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Coal Mine Dust Sampling Devices; High-Voltage Continuous Mining Machine Standard for Underground Coal Mines; Final Rules

DEPARTMENT OF LABOR

Mine Safety and Health Adminisration

30 CFR Part 74

RIN 1219–AB61

Coal Mine Dust Sampling Devices

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Final rule.

SUMMARY: This final rule revises requirements that the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) use to approve sampling devices that monitor miner exposure to respirable coal mine dust. The final rule updates approval requirements for the existing "coal mine dust personal sampler unit" to reflect improvements in this sampler over the past 15 years. The final rule also establishes criteria for approval of a new type of technology, the "continuous personal dust monitor," which is worn by the miner and will report dust exposure levels continuously during the shift.

DATES: This final rule is effective June 7, 2010.

The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of June 7, 2010.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA, at *silvey.patricia@dol.gov* (E-mail), (202) 693–9440 (voice), or (202) 693–9441 (facsimile).

SUPPLEMENTARY INFORMATION: The outline of the final rule is as follows:

I. Introduction

A. Background

The Coal Mine Health and Safety Act of 1969, the predecessor to the Federal Mine Safety and Health Act of 1977, required each operator of a coal mine to 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. Samples had to be taken by a device approved by the Secretary and the Secretary of Health, Education and Welfare (Secretaries). MSHA's existing standards for joint approval of dust sampling devices were issued in 1972. They specified that MSHA's role was to determine whether the pump unit of a sampling device was intrinsically safe, and that the National Institute for Occupational Safety and Health (NIOSH) would determine whether the sampling device met the requirements of part 74.[1]

Since 1970, coal mine operators and MSHA have used approved coal mine dust personal sampler units (CMDPSUs) to determine the concentration of respirable dust in coal mine atmospheres. These devices sample the mine atmosphere by drawing mine air through a filter cassette that collects respirable coal mine dust. At the end of a full shift or 8 hours, whichever time is less, the cassette is sent to MSHA for processing. Each cassette is weighed under controlled conditions to determine the average concentration of respirable coal mine dust to which the affected miners were exposed.

In the 1990s, NIOSH began research and development to produce a prototype technology for a new type of personal dust monitor that could provide readings of dust levels in the mine immediately during the shift and at the end of the shift. This would eliminate the delay in obtaining an offsite laboratory analysis which requires days before the results are made available to the mine operator and MSHA. The promise of the new technology, which is referred to generically as a "continuous personal dust monitor" (CPDM), was that it could allow mine operators to promptly identify and respond to dust exposures exceeding the applicable MSHA standards. With this new technology, operators could evaluate causes of overexposures, implement control measures to reduce exposures, and adjust such controls as necessary.

In 2003, Rupprecht and Patashnick Co., Inc., now Thermo Fisher Scientific, developed an initial prototype CPDM under contract with NIOSH. The prototype incorporated a unique mechanical mass sensor system called Tapered Element Oscillating Microbalance (TEOM®). The TEOM mass sensor is made up of a hollow tapered tube, which is clamped at its base and free to oscillate at its narrow or free end on which the collection filter is mounted. Electronics positioned around the sensor cause the tube to oscillate (or resonate) at its natural frequency. When dust particles are deposited on the collection filter, the mass of the collection filter increases, causing the natural oscillating frequency of the tapered element to decrease. Because of the direct relationship between mass and frequency change, the amount of respirable dust deposited on the filter can be determined by measuring the frequency change. The

[1] In 1978, responsibility for mine safety and health was transferred from the Department of Interior to the Department of Labor. In 1980 the Department of Health Education and Welfare became the Department of Health and Human Services (HHS).

concentration of respirable dust in the mine atmosphere is then determined by a computer incorporated in the CPDM, which divides the mass of dust collected by the volume of mine air that passed through the CPDM during the sampled period. The result is reported on the CPDM's digital display. The cumulative average dust concentration is calculated and reported continuously over the duration of the shift and at the end of the shift. The data are also retained for downloading onto any personal computer with a Microsoft Windows® operating system using accompanying software. The prototype also projected the end-of-shift average dust concentration continuously during the shift. This information can be used to give early warnings of deteriorating dust controls to mine operators, allowing corrective action to be taken before the dust control system fails resulting in full-shift exposures exceeding regulatory limits.[2]

In 2006, NIOSH, in collaboration with MSHA, the mining industry, and labor, completed extensive testing to evaluate the accuracy of the pre-commercial CPDM and its suitability for use in underground coal mines in terms of ergonomics and durability. The testing verified that the device achieved with 95 percent confidence end-of-shift measurements within ± 25 percent of reference measurements [3] taken in a variety of coal mines. In addition, the testing demonstrated that the device was acceptable to miners from an ergonomics standpoint, and was sufficiently durable to withstand the conditions of transportation and use in the mines.[4]

B. Rulemaking History

Existing 30 CFR part 74, "Coal Mine Dust Personal Sampler Units," includes procedures and requirements which MSHA and NIOSH use to jointly approve the design, construction, performance, and manufacturing quality of the CMDPSU. Part 74 is design-specific and does not permit the approval of coal mine dust sampling devices of a different design than currently approved. The CMDPSU is currently the only sampling device approved for use in coal mines to monitor miners' exposure to respirable coal mine dust. The new CPDM technology cannot be approved under the existing regulation.

MSHA and NIOSH recognize that the CPDM's ability to measure in real time the concentrations of respirable coal mine dust to which a miner is exposed could improve health protection of miners because the CPDM allows mine operators to take prompt action to prevent dust overexposures. Accordingly, the CPDM technology can be a vital element in the strategy used by mine operators and MSHA to more effectively control miners' exposure to respirable coal mine dust.

To accommodate approval of the new CPDM technology, MSHA and NIOSH published a proposed rule to revise part 74 (on January 16, 2009 (74 FR 2915)). The agency received comments on the proposed rule and held one public hearing on July 8, 2009, (74 FR 27265) in Arlington, Virginia. The comment period closed on August 14, 2009.

Although this final rule addresses approval of the CPDM, existing standards under 30 CFR parts 70, 71 and 90 will need to be revised before any new dust exposure monitoring technology can be used in coal mines for compliance purposes. This final rule does not address compliance-related issues, such as how the CPDM will be used, who would be required to wear such a device and when.

The final rule also updates existing design requirements for approving CMDPSUs to reflect improvements incorporated voluntarily by the manufacturer since the mid 1990s in the currently approved sampling device.

II. Summary of Final Rule

This final rule revises existing requirements for the approval of personal dust monitoring devices in 30 CFR part 74. It also establishes performance-based and other requirements for approval of the new CPDM.

Part 74 is renumbered as follows:

Subpart A—General.

Subpart B—Approval Requirements for Coal Mine Dust Personal Sampler Unit—specifications for existing technology.

Subpart C—Approval Requirements for Continuous Personal Dust Monitors—specifications for new technology.

Subpart D—General Requirements for All Devices—administrative provisions applicable to both the CMDPSU and CPDM.

III. Section-By-Section Analysis

Subpart A—General

A. § 74.1 Purpose

Final § 74.1, establishes requirements for approval of coal mine dust sampling devices designed to determine the concentrations of respirable dust in coal mine atmospheres; procedures for applying for such approval; test procedures; and labeling. Final 74.1 is unchanged from the proposal and addresses both CMDPSU and CPDM technology. MSHA received no comments on the proposal.

B. § 74.2 Definitions

Final § 74.2, like the proposal, is a new section that defines key terms used in the final rule.

Final paragraphs (a) and (b), like the proposal, define the concepts of "accuracy" and "bias" as they apply to CPDMs. They are key performance parameters for testing and approving the CPDM. MSHA received no comments on the proposal.

Final paragraphs (c) and (d), like the proposal, define the two types of coal mine dust sampling devices covered by this final rule, the "CMDPSU" and the "CPDM". The definitions are included to distinguish between the two types of dust monitoring technology. MSHA received no comments on the proposal.

Final paragraph (e), like the proposal, defines the "International Organization for Standardization (ISO)" as a voluntary consensus standards-setting organization. An ISO standard is relied on in this final rule (*see* § 74.9). MSHA received no comments on the proposal.

Final paragraph (f), like the proposal, defines the concept of "precision" as it applies to the CPDM. Precision is the third key performance parameter for the testing and approval of CPDMs. MSHA received no comments on the proposal.

Subpart B contains the approval requirements that apply to the CMDPSU.

C. § 74.3 Sampler Unit

Final § 74.3, like the proposal, renumbers existing § 74.2, and specifies the major components of a CMDPSU and remains unchanged from the proposal. MSHA received no comments on the proposal.

[2] For a more complete description of the technology, *see:* Volkwein, J.C., Vinson, R.P., S.J. Page, L.J. McWilliams, G.J. Joy, S.E. Mischler, and D.P. Tuchman. Laboratory and field performance of a continuously measuring personal respirable dust monitor. CDC RI 9669. September 2006. 47 pp. and Volkwein, J.C., R.P. Vinson, L.J. McWilliams, D.P. Tuchman, and S.E. Mischler, Performance of a New Personal Respirable Dust Monitor for Mine Use. CDC RI 9663. June 2004.

[3] Reference measurements were established using multiple gravimetric samplers in dust exposure chambers for laboratory testing and using CMDPSUs in a variety of coal mines for field testing.

[4] *See:* Volkwein, J.C., R.P. Vinson, S.J. Page, L.J. McWilliams, G.J. Joy, S.E. Mischler, and D.P. Tuchman. Laboratory and field performance of a continuously measuring personal respirable dust monitor. CDC RI 9669. September 2006. 47 pp. and Volkwein, J.C., R.P. Vinson, L.J. McWilliams, D.P. Tuchman, and S.E. Mischler. Performance of a New Personal Respirable Dust Monitor for Mine Use. CDC RI 9663. June 2004.

D. § 74.4 Specifications of Sampler Unit

Final § 74.4, like the proposal, renumbers existing § 74.3 and updates the requirements of the existing provision to reflect currently approved sampling technology.

Final paragraph (a)(1) updates existing pump dimensions to reflect the smaller and more compact size of currently approved sampling device: 4 inches (10 centimeters) in height; 4 inches (10 centimeters) in width; and 2 inches (5 centimeters) in thickness.

A commenter suggested that volume instead of size would be a preferable design parameter as it would not restrict future pump innovation and improvement and recommended a nominal value of 500–525cm^3. MSHA believes that this suggestion is inconsistent with the design-specific regulatory requirements applicable to the CMDPSU. MSHA experience indicates that specifying size as a design parameter has not restricted pump innovation and improvement as evidenced by the reduced size of the currently-approved pump unit, resulting from product improvements undertaken voluntarily by the manufacturer. The final rule remains unchanged from the proposal.

Final paragraph (a)(2), like the proposal, updates the existing maximum pump weight to 20 ounces (567 grams) to reflect the reduction in the weight of the currently approved pump unit. MSHA received no comment on the proposal.

Final paragraph (a)(3), like the proposal, updates existing requirements for the construction of the pump case and pump components by requiring protection against radio frequency and electromagnetic interference. This improvement will prevent potential instrument error or malfunction due to exposure to electromagnetic fields and various radio frequency ranges and signal strengths encountered in coal mines from power stations, electric motors and remote control transmitters. The final rule includes the proposed requirement that the case and components of the pump unit must be of durable construction and tight-fitting. MSHA received no comments on the proposal.

Final paragraphs (a)(4) and (a)(5), are the same as the proposal. These provisions require that: (1) The pump exhaust into the pump case to maintain a slight positive pressure; and (2) the pump unit be equipped with an ON/OFF switch that is protected against accidental operation during use and protected to keep dust from entering the mechanisms. MSHA received no comments on the proposal.

