as observers.

§ 74.6 Applications.

(a) Testing of a coal mine dust personal sampler unit will be undertaken by the Bureau of Occupational Safety and Health, and testing of the pump unit of such a sampler unit will be undertaken by the Bureau of Mines, only pursuant to a written application in duplicate, each copy accompanied by complete scale drawings, specifications and description of materials. An application to the Bureau of Mines must be accompanied by a check, bank draft, or money order in the amount of $105, payable to the U.S. Bureau of Mines, to cover the fee specified in § 18.7 of this chapter. The applications, together with the drawings and specifications and any other related documents shall be sent to Bureau of Occupational Safety and Health, Department of Health, Education and Welfare, 1014 Broadway, Cincinnati, Ohio 45202, and to the Bureau of Mines, Department of the Interior, 4800 Forbes Avenue, Pittsburgh, Pa. 15213.

(b) Ten complete coal mine dust personal sampler units must be sent to the Bureau of Occupational Safety and Health in connection with an application. One pump unit must be sent to the Bureau of Mines in connection with an application.

(c) Drawings and specifications shall be adequate in number and fully detailed to identify the design of the coal mine dust personal sampler unit or pump unit thereof and to disclose the dimensions and materials of all component parts.

(d) An application shall describe the way in which each lot of components will be sampled and tested to maintain their quality prior to assembly of each sampler unit. In order to ensure that the quality of the coal dust personal sampler unit will be maintained in production through adequate quality control procedures, the Bureau of Occupational Safety and Health and the Bureau of Mines reserve the right to have their qualified personnel inspect each applicant's control-test equipment procedures, and records and to interview the employees who conduct the control tests. Two copies of the results of any tests made by the applicant on the coal mine dust personal sampler unit or the pump unit thereof shall accompany an application.

§ 74.7 Certificate of approval.

(a) Upon completion of the testing of a coal mine dust personal sampler unit or the pump unit thereof, the Bureau of Occupational Safety and Health or the Bureau of Mines, as appropriate, shall issue to the applicant either a certificate of approval or a written notice of disapproval, as the case may require. The Bureau of Occupational Safety and Health shall not issue a certificate of approval for a coal mine dust personal sampler unit unless the Bureau of Mines has issued a certificate of approval for the pump unit thereof. No informal notification of approval will be issued. If a certificate of approval is issued, no test data or detailed results of tests will accompany such approval. If a notice of disapproval is issued, it will be accompanied by details of the defects, resulting in disapproval, with a view to possible correction.

(b) A certificate of approval will be accompanied by a list of the drawings and specifications, covering the details of design and construction of the coal mine dust personal sampler unit or the pump unit thereof upon which the certificate of approval is based. The applicant shall keep exact duplicates of the drawings and specifications submitted to the Bureau of Occupational Safety and Health and to the Bureau of Mines relating to the sampler unit or pump unit thereof which has received a certificate of approval. The approved drawings and specifications shall be adhered to exactly in the production of the certified sampler unit, including the pump unit thereof, for commercial purposes. In addition, the applicant shall observe such procedures for, and keep such records of, the control of component parts as either bureau may in writing require as a condition of certification.

§ 74.8 Approval labels.

(a) Certificates of approval will be accompanied by photographs of designs for the approval labels to be affixed to each coal mine dust personal sampler unit.

(b) The labels showing approval by the Bureau of Occupational Safety and Health and by the Bureau of Mines shall contain such information as the appropriate bureau may require and shall be reproduced legibly on the outside of a sampler unit as directed by the appropriate bureau.

(c) The applicant shall submit full-scale designs or reproductions of approval labels and a sketch or description

of the position of the labels on each unit.

(d) Use of the approval labels obligates the applicant to whom the certificates of approval were issued to maintain the quality of the complete coal mine dust personal sampler unit and to guarantee that the complete sampler unit is manufactured or assembled according to the drawings and specifications upon which the certificates of approval were based. Use of the approval labels is authorized only on sampler units which conform strictly with the drawings and specifications upon which the certificates of approval were based.

§ 74.9 Material required for record.

(a) As part of the permanent record of the investigation, the Bureau of Occupational Safety and Health will retain a complete coal mine dust personal sampler unit, and the Bureau of Mines will retain a pump unit, that has been tested and certified. Material not required for record purposes will be returned to the applicant at his request and at his expense on written shipping instructions to the appropriate bureau.

(b) As soon as a coal mine dust personal sampler unit is commercially available, the applicant shall deliver a complete unit free of charge to the Bureau of Occupational Safety and Health, Department of Health, Education, and Welfare, 1014 Broadway, Cincinnati, Ohio 45202.

§ 74.10 Changes after certification.

(a) If the applicant desires to change any feature of a certified coal mine dust personal sampler unit, he shall first obtain the approval of the Bureau of Occupational Safety and Health pursuant to the following procedures:

(1) Application shall be made as for an original certificate of approval, requesting that the existing certification be extended to encompass the proposed change. The application shall be accompanied by drawings, specifications and related material, as in the case of an original application.

(2) The application and accompanying material will be examined by the Bureau of Occupational Safety and Health to determine whether testing of the modified sampler unit or components will be required. Testing will be necessary if there is a possibility that the modification may affect the performance of the sampler unit adversely. The Bureau of Occupational Safety and Health will inform the applicant whether such testing is required.

(3) If the proposed modification meets the pertinent requirements of these regulations, a formal extension of certification will be issued, accompanied by a list of new and revised drawings and specifications to be added to those already on file as the basis for the extension of certification.