Final paragraph (a)(6), like the proposal, requires the pump unit to be equipped with a means to make flow rate adjustments accessible from outside the case. The flow rate adjuster must be recessed in the pump case and protected against accidental adjustment. If the pump is capable of maintaining flow rate consistency without adjustment, an external flow rate adjuster is not required. MSHA received no comments on the proposal.

Final paragraph (a)(7), like the proposal, requires that the power supply for the pump be a suitable battery located in the pump case or in a separate case which attaches to the pump by a permissible electrical connection. MSHA received no comments on the proposal.

Final paragraph (a)(8), like the proposal, requires that the irregularity in flow rate due to pulsation have a fundamental frequency of not less than 20 Hz. It also requires that the quantity of respirable dust collected with a sampling device be within ± 5 percent of that collected with a sampling head assembly operated with nonpulsating flow. MSHA received no comments on the proposal.

Final paragraphs (a)(9) and (a)(10), like the proposal, retains the existing provisions requiring the pump unit to be equipped with a belt clip and a suitable connection to allow the battery to be recharged without removing it from the pump case or battery case. MSHA received no comments on the proposal.

Final paragraphs (a)(11), like the proposal, requires a visual indication of the flow rate and specifies the calibration of the flow rate indicator. It updates existing calibration requirements to be within ±5 percent at 2.2, 2.0, and 1.7 liters per minute. The higher flow rates for calibration purposes better reflect the operating flow rate range specified in final paragraph (a)(12). MSHA received no comments on the proposal.

Final paragraph (a)(12), like the proposal, retains the existing requirement that the pump operate within a range from 1.5 to 2.5 liters per minute and be adjustable over this range. MSHA received no comments on the proposal.

Final paragraph (a)(13), like the proposal, requires the flow rate to remain consistent or stable over at least a 10-hour period, when the pump is operated at 2 liters per minute. This flow-rate consistency reflects the operating range of the currently approved sampling device and the prevalence of work shifts exceeding 8 hours in duration. The final rule, like the proposal, does not include the existing requirement to readjust the flow rate during the shift since the currently approved sampling device is designed to maintain a constant flow rate without requiring any readjustments during sampling. MSHA received no comments on the proposal.

Final paragraph (a)(14), like the proposal, is a new provision that requires the pump unit to be equipped with a flow restriction indicator. This new requirement reflects technology incorporated in the currently approved sampling device to prevent the shutdown of the pump during sampling and subsequent loss of the sample if the flow restriction is not corrected. The flow restriction indicator enables more accurate sampling of the mine atmosphere in the active workings. MSHA received no comments on the proposal.

Final paragraph (a)(15), like the proposal, specifies the required maximum expected operating time that the pump with a fully charged battery pack must be capable of operating at specific flow rates and sampling device loading. This paragraph reflects the higher level of operating performance inherent in the currently approved sampling device to permit sampling of shifts longer than 8 hours commonly worked today. Under the final rule, the existing resistance requirement for 8 hours of operation at a flow rate of 2 liters per minute is increased from 4 inches (10 centimeters) to 25 inches (64 centimeters) of water, as measured at the inlet of the pump. The final rule, like the proposal, adds a new provision that reflects technology incorporated in the currently approved sampling device. It requires the pump unit to operate not less than 10 hours at a flow rate of 2.5 liters per minute against a resistance of 15 inches (38 centimeters) of water. MSHA received no comments on the proposal.

Final paragraph (a)(16), like the proposal, is a new provision that requires the pump unit to be equipped with a low battery indicator. This provision reflects technology incorporated in the currently approved sampling device and is considered an important design feature. Failure of the battery during sampling results in loss of the sample and the inability to determine the concentrations of respirable coal mine dust in the work environment being monitored. MSHA received no comments on the proposal.

Final paragraph (a)(17), like the proposal, is a new provision and requires the pump unit to be equipped

with an elapsed time indicator displaying the actual pump run time after the pump is shut down due to a flow restriction or low battery power, or at the end of the sampling shift. This provision reflects technology incorporated in the currently approved sampling device and is necessary to determine if sampling was conducted for the required duration. Knowing the actual sampling time is essential for determining the concentration of respirable coal mine dust in the work environment being monitored. MSHA did not receive any comments on the proposal.

Final paragraph (b), like the proposal, addresses requirements for the sampling head assembly of the CMDPSU, which consist of a cyclone and a filter assembly.

Final paragraphs (b)(1) and (b)(2)(i), like the proposal, specify the components and construction of the cyclone, including dimensions of the components, and the characteristics of the collection filter. MSHA did not receive any comments on the proposal.

Final paragraph (b)(2)(ii), like the proposal, specifies characteristics and construction of the capsule enclosing the filter, and requires that the capsule prevent visual inspection of the filter surface or filter loading. It reflects the design and construction of the currently approved filter assembly, called the dust cassette, to safeguard the accuracy, integrity, and validity of the collected sample. MSHA did not receive any comments on the proposal.

Final paragraph (b)(2)(iii), like the proposal, specifies requirements for the cassette enclosing the capsule. It requires the cassette to completely enclose the filter capsule so as to prevent contamination and intentional or inadvertent alteration of dust deposited on the filter. The final rule also requires the cassette be designed to prevent reversal of the air flow through the capsule or other means of removing dust collected on the filter. These requirements reflect design of the currently approved filter assembly or dust cassette technology and are intended to safeguard the accuracy, integrity, and validity of the sample. MSHA did not receive any comments on the proposal.

Final paragraphs (b)(3) and (b)(4) are the same as the proposal. Final paragraph (b)(3) addresses the connections between the cyclone vortex finder and the filter capsule and connections between the filter capsule and hose. Final paragraph (b)(4), like the proposal, addresses clamping and positioning requirements of components. It requires that the cyclone-cassette assembly be firmly in contact, airtight and be attached firmly to a backing plate or other means of holding the sampling head in position. MSHA did not receive any comments on the proposal.

Final paragraph (b)(5), like the proposal, includes requirements for the hose connecting the sampler pump and the filter assembly. It requires that the hose be clear plastic. This provision reflects currently-approved technology and allows for examination of the external tubing to assure that it is clean and free of leaks, as accumulations or leaks could affect the accuracy of sampling results. MSHA did not receive any comments on the proposal.

Final paragraph (c) addresses requirements for the battery charger of the CMDPSU.

Final paragraph (c)(1), like the proposal, specifies the voltage and frequency requirements for the battery charger. It reflects currently used power supply voltage of 110 (VAC)(nominal). MSHA did not receive any comments on the proposal.

Final paragraphs (c)(2) and (c)(3), like the proposal, require that the battery charger be provided with a cord and polarized connector and that it be fused and have a grounded power plug. MSHA did not receive any comments on the proposal.

Final paragraph (c)(4), like the proposal, reflects currently approved technology and requires that the battery charger be capable of fully recharging the battery in the pump unit within 16 hours. MSHA did not receive any comments on the proposal.

E. § 74.5 Tests of Coal Mine Dust Personal Sampler Units

Final § 74.5, like the proposal, renumbers existing § 74.4 and provides authority for NIOSH and MSHA testing to evaluate whether the CMDPSU meets the requirements of the final rule. MSHA did not receive any comments on the proposal.

F. § 74.6 Quality Control

Final § 74.6, like the proposal, includes a clarifying reference to final § 74.13 (filing applications). MSHA did not receive any comments on the proposal.

Subpart C—Requirements for Continuous Personal Dust Monitors (CPDMs)

G. § 74.7 Design and Construction Requirements

Final § 74.7 provides design and construction requirements for the CPDM. The requirements are performance-oriented to allow manufacturers flexibility for continued innovation in this new technology. Where necessary and appropriate, the final rule includes design requirements to assure miner safety or accommodate specific mining conditions.

Final paragraph (a), like the proposal, requires that the CPDM be designed and constructed to allow miners to work safely. It also requires that the device be suitable to work requirements and working conditions of coal mining. MSHA did not receive any comments on the proposal.

Final paragraph (b), like the proposal, addresses ergonomic design requirements. It requires that, prior to filing an application under final § 74.13, the applicant must develop a testing protocol to determine if coal miners can wear the CPDM safely and without discomfort or impairment in the performance of their work duties throughout a full work shift. The protocol includes provisions for testing in one or more active mines under routine operating conditions. The testing protocol must be submitted to NIOSH prior to testing. In addition, the testing protocol and testing results must be submitted to NIOSH as part of the application for approval. NIOSH will advise and assist the applicant in developing an adequate testing protocol and arranging for adequate and competent testing resources, including, but not limited to, identifying testing experts and facilitating the cooperation of coal operators and miners. NIOSH reserves the authority to waive the requirement for the applicant to conduct such testing when it is apparent "that the device can be worn safely, without discomfort, and without impairing a coal miner in the performance of duties throughout a full work shift." MSHA did not receive any comments on the proposal.

Final paragraph (c), like the proposal, requires that the weight of a CPDM add no more than 2 kg to the total weight carried by the miner. However, a CPDM combined with other functions, such as communications or illumination, could weigh more than 2 kg if offset by the weight of a device the miner would no longer have to carry. In this case, the total added weight must not exceed the weight normally carried by miners without CPDMs by more than 2 kg. The 2-kg limit is based on the professional judgment of MSHA and NIOSH staff that the added load to miners needs to be minimized, considering that the safety gear and equipment currently worn and carried by underground coal miners can weigh up to approximately 16 kg. The limit in the final rule reflects

the weight of the prototype CPDM, which in NIOSH testing was worn and used by miners for full shifts and proved to be tolerable. The prototype device weighed approximately 3 kg, but served to power the cap lamp as well, so that a separate battery was not needed for the miner's cap lamp. In combination, the prototype with its dual-use battery increased the personal equipment load of the miners by less than 2 kg. MSHA did not receive any specific comments on this provision.

Final paragraph (d) requires that the CPDM provide accurate end-of-shift measurements of average respirable coal mine dust concentrations within the range of 0.2 to 4.0 mg/m^3. For end-of-shift average concentrations exceeding 4.0 mg/m^3, the CPDM must provide a reliable indication that the concentration exceeded 4.0 mg/m^3. This represents a change from the proposal in response to comments, which indicated some confusion and misinterpretation of the proposal. The proposal would have required that the CPDM provide accurate end-of-shift measurements of average respirable dust concentrations within the range of 10% to 2 times the permissible exposure limit (PEL) for respirable coal mine dust (currently 2.0 mg/m^3 when quartz content does not exceed 5%), and provide a reliable indication when the concentration exceeds 2 times the PEL. A commenter asked if the proposed requirement would remain the same if a dust sample contains more than 5% quartz causing the PEL to be subsequently reduced. This commenter also asked if the proposed requirement would remain the same if MSHA ever reduces the PEL for respirable dust or for quartz dust through future rulemaking. MSHA believes that the proposal could have been more clearly stated.

To provide better clarity regarding the actual range of average respirable coal mine dust concentrations over which the CPDM must provide accurate end-of-shift measurements, the final rule establishes the measurement range by defining a lower and upper range of average dust concentrations over which the CPDM must perform accurately. The final rule does not change the original intent of the proposal, which was to establish performance criteria for approving CPDM devices that accurately measure end-of-shift average dust concentrations based on current direct-reading monitoring technology.

The measurement range in the final rule reflects the actual range of average dust concentrations over which current CPDM technology performed accurately. The final requirement assures that the CPDM will provide accurate measurements of actual dust concentrations as low as 0.2 mg/m^3 (10% of the existing PEL) to permit monitoring of dust concentrations in active workings of coal mines under existing reduced standards due to quartz with no further accuracy testing. MSHA did not intend to address any issues related to a lower PEL for respirable coal mine dust or quartz in this rulemaking. In the event the PEL is reduced through rulemaking in the future resulting in reduced dust standards below 0.2 mg/m^3, the accuracy of the CPDM in monitoring the lower concentration limits would need to be verified with additional testing.

Final paragraph (e), like the proposal, requires that the CPDM operate reliably and accurately within the full range of environmental conditions encountered in coal mines. It requires that the CPDM operate reliably and accurately at any ambient temperature and varying temperatures ranging from minus 30 to plus 40 degrees Centigrade; at any atmospheric pressure from 700 to 1000 millibars; at any ambient humidity from 10 to 100 percent relative humidity; and while exposed to water mists generated for dust suppression and while monitoring atmospheres including such water mists. These parameters, in addition to those in paragraphs (f) and (g) of this section, address the full range of environmental conditions found in coal mines. MSHA and NIOSH specifically solicited comments on these parameters, as well as any others that might be appropriate. MSHA did not receive any comments on the proposal.

Final paragraph (f), like the proposal, requires that the CPDM meet standards established by the American National Standards Institute (ANSI), the Federal Communications Commission (FCC), and the International Electrotechnical Commission (IEC) for control of and protection from electromagnetic interference. The FCC is an independent Federal agency that regulates radiofrequency emitting devices. ANSI and IEC are voluntary standards-setting organizations, the former covering a variety of technical and management areas and the latter specializing in electrotechnology. The use of these standards would address the potential for interference associated with the increasing use of radiofrequency controls for mining machinery and mine communication systems.

Final paragraph (f)(1) requires the CPDM to meet emissions requirements of IEEE Std. C95.1–2005, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. The proposal would have required that the operator meet the requirements of ANSI C95.1–1982 (Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields). The ANSI C95.1–1982 reference in the proposal has been updated and the final rule is changed to include the latest reference. MSHA did not receive any comments on the proposal.

Final paragraph (f)(2), like the proposal, requires that the CPDM meet the immunity and susceptibility requirements of the International Electrotechnical Commission (IEC) 61000–4–6.

A commenter stated that the proposal was confusing as to the depth of testing required. This commenter asked if the intent of the proposal was to test against the entire section of 610000–4 through 61000–6, or only sections 61000–4 and 61000–6, or the specific test defined in 61000–4–6.

MSHA inadvertently cited the IEC reference in the proposal as IEC 61000–4 and 61000–6. The proposal should have been phrased as follows: "persons must proceed in accordance with IEC 61000–4–6 (Electromagnetic compatibility—Part 4–6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields)." In response to the commenter's question, the Agency clarified in the hearing notice (74 FR 27263) its intent that the proposed test be in accordance with the specific test defined in IEC 61000–4–6. The final rule includes this nonsubstantive correction.

Final paragraph (g), like the proposal, requires that the CPDM be designed and constructed to remain safe and accurate after undergoing durability evaluation involving vibration and drop tests representative of conditions of use in the mine. In testing for vibration, NIOSH will use Military Standard 810F, 514.5. This test measures the degree of vibration expected while the device is worn by miners on and operating mining equipment and during transport in and out of the mine. The drop test that NIOSH applies will involve three 3-foot drops onto a bare concrete surface (one drop testing each axis of the device). This test represents the occasional drops and knocking of the device expected during use of the device by miners. NIOSH will conduct the testing regime on test devices prior to further testing by the applicant under § 74.8 and intrinsic safety testing by MSHA under § 74.11(d). MSHA did not receive any comments on this proposal.

Final paragraphs (h)(1) and (2) require adequate legibility or audibility of monitoring results, computer (*i.e.,*

digital) recording of results in a form compatible with widely available computer technology, and reporting of results as cumulative mass concentration in units of mass per volume of air (mg/m^3). The visibility requirement for a minimum digital character height of 6 millimeters is based on testing during CPDM prototype development. All other requirements in this provision allow flexibility for new innovative designs that would provide timely, reliable, and appropriately quantified information.

A commenter stated that, except for provisions for the size of characters and end of shift results, there is nothing in the rule that provides for results for shorter time periods (from minutes to hours). This commenter stated that an instrument that provides only the end of shift results would not be acceptable. Additionally, whatever number the instrument displays should not be truncated and, instead, should be rounded as is the customary practice in most other applications. This commenter suggested that the information displayed on the CPDM be the same as described in NIOSH Publication RI 9669, "Laboratory and Field Performance of a Continuously Measuring Personal Respirable Dust Monitor."

Since monitoring of compliance with the applicable dust standard will continue to be based on the average dust concentration measured over a full shift, it is vital that the CPDM provide accurate full-shift (or end-of-shift) measurements. It should be noted that shorter time period data may also be available. However, MSHA believes that to prescribe the time period for intra-shift measurements of less than 8 hours may limit future CPDM development. The final rule does not include the commenter's suggestion.

In response to the commenter's suggestion that the concentration values displayed by the instrument should be rounded instead of truncated, paragraph (h)(2) in the final rule has been modified to require the CPDM to report cumulative mass concentrations with two significant figures of accuracy rounded as the customary practice. The commenter's suggestion that the information displayed on the CPDM be the same as described in NIOSH Publication RI 9669, "Laboratory and Field Performance of a Continuously Measuring Personal Respirable Dust Monitor" was not adopted to permit continued innovation in how dust concentration measurements are displayed by CPDMs.

Final paragraph (i), like the proposal, requires that the power source for the CPDM have sufficient capacity to enable continuous sampling for 12 hours in a coal mine dust atmosphere up to 4.0 mg/m^3. This requirement provides reasonable assurance that the power supply is sufficient to enable accurate measurement of respirable dust concentrations for 12-hour work shifts, which according to MSHA data, would accommodate some of the longer recorded shifts currently being worked in underground coal mines. MSHA's data indicate that 98 percent of work shifts in active underground mines are 10 hours or less and over 99 percent of work shifts are 12 hours or less.

It should be recognized that if dust concentrations in the active workings being monitored exceed 4.0 mg/m^3 continuously over a 12-hour period, a power supply meeting this requirement might not be sufficient to sustain monitoring for the complete shift. This is because sampling environments containing higher dust concentrations will result in increased particulate loading on the sample collection media which places greater power demands on the CPDM to increase pump speed and maintain the required sample flow rate without requiring any mid-course adjustments. However, since over 99 percent of the underground coal mines work shifts that are 12 hours or less, the final rule provides sufficient assurance that the CPDM will have the power capacity to monitor high dust concentrations during the entire work shift, and to cumulatively document that miner's exposure exceeded the PEL for the full shift. Final paragraph (i), like the proposal, also requires that a CPDM that uses a rechargeable battery be recharged using the standard power supplies in mines (110 VAC).

Several commenters supported the proposed requirement that the CPDM be powered continuously for 12 hours since miners work shifts longer than 8 hours. However, they also suggested that CPDMs be capable of operating for a minimum of 16 hours to accommodate full work shifts, up to 16 hours. One of the commenters further suggested that, if this is not feasible, it should be required in two years. While MSHA recognizes that some miners may work longer than 12 hours, those situations are neither typical nor wide spread. Since the performance requirements in the final rule are intended to address typical mining operating conditions, they do not include the commenters' suggestion that the CPDM be capable of operating up to 16 hours. Further, given the current state of battery technology, a 16-hour battery would significantly increase the size and weight of the CPDM beyond the limits specified in this final rule.

Final paragraph (j), like the proposal, requires that if a CPDM uses a pump to sample the atmosphere, it must perform with a flow stability within ± five percent of the calibrated flow for 95% of samples for a continuous duration of 12 hours.[5] This requirement is integral to achieving representative, accurate measurements of respirable coal mine dust concentrations. The paragraph also requires that the applicant specify the flow calibration maintenance interval necessary to achieve the required level of flow stability in the calibration instructions for the device. MSHA did not receive any comments on the proposal.

Final paragraph (k), like the proposal, requires that a CPDM using a rechargeable battery have a battery check feature to indicate to the user that the device is adequately recharged to operate as intended for an entire work shift of up to 12 hours under normal conditions of use. This important feature will minimize using CPDMs whose battery was not fully charged to permit full-shift monitoring without experiencing a monitoring failure during the shift due to low battery power. MSHA did not receive any comments on the proposal.

Final paragraph (l), like the proposal, sets forth requirements for CPDMs that share components with other personal equipment carried by an underground miner, such as cap lamps.

Final paragraph (l)(1), like the proposal, requires the applicant to obtain necessary approvals required for other devices if the CPDM is integrated or shares functions with such devices used in mines, such as cap lights or power sources, prior to receiving final approval of the CPDM from NIOSH. This provision enables NIOSH to assure all requirements, as appropriate, are met for other devices integrated with or sharing functions with the CPDM that are not approved by NIOSH.

Final paragraph (l)(2), like the proposal, requires that the CPDM operate effectively with the integrated functions. This provision assures that the CPDM is not compromised by integration of functions and provides reasonable assurance that the device functions as intended. MSHA did not receive any comments on the proposal.

Final paragraph (m), like the proposal, specifies performance requirements that help assure that CPDMs are designed to prevent intentional tampering or inadvertent altering of monitoring

[5] NIOSH Manual of Analytic Methods, Method 0600, Issue 3, Fourth Edition, January 15, 1998.

results. It requires that the CPDM have a safeguard or indicator which either prevents altering the measuring or reporting functions of the device or indicates if these functions have been altered.

This requirement will assure that manufacturers design and incorporate tampering safeguards and indicators in the CPDM that address foreseeable actions by users. It also allows NIOSH to require, to the extent feasible, changes in the design of an already approved device, following discovery of tampering methods or inadvertent actions that can alter monitoring results.

A commenter supported the proposed requirement; however, the commenter doubted that safeguards could prevent tampering altogether. This commenter suggested that MSHA have other methods to prevent and detect tampering and to prosecute those who perpetuate this action. MSHA recognizes the importance of having a credible monitoring program that provides meaningful health surveillance and confidence in the program. MSHA's actions to improve sampling technology, to investigate questionable sampling practices, and take appropriate legal action demonstrate the Agency's commitment to maintain a credible and reliable dust monitoring program. While it may be difficult to prevent tampering all together, MSHA has not ignored this important issue and believes that the CPDM technology should limit the ability to alter monitoring results. MSHA believes that the final rule addresses commenters' concerns with respect to tampering or altering CPDM results. MSHA will continue to evaluate operator results, conduct its own sampling, follow-up on reports of inappropriate sampling practices, conduct investigations as it has in the past, and take appropriate enforcement action.

Final paragraph (n), like the proposal, requires that the CPDM be designed to assure that it can be properly cleaned and maintained to perform accurately and reliably for the duration of its service life. The infiltration and accumulation of dust and moisture in components can adversely affect the operability and monitoring accuracy of a CPDM. MSHA did not receive any comments on the proposal.

H. § 74.8 Measurement, Accuracy, and Reliability Requirements

Final § 74.8, like the proposal, establishes new performance requirements for CPDMs. These requirements reflect current evaluation methods for assessment of direct-reading monitors. These methods have been summarized and issued as general guidelines by NIOSH in "Components for the Evaluation of Direct-Reading Monitors for Gases and Vapors".[6] The requirements also reflect the state-of-the-art technology of the CPDM prototype. Accordingly, this final rule establishes a science-based, feasible baseline for the performance of the new CPDM technology. Upon request, NIOSH will provide a report on the performance of the prototype CPDMs. The results are partially summarized in several peer-reviewed journal articles.[7]

Final paragraph (a), like the proposal, requires that the CPDM be capable of measuring respirable dust within the personal breathing zone of the miner whose exposure is being monitored. The breathing zone is generally considered to be the area surrounding the worker's nose and mouth. This zone is pictured by drawing a sphere with a 10-inch radius which is centered on the nose. Current industrial hygiene principles accept breathing zone samples as most representative of the atmosphere to which workers are exposed.[8] MSHA did not receive any comments on the proposal.