(b) If a change is proposed in a pump unit of a certified coal dust personal sampler unit, the approval of the Bureau of Mines with respect to intrinsic safety shall be obtained in accordance with the procedures set forth in paragraph (a) of this section.

§ 74.11 Withdrawal of certification.

The Bureau of Occupational Safety and Health or the Bureau of Mines may rescind, for cause, any certificate of approval which the respective bureau has issued under the regulations in this part.

[F.R. Doc. 70-2968; Filed, Mar. 10, 1970; 8:49 a.m.]

Title 30—MINERAL RESOURCES

Chapter I—Bureau of Mines, Department of the Interior

SUBPART O—COAL MINE HEALTH AND SAFETY

PART 70—MANDATORY HEALTH STANDARDS — UNDERGROUND COAL MINES

Part 70, reading as set forth below, is added to Subchapter O of Chapter 1, Title 30, Code of Federal Regulations. In addition to provisions relating to sampling respirable dust in coal mine atmospheres, this part sets out certain mandatory health standards contained in title II of the Federal Coal Mine Health and Safety Act of 1969, interpretations thereof, and statements with respect to respiratory equipment approved by the Secretary of the Interior and the Secretary of Health, Education, and Welfare. It is impracticable to give notice of proposed rulemaking with respect to the provisions relating to sampling respirable dust because of the limitations of time imposed by section 202(a) of the Act in this regard.

Part 70 shall become effective on June 30, 1970.

WALTER J. HICKEL,
Secretary of the Interior.

ROBERT H. FINCH,
Secretary of Health, Education, and Welfare.

APRIL 1, 1970.

AUTHORITY: The provisions of this Part 70 issued under title II, and sec. 508 of the Federal Coal Mine Health and Safety Act of 1969 (83 Stat. 742).

Subpart A—General

§ 70.1 Scope.

This Part 70 sets forth health standards compliance with which is mandatory in each underground coal mine subject to the Federal Coal Mine Health and Safety Act of 1969. Regulations supplementary to these standards also are set forth in this part.

§ 70.2 Definitions.

For the purpose of this Part 70, the term—

(a) "Certified" or "registered" as applied to any person means a person certified or registered by the State in which the coal mine is located to perform duties prescribed by such titles, except that, in a State where no program of certification or registration is provided or where the program does not meet at least minimum Federal standards established by the Secretary, such certification or registration shall be by the Secretary;

(b) "Qualified person" means, as the context requires, an individual deemed qualified by the Secretary and designated by the operator to make tests and examinations required by this Act; and

(c) "Permissible" as applied to equipment used in the operation of a coal mine, means equipment, other than permissible electric face equipment, to which an approval plate, label, or other device is attached as authorized by the Secretary for the construction and maintenance of such equipment and are designed to assure that such equipment will not cause a mine explosion or a mine fire;

(d) "Working face" means any place in a coal mine in which work of extracting coal from its natural deposit in the

earth is performed during the mining cycle;

(e) "Working place" means the area of a coal mine inby the last open crosscut;

(f) "Working section" means all areas of the coal mine from the loading point of the section to and including the working face; when two or more mechanized mining sections (as defined in § 75.319–1 of Part 75, Subchapter O this chapter) are engaged in the production of coal within the same working section, each such mechanized mining section shall be considered a separate "working section" for the purpose of this Part 70;

(g) "Active workings" means any place in a coal mine where miners are normally required to work or travel;

(h) "Normal production shift" (as differentiated from a maintenance shift) means a shift during which the amount of coal produced in a working section is representative of the average amount of coal produced in such working section during all production shifts worked during the life of such working section or during the 6 months immediately preceding such production, whichever is the shorter period. With regard to a new working section, a "normal production shift" means a shift during which the amount of coal produced is comparable to the amounts produced during "normal production shifts" in other comparable working sections.

(i) "Respirable dust" means only dust particulates 5 microns or less in size;

(j) "Coal mine" includes areas of adjoining mines connected underground;

(k) "Secretary" means the Secretary of the Interior or his delegate;

(l) "Act" means the Federal Coal Mine Health and Safety Act of 1969;

(m) "Concentrations of respirable dust" means the average concentration of respirable dust if measured with an MRE instrument or such equivalent concentrations if measured with another device approved by the Secretary and the Secretary of Health, Education, and Welfare;

(n) "MRE instrument" means the gravimetric dust sampler with four channel horizontal elutriator developed by the Mining Research Establishment of the National Coal Board, London, England; and

(o) "Average concentration" means a determination which accurately represents the atmospheric conditions with regard to respirable dust to which each miner in the active working of a mine is exposed (1) as measured, during the period ending June 30, 1971, over a number of continuous production shifts to be determined by the Secretary and the Secretary of Health, Education, and Welfare and (2) as measured thereafter, over a single shift only, unless the Secretary and the Secretary of Health, Education, and Welfare find, in accordance with the provisions of § 101 of the Act, that such single shift measurement will not, after applying valid statistical techniques to such measurement, accurately represent such atmospheric conditions during such shift.

Subpart B—Dust Standards

§ 70.100 Dust standards; respirable dust.

(a) Effective June 30, 1970, each operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the active workings of such mine is exposed at or below 3.0 milligrams of respirable dust per cubic meter of air.

(b) Effective December 30, 1972, each operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the active workings of such mine is exposed at or below 2.0 milligrams of respirable dust per cubic meter of air.

(c) An operator need not comply with paragraph (a) or paragraph (b) of this section during the period of time specified in a permit of noncompliance issued by the Interim Compliance Panel established by the Act, but during that period the operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the active workings of the mine is exposed at or below the limit specified in the permit of noncompliance.