Final paragraph (b), like the proposal, provides requirements for the measurement accuracy of the CPDM. MSHA did not receive any comments on the proposal.

Final paragraph (b)(1), like the proposal, requires for full-shift measurements of 8 hours or more, a 95 percent confidence that the recorded measurements are within ±25 percent of the true dust concentration, as determined by CMDPSU reference measurements, over a concentration range from 0.2 to 4.0 mg/m^3. The specific degree of accuracy required is based on the current state of the technology of direct-reading monitors and on the need for reasonable accuracy in industrial hygiene assessments to assure worker protection. NIOSH has demonstrated the feasibility of this accuracy requirement through testing of the CPDM prototype.[9]

The concentration range of 0.2 to 4.0 mg/m^3 over which the CPDM must provide accurate measurements is also based on current CPDM technology, as represented by the pre-commercial device. This technology requires a minimum quantity of dust loading on the microbalance filter before the CPDM can provide an accurate measurement. This allows the CPDM to distinguish actual exposure quantities from small measurement variations due to imperfections of the CPDM equipment. The lower range of dust concentration levels tested (0.2 mg/m^3) assures that accuracy is maintained for situations where the quartz content in the mine environment exceeds 5 percent causing the PEL to be reduced. Similarly, there is an upper bound of dust loading, which is likely to exceed the concentration level of 4.0 mg/m^3,[10] specified in the final rule. Above this concentration level the current CPDM technology may lose sensitivity as a result of the heavily loaded filter on the microbalance. The Agencies are confident that the final rule will assure that the range of end-of-shift average dust concentrations over which the CPDM must provide accurate measurements will be adequate to quantify actual full-shift exposures that may range from exceptionally low to exceptionally high concentrations. MSHA did not receive any comments on the proposal.

For intra-shift measurements of less than 8 hours, final paragraph (b)(2), like the proposal, requires a 95 percent confidence that the recorded measurements are within ±25 percent of the true dust concentration, as determined by CMDPSU reference measurements, over the dust concentration range equivalent to 0.2 to 4.0 mg/m^3 for an 8-hour period. This provision includes a formula for calculating the equivalent dust concentration range for assessing accuracy of intra-shift measurements. MSHA did not receive any comments on the proposal.

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[6] Kennedy, E. R., T.J. Fischbach, R. Song, P.M. Eller, and S.A. Shulman, 1995. Guidelines for air sampling and analytical method development and evaluation, DHHS (NIOSH) Publication No. 95–117.

[7] Volkwein, J.C., R.P. Vinson, S.J. Page, L.J. McWilliams, G.J. Joy. S.E. Mischler and D.P. Tuchman. Laboratory and field performance of a continuously measuring personal respirable dust monitor. CDC RI 9669. September 2006. 47 pp. and Volkwein, J. C., R.P. Vinson, L.J. McWilliams, D.P. Tuchman, and S.E. Mischler. Performance of a New Personal Respirable Dust Monitor for Mine Use. CDC RI 9663. June 2004.

[8] Guffy, S.E., M.E. Flanagan, G. VanBelle. Air Sampling at the chest and ear as representative of the breathing zone. AIHAJ, 62:416–427, 2001, show that ear locations are preferred and that dust sources relative to sample position are important. A NIOSH study on miners shows that the chest and cap lamp positions are representative of exposures at the miner's nose (Vinson, R.P. and J. C. Volkwein, Determining the Spatial Variability of Personal Sampler Inlet Locations (in press) JOEH, 2007).

[9] Volkwein, J.C., R.P. Vinson, L.J. McWilliams, D.P. Tuchman, and S.E. Mischler. Performance of a New Personal Respirable Dust Monitor for Mine Use. CDC RI 9663. June 2004.

[10] NIOSH testing of the CPDM prototype used 4.0 mg/m^3 dust concentration as the upper limit in challenging the device for accuracy. NIOSH did not conduct testing to identify the actual upper limit at which the accuracy of the prototype would be degraded below the testing standard, although the ultimate occurrence of such degradation is predictable based on engineering principles.

Final paragraph (c), like the proposal, requires the CPDM to meet the accuracy requirements of the final rule regardless of the variation in density, composition, size distribution of respirable coal mine dust particles, and presence of spray mist in coal mines. Some monitoring devices, such as light scattering detectors, use technologies that have potential for monitoring aerosol dust concentrations. These devices currently lack the ability to distinguish differences in density and composition of coal mine dust particles and other aerosols in the mine, or to accommodate variation in the coal mine dust particle distribution. To be effective, the CPDM must produce accurate measurements for any coal mine atmosphere. MSHA did not receive any comments on the proposal.

Final paragraph (d), like the proposal, requires that the CPDM monitor with sufficient precision. Under the final rule, precision must be established through testing to determine the degree to which the CPDM is able to closely replicate multiple concentration measurements when sampling identical dust concentrations. The precision requirement is a relative standard deviation of less than 0.1275 without bias for multiple measurements. It will enable MSHA and mine operators to monitor changes in dust concentrations with reasonable confidence. MSHA did not receive any comments on the proposal.

Final paragraph (e), like the proposal, requires the bias of CPDM measurements to be limited such that the uncorrectable discrepancy between the mean of the distribution of measurements and the true dust concentration being measured during testing be no greater than 10 percent. It also requires that measurement bias be constant over the range of dust concentration levels tested, between 0.2 to 4.0 mg/m^3, for an 8-hour sampling period. This requirement assures that the CPDM does not consistently either overestimate or underestimate respirable coal mine dust concentrations to a substantial degree. This provides further assurance of the accuracy of the CPDM with respect to multiple measurements. MSHA did not receive any comments on the proposal.

Final paragraph (f), like the proposal, requires applicants to use the NIOSH testing procedure "Continuous Personal Dust Monitor Accuracy Testing," June 23, 2008, to evaluate the accuracy, reliability, precision, and bias of a CPDM. The NIOSH procedure is incorporated by reference. The procedure is available at the NIOSH Web site: *http://www.cdc.gov/niosh/mining/pubs/pubreference/outputid3076.htm*. The procedure requires that testing be performed under diverse environmental conditions and that test results be submitted, in writing, to NIOSH. The protocol assures that all CPDMs are evaluated consistently. NIOSH will provide assistance to applicants, as necessary, to make the arrangement of such testing feasible. MSHA did not receive any comments on the proposal.

I. § 74.9 Quality Assurance

Final § 74.9, like the proposal, establishes new quality assurance requirements for CPDM manufacturers.

Final paragraph (a), like the proposal, requires the applicant to establish and maintain a quality control system that assures devices produced under the applicant's certificate of approval meet the specifications to which they are certified under this part and are reliable, safe, effective, and otherwise fit for their intended use. The quality control system must meet the specifications in ISO Q9001–2000 standard established by the ISO.[11] The ISO standard is incorporated by reference. This consensus standard for quality management is in widespread use in U.S. and international manufacturing and service industries. It requires a comprehensive quality management system, which is essential for the manufacture of sophisticated technical equipment used in worker safety and health.

Final paragraph (a), like the proposal, also requires the applicant to submit a copy of the most recent registration under ISO Q9001–2000 to NIOSH, together with the application and, subsequent to an approval, upon request. Registration under ISO Q9001–2000, American National Standard, Quality Management Systems-Requirements, will be considered evidence of compliance with the ISO Q9001–2000 standard. NIOSH considers registration under the ISO quality management standard as evidence that the applicant has established a sound quality assurance program. The registration will allow the applicant to use existing and widely available independent auditing services. MSHA did not receive any comments on the proposal.

Final paragraph (b), like the proposal, requires applicants or approval holders to allow NIOSH to conduct quality management audits when requested or in response to quality-related complaints. NIOSH has similar authority under its respirator certification program (42 CFR part 84), which has been used to assure product quality in the respirator market. This audit authority is essential in the event of substantial quality management problems in the manufacture of CPDMs. MSHA did not receive any comments on the proposal.

Final paragraph (c), like the proposal, requires the applicant or approval holder to correct any quality management deficiencies identified by NIOSH or an independent audit within a reasonable time as determined by NIOSH. The final rule also provides that failure to correct a deficiency may result in the disapproval of a pending application or revocation of an existing approval until such time as NIOSH has determined that the deficiency is corrected. NIOSH has similar authority under its respirator certification program, although NIOSH has rarely had to employ it. MSHA did not receive any comments on the proposal.

J. § 74.10 Operating and Maintenance Instructions

Final § 74.10(a), like the proposal, requires the manufacturer to include operating and storage instructions and maintenance and service life plan with each new CPDM sold.

A commenter suggested that the proposal provide more specific and objective criteria so that anybody in the industry can, after reading them, operate the CPDM. In response to this commenter's suggestion, final § 74.10(a) has been changed from the proposal to include a new requirement in paragraph (a)(iv) that the operating instructions include a one page "quick start guide" that will enable a novice to start and operate the CPDM. Except for renumbering, all other provisions remain the same.

Final paragraph (b), like the proposal, is new and requires the manufacturer to submit the instructions and plan under paragraph (a) to NIOSH with the application for approval. It also requires that instructions and the plan be submitted if any substantive changes are made to the approved device or the approved instructions. Adequate instructions must be provided to facilitate effective use of sophisticated monitoring equipment. NIOSH review and approval of instructions serves an important final quality control function for the manufacturer and assures that instructions are clearly written and easily understood. NIOSH has similar authority under its respirator

[11] ISO Q9001:2000 is the International Standard: *Quality management systems—Requirements, 3rd edition*, approved on December 15, 2000 and available from the International Organization for Standardization and the American National Standards Institute.

certification program (42 CFR part 84). MSHA did not receive any comments on the proposal.

K. § 74.11 Tests of the CPDM

Final § 74.11 establishes new testing requirements for evaluation of CPDMs.

Final paragraph (a), like the proposal, requires the applicant to conduct all testing specified in §§ 74.7–74.8 of this part, with the exception of durability testing under § 74.7(g). It further requires that the testing be performed by an independent testing entity approved by NIOSH. This requirement provides reasonable assurance of the quality of testing and the reliability of test results. MSHA did not receive any comments on the proposal.

Final paragraph (b), like the proposal, provides for NIOSH to assist the applicant in identifying appropriate testing services. It also requires that applicants submit testing protocols to NIOSH prior to testing so that NIOSH can verify their adequacy. It is unlikely that an applicant would be familiar with testing resources capable of addressing every element of the final rule. NIOSH will be able to provide the applicant with information on private and university laboratories available for testing. In addition, NIOSH review of testing protocols will minimize the possibility of inadequate testing, which might result in the applicant incurring unnecessary delay and costs. MSHA did not receive any comments on the proposal.

Final paragraph (c), like the proposal, requires the applicant to arrange for the independent testing entity to report testing protocols and results directly to NIOSH. This direct reporting relationship between the testing entity and NIOSH further establishes the independence of the applicant from the testing. MSHA did not receive any comments on the proposal.

Final paragraph (d), like the proposal, requires the applicant to submit the CPDM to MSHA for testing and evaluation to determine the intrinsic safety of a CPDM submitted for approval. MSHA conducts all intrinsic safety testing for mining equipment used in underground coal mines. A CPDM that does not pass intrinsic safety testing will not be approved for use in coal mines. MSHA did not receive any comments on the proposal.

Subpart D—General Requirements for All Devices

L. § 74.12 Conduct of Tests; Demonstrations

Final § 74.12, like the proposal, addresses procedures for conducting tests, and renumbers and makes clarifying changes to the existing provision. This section concerns the management of testing information prior to and after the issuance of a certificate of approval.

Final paragraph (a), like the proposal, requires MSHA and NIOSH to continue the existing practice of not disclosing details of applicant's drawings or product specifications or other related materials.

Final paragraph (b), like the proposal, clarifies that after issuing a certificate of approval, MSHA and NIOSH may reveal test protocols and results considered for approval of the CPDM. It provides for the Agencies to protect disclosure of this information to the fullest extent, consistent with the Freedom of Information Act. MSHA did not receive any comments on the proposal.

M. § 74.13 Applications

Final § 74.13 substantively the same as the proposal, addresses requirements for filing an application for approval of a coal mine dust sampling device. Final paragraph (a), like the proposal, requires the submission of an application in duplicate to both NIOSH and MSHA for approval of a CMDPSU. It also requires that 10 complete CMDPSUs be submitted to NIOSH and one pump be sent to MSHA for testing. This provision is the same as the existing requirement for the CMDPSU. MSHA did not receive any comments on the proposal.

Final paragraph (b), like the proposal, requires the submission of an application in duplicate to both NIOSH and MSHA. It also requires that three complete CPDMs be submitted to NIOSH and one to MSHA. The submitted devices will be used by NIOSH to evaluate compliance with the design and construction requirements, verify any testing results, evaluate the use and maintenance instructions, and address quality assurance matters. The device sent to MSHA will undergo intrinsic safety testing. MSHA did not receive any comments on the proposal.

Final paragraph (c), like the proposal, requires that drawings and specifications provided in the application must be detailed to identify the design of the CMDPSU or its pump unit or CPDM and disclose the dimension, and materials of all component parts. This information is necessary for a complete evaluation of compliance with design and construction requirements in the final rule. MSHA did not receive any comments on the proposal.

N. § 74.14 Certificate of Approval

Final § 74.14, like the proposal, specifies the procedures that NIOSH and MSHA will use to approve or disapprove an application for a CMDPSU or CPDM. MSHA did not receive any comments on the proposal.

O. § 74.15 Approval Labels

Final § 74.15, like the proposal, specifies labeling procedures and other requirements for the applicant. MSHA did not receive any comments on the proposal.

P. § 74.16 Material Required for Record

Final § 74.16, like the proposal, addresses requirements for a permanent record of each application, the return of CMDPSU or CPDM test devices to the applicant, and the delivery of a commercially produced device to NIOSH. MSHA did not receive any comments on the proposal.

Q. § 74.17 Changes After Certification

Final § 74.17, like the proposal, includes procedures which the applicant must follow to change features of an approved CMDPSU or CPDM. This provision requires the applicant to file an application to change any feature and to test the modified device if NIOSH determines that testing is required. MSHA did not receive any comments on the proposal.

R. § 74.18 Withdrawal of Certification

Final § 74.18, like the proposal, authorizes NIOSH or MSHA to revoke for cause any certificate of approval for a CMDPSU or CPDM. MSHA did not receive any comments on the proposal.

IV. Regulatory Economic Analysis

A. Executive Order 12866

Under Executive Order (E.O.) 12866 (58 FR 51735), as amended by Executive Order 13258 (amending Executive Order 12866 on Regulatory Planning and Review (67 FR 9385)), the Agency must determine whether a regulatory action is "significant" and subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. Under section 3(f), the order defines a "significant regulatory action" as an action that is likely to result in a rule (1) Having an annual effect on the economy of $100 million or more, or adversely and materially affecting a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or Tribal governments or communities (also referred to as "economically significant"); (2) creating

serious inconsistency or otherwise interfering with an action taken or planned by another agency; (3) materially altering the budgetary impacts of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raising novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order. MSHA has determined that the final rule does not have an annual effect of $100 million or more on the economy and, is not an economically "significant regulatory action" pursuant to section 3(f) of Executive Order 12866. MSHA, however, has concluded that the final rule is otherwise significant under Executive Order 12866 because it raises novel legal or policy issues.

This final rule updates existing requirements for the approval of a coal mine dust personal sampler unit (CMDPSU) to reflect the current state of this technology. The current approval holder of this device has voluntarily incorporated the improved requirements in the final rule into the device. The final rule also includes procedures and requirements by which NIOSH and MSHA could approve a new monitoring technology, continuous personal dust monitor (CPDM), for use in coal mines.

Providing requirements to allow the approval of a new monitoring technology, the CPDM, for use in coal mines, does not have any potential for adversely impacting the economy. Although there is a commercial version of the CPDM available for use by the mining industry, the final rule does not address matters related to its use in coal mines. It only addresses the performance requirements for the approval of CPDM devices.

B. Benefits

MSHA received no comments on the Agency's benefits analysis concerning the approval of the CPDM. The only comments received regarding benefits pertained to the use of the CPDM, which is not a subject of this rulemaking. Therefore, the Agency is retaining the benefits analysis used for the proposal.

Respirable coal mine dust is produced when material is extracted from the coal seam by drilling, blasting, and cutting, and during loading and transporting of that material from the mine. It consists of a mixture of very small particles of coal, silica, and other mineral and organic materials found in the mine environment that can be inhaled and deposited in the lungs. It presents a significant health hazard if not adequately controlled. Long-term exposure to excessive levels of respirable coal mine dust causes coal workers' pneumoconiosis (CWP) and other occupational lung diseases like chronic obstructive pulmonary disease (COPD) which are collectively known as "black lung." Overexposure to respirable silica dust can lead to silicosis. These occupational lung diseases can devastate a miner's quality of life, create a heavy burden on the victim and the victim's family, and in some cases lead to premature death.

The existing approved dust sampler used by coal mine operators and MSHA consists of a person-wearable battery-powered pump that draws mine air through a cyclone that separates respirable dust that can enter the inner lung and deposits it on a filter that is then weighed by MSHA. The dust concentration is calculated based on the volume of air sampled and the mass of dust collected. Usually, this procedure takes several days before mine operators and MSHA receive the results. The final rule updates application requirements for the existing coal mine dust sampling device to reflect design improvements incorporated voluntarily by the manufacturer since the mid 1990s. Updating the CMDPSU application requirements will ensure that any new manufacturer entering the market will produce a sampling device that reflects currently-used technology.

The CPDM represents an innovative technology that provides real-time and continuous accurate measurement of respirable coal mine dust during a working shift. Continuous exposure readings enable mine management to be proactive and take immediate preventive action to avoid potentially excessive exposures. The devices can also be used as an engineering tool to permit the operator to rapidly evaluate the effectiveness of various dust control strategies.

MSHA and NIOSH recognize that benefits derived from real-time continuous monitoring will occur when monitoring devices with this new technology and strategies for their use are developed and implemented. However, before CPDMs can be introduced in coal mines, they must be approved for use by MSHA and NIOSH. The existing regulations limit approval to dust sampling devices of the current design and do not permit the Agencies to approve other technologically advanced sampling devices that are capable of monitoring dust concentrations on a real-time and continuous basis.

In summary, the final rule incorporates requirements for approval of the CPDM and includes improved requirements for the CMDPSU.

C. Compliance Costs

MSHA received no comments on the Agency's proposed cost analysis concerning the cost of approving coal mine dust sampling devices. Similar to the comments on benefits, the only comments that MSHA received regarding costs pertained to the use of the CPDM, which is not a subject of this rulemaking. The Agency is therefore retaining the analysis used for the proposal. Further, due to the small magnitude of the costs, the Agency has not prepared a separate regulatory economic analysis. All cost estimates are, therefore, included in this final rule.

There is only one manufacturer of the CMDPSU currently approved for use in coal mines. No new applications for approval have been received in over 30 years. The final rule, which updates the design requirements for the CMDPSU, does not require this manufacturer to submit an application for a new approval or any additional information to MSHA and NIOSH. The CMDPSU approved under existing requirements already meets the final rule's updated requirements.

MSHA and NIOSH are aware of only one manufacturer capable of mass producing a CPDM that could be submitted for approval under this final rule. The Agencies believe that very few instrument manufacturers have the capacity or interest to develop technology suitable for directly and continuously measuring concentrations of respirable coal mine dust in mine atmospheres. The CPDM required a Federal investment of approximately $5.3 million, an additional private investment of approximately $750,000, and more than four years of development before a suitable device could be produced that could accurately measure respirable dust concentrations in coal mine atmospheres. It is likely that few, if any, firms would undertake this substantial level of research and development given the limited market for such a product.

Consequently, MSHA and NIOSH expect that in the first year under the final rule, there would be one manufacturer filing an application seeking approval of a CPDM. The cost of the final rule in the first year is estimated to be $293,000. The first year approval costs are annualized over an infinite time period by using a 7 percent discount factor [12] that results in a cost

[12] The 7 percent discount rate was obtained from the Office of Management and Budget (OMB) Circular A–4, issued September 17, 2003. The 7 percent rate is an estimate of the average before-tax

Continued

of approximately $20,500 ($293,000 × 0.07). The $293,000 consists of approximately: $250,000 for the applicant to have tests performed on the CPDM by a third party (under final §§ 74.7 and 74.8); $9,500 for MSHA to evaluate and test the CPDM for intrinsic safety (under proposed § 74.11); $3,200 for the applicant to file an application for approval of the CPDM (under final § 74.13); and $30,000 for the cost of the three CPDMs retained by NIOSH and MSHA (under final §§ 74.16(a) and (b)). The final rule costs are detailed below.

Final §§ 74.7 and 74.8 require tests that the applicant must have performed by a third party. These tests are for: ergonomic design (under final § 74.7(b)); environmental conditions (under final § 74.7(e)); electromagnetic interference (under final § 74.7(f)); flow stability and calibration of pump (under final § 74.7(j)); and accuracy testing which includes reliability measurement, precision, and bias testing (under final §§ 74.8(c), (d), and (e)). MSHA estimates that it would cost the applicant approximately $250,000 to conduct the tests that are required by final §§ 74.7 and 74.8. The annualized cost is $17,500 ($250,000 × 0.07).

Final § 74.11 requires that the applicant submit the CPDM to MSHA for testing and evaluation, under 30 CFR § 18.68, to determine whether the electronic components of the CPDM submitted for approval meet the applicable permissibility requirements. The following tests will be performed by MSHA under § 18.68(a)(1): Current limiting resistor adequacy test; coal dust thermal ignition test; optical isolator test; impact test and force test of encapsulated electrical assemblies; drop testing intrinsically safe apparatus; mechanical test of partitions; piezoelectric device impact test; and dielectric strength test. The battery flash current test will be performed under §§ 18.68(a)(1) and (b)(1). The methane thermal ignition test will be performed under §§ 18.68(a)(1) and (b)(6). The maximum surface temperature test will be performed under § 18.68(a)(1) and (b)(3). The spark ignition test will be performed under §§ 18.68(a)(1), (a)(2), (a)(4), (a)(5), (b)(4), and (b)(5).

MSHA estimates that it will take an average of 45 hours to evaluate and 40 hours to test each application. MSHA charges an hourly fee of $84 per hour for evaluation and testing time. In addition, MSHA applies a support factor of 1.617 to cover the administrative, clerical and technical support services involved in evaluating an application. Thus, the cost for MSHA evaluation and testing is approximately $9,500 [(45 hrs. × $84 × 1.617) + (40 hrs. × $84)]. The annualized cost is approximately $700 ($9,500 × 0.07).