Subpart C—Sampling Procedures

§ 70.201 Sampling; general requirement.

Each operator of a coal mine shall, as prescribed in this Part 70, take accurate samples of the amount of respirable dust in the mine atmosphere to which each miner in the active workings of such mine is exposed.

§ 70.202 Sampling; by whom done.

The dust sampling required by this Part 70 shall be done by, or as directed by, a person—

(a) Who has had practical experience in an underground coal mine;

(b) Who has a working knowledge of the mining equipment employed in the mine in which samples are taken;

(c) Who has a working knowledge of the coal mine ventilation system in the mine in which samples are taken;

(d) Who has a working knowledge of the operation and care of the sampling devices mentioned in § 70.203 and the filters employed in such devices; and

(e) Who has satisfactorily completed a course approved by the Secretary in sampling and evaluation of respirable coal mine dust concentrations with the sampling devices mentioned in § 70.203.

§ 70.203 Approved sampling devices.

Except as provided in § 70.204, the samples which this Part 70 requires to be taken shall be taken only with a coal mine dust personal sampler unit approved under Part 74 of this chapter or with an MRE instrument.

§ 70.204 Approved sampling devices; existing coal mine dust personal sampler units.

(a) Coal mine dust personal sampler units in use on or before June 30, 1970, which contain any combination of the pumps, sampling head assemblies and battery chargers listed in paragraphs (b), (c), and (d) of this section may be used until January 1, 1971, to take samples of respirable dust as required by this Part 70.

(b) The following battery operated pump units approved by the Bureau of Mines for intrinsic safety under the provisions of Part 18 of this chapter (Bureau of Mines Schedule 2F and 2G):

(1) Cassella, Ltd., Willson Products Division, Post Office Box 622, Reading, Pa. 19603: Mark II, Model B;

(2) Mine Safety Appliances Co., 201 North Braddock Avenue, Pittsburgh, Pa. 15208: Model G;

(3) UNICO Environmental Instruments, Inc., 150 Cove Street, Fall River, Mass. 02720: Model C110.

(c) The following sampling head assemblies:

(1) Mine Safety Appliances Co., 201 North Braddock Avenue, Pittsburgh, Pa. 15208: Gravimetric Dust Sampler;

(2) UNICO Environmental Instruments, Inc., 150 Cove Street, Fall River, Mass. 02720: Respirable Mass Lapel Sampler;

(3) Any other sampling head assembly employing the following components:

(i) A Dorr-Oliver nylon cyclone, a nylon vortex finder and a grit cap, as specified in subparagraph (1), paragraph (b) of § 74.3 of Part 74 of this chapter;

(ii) A filter assembly, as specified in subparagraph (2), paragraph (b) of § 74.3 of Part 74 of this chapter, except the filter assembly need not meet the prewelght specification prescribed in that subparagraph.

(d) A battery charger designated as appropriate by the manufacturer of the pump unit employed in the particular coal mine dust sampler unit.

§ 70.205 Approved sampling devices; operation, rates of air flow.

An approved coal mine dust personal sampler unit shall be operated at a flow rate of 2.0 liters of air per minute. An MRE instrument shall be operated at a flow rate of 2.5 liters of air per minute.

§ 70.206 Approved sampling devices; equivalent concentrations.

The concentration of respirable dust expressed in milligrams per cubic meter of air shall be determined by dividing the weight of dust in milligrams collected on the filter by the volume of air in cubic meters passing through the filter. To convert a concentration of respirable dust as measured with an approved coal mine dust personal sampler unit to an equivalent concentration of respirable dust as measured with an MRE instrument, the concentration of respirable dust measured with an approved coal mine dust personal sampler unit shall be multiplied

by a constant factor of 1.6 and the product shall be the equivalent concentration as measured with an MRE instrument.

ORIGINAL DETERMINATION OF RESPIRABLE DUST CONCENTRATION

§ 70.210 Original sampling cycle; establishment of basic sample.

(a) Samples of respirable dust with respect to each working section of a coal mine shall be taken on 10 consecutive normal production shifts, each of which is worked on a separate calendar day, beginning with a normal production shift completed on or after June 30, 1970, except that, with respect to working sections located in multisection mines, original sampling may be conducted in accordance with the provisions of § 70.241 of this part. An original sampling cycle shall be begun with respect to each working section of a coal mine no later than the 11th day upon which normal production shifts are worked in that section. For each working section, this series of 10 samples, or a series of 10 samples submitted in accordance with the provisions of § 70.230 of this part, shall constitute the basic sample with respect to that working section.

(b) Where a working section is opened after June 30, 1970, the original sampling cycle required in accordance with the provisions of paragraph (a) of this section shall be begun on a normal production shift (as defined in § 70.220) on the first production day in such working section and thereafter on consecutive production shifts (as defined in § 70.220).

§ 70.211 Violation of dust standard; original sampling cycle.

(a) If the data recorded pursuant to § 70.261 for an original sampling cycle with respect to a working section of a coal mine establish a cumulative concentration of respirable dust in excess of the cumulative concentration stated in paragraph (b) of this section with respect to the particular applicable limit, without regard to the number of samples analyzed, the Secretary shall issue a notice to the operator that he is in violation of paragraph (a) or paragraph (c) of § 70.100 of this Part 70. Paragraph (a) of § 70.100 prescribes a limit of 3.0 milligrams of respirable dust per cubic meter of air. Paragraph (c) of § 70.100 covers permits for noncompliance issued by the Interim Compliance Panel established by the Act. Such a permit may establish a limit of 4.5 milligrams, 4.0 milligrams, or 3.5 milligrams.