Final § 74.13(b) requires that a written application for approval be submitted to MSHA and NIOSH in duplicate. MSHA estimates that it takes an engineer, earning $74.32 per hour, a total of 40 hours to prepare and compile the materials needed to accompany an application. MSHA estimates that it takes a clerical employee, earning $26.37 per hour, 0.25 hours (15 minutes) to copy an application, averaging 250 pages, at $0.15 per page. The postage cost per application is estimated to be $5. Thus, the cost to file an application is estimated at $3,200 [(1 application × 40 hrs. × $74.32 per hr.) + (0.25 hrs. × $26.37 per hour × 4 copies) + (250 pages × $0.15 cost per page × 4 copies) + ($5 × 4 copies)]. The annualized cost is approximately $200 ($3,200 × 0.07).

Final § 74.16(a) requires that MSHA and NIOSH each retain one CPDM that is submitted with the application. In addition, final § 74.16(b) requires that NIOSH receive one commercially produced CPDM free of charge, if it is approved by NIOSH and MSHA. MSHA estimates that the cost of a CPDM could range between $8,000 and $12,000 (for an average of $10,000 per device). Thus, the cost to provide two CPDMs with the application and one subsequent to the approval of the application is estimated to be $30,000 (3 CPDMs × $10,000 per CPDM). The annualized cost is $2,100 ($30,000 × 0.07).

D. Economic and Technological Feasibility

MSHA received no comments on the feasibility analysis, and, is therefore restating the feasibility analysis from the proposed rule. Although the CPDM is a new type of sampling device, the final rule is technologically feasible. The device has been developed and successfully tested in underground coal mines. This final rule puts in place the necessary requirements to enable an applicant to seek NIOSH and MSHA approval of a CPDM for use in coal mines. The one-time, first year cost to obtain an approval for the CPDM is estimated to be approximately $293,000. MSHA concludes that the final rule is economically feasible.

V. Regulatory Flexibility Act and Small Business Regulatory Enforcement Fairness Act

Pursuant to the Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA), MSHA has analyzed the impact of the final rule on small entities. Based on that analysis, MSHA has notified the Chief Counsel for Advocacy, Small Business Administration, and made the certification under the Regulatory Flexibility Act at 5 U.S.C. 605(b) that the final rule does not have a significant economic impact on a substantial number of small entities.

The final rule updates requirements for the existing CMDPSU and establishes procedures and requirements for approving a new technology, or CPDM, for use in coal mines. A manufacturer of a CPDM receiving an approval would be able to market the device. The U.S. market might also serve as a basis for marketing the device internationally.

Currently, the new CPDM cannot be approved because the existing design specifications of 30 CFR Part 74 provide for the approval of only one, substantially different type of technology, for monitoring concentrations of respirable dust in coal mine atmospheres. NIOSH's evaluation of the design and performance of the CPDM has provided the empirical basis for the approval requirements in the final rule requirements. Accordingly, MSHA has determined that this final rule fosters the commercialization of the CPDM.

Since the final rule does not impact the manufacturer of the existing sampler and permits the approval of the new CPDM, MSHA concludes that it will not have a significant economic impact on a substantial number of small entities.

VI. Paperwork Reduction Act of 1995

The final rule will impose estimated information collection requirements of 41 burden hours which are related to filing approval applications required by final § 74.13. This burden occurs in the first year that the rule is in effect. MSHA estimates that it takes an engineer 40 hours to compile the material for the application, and a clerical employee 1 hour to prepare and send four copies of the application (0.25 hours per application × 4 copies). Two copies of the application need to be sent to both NIOSH and MSHA. Based on hourly wage rates of $74.32 for an engineer and $26.37 for a clerical employee, the related burden costs are estimated to be approximately $3,000 (40 hrs. × $74.32)

rate of return to private capital in the U.S. economy. It is a broad measure that reflects the returns to real estate and small business capital as well as corporate capital.

+ (0.25 hrs. × $26.37 × 4 copies). The final burden will be accounted for in OMB control No. 1219–0066 which contains the burden for applications filed with MSHA that involve intrinsic safety testing.

VII. Other Regulatory Considerations

A. The Unfunded Mandates Reform Act of 1995

MSHA has reviewed the final rule under the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1501 *et seq.*). MSHA has determined that this final rule does not include any Federal mandate that may result in increased expenditures by State, local, or Tribal governments; nor will it increase private sector expenditures by more than $100 million in any one year or significantly or uniquely affect small governments. Accordingly, the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1501 *et seq.*) requires no further agency action or analysis.

B. The Treasury and General Government Appropriations Act of 1999: Assessment of Federal Regulations and Policies on Families

This final rule has no effect on family well-being or stability, marital commitment, parental rights or authority, or income or poverty of families and children. Accordingly, § 654 of the Treasury and General Government Appropriations Act of 1999 (5 U.S.C. 601 note) requires no further agency action, analysis, or assessment.

C. Executive Order 12630: Government Actions and Interference With Constitutionally Protected Property Rights

The final rule does not implement a policy with takings implications. Accordingly, E.O. 12630 requires no further Agency action or analysis.

D. Executive Order 12988: Civil Justice Reform

The final rule was written to provide a clear legal standard for affected conduct and was carefully reviewed to eliminate drafting errors and ambiguities, so as to minimize litigation and undue burden on the Federal court system. Accordingly, the final rule meets the applicable standards provided in § 3 of E.O. 12988.

E. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The final rule has no adverse impact on children. Accordingly, E.O. 13045 requires no further Agency action or analysis.

F. Executive Order 13132: Federalism

The final rule does not have "federalism implications" because it does not "have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." Accordingly, E.O. 13132, requires no further Agency action or analysis.

G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

The final rule does not have "Tribal implications" because it does not "have substantial direct effects on one or more Indian Tribes, on the relationship between the Federal government and Indian Tribes, or on the distribution of power and responsibilities between the Federal government and Indian Tribes." Accordingly, E.O. 13175 requires, no further Agency action or analysis.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

Executive Order 13211 requires agencies to publish a statement of energy effects when a rule has a significant energy action that adversely affects energy supply, distribution, or use. The final rule only addresses the approval of coal mine dust sampling devices. As stated previously, this rule does not address their particular use in coal mines. Therefore, the final rule does not affect coal mines, nor does it have a significant energy action that adversely affects energy supply, distribution, or use. Accordingly, MSHA has concluded that the final rule is not a "significant energy action" because it is not "likely to have a significant adverse effect on the supply, distribution, or use of energy * * * (including a shortfall in supply, price increases and increased use of foreign supplies)." Accordingly, E.O. 13211 requires no further Agency action or analysis.

I. Executive Order 13272: Proper Consideration of Small Entities in Agency Rulemaking

MSHA has reviewed the final rule to assess and take appropriate account of its potential impact on small businesses, small governmental jurisdictions, and small organizations. MSHA has determined and certified that the final rule does not have a significant economic impact on a substantial number of small entities.

List of Subjects in 30 CFR Part 74

Incorporation by reference, Mine safety and health, Occupational safety and health, Direct reading devices, Monitoring technology.

Dated: March 29, 2010.

Joseph A. Main

Assistant Secretary of Labor for Mine Safety and Health.

■ For the reasons set out in the preamble, and under the authority of the Federal Mine Safety and Health Act of 1977 as amended by the Mine Improvement and New Emergency Response Act of 2006, MSHA is amending chapter I of title 30 of the Code of Federal Regulations by revising part 74 to read as follows:

PART 74—COAL MINE DUST SAMPLING DEVICES

Subpart A—General

Subpart B—Approval Requirements for Coal Mine Dust Personal Sampler Unit

Subpart C—Requirements for Continuous Personal Dust Monitors (CPDMs)

Subpart D—General Requirements for All Devices

Authority: 30 U.S.C. 957.

Subpart A—General

§ 74.1 Purpose.

The regulations in this part set forth the requirements for approval of coal mine dust sampling devices for determining the concentrations of respirable dust in coal mine atmospheres; procedures for applying for such approval; test procedures; and labeling.

§ 74.2 Definitions.

(a) *Accuracy:* the ability of a continuous personal dust monitor

(CPDM) to determine the "true" concentration of the environment sampled. Accuracy describes the closeness of a typical measurement to the quantity measured, although it is defined and expressed in terms of the relative discrepancy of a typical measurement from the quantity measured. The accuracy of a CPDM is the theoretical maximum error of measurement, expressed as the proportion or percentage of the amount being measured, without regard for the direction of the error, which is achieved with a 0.95 probability by the method.

(b) *Bias:* the uncorrectable relative discrepancy between the mean of the distribution of measurements from a CPDM and the true concentration being measured.

(c) *Coal mine dust personal sampler unit (CMDPSU):* a personal device for measuring concentrations of respirable dust in coal mine atmospheres that meets the requirements specified under Subpart B of this part.

(d) *Continuous personal dust monitor (CPDM):* a sampling device for continuously measuring concentrations of respirable dust in coal mine atmospheres that reports within-shift and end-of shift measurements of dust concentrations immediately upon the completion of the period of exposure that was monitored and that meets the requirements specified under Subpart C of this part.

(e) *ISO:* the International Organization for Standardization, an international standard-setting organization composed of representatives from various national standards-setting organizations. ISO produces industrial and commercial voluntary consensus standards used worldwide.

(f) *Precision:* the relative variability of measurements from a homogeneous atmosphere about the mean of the population of measurements, divided by the mean at a given concentration. It reflects the ability of a CPDM to replicate measurement results.

Subpart B—Approval Requirements for Coal Mine Dust Personal Sampler Unit

§ 74.3 Sampler unit.

A CMDPSU 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.

§ 74.4 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 4 inches (10 centimeters) in height, 4 inches (10 centimeters) in width, and 2 inches (5 centimeters) in thickness.

(2) *Weight.* The pump unit shall not weigh more than 20 ounces (567 grams).

(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, shall be tight fitting to minimize the amount of dust entering the pump case, and shall be designed to protect against radio frequency interference and electromagnetic interference.

(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 paragraph, the pump unit shall be equipped with a suitable means of flow rate adjustment accessible from outside the case. The flow rate adjuster shall be recessed in the pump case and protected against accidental adjustment. 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.* (i) The irregularity in flow rate due to pulsation shall have a fundamental frequency of not less than 20 Hz.

(ii) The quantity of respirable dust collected with a sampler unit shall be within ±5 percent of that collected with a sampling head assembly operated with nonpulsating flow.

(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 shall be provided either as an integral part of the pump unit or of the sampling head assembly. The flow rate indicator shall be calibrated within ±5 percent at 2.2, 2.0, and 1.7 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 within 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 at least a 10-hour period when the pump is operated at 2 liters per minute with a standard sampling head assembly.

(14) *Flow restriction indicator.* The pump shall be capable of detecting restricted flow and providing a visual indication if it occurs. The flow restriction indicator shall remain activated until the cause is corrected. The pump shall shut down automatically if flow is restricted for one minute.

(15) *Duration of operation.* The pump with a fully charged battery pack shall be capable of operating for (i) not less than 8 hours at a flow rate of 2 liters per minute against a resistance of 25 inches (64 centimeters) of water measured at the inlet of the pump; and (ii) for not less than 10 hours at a flow rate of 2 liters per minute against a resistance of 15 inches (38 centimeters) of water measured at the inlet of the pump.

(16) *Low battery indicator.* The pump unit shall be equipped with a visual indicator of low battery power.

(17) *Elapsed time indicator.* The pump unit shall be capable of displaying the actual pump run time in minutes (up to 999 minutes) and retaining the last reading after the pump is shut down due to either a flow restriction described in paragraph (a)(14) of this section or low battery power described in paragraph (a)(16) of this section or at the end of the sampling shift.

(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 millimeter 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 micrometers. It shall be nonhydroscopic and shall not dissolve or decompose when immersed

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 exceed 2 inches (0.5 centimeters) 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 and shall prevent visual inspection of the filter surface or filter loading. The capsule shall be made of nonhydroscopic material. Its weight, including the enclosed filter, shall not exceed 5 grams and it shall be pre-weighed by the manufacturer with a precision of ± 0.001 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 and intentional or inadvertent alteration of dust deposited on the filter. The cassette must be easily removable without causing a loss or gain of capsule weight. The cassette shall be designed to prevent contaminants from entering or dust from leaving the capsule when it is not in use, and to prevent the reversal of airflow through the capsule or other means of removing dust collected on the filter.

(3) *Arrangement of components.* The connections between the cyclone vortex finder and the capsule and between the capsule and the ¼-inch (0.64 centimeters) (inside diameter) hose mentioned in paragraph (b)(5) of this section 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 (10 centimeters) 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 (91 centimeter) long, ¼-inch (0.64 centimeters) (inside diameter) clear plastic 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 110 (VAC) (nominal), 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 fully recharging the battery in the pump unit within 16 hours.

§ 74.5 Tests of coal mine dust personal sampler units.

(a) The National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, shall conduct tests to determine whether a CMDPSU that is submitted for approval under these regulations meets the requirements set forth in § 74.4.

(b) The Mine Safety and Health Administration (MSHA), Department of Labor, will conduct tests and evaluations to determine whether the pump unit of a CMDPSU that is submitted for approval under these regulations complies with the applicable permissibility provisions of 30 CFR 18.68.

§ 74.6 Quality control.

The applicant shall describe the way in which each lot of components will be sampled and tested to maintain its quality prior to assembly of each sampler unit. In order to assure that the quality of the CMDPSU will be maintained in production through adequate quality control procedures, MSHA and NIOSH 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 CMDPSU or the pump unit thereof shall accompany an application provided under § 74.13 of this part.

Subpart C—Requirements for Continuous Personal Dust Monitors

§ 74.7 Design and construction requirements.

(a) *General requirement.* Continuous Personal Dust Monitors (CPDMs) shall be designed and constructed for coal miners to wear and operate without impeding their ability to perform their work safely and effectively, and shall be sufficiently durable to perform reliably in the normal working conditions of coal mines.

(b) *Ergonomic design testing.* Prior to submitting an application under § 74.13, the applicant shall develop a testing protocol and test the CPDM to assure that the device can be worn safely, without discomfort, and without impairing a coal miner in the performance of duties throughout a full work shift. The results of the test shall also demonstrate that the device will operate consistently throughout a full work shift under representative working conditions of underground coal miners, including representative types and durations of physical activity, tasks, and changes in body orientation.

(1) The testing protocol shall specify that the tests be conducted in one or more active mines under routine operating conditions during production shifts.

(2) The applicant shall submit the testing protocol, in writing, to NIOSH for approval prior to conducting such testing.

(3) The applicant shall include the testing protocol and written test results in the application submitted to NIOSH as specified in § 74.13.

(4) NIOSH will advise and assist the applicant, as necessary, to develop a testing protocol and arrange for the conduct of testing specified in this paragraph.

(5) NIOSH may further inspect the device or conduct such tests as it deems necessary to assure the safety, comfort, practicality, and operability of the device when it is worn by coal miners in the performance of their duties.

(6) NIOSH may waive the requirement for the applicant to conduct testing under paragraph (b) of this section if NIOSH determines that such testing is unnecessary to assure the safety, comfort, practicality, and operability of the device when it is worn by coal miners in the performance of their duties.

(c) *Maximum weight.* A CPDM shall not add more than 2 kg to the total weight carried by the miner. CPDMs that are combined with other functions, such as communication or illumination, may exceed 2 kg provided that the total added weight carried by the miner does not exceed 2 kg.

(d) *Dust concentration range.* The CPDM shall measure respirable coal mine dust concentrations accurately, as specified under § 74.8, for an end-of-shift average measurement, for concentrations within a range from 0.2 to 4.0 mg/m^3 for respirable coal mine dust. For end-of-shift average concentrations exceeding 4.0 mg/m^3, the CPDM shall provide a reliable

indication that the concentration exceeded 4.0 mg/m^3.

(e) *Environmental conditions.* The CPDM shall operate reliably and accurately as specified under § 74.8, under the following environmental conditions:

(1) At any ambient temperature and varying temperatures from minus 30 to plus 40 degrees centigrade;

(2) At any atmospheric pressure from 700 to 1000 millibars;

(3) At any ambient humidity from 10 to 100 percent relative humidity; and

(4) While exposed to water mists generated for dust suppression and while monitoring atmospheres including such water mists.

(f) *Electromagnetic interference.* The CPDM shall meet the following standards for control of and protection from electromagnetic interference.

(1) For emissions control, operators must follow: IEEE Std C95.1–2005, (IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz) and 47 CFR 15.1 through 15.407 (FCC Radio Frequency Devices). Persons must proceed in accordance with IEEE Std C95.1–2005 (IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz).

(i) The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Persons may obtain a copy from: American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036. *http://www.ansi.org.*

(ii) Persons may inspect a copy at MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209–3939, (202) 693–9440, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(2) For immunity/susceptibility protection, operators must follow: IEC 61000–4–6, International Standard (Electromagnetic compatibility—Part 4–6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields), Edition 3.0, 2008–10. Persons must proceed in accordance with IEC 61000–4–6, International Standard (Electromagnetic compatibility—Part 4–6: Testing and measurement techniques—Immunity to conducted disturbances, induced by radio-frequency fields), Edition 3.0, 2008–10. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(i) Persons may obtain a copy from the International Electrotechnical Commission at the address provided below:

International Electrotechnical Commission, IEC Central Office, 3, rue de Varembé, P.O. Box 131, CH–1211 GENEVA 20, Switzerland. *http://www.standardsinfo.net.*

(ii) Persons may inspect a copy at MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209–3939, (202) 693–9440, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(g) *Durability testing.* The CPDM shall be designed and constructed to remain safe and measure respirable coal mine dust concentrations accurately, as specified under § 74.8 of this section after undergoing the following durability tests, which NIOSH will apply to test devices prior to their use in further testing under § 74.8 of this-subpart:

Vibration	Mil-Std-810F, 514.5	U.S. Highway Vibration, Restrained Figure 514.5C–1.	1 Hours/Axis, 3 Axis; Total Duration = 3 Hrs, equivalent to 1,000 miles.
Drop	3-foot drop onto bare concrete surface	In standard in-use configuration	1 drop per axis (3 total).

(1) Persons must proceed in accordance with Mil-Std-810F, 514.5, Department of Defense Test Method for Environmental Engineering Considerations and Laboratory Tests, 1 January 2000. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Persons may obtain a copy from the U.S. Department of Defense at the address provided below.

ASC/ENOI, Bldg. 560, 2530 Loop Road West, Wright-Patterson AFB OH 45433–7101. *http://www.dtc.army.mil/navigator/.*

(2) Persons may inspect a copy at MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209–3939, (202) 693–9440, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(h) *Reporting of monitoring results.*

(1) The CPDM shall report continuous monitoring results legibly or audibly during use. A digital display, if used, shall be illuminated and shall provide a minimum character height of 6 millimeters. Other forms of display (*e.g.,* analogue) must provide comparable visibility. Auditory reporting, if used, shall be clear, have adjustable volume, and provide means for the user to obtain data reports repetitively. The CPDM shall also report end-of-shift results using computer software compatible with current, commonly used personal computer technology.

(2) The CPDM shall report results as cumulative mass concentration in units of mass per volume of air (mg/m^3) with two significant figures of accuracy rounded as customary.

(i) *Power requirements.* The power source of the CPDM shall have sufficient capacity to enable continuous sampling for 12 hours in a coal mine dust atmosphere of up to 4.0 mg/m^3. If the CPDM uses a rechargeable battery, the battery charger shall be operated from a 110 (VAC) (nominal), 60 Hz power line.

(j) *Flow stability and calibration of pump.* If a pump is used, the flow shall not vary more than ±5 percent of the calibrated flow for 95 percent of samples taken for any continuous duration for up to 12 hours. The flow calibration maintenance interval to assure such performance shall be specified in the calibration instructions for the device.

(k) *Battery check.* If the CPDM uses a rechargeable battery, the CPDM shall have a feature to indicate to the user that the device is sufficiently charged to operate and provide accurate measurements for an entire shift of 12 hours under normal conditions of use.

(l) *Integration with other personal mining equipment.*

(1) If the CPDM is integrated or shares functions with any other devices used in mines, such as cap lights or power sources, then the applicant shall obtain

approvals for such other devices, prior to receiving final certification of the CPDM under this section.

(2) A CPDM that is integrated with another device shall be tested, according to all the requirements under this part, with the other device coupled to the CPDM and operating.

(m) *Tampering safeguards or indicators.* The CPDM shall include a safeguard or indicator which either prevents intentional or inadvertent altering of the measuring or reporting functions or indicates that the measuring or reporting functions have been altered.

(n) *Maintenance features.* The CPDM shall be designed to assure that the device can be cleaned and maintained to perform accurately and reliably for the duration of its service life.

§ 74.8 Measurement, accuracy, and reliability requirements.

(a) *Breathing zone measurement requirement.* The CPDM shall be capable of measuring respirable dust within the personal breathing zone of the miner whose exposure is being monitored.

(b) *Accuracy.* The ability of a CPDM to determine the true concentration of respirable coal mine dust at the end of a shift shall be established through testing that demonstrates the following:

(1) For full-shift measurements of 8 hours or more, a 95 percent confidence that the recorded measurements are within ± 25 percent of the true respirable dust concentration, as determined by CMDPSU reference measurements, over a concentration range from 0.2 to 4.0 mg/m^3; and

(2) For intra-shift measurements of less than 8 hours, a 95 percent confidence that the recorded measurements are within ± 25 percent of the true respirable dust concentration, as determined by CMDPSU reference measurements, over the concentration range equivalent to 0.2 to 4.0 mg/m^3 for an 8-hour period.[1]

(c) *Reliability of measurements.* The CPDM shall meet the accuracy requirements under paragraph (b) of this section, regardless of the variation in density, composition, size distribution of respirable coal mine dust particles, and the presence of water spray mist in coal mines.

(d) *Precision.* The precision of the CPDM shall be established through testing to determine the variability of multiple measurements of the same dust concentration, as defined by the relative standard deviation of the distribution of measurements. The relative standard deviation shall be less than 0.1275 without bias for both full-shift measurements of 8 hours or more, and for intra-shift measurements of less than 8 hours within the dust concentration range equivalent to 0.2 to 4.0 mg/m^3 for an 8-hour period, as specified under paragraph (b)(2) of this section.

(e) *Bias.* The bias of the CPDM measurements shall be limited such that the uncorrectable discrepancy between the mean of the distribution of measurements and the true dust concentration being measured during testing shall be no greater than 10 percent. Bias must be constant over the range of dust concentration levels tested, 0.2 to 4.0 mg/m^3 for an 8-hour sampling period.

(f) *Testing conditions.* Laboratory and mine testing of the CPDM for accuracy, precision, bias, and reliability under diverse environmental conditions (as defined under § 74.7(e) and (g)) shall be determined using the NIOSH testing procedure, "Continuous Personal Dust Monitor Accuracy Testing," June 23, 2008, available at: *http://www.cdc.gov/niosh/mining/pubs/pubreference/outputid3076.htm.* All testing results shall be submitted to NIOSH in writing on the application filed under § 74.11.