(b) The cumulative concentration of respirable dust recorded from samples which establish noncompliance with a particular applicable limit may be as follows:

(1) If, when a limit of 4.5 milligrams per cubic meter of air is in effect, the cumulative concentration exceeds 45 milligrams of respirable dust per cubic meter of air;

(2) If, when a limit of 4.0 milligrams per cubic meter of air is in effect, the cumulative concentration exceeds 40 milligrams of respirable dust per cubic meter of air;

(3) If, when a limit of 3.5 milligrams per cubic meter of air is in effect, the cumulative concentration exceeds 35 milligrams of respirable dust per cubic meter of air;

(4) If, when a limit of 3.0 milligrams per cubic meter of air is in effect, the cumulative concentration exceeds 30 milligrams of respirable dust per cubic meter of air.

(5) If, when any limit, other than those stated in subparagraphs (1), (2), (3), and (4) of this paragraph, is in effect under a permit for noncompliance, the cumulative concentration exceeds 10 times the specified limit of respirable dust per cubic meter of air.

STANDARD SAMPLING CYCLE

§ 70.220 Standard sampling cycle.

(a) (1) Except as provided in subparagraph (2) of this paragraph, during the calendar month beginning on the day the operator receives notice that a working section of a coal mine is in compliance, samples of respirable dust with respect to that working section shall be taken each calendar month thereafter during five consecutive normal production shifts, each of which is worked on a separate calendar day.

(2) In order to ensure that the procedures and methods for sampling set forth in this part result in the transmission of an adequate number of reliable samples, the Secretary, with the concurrence of the Secretary of Health, Education, and Welfare, may require any operator of a coal mine to sample at more frequent intervals than are prescribed in subparagraph (1) of this paragraph.

(3) Upon the issuance of a notice of violation of paragraph (a) or (c) of § 70.100 of this part with respect to any working section of a coal mine, paragraph (a) of this section shall not apply in respect of that working section until the violation is abated, and the operator shall take samples with respect to that working section during each production shift as required by § 104(i) of the Act.

(4) Upon receipt of a notice of the abatement of a violation with respect to a working section for which a notice of violation has been issued in accordance with the provisions of § 104(i) of the Act, or upon receipt of a notice of modification of a permit for noncompliance establishing a new dust standard, or upon the expiration of a permit for noncompliance, the operator shall initiate (in accordance with provisions of § 70.210) an original sampling cycle on the first day following receipt of such notice or such expiration on which there is a normal production shift.

(b) For the purpose of this Subpart C:

(1) "normal production shift" (as differentiated from a maintenance shift) means a shift during which the amount of coal produced in a working section is representative of the average amount of coal produced in such working section during all production shifts worked during the life of such working section or during the six months immediately preceding such production, whichever is the shorter period. With regard to a new working section, a "normal production shift" means a shift during which the amount of coal produced is comparable to the amounts produced during normal production shifts in other comparable working sections.

(2) A production shift during a calendar day (for example, the day shift on June 4) following a production shift during an earlier calendar day (for example, the afternoon shift on June 1) shall be considered consecutive production shifts even though a nonproducing calendar day or days (June 2 and June 3) may have intervened.

(3) The calendar month with respect to any working section for which a basic sample has been established pursuant to § 70.210 shall begin on the day upon which the operator receives notice from the Secretary that the working section is in compliance.

(4) A calendar month (regardless of whether the month or months of the calendar involved have 28, 29, 30, or 31 days) is a period terminating with the day of the succeeding month (of the calendar) numerically corresponding to the day (date) of its beginning, less one, except, if there be no corresponding day of the succeeding month, the period terminates with the last day of the succeeding month. (For example, if the calendar month begins on July 20, it ends on August 19 of the same year and on the 19th day of each succeeding month.)

§ 70.221 Daily determination of average respirable dust concentrations; notice of violation.

(a) Each sample transmitted by an operator with respect to a working section from the standard sampling cycle shall be combined with the 10 samples taken in such working section during the original sampling cycle. After combining these 11 samples, the first sample transmitted during the original sampling cycle shall be discarded. The remaining 10 samples will then constitute a current basic sample with respect to that working section and a daily determination of compliance or noncompliance shall be made on the basis of the data recorded from the 10 samples contained in the current basic sample. Thereafter, as each subsequent sample is received during a standard sampling cycle the most recent sample transmitted in accordance with the provisions of § 70.220 will be combined with the 10 samples contained in the current basic sample, the oldest sample discarded, and a determination of compliance or noncompliance made on the basis of the data recorded from the current basic sample.

(b) If the data recorded pursuant to § 70.261 for a current basic sample with respect to a working section of a coal mine establish an average concentration of respirable dust in excess of the average concentration stated in paragraph (b) of § 70.211, as applicable, the Secretary shall issue a notice to the operator that he has exceeded the applicable limit and is in violation of paragraph (a) or paragraph (c) of § 70.100 of this Part 70, as

the case may be. Paragraph (a) of § 70.100 prescribes a limit of 3.0 milligrams of respirable dust per cubic meter of air. Paragraph (c) of § 70.100 covers permits for noncompliance issued by the Interim Compliance Panel established by the Act.

§ 70.222 Reduction in monthly standard sampling cycle.

(a) Where the samples from a standard sampling cycle with respect to a working section of a coal mine have been included in the current basic sample and the data recorded for the current basic sample pursuant to § 70.261 establish a cumulative concentration at or below 30 milligrams of respirable dust per cubic meter of air, the Secretary may in writing, establish an alternating sampling cycle for such working section.

(b) Under an alternating standard sampling cycle established by the Secretary for a working section under the provisions of paragraph (a) of this section, the operator will not be required to take samples with respect to that working section during the following calendar month. If the current basic sample following completion of a standard sampling cycle during the third month shows that the cumulative concentration of respirable dust with respect to that working section has not exceeded the limit of 30 milligrams per cubic meter of air, the operator will not be required to take samples from the working section during the following month or during any alternating months after which a determination of compliance has been made in accordance with the provisions of paragraph (c) of § 70.221. For example:

July, basic sample in compliance: August, standard sampling cycle;
September, no sampling cycle: October, standard sampling cycle;
November, no sampling cycle: December, standard sampling cycle;
January, no sampling cycle: February, standard sampling cycle;
March, no sampling cycle: April, standard sampling cycle;
May, no sampling cycle: June, standard sampling cycle.

§ 70.223 Alternating standard sampling cycle; return to monthly standard sampling cycle.

When an alternating standard sampling cycle has been established for a working section under the provisions of § 70.222, the operator shall revert to the original sampling cycle provided in § 70.210, if, at any time, analysis of the samples contained in the current basic sample or an analysis based on a Bureau of Mines inspection with respect to such section show the cumulative dust concentration to be in excess of the limit of 30 milligrams per cubic meter of air.

PARTIAL SAMPLING CYCLE

§ 70.230 Sampling cycles consisting of less than the required samples; general.

(a) If the Secretary fails to recive the number of valid samples with respect to a working section required under the provisions of § 70.210 or § 70.220, or if any number of samples taken during a sampling cycle in accordance with the provisions of § 70.210 or § 70.220 have been rejected by the Secretary as invalid samples, the Secretary shall, in accordance with the provisions of § 70.261, analyze the samples transmitted to determine whether such working section is in compliance with the applicable respirable dust limit.

(b) If the Secretary receives less than the required number of valid samples with respect to a working section, and has determined in accordance with the provisions of paragraph (a) of this section that the cumulative concentration of respirable dust does not exceed the applicable limit set forth in paragraph (b) of § 70.211, the Secretary shall require the operator to initiate additional sampling. Upon receipt of advice that additional sampling is required, the operator shall commence such sampling on the first day on which there is a production shift following the day upon which he receives such advice from the Secretary pursuant to this paragraph, and shall continue to take such consecutive samples until he is advised in writing by the Secretary that the total number of valid samples required have been received. If such additional sampling requires that samples be taken during a subsequent calendar month, the additional samples taken during the subsequent calendar month shall not relieve the operator of his duty to sample during that month in accordance with the provisions of § 70.220.

(c) Where additional sampling is required under the provisions of paragraph (b) of this section and the Secretary receives more than the number of samples required under the provisions of § 70.210 or § 70.220 of this part, such additional samples shall be combined with the samples previously received and the most recent 10 samples shall constitute the basic sample under § 70.210 or the current basic sample under § 70.210.

(d) As additional samples are received by the Secretary in accordance with paragraph (b) of this section and combined with the valid samples already received, a daily determination of compliance or noncompliance shall be made with respect to that working section. If the data recorded pursuant to § 70.261 with respect to that working section, establish a cumulative concentration of respirable dust in excess of the cumulative concentration stated in paragraph (b) of § 70.211 with respect to the particular applicable limit, the Secretary shall issue a notice to the operator that he is in violation of paragraph (a) or paragraph (c) of § 70.100 of this Part 70.

METHODS OF SAMPLING WORKING SECTIONS

§ 70.240 Monthly sampling procedures; general.

The monthly sampling procedures set forth in this part with respect to working sections are designed to determine the average concentration of respirable dust to which the miners assigned to a working section of a coal mine are exposed, portal to portal. Accordingly, a provision that samples of respirable dust be taken "with respect to" a working section means that an approved sampling device should be attached to the miner or carried into the working section to which he is assigned when he enters or leaves the mine and that the device should remain operative during the entire shift—portal to portal.

§ 70.241 Multisection mines.

In a coal mine in which there are two or more working sections, the sampling cycle with respect to each working section shall be staggered with those taken in other working sections to provide continuous sampling of the mine atmosphere. For example, if there are three working sections, samples from each working section should be taken during different time periods. In order to provide continuous sampling, staggered sampling cycles may be overlapped.

§ 70.242 Working sections; conventional mining.

(a) Unless otherwise directed by an authorized representative of the Secretary, in a working section in which conventional mining methods are employed, the samples taken in the working section shall be confined to the operation of the cutting machine.

(b) In the working section, the approved sampling device may remain on the operator (if it is a coal mine dust personal sampler unit) or be placed on the machine which he operates. If the sampling device is placed on a machine, the device shall be installed adjacent to the operator within 36 inches inby his normal working position. In no case shall the device be installed behind the operator.

§ 70.243 Working sections; continuous mining.

Unless otherwise directed by an authorized representative of the Secretary:

(a) In a working section in which a continuous mining machine is employed, the approved sampling device may remain on the operator (if it is a coal mine dust personal sampler unit) or be placed on the machine which he operates; and

(b) If the sampling device is placed on a machine, the device shall be installed adjacent to the operator within 36 inches inby his normal working position. In no case shall the device be installed behind the operator.

§ 70.244 Working sections; longwall mining.

Unless otherwise directed by an authorized representative of the Secretary, with respect to a working section in which a longwall mining machine is used, the miner who workers nearest the return air side of the longwall face may wear the approved sampling device (if it is a coal mine dust personal sampler unit) or the device may be placed at a point in the return air current but in no case farther than 48 inches from the corner on the return side on the longwall face.

§ 70.245 Working sections; hand loading.

(a) With respect to a working section in which coal is loaded by hand, 10 percent of the hand loaders, and in no case less than one hand loader, shall wear an approved coal mine dust personal sampler unit.

(b) In the working section, the sampling units may remain on the hand loaders or, the devices may be placed at sites which represent the maximum concentrations of dust to which the hand loaders are exposed in the working section.

§ 70.246 Working sections; intake air.

During one production shift in every sampling cycle with respect to a working section, an approved sampling device shall be placed in the intake air course of that working section and a sample will be taken within 200 feet outby the working faces of such section.

SAMPLING OF INDIVIDUAL MINERS

§ 70.250 Individual sampling procedures; at least once every 180 days.

(a) Except as provided in paragraphs (b) and (c) of this section, one sample of respirable dust shall be taken from the mine atmosphere to which each individual miner is exposed at least once every 180 days, except those miners already sampled during such 180-day period in sampling cycles conducted under the provisions of §§ 70.210, 70.220, and 70.230.

(b) One sample of respirable dust shall be taken from the mine atmosphere to which each individual miner assigned to a working section is exposed at least once every 120 days, except those miners already sampled during such 120-day period in sampling cycles conducted under the provisions of §§ 70.210, 70.220, and 70.230 of this part.

(c) One sample of respirable dust shall be taken from the mine atmosphere to which each individual miner who has exercised his option to transfer in accordance with the provisions of § 203(b)(1) of the Act is exposed at least once every 90 days.

(d) The samples required under the provisions of this section shall be taken during any shift where the miner is employed in his usual occupation or in the occupation to which he was transferred.

TRANSMISSION AND ANALYSIS OF SAMPLES

§ 70.260 Respirable dust samples; transmission.

(a) At the conclusion of each production shift in a sampling cycle, the operator shall promptly collect and transmit all samples in a container provided by the manufacturer of the filter to:

Pittsburgh Field Health Group, Bureau of Mines, Department of the Interior, Pittsburgh, Pa. 15213.

(b) Each sample shall be accompanied by a completed 3 x 5 inch white data card identical to the card contained in Figure 1 of this Part 70, provided for this purpose by the cassette manufacturer. The card shall have an identification number identical to that on the cassette used to take the sample, and the name and Social Security number of the miner whose environment was being sampled. The data card shall be initialed by the miner whose environment was being sampled and the representative of the company responsible for the dust sampling procedure.

§ 70.261 Respirable dust samples; analysis by the Secretary; report to the operator.

Upon receipt by the Bureau of Mines of respirable dust samples taken with respect to a working section, each sample shall be analyzed and the following data shall be recorded:

(a) The mine identification number;

(b) The working section within the mine from which the samples were taken;

(c) The dust concentration, expressed in milligrams per cubic meter of air, for each sample;

(d) The cumulative total of respirable dust for all valid samples, exclusive of intake air, expressed in milligrams per cubic meter of air;

(e) The average dust concentration for all valid samples, exclusive of the sample of intake air, expressed in milligrams per cubic meter of air;

(f) The dust concentration, expressed in milligrams per cubic meter of air, for the intake air sample of each working section; and,

(g) The Social Security number of the individual miner whose environment was sampled.

§ 70.262 Report of data.

The Secretary shall provide the operator with a report of the data recorded pursuant to § 70.261 as soon as practicable.

MISCELLANEOUS

§ 70.270 Installation of sampling devices.

For purposes of sampling under the provisions of Subpart C of this part, the operator shall install all MRE sampling devices in a near level position and all coal mine dust personal sampler units in a near upright or vertical position.

§ 70.271 Spot inspections.

In order to obtain compliance with the provision of Part 70, the Bureau of Mines shall conduct frequent spot inspections of the active workings of coal mines.

§ 70.272 Report and certification of conditions in active mine workings.

Each operator of a coal mine shall, on or before June 30, 1970, and annually thereafter on the anniversary date of each initial report and certification, report and certify to the Secretary the conditions relative to dust control which exist in the active workings of all mines operated. Such reports shall be submitted on Bureau of Mines Form No. 6-1497. Report forms may be obtained from any Coal Mine Safety District Office of the Bureau of Mines. Reports shall be submitted to:

Office of Mineral Industry Health, Bureau of Mines, Department of the Interior, Washington, D.C. 20240.

Subpart D—Respiratory Equipment

§ 70.300 Respiratory equipment; respirable dust.

(a) Respiratory equipment approved by the Secretary and by the Secretary of Health, Education, and Welfare 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 70. 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 70.

§ 70.300-1 Approved respiratory equipment; respirable dust.

(a) Filter-type respirators approved on and after January 19, 1965, under Part 14 of this chapter (Bureau of Mines Schedule 21B) and supplied-air respirators, Type G, approved on and after April 19, 1965, under Part 12 of this chapter (Bureau of Mines Schedule 19B) for protection against pneumoconiosis-producing dust, toxic dust, pneumoconiosis-producing mist, toxic mist, and toxic fumes are approved respiratory equipment for the purposes of § 70.300.

(b) Respirators approved during the period April 12, 1953, through January 18, 1965, under Part 14 of this chapter (Bureau of Mines Schedule 21A), and in use on or before June 30, 1970, for protection against pneumoconiosis-producing dust, toxic dust, pneumoconiosis-producing mist, toxic mist, and toxic fumes are approved respirators for the purposes of § 70.300 until December 31, 1970. Such respirators shall not be provided for protection under the provisions of § 70.300 on or after January 1, 1971.

§ 70.305 Respiratory equipment: gas, dusts, fumes, or mists.

Respiratory equipment approved by the Secretary and the Secretary of Health, Education, and Welfare shall be provided persons exposed for short periods to inhalation hazards from gas, dusts, fumes, or mist. When the exposure is for prolonged periods, other measures to protect such persons or to reduce the hazard shall be taken.

§ 70.305-1 Approved respiratory equipment; gas, dusts, fumes, or mists.

Respiratory equipment which has been approved by the Bureau of Mines under the parts of this chapter, on and after the dates listed in this section, are approved respiratory equipment for the purposes of § 70.305 but only with respect to the specific hazards referred to in the approved labels:

Part 13—Gas Masks (Bureau of Mines Schedule 14F) April 23, 1955;

Part 14—Filter-type, Dust, Fume, and Mist Respirators (Bureau of Mines Schedule 21B) January 10, 1965;

Part 14a—Non-Emergency Gas Respirators (Chemical Cartridge Respirators Including Paint Spray Respirators) (Bureau of Mines Schedule 23B) August 4, 1959.

Subpart E—Dust From Drilling Rock

§ 70.400 Dust from drilling rock; control.

The dust resulting from drilling in rock shall be controlled by use of permissible dust collectors, or by water or water with a wetting agent, or by ventilation, or by any other method or device approved by the Secretary which is at least as effective in controlling such dust.

§ 70.400–1 Dust from drilling rock; approved devices.

Dust collectors approved by the Bureau of Mines under Part 33 of this chapter (Bureau of Mines Schedule 25B) are permissible dust collectors for the purposes of § 70.400.

§ 70.400–2 Dust from drilling rock; water.

Water used to control dust from drilling rock shall be applied through a hollow drill steel or stem or by the flooding of vertical drill holes in the floor.

§ 70.400–3 Dust from drilling rock; ventilation.

In order to control adequately dust from drilling rock, the air current shall be so directed that the dust is readily dispersed and carried away from the drill operator or any other worker in the area.

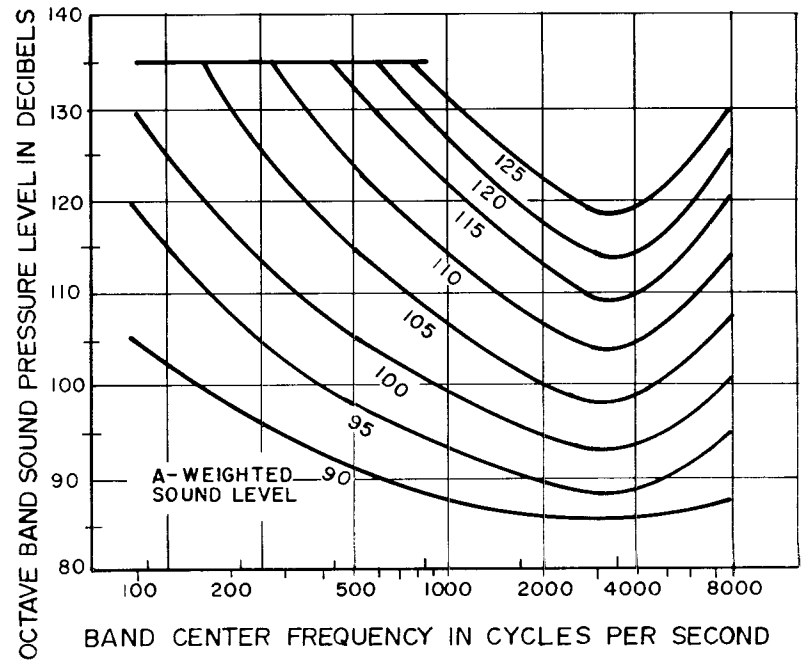
Subpart F—Noise Standard

§ 70.500 Noise standard.

(a) On and after June 30, 1970, the standards on noise prescribed under the Walsh-Healy Public Contracts Act, as amended, in effect on October 21, 1969, shall be applicable to each coal mine and each operator of such mine shall comply with them. The standard referred to is as follows:

Occupational noise exposure

"(a) Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table I of this section when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:



"Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table I.

"(b) When employees are subjected to sound exceeding those listed in Table I of this section, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

"(c) If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered intermittent. In such cases, where the duration of the maxima are less than 1 second, they shall be treated as of 1-second duration.

"(d) In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered.

TABLE I

PERMISSIBLE NOISE EXPOSURES [1]

Duration per day, hours	*Sound level dBA*
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

[1] When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: C1/T1+C2/T2. . . . Cn/Tn exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level.

"Exposure to impulsive or impact noise should not exceed 140 dBA peak sound pressure level."

(b) In meeting the standard set forth in paragraph (a) of this section, the

operator shall not require the use of any protective device or system, including personal devices, which the Secretary or his authorized representative finds to be hazardous or cause a hazard to the miners in such mine.

FIGURE 1

MINE DATA CARD

Sample No. _____ Initial Wt. _____
Mine ID No. _____ Final Wt. _____
Section ID No. _____ Sampling time (Min.) _____
Miner's SSA No. _____ Date _____
Occupation _____ Tons this shift _____
Type of Sample:
High risk _____ Nonhigh risk _____ Intake air _____
Face ventilation:
Exhaust _____ Blowing _____ Aux. _____ Brattice _____
Type of Mining:
Development _____ Retreat _____
Method of Mining:
Continuous _____ Conventional _____ Longwall _____
Other _____
_____ Check if section will close before next sampling cycle.

Signature:
(Miner Sampled) _____
(Mine Official) _____

[F.R. Doc. 70-4100; Filed, Apr. 2, 1970; 8:51 a.m.]

APPENDIX E.--MINE INFORMATION REPORT

Form 6-1497
(March 1970)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Budget Bureau No. 42-R 1594
Approval Expires June 1971

CONDITIONS IN THE ACTIVE WORKINGS OF THE COAL MINE

Section 202 (a) of the Federal Coal Mine Health and Safety Act provides that each operator shall report and certify to the Secretary of the Interior at such intervals as the Secretary may require as to the conditions in the active workings of the coal mine, including, but not limited to, the average number of working hours worked during each shift, the quantity and velocity of air regularly reaching the working faces, the method of mining, the amount and pressure of the water, if any, reaching the working faces, and the number, location, and type of sprays, if any used.
The operator is required to supply one completed form to the Coal Mine Safety District Manager for the district in which the mine is located on or before July 1, 1970, and once each year thereafter. Forms are available upon request at each Coal Mine Safety District Office or Subdistrict Office of the U.S. Bureau of Mines.

1. Identification:

(a) Coal Company Name: .....

(b) Address: Street ..... City .....

State ..... Zip .....

(c) Phone: Area Code ..... Number .....

(d) District or Division name: .....

(e) Mine Name .....

(f) Address: City ..... County .....

State ..... Zip .....

(g) Phone: Area Code ..... Number .....

2. Identification Number: Mine ..... Section .....

3. Description of Mine:

(a) Name of coalbed .....

(b) Seam thickness ..... Inches

(c) Average depth of overburden ..... Feet

(d) Analysis (Proximate)

Moisture	Percent
Volatile matter	Percent
Fixed carbon	Percent
Ash	Percent
Sulfur	Percent
Calorific Value, BTU	

4. Production:

(a) Number of production shifts per day. ☐

(b) Average number of working hours per production shift ☐

(c) Number of underground miners ☐

(d) Average tons per shift ☐

5. Ventilation:

(a) Type used (Check appropriate box/boxes)	Blowing	Exhausting	Aux. Fans	Natural
	☐	☐	☐	☐

(b) Volume of intake air at last open crosscut .....

(c) Volume of return .....

(d) Velocity in entry .....

(e) Is Diffuser used? (Check appropriate box) Yes ☐ No ☐

6. Mining Method:

Type (Check Appropriate box/boxes)	Developing	Retreating	Longwall	Handloading
	☐	☐	☐	☐

7. Mining Equipment: (Check appropriate boxes)

(a) Continuous Miner ☐

(1) Type and model .....

(2) Bits Type .....

Number .....

(3) Penetration ..... Inches per minute

(b) Longwall Machine ☐

(1) Type and model .....

(2) Depth of cut ..... Inches

(3) Bits Type .....

Number .....

(4) Speed of travel ..... Feet per minute .....

(c) Auger miner ☐

(1) Type and model .....

(2) Diameter of twist .....

(3) Bits Type .....

Number .....

(4) Penetration ..... Inches per minute

(d) Mining Machine (Cutting Machine) ☐

(1) Type and model .....

(2) Length of cutter bar ..... Feet

(3) Thickness of Curf ..... Inches

(4) Average time to cut and/or shear each place ..... Minutes

(5) Bits Type .....

Number .....

(e) Coal Drill ☐

(1) Type and model .....

(2) Hole diameter ..... inches. Depth drilled ..... inches

(3) Type of dust control, if any .....

(4) Average number of holes per face .....

(f) Loading machine ☐

(1) Type and model .....

(2) Type of operation: (Check one)

Loading behind continuous miner ☐ Loading blasted coal ☐

(3) Number of water sprays .....

(4) Number of water sprays in use .....

(5) Approximate rate of water flow ..... Gallons per minutes

(6) Approximate water pressure ..... psig

(g) Conveyor ☐

(1) Type and model .....

(2) Width of belt or conveyor pan ..... Inches

(3) Speed ..... Feet per minute

(h) Roof bolter ☐

(1) Type and model .....

(2) Hole diameter ..... inches. Depth drilled ..... inches

(3) Type of bits used .....

(4) Type of dust control .....

(i) Water sprays, *wherever used* ☐

(1) Number of sprays .....

(2) Number in operation .....

(3) Type and model .....

Check one

(4) Hollow cone ☐ Filled cone ☐

(5) Water pressure ..... psig

(6) Water flow (where operating) ..... Gallons per minute

(j) Auxiliary fans ☐

	Fan #1	Fan #2	Fan #3
(1) Type			
(2) Model			
(3) Size			
(4) Horsepower			
(5) Volume of air moved (CFM)			
(6) Length of tubing (feet)			
(7) Size of tubing (feet)			
(8) Check if blowing			
(9) Check if exhausting			
(10) Method of installation			
(11) Distance from end of tubing to face—(feet)			
(12) Check if this distance is maintained			

(k) Shuttle cars or trailers ☐

(1) Type .....

(2) Approximate load per car .....

(3) Roadway (Check appropriate box/boxes)

Wet ☐ Dry ☐ Dust control used ☐

.....
Signature

.....
Title

INT.-BU.OF MINES,PGH.,PA. 15136