(1) Persons must proceed in accordance with NIOSH testing procedure "Continuous Personal Dust Monitor Accuracy Testing," June 23, 2008. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Persons may obtain a copy at the address below: NIOSH–Publications Dissemination, 4676 Columbia Parkway, Cincinnati, OH 45226. *http://www.cdc.gov/niosh/mining.*

(2) Persons may inspect a copy at MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209–3939, (202) 693–9440, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

§ 74.9 Quality assurance.

(a) *General requirements.* The applicant shall establish and maintain a quality control system that assures that CPDM devices produced under the applicant's certificate of approval meet the required specifications and are reliable, safe, effective, and otherwise suitable for their intended use. To establish and to maintain an approval under this part, the applicant shall:

(1) Submit a copy of the most recent registration under ISO Q9001–2000, American National Standard, Quality Management Systems-Requirements, published by ISO:

(i) With the application for approval under § 74.13 of this part; and

(ii) Upon request by NIOSH, subsequent to the approval of a CPDM under this part.

(2) Persons must proceed in accordance with ISO Q9001–2000, American National Standard, Quality Management Systems-Requirements. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Persons may obtain a copy from the International Organization for Standardization at the address provided below.

International Organization for Standardization, ISO Central Secretariat, 1, ch. de la Voie-Creuse, Case Postale 56, CH–1211 GENEVA 20, Switzerland. *http://www.standardsinfo.net.*

(3) Persons may inspect a copy at MSHA, Office of Standards, Regulations, and Variances, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209–3939, (202) 693–9440, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) *Quality management audits.* Upon request, applicants or approval holders must allow NIOSH to inspect the quality management procedures and records, and to interview any employees who may be knowledgeable of quality management processes associated with the production of the CPDM. Audits may be conducted either on an occasional or periodic basis or in response to quality-related complaints or concerns.

(c) *Applicant remediation of quality management deficiencies.* An applicant or approval holder must correct any quality management deficiency identified by an audit within a

[1] The equivalent dust concentration range to the 8-hour range of 0.2 − 4 mg/m^3 is calculated by multiplying this 8-hour range by the dividend of eight hours divided by the duration of the intrashift measurement specified in units of hours. For example, for a measurement taken at exactly one hour into the shift, the 8-hour equivalent dust concentration range would be a one-hour average concentration range of: 8 hours/1 hour × (0.2 − 4 mg/m^3) = 1.6 − 32 mg/m^3; for a two-hour measurement, the applicable concentration range would be calculated as: 8 hours/2 hours × (0.2 − 4 mg/m^3) = 0.8 − 16 mg/m^3; for a 4-hours measurement, the equivalent range would be: 0.4 − 8 mg/m^3; * * * *etc.* A CPDM must perform accurately, as specified, for intrashift measurements within such equivalent concentration ranges.

reasonable time as determined by NIOSH. Failure to correct a deficiency may result in NIOSH disapproval of a pending application or, in the case of an approved device, revocation of approval until NIOSH determines that the deficiency is corrected.

§ 74.10 Operating and maintenance instructions.

(a) *Contents.* The manufacturer must include operating and storage instructions and a maintenance and service life plan with each new CPDM device sold. These documents must be clearly written.

(1) Operating and storage instructions must include:

(i) An explanation of how the CPDM works;

(ii) A schematic diagram of the CPDM;

(iii) Procedures for wearing and use of the CPDM;

(iv) A one page "quick start guide" that will enable a novice to start and operate the CPDM.

(v) Procedures for calibration of the CPDM;

(vi) Procedures for inspecting the operating condition of the CPDM;

(vii) Procedures and conditions for storage, including the identification of any storage conditions that would likely impair the effective functioning of the CPDM; and

(viii) Procedures and conditions of use, including identification of any conditions of use that would likely impair the effective functioning of the CPDM.

(2) The maintenance and service life plan must address:

(i) Conditions that should govern the removal from service of the CPDM; and

(ii) Procedures that a user or others should follow when inspecting, performing maintenance and calibration, and determining when the CPDM should be removed from service.

(b) *Submission to NIOSH for approval.* A copy of the instructions and plan under paragraph (a) of this section shall be submitted to NIOSH with the application for approval of the CPDM and if substantive changes are made to the approved device or approved instructions.

§ 74.11 Tests of the continuous personal dust monitor.

(a) *Applicant testing.* The applicant shall conduct tests to determine whether a CPDM that is submitted for approval under these regulations meets the requirements specified in §§ 74.7–74.8 of this part, with the exception of durability testing, which shall be conducted by NIOSH as specified in § 74.7(g) of this part. Applicant testing shall be performed by an independent testing entity approved by NIOSH.

(b) *NIOSH testing assistance.* NIOSH will provide consultation to the applicant to identify and secure necessary testing services for meeting the requirements specified in §§ 74.7–74.8 of this part. Applicants must submit testing protocols to NIOSH prior to testing to verify that the testing protocols adequately address the requirements.

(c) *Reporting of applicant testing results.* The applicant shall include the results from testing specified under paragraph (a) of this section when submitting the application under § 74.13 of this part to NIOSH.

(d) *Intrinsic safety testing.* The applicant shall submit the CPDM to MSHA for testing and evaluation, pursuant to 30 CFR 18.68, to determine whether the electronic components of the CPDM submitted for approval meet the applicable permissibility provisions.

Subpart D—General Requirements for All Devices

§ 74.12 Conduct of tests; demonstrations.

(a) Prior to the issuance of a certificate of approval, only personnel of MSHA and NIOSH, representatives of the applicant, and such other persons as may be mutually agreed upon may observe the tests conducted. MSHA and NIOSH shall hold as confidential, and shall not disclose, principles of patentable features, nor shall MSHA or NIOSH disclose any details of the applicant's drawings or specifications or other related material.

(b) After the issuance of a certificate of approval, MSHA or NIOSH will conduct such public demonstrations and tests of the approved device as MSHA or NIOSH deem appropriate, and may reveal the protocols and results of testing considered for the approval of the device. The conduct of any additional investigations, tests, and demonstrations shall be under the sole direction of MSHA and NIOSH and any other persons shall be present only as observers.

§ 74.13 Applications.

(a) Testing of a CMDPSU will be performed by NIOSH, and testing of the pump unit of the CMDPSU will be conducted by MSHA. The applicant must submit a written application in duplicate to both NIOSH and MSHA. Each copy of the application must be accompanied by complete scale drawings, specifications, and a description of materials. Ten complete CMDPSUs must be submitted to NIOSH with the application, and one pump unit must be submitted to MSHA.

(b) Testing of a CPDM will be performed by the applicant as specified under § 74.11. The applicant must submit a written application in duplicate to both NIOSH and MSHA. Each copy of the application must be accompanied by complete scale drawings, specifications, a description of materials, and a copy of the testing protocol and test results which were provided by an independent testing entity, as specified in § 74.11(a). Three complete CPDM units must be sent to NIOSH with the application, and one CPDM device must be sent to MSHA.

(c) Complete drawings and specifications accompanying each copy of the application shall be fully detailed to identify the design of the CMDPSU or pump unit thereof or of the CPDM and to disclose the dimensions and materials of all component parts.

§ 74.14 Certificate of approval.

(a) Upon completion of the testing of a CMDPSU or the pump unit or after review of testing protocols and testing results for the CPDM, NIOSH or MSHA, as appropriate, shall issue to the applicant either a certificate of approval or a written notice of disapproval. NIOSH will not issue a certificate of approval unless MSHA has first issued a certificate of approval for either the pump unit of a CMDPSU or for the CPDM. 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 CMDPSU and the pump unit, or of the CPDM, as appropriate, upon which the certificate of approval is based. The applicant shall keep exact duplicates of the drawings and specifications submitted to NIOSH and to MSHA relating to the CMDPSU, the pump unit thereof, or the CPDM, which has received a certificate of approval. The approved drawings and specifications shall be adhered to exactly in the production of the certified CMDPSU, including the pump unit or of the CPDM, for commercial purposes. In addition, the applicant shall observe such procedures for, and keep such records of, the control of component parts as either MSHA or NIOSH may in writing require as a condition of approval.

§ 74.15 Approval labels.

(a) Certificate of approval will be accompanied by photographs of designs for the approval labels to be affixed to each CMDPSU or CPDM, as appropriate.

(b) The labels showing approval by NIOSH and by MSHA shall contain such information as MSHA or NIOSH may require and shall be reproduced legibly on the outside of a CMDPSU or CPDM, as appropriate, as directed by NIOSH or MSHA.

(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 sampling device.

(d) Use of the approval labels obligates the applicant to whom the certificate of approval was issued to maintain the quality of the complete CMDPSU or CPDM, as appropriate, and to guarantee that the complete CMDPSU or CPDM, as appropriate, is manufactured or assembled according to the drawings and specifications upon which the certificate of approval was based. Use of the approval labels is authorized only on CMDPSUs or CPDMs, as appropriate, that conform to the drawings and specifications upon which the certificate of approval we based.

§ 74.16 Material required for record.

(a) As part of the permanent record of the approval application process, NIOSH will retain a complete CMDPSU or CPDM, as appropriate, and MSHA will retain a CMDPSU or CPDM, as appropriate, that has been tested and certified. Material not required for record purposes will be returned to the applicant at the applicant's request and expense upon receipt of written shipping instructions by MSHA or NIOSH.

(b) As soon as a CMDPSU or CPDM, as appropriate, is commercially available, the applicant shall deliver a complete sampling device free of charge to NIOSH at the address specified on the NIOSH Web page: *http://www.cdc.gov/niosh/mining*.

§ 74.17 Changes after certification.

(a) If the applicant desires to change any feature of a certified CMDPSU or a certified CPDM, the applicant shall first obtain the approval of NIOSH 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.

(2) The application and accompanying material will be examined by NIOSH to determine whether testing of the modified CMDPSU or CPDM or components will be required. Testing will be necessary if there is a possibility that the modification may adversely affect the performance of the CMDPSU or CPDM. NIOSH 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 CMDPSU or in electrical components of a CPDM, the approval of MSHA with respect to intrinsic safety shall be obtained in accordance with the procedures set forth in § 74.11(d).

§ 74.18 Withdrawal of certification.

Any certificate of approval issued under this part may be revoked for cause by NIOSH or MSHA which issued the certificate.

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DEPARTMENT OF LABOR

Mine Safety and Health Administration

30 CFR Parts 18 and 75

RIN 1219–AB34

High-Voltage Continuous Mining Machine Standard for Underground Coal Mines

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Final rule.

SUMMARY: This final rule revises the Mine Safety and Health Administration's (MSHA's) electrical safety standards for the installation, use, and maintenance of high-voltage continuous mining machines in underground coal mines. It also revises MSHA's design requirements for approval of these mining machines. The final rule will allow mine operators to use high-voltage continuous mining machines with enhanced safety protection against fires, explosions, and shock hazards and will facilitate the use of advanced equipment designs.

DATES: The final rule is effective on June 7, 2010. The incorporation by reference in this rule is approved by the Director of the Federal Register as of June 7, 2010.

FOR FURTHER INFORMATION CONTACT: Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA, 1100 Wilson Boulevard, Room 2350, Arlington, Virginia 22209–3939. Ms. Silvey can be reached at *silvey.patricia@dol.gov* (e-mail), 202–693–9440 (voice), or 202–693–9441 (facsimile). (These are not toll-free numbers.)

SUPPLEMENTARY INFORMATION: The outline of this final rule is as follows